



Next G Alliance

Building a Foundation for North American Leadership

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Roadmap to 6G

Building the Foundation for North American Leadership in 6G and Beyond

Vision

Goals

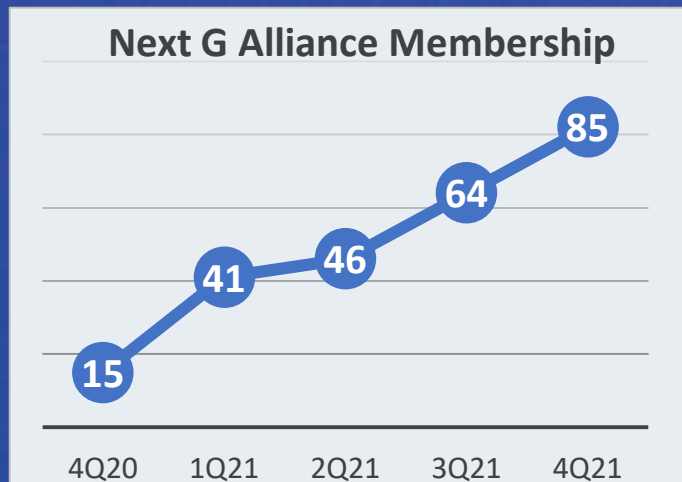
Roadmap

Execution Plan

Outcomes

Current Direction

Growing membership engagement



- Operators
- Vendors
- Hyperscalers
- Academia
- Government
- Research Labs

700 experts across membership



Advancing government engagement and advocacy



Developing key global collaboration relationships

Founding and Full Members

Anritsu Advancing beyond

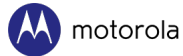


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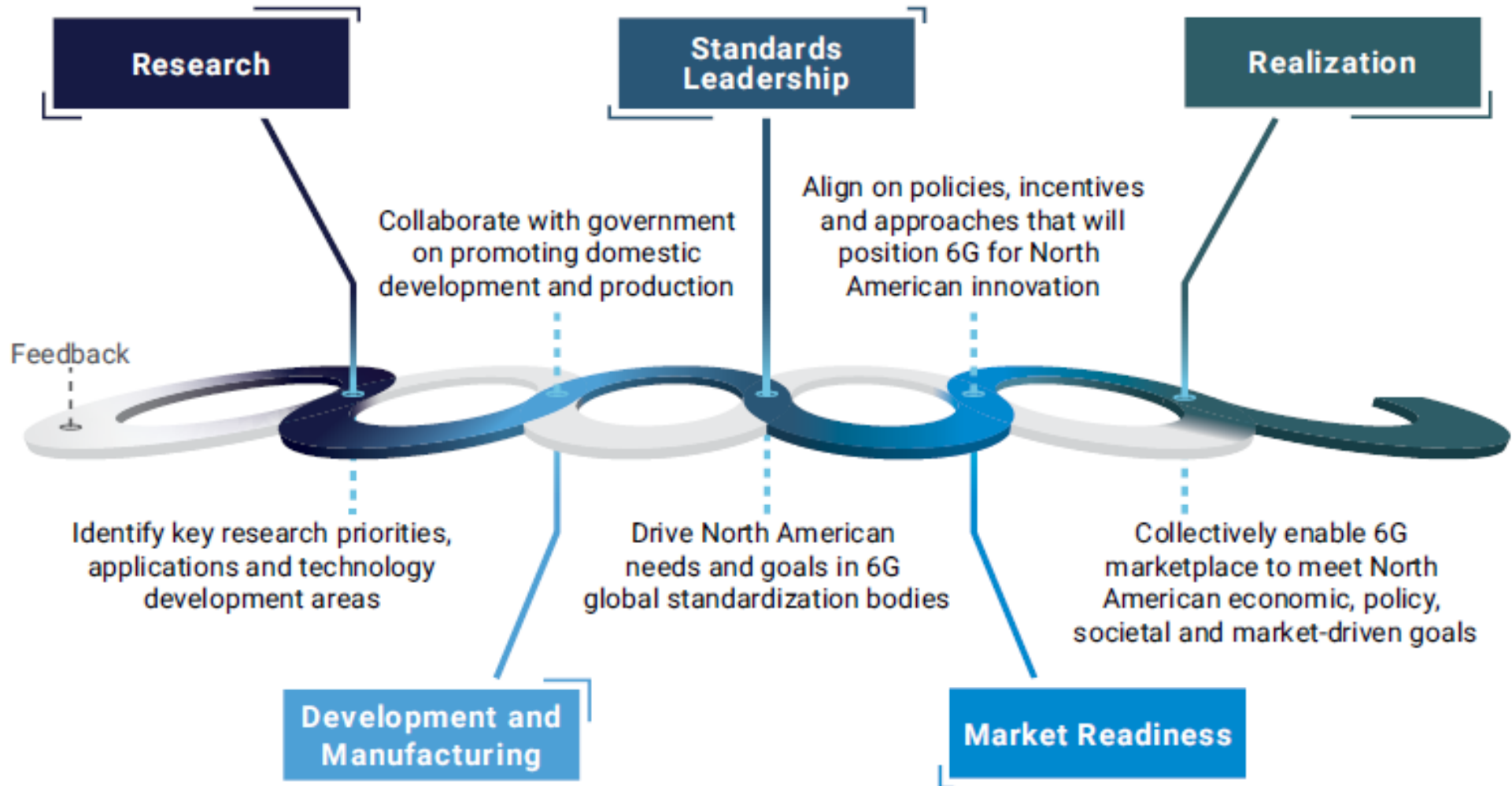
Contributing Members



Government Members



Journey to 6G Marketplace

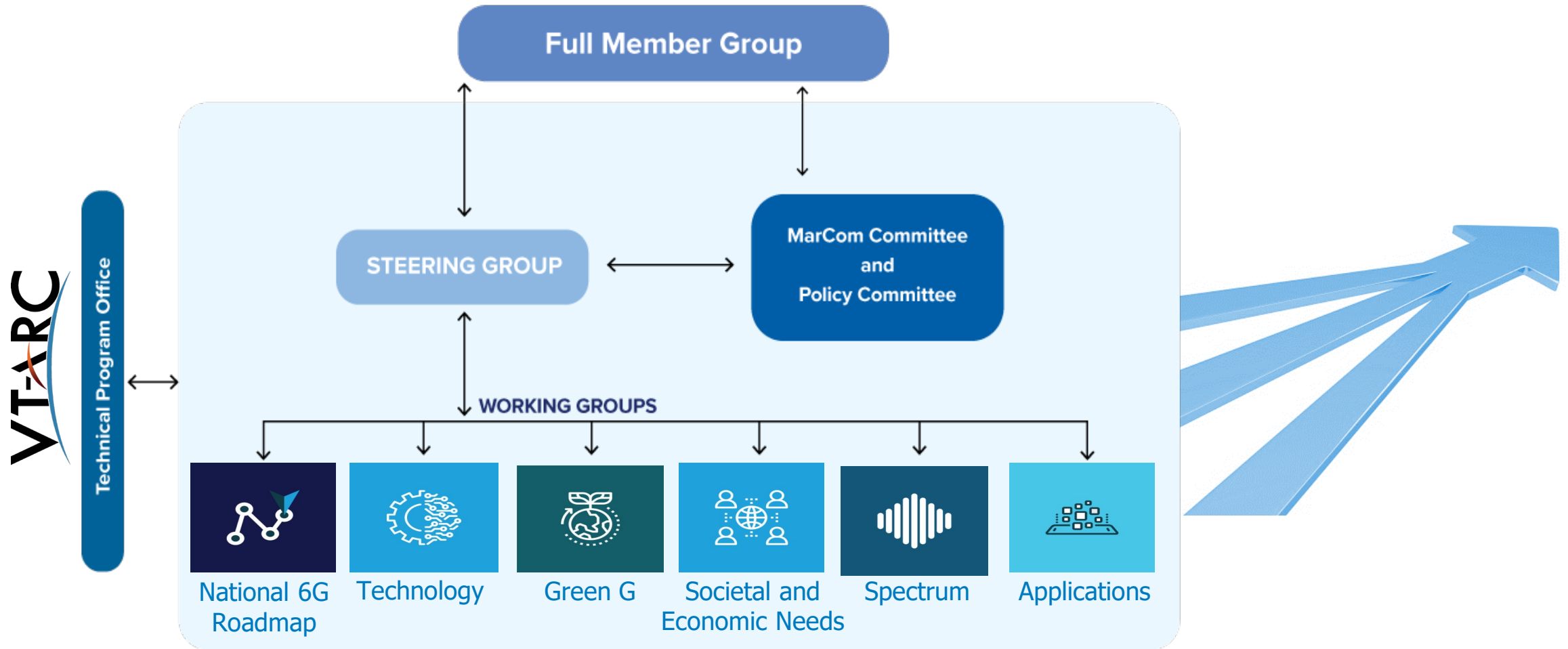


Six Audacious Goals of NGA's 6G Vision

- Top priorities for North America's contribution and leadership
- Foundation for WG development
- Addresses multiple stakeholder interests



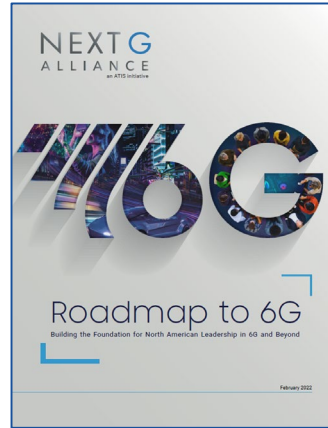
Integrated Work Activities



Foundational Documents



Path Toward Sustainability



Roadmap, Goals and Vision



6G Applications and Use Cases

New Reports and Webinars to include:

- 6G Technologies (pending release in early July)
- Societal & Economic Needs
- Spectrum



Societal and Economic Needs

- » United Nations SDGs
- » Digital equity (Affordability, Accessibility, Availability)
- » Trust (Security, Resiliency)
- » Sustainability
- » Economic growth
- » Quality of life (Healthcare, education)

Green G

- » Reduced CO2, Greenhouse gas emissions (ICT goals)
- » Recycle and reuse (batteries, components)
- » Land and water resources conservation
- » Network energy savings (RAN, Core, Datacenters)

Spectrum

- » Spectrum management
- » Spectrum policy
- » Regulatory assessment
- » New spectrum ranges (Thz/Sub Thz)
- » mmW enhancements
- » Spectrum sharing
- » Spectrum efficiency techniques

6G Applications

Living

- » Real time personalization
- » Service Robots (Remote surgery, Transportation, Manufacturing)

Experience

- » Holographic communication
- » Immersive Reality (XR,VR)
- » Digital twin (Monitoring, Training)
- » Drone applications (Racing)

Critical

- » Drone applications (Surveillance, Logistics)
- » Public and private safety (Automated surveillance, Remote data collection & sharing)

Societal Goals

- » Remote education and healthcare

Requirements

- » Ultra-reliable
- » Energy efficient
- » Edge computation
- » Localization accuracy
- » Ubiquitous coverage
- » Minimum latency
- » High data rate
- » Application-based bandwidth
- » High network security

Technology Areas

- » **Component technologies:** Silicon & III-V semiconductors, Circuits & sub-systems, Antenna and packaging advancements
- » **Radio Technology:**
 - o Spectral expansion and efficiency, Advanced MIMO, Reconfigurable intelligent surfaces, Full duplex, Channel improvement techniques
 - o AI & Distributed cloud: AI native air interface
 - o Green communications: Zero energy communications, Green network
 - o Joint communications and sensing: Positioning, 3D mapping
- » **Systems and Network Architectures:** Network topologies (Non-terrestrial networks, Sidelink, Mesh networks), Distributed cloud and computing, AI in network & devices
- » **Network OA&M and Service enablement:** Built-in AI, Zero touch network automation, AI-based energy saving solutions
- » **Trustworthiness:** PHY/MAC techniques, Post-quantum cryptography, Automated closed loop security

Driving North American 6G Research



NEXT G ALLIANCE

➤ Next G Alliance Research Priorities

- ❑ Research Goals
 - ❑ Research Areas
 - ❑ Research Topics

Applied
Research

Economic
Studies

Research
Platforms

Market
Readiness

Supporting the 6G Research Ecosystem

Key Research Areas



5 Groups of Outcomes

Digital equity, Trust, Sustainability, Economic growth, and Quality of life



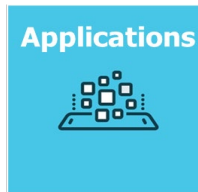
3 Key Priorities

Reduced CO2 and GHG emissions, Better use/e-use of raw and rare materials, Better use of land and water resources



5 Keys Technology Areas

Component technologies, OA&M and SE, Radio technologies, System and network architectures (SNA), Trustworthiness



4 Foundational Areas of Improvement

Quality of everyday living, Addressing societal goals, Quality of mission critical services, Quality of user experience



3 Key Priorities

6G KPIs to drives assessment of spectrum characteristics, Management and access mechanisms, Policy and license model changes

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- Detailed findings being published to advance Next G Alliance 6G goals
- Research Priorities serving as foundation for industry and academic collaboration
- Transforming research opportunities into coordinated actions
- Government advocacy creating opportunities to drive North American agenda
- Collaborating with external groups to advance North American needs



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