



IEEE

*Advancing Technology
for Humanity*

**2021
ANNUAL REPORT**

**OUR SHARED
COMMITMENT
TO THE FUTURE**



Above: Attendees of the 2021 IEEE International Microwave Symposium (IMS) held in Atlanta, Georgia
Photo Courtesy of: LylePhotos

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OUR SHARED **COMMITMENT** TO THE FUTURE

With a mission of advancing technology for the benefit of humanity, IEEE remains committed to our members and volunteers. Over the course of the year, we continued to push forward as the world adjusted during a challenging time—and we further strengthened our connections with our community of engineers and technologists to help inspire the next great innovations.

With a shared commitment to the future, IEEE throughout the year was focused on presenting the latest research at its industry-leading conferences, supporting technical and educational activities, fostering groundbreaking technologies and helping our members succeed in countless ways.

Together with our dedicated members and volunteers, we continued to deliver on our mission, while moving confidently into the future and helping to shape the world of tomorrow, today.





Above: IEEE Smart Village volunteer and project developer Mercy Chelangat (third from left) with women of the Natoot Farm, Lodwar, Turkana, Kenya



Message from the IEEE President and the Executive Director

IEEE is an international technical professional organization like no other. IEEE membership brings together engineers and technologists from a wide variety of fields, including computer sciences, information technology, physical science, biological and medical science, mathematics, technical communications, education, management, law, policy and the engineering disciplines. Across the organization, IEEE is committed to strengthening and empowering its members as technology professionals and providing the tools and resources for success, while supporting our mission of advancing technology for the benefit of humanity.

IEEE membership means something different to each individual. For some, being a member means helping to coordinate a technical conference. To others, it may mean chairing a standards working group or editing a publication. For many, IEEE membership provides a means to engage with peers and stay current with the state of the art. Some become members because they want to

support the “boots on the ground” vision of IEEE’s mission to foster technological innovation and excellence for the benefit of humanity.

The entire world benefits from the technical creativity, innovation and imagination of our international community and our shared commitment to improving global conditions.

In 2021, as IEEE transitioned into year two of the global COVID-19 pandemic, our sustained progress reflected our ability to continue to evolve by strengthening opportunities for our membership and developing new operational strategies.

During the year, IEEE began to reopen to in-person activity around the world in phases, which required flexibility and agility as we reacted to the impact of COVID variants. It was encouraging to see many local chapters and sections holding in-person meetings, the reopening of college campuses and the returning vitality of our worldwide student membership.

Across the organization, efforts continued to meet the growing expectation of members and other stakeholders for an inclusive and equitable culture that welcomes, engages and rewards all who contribute to the field.

“IEEE’s mission to foster technological innovation and excellence to benefit humanity requires the talents and perspectives of a diverse global community of individuals with different personal, cultural and technical backgrounds.”

IEEE is committed to offering its members and volunteers a safe and inclusive place for collaborative, collegial technical discourse. At IEEE, we will continue to work to eliminate any barriers that deter our members from participating at their fullest within our communities.

The IEEE Code of Ethics guides IEEE members in all of their professional activities. We spent time in 2021 renewing our commitment to our code of ethics and on reinforcing the value IEEE places on maintaining the highest ethical standards.

To fully support its mission and vision, IEEE seeks to inspire and empower the next generation of technologists. Throughout 2021, we leveraged IEEE’s global reach and the inventiveness of our volunteers to amplify our commitment to Science, Technology, Engineering and Math (STEM) education and to scale up our STEM efforts around the world.

This year, IEEE also delivered on its commitment to financial transparency and the promotion of fiscal responsibility by investing in new tools and processes to better connect IEEE’s financial activities worldwide

and to position IEEE for its future. IEEE acted on requests from its volunteers for improved financial and contracting systems to modernize, simplify and streamline IEEE’s operational activities, while at the same time provide for improved insight, visibility and informed decision making. This overhaul of IEEE’s financial processes and infrastructure helped steer the organization toward a sustainable future by ensuring IEEE has adequate resources to advance its mission and vision.

Across IEEE, our volunteers and members demonstrated an unwavering commitment to our mission, our organization and each other during these challenging times. IEEE demonstrated its agility in responding to the second year of pandemic headwinds by proceeding forward together, by staying focused on our strategic agenda and by never losing sight of IEEE’s mission and our shared commitment to improving global conditions.

In 2021, we saw the true power of science and technology—the life-changing effects that technologists can bring to society. Across IEEE, across the globe, and every day, our members continue to promote, shape and execute IEEE’s great mission of advancing technology for the benefit of humanity.

Sincerely,



Susan K. Land

Susan K. (Kathy) Land
2021 IEEE President and CEO

Stephen P. Welby

Stephen P. Welby
IEEE Executive Director and COO



IEEE By The Numbers 2021

IEEE Xplore®
Digital Library

5,528,965

Total Documents

232,164,917 Total Usage*

91,444

New Journal and
Magazine Articles

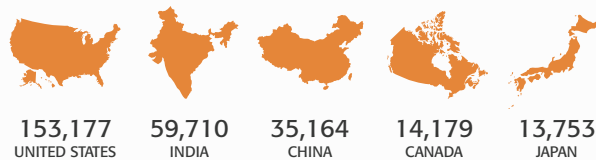
131

Standards Approved
for Publication

409,654

Total Members

Top 5 Countries for Members



125,989

Student Members

Top 5 Countries for Student Members



10 Regions Worldwide

Sections	Student Branches	Chapters
342	3,485	2,562

1,899

IEEE Sponsored Conferences
in 102 Countries

572,000

Conference Attendees
Virtual and In-Person

*PDF downloads and HTML views

IEEE Society Memberships

5,401	IEEE Aerospace and Electronic Systems Society	8,280	IEEE Photonics Society
9,399	IEEE Antennas and Propagation Society	42,805	IEEE Power & Energy Society
1,526	IEEE Broadcast Technology Society	10,936	IEEE Power Electronics Society
10,731	IEEE Circuits and Systems Society	745	IEEE Product Safety Engineering Society
29,697	IEEE Communications Society	554	IEEE Professional Communication Society
8,258	IEEE Computational Intelligence Society	1,578	IEEE Reliability Society
51,985	IEEE Computer Society	15,837	IEEE Robotics and Automation Society
2,955	IEEE Consumer Technology Society	18,409	IEEE Signal Processing Society
8,399	IEEE Control Systems Society	1,709	IEEE Society on Social Implications of Technology
1,870	IEEE Dielectrics and Electrical Insulation Society	10,608	IEEE Solid-State Circuits Society
3,492	IEEE Education Society	5,145	IEEE Systems, Man, and Cybernetics Society
3,497	IEEE Electromagnetic Compatibility Society	2,862	IEEE Technology and Engineering Management Society
9,973	IEEE Electron Devices Society	2,120	IEEE Ultrasonics, Ferroelectrics, and Frequency Control Society
2,496	IEEE Electronics Packaging Society	5,860	IEEE Vehicular Technology Society
10,527	IEEE Engineering in Medicine and Biology Society		
5,895	IEEE Geoscience and Remote Sensing Society		
14,121	IEEE Industry Applications Society		
10,660	IEEE Industrial Electronics Society		
4,018	IEEE Information Theory Society		
3,875	IEEE Instrumentation and Measurement Society		
2,517	IEEE Intelligent Transportation Systems Society		
2,688	IEEE Magnetics Society		
11,140	IEEE Microwave Theory and Techniques Society		
3,634	IEEE Nuclear and Plasma Sciences Society		
1,795	IEEE Oceanic Engineering Society		

347,997 Total Society Memberships

Bottom Right: Attendees of the 2021 IEEE International Microwave Symposium (IMS) held in Atlanta, Georgia

Photo Courtesy of: LylePhotos

Bottom Left: GLOBECOM 2021 Co-Chair Ana Garcia Armada



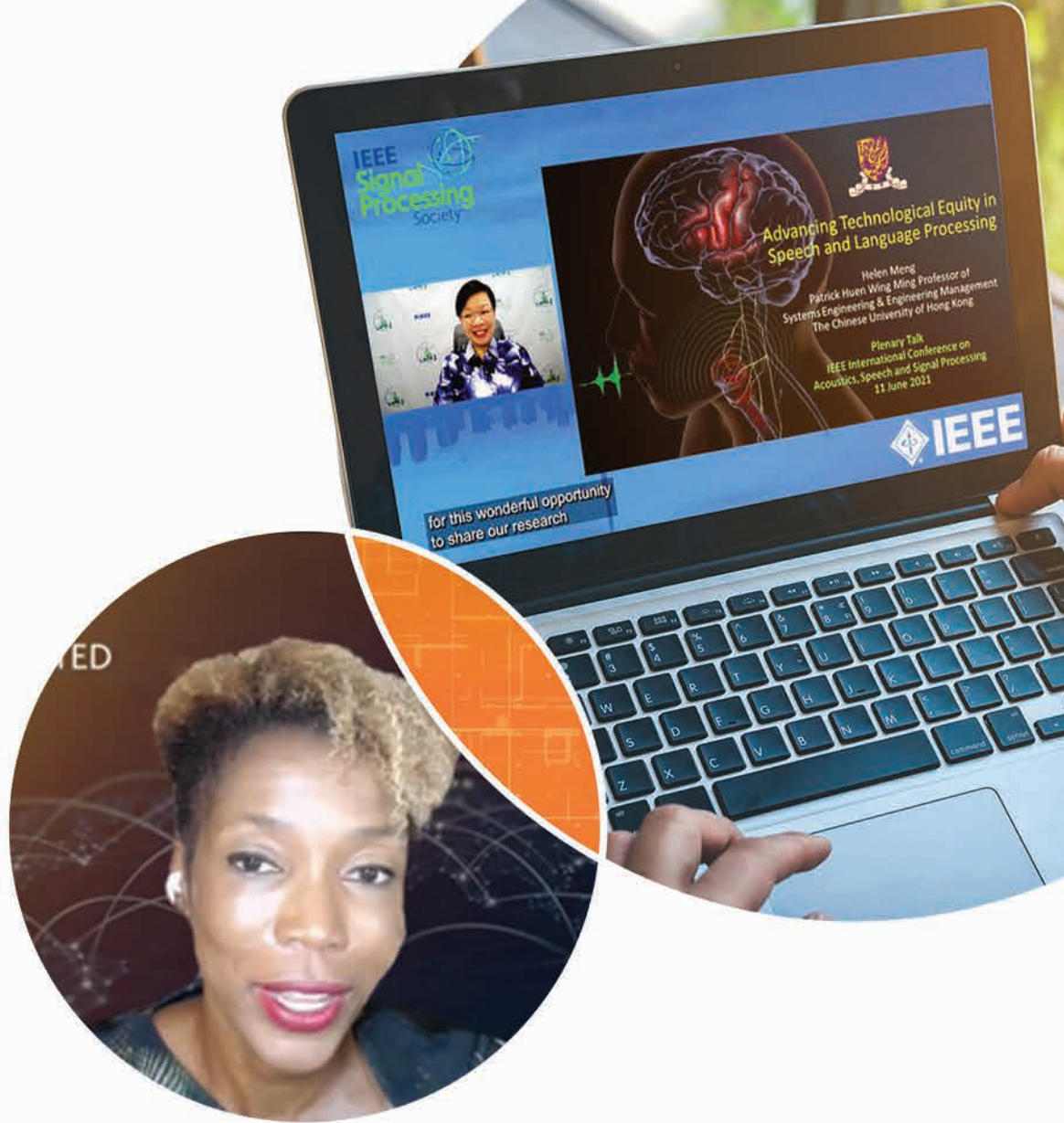


Top Left: Attendees of the 2021 IEEE International Microwave Symposium (IMS) held in Atlanta, Georgia

Photo Courtesy of: LylePhotos

Center Right: Alex-Handrah Aimé, director of network investments for Meta, speaking virtually at the Connecting the Unconnected Inaugural Conference and Competition

Top Right: IEEE Signal Processing Society volunteer Helen Meng, IEEE Fellow, was the plenary speaker at the International Conference on Acoustics, Speech, and Signal Processing (ICASSP 2021)



THE DRIVING SPIRIT OF TECHNOLOGY

IEEE remained committed to fostering technological innovation through its diverse conferences, publications, technology standards and professional and educational activities. Although the pandemic prompted a reimagining of our events, this was an unparalleled year for IEEE as we transitioned forward, resulting in many successful in-person and hybrid conferences, as well as a record-breaking number of published papers. Key initiatives also contributed to help move emerging technologies closer to fruition.



Above: Exhibits booth at IEEE GLOBECOM 2021 held in Madrid, Spain

Below: Attendees of the 2021 IEEE International Microwave Symposium (IMS) held in Atlanta, Georgia

Photo Courtesy of: LylePhotos

IEEE Conferences Inspire Great Ideas

IEEE meetings and conferences continued to produce the highest quality technical research, and set a record for the number of papers hosted on IEEE *Xplore*. IEEE also actively moved toward safely holding more in-person meetings over the course of the year, while some events offered hybrid and remote options.

IEEE Conference Highlights



1,899
Conferences



208,000
Papers Published



19%
Had Hybrid
Elements



21%
Had In-Person
Components



Top Right: IEEE GLOBECOM 2021

From left: Co-Chairs Ana Garcia Armada and Rui Dinis presenting a Best Paper Award. Marwa Chaffi of New York University in Abu Dhabi is picking up the award on behalf of her colleague

Center Right: IEEE Life Fellow Vint Cerf giving the keynote at Supercomputing 21 (SC21), held in St. Louis, Missouri



China hosted more in-person events than any other country, including:

- The IEEE Conference on Energy Internet and Energy System Integration, held in Taiyuan, China, featured 500 in-person delegates and an online audience of more than 10,000 attendees, with 845 published papers.
- The 2021 IEEE International Conference on Robotics and Automation (ICRA 2021) was held as a hybrid event with more than 2,500 participants joining virtually and another 885 gathering in-person at the Xi'an International Convention and Exhibition Center to share the latest innovations and debut exciting new technologies in the field.



Events with a hybrid component included:

- The IEEE International Microwave Symposium (IMS2021), one of the largest IEEE-sponsored conferences, held its in-person event in early June at the Georgia World Congress Center in Atlanta, followed by a virtual event two weeks later. Experts discussed topics such as the next generation Wi-Fi systems, and representatives from mobility companies weighed in on how ultra high speed communications systems will continue to impact the industry.
- The IEEE Global Communications Conference (GLOBECOM), held in Madrid, Spain, under the theme of "Connecting Cultures Around the Globe," featured a "Network with the Leaders" program for students and young professionals as well as programming dedicated to women in engineering.



Above: Ceremony honoring the announcement of IEEE CertifAIEd in Vienna, Austria

Vienna Earns AI Ethics Certification

In 2021, Vienna, Austria, became the first city in the world to earn the IEEE CertifAIEd AI Ethics (AIE) Certification, advancing the city's commitment to its digital humanism strategy. Vienna's Digital Humanism Initiative is an international collaboration seeking to build a community of scholars, policy makers and industrial players focused on ensuring that technology development remain centered on human interests. The IEEE CertifAIEd program is focused on building public trust in AI systems and enhancing the confidence in public and private enterprises that realize the benefits of AI ethics.

IEEE SA Open Makes Great Strides

IEEE SA Open, an open-source platform launched in 2020 that bridges the gap between standards developers and other open technical communities to enable creative solutions, was embraced by industry and technical professionals. The platform addresses common challenges faced by the open-source development community, such as lack of engagement in projects, solution incompatibility and complexity around intellectual property licensing.

Key milestones on the platform include:

 **967**
Users

 **422**
Projects

 **144**
Groups



Future Directions: Connecting the Unconnected

In 2021, IEEE crowned the first winners of the Connecting the Unconnected Challenge, a new competition organized by IEEE Future Networks that provides solutions for the digital divide. Winners were selected from more than 250 entries representing 69 nations. Winning entries included an offline-first wireless mesh network for underserved communities, as well as a crowd sourcing platform for the reporting of websites and apps that remain inaccessible to people with disabilities.

Cross-Collaboration on Emerging Projects

Designed as a collaborative effort with IEEE societies and councils to help advance emerging technologies, IEEE Future Directions initiated several projects to provide a forum for sharing broad perspectives in areas including:



IEEE Low-Earth-Orbit (LEO) Satellites & Systems: This project engages with small satellites (CubeSats) and develops ground stations to operate the satellites, while also inspiring students and young engineers to pursue careers in the space sector.



IEEE Smart Lighting: Uniting the expertise of IEEE members from various disciplines, this project advances the science and technology of smart lighting systems, contributing to their optimization.



IEEE Telepresence: Advancing telepresence technology includes enabling a user's remote presence at a different physical location, such as remotely operating equipment in an unsafe environment.

Projects exploring technology solutions in the areas of digital privacy and public safety also provided opportunities for collaboration.





Top Left: 2021 IEEE Day participants

Bottom Left: Teachers work on a hands-on activity during a STEM mentorship program facilitated by the Uganda National Commission for UNESCO with support from IEEE

Top Right: 2021 IEEE President Kathy Land attending a student branch meeting at the University of Alabama in Huntsville

Center Right: IEEE students from the Muthoot Institute of Technology and Science Student Branch in the IEEE Kerala Section build a rover using IEEE Humanitarian Activities Committee (HAC) and Special Interest Group on Humanitarian Technology (SIGHT) project funding to use UVC light to disinfect designated areas at their school

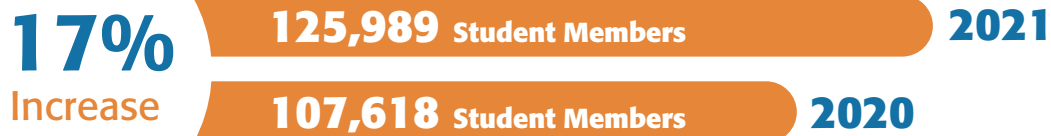


ELEVATING ENGAGEMENT

IEEE members and volunteers are committed and passionate about meeting new challenges and advancing technological innovation to make the world a better place. In 2021, IEEE led numerous initiatives to keep its members engaged in the organization and involved in meaningful projects to support our mission.

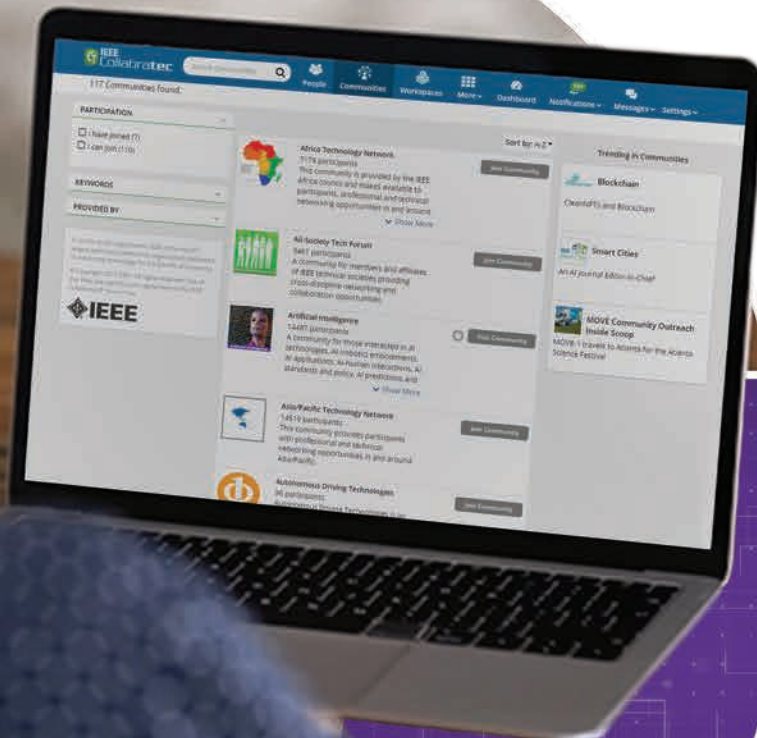
Student Membership Climbs

2021 saw an increase in student membership, with IEEE offering students a great way to accelerate their personal and professional growth and begin building lifelong networks in their areas of interest and future professions. The reopening of colleges and university campuses also re-energized IEEE student branches around the world.



Younger Members Embrace IEEE Collabratec

IEEE Collabratec grew its network to more than 260,000 users, of which 80,000 are IEEE members. One of the year's highlights was the platform's popularity among students to connect with technical professionals with shared interests.





Right: Student and facilitators who participated in the co-branded IEEE REACH/UNESCO pilot program

UNESCO Partnership Empowers Girls in Africa

IEEE continued to drive STEM education opportunities to communities around the world by developing several new programs designed to empower girls in Uganda, Africa to improve their technological and engineering literacy skills. IEEE partnered with the United Nations Educational, Scientific and Cultural Organization (UNESCO), a specialized agency of the United Nations aimed at promoting world peace and security through international cooperation in education, arts, science and culture, on several programs, including:

- Silver Bolt, a non-profit educational organization in Uganda, adopted a new STEM curriculum jointly developed by IEEE and UNESCO modeled around 21st century skills. The pilot was carried out at the Smart Girls Foundation, a girl-centered development organization. There was also a traveling classroom that reached underserved communities throughout the region.
- UNESCO and IEEE conducted a two-day workshop with science teachers on STEM mentorship in Uganda. The goal of the workshop was to equip science teachers with information and skills to increase the participation and performance of females in STEM education in Uganda.



IEEE Expands Open Access Publishing Options for Authors and Researchers

IEEE continued to execute its long-term Open Access strategy by supporting open science and providing authors and researchers with flexible options that best serve IEEE authors, members and global communities.

Two New Gold, Fully Open Access Journals Added to IEEE Portfolio

IEEE added two new gold, fully Open Access journals to its publishing portfolio: *IEEE Open Journal of Control Systems* and *IEEE Open Journal of Instrumentation and Measurement*. The new additions bring the total number of gold journals to 14.



Opening Doors for Open Access

Thanks to several large Open Access Read and Publish agreements secured over the last year, IEEE is poised for continued success in Open Access. Read and Publish agreements allow researchers at the participating institutions to access IEEE journals, conferences and standards via the IEEE Xplore Digital Library. The agreement also grants affiliated corresponding authors the opportunity to publish their work as Open Access. IEEE inked several agreements with top institutional partners in 2021, including:

- European Organization for Nuclear Research (CERN)
- FinELib, a consortium of Finnish universities
- IReL, the Irish licensing consortium

For a full list of institutional partners, visit:

<https://open.ieee.org/for-institutions/institutional-partners/>

Providing Important Resources for Authors

To ensure authors and researchers are aware of the numerous IEEE Open Access publishing options, IEEE provided several opportunities to keep authors engaged, including authorship symposiums and webinars that included thousands of attendees from around the world.



10+
Virtual Author
Symposiums



10,000+
Attendees/Viewers

Top and Bottom:
IEEE Day participants



IEEE Day Inspires Worldwide Events

IEEE Day celebrates the first time engineers and IEEE members gathered to share their technical ideas in 1884. In 2021, there were more than double the amount of events held the previous year.

 **20,000+**
Participants in 58 countries





Record Number of Participants for IEEE Xtreme Contest

IEEE Xtreme® is a global challenge in which thousands of teams of IEEE student members compete in a 24-hour time span to solve a set of real-world programming problems. IEEE Xtreme 15.0, the fifteenth version of the event, was one of the most popular ever, with the number of participants climbing to over 12,000, compared to 9,305 the previous year.

 **12,496**
Participants

 **5,570**
Teams

 **630**
Student Branches

 **62**
Countries

Enthusiastic students from around the world competed in the coding competition.

“The competition was intense. All competitors are strong and problems involve many aspects of algorithms. It was an unforgettable experience for us since it is the first time we ever participated as a team in any marathon. We are very grateful to the IEEE committee for holding such a great competition.”

IEEE Graduate Student Member Jingbang Chen Member of IEEE Xtreme 15.0 1st place team, PSGLG from Georgia Institute of Technology.



Left: IEEE Graduate Student Members Yu Goa (left) and Jingbang Chen (right) from the IEEE Xtreme 15.0 winning team. Bo Peng, the other team member, is not pictured



Top Right: IEEE Sections Congress 2021 virtual training speakers

Top row from left: 2021 IEEE President Susan K. (Kathy) Land, IEEE Executive Director Stephen Welby, IEEE Life Fellow Tom Coughlin

Bottom row from left: IEEE Senior Members Ruben Barrera-Michel, Nita Patel and Christine Miyachi

IEEE Sections Congress Provides Virtual Training Opportunities for Volunteer Leaders

This year's IEEE Sections Congress successfully pivoted from an in-person event to a virtual event. IEEE Sections Congress hosted more than 1,550 people over three days.

Top-Tier Media Turn to IEEE for Expert Insights

Top-tier media outlets relied on IEEE members throughout the year for expert insights into a variety of technology trends.

1.2m

Unique visitors
per month



IEEE Senior Member Kayne McGladrey was quoted in *Popular Science* for an article on how to talk to kids about online security.

4.9m

Unique visitors
per month



IEEE Fellow Karen Panetta spoke with *ZDNet* about the role of artificial intelligence during COVID and beyond.

332k

Unique visitors
per month



IEEE Member Ramneek Kalra penned an article in the *Economic Times* on best practices to protect healthcare IoT devices from cyberattacks.



Top Left: Attendees of the IEEE Region 10 Humanitarian Technology Conference 2021, held in Bengaluru, India

Bottom Left: Student working on drone

Top Right: 2021 IEEE President Kathy Land during the virtual event "Shaping the Future through IEEE Engineering and Technology Education"

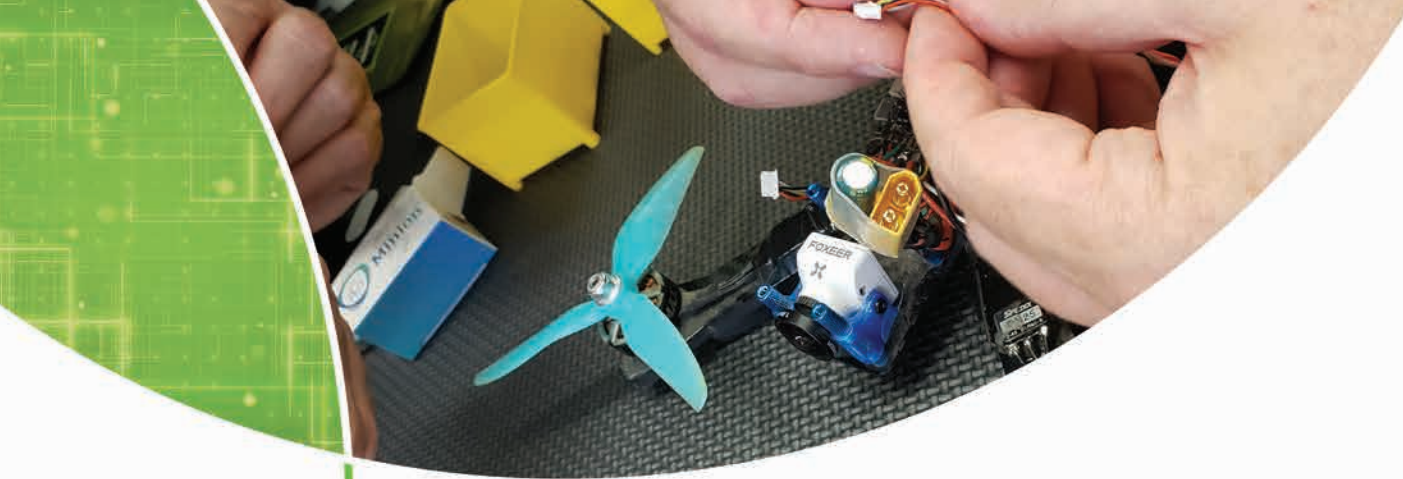
Center Right: The IEEE Photonics Society's Pride in Photonics initiative partners with PRISMA annually on Pride in STEM activities, in order to showcase and celebrate the scientific and social impact contributions of LGBTQIA+ people in STEM

Photo Credit: PRISMA



EVOLVING OUR MEMBER AND VOLUNTEER EXPERIENCES

IEEE members and volunteers are the heartbeat of our organization. Though 2021 was a challenging year, IEEE came together as one, focusing efforts on the development of the next generation of technologists, while continuing to provide improved experiences and increased opportunities for our membership.



Above: Students working on a drone

IEEE Amplifies Its Commitment to STEM

IEEE continued to apply its global reach and inventiveness to amplify its commitment to Pre-University STEM education. As part of this effort, IEEE hosted local activities with worldwide impact to mentor and nurture the next generation of STEM professionals. Around the world, IEEE members and volunteers donated their time and expertise to encourage young people to seek STEM career paths. Key efforts in 2021 include the launch of the following programs:

- The IEEE STEM Ambassador Program: Designed to build a community of volunteers that will drive STEM outreach activities in their local areas.
- The IEEE Volunteer STEM Portal: Offers a searchable library of current STEM programs, “how-to” resources to facilitate STEM outreach activities, STEM guides, resource materials and more. It also includes an opportunity to apply for program grants.
- The first-ever IEEE STEM Summit brought together the STEM community to help foster the next generation of technology innovators. The event is designed for IEEE members and volunteers interested in pre-university STEM outreach, providing a forum to encourage, support and inspire each other.





Top Left: The IEEE Photonics Society annually supports the SBfoton Conference, which aims to increase research and innovation in optics and photonics in South America. Featured is IEEE Fellow Carmen Menoni, Past President (from left), with student participants

Photo Credit: IEEE Photonics Society

Top Right: Attendees of the The International Conference for High Performance Computing, Networking, Storage, and Analysis held in St. Louis, Missouri

Photo Credit: Jo Ramsey, SC Photography

IEEE Deepens Dedication to Professional Ethics

IEEE's new Code of Ethics went into effect in 2021, strengthening the organization's ethics and member conduct processes around reporting, adjudication, appealing and sanctioning ethical misconduct, including discrimination and bullying. The goals of these changes are to help simplify the process for filing reports of misconduct, increases the transparency of how IEEE handles complaints, expand the accessibility of the process and make it more inclusive. These improvements reinforce the value IEEE places on holding its members and stakeholders to the highest ethical standards.

Building on Diversity and Inclusion Efforts

In 2021, IEEE continued to support diversity and inclusion through multiple programs including:

- A new IEEE Diversity and Inclusion Committee reporting to the IEEE Board of Directors. The Committee assists the Board in support of IEEE's commitment to advancing diversity in technical professions, promoting an inclusive and equitable culture that welcomes, engages and rewards all who contribute to the field, without regard to race, religion, gender, disability, age, national origin, sexual orientation, gender identity or gender expression.
- A new website was launched that contains information for members, volunteers and the broader community. The site highlights ongoing efforts by various IEEE groups to foster a diverse, equitable and welcoming environment.
- Revisions to the IEEE Publications Services and Products Operations Manual enable authors to change their preferred name—whether it be due to marriage or divorce, religious conversion or gender alignment.



IEEE Accelerates Efforts in Technology Ethics

The IEEE Standards Association and other groups across the organization continue to examine the ethical and societal implications of technology, and their developers and implementers.

- IEEE published a new standard, IEEE 2089-2021, to address age-appropriate design for children's digital services. The standard establishes a framework that helps organizations recognize and respond to the needs of children and young people. Adoption of this standard assists organizations in designing their services with children in mind and demonstrates commitment to social responsibility.
- IEEE launched IEEE 7000-2021: IEEE Standard Model Process for Addressing Ethical Concerns During System Design. The use of this standard could help organizations better earn and keep the trust of end-users and stakeholders by directly addressing ethical concerns upfront, leading to greater market acceptance of their products, services or systems.
- The United Engineering Foundation awarded the IEEE Foundation a US\$125,000 grant for the benefit of the IEEE TechEthics program to create a comprehensive resource on the ethical and societal impacts of technology. The grant will enable the IEEE TechEthics program, designed to ensure that ethical and societal implications of technology become an integral part of the development process, to create new content, such as videos, podcasts and blog posts, that will encourage engagement and discussion.





IEEE NextGen

IEEE's Commitment to Financial Transparency

IEEE recognizes the importance of financial transparency and fiscal responsibility within its member and volunteer community. To that end, IEEE conducted a transition of its financial processes and infrastructure, introducing new tools to connect IEEE's member and volunteer financial activities worldwide, creating a strong foundation for the organization's future.

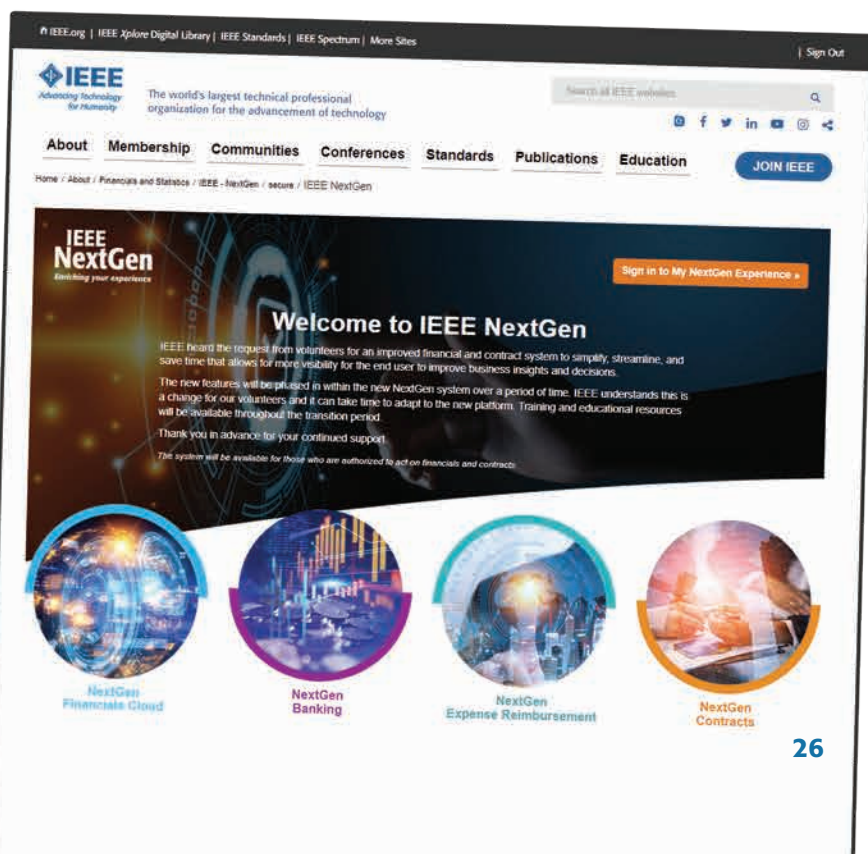
In collaboration with volunteer leaders and professional staff, IEEE launched IEEE NextGen Financials Cloud, a cloud-based system that supports project-based financials and provides support for automating contracts and purchase orders, as well as tracking and reporting costs and expenses. The new system enables both volunteer leaders and staff to better manage their budgets and track spending from any place in the world. IEEE also launched NextGen Contracts to help streamline the contract review process for the organization, enabling real-time collaboration and increased visibility into the contract lifecycle.

NextGen Financials Cloud

NextGen Banking

NextGen Expense Reimbursement

NextGen Contracts





Top Left: IEEE members from the Nicaragua Section SIGHT Group, IEEE Engineering in Medicine and Biology Society Chapter, and local stakeholders designed and installed 51 UVC lamps to sterilize medical protective equipment (such as N95 masks) exposed to COVID-19

Bottom Left: A team of volunteers and IEEE SIGHT members from the Malaysia Section developed an urban farming solution that leverages IoT innovation and real-time monitoring to grow hydroponic plants in a local urban community

Top Right: IEEE MOVE Community Outreach Initiative

Center Right: Attendees of the 2021 United Nations Climate Change Conference, more commonly referred to as COP26



SHAPING THE FUTURE THROUGH COLLABORATION

IEEE is proud to engage, welcome and collaborate with others to help make our world a more sustainable, humane and prosperous place. These engagements with like-minded organizations are focused on a common goal, and enable IEEE to play a critical role in a shared vision to create a better future for everyone.



Above: Keynote stage at COP26

IEEE Works to Advance Global Sustainability

In 2021, IEEE began laying out a vision of the future that provides visibility across the organization for the work IEEE and others are doing to help advance solutions to mitigate climate change. The goal is to coordinate the various activities and develop a cross-IEEE strategy to synchronize and guide IEEE's response to changes in the global climate.

Part of those efforts included participation in the United Nations' Framework Convention on Climate Change, also known as COP26. The IEEE delegation was part of an expert panel focused on "Actions for Clean Energy, Clean Materials and Energy Efficiency to Advance Ambitions and Solutions." The delegation highlighted the important roles that engineers can play in delivering practical solutions to address climate change and adaptation.

MOVE Emergency Relief Program Celebrates 5th Anniversary

Since March 2016, MOVE volunteers, part of the IEEE-USA initiative, have deployed 21 times on disaster relief missions, and have helped more than a quarter million people. This year, IEEE's MOVE truck responded to natural disasters in Kentucky, Louisiana, North Carolina and Tennessee, providing disaster victims with services including cell phone charging, Wi-Fi access, technical support and power and lighting supply. IEEE also received a second MOVE vehicle and communications equipment donated by Cisco. The IEEE Foundation established the International MOVE Fund in 2021 to support future global expansion efforts.



Left: MOVE Disaster Relief and Outreach Program volunteers



IEEE HAC/SIGHT Projects Program Supports Humanitarian Projects Across the Globe

The IEEE Humanitarian Activities Committee (HAC) and Special Interest Group on Humanitarian Technology (SIGHT) funded and implemented numerous life-changing programs. Key projects include:

- **IEEE Argentina Section** used its funding to mitigate aspects of the pandemic by installing a solar power system, constructing a Wi-Fi tower and building a cistern in a rural community. The solar panels allow families in the region to access renewable energy, clean water and Wi-Fi.
- **IEEE El Salvador Section** produced 3D-printed visors for frontline medical personnel to address the shortage of personal protective equipment in the country. They manufactured 1,300 visors that were then distributed in batches to 12 local health centers and hospitals.
- **IEEE Kolkata Section** used its funding to design a smart auto-irrigation and app-based soil monitoring system featuring multilingual control, 24/7 monitoring and AI-powered adjustments according to environmental conditions.
- **IEEE Malaysia Section** members from the IEEE Malaysia Section and the IEEE Power & Energy Society Malaysia Chapter used HAC/SIGHT Projects funding to install aquaponic systems in a low-income community so residents can harvest both plants and fish to generate additional income. The structures have an independent power supply supported by a photovoltaic system.
- **IEEE Nicaragua Section** designed and installed UltraViolet-C lamps to sterilize medical protective equipment, such as N95 masks, exposed to COVID-19. The five hospitals where the lamps were installed extend services to approximately 30,000 people every month.

Top: Student and professional IEEE members from the IEEE Argentina Section installed a solar power electrification system, cistern, and Wi-Fi tower in a remote community to mitigate the continuing effects of the global pandemic



Top Left: Chief Tunde Salihu (center) and workers with ISV solar project in Nigeria

Center Right: The IEEE Photonics Society established a Young Professionals Advisory Board (YPAC) that oversees interconnected outreach methods to ensure the Society's early career professionals are represented in all aspects of the organization. Featured is Sara Restuccia, who serves as the YPAC Publications Representative

Photo Credit: University of Glasgow

Top Right: Volunteers from the IEEE Power and Energy Society (PES) Malaysia Chapter and the IEEE Women in Engineering (WIE) Malaysia Affinity Group used HAC/SIGHT Projects funding to implement a sustainable aquaponic system to address food security issues for low-income households in their community



ENHANCING THE MEMBER EXPERIENCE

In 2021, IEEE continued to improve its offerings and deliver even greater value to our members. These efforts enabled IEEE members and volunteers to establish lifelong relationships, grow the engineering community, promote emerging technologies and change the world around them.



Power & Energy Society®

IEEE Foundation

New US\$1 Million Pledge Supports Students and Young Professionals

The IEEE Foundation received a US\$1 million pledge payable over four years for the IEEE Power & Energy Society Scholarship Plus Initiative. The gift supports the awarding of more than 130 scholarships designed to help undergraduate students in the US, Canada and Puerto Rico prepare for a career in the power and energy sector.



More than 500 People Attend WIE Conference to Fuel Innovation

The 8th annual IEEE Women in Engineering International Leadership Conference (WIE-ILC) was held as a virtual event with the theme of Accelerating Through Change. More than 500 people from 45 countries registered for the event.



500+
People



45
Countries



Top: Far right: IEEE Eta Kappa Nu (IEEE-HKN) Past President Steve E. Watkins with members of the Gamma Theta Chapter at the Missouri Science and Technology-Rolla, display their HKN "Key Chapter" recognition banners for completing their reporting requirements and for community service
Left: Attendees of Supercomputing 21 (SC21) held in St. Louis, Missouri
Photo Credit: Jo Ramsey, SC Photography



IEEE Makes Continuing Education a Priority

IEEE has continued to make significant enhancements to the IEEE Learning Network (ILN), a learning management system and online discovery portal designed to help users discover continuing education from across IEEE. New eLearning courses introduced in 2021 include 5G Deployment and Designing Blockchain Solutions, among many other topics.



2,562

Courses taken in 2021

IEEE Spectrum® Adds New Online Features for Members

The *IEEE Spectrum* website and print edition underwent a major redesign this year, offering many enhanced features for IEEE members to encourage engagement. The new site makes it easy to go deep into various technology topics, such as machine learning, get access to webinars, whitepapers and tutorials and participate in online conversations. Members can save articles to read later, manage their *IEEE Spectrum* newsletter subscriptions, create a feed on topics of interest and more. Members also have access to the digital version of archives going back to the year 2000.

Above: View of the *IEEE Spectrum* website





Top Left: Location of the milestone dedication ceremony of the Calcutta Electric Supply Corporation's achievement, held in Kolkata, India

Bottom Left: Thomas Edison at his desk, talking on telephone on September 8, 1914

Center Right: Six long wave barrage receivers at Riverhead, N.Y.

IEEE VISION | INNOVATION CHALLENGES SUMMIT

An IEEE Summit and Honors Ceremony



NOTABLE ACHIEVEMENTS

Since 1884, IEEE has actively shaped the future of technology—and the world—by tirelessly advancing innovation and technological excellence. In 2021, IEEE honored leaders and members whose achievements sparked radical transformation and advanced the course of human history.



Jacob Ziv Awarded IEEE Medal of Honor

Sponsored by the IEEE Foundation, the IEEE Medal of Honor is IEEE's pinnacle of recognition. In 2021, it was awarded to IEEE Life Fellow Jacob Ziv for "fundamental contributions to information theory and data compression technology and for distinguished research leadership." Ziv, professor of electrical engineering at the Technion Israel Institute of Technology in Haifa, pioneered the data compression tools that enable fast and efficient transfer of information over the Internet and better utilization of storage space, allowing for the development of GIF, PNG and ZIP files. The award was presented at the 2021 IEEE Vision, Innovation and Challenges Summit, which was held virtually.

Kristina Johnson Receives Inaugural IEEE Mildred Dresselhaus Medal

IEEE Fellow Kristina M. Johnson, president of The Ohio State University, received the first IEEE Mildred Dresselhaus Medal for "leadership and technical contributions spanning academia, government and business." Sponsored by Google through an IEEE Foundation gift, the award is presented for outstanding technical contributions in science and engineering of great impact to IEEE fields of interest.



Bottom Left: Front display of the IEEE Medal of Honor and the IEEE Mildred Dresselhaus Medal



Right: Bertha Lamme, first woman to earn an electrical engineering degree

Honoring Historic Technology Milestones

Each year, the IEEE Milestones in Electrical Engineering and Computing program recognizes exceptional technical achievements that occurred at least 25 years ago. The IEEE History Center is supported by the IEEE Foundation. In 2021, 11 Milestones were dedicated, including:

1885-1888: Rotating Fields and Early Induction Motors

Torino, Italy

Rotating magnetic fields and their application to induction motors had a fundamental role in the electrification of the world.

1899: Calcutta Electric Supply Corporation

Kolkata, India

The Calcutta Electric Supply Corporation established the first commercial electric supply company in South Asia, heralding the era of electricity in the Indian Subcontinent.

1921: RCA Central

Rocky Point, NY

RCA Radio Central was the world's most powerful transoceanic radio facility at the time, with its 220 kW, 18.3 kHz transmitters and Beverage long-wire receiving antennas providing reliable worldwide radio communications.

1972-1989: Gravitational-Wave Antenna

Livingston, LA, Richland, WA, and Santo Stefano a Macerata - Cascina (Pisa), Italy

The Gravitational-Wave Antenna enabled detection of ripples in spacetime propagating at the speed of light, as predicted by Albert Einstein's 1916 Theory of General Relativity.

1980-1981: Inverter-Driven Air Conditioner

Nagoya, Japan

Compact and robust inverters using power electronics technologies led to the widespread use of inverter air conditioners across the globe.



Above: IEEE Board of Directors connected virtually in 2021

IEEE Board of Directors

1st row from left

Susan K. (Kathy) Land, K. J. Ray Liu, Toshio Fukuda, Stephen Welby, Roger U. Fujii, Barry C. Tilton

2nd row from left

Thomas M. Conte, Paul M. Cunningham, Miriam P. Sanders, Mary Ellen Randall, Maike Luiken, Lawrence O. Hall

3rd row from left

Kathleen A. Kramer, Rabab Kreidieh Ward, Theodore W. Hissey, Timothy T. Lee, Stephen M. Phillips, James E. Matthews

4th row from left

Eduardo F. Palacio, Christina M. Schober, Alfred E. Dunlop, Antonio Luque, Alberto Sanchez, Manfred J. Schindler

5th row from left

Dalma Novak, Deepak Mathur, Ruth A. Dyer, Sergio Benedetto, James R. Look

6th row from left

Katherine J. Duncan, Johnson A. Asumadu, Jill I. Gostin, Jason J. Gu



IEEE Management Council

From left

Thomas R. Siegert, Mary Ward-Callan, Karen L. Hawkins, Donna Hourican, Jamie Moesch, Stephen Welby, Cherif Amirat, Cecelia Jankowski, Sophia A. Muirhead, and Steven Heffner

Not pictured: Chris Brantley, Konstantinos Karachalios

MESSAGE FROM THE TREASURER

With a mission of advancing technology for the benefit of humanity, IEEE remained committed to its members and volunteers as we navigated through another year of COVID-19. IEEE pulled together as an organization and stayed agile and responsive, implementing creative solutions and activities that further strengthened our connections to our worldwide communities.

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 net assets increasing by \$186.1 to \$851.4 million, or 28% as of December 31, 2021.

The IEEE Statement of Activities reflects total operating revenues for 2021 of \$464.3 million, a decrease of \$2.7 million, or 0.6%, from 2020. IEEE had total operating expenses for 2021 of \$381.0 million, a decrease of \$12.4 million, or 3.2%, from 2020 as further discussed below:

- **Periodicals and Media:** Overall customer demand for IEEE products remained strong despite the impact of the pandemic. IEEE continued its focus on improving publication efficiency and cost reduction. Revenues decreased by \$0.7 million or 0.3%, while expenses decreased by \$13.5 million or 7.8%.
- **Conferences:** IEEE saw an increase in the number of people attending and fewer cancellations. Revenues declined by \$1.0 million or 0.8%, principally driven by pandemic-related cancellations of planned large face-to-face conferences and events. IEEE continued to successfully organize virtual and hybrid conferences in 2021. Conference expenses declined by \$1.2 million or 1.4%, largely driven by smaller number of events and reduction in conference travel.
- **Membership:** Revenues declined by \$1.2 million or 2.0%, in part due to student discounts and a decline in higher grade member dues revenue. Expenses increased by \$2.0 million or 2.5%.
- **Standards Association:** Revenues and expenses remained on par with 2020.

Non-operating activities generated \$102.8 million in net gain, primarily due to \$86.4 million in net gain from investments (inclusive of interest and dividends), \$9.6 million in conference related insurance claims, \$6.5 million in pension related gains, and \$0.3 million in unrelated business income tax benefit.

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. 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.



Mary Ellen Randall

Mary Ellen Randall

2021 IEEE Treasurer

REPORT OF INDEPENDENT CERTIFIED PUBLIC ACCOUNTANTS

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

Opinion

We have audited the consolidated financial statements of The Institute of Electrical and Electronics Engineers, Incorporated and subsidiaries (collectively, the "Institute"), which comprise the consolidated statements of financial position as of December 31, 2021 and 2020, and the related consolidated statements of activities and cash flows for the years then ended, and the related notes to the consolidated financial statements.

In our opinion, the accompanying consolidated financial statements present fairly, in all material respects, the financial position of the Institute as of December 31, 2021 and 2020, and 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.

Basis for opinion

We conducted our audits of the consolidated financial statements in accordance with auditing standards generally accepted in the United States of America (US GAAS). Our responsibilities under those standards are further described in the Auditor's Responsibilities for the Audit of the Financial Statements section of our report. We are required to be independent of the Institute and to meet our other ethical responsibilities in accordance with the relevant ethical requirements relating to our audits. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Responsibilities of management for the financial statements

Management is responsible for the preparation and fair presentation of the consolidated financial statements in accordance with accounting principles generally accepted in the United States of America, and for 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.

In preparing the consolidated financial statements, management is required to evaluate whether there are conditions or events, considered in the aggregate, that raise substantial doubt about the Institute's ability to continue as a going concern for one year after the date the financial statements are issued.

Auditor's responsibilities for the audit of the financial statements

Our objectives are to obtain reasonable assurance about whether the consolidated financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance but is not absolute assurance and therefore is not a guarantee that an audit conducted in accordance with US GAAS will always detect a material misstatement when it exists. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control. Misstatements are considered material if there is a substantial likelihood that, individually or in the aggregate, they would influence the judgment made by a reasonable user based on the consolidated financial statements.

In performing an audit in accordance with US GAAS, we:

- Exercise professional judgement and maintain professional skepticism throughout the audit.
- Identify and assess the risks of material misstatement of the consolidated financial statements, whether due to fraud or error, and design and perform audit procedures responsive to those risks. Such procedures include examining, on a test basis, evidence regarding the amounts of disclosures in the consolidated financial statements.
- Obtain an understanding of internal control relevant to the audit 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, no such opinion is expressed.
- Evaluate the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluate the overall presentation of the consolidated financial statements.
- Conclude whether, in our judgement, there are conditions or events, considered in the aggregate, that raise substantial doubt about the Institute's ability to continue as a going concern for a reasonable period of time.

We are required to communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit, significant audit findings, and certain internal control-related matters that we identified during the audit.

Grant Thornton LLP

Iselin, New Jersey
May 17, 2022

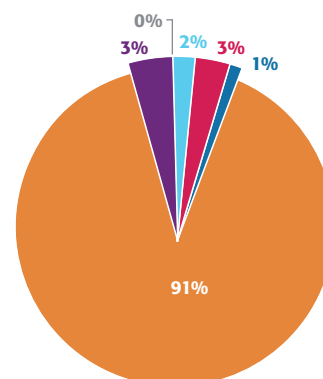
CONSOLIDATED STATEMENTS OF FINANCIAL POSITION

As of December 31, 2021 and 2020

ASSETS	2021	2020
CURRENT ASSETS		
Cash and cash equivalents	\$ 17,410,800	\$ 20,126,300
Accounts receivable, less allowance for doubtful accounts of \$1,876,000 in 2021 and \$1,708,300 in 2020	34,843,600	27,451,200
Prepaid expenses and other assets	12,079,300	17,550,500
Investments, at fair value	1,009,811,000	813,132,500
Investments - other	3,107,800	3,435,900
Total current assets	1,077,252,500	881,696,400
NONCURRENT ASSETS		
Land, buildings, and equipment, net	34,970,700	35,594,300
Deferred tax assets	914,500	636,700
Total assets	\$ 1,113,137,700	\$ 917,927,400
LIABILITIES AND NET ASSETS		
CURRENT LIABILITIES		
Accounts payable and accrued expenses	\$ 55,335,800	\$ 55,516,100
Capital lease obligations	18,500	114,300
Accrued pension and other employee benefits	626,100	537,000
Amounts held on behalf of IEEE Foundation, Incorporated	63,019,700	54,112,600
Deferred revenue	122,757,200	117,816,500
Total current liabilities	241,757,300	228,096,500
NONCURRENT LIABILITIES		
Capital lease obligations, net of current portion	8,800	28,000
Accrued pension and other employee benefits, net of current portion	19,998,700	24,509,400
Total liabilities	261,764,800	252,633,900
Commitments and contingencies		
NET ASSETS		
Without donor restrictions		
Undesignated	838,231,600	644,640,500
Board-designated fund	11,044,100	18,604,200
Total without donor restrictions	849,275,700	663,244,700
With donor restrictions	2,097,200	2,048,800
Total net assets	851,372,900	665,293,500
Total liabilities and net assets	\$ 1,113,137,700	\$ 917,927,400

2021 ASSETS

IEEE net assets increased \$186.1 million, or 28%, to \$851.4 million, as of December 31, 2021, from \$665.3 million as of December 31, 2020. The increase in net assets is primarily income generated from operating activities. The surpluses from operating activities were then invested primarily into marketable securities and fixed income investments. Non-operating activities also increased net assets primarily through income earned on investment balances.



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

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

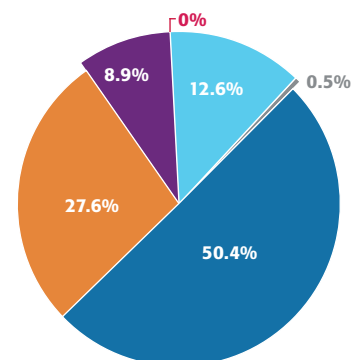
CONSOLIDATED STATEMENT OF ACTIVITIES

For the year ended December 31, 2021

	Without Donor Restrictions	With Donor Restrictions	Total
REVENUES			
Memberships	\$ 58,317,100	\$ -	\$ 58,317,100
Periodicals	233,922,400	-	233,922,400
Conferences	127,989,100	-	127,989,100
Standards	41,504,400	-	41,504,400
Public imperatives	2,351,000	52,000	2,403,000
Other income	187,500	-	187,500
Net assets released from restrictions	83,300	(83,300)	-
Total revenues	464,354,800	(31,300)	464,323,500
EXPENSES			
Program services:			
Memberships	82,590,000	-	82,590,000
Periodicals	158,382,600	-	158,382,600
Conferences	83,767,400	-	83,767,400
Standards	37,927,100	-	37,927,100
Public imperatives	10,482,700	-	10,482,700
Total program services	373,149,800	-	373,149,800
Supporting services:			
General and administrative	7,887,600	-	7,887,600
Total expenses	381,037,400	-	381,037,400
Changes in net assets before non-operating activities	83,317,400	(31,300)	83,286,100
NON-OPERATING ACTIVITIES			
Investment gain, net	86,274,000	79,700	86,353,700
Pension and related benefits activity other than net periodic benefit cost	6,529,800	-	6,529,800
Gain on insurance recoveries	9,582,000	-	9,582,000
Changes in net assets before income tax	185,703,200	48,400	185,751,600
Benefit for income taxes	327,800	-	327,800
Changes in net assets	186,031,000	48,400	186,079,400
Net assets, beginning of year	663,244,700	2,048,800	665,293,500
Net assets, end of year	\$ 849,275,700	\$ 2,097,200	\$ 851,372,900

2021 REVENUES

The IEEE Statement of Activities reflects total revenues for 2021 of \$464.3 million, a decrease of \$2.7 million, or 0.6%, from 2020. Mainly impacted due to pandemic related cancellation of planned large in person conferences and events.



- MEMBERSHIPS
- PUBLIC IMPERATIVES
- PERIODICALS
- CONFERENCES
- STANDARDS
- OTHER INCOME

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

CONSOLIDATED STATEMENT OF ACTIVITIES

For the year ended December 31, 2020

	Without Donor Restrictions	With Donor Restrictions	Total
REVENUES			
Memberships	\$ 59,523,600	\$ -	\$ 59,523,600
Periodicals and media	234,579,000	-	234,579,000
Conferences	129,029,800	-	129,029,800
Standards	41,491,500	-	41,491,500
Public imperatives	2,166,600	235,500	2,402,100
Other income	9,300	-	9,300
Net assets released from restrictions	143,400	(143,400)	-
Total revenues	466,943,200	92,100	467,035,300
EXPENSES			
Program services:			
Memberships	80,553,100	-	80,553,100
Periodicals and media	171,836,100	-	171,836,100
Conferences	84,965,400	-	84,965,400
Standards	37,730,700	-	37,730,700
Public imperatives	11,241,500	-	11,241,500
Total program services	386,326,800	-	386,326,800
Supporting services:			
General and administrative	7,144,000	-	7,144,000
Total expenses	393,470,800	-	393,470,800
Changes in net assets before non-operating activities	73,472,400	92,100	73,564,500
NON-OPERATING ACTIVITIES			
Investment gain, net	69,633,800	68,500	69,702,300
Pension and related benefits activity other than net periodic benefit cost	10,400	-	10,400
Loss on sale and dissolution of IEEE GlobalSpec, Inc.	(10,691,000)	-	(10,691,000)
Changes in net assets before income tax	132,425,600	160,600	132,586,200
Benefit for income taxes	499,400	-	499,400
Changes in net assets	132,925,000	160,600	133,085,600
Net assets, beginning of year	530,319,700	1,888,200	532,207,900
Net assets, end of year	\$ 663,244,700	\$ 2,048,800	\$ 665,293,500

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

CONSOLIDATED STATEMENTS OF CASH FLOWS

For the years ended December 31, 2021 and 2020

	2021	2020
CASH FLOWS FROM OPERATING ACTIVITIES		
Changes in net assets	\$ 186,079,400	\$ 133,085,600
Adjustments to reconcile changes in net assets to net cash provided by operating activities:		
Depreciation and amortization	11,045,200	14,003,400
Unrealized gains on investments	(35,938,600)	(48,081,200)
Gains on sale of investments	(38,401,900)	(11,752,800)
Loss on sale and dissolution of IEEE GlobalSpec, Inc.	-	10,691,000
Bad debt expense	151,400	909,300
<i>Changes in assets and liabilities:</i>		
Accounts receivable	(7,543,800)	8,384,900
Prepaid expenses and other assets	5,471,200	1,771,500
Accounts payable and accrued expenses	1,417,400	(1,600,900)
Accrued pension and other employee benefits	(4,421,600)	2,728,000
Amounts held on behalf of IEEE Foundation, Incorporated	8,907,100	5,744,700
Deferred revenue	4,940,700	(5,877,900)
Income tax payable and deferred tax liability	(277,800)	(491,200)
Net cash provided by operating activities	131,428,700	109,514,400
CASH FLOWS FROM INVESTING ACTIVITIES		
Proceeds from sales of investments	486,637,000	302,243,800
Purchases of investments	(608,646,900)	(406,456,800)
Proceeds from sale of IEEE GlobalSpec, Inc.	-	2,000,000
Purchase of land, buildings and equipment	(10,255,100)	(11,219,700)
Net cash used in investing activities	(132,265,000)	(113,432,700)
CASH FLOWS FROM FINANCING ACTIVITIES		
Change in cash overdraft	(1,764,200)	1,989,700
Payment of capital lease obligations	(115,000)	(67,800)
Net cash (used in) provided by financing activities	(1,879,200)	1,921,900
Net decrease in cash and cash equivalents	(2,715,500)	(1,996,400)
Cash and cash equivalents, beginning of year	20,126,300	22,122,700
Cash and cash equivalents, end of year	\$ 17,410,800	\$ 20,126,300
SUPPLEMENTAL DATA		
Purchases of fixed assets included in accounts payable and accrued expenses	\$ 351,200	\$ 184,700

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

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

December 31, 2021 and 2020

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.

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 are aligned 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.¹ and IEEE Technology Center GmbH.

¹Results of IEEE GlobalSpec, Inc. through July 31, 2020 have been included in the accompanying consolidated financial statements. Refer to Note 2 for information relating to the sale and dissolution of IEEE GlobalSpec, Inc.

NOTE 2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Basis of Presentation

The Institute's consolidated financial statements are presented in conformity with accounting principles generally accepted in the United States of America ("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.

Included within net assets without donor restrictions are balances of \$11,044,100 and \$18,604,200 as of December 31, 2021 and 2020, respectively, relating to funds that were designated by the Board of Directors for the purpose of upgrading the Institute's financial systems and processes.

With donor restrictions - as of December 31, 2021 and 2020 net assets with donor restrictions totaled \$2,097,200 and \$2,048,800, respectively. These balances 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 statements 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 statements 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 judgement 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 judgement 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

In accordance with Financial Accounting Standards Board ("FASB") Accounting Standards Codification ("ASC") *Topic 606, Revenue from Contracts with Customers* ("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 which a contract is satisfied.

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. In general, 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 judgement. 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.

During fiscal year 2020, the Institute began the process of updating its financial system and moving to an integrated, cloud-based platform for financial recording and reporting (including contracts, banking and expense reporting). This implementation was completed in 2021. The Institute capitalized implementation costs relating to such financial system upgrade in accordance with FASB Accounting Standards Update ("ASU") 2018-15, *Customer's Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement that is a Service Contract*, and such costs are reflected in the "Software" and "Information systems upgrade in process" lines of Note 5 for 2021 and 2020, respectively.

Depreciation and amortization are 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 and information systems	3 - 5
Computers	3

Sale and Dissolution of IEEE GlobalSpec, Inc.

On July 31, 2020, IEEE, Inc. sold the assets and certain liabilities of IEEE GlobalSpec, Inc. for a total sales price of \$2,000,000. Subsequently, IEEE, Inc. dissolved IEEE GlobalSpec, Inc. on December 21, 2020. The resulting loss on the sale and dissolution of IEEE GlobalSpec, totaling approximately \$10,691,000, is included in the corresponding line within the accompanying consolidated statement of activities.

The Institute recorded amortization of identified intangible assets totaling \$2,573,200 during the fiscal year ended December 31, 2020. The Institute did not have any intangible assets during the fiscal year ended December 31, 2021.

Accounts Payable and Accrued Expenses

Cash overdrafts are included in accounts payable and accrued expenses. At December 31, 2021 and 2020, cash overdrafts amounted to \$225,500 and \$1,989,700, 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 excess 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 the performance thereof.

Operating Measure

The Institute classifies its consolidated statements of activities into operating and non-operating 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 unusual 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, 2021 and 2020, 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 associated state equivalent unrelated business income tax returns. The Institute's financial statements reflect the changes effectuated by the 2017 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-TCJA NOLs generated after December 31, 2017 can be carried forward indefinitely.

For the year ending December 31, 2021, the Institute generated an additional gross federal NOLs of \$616,900 with a cumulative total gross federal NOLs of \$4,760,000, of which \$2,353,300 NOLs is pre-TCJA and \$2,020,300 NOLs is post-TCJA, all are carried forward to future periods. The Institute also has a cumulative total gross state NOLs of \$386,400 with carry forward periods which vary from 12 years to indefinitely.

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, 2021 and 2020, the Institute's lone deferred tax asset is its NOL derived from unrelated business activities with total balances of \$914,500 and \$636,700, respectively. Additionally, in 2021 the Institute management recorded \$11,000 of partial valuation allowance against its deferred tax asset, with no current expectation that any of the benefits from its silo business activity bucket, intercompany interest income, would be utilized in the foreseeable future.

The Institute's deferred tax assets are netted with deferred tax liabilities on the accompanying 2021 and 2020 consolidated statements of financial position.

c. Income Tax Provisions of For-Profit Subsidiaries

IEEE, Inc., a subsidiary of the Institute, is considered a for-profit entity under the Code. For this subsidiary, 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.

As of December 31, 2021, IEEE, Inc. had a total gross federal NOLs of \$13,703,100 of which \$7,504,900 can be carried forward up to 20 years and \$6,198,200 can be carried forward indefinitely. Its deferred tax assets totaled \$3,890,100 and since there was insufficient positive and objective evidence to support a position that IEEE, Inc. would ever be able to utilize the benefits of any of these deferred tax assets in the near future, the Institute's management recorded a valuation allowance of \$3,890,100 against the Institute's consolidated net deferred tax assets as of December 31, 2021.

d. Consolidated Income Tax Provision

For the years ended December 31, 2021 and 2020, the benefit for income taxes consisted of the following:

	2021	2020
Current:		
Federal	\$ -	\$ -
State	(50,000)	(8,100)
	(50,000)	(8,100)
Deferred:		
Federal	(255,200)	(467,300)
State	(22,600)	(24,000)
	(277,800)	(491,300)
Benefit for income taxes	\$ (327,800)	\$ (499,400)

For the year ended December 31, 2021, the Institute's consolidated benefit for income tax is \$327,800, comprised of \$331,300 in tax benefit from the Institute's unrelated business income activities and \$3,500 in provision expense adjustment for prior periods from IEEE, Inc.'s for-profit business income activities. For the year ended December 31, 2020, the consolidated benefit for income tax was \$499,400, comprised of \$503,400 in tax benefit from the Institute's unrelated business income activities and \$4,000 in provision expense from IEEE, Inc. and its subsidiary dissolved in December 2020.

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.

Pronouncements

In February 2016, the FASB issued ASU 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 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. This guidance is effective for the Institute's fiscal year 2022. Early adoption is permitted. The Institute is in the process of evaluating the impact this standard will have on its consolidated financial statements.

Subsequent Events

The Institute evaluated its December 31, 2020 consolidated financial statements for subsequent events through May 17, 2022, 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.

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 years ended December 31, 2021 and 2020, the Institute recognized membership dues revenue of approximately \$32,858,300 and \$34,945,100, respectively, from amounts that were included in deferred revenue at the beginning of the year.

At December 31, 2021 and 2020, deferred revenue relating to membership dues totaled \$27,025,800 and \$32,858,300, respectively, and the related performance obligations are expected to be satisfied within one year.

Periodicals and Media

Periodicals 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:

	<u>2021</u>	<u>2020</u>
Periodicals	\$ 233,922,400	\$ 223,918,300
Media	-	10,660,700
	<u>\$ 233,922,400</u>	<u>\$ 234,579,000</u>

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 years ended December 31, 2021 and 2020, the Institute recognized periodicals revenue of approximately \$80,480,100 and \$78,574,900 respectively, from amounts that were included in deferred revenue at the beginning of the year.

At December 31, 2021 and 2020, deferred revenue relating to periodicals totaled \$85,191,900 and \$80,490,100, respectively, and the related performance obligations are primarily expected to be satisfied within one year.

For the year ended December 31, 2021, 100% of the periodicals revenues was recognized over time. For the year ended December 31, 2020, approximately 77% and 23% of periodicals and media revenue were recognized "over time" and at "point-in-time", respectively.

The media revenue for the year ended December 31, 2020 primarily related to IEEE GlobalSpec, Inc. (see Note 2).

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 when the conferences take place. Revenues from conference proceedings and articles are recognized in the period in which they are sold.

Payments received for conferences 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.

For the years ended December 31, 2021 and 2020, the Institute recognized conference revenue of \$3,635,000 and \$11,096,300, respectively, from amounts that were included in deferred revenue at the beginning of the year.

At December 31, 2021 and 2020, deferred revenue relating to conference revenues totaled approximately \$8,511,700 and \$3,635,000 respectively, 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.

For the years ended December 31, 2021 and 2020, the Institute recognized standards revenue of approximately \$833,100 and \$889,500, respectively, from amounts that were included in deferred revenue at the beginning of the year.

At December 31, 2021 and 2020, deferred revenue relating to standards revenues totaled \$2,027,800 and \$833,100, respectively, and

the related performance obligations are primarily expected to be satisfied within one year.

For the years ended December 31, 2021 and 2020, approximately 44% and 56% of standards revenue were recognized "over time" and at "point-in-time," respectively.

Accounts Receivable

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

	2021	2020
Periodicals and standards	\$ 26,839,400	\$ 18,842,400
Conferences	8,768,000	8,968,300
Other	1,112,200	1,348,800
Total accounts receivable	36,719,600	29,159,500
Less: allowance for doubtful accounts	(1,876,000)	(1,708,300)
Accounts receivable, net of allowance for doubtful accounts	\$ 34,843,600	\$ 27,451,200

NOTE 4. INVESTMENTS

As of December 31, 2021, the Institute's investments, at fair value, by level within the fair value hierarchy, consist of the following:

	2021		
	Level 1	Net Asset Value	Total
<i>Common stock:</i>			
Consumer	\$ 32,566,900	\$ -	\$ 32,566,900
Technology	108,242,400	-	108,242,400
Financial services	49,099,200	-	49,099,200
Healthcare	48,609,600	-	48,609,600
Industrials	27,857,700	-	27,857,700
Energy	8,387,300	-	8,387,300
Other	16,510,900	-	16,510,900
Total common stocks	291,274,000	-	291,274,000
<i>Mutual funds:</i>			
Growth funds	60,429,000	-	60,429,000
Fixed income funds	216,040,300	-	216,040,300
Money market funds	199,539,600	-	199,539,600
Other funds	65,076,500	-	65,076,500
Total mutual funds	541,085,400	-	541,085,400
U.S. Government securities	39,626,600	-	39,626,600
Commingled funds	-	126,456,900	126,456,900
	\$ 871,986,000	\$ 126,456,900	\$ 998,442,900
Cash held for investment			11,893,300
Add: receivables for securities sold and accrued interest			288,500
Less: liabilities for securities purchased and accrued fees			(813,700)
Total investments, at fair value		\$	1,009,811,000

As of December 31, 2020, the Institute's investments, at fair value, by level within the fair value hierarchy, consist of the following:

	2020		
	Level 1	Net Asset Value	Total
<i>Common stock:</i>			
Consumer	\$ 27,377,900	\$ -	\$ 27,377,900
Technology	79,697,700	-	79,697,700
Financial services	42,772,400	-	42,772,400
Healthcare	32,947,600	-	32,947,600
Industrials	21,051,300	-	21,051,300
Energy	7,615,000	-	7,615,000
Other	13,216,500	-	13,216,500
Total common stocks	224,678,400	-	224,678,400
<i>Mutual funds:</i>			
Growth funds	56,471,400	-	56,471,400
Fixed income funds	157,819,600	-	157,819,600
Money market funds	159,319,000	-	159,319,000
Other funds	51,224,400	-	51,224,400
Total mutual funds	424,834,400	-	424,834,400
U.S. government securities	62,703,000	-	62,703,000
Commingled funds	-	89,190,400	89,190,400
	\$ 712,215,800	\$ 89,190,400	\$ 801,406,200
Cash held for investment			11,819,200
Add: receivables for securities sold and accrued interest			625,600
Less: liabilities for securities purchased and accrued fees			(718,500)
Total investments, at fair value		\$	813,132,500

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

Investments valued at NAV by major category as of December 31, 2021 and 2020 consisted of the following:

2021							
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.	\$126,456,900	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
2020							
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.	\$ 89,190,400	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 \$3,107,800 and \$3,435,900 as of December 31, 2021 and 2020, 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, net, for the years ended December 31, 2021 and 2020, are reflected in the accompanying consolidated statements of activities and consist of the following:

IEEE	2021	2020
Interest and dividends, net	\$ 12,013,200	\$ 9,868,300
Net realized and unrealized gains on investments	74,340,500	59,834,000
IEEE investment income, net	\$ 86,353,700	\$ 69,702,300

Investment expenses, which are netted with interest and dividends, amounted to \$1,595,500 and \$1,425,700 in 2021 and 2020, respectively.

For the years ended December 31, 2021 and 2020, 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	2021	2020
Interest and dividends, net	\$ 829,200	\$ 748,900
Net realized and unrealized gains on investments	5,528,400	4,587,100
IEEE Foundation investment income, net	\$ 6,357,600	\$ 5,336,000

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, 2021 and 2020 consist of the following:

	2021			2020		
	Cost	Accumulated Depreciation and Amortization	Net	Cost	Accumulated Depreciation and Amortization	Net
Buildings	\$ 17,385,900	\$ 15,469,200	\$ 1,916,700	\$ 17,385,900	\$ 14,985,000	\$ 2,400,900
Furniture, equipment, vehicles and computers	22,310,700	19,769,900	2,540,800	24,338,000	20,643,300	3,694,700
Software	83,023,700	61,938,200	21,085,500	78,592,300	64,994,500	13,597,800
Building improvements	21,504,300	14,873,900	6,630,400	21,846,400	14,089,000	7,757,400
	144,224,600	112,051,200	32,173,400	142,162,600	114,711,800	27,450,800
Land	836,400	-	836,400	836,400	-	836,400
Building improvements in progress	-	-	-	93,800	-	93,800
Information systems upgrade in process	1,960,900	-	1,960,900	7,213,300	-	7,213,300
Total	\$147,021,900	\$ 112,051,200	\$ 34,970,700	\$ 150,306,100	\$ 114,711,800	\$ 35,594,300

Depreciation and amortization expense amounted to \$11,045,200 and \$11,430,200 for the years ended December 31, 2021 and 2020, respectively, excluding amortization of intangible assets of \$0 and \$2,573,200 as of December 31, 2021 and 2020, respectively.

Furniture and equipment include assets acquired under capital leases of \$108,600 as of December 31, 2021 and 2020. Accumulated amortization of assets recorded under capital leases amounted to \$79,100 and \$55,000 at December 31, 2021 and 2020, respectively.

NOTE 6. CAPITAL LEASE OBLIGATIONS

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

Year	Amount
2022	\$ 21,900
2023	21,200
Total minimum lease payments	43,100
Less: Amount representing interest	(15,800)
Present value of minimum lease payments	\$ 27,300

NOTE 7. 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, 2021, and a statement of the funded status as of December 31, 2021 and 2020:

	Pension Benefits		Other Benefits	
	2021	2020	2021	2020
<i>Reconciliation of benefit obligation:</i>				
Obligation at January 1	\$ 98,661,200	\$ 92,855,500	\$ 8,895,300	\$ 7,630,100
Service cost	290,000	240,000	276,300	232,400
Interest cost	1,508,100	2,349,300	159,800	208,000
Actuarial (gain) loss	(5,128,200)	10,509,700	(437,900)	1,049,000
Benefit payments	(1,825,400)	(1,879,000)	(139,200)	(224,300)
Settlements	(2,970,900)	(5,414,300)	-	-
Obligation at December 31	\$ 90,534,800	\$ 98,661,200	\$ 8,754,300	\$ 8,895,200

Reconciliation of fair value of plan assets:

Fair value of plan assets at January 1	\$ 89,868,600	\$ 84,483,400	\$ -	\$ -
Actual return on plan assets	2,284,100	12,668,500	-	-
Employer contributions	1,200	10,000	138,200	224,300
Benefit payments	(1,825,400)	(1,879,000)	(138,200)	(224,300)
Settlements	(2,970,900)	(5,414,300)	-	-
Fair value of plan assets at December 31	\$ 87,357,600	\$ 89,868,600	\$ -	\$ -

Funded status at December 31	\$ (3,177,200)	\$ (8,792,600)	\$ (8,754,300)	\$ (8,895,200)
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Accumulated benefit obligation	\$ 90,534,800	\$ 98,661,200	\$ 8,754,300	\$ 8,895,200
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At December 31, 2021 and 2020, the funded status of the plans is reported on the consolidated statements of financial position as follows:

	Pension Benefits		Other Benefits	
	2021	2020	2021	2020
Current liabilities	\$ (7,600)	\$ (4,200)	\$ (322,000)	\$ (307,400)
Noncurrent liabilities	(3,169,600)	(8,788,400)	(8,432,300)	(8,587,800)
Net Amount Recognized	\$ (3,177,200)	\$ (8,792,600)	\$ (8,754,300)	\$ (8,895,200)

Cumulative amounts recognized in changes in net assets without donor restrictions and not yet recognized in net periodic benefit cost as of December 31, 2021 and 2020 consist of:

	Pension Benefits		Other Benefits	
	2021	2020	2021	2020
Net loss	\$ 11,194,300	\$ 17,155,900	\$ 1,901,300	\$ 2,469,500

The following table provides the components of net periodic benefit cost for the plans for 2021 and 2020:

	Pension Benefits		Other Benefits	
	2021	2020	2021	2020
Service cost	\$ 290,000	\$ 240,000	\$ 276,300	\$ 232,400
Interest cost	1,508,100	2,349,300	159,800	208,000
Expected return on plan assets	(2,607,800)	(3,086,900)	-	-
Amortization of net loss	789,900	983,100	130,400	63,100
Settlement loss	367,200	941,400	-	-
Net periodic benefit cost	\$ 347,400	\$ 1,426,900	\$ 566,500	\$ 503,500

Amounts recognized in changes in net assets without donor restrictions for the years ended December 31, 2021 and 2020 consist of:

	Pension Benefits		Other Benefits	
	2021	2020	2021	2020
Net (gain) loss	\$ (4,804,500)	\$ 928,100	\$ (437,900)	\$ 1,049,000
Amortization of net loss	(1,157,100)	(1,924,500)	(130,300)	(63,100)
Pension and related benefits activity other than net periodic benefit cost	\$ (5,961,600)	\$ (996,400)	\$ (568,200)	\$ 985,900

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	
	2021	2020	2021	2020
Weighted-average assumptions as of December 31				
Discount rate	2.59%	2.19%	2.71%	2.35%
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	
	2021	2020	2021	2020
Weighted-average assumptions as of December 31				
Discount rate	2.19%	3.00%	2.35%	3.11%
Expected return on plan assets	3.00%	3.80%	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 2021 under the Internal Revenue Service ("IRS") minimum funding regulations.

IEEE expects to contribute approximately \$8,000 to its nonqualified pension plan and approximately \$322,000 to its other post-retirement benefit plans during 2022.

Expected Benefit Payments

	Pension Benefits		Other Benefits	
2022	\$	4,927,300	\$	322,000
2023		5,435,600		324,300
2024		5,270,900		327,600
2025		4,918,700		338,000
2026		4,887,100		346,500
2027 to 2031		23,957,600		1,895,500

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 2021 and 2020, and the target asset allocation for 2021 and 2020 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	
		2021	2020	2021	2020
Equity securities	10%	11%	12%	N/A	N/A
Debt securities	90%	88%	87%	N/A	N/A
Cash and cash equivalents	0%	1%	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 5% in 2021 and 2020. 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, 2021:

	2021			
	Level 1	Level 2	Net Asset Value	Total
Common stock:				
Consumer	\$ 1,266,600	\$ -	\$ -	\$ 1,266,600
Technology	1,799,800	-	-	1,799,800
Industrials	361,800	-	-	361,800
Healthcare	622,800	-	-	622,800
Financial services	460,000	-	-	460,000
Materials	221,500	-	-	221,500
Other	97,600	-	-	97,600
Total common stocks	4,830,100	-	-	4,830,100
Equity mutual funds	4,495,100	-	-	4,495,100
Corporate bonds	-	52,804,200	-	52,804,200
U.S. government securities	20,951,400	-	-	20,951,400
Municipal bonds	-	1,589,600	-	1,589,600
Foreign bonds	-	729,500	-	729,500
Collective trust fund	-	-	1,301,600	1,301,600
	\$ 30,276,600	\$ 55,123,300	\$ 1,301,600	\$ 86,701,500
Cash held for investment				3,400
Add: receivables for securities sold and accrued interest				652,700
Total pension plan investments				\$ 87,357,600

The following table prioritizes the inputs used to measure and report the fair value of the Institute's pension plan assets at December 31, 2020:

	2020			
	Level 1	Level 2	Net Asset Value	Total
Common stock:				
Consumer	\$ 1,439,000	\$ -	\$ -	\$ 1,439,000
Technology	1,781,900	-	-	1,781,900
Industrials	429,200	-	-	429,200
Healthcare	747,000	-	-	747,000
Financial services	643,100	-	-	643,100
Energy	282,800	-	-	282,800
Other	195,300	-	-	195,300
Total common stocks	5,518,300	-	-	5,518,300
Equity mutual funds	4,968,000	-	-	4,968,000
Corporate bonds	-	74,113,800	-	74,113,800
U.S. government securities	624,600	-	-	624,600
Municipal bonds	-	1,742,600	-	1,742,600
Foreign bonds	-	1,156,500	-	1,156,500
Collective trust fund	-	-	1,063,300	1,063,300
	\$ 11,110,900	\$ 77,012,900	\$ 1,063,300	\$ 89,187,100
Cash held for investment				100
Add: receivables for securities sold and accrued interest				681,400
Total pension plan investments				\$ 89,868,600

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, 2021 and 2020:

2021							
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.	\$ 1,301,600	1	Subject to the determination of the respective fund manager.	N/A	Daily redemption, upon notice.	N/A
2020							
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.	\$ 1,063,300	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 \$5,062,300 and \$4,937,300 on behalf of eligible employees to the Plan in 2021 and 2020, respectively. Amounts payable at December 31, 2021 and 2020 totaled \$90,200 and \$65,300, 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 \$10,768,300 and \$10,825,900 to this plan in 2021 and 2020, respectively. Amounts payable at December 31, 2021 and 2020 totaled \$206,300 and \$160,200, 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 \$8,396,800 and \$7,133,200 pertaining to obligations due under the 457(b) plan are accrued and included in accrued pension and other employee benefits at December 31, 2021 and 2020, respectively, and the related 457(b) plan assets are included in investments on the accompanying consolidated statements of financial position.

NOTE 8. NATURAL EXPENSES

The following table summarizes the Institute's natural expense classification presented below for the years ended December 31, 2021 and 2020.

	2021						
	Program Services					Supporting Services	
	Memberships	Periodicals and Media	Conferences	Standards	Public Imperatives	General and Administrative	Total
People costs and related expense	\$ 44,440,500	\$ 78,014,900	\$ 30,711,400	\$ 20,312,100	\$ 4,739,700	\$ 1,541,400	\$ 179,760,000
Commission, licensing and royalty	1,342,200	29,678,100	815,400	67,700	100	-	31,903,500
Conference event-related expense	218,800	9,200	31,448,700	138,400	48,100	4,000	31,867,200
Consultants and contractors	4,709,600	7,186,400	5,384,200	7,143,000	244,700	127,100	24,795,000
Printing and publishing expense	4,917,000	13,716,900	2,081,400	191,500	297,000	4,700	21,208,500
Depreciation and amortization	1,612,900	3,322,900	1,436,600	2,877,300	32,000	1,763,500	11,045,200
Maintenance expense	1,941,500	5,964,700	1,692,300	913,400	500	294,400	10,806,800
Computer software and related expense	2,044,000	4,244,600	1,643,600	1,292,200	42,100	18,200	9,284,700
Marketing and promotions	2,357,800	3,706,100	1,054,500	398,600	125,900	25,600	7,668,500
General office expenses	2,694,300	3,597,500	538,500	235,300	189,700	146,800	7,402,100
Grants, awards, scholarships and others	1,137,600	291,300	674,900	48,400	4,209,700	128,600	6,490,500
Professional Fees	1,164,900	3,477,700	1,326,500	208,300	12,100	1,300	6,190,800
Operating leases and related expense	846,600	183,600	132,200	30,100	199,500	3,608,400	5,000,400
Travel, meetings and accommodation	1,534,200	455,000	1,100,600	370,800	5,000	18,900	3,484,500
Insurance expense	144,700	286,300	584,400	213,700	1,700	85,700	1,316,500
Communication-related services	101,600	460,100	40,600	101,700	3,300	10,700	718,000
Bad debt expense	76,200	19,700	46,300	2,800	-	6,400	151,400
Various other expenses	11,305,600	3,767,600	3,055,300	3,381,800	331,600	101,900	21,943,800
Total	\$ 82,590,000	\$ 158,382,600	\$ 83,767,400	\$ 37,927,100	\$ 10,482,700	\$ 7,887,600	\$ 381,037,400

	2020						
	Program Services					Supporting Services	
	Memberships	Periodicals and Media	Conferences	Standards	Public Imperatives	General and Administrative	Total
People costs and related expense	\$ 44,099,200	\$ 82,152,200	\$ 29,393,700	\$ 19,741,100	\$ 4,649,000	\$ 1,073,900	\$ 181,109,100
Commission, licensing and royalty	1,620,200	39,744,900	854,000	171,600	15,700	-	42,406,400
Conference event-related expense	116,000	-	36,167,500	-	22,000	33,200	36,338,700
Consultants and contractors	2,434,100	6,803,100	1,426,500	6,305,400	323,300	172,900	17,465,300
Printing and publishing expense	6,845,200	12,020,100	2,122,000	402,900	439,300	900	21,830,400
Depreciation and amortization	1,598,600	6,614,800	1,195,400	2,620,100	55,200	1,919,300	14,003,400
Maintenance expense	1,481,000	4,059,400	1,314,800	512,800	17,600	192,900	7,578,500
Computer software and related expense	2,233,600	4,460,400	1,306,900	1,342,100	76,700	56,100	9,475,800
Marketing and promotions	1,632,400	2,749,500	546,000	10,200	80,700	26,300	5,045,100
General office expenses	3,487,700	3,072,300	416,900	214,200	112,200	66,400	7,369,700
Grants, awards, scholarships and others	926,700	325,200	380,200	40,600	4,072,800	72,300	5,817,800
Professional fees	1,549,900	4,173,000	576,900	245,400	-	1,500	6,546,700
Operating leases and related expense	745,800	222,900	89,500	31,000	195,100	3,370,200	4,654,500
Travel, meetings and accommodation	3,629,300	1,569,500	1,057,500	2,015,500	220,500	78,700	8,571,000
Insurance expense	161,300	237,800	597,600	164,000	15,900	63,700	1,240,300
Communication-related services	164,900	588,600	42,200	66,400	3,600	6,300	872,000
Bad debt expense	285,600	361,100	133,000	120,200	-	9,400	909,300
Various other expenses	7,541,600	2,681,300	7,344,800	3,727,200	941,900	-	22,236,800
Total	\$ 80,553,100	\$ 171,836,100	\$ 84,965,400	\$ 37,730,700	\$ 11,241,500	\$ 7,144,000	\$ 393,470,800

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 \$45 million and \$49 million of Society administrative, committee and executive expenses and approximately \$58 million and \$51 million of indirect corporate overhead charges in 2021 and 2020, respectively.

NOTE 9. 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, 2021 and 2020. 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.

	2021	2020
Net revenues	\$ 461,920,500	\$ 464,633,200
Less: Cost of revenues	153,355,600	160,214,700
Direct contribution to surplus	\$ 308,564,900	\$ 304,418,500
Expenses:		
Selling	\$ 30,996,600	\$ 35,454,500
Marketing	24,772,000	24,301,200
Development and design	13,686,500	14,238,300
Supporting services	147,744,000	148,020,600
Contribution to surplus	\$ 91,365,800	\$ 82,403,900
Public imperatives, net	(8,079,700)	(8,839,400)
Non-operating activities:		
Investment income, net	\$ 86,353,700	\$ 69,702,300
Loss on sale and dissolution of IEEE GlobalSpec, Inc.	-	(10,691,000)
Gain on insurance recoveries	9,582,000	-
Pension benefit	6,529,800	10,400
Surplus before tax	185,751,600	132,586,200
Benefit for income taxes	327,800	499,400
Net surplus after tax	\$ 186,079,400	\$ 133,085,600

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 to generate additional sales of existing products or services, including brand awareness, promotions, displays and media.

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

Supporting Services: 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 10. 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, 2021 and 2020 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.

	2021	2020
Cash and cash equivalents	\$ 17,410,800	\$ 20,126,300
Accounts receivable, less allowance for doubtful accounts	34,843,600	27,451,200
Investments, at fair value	1,009,811,000	813,132,500
Investments - other	3,107,800	3,435,900
Total financial assets available within one year	1,065,173,200	864,145,900
Less:		
IEEE Board-designated net assets	11,044,100	18,604,200
Amounts held on behalf of IEEE Foundation, Incorporated	63,019,700	54,112,600
Amounts subject to expenditure for specified donor purposes	1,421,200	1,415,700
Amounts relating to endowment funds with donor restrictions	676,000	633,100
Total amounts unavailable for general expenditures within one year	76,161,000	74,765,600
	\$ 989,012,200	\$ 789,380,300

NOTE 11. NET ASSETS AND ENDOWMENT FUNDS

Net assets with donor restrictions are available for the following purposes at December 31, 2021 and 2020:

	2021	2020
Grant funds held for specific purposes	\$ 732,900	\$ 737,700
Funds held for awards, medals and other specific purposes	688,300	678,000
Donor-restricted endowment funds, including accumulated unspent appreciation of \$484,600 and \$441,700	676,000	633,100
	\$ 2,097,200	\$ 2,048,800

Net assets were released from donor restrictions by incurring expenses satisfying the restricted purposes for the years ended December 31, 2021 and 2020 as follows:

	2021	2020
Grant funds released for specific purposes	\$ 56,800	\$ 128,200
Funds released for awards, medals and other specific purposes	26,500	15,200
	\$ 83,300	\$ 143,400

Donor-imposed endowment net assets at December 31, 2021 and 2020 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 \$676,000 and \$633,100 as of December 31, 2021 and 2020, 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, 2021 and 2020:

	2021		
	Without Donor Restrictions	With Donor Restrictions	Total
Donor-restricted endowment funds	\$ -	\$ 676,000	\$ 676,000

	Without Donor Restrictions	With Donor Restrictions	Total
Endowment assets, beginning of year	\$ -	\$ 633,100	\$ 633,100
Dividends and interest	-	10,400	10,400
Net realized and unrealized appreciation in fair value of endowment assets	-	58,500	58,500
Endowment return used for operations	-	(26,000)	(26,000)
Endowment assets, end of year	\$ -	\$ 676,000	\$ 676,000

	2020		
	Without Donor Restrictions	With Donor Restrictions	Total
Donor-restricted endowment funds	\$ -	\$ 633,100	\$ 633,100

	Without Donor Restrictions	With Donor Restrictions	Total
Endowment assets, beginning of year	\$ -	\$ 589,300	\$ 589,300
Dividends and interest	-	10,100	10,100
Net realized and unrealized appreciation in fair value of endowment assets	-	48,500	48,500
Endowment return used for operations	-	(14,800)	(14,800)
Endowment assets, end of year	\$ -	\$ 633,100	\$ 633,100

NOTE 12 - OPERATING LEASES

At December 31, 2021, minimum rental commitments due under noncancelable operating leases for office space and computer equipment are as follows:

Year	Amount
2022	\$ 2,427,400
2023	2,302,100
2024	2,154,400
2025	2,009,500
2026	774,100
Thereafter	1,864,400
	\$ 11,531,900

The leases for the office space are subject to escalation. Total rent expense for noncancelable operating leases amounted to \$3,249,800 and \$3,358,600 in 2021 and 2020, respectively.

Letters of Credit

At December 31, 2021, the Institute had irrevocable standby letters of credit with Wells Fargo Bank, N.A., in the amount of \$583,000, which serve as security deposits 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, 2020, the Institute had issued standby letters of credit in relation to certain dealers' agreements and VAT tax payments totaling \$566,400 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.

NOTE 13 - 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 \$438,000 and \$423,000 in 2021 and 2020, 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 approximately \$865,200 and \$830,800 during 2021 and 2020, respectively. The Institute provided fundraising administrative services (contributed services) during 2021 and 2020 that were not reimbursed by the Foundation, that were valued at approximately \$1,366,700 and \$1,221,300 during 2021 and 2020, respectively.

The Institute held on deposit approximately \$63,019,700 and \$54,112,600 from the Foundation at December 31, 2021 and 2020, 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 \$604,600 and \$889,200 at December 31, 2021 and 2020, respectively, and other receivables of approximately \$111,100 and \$38,400 at December 31, 2021 and 2020, respectively, and are included in accounts receivable on the accompanying consolidated statements of financial position. Amounts due to the Foundation of approximately \$264,600 and \$91,800 at December 31, 2021 and 2020, respectively, are included in accounts payable and accrued expenses on the accompanying consolidated statements of financial position.

NOTE 14 - COVID-19

The COVID-19 pandemic, whose effects first became known in January 2020, caused economic interruptions through mandated and voluntary closings of businesses and organizations throughout the United States. 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 fully 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 consolidated financial statements include no adjustments relating to the effects of this pandemic.

The Institute worked together as a worldwide organization and kept moving forward by being agile and responsive with its activities. In-person conferences that were originally scheduled to take place from February 2020 through December 2021 were canceled or transitioned to virtual events. Conference activities continue to be subject to increased volatility because of pandemic-related conditions, including local outbreaks and travel restrictions. The Institute continues to adhere to guidance from the Centers for Disease Control and Prevention, the World Health Organization, and state, local, and international governments. The consolidated financial statements reflect insurance recovery proceeds relating to the cancellation of conferences that were originally scheduled to be held in 2020. The Institute recognized a gain from insurance recoveries totaling \$9,582,000 in the accompanying 2021 consolidated statement of activities.



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