"Envisioning Smart and Safe Cities and Buildings Future: 2020 and Beyond"

Steve Surfaro – Security Industry Association – Phoenix, Arizona
Limor Schafman – Telecommunications Industry Association – Arlington, Virginia
Jack Hanagriff – City of Houston – Public Safety Office and Homeland Security – Houston

2018 BICSI Fall Conference & Exhibition

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Introductions

2018 BICSI Fall Conference & Exhibition

From a recent study…

"HEAVY CONSTRUCTION IN CITIES CAN RESULT IN DRIVERS SPENDING MORE THAN 70 HOURS PER YEAR IN GRIDLOCK"

"CITIES SUFFERING FROM HIGH RATES OF VIOLENT CRIME ARE STATISTICALLY LIKELY TO IMPACT THE MAJORITY OF THE POPULATION"

"HOSPITAL OVERCROWDING IN CITIES CAN RESULT IN PATIENTS WAITING LONGER THAN FOUR HOURS FOR A BED"

Juniper Research

Houston – Super Bowl LIVE

Las Vegas – Innovation District

TIA by the Numbers

400+

ICT manufacturers and suppliers, network operators and service enablers, distributors and system integrators

3,609

Standards Developed

9

Standards Engineering Committees

US technical position for the international committee to support 5 technologies through US Technical Advisory Groups" (13 groups total /TAGs covering 5 technologies)

~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
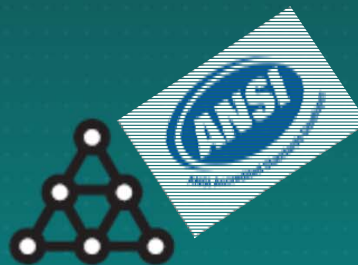
Convening and Enabling Communities of Interest

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.
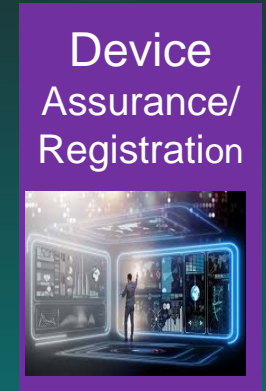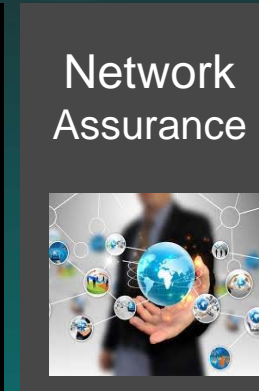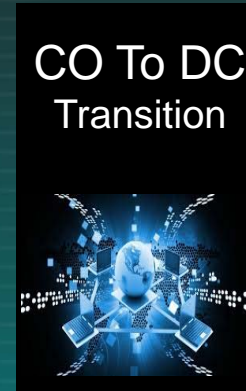
Technology

Standards

Government Affairs

Business Performance

TIA's Programs Roadmap

Internet of Things · 5G · Network Evolution · Physical & Cybersecurity

Smart Buildings

Edge Data Center

CO To DC Transition

Network Assurance

Device Assurance/ Registration
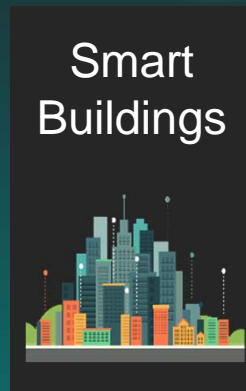
Core Competency: **Network Infrastructure, Connectivity, Quality**

Standards SDO · Technology · Government Affairs · Business

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

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

Communities Of Interest

Smart Buildings Program
Limor Schafman, Director

Conceptualizations for Smart Buildings
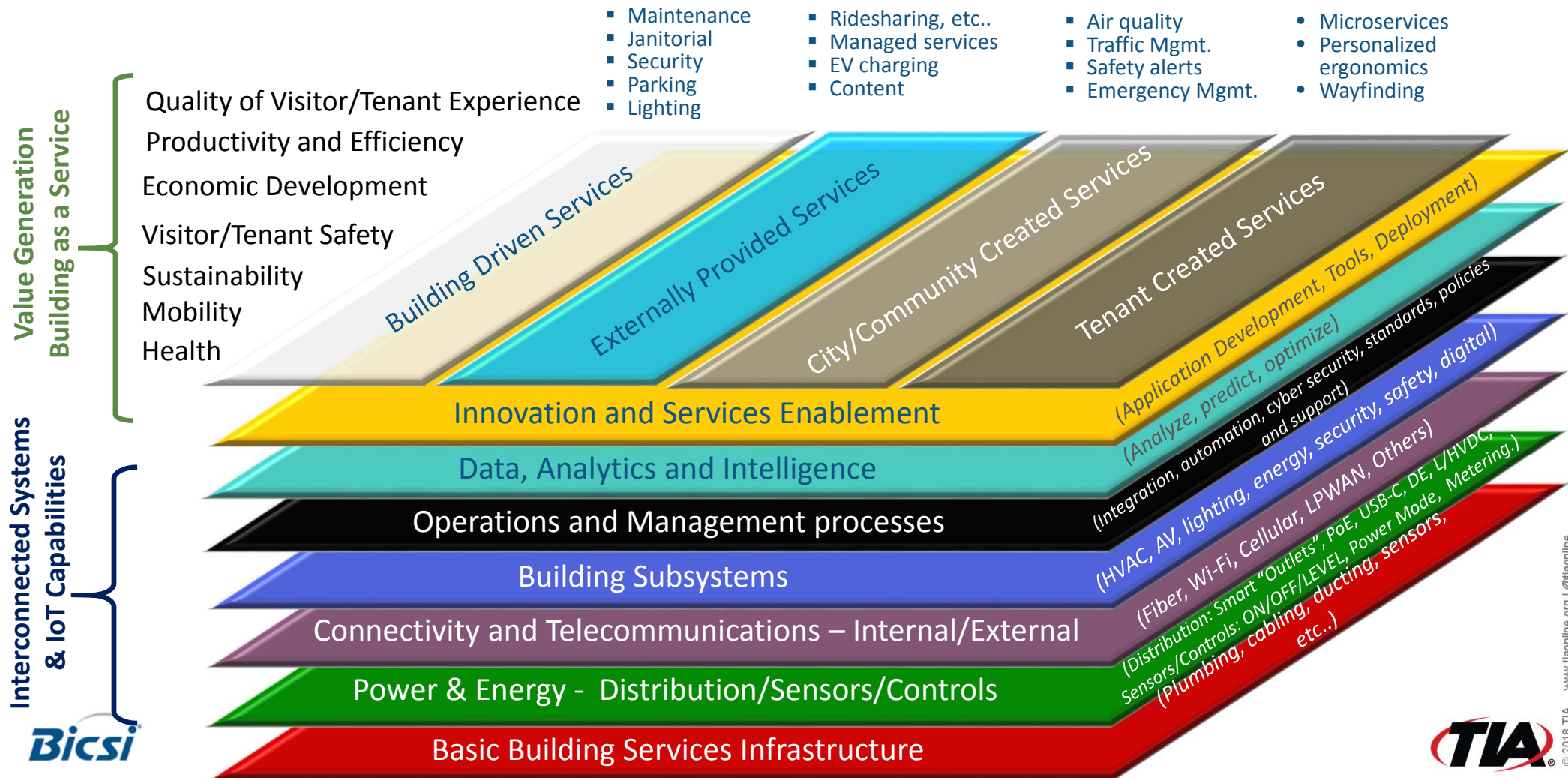
Digitization is Everywhere

From Physical

To Virtual

Flexible Agile

Malleable

Building as a Service

New Services
New Applications
New Business Models

Smart Building Integrated Ecosystem

- Maintenance
- Janitorial
- Security
- Parking
- Lighting

- Ridesharing, etc..
- Managed services
- EV charging
- Content

- Air quality
- Traffic Mgmt.
- Safety alerts
- Emergency Mgmt.

- Microservices
- Personalized ergonomics
- Wayfinding

Value Generation Building as a Service

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

Building Driven Services
Externally Provided Services
City/Community Created Services
Tenant Created Services

Interconnected Systems & IoT Capabilities

Innovation and Services Enablement
(Application Development, Tools, Deployment)

Data, Analytics and Intelligence
(Analyze, predict, optimize)

Operations and Management processes
(Integration, automation, cyber security, standards, policies and support)

Building Subsystems
(HVAC, AV, lighting, energy, security, safety, digital)

Connectivity and Telecommunications – Internal/External
(Fiber, Wi-Fi, Cellular, LPWAN, Others)

Power & Energy - Distribution/Sensors/Controls
(Distribution: Smart "Outlets", PoE, USB-C, DE, L/HVDC, Sensors/Controls: ON/OFF/LEVEL, Power Mode, Metering.)

Basic Building Services Infrastructure
(Plumbing, cabling, ducting, sensors, etc..)

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Basic Building Infrastructure

IoT stack

Basic Building Services Infrastructure

(Plumbing, cabling, ducting, sensors, etc..)
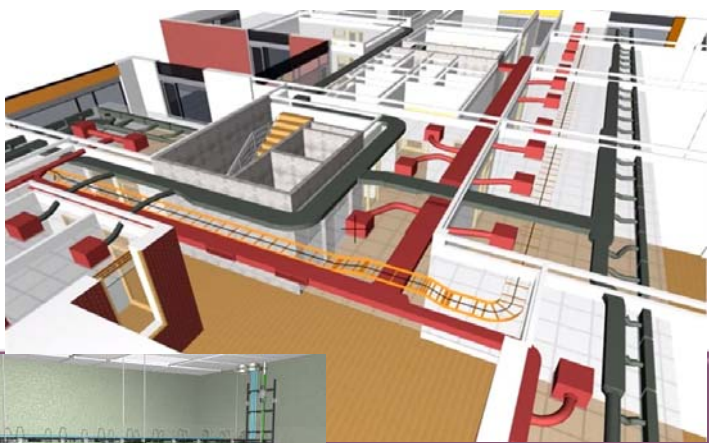
POWER & ENERGY –Distribution & MGT

IoT stack
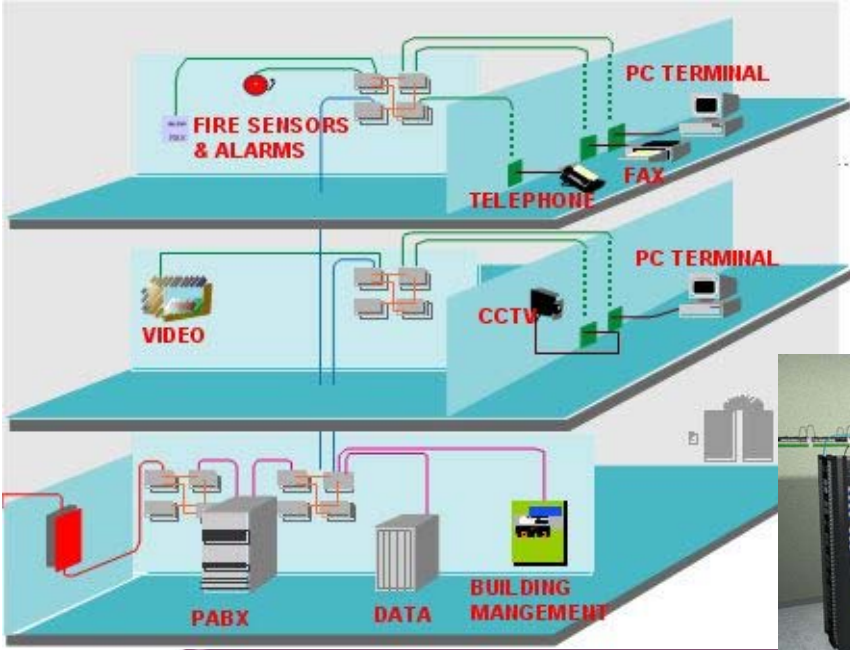
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Basic Building Services Infrastructure

Connectivity & Telecommunications

IoT stack

Connectivity and Telecommunications – Internal/External

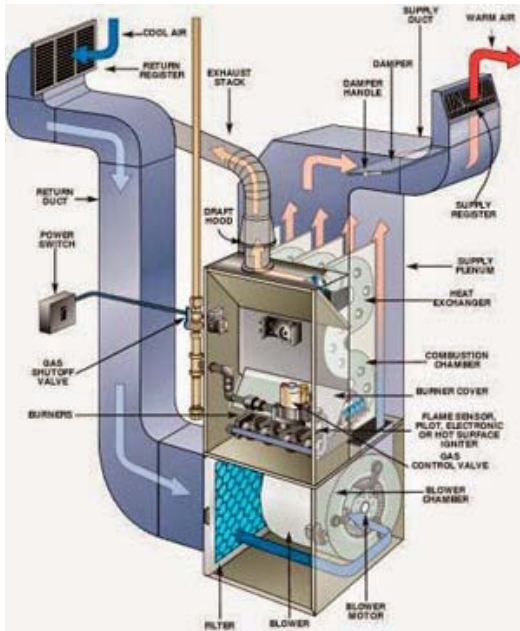**Power & Energy - Distribution/Sensors/Controls**

Basic Building Services Infrastructure

(Fiber, Wi-Fi, Cellular, LPWAN, Others)
(Distribution: Smart "Outlets", PoE, USB-C, DE, L/HVDC,
Sensors/Controls: ON/OFF/LEVEL, Power Mode, Metering.)
(Plumbing, cabling, ducting, sensors,
etc..)

Building Subsystems

IoT stack

Building Subsystems

Connectivity and Telecommunications – Internal/External

Power & Energy - Distribution/Sensors/Controls

Basic Building Services Infrastructure

(HVAC, AV, lighting, energy, security, safety, digital)

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Building Operations and Management

IoT stack

Operations and Management processes

Building Subsystems

Connectivity and Telecommunications – Internal/External

Power & Energy - Distribution/Sensors/Controls

Basic Building Services Infrastructure

(Integration, automation, cyber security, standards, policies and support)

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Data, Analytics, Intelligence

IoT stack

- Data, Analytics and Intelligence
- Operations and Management processes
- Building Subsystems
- Connectivity and Telecommunications – Internal/External
- Power & Energy - Distribution/Sensors/Controls
- Basic Building Services Infrastructure

(Analyze, predict, optimize)

(Integration, automation, cyber security, standards, policies and support)

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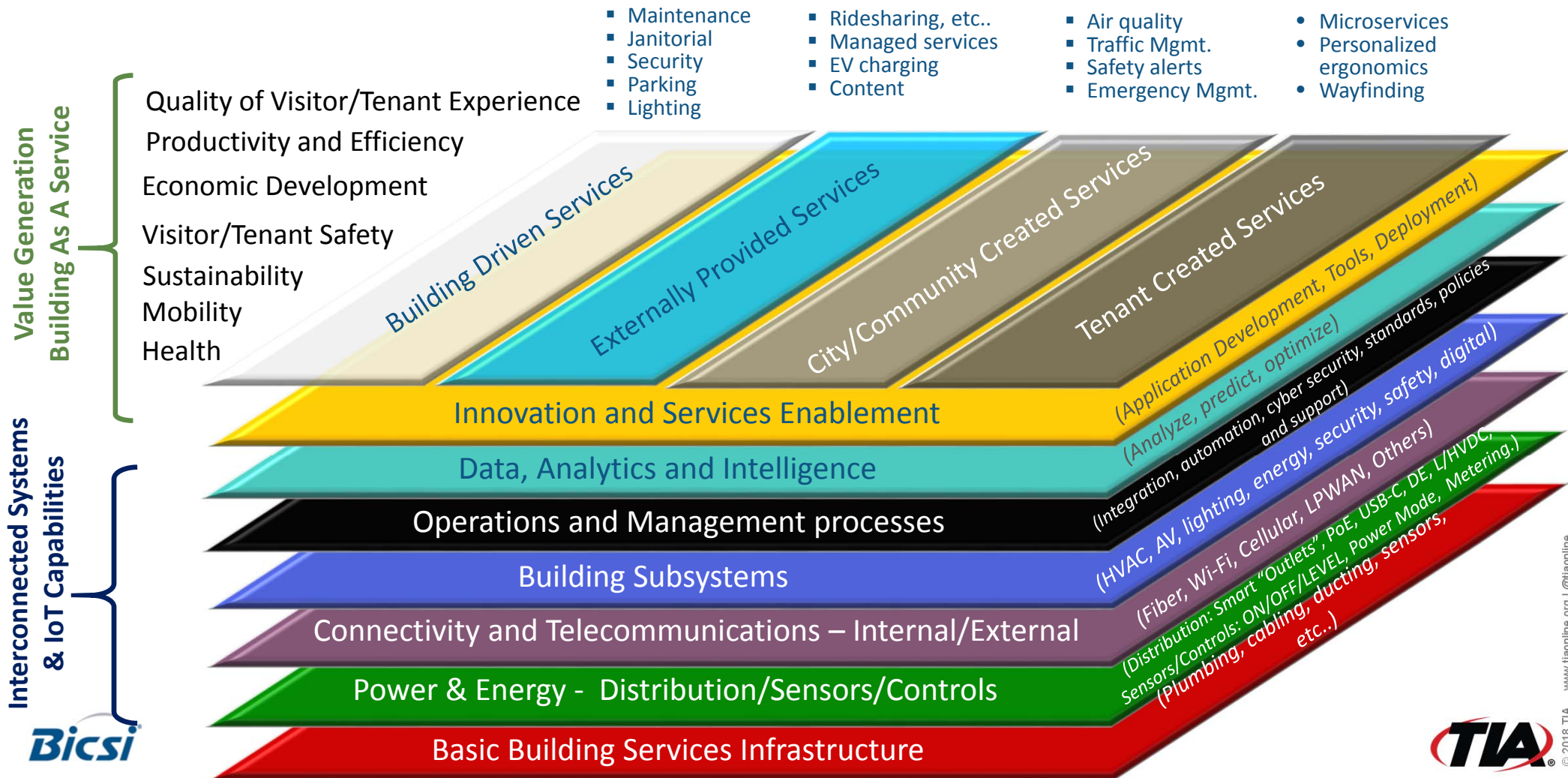*(Plumbing, cabling, ducting, sensors, etc..)*

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Innovation and Services

Innovation and Services Enablement *(Application Development, Tools, Deployment)*

Data, Analytics and Intelligence *(Analyze, predict, optimize)*

Operations and Management processes *(Integration, automation, cyber security, standards, policies and support)*

Building Subsystems *(HVAC, AV, lighting, energy, security, safety, digital)*

Connectivity and Telecommunications – Internal/External *(Fiber, Wi-Fi, Cellular, LPWAN, Others)*

Power & Energy - Distribution/Sensors/Controls *(Distribution: Smart "Outlets", PoE, USB-C, DE, L/HVDC, Sensors/Controls: ON/OFF/LEVEL, Power Mode, Metering.)*

Basic Building Services Infrastructure *(Plumbing, cabling, ducting, sensors, etc..)*

IoT stack

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Smart Building Integrated Ecosystem

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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

Smart Buildings Collaboration

Key 2018 Activities:

- Development of **Reference Architecture, Assessment & Certification** for Smart Buildings
- Movement towards **training, auditing, and certification partnerships**
- Small Cell Forum joint **Guide Document on Making Buildings Small Cell Ready**
- CABA, NAA, & Safer Buildings Coalition for **cross-industry collaboration**
- MOUs with other Alliances on **shared technology**
- **GCTC Action Cluster Group**
  - US Ignite, NIST, GSA on Smart Buildings to Smart Cities
- oneM2M – potential **IoT & cybersecurity**

Smart Buildings Community

Smart Building As Connected Asset
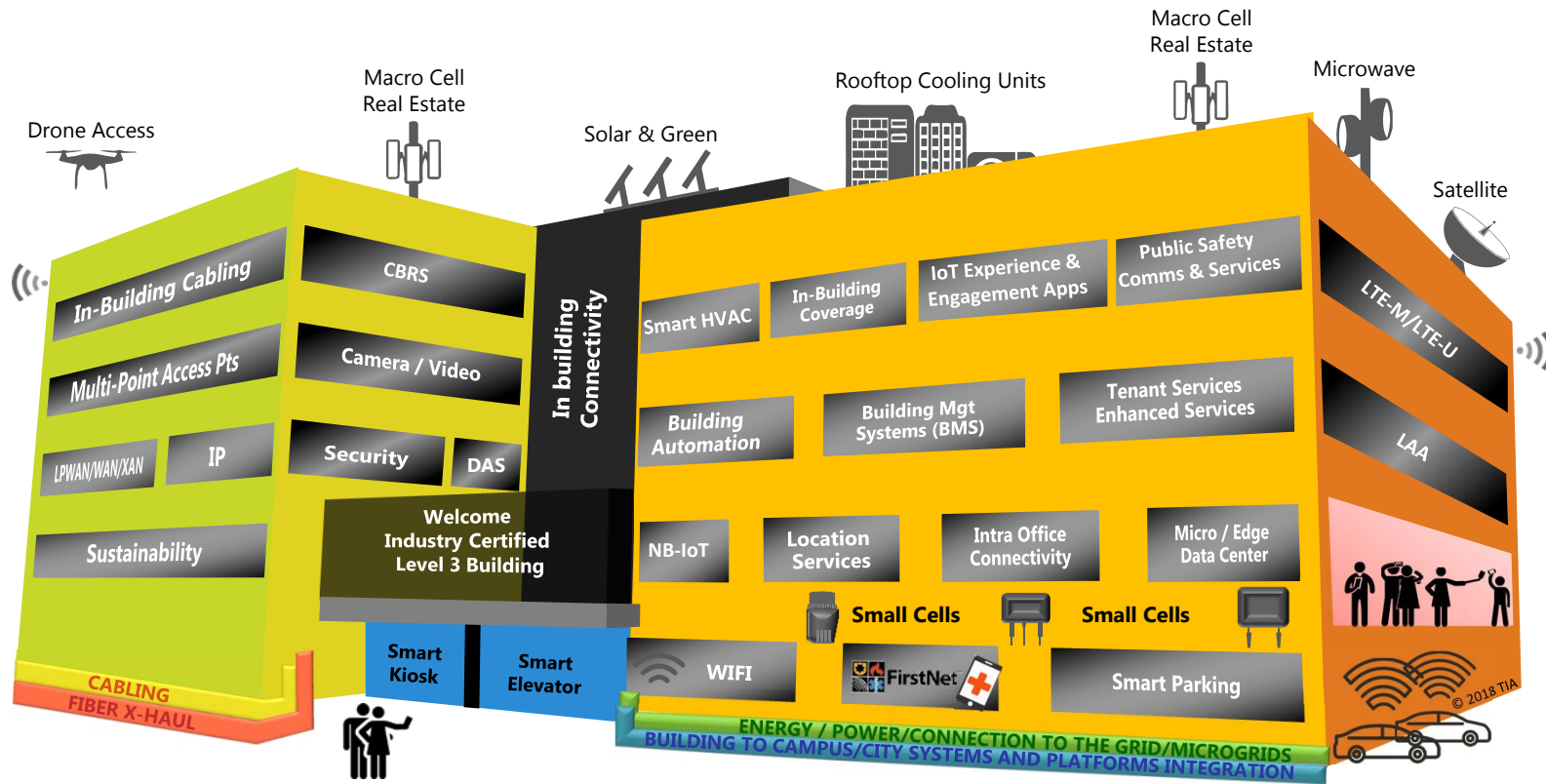
Smart Buildings are a **Microcosm** of Smart Cities
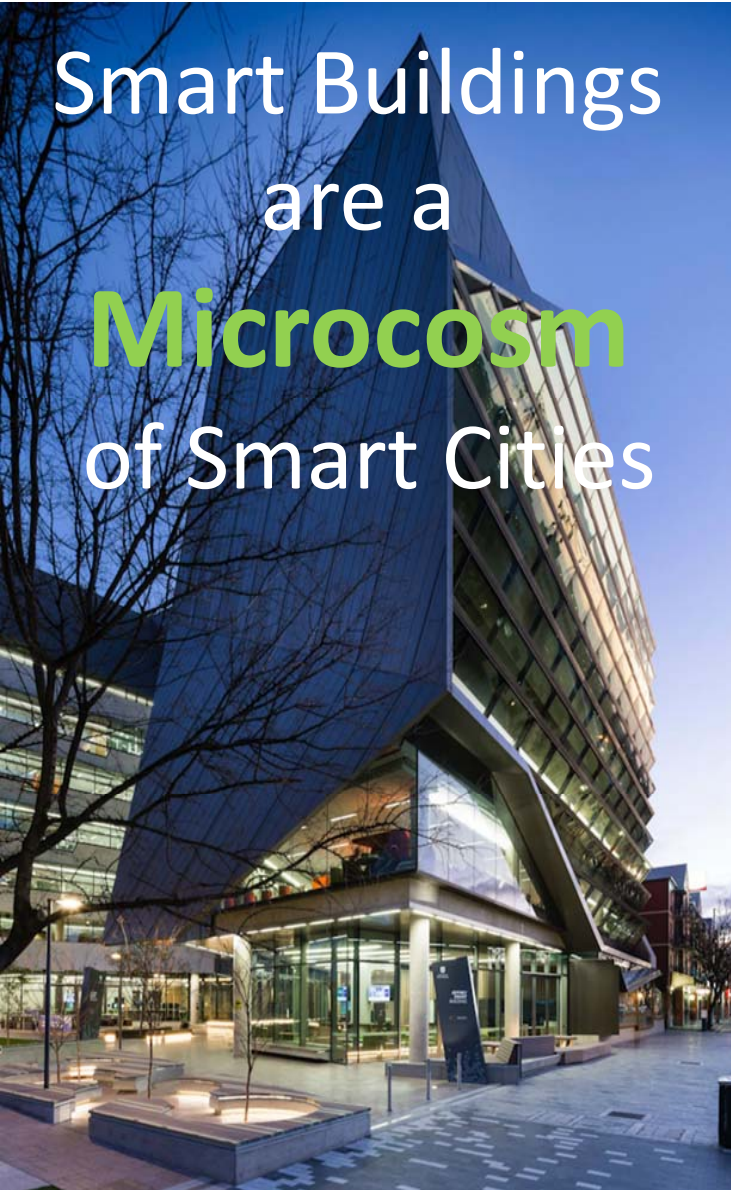
Smart Campus

Smart Neighborhood

Smart City

It Takes A Collaborative Community to Execute on the Vision

Thank you!

For more information, contact:

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

Q & A

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What use cases do you believe are the most valued by Smart-City Managers & good opportunities for BICSI members in the US and globally?

What use cases do you believe are the most valued by Public/Private Partnerships & good Smart-City opportunities in Downtown Houston and the rest of the City/State?

Juniper Research

What are the biggest challenges in the US? How have cities like Singapore, London, Berlin, Dubai overcome them?

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What are the biggest challenges to cities in Texas? What partners (infrastructure, safety/security etc.) have been most successful in overcoming them?

Juniper Research

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