Agenda

• Introduction to TIA
• The Vision for Smart Buildings
• TIA’s Smart Building Program
• IEEE 802.x in Smart Buildings: Brainstorming Q&A
• Closing Remarks
TIA by the Numbers

- 526 Members
- 3,609 Standards Developed
- 9 Standards Technical Committees
- ~2M Workers Employed Worldwide
- 107 Working Groups
- 2,500 Individuals Engaged Across Communities
- $3T Contributed to the World Economy by TIA Members
- 70% of TIA Member Companies are Small-to-Medium Size Businesses with <$20 Million in Revenue
Convening and Enabling Communities of Interest

At TIA we bring together and facilitate numerous communities of interest within four key verticals: Technology, Standards, Government Affairs and Business Performance.

Within these many communities, TIA advances strategic programs, products and services to tackle unique challenges the ICT industry faces. The solutions these communities drive provide tangible value to our members that enhance their bottom line.
TIA’s Program’s Roadmap

Core Competency: **Network Infrastructure, Connectivity, Quality**

- **Standards SDO**
  - TR-8 | Mobile and Personal Private Radio Standards
  - TR-14 | Structural Standards for Communication
  - TR-34 | Satellite Equipment & Systems
  - TR-41 | Performance and Accessibility Communications
  - TR-42 | Telecommunications Cabling Systems
  - TR-45 | Mobile and Point-to-Point Communications Stds
  - TR-48 | Vehicular Telematics
  - TR-50 | M2M - Smart Device Communications
  - TR-51 | Smart Utility Networks

- **Business**

- **Technology**

- **Government Affairs**

- **Device Assurance/Registration**

- **Communities Of Interest**

- **Definition**
  - Benchmark TL9000 QM QF / TIA Tools Assurance Certification Registration Sustainability

© 2018 TIA   www.tiaonline.org | @tiaonline
Certification Program

Certified to Standards
Smart Buildings are a Microcosm of Smart Cities
Moving Beyond Efficient Building Management

• HVAC
• Building Management
• Water
• Energy
• Elevators
• Security
• Cameras
• Fire & Safety
• Building Access
• Lighting
Redefining Smart Buildings as Next Gen IoT Ready

Ensuring that buildings offer valued services while being Secure, Safe, Sustainable, Reliable, Resilient

- **Building Network**
  - IP, Wireless, Networking, Connectivity, Voice, Video, Data, Safety, Security

- **Connected Assets & Components**
  - Sensors, Beacons, Meters, Devices, Smart Devices, BMS, RFID, M2M, Asset Management

- **Operational, Private, Secure Data Lakes and Intelligence**

- **Serving Building Operators**
  - Integrated, data rich systems and applications that Optimize Operations

- **Serving Tenants and Use Cases**
  - Personal, identifiable. Serving their space, performance, and activity needs.

- **Revenue Opportunities**
  - All stakeholders in this ecosystem receive value and see a positive bottom line
Building Types

- Campuses of all kinds
- Airports
- Office Buildings
- Commercial Buildings
- Government Buildings
- Data centers
- Education/Universities
- Medical/Hospitals
- Hotels and Hospitality

- Industrial and Manufacturing
- Religious
- Warehouses
- Parking / Storage
- Stadiums/Entertainment
- Cruise Ships
- Oil Rigs (off/on shore)
- Residential/MDU Properties
Smart Building As Connected Asset
Smart Building Layered Ecosystem

- Quality of Visitor/Tenant Experience
- Productivity and Efficiency
- Economic Development
- Visitor/Tenant Safety
- Sustainability
- Mobility
- Health

Value Generation

Building As A Service

Interconnected Systems & IoT Capabilities

Innovation and Services Enablement

Data, Analytics and Intelligence

Operations and Management processes

Building Subsystems

Connectivity and Telecommunications – Internal/External

Power & Energy - Distribution/Sensors/Controls

Basic Building Services Infrastructure

- Maintenance
- Janitorial
- Security
- Parking
- Lighting
- Ridesharing, etc.
- Managed services
- EV charging
- Content
- Air quality
- Traffic Mgmt.
- Safety alerts
- Emergency Mgmt.
- Microservices
- Personalized ergonomics
- Wayfinding

- Microservices
- Personalized ergonomics
- Wayfinding

- Building Driven Services
- Externally Provided Services
- City/Community Created Services
- Tenant Created Services
- (Application Development, Tools, Deployment)
- (Analyse, predict, optimize)
- (Integration, automation, cyber security, standards, policies and support)
- (HVAC, AV, lighting, energy, security, safety, digital)
- (Fiber, Wi-Fi, Cellular, LPWAN, Others)
- (Distribution: Smart “Outlets”, PoE, USB-C, DE, IP, HVAC, Sensors/Controls: ON/OFF/LEVEL, Power Mode, Metering)
- (Plumbing, cabling, ducting, sensors, etc.)
Smart Buildings Ecosystem

Influencers
- CIOs
- Building Operators
- Facilities Managers
- Specifiers
- Architects
- Engineers
- Consultants
- Construction

Partners
- Systems Integrators
- Building Management Systems (BMS)
- Building Subsystems
- "Smart" Solution Suppliers
- Architects Designers
- Service Providers
- CIOs
- Building Owners
- Investors
- Bankers
- Insurers
- Building Developers
- Estate Brokers / Agents

Buyers
- Tenants
- Visitors

Informed
- Utilities
- Telecommunications
Smart Building Stakeholders

- **Real Property**
  - Property Owners
  - Developers
  - Architects
  - Banks / Financial Investors
  - Construction
  - Suppliers (for construction)
  - BMS contractors
  - CIOs
  - Property Managers / Operators
  - Facility Operators
  - Real Estate Brokers/Agents
  - Buyers
  - Tenants

- **Wireless / Wireline**
  - Suppliers / consultants, carriers, DAS, Small Cell, Wi-Fi, Cable, Sat, etc.

- **Environment in which buildings are located**
  - Towns, Cities, City Official, Citizens

- **People**
  - People working, living, visiting, and providing services in, to and around a building

- **Urban/Campus, Energy Micro and Nano Grids / Green Buildings**
  - Utilities, local & state gov’t; Micro - community level generators; Nano - within a building/home; transactive energy

- **Public Safety**
  - Systems & Connectivity

- **Security**

- **Insurance**
Smart Buildings Collaboration

Key 2018 Activities:
- **GCTC Action Cluster Group**
  Us Ignite, NIST, GSA on Smart Buildings to Smart Cities
- Movement towards **training, auditing, and certification partnerships**
- MOUs with other Alliances on **shared technology**
- CABA, NAA, & Safer Buildings Coalition for **cross-industry collaboration**
- oneM2M – potential **IoT & cybersecurity**
The Smart Building Program is creating a resource that develops and aggregates: architectures, frameworks, best practices, standards, and resources that will assist and guide the design, build and retrofit of Smart Buildings. Reference Architecture will be designed with different stakeholders in mind.
It Takes A Collaborative Community to Execute on the Vision
IEEE 802.x in Smart Buildings:

Q&A &
Opportunities for Development Brainstorm
In-Building Networking, Interoperability, Communications

The need for Standards.
Thank you!

For more information, contact:

Limor Schafman, Director, Smart Buildings Program, TIA – LSchafman@TIAonline.org