

Strategic Long-Range Plan

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*Facilitated by*: <http://ideasforactionllc.com/>



Executive Summary

The IEEE Microwave Theory and Technology Society (IEEE MTT-S) embarked on a strategic planning process to chart a bold, forward-thinking course for the next decade. Grounded in the Society’s enduring purpose and values, this Strategic Long-Range Plan reflects months of collaborative dialogue, member insight, and expert facilitation from Ideas for Action. Two major retreats—in San Juan and San Francisco—served as catalysts for refining the Society’s core direction and preparing it to lead in a rapidly evolving professional, technological, and global landscape.

The resulting plan is built on a strategic horizon framework that balances continuity with innovation. It affirms IEEE MTT-S’s core ideology—its purpose, values, and field of interest—while identifying a Big Audacious Goal (BAG) and vivid descriptions that illustrate what success will look like 10–30 years into the future.

To guide its efforts over the next 3–5 years, IEEE MTT-S has adopted seven outcome-oriented strategic goals:

1. **Increase Membership Engagement & Retention**
2. **Enhance Industry Engagement & Collaboration**
3. **Strengthen Educational & Professional Development Initiatives**
4. **Enhance Conference & Publication Quality and Accessibility**
5. **Pioneer Multidisciplinary and Cross-Sectoral Technologies**
6. **Maintain Financial Stability**
7. **Expand Outreach to Other Societies, Industry, Practitioners, and the Public**

These goals are paired with clear objectives and strategy recommendations that reflect input from across the Society—ensuring alignment with real-world challenges and member needs. The plan also considers critical assumptions about the future, including trends in technology, demographics, and global collaboration, allowing for greater agility in decision-making and resource planning.

This Strategic Long-Range Plan serves as both a compass and a catalyst. It will guide IEEE MTT-S toward deeper relevance, broader impact, and a future where microwave theory and technology continue to benefit humanity on a global scale.

Overview

The Microwave Theory and Technology Society (IEEE MTT-S) strategic long-range plan describes a desired vision and what will be essential to achieving that vision. It is grounded in core ideology and driven by an envisioned future that realizes the full potential of IEEE MTT-S’s ability to support its stakeholders and the industry. IEEE MTT-S’s commitments are articulated in goals that declare the outcomes or attributes the organization intends to achieve. Objectives represent key metrics affecting IEEE MTT-S’s ability to achieve the goal and articulate the direction in which these issues must be moved. Strategies will describe how IEEE MTT-S plans to commit its limited resources to make its vision a reality.

In the future, IEEE MTT-S will not be able to be all things to all people, but it must be different things to different people as the plan evolves to meet the needs of a constantly changing professional environment. Therefore, underlying this plan is the adoption of an ongoing process of planning and thinking strategically, designed to ensure relevance of direction and action over time.

In developing this strategic plan, a framework for planning was utilized, based on a model that organizes conversations about the future into four distinct planning “horizons.” Ideas for Action has found the use of this framework to be a powerful tool. It helps organizations in prioritizing and executing outcomes as well as in ensuring relevance of an organization’s long-range direction over time.



**Envisioned future**. The “four planning horizons” framework consists of crafting a comprehensive strategic direction based on the balance between what does not change--the timeless principles of the organization’s core purpose and core values (core ideology) -- and what the organization seeks to become within a 10- to 30-year horizon--what would be possible beyond the restraints of the current environment.

The 10- to 30-year horizon is characterized by the articulation of an envisioned future--a BAG (big audacious goal) --and a vivid description--what it will be like to achieve the goal.

**Critical factors**. The articulation of the envisioned future guides the organization as it considers the factors that will affect its ability to achieve its goals. Building foresight about the 5- to 10-year horizon--assumptions, opportunities, and critical uncertainties in the likely

relevant future as well as emerging strategic mega-issues--suggest critical choices about the potential barriers the organization will face. This foresight also suggests the responses the organization will need to consider in navigating its way toward achievement of its 10- to 30-year goal, or BAG.

**Strategic plan and operational planning**. The linkage continues into the 3- to 5-year horizon through the development of a formal long-range strategic plan, in which the organization articulates the outcomes it seeks to achieve for its stakeholders. How will the world be different as a result of what the organization does? Who will benefit, and what will the likely results be? Further, the articulation of strategies will bring focus to IEEE MTT-S’s annual operational allocation of discretionary resources. Action plans, checkpoints, and milestones will be developed through a process of operational planning, indicating IEEE MTT-S’s progress toward each goal in every planning year.

A strategic long-range plan is not intended as a substitute for an annual program or operating plan. It does not detail all the initiatives, programs, and activities the organization will undertake in the course of serving its membership and the industry, nor can it foresee changes to the underlying assumptions on which key strategic choices were based. Instead, the strategic plan identifies what IEEE MTT-S is not doing today but must be doing in the future to be successful. Consequently, the strategic plan implies change-- doing new things or doing more or less of current activities to ensure successful outcomes.

Ongoing Re-evaluation. Strategic planning for IEEE MTT-S should become the methodology for the organization’s operations. If it is successful, this process will not have yielded a plan to be placed on the shelf but will have served as a catalyst for the “process of planning strategically,” at all times and at all levels throughout the organization. In order to achieve its vision, IEEE MTT-S must not look at strategic long-range planning as a one-time project that produces a milestone document of its best thinking at the moment. Instead, IEEE MTT-S must adopt strategic planning as an operational philosophy of ongoing re-evaluation of the critical knowledge bases that form the framework of its world, including:

* Sensitivity to member needs, insight into the future environment of the industry,
* Understanding of the capacity and strategic position of the organization, and
* Effective analysis of the ethical implications of policy and program choices.

IEEE MTT-S’s strategic long-range plan represents a compass the organization will use to guide its work over the next five years. Each year of its life, the plan will be updated based on experience or new circumstances or as new opportunities or challenges emerge. In 2030, IEEE MTT-S should author a new strategic long-range plan based upon the new environment expected to exist in a rapidly evolving world.

Strategic Planning Timeline (2025-2030)

The visual below illustrates the key milestones and phases of implementation for the IEEE MTT-S Strategic Long-Range Plan, providing a year-by-year view of progress and engagement.

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# 10-30 Year Planning Horizon Core Ideology & Envisioned Future

***Core ideology*** *describes an organization’s consistent identity that transcends all changes related to its relevant environment. Core ideology consists of two notions: core purpose – the organization’s reason for being – and core values – essential and enduring principles that guide an organization.*

***Envisioned future*** *conveys a concrete, but yet unrealized, vision for the organization. It consists of a big audacious goal – a clear and compelling catalyst that serves as a focal point for effort – and a vivid description – vibrant and engaging descriptions of what it will be like to achieve the big audacious goal.*

### Core Ideology

##### Core Purpose:

To foster the advancement and application of microwave science and technology to serve the Megahertz-to-Terahertz (MHz-to-THz) community for the benefit of humanity.

##### Identity - Field of Interest (FOI):

The field of interest of the society shall be theory, techniques and applications of guided wave and wireless technologies spanning the electromagnetic spectrum from RF/microwave through millimeter-waves and terahertz, including the aspects of materials, components, devices, circuits, modules, and systems which involve the generation, modulation, demodulation, control, transmission, sensing and effects of electromagnetic signals. It shall include scientific, technical, and industrial activities.

Microwave Theory and Technology apply physical and mathematical principles to analyze structures with dimensions representing a significant fraction of a wavelength or when propagation effects need to be considered.

**Core Values:**

The core values of IEEE MTT-S represent the foundational principles that define who we are, what we stand for, and how we lead. These enduring beliefs serve as the ethical and cultural compass that guides our decisions, actions, and collaborations across the globe.

While the field of microwave theory and technology continues to evolve, our values remain steady reflecting our deep commitment to technical excellence, inclusive growth, and the responsible advancement of science and technology for the benefit of humanity.

Each value below captures the essence of our society’s mission while embracing the diverse contributions of our members, partners, and broader community. Together, they reflect the spirit of IEEE MTT-S as we move boldly toward our envisioned future.

1. **Innovation, Excellence & Technical Integrity**

Commitment to pioneering research, unbiased publication, and rigorous standards that advance microwave and RF technologies with integrity.

1. **Education, Mentorship & Lifelong Learning**

Empowering the next generation through accessible education, expert-led training and a culture of mentorship and continuous development.

1. **Collaboration, Inclusivity & Volunteerism**

Fostering an inclusive and multidisciplinary global community of engineers, scientists, and volunteers who thrive on shared purpose and diverse contributions.

1. **Broadening Participation**

Uplifting voices across the spectrum of participants and affected individuals ensuring representation and relevance in a changing global landscape.

1. **Ethics, Sustainability & Public Impact**

Promoting ethical advancement of technology, sustainability in practice, and broad outreach to serve both the profession and society at large.

1. **Industry Partnership & Real-World Relevance**

Strengthening ties with industry to ensure IEEE MTT-S work addresses practical needs, fuels innovation, and shapes the future of applied science.

1. **Respect, Trust & Shared Culture**

Anchoring all actions in a culture defined by respect, peer recognition, integrity, and collaborative spirit—our guiding ethos.

### Envisioned Future

##### Big Audacious Goal:

Be the leading collaborative, multidisciplinary global community viewed as the trusted source for the Megahertz-to-Terahertz (MHz-to-THz) science and technology.

**Vivid Descriptions:**

The following vivid descriptions represent aspirational, yet achievable expressions of what IEEE MTT-S strives to become in the years ahead. Rooted in the Society’s mission and core values, these statements serve as guiding touchpoints for strategic planning, organizational growth, and global impact. Each one offers a compelling glimpse into the Society’s envisioned future—where innovation, engagement, and excellence intersect to advance microwave science and technology for the benefit of humanity.

1. **Global Authority in Microwave Science & Technology**

IEEE MTT-S will be internationally recognized as the most trusted and authoritative source of knowledge, research, and professional standards across the full MHz-to-THz spectrum—advancing both engineering and science with integrity.

1. **Premier Hub for Lifelong Learning & Career Advancement**

IEEE MTT-S will serve as the leading global destination for career development, offering cutting-edge technical education, mentorship, and professional growth tools for engineers and scientists at every stage.

1. **Pioneer in Multidisciplinary Innovation**

The Society will drive cross-disciplinary collaboration and breakthrough innovations that bridge academia, government, and industry, influencing everything from applied research to emerging technologies.

1. **Champion of Ethical Policy & Public Impact**

IEEE MTT-S will be a respected voice in global policy and regulation, advocating for ethical, inclusive, and science-based approaches to standards, public outreach, and responsible technology dissemination.

1. **Bridge Between Academia and Industry**

IEEE MTT-S will build strategic partnerships that accelerate research translation, foster commercialization, and ensure relevance to both industrial applications and academic excellence.

1. **Leader in Sustainable, Accessible Programming**

The Society will continually evolve its conferences, training, and outreach through hybrid formats and regional expansion—ensuring inclusive, environmentally conscious, and globally accessible engagement.

1. **Distinguished Publisher & Standard Bearer**

IEEE MTT-S is and will continue to be known for producing high-quality, peer-reviewed publications and setting trusted technical standards that shape the future of RF, microwave, and terahertz technologies.

1. **Unified Yet Distinct Within IEEE**

While collaborating closely with other IEEE societies, IEEE MTT-S will retain its unique identity and specialized expertise—standing out for its depth in theory, application, and community impact.

# 5-10 Year Planning Horizon Assumptions about the Future

**Assumption** statements will help IEEE MTT-S purposefully update the strategic plan on an annual basis. Goals are a necessary foundation for good organizational strategy. Goals are based, in part, on anticipation of the possible future. IEEE MTT-S's projected future environment is described in this section. When conditions change, strategy needs to be adjusted. An annual review of these assumptions will help the Society ensure the ongoing relevance of its strategy.

#### Social, Cultural and Consumer Trends:

1. Virtual Meetings have become more acceptable.
2. Open Access is becoming more expected by consumers.
3. Shift in IMS exhibitor expectations, some for networking, others for direct ROI per lead.
4. More informal methods of meeting and publishing changing the paradigm.
5. Increase in publications from outside the U.S.
6. Shift toward more commercially driven technology applications and away from defense.

**Regulatory:**

1. Regulation will be a major factor for the foreseeable future.

2. The uncertainty caused by the Trump Administration will impact many aspects of the industry and the community in a multitude of ways.

3. Regulations could be used as a weapon in economic conflict

4. There is a need for a non-political authority on the technical merits of key technologies

5. There are opportunities to be engaged in the standardization process

**Science and Technology:**

1. Sustainability will play a significant role in future innovations, but applications may be country or region specific.
2. Energy harvesting and wireless power transfer will gain traction.
3. Medical applications will be a growth area.
4. AI will automate low-level RF engineering tasks but enhance high-level system design opportunities.
5. Geographic shifts in technological development will influence conference locations.
6. Increased focus on software-defined systems and interdisciplinary research.
7. There will be significant growth in quantum and neuromorphic computing.
8. Globalization of research efforts and collaboration with emerging technological hubs.

**Demographics of Students:**

1. Growth in student populations will be significant in India and China, while North America and Europe may see slower growth.
2. Future engineers will require more interdisciplinary knowledge combining RF and software-defined systems.
3. I-driven learning and large language models (LLMs) will change how students access technical knowledge.
4. Increased demand for mentorship programs to bridge the skills gap.
5. Industry is struggling to attract top talent due to competition with more lucrative tech fields and less awareness of the opportunities in the field. Branding of the field does not help.
6. Growth disparities across global regions require customized engagement strategies.
7. Students may see value in person-to-person connections and community in associations such as IEEE MTT-S

**Demographics of Members:**

1. More diverse membership in terms of age, gender, profession and region.
2. There will be a shift in regional distribution in members away from the US and Europe.
3. IEEE-MTT-S membership fee structure will shape who joins.
4. Membership retention improves with more senior membership elevation.

**Economic Climate:**

1. Conference participation from industry and government may decline due to proprietary concerns and costs.
2. Open-access publishing models will impact IEEE MTT-S revenue from publications.
3. Visa restrictions may limit conference attendance from certain regions.
4. Increasing costs for conference organization and attendance impacting membership participation.

**Industry and Professional Practice Assumptions:**

1. Certification may gain more importance, potentially reducing the emphasis on degrees.
2. Industry membership will be individually motivated rather than corporate-sponsored.
3. RF/microwave industries face challenges attracting top talent due to prestige and pay gaps.
4. New technologies may disrupt professional growth opportunities.
5. The format of IEEE MTT-S events may shift towards skill-based boot camps and recruitment drives.
6. Growing need for practical applications in professional development programs.
7. There is uncertainty about how onshoring and globalization will affect the industry.

# 3-5 Year Planning Horizon

Outcome-Oriented Goals

*Goals are outcome-oriented statements that represent what will constitute the organization’s future success. The achievement of each goal will move IEEE MTT-S towards the realization of its vision. The goals are not in any order of priority. Every goal will need to be accomplished if the organization is to fully achieve its vision.*

The following seven strategic goals reflect the collective insights of IEEE MTT-S members and contributors, gathered through recent retreats and collaborative planning sessions. Each goal represents a priority area, essential to advancing the Society’s mission and sustaining its leadership in a rapidly evolving technological landscape.

1. **Increase Membership Engagement & Retention**
2. **Enhance Industry Engagement and Collaboration**
3. **Strengthen Educational & Professional Development Initiatives**
4. **Enhance Conference & Publication Quality and Accessibility**
5. **Pioneer Multi-Disciplinary and Cross-Sectorial Technology**
6. **Maintain Financial Stability**
7. **Expand Outreach to Other Societies, Industry, Practitioners and the General Public**

Listed below are the key objectives and strategies that emerged during the sessions. They are intended to inform future planning, guide implementation efforts, and ensure that each goal is grounded in actionable, member-informed priorities.

## Goal 1: Increase Membership Engagement & Retention

***Goal:***

Increase Membership Engagement & Retention

Objectives:

1. Define and communicate a clear value proposition for key segments (e.g., industry professionals, young professionals, international members).
2. Create new membership categories tailored for industry labs and practitioners.
3. Match industry and practitioner priorities with IEEE MTT-S programming and volunteer opportunities.
4. Improve accessibility through multilingual resources, hybrid offerings, and regional hubs.
5. Increase early-career engagement through competitions, mentoring, and student outreach.

Possible Strategies:

1. Create sponsorship packages.
2. Identify specific privileges for organizations which sign up multiple members, (e.g., 10 members get access to IEEE MTT-S publications, 100 members also get recognition at events, 1000 members get an additional benefit TBD.
3. Improve motivation, recruitment, and retention of students by bringing microwave science and engineering into educational focus pre-college/university.
4. Survey industry and practitioner groups to identify priorities to allow IEEE MTT-S to align programming and volunteer opportunities.

## Goal 2: Enhance Industry Engagement & Collaboration

Goal:

Enhance Industry Engagement & Collaboration

Objectives:

1. Increase industry membership and improve visibility of IEEE MTT-S benefits for applied practitioners.
2. Strengthen awareness of IEEE MTT-S through targeted industry campaigns and success stories.
3. Develop structured pathways for collaboration, such as sponsored challenges, joint panels, or practitioner networks.
4. Address industry concerns (e.g., IP sharing, cost, relevance) by refining policies and event design.

Possible Strategies:

1. Create a forum for discussing IP issues.
2. Collaborate with other IEEE Societies and Councils and non-IEEE entities to increase awareness of IEEE MTT-S Activities.

## Goal 3: Strengthen Educational & Professional Development Initiatives

Goal:

Strengthen Educational & Professional Development Initiatives

Objectives:

1. Increase the number of advanced training courses and certification pathways offered by IEEE MTT-S.
2. Collaborate with IEEE-USA to expand professional development programming.
3. Clarify and consistently message IEEE MTT-S’s value to applied technologists and educators.
4. Launch regional education efforts (e.g., workshops, career panels, mentorship hubs).

Possible Strategies:

1. Develop more digital training materials.
2. Establish collaborations with other IEEE societies to develop joint interdisciplinary courses and materials.
3. Publish more industry-relevant articles to support practitioner learning.
4. Focus the conference and education portfolio to reflect strategic priorities and member needs.

## Goal 4: Enhance Conference & Publication Quality and Accessibility

Goal:

Enhance Conference & Publication Quality and Accessibility

Objectives:

1. Increase the reviewer pool and provide mentorship/training in peer review.
2. Advance open access models while maintaining technical rigor and financial viability.
3. Increase the use of digital materials and online tutorials to expand publication impact and engagement.

Possible Strategies:

1. Offer training in technical writing and publishing for students and new contributors.
2. Introduce best paper awards and recognize publication excellence across formats.

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## Goal 5: Pioneer Multidisciplinary and Cross-Sectoral Technology

Goal:

Pioneer Multidisciplinary and Cross-Sectoral Technologies

Objectives:

1. Encourage joint initiatives across IEEE Societies, sectors (e.g., healthcare, AI), and global regions.
2. Increase number of members with multidisciplinary experience.
3. Promote applied research translation and real-world innovation through interdisciplinary symposia.

Possible Strategies:

1. Actively recruit and support members with multidisciplinary experience.
2. Engage with other Societies to identify areas of potential collaboration.
3. Reduce membership costs for individuals involved in multiple IEEE societies to foster collaboration.
4. Identify interdisciplinary symposia topics and create plans for establishing the symposia.

## Goal 6: Maintain Financial Stability

Goal:

Maintain Financial Stability

Objectives:

1. Expand and diversify funding sources beyond traditional revenue streams (e.g., training, licensing, industry sponsorship).
2. Maximize stability of existing funding sources.
3. Augment financial resiliency.

Possible Strategies:

1. Monitor trends in global participation, registration costs, and conference models.
2. Evaluate and refine the return on investment for new programs and partnerships.
3. Invest in scalable digital infrastructure that supports long-term resilience and adaptability.

## Goal 7: Expand Outreach to Other Societies, Industry, Practitioners, and the Public

Goal:

Expand Outreach to Other Societies, Industry, Practitioners, and the Public

Objectives:

1. Identify and promote microwave-related projects through social media and storytelling platforms to raise awareness among the general public of our community.
2. Improve coordination with IEEE Spectrum and other media to close visibility gaps.
3. Increase collaboration across societies to create unified messaging and shared public engagement efforts.
4. Develop outreach campaigns targeting non-traditional practitioners and the general public to increase awareness of the societal impact of microwave technologies.

Possible Strategies:

1. Establish RF technology leadership award.
2. Establish MTT related, hardware-oriented award – (EM system award, RF system award).
3. Develop white pater announcements of technology breakthroughs, new applications.
4. Working with regional units, establish regional hubs for mentorship, training and can serve as a regional resource center.

Implementation Considerations

The Strategic Long-Range Plan is intended to be a living framework, one that evolves alongside the needs of IEEE MTT-S members and the global technology landscape. Implementation will be guided by annual action plans, program alignment, and milestone reviews led by the Society’s leadership and strategic partners. Each year, IEEE MTT-S will assess progress toward its goals, re-evaluate underlying assumptions, and adjust strategies as needed. This commitment to continuous learning and strategic discipline ensures that the plan remains relevant, actionable, and focused on delivering meaningful outcomes for the MHz-to-THz community. Success will not come from the plan alone, but from the collective engagement of members who turn vision into impact.

Strategic Outlook

The IEEE MTT-S Strategic Long-Range Plan represents a thoughtfully crafted vision rooted in collective insight, technical foresight, and a shared commitment to the MHz-to-THz community. Through the planning retreats held in San Juan and San Francisco, the Society has demonstrated its willingness to evolve, collaborate, and lead with purpose in an increasingly complex global landscape.

This plan affirms IEEE MTT-S’s core identity while boldly embracing an envisioned future rooted in innovation, inclusivity, and global relevance. The seven strategic goals, ranging from deepening member engagement to fostering multidisciplinary breakthroughs, represent both the aspirations and the actionable priorities of a forward-thinking society. Each goal is informed by the lived experiences and expertise of IEEE MTT-S members, ensuring that implementation remains grounded, responsive, and strategic.

As the Society moves from planning to action, this roadmap will serve as a compass for continuous improvement. The challenges ahead will require agility, alignment, and an unwavering focus on mission-driven outcomes. But with a strong foundation in its values and a clear commitment to serving humanity through microwave science and technology, IEEE MTT-S is well positioned to lead for decades to come.

Let this strategic plan be the beginning, not the end, of a dynamic, inclusive, and purpose-driven journey.