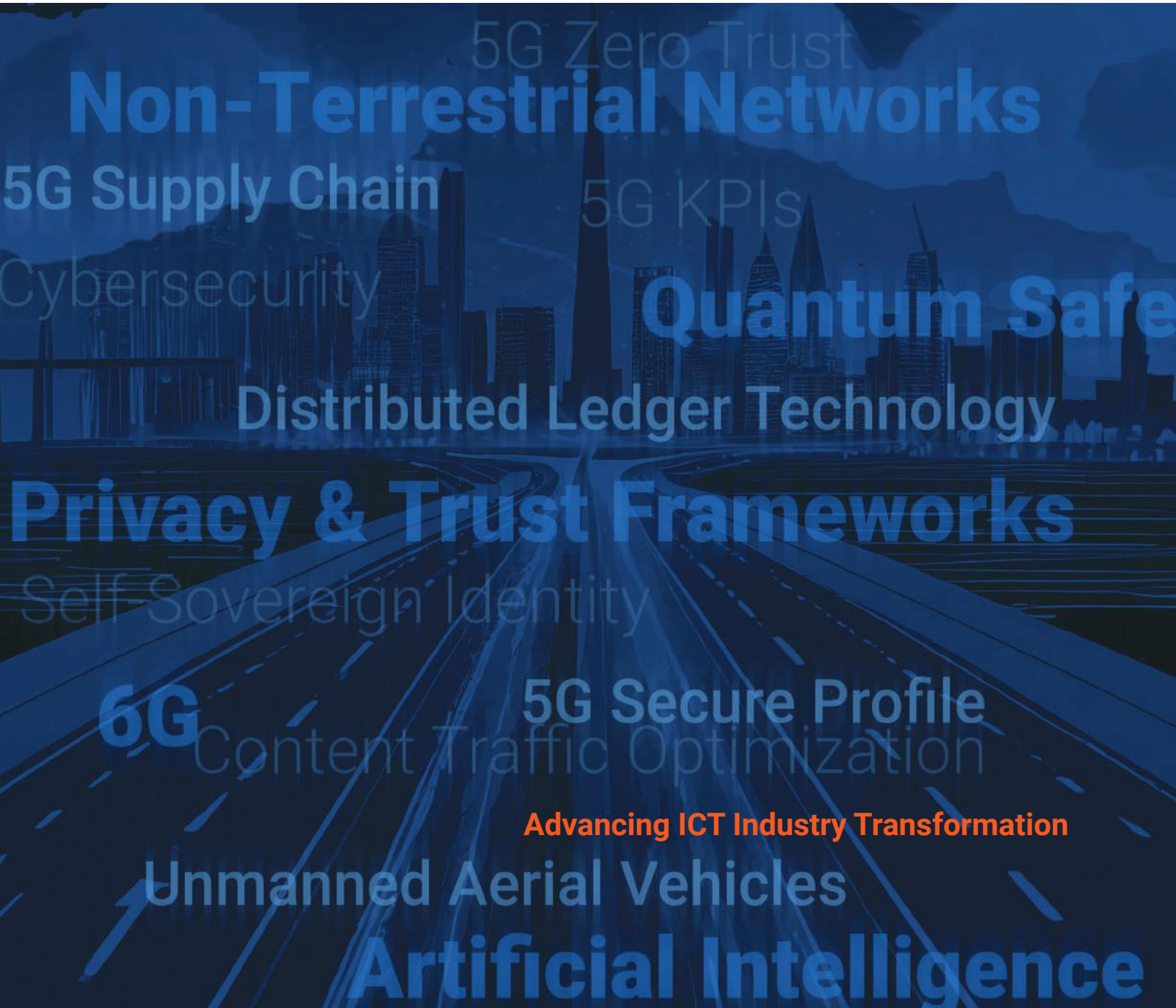
atis OVERVIEW 2024



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From the President and CEO

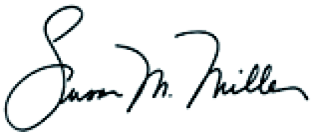
As a vibrant, member-driven organization, ATIS is the ICT industry's home for collaborative initiatives that tackle the ICT industry's leading challenges. Our work advances the industry's transformation and creates the common groundwork that members use as a basis to develop their own innovations. I am pleased to share our 2024 *Overview* with you. It presents a high-level glimpse of our 2023 successes and highlights opportunities we are pursuing in 2024.

Some of the industry's most exciting collaborations come out of ATIS:

- ATIS is deeply involved in efforts to evolve standards policy to drive domestic competitiveness, including taking a role in the administration's National Standards Strategy for Critical and Emerging Technology.
- Our Next G Alliance, a major industry initiative to advance North American 6G leadership, is heading into its third year as 6G standardization approaches. With 3GPP soon to be addressing 6G, the NGA is preparing to have its contributions accepted at the global level.
- In 2023, ATIS assumed a global leadership role by hosting 3GPP meetings in Chicago. ATIS looks forward to hosting 3GPP's November 2024 Working Group meetings in Orlando.
- Our work is taking a look at generative AI, examining how it opens a new era of efficiency across sectors with the potential to reinvent our industry.
- Finally, ATIS has launched an initiative to define a common set of baseline capabilities to simplify the deployment of Open RAN technology -- the "Minimum Profile." This will enable new entrants, including those from North America, to offer their innovations in the region's marketplace.

ATIS' robust solutions help our industry thrive. We see our role as a power source for the industry and an incubator for innovation. I am confident that after reading this *Overview*, you will agree: ATIS is where the North American ICT industry comes together to solve real-world problems and plan for the future. Keep up to date at www.atis.org.

Sincerely,



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ADVANCING INDUSTRY TRANSFORMATION

PRIORITIES/TECHNOLOGY FOCUS AREAS

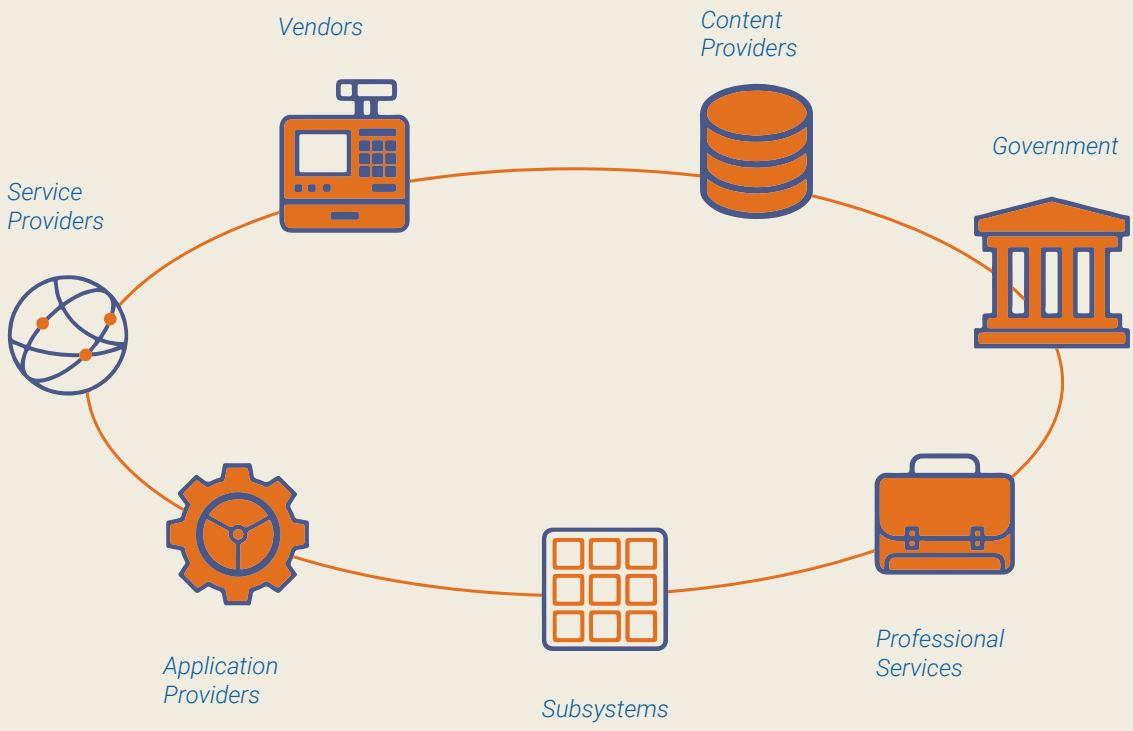
National Accreditation and Global Leadership

ATIS is accredited by the American National Standards Institute (ANSI). ATIS is the North American Organizational Partner for the 3rd Generation Partnership Project (3GPP), a member of the International Telecommunication Union (ITU) Radiocommunication Sector, as well as a member of the Inter-American Telecommunication Commission (CITEL).

ATIS' Value-Driven Mission

ATIS' strategic initiatives and solutions/standards work progresses new business opportunities, solves common industry challenges, and creates a platform for collaboration with other industries:

- Members innovate and compete "on top of" ATIS' foundational work
- Collaborative efforts across industries can lead to greater scale and customer adoption



Identifying and defining where and how to align and collaborate; sharing resources, effort and cost to develop large-scale, interoperable solutions for a "common industry good" is both critical and beneficial to the industry. ATIS is the catalyst.

A Diverse and Robust Portfolio of Deliverables

ATIS brings the ICT industry together to deliver technology innovation for the future and address critical priorities.

Here's how we create value:

- ATIS' strategic initiatives and solutions/standards work progresses new business opportunities, solves common industry challenges, and creates a platform for collaboration with other industries.
- Members innovate and compete using ATIS' foundational work. Collaborative efforts across industries can lead to greater scale and customer adoption.
- Identifying and defining where and how to align and collaborate are top priorities. Sharing resources, effort and cost to develop large-scale, interoperable solutions for a "common industry good" is both critical and beneficial to the industry.

ATIS' Priorities

Our priorities change with market and member demands. Current technology focus areas are shown below:

ATIS Overview

Strategic Initiatives

Innovation Agenda

TOPS Council

Next G Alliance

Board-driven initiatives promoting technology assessments, adoption, and foundational agreements

Technology/ Standards Development

ATIS Standards Development Committees

Specialized committee activities covering emergency services, sustainability, wireless services, synchronization, interconnection, network reliability, and other areas

Global Partnerships

3GPP

ITU-R

Other Global Initiatives

Global specifications and standards alignment activities focused on large-scale interoperability and inter-working

ATIS Board Strategic Initiatives

- Next G Alliance – 6G and Beyond
- Distributed Ledger Technology
- Cybersecurity
- Quantum-Safe Communication and Information
- Uncrewed Aerial Vehicles
- User-Controlled Privacy Using Self-Sovereign Identity

Technology and Operations Council

- Content Classification for Traffic Optimization
- Enhanced Zero Trust and 5G
- Categorization and 5G KPIs
- Artificial Intelligence

Special Initiatives

- 5G Secure Profile
- 5G Supply Chain
- ATIS/SIP Forum IP-NNI Joint Task Force
- Non-Terrestrial Networks
- Secure Telephone Identity Governance Authority

Committees and Forums

- Automatic Identification & Data Capture Committee
- Emergency Services Interconnection Forum
- Industry Numbering Committee
- International Mobile Subscriber Identity (IMSI) Oversight Council
- Network Reliability Steering Committee
- Next Generation Interconnection Interoperability Forum
- Ordering and Billing Forum
- Packet Technologies and Systems Committee
- SMS/800 Number Administration Committee
- Sustainability in Telecom: Energy and Protection Committee
- Synchronization Committee
- Telecom Management and Operations Committee
- Wireless Technologies and Systems Committee

International Partnerships

- 3GPP

Next G Alliance

- Next G Applications WG
- Next G Green G WG
- Next G National 6G Roadmap WG
- Next G Societal and Economic Needs WG
- Next G Spectrum WG
- Next G Technology WG

POLICY AND REGULATORY

In the public policy arena, ATIS serves as a leading voice for the North American ICT industry on critical and emerging technology issues before the White House, Congress, and federal agencies.

ATIS Regulatory and Policy Engagement

- ATIS has strong, active relationships with key Agency, Congressional, and Administration policymakers to advance industry's technology and policy goals:
  - New and Emerging Wireless Technologies
  - Caller ID Authentication/Robocalling
  - Wireless Emergency Alerts
  - Positioning, Navigation and Timing
  - 911/NG911
  - Network Reliability
  - National Standards Strategy for Critical and Emerging Technologies
  - Serves as a de facto technology advisor to the FCC by facilitating consensus on key issues.
  - Submits input and meets with key decisionmakers to support policy positions in regulatory proceedings before agencies including the FCC, Commerce, DHS, NIST, NTIA and others.
  - Engages with key Congressional staff on legislation affecting standards and advanced communications technology and to promote the efforts of ATIS and its Next G Alliance.
  - Represents the industry on government advisory committees (TAC, NANC, CSRIC, CSMAC) and in other government sponsored fora (e.g., TTC listening sessions).

National Standards Strategy for Critical and Emerging Technology

Standards for critical and emerging technologies have become a priority policy issue across the U.S. government. ATIS is deeply involved in efforts to evolve standards policy to drive domestic competitiveness. ATIS had a leading role in developing the Biden-Harris administration's National Standards Strategy for Critical and Emerging Technology, including participating in the White House release event for the strategy and serving on the National Institute of Standards and Technology (NIST)'s Visiting Committee on Advanced Technology (VCAT) Subcommittee on U.S. International Standards Development Activity. The Strategy aims to identify steps government could take to promote leadership in standards and innovation through R&D investment, increased participation, and training in standards development activities, as well as improved coordination with industry and international partners to promote the integrity of the international standards system.

ATIS worked with representatives from its Board of Directors to file comments with NIST on developing an implementation strategy that focused on reinforcing the private-sector-led voluntary approach to standardization. These comments also advocate for incentives, such as tax breaks and research grants, to increase participation in standards and R&D, and for the U.S. to address the challenges associated with hosting information and communications telecommunications (ICT) meetings. The implementation plan for the Standards Strategy is due by mid-2024.

Educating Policymakers on the Urgency of 6G Leadership

ATIS and its Next G Alliance work closely with key government policymakers to promote North American 6G leadership and drive international collaboration efforts. ATIS participated in an invitation-only, White House-sponsored workshop, "6G: Open & Resilient by Design," that brought members of Congress, senior White House officials, and the heads of the NSF, NTIA, and the FCC together for presentations and discussions around U.S. leadership in 6G.

ATIS and the NGA also hosted a successful Capitol Hill event to educate policymakers on the need for immediate action to support U.S. 6G leadership. Attendees included Congressional staff and representatives from several government agencies. The event highlighted the importance of government partnering with industry to drive a North American vision for 6G, including the critical need to fully fund the R&D programs authorized by the CHIPS and Science Act.

ATIS' NGA is recognized by government officials as the leading North American voice on 6G and is increasingly being asked to support administration initiatives on critical and emerging technologies. At the request of the U.S. government, the NGA worked with our European counterpart, 6G-IA, to deliver a common roadmap for 6G to the EU-U.S. Technology and Trade Council. This proposal is being presented to both governments in early 2024 and sets the stage for future collaborative research efforts between the U.S. and the EU while further establishing U.S. leadership in global 6G implementation. The NGA also entered into a memorandum of understanding (MoU) with our counterpart in India, Bharat 6G Alliance, that was executed in alignment with the G20 meeting in India and expressly commended in a statement issued by President Biden and India Prime Minister Modi during the meetings.

ATIS and NGA ended 2023 by providing input to the administration on its implementation of the National Spectrum Strategy that emphasized the importance of spectrum availability to North American 6G leadership.

REGULATORY INITIATIVES: Domestic Robocalling Mitigation

Expanding and refining the use of SHAKEN domestically.

The STIR/SHAKEN ecosystem is continuing its growth trajectory, adding almost 500 additional providers in 2023. This was fueled by the FCC's deadline for small facilities-based service providers in June. The increase in provider participation has led to a greater number of calls being authenticated and successfully signed. This success, however, has caused some illegal robocallers to shift tactics. These scammers have reacted to the increasing use of STIR/SHAKEN by moving toward an ever-greater reliance on scam texting.

Meanwhile, the *Secure Telephone Identity Governance Authority (STI-GA)* continued to shore up STIR/SHAKEN call authentication in the U.S. by recognizing the use of STI Certificates assigned under the SHAKEN framework for authenticating information other than caller ID. Specifically, changes were made to the Certificate Policy to allow for the authentication of Rich Call Data, which may include caller name, call purpose, and callers' logos or pictures. This expansion necessitated a broadening of the STI-GA's other policies to allow for revocation where a provider might use its STI Certificate to authenticate any falsified information related to a call.

The STI-GA continued to pave the way for interoperation with potential Governance Authorities affiliated with other countries, or perhaps private authorities not affiliated with a country at all. To facilitate the way for cross-border STIR/SHAKEN interoperation, the STI-GA created a set of Trust and Vetting Criteria to measure these new authorities. These criteria were largely based on the MoU the STI-GA signed with the Canadian Secure Telephone Governance Authority in 2022.

Illegal robocallers' tactics shift continuously. Yet, the STI-GA has proven it is up to the challenge by continually updating its policies to address new threats and opportunities and to expand the overall effectiveness of the SHAKEN framework.

REGULATORY INITIATIVES: Addressing Unwanted Robocalling Globally

Expanding use of the SHAKEN protocol to mitigate unwanted robocalls globally.

ATIS and iconectiv are involved in a new robocall mitigation initiative to combat unwanted robocalls and fraudulent scam calls on a global basis. As founding members of the initiative, Bandwith and Microsoft will be the first companies to trial the initiative and will be able to deploy the SHAKEN protocol for cross-border authentication. This is particularly important for calls that originate or terminate in countries that have not deployed it nationally.

Developed by ATIS and the SIP Forum, the SHAKEN protocol has been effective since 2019 in helping North American service providers identify and inform their customers of caller ID spoofing. Nonetheless, difficulties addressing cross-border calling have been the primary challenge that policymakers and service providers face when tackling the menace of unwanted calls and fraudulent scam calls. Existing approaches are not fully effective. In some cases, they harm legitimate voice traffic.

Deploying SHAKEN across borders, particularly in conjunction with traceback commitments, can significantly improve these efforts by allowing all legitimate service providers to exchange authenticated traffic end-to-end and across international borders, even when there is no national SHAKEN framework in their countries.

Deploying SHAKEN across borders is currently undergoing rigorous testing to ensure end-to-end interoperability. Under the auspices of ATIS, iconectiv will act as the Policy Administrator and Certification Authority for the Cross Border Call Authentication initiative.

As the organization that brought the industry together to develop SHAKEN and set it into action in North America, ATIS is pleased to be part of international efforts to help ensure SHAKEN's benefits can be realized globally.

6G AND BEYOND

Building a foundation for North American leadership in 6G and beyond takes place in ATIS' *Next G Alliance*. Unparalleled in its breadth, depth, and scope of activities, the NGA is setting a new benchmark in terms of preparing North American industry for the future.

The Next G Alliance (NGA) is the North American voice for 6G. Since its inception in 2020, the NGA:

> Developed a comprehensive and overarching 6G vision for North America.

> Developed a library of industry insights, reports, and white papers to set this vision into action

> Is forging a 6G public/private partnership for the next frontier of 6G innovation and investment.

A Comprehensive Approach

Beyond building a robust technical foundation for 6G, the NGA is strategically focused on the future 6G ecosystem. In addition to foundational R&D and marketplace realization, this work embraces the development and integration of advanced network technologies and innovative devices. Collaborative NGA initiatives with vertical industry partners are unlocking new markets, creating groundbreaking products, and launching transformative services for the 6G future.

The NGA is developing use cases, assessing societal needs, and exploring spectrum issues and key research drivers. As an outgrowth of this integrated approach, new processes are being envisioned that will redefine how 6G technologies are developed, deployed, and managed. New insights are also being forged on security requirements. The NGA also plays an active role in guiding regulatory and standardization efforts to ensure implementation of comprehensive security measures in the evolving 6G landscape.

This strategic approach cements the NGA's position — and that of the North American ICT industry — as a leader in 6G innovation. It paves the way for a vibrant and thriving ecosystem for the region's 6G technology and its applications. This positioning will steer 6G's future trajectory and impact on a global scale, with North American preeminence in mind.

Collaboration Among All Critical Sectors

The ICT Industry

Since its launch in 2020, the NGA has expanded to include nearly 100 members representing a diverse ecosystem of operators, vendors, hyperscalers, research groups, universities, and government representatives to bolster the region's interests globally. Learn about the NGA's membership.

R&D and Academia

The NGA's work is aligning North America's R&D organizations, academia, government, and industry around common goals for the region's 6G leadership. The NGA Research Council unites North America's top academics to pinpoint critical 6G R&D priorities, with active participation from private sector research organizations and government agencies, ensuring alignment with the industry's vision. Furthermore, a public-private partnership has been proposed to the U.S. National Science Foundation.

The Policy Arena

In the public policy arena, the NGA is actively shaping the presidential administration's initiatives on critical and emerging technologies. ATIS has participated in an invitation-only White House-sponsored workshop, "6G: Open & Resilient by Design," that brought together members of Congress, senior White House officials, and the heads of the NSF, NTIA, and the FCC for presentations and discussions around U.S. 6G leadership.

ATIS also played a leading role in developing the Biden-Harris administration's National Standards Strategy for Critical and Emerging Technology. It serves on the Subcommittee on International Standards, which was established within NIST's Visiting Committee on Advanced Technology to inform implementation of the Standards Strategy. Execution of the Strategy to support private-sector-led standards engagement will be important as the industry begins the standardization process for 6G.

Global Collaboration

MoUs on 6G Collaboration with Key Regions Globally

Productive international partnerships are being forged to secure global cooperation in the 6G future. In 2023, the NGA signed an MoU with India's Bharat 6G Alliance, marking one more in a series already established. The NGA has entered into collaboration agreements with Korea's 6G Forum, Japan's Beyond 5G Promotion Consortium, and Europe's 6G Smart Networks and Services Industry Association (6G-IA). Each of these is a

critical link to advancing both organizations' objectives in the development of the global 6G mobile wireless ecosystem. Work to fulfill these agreements' objectives accelerates in 2024.

A Roadmap for EU-US Collaboration

In 2024, ATIS' NGA and the 6G Industry Association (6G-IA), which is the private member of the EU Smart Networks and Services Joint Undertaking (SNS JU), published the "EU-US Beyond 5G/6G Roadmap" — a major first step in affirming the two regions' commitment to collaborating in the development of 6G networks. The document results from a request for the two organizations to provide an interim, joint, aligned 6G industry roadmap made during the fourth ministerial meeting of the EU-US Trade and Technology Council (TTC).

The EU-US Trade and Technology Council serves as a forum for the U.S. and EU to coordinate approaches to key global trade, economic, and technology issues and to deepen transatlantic trade and economic relations based on these shared values. The collaborative input to the roadmap will be considered for inclusion in a TTC 6G "shared vision" being established by the U.S. and EU governments.

In addition to this work to forge collaboration, the NGA intends to advance its contributions in major global fora addressing 6G-related issues. The work is timely. The ITU has published a framework for the development of standards and radio interface technologies for IMT-2030, its parlance for 6G. The ITU's World Radio Conference (WRC) has convened and established the agenda for WRC-2027. This agenda is crucial for identifying the spectrum that will facilitate 6G/IMT-2030. The work that the NGA is doing now sets the basis for adoption of its contributions at the global level.

Critical Key Highlights of the Work that is Building North American 6G Leadership

This is a representative sampling of recent deliverables. All NGA resources are available in the *6G Library*.

The Roadmap to 6G. *The NGA's Roadmap* to 6G frames North America's strategic priorities and is the region's compass for advancing toward 6G and beyond. It crystallizes a fresh approach to communications systems' evolution. Past generations of communications technology focused on densification to raise performance standards around network coverage and capacity. 6G will shape a different dynamic around applications and use case diversity.

This will drive proliferation of device types, such as wearables, climate-sustainable sensors, and devices with multi-sensory capabilities. Additionally, new 6G use cases will help meld the internet into human senses and automation systems. Examples include extended reality (XR) applications used for digital world experiences, use of AI for automation, computing capabilities of distributed cloud systems, and sensing capabilities integrated into communications equipment. NGA reports explore these important opportunities.

Collectively, the NGA's 23 white papers, reports, and industry insight briefs paint a detailed picture of the future 6G world, outlining its power to drive innovation. These reports explore a range of topics, such as immersive digital world experiences, multi-sensory XR, ensuring trust, security, and resilience in 6G systems, and the concept of Green G, or environmental sustainability. All published NGA resources reside in the 6G Library. Among those published most recently are:

6G Spectrum Considerations. U.S. leadership in critical and emerging technologies will depend on its global leadership in opening spectrum for 6G. The NGA's *6G Spectrum Considerations* brief lays the groundwork for this leadership by conveying insights into North American spectrum bands as they relate to the future needs of 6G innovation.

Mapping the Future of 6G Vertical Applications. With both 5G and 6G, there are high expectations for new value-creation opportunities in the vertical domains. To focus on the demand side of the future 6G ecosystem, the NGA published the *6G Roadmap for Vertical Industries*. It explores how 6G can meet the applications needs of a broad range of verticals, including agriculture, automotive, education, gaming, entertainment, e-health, industrial, public safety, and smart cities.

The Future of Personalized Digital Experience in a 6G World. *Shaping Tomorrow: The Evolution of Personalized Digital Experiences Through 6G Technologies* highlights the potential of personalized user experiences to enhance quality of life in a 6G world. One of the expected benefits that 6G can bring us is authorized and personalized assistance anytime, anywhere. Aligned with NGA's goal of providing innovative new digital world experiences, this report explores aspects of daily life, such as health care, shopping, travel, and education.

Building a Sustainable 6G System. Sustainability is deeply woven into the NGA's mission. *Sustainable 6G Connectivity — A Powerful Means of Doing Good* surveys the research and technology directions required to achieve sustainable 6G. The overarching mandate is to

increase energy efficiency and reduce energy consumption in the pursuit of significantly lower — ideally net zero — greenhouse gas emissions.

Building Environmental Sustainability into the Product Lifecycle. The *Evolution of Sustainability Indicators for Next-Generation Radio Network Technologies* white paper provides operational key performance indicators (KPIs) that can guide companies in the ICT industry in benchmarking progress toward achieving sustainability and climate action goals and reach net zero emissions. It also provides recommendations that industry can use to benchmark progress towards sustainability goals.

Members of the NGA's Green G Working Group discussed key takeaways from this report in a webinar entitled *Key Sustainability Indicators for Next Generation Radio Network Technologies*. Access the archived presentation.

6G Societal and Economic Needs. The NGA's future-focused vision encompasses not only environmental sustainability goals, but also social and economic ones. The report *Beyond Speed: Promoting Social and Economic Opportunities Through 6G* defines social and economic outcomes that Next G can support, key aspects of digital equity, and how Next G connectivity will directly impact economic growth — while shaping a more beneficial future for all.

To get out the message on this topic, the *Beyond Speed* authors held the webinar *Empowering North America with 6G: A Multi-Stakeholder Dialogue on Balancing Digital Equity, Trust, Sustainability, Economic Growth and Quality of Life*. It covered how 6G can contribute to achieving five key outcomes aligned with the United Nations' Sustainable Development Goals: Digital Equity, Trust, Sustainability, Economic Growth and Quality of Life. Access the archived presentation.

AI-Native Wireless Networks. Native support of artificial intelligence (AI) is projected to be one of the major features of the next-generation wireless network. AI-native networks are one of NGA's research priorities that will require strong collaboration among industry, government, and academia. This paper surveys the research and technology directions needed to make the vision of an AI-native wireless network a reality.

Distributed Sensing and Communications highlights the transformative role of 6G technology in enhancing integrated sensing and communication systems. Innovations covered will foster ubiquitous connectivity facilitated by emerging network services. The goal is to enable massive, creative, and value-driven sensor and data collection opportunities for the industry.

Network-Enabled Robotic and Autonomous Systems explores how the integration of advanced communications technology in these systems will transform industries including logistics, transportation, manufacturing, education, health care, and others. It provides an overview of the mobile technology poised to have the greatest impact on robotic and autonomous systems.

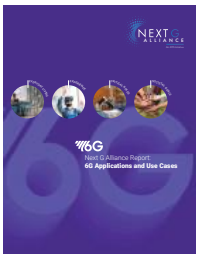
6G Radio Technology Part I: Basic Radio Technologies covers the fundamental 6G designs at the air interface level and surveys new developments in the fundamental building blocks of radio technology. It also discusses the potential impact of prospective new 6G designs on spectrum and energy efficiency over previous cellular generations. New 6G spectrum and spectrum-sharing mechanisms are covered, as well as various advanced MIMO designs (for different frequency bands) — among many other topics. Successful R&D in these technologies will play a critical role in North American 6G technology leadership.

All ATIS Next G Alliance publications reside in the Next G Alliance 6G Library.

6G Library

Access all Next G Alliance publications in the 6G Library.

Next G Alliance Report: 6G Technologies



Next G Alliance Report: 6G Applications and Use Cases

Next G Alliance Report: Roadmap to 6G

Green G: The Path Toward Sustainable 6G

Next G Alliance Report: AI-Native Wireless Networks

Next G Alliance Report: Sustainable 6G Connectivity — A Powerful Means of Doing Good

Next G Alliance Report: 6G Distributed Cloud and Communications System

Next G Alliance Report: Trust, Security, and Resilience for 6G Systems

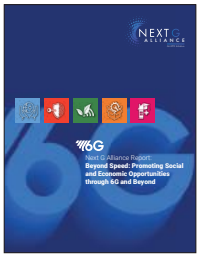
Next G Alliance Report: Digital World Experiences

Next G Alliance Report: Cost-Efficient Solutions

Next G Alliance Report: 6G Sustainability KPI Assessment Introduction and Gap Analysis

Next G Alliance Report: 6G Radio Technology Part I: Basic Radio Technologies

Next G Alliance Report: 6G Technologies for Wide-Area Cloud Evolution



Next G Alliance Report: Beyond Speed: Promoting Social and Economic Opportunities through 6G and Beyond

Next G Alliance Report: 6G Roadmap for Vertical Industries

6G Market Development: A North American Perspective

Next G Alliance Report: 6G Spectrum Considerations

Next G Alliance Report: Terminology for Frequency Ranges

Next G Alliance Report: Distributed Sensing and Communications

Next G Alliance Report: Network-Enabled Robotic and Autonomous Systems

Next G Alliance Report: Multi-Sensory Extended Reality (XR) in 6G

Next G Alliance Report: Shaping Tomorrow: The Evolution of Personalized Digital Experiences Through 6G Technologies

3GPP

3GPP Commits to Develop 6G Specifications

3GPP Commits to Develop 6G Specifications

The 3rd Generation Partnership Project (3GPP) develops the mobile broadband standard that provides a complete system description for the networks that billions of consumers depend on globally. The partnership's 3G, 4G, and 5G specifications have set 3GPP's legacy and prepared it for the 6G world. In late 2023, 3GPP announced that it stands ready to create the 6G future. This announcement was made by all 3GPP Organizational Partners: ARIB, ATIS, CCSA, ETSI, TSDSI, TTA, and TTC. ATIS is the North American Organizational Partner for 3GPP. It is prepared to have the work of its Next G Alliance introduced and accepted in this global forum.

In 2024, 3GPP is poised to complete its specification efforts for Release 18, focusing on 5G Advanced systems, while making major progress in the development of Release 19. 3GPP will also prepare for the transition to 6G standardization.

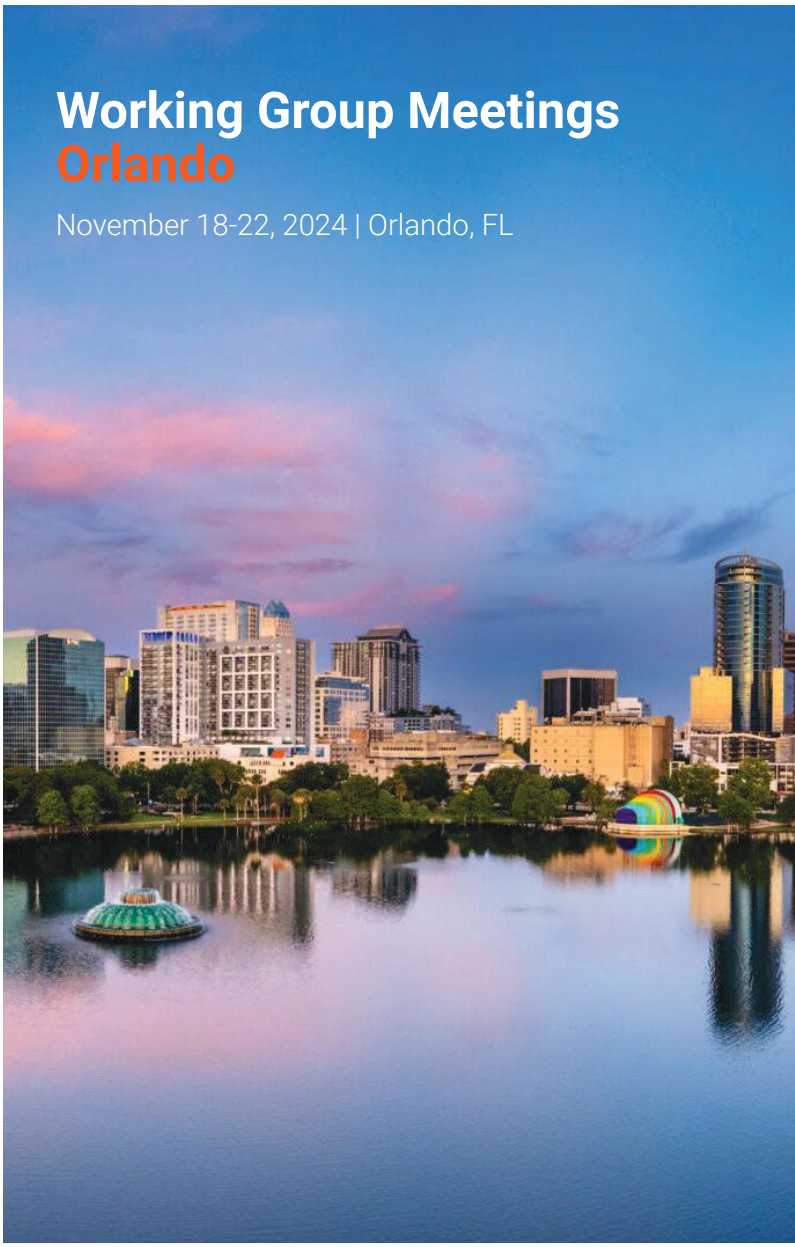
Delivery of a new mobile generation is a multi-year process. That is why the work for the 6G specifications is being planned well in advance. 5G brought increased interest in 3GPP, with the organization growing to meet the demands of more sectors and new services. Further growth may be expected as the needs of 6G use cases are considered in the standards development process.

ATIS Assumes the Leadership Role of 3GPP Meeting Host

On November 13-17, 2023, ATIS hosted the 3GPP Working Group meetings in Chicago. The leading wireless experts in the ICT industry convened to shape the industry's future. 3GPP's global mobile specifications advance the world's ability to communicate, delivering societal and economic opportunities.

Hosting the 3GPP meetings in Chicago conveyed an important message of North America's leadership and commitment to wireless technology. It demonstrated the U.S. investment in the value of global wireless standardization while expanding the opportunity for small and mid-sized companies to participate in 3GPP face-to-face meetings without international travel. More than 1,700 wireless experts attended the meetings.

The work and the decisions that take place in 3GPP meetings have significant impact on the wireless industry globally. ATIS believes in the value of bringing the 3GPP meetings to North America to showcase the importance of this region's commitment to advancing wireless innovation. ATIS will repeat the success of its 2023 meetings in 2024. The 2024 3GPP meetings will take place in November in Orlando, Florida.

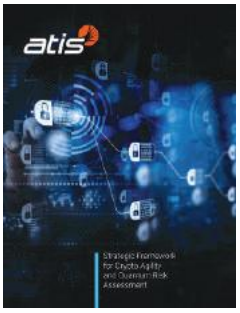


STRATEGIC INITIATIVES

The Innovation Agenda defines ATIS' overarching technology strategy, direction, and priorities. The agenda is also a vehicle for facilitating member idea-sharing and education. Current initiatives focus on emerging technologies, including quantum computing, AI, privacy and trust, cybersecurity, distributed ledger technology, and more.

Crypto-Agility KPI Metrics for the Quantum Era

Equipping organizations with a standardized language and approach to navigating the intricacies of transitioning to quantum-safe cryptography.



The power of quantum computing could eventually compromise current encryption algorithms widely used by network operators. ATIS' *Strategic Framework for Crypto-Agility and Quantum Risk Assessment* presents the solutions needed to ensure communications and data remain secure.

As new cryptographic technologies emerge, potential vulnerabilities are discovered. Organizations must be agile in transitioning to more secure cryptographic algorithms. Standardized crypto-agility metrics coupled with KPIs offer organizations a structured and measurable approach for responding to quantum computing's challenges.

ATIS' *Strategic Framework for Crypto-Agility and Quantum Risk Assessment* introduces standardized crypto-agility metrics that ICT organizations can use to proactively measure, assess, and enhance their preparedness for the shift to quantum-safe cryptography.

New AI Network Applications Working Group

An industry-first look at generative AI's transformative power.

Generative AI opens up a new era of efficiency across sectors and has the potential to reinvent the ICT industry. ATIS is conducting a focused study on generative AI's impact on telecom, surveying generative AI/ML use cases across the network. Use cases may include semantics, context awareness, personalized services, and more. The work will help prioritize key use cases for network applications, address critical gaps, and provide recommendations to help advance AI implementation across networks. To join, contact ATIS Membership Director Rich Moran.

Self-Sovereign Identity in Telecommunications

Revolutionizing privacy and consumer data protection.

ATIS' User-Controlled Privacy Using Self-Sovereign Identity (SSI) Initiative is delivering results to advance industry Trust, Identity, Privacy, and Security goals. The initiative takes a proactive stance toward enabling both consumers and businesses to optimize their data privacy management strategies. It released *Self-Sovereign Identity in Telecommunications Services* to underscore the evolving landscape of traditional identity systems, especially considering the stringent regulations that oversee personally identifiable information and data privacy.

The Initiative also has undertaken an in-depth analysis of specific identity fraud scenarios. This work places considerable emphasis on SIM swap fraud — a consistent challenge for North American carriers. The goal is to guide the industry toward strategic innovations that empower individuals with more control over their personal data using an SSI framework.

Zero Trust Architecture in 5G Systems

Organizations such as 3GPP and the O-RAN Alliance will benefit from the forefront work ATIS has completed as critical requirements to help deliver Zero Trust Architecture in 5G are developed.

Zero trust is the concept that no digital system or human user, whether external or internal, can be trusted, regardless of ownership and location. Zero Trust Architecture (ZTA) is a plan to implement zero trust in a digital system or network of digital systems. As critical infrastructure, it is essential that 5G networks strive toward the goal of ZTA for the data, control, and mangement planes in the 5G system, including RAN and core.

ATIS' *Enhanced Zero Trust and 5G* offers actionable recommendations that industry standards bodies can use in the development of ZTA for 5G networks. Recommendations are based upon best security practices and U.S. government guidance, including that of NIST,

the Cybersecurity and Infrastructure Security Agency (CISA), and 3GPP.

A recently launched phase of this work maps CISA's Cyber Performance Goals to ZTA. It will produce industry-leading recommendations for mobile critical infrastructure, including network functions and application in cloud-native deployments.

The Industry's First Comprehensive 5G Applications KPI Database

A critical industry resource for delivering the highest quality service and user experience for 5G applications.

ATIS' 5G Applications KPI Database is an industry resource for application developers and network engineers. It provides essential KPIs linked to a wide range of 5G applications, including end-to-end latency, data rate, connection density, availability, mobility, and security. Its purpose is to help users benchmark their 5G solutions against industry standards and best practices to optimize network configurations for achieving desired performance targets. With 5G networks' rapid expansion, these reliable performance indicators and benchmarks are critical to improving solutions and delivering customers the best possible experience. Access the 5G Applications KPI Database.

Advancing Internet Traffic Optimization to Improve User Quality of Experience

Using more intelligent traffic management techniques based on specific traffic flow attributes to optimize quality of experience (QoE).

Prompted by the past few years' upsurge in telework from home and satellite offices, traffic management solutions are needed now more than ever. This trend dovetails with the increased use of latency-sensitive collaboration and communications services. ATIS' *Content Classification for Traffic Optimization* helps service providers manage an ever-increasing volume of internet traffic while optimizing user QoE. It offers potential solution guidelines along with a template to help the industry develop and deploy new solutions to address the expressed needs.

Phase 2 of ATIS' robust Content Classification work is now underway. If your organization is interested, contact ATIS Membership Director Rich Moran.

Enterprise Identity Distributed Ledger Technology

Another ATIS contribution to combat unwanted robocalling.

The ATIS Distributed Ledger Technology (DLT) Initiative is validating key aspects of DLT as it applies to the real-world challenges of today's communications industry. The initiative has delivered a working proof of concept demonstrating how DLT can address the challenges of effective enterprise identity verification and proof of telephone number use in support of Secure Telephone Identity Revisited (STIR) and Signature-based Handling of Asserted information using toKENs (STIR/SHAKEN). ATIS published several technical reports detailing implementation of this application on DLT and its potential benefits to the stakeholder ecosystem.

The DLT group is presently addressing challenges related to call authentication, particularly the mislabeling of calls and the incorrect blocking of legitimate ones. It is implementing a Verifiable Enterprise Identifier (VEI) that is vetted under Know Your Customer (KYC) governance. This approach proves calling entities' true identity and helps prevent call mislabeling by analytics engines. The initiative has invited the wider IP NNI community to participate in its work. The goal is to ensure solutions being tested align with the SHAKEN standards and meet industry needs.

STANDARDS AND SOLUTIONS

Advancing priorities in diverse areas critical to the ICT industry's future.

ATIS' Standards Development Committees conduct specialized activities covering emergency services, sustainability, wireless services, synchronization, interconnection, network reliability and more. This work brings a collaborative approach to solutions addressing the industry's leading challenges. Here are highlights of our committees' most recent accomplishments:

Emergency Services Interconnection Forum (ESIF)

- Developing best practices for location-based routing (LBR) and checklists and guidelines for public safety answering points (PSAPs) to use to request services to support LBR and IP connectivity.
- Updating ATIS standards on the implementation of IMS-based NG9-1-1 Service Architecture and IMS-based Next Generation Emergency Services Network Interconnection to maintain functional alignment with the NENA i3 standard.

IP-NNI Task Force (A joint ATIS-SIP Forum task force):

- The IP-NNI Task Force (TF) is working on a baseline for the SMS Unwanted Message Mitigation Landscape, which also addresses interoperability challenges in the STIR/SHAKEN ecosystem. Participants are considering analytics developments, encryption, the future direction of SMS blocking, and the potential for SMS labeling.

- The IP-NNI TF is continuing to update the SHAKEN Roadmap and other SHAKEN specifications, including ATIS-1000087.v002, *Mechanism for Cross-Border Signature-based Handling of Asserted information using toKENs (SHAKEN)*.
- The TF continues to be a resource for discussions regarding SIP Codes 603+ and 608.
- Publications:
  - ATIS-1000084.v003, Technical Report on Operational & Management Considerations for SHAKEN STI Certification Authorities & Policy Administrators
  - ATIS-1000078.v002, National Security/ Emergency Preparedness Priority Service Session Initiation Protocol Resource-Priority Header (SIP RPH) Signing and Verification Using Passports

Network Reliability Steering Committee (NRSC)

- NRSC Regulatory filed comments/ recommendations for improvements to the California Public Utilities Commission (CPUC), now that service providers have had time to improve the system. Access the *letter* sent to the CPUC, and the CPUC's response *here*.

Ordering and Billing Forum (OBF)

- Released two versions of the Access Service Ordering Guidelines (ASOG), a major industry operations support resource:
  - The *ASOG Version 67*, which was published on March 24, 2023, includes a new field for identification of the quantity of Ethernet Virtual Connection (EVC) circuits.
  - The *ASOG Version 68*, which was published on September 22, 2023, includes an update to the new field for identification of the quantity of EVC circuits.

Packet Technologies and Systems Committee (PTSC)

- Recently published. ATIS-1000066.2023, *Emergency Telecommunications Service (ETS) Network Element Requirements for IMS-based Next Generation Network (NGN) Phase 2*

PTSC Non-IP Call Authentication (NIPCA) Task Force

- The NIPCA TF currently has three baselines in development: Issue S0163, Viability of the Call Authentication Standards for Calls that Traverse TDM Networks; Issue S0172, Hop-to-Hop OOB SHAKEN; Issue S0172, Alternatives for Call Authentication for Non-IP Traffic.

Sustainability in Telecom: Energy and Protection Committee (STEP):

- Developing standards in the following areas:
  - Fault Managed Power Distribution Technologies – testing for barrier compromise detection functions.
  - Fault Managed Power Distribution Technologies – Human Contact Fault Analysis.

- Specialized Distributed Power Systems Testing for Power Sourcing Equipment (PSE).

- Fire Resistance Concerns for Small Lithium-Ion Batteries.
- Safety and Reliability Testing for Equipment Level Direct Contact Cooling.

Wireless Technologies and Systems Committee:

- **Joint Land Mobile Radio and Long Term Evolution (JLMRLTE)**
  - JLMRLTE has completed the Phase 6 architecture of the Study of Interworking between P25 LMR and 3GPP (MCPTT) Mission Critical Services and has approved it for transmission to TIA TR-8 to advance the work ongoing in that committee. JLMRLTE will being Phase 7 in 2024.

- **Wireless Emergency Alerts (WEA)**
  - WEA submitted *comments* and *reply comments* in response to an FNPRM addressing improvements in WEA accessibility and availability. WEA is closely monitoring the WEA Accessibility Report & Order.
  - WEA is also working to address the tasking from CSRIC VIII Working Group 6 for ATIS to develop recommendations for an order of efforts to prioritize the standards work identified in the CSRIC VIII Report on WEA Application Programming Interface. [*letter*] This work is being undertaken in the new WEA Timelines Task Force.
  - WEA is working on optimized WEA broadcasts and WEA Handset Action Message (WHAM) alternatives to address threats in motion so that alerts are kept current as threats move (e.g., storm system, fire).
  - WEA is developing additional updates to ATIS-0700049, WEA 3.0 Practical Hints for Alert Originators.
  - WEA has an active Issue to develop support and possible expansions for location-aware maps [Issue 100], which is related to a new WEA R&O that has not yet been posted to the Federal Register.
  - Publications:
    - ATIS-0700049, *WEA 3.0 Practical Hints for Alert Originators*
- **WEA Timelines Task Force (WEA TTF)**
  - WEA TTF is working closely with external experts to develop a phased approach to progress the work discussed in the CSRIC VIII report on WEA API.
  - WEA TTF has also discussed duplication detection, which like Update-X is an alternate approach to addressing threats in motion. However, Update-X cannot be used in combination with Device-Based Geo-Fencing (DBGF).
- **IMSESINET**
  - IMS Emergency Services IP Network (IMSESINET) is a joint project led by the WTSC Systems and Networks subcommittee and coordinated with ESIF's Next Generation Emergency Services subcommittee and the PTSC for an IMS-based Emergency Services Network. It continues to work on enhanced location capabilities in support of emergency calling [Issue 94] and emergency location spoofing mitigation [Issue 95]. This work will impact ATIS-0700015, *ATIS Standard for Implementation of 3GPP Common IMS Emergency Procedures for IMS origination & ESInet/Legacy Selective Router Termination*.
  - IMSESINET met jointly with IP-NNI TF to discuss the robotext FNPRM, but both committees decided against submitting comments.
- **RAN**
  - WTSC RAN: Radio Access Networks Subcommittee continues to be closely involved in work ongoing in 3GPP for the revision cycle of IMT-Advanced and IMT-2020. RAN closely monitors work ongoing in Working Party 5A and Working Party 5D.
  - RAN discussed the new satellite technology evaluation proposed in 3GPP and agreed to form an ad hoc group to address that work.
  - Publications:
    - ATIS-0700051.v002, *North American Microwave Spectrum Bands (United States, Canada, and Mexico)*
    - [pending] ATIS-0700040.v002, *North American IMT Spectrum Bands (United States, Canada, and Mexico)*
- **IMT-2020 NTN Evaluation Group**
  - This new group held its kick-off meeting in late 2023. It was established as an evaluation group for the 3GPP satellite component submission to the ITU-R Working Party 4B (WP4B) NTN IMT-2020 process. NTN experts were invited to participate, particularly those willing/able to assist with the evaluation by modeling NTN characteristics. Learn more on the ITU process here.

ATIS Committees and Forums

ACTA		Administrative Council for Terminal Attachments
AIDC		Automatic Identification & Data Capture Committee
ESIF		Emergency Services Interconnection Forum
INC		Industry Numbering Committee
IOC		International Mobile Subscriber Identity Oversight Council
NGIIF		Next Generation Interconnection Interoperability Forum
NRSC		Network Reliability Steering Committee
OBF		Ordering and Billing Forum
PTSC		Packet Technologies and Systems Committee
SNAC		SMS/800 Number Administration Committee
STEP		Sustainability in Telecom: Energy and Protection Committee
SYNC		Synchronization Committee
TMOC		Telecom Management and Operations Committee
WTSC		Wireless Technologies and Systems Committee

ATIS and its members work together to address the industry's business and technology imperatives, ensuring value is delivered to the larger ecosystem.

The collaborative model must be value-driven, finely tuned to changing business needs and aligned with the market's need to introduce new technologies at the pace of innovation.

www.atis.org

To learn more about ATIS' initiatives, contact Rich Moran, ATIS Director of Membership