



GLOBAL CITY
TEAMS CHALLENGE

Smart Buildings SuperCluster
May 24, 2018

Agenda

- Introduction and program review
 - Jean Rice, NTIA
 - Limor Schafman, TIA
- SBAC Goals
- Project areas
- Participating Cities
- The Security Perspective
- Co-founder perspectives
 - NTIA's
 - TIA's
- Join us!



SBAC Goals

SBAC will focus on:

- Smart buildings at a local and regional level
- Resolving issues pertaining to communications, connectivity and integration
- Proving best practices and prototype demonstrations of solutions



Developing the Action Clusters

- Action clusters bring communities together with commercial entities to develop applications, test theories and produce best practices and blue prints
- This is a perfect opportunity, in a prototype and test bed environment, to turn recommendations into live demonstrations, with all the learning, adjustments and pivots included
- Ideally, the final result best serves the broader smart buildings and smart cities ecosystem



5 SBAC Topics

1. **Interoperability** – communications and applications between buildings and their environment (city, town, campus)
2. **Security & Privacy** – cyber and physical security as well as privacy issues
3. **Health Care** – telehealth, telemedicine, smart building tech for health, interfacing with the health care community on prevention
4. **Transportation** – public and private transportation, connected and autonomous, applications and infrastructure
5. **Energy** – energy efficiency demand by IoT applications and devices, and network infrastructure, energy generation, energy micro-grids



Participating Municipalities

Starting projects will collaborate with:

- San Mateo County, CA
- New Orleans, LA
- INOVA, Fairfax County, VA

...Others to follow...



The Security Perspective

- Nirvana Building
 - Hardened throughout
 - Cyber and physical security of the networks
 - Strong cyber and physical security of the buildings and all building components and systems
 - Strong cyber IoT protection
- Integration with Municipalities
 - Ensure hardened networks and systems between buildings and the environments in which they exist
- Application/Translation of NIST Cybersecurity Framework to Buildings
- Exploration of other protocols, standards and their applicability
- Development of guidelines, protocols, standards as needed



Join us tomorrow!

9:00 AM PT

Room 148

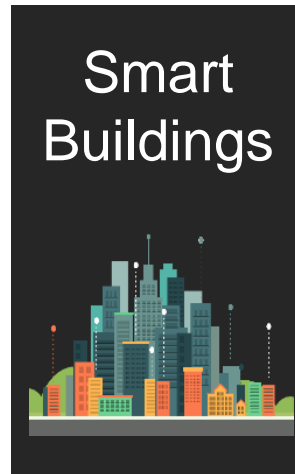
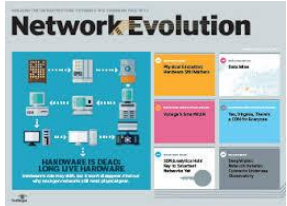
To learn more, share your interests, and blue sky the first projects.

NTIA Perspective

Interoperability among buildings and campuses and smart cities and communities

TIA Perspective

TIA's Network of the Future®



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



- **TR-8** | Mobile and Personal Private Radio Standards
- **TR-14** | Structural Standards for Communication
- **TR-30** | Multi-Media Access, Protocols and Interfaces
- **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

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

**Communities
Of Interest**



TIA's Foundation in Smart Buildings

Smart Buildings



TIA MEMBER COMMUNITIES

Technology

- Smart Buildings WG
- Edge Data Centers Working Group
- Infrastructure Assurance- NFV
- Device Assurance
- Classification WG
- Device Registration

Standards

- TR 14 Structural Standards for Towers
- TR 8 Public Safety Standards
- TR 42 Building Cabling Standards
- TIA-942 Data Centers
- One M2M Consortium
- IEC Smart Cities Systems Tech Advisory Group (TAG)
- IEC SEG 9 Smart Buildings
- TL9000

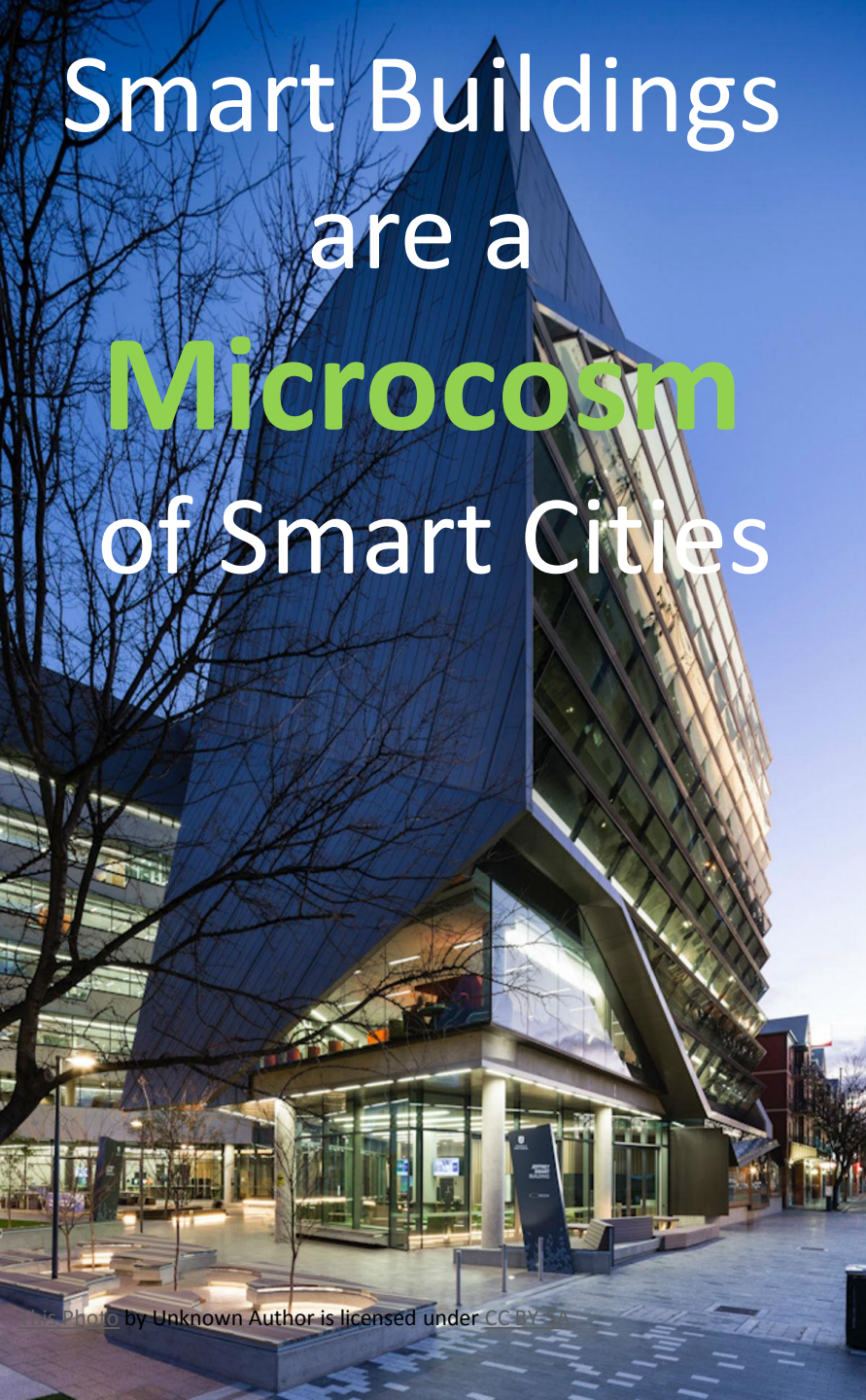
Advocacy

- Broadband Infrastructure Policies
- Cybersecurity Committee
- IoT Policy Working Group
- Public Safety Policies
- Standard IPR

Business

- TIA NOW Documentaries
- Smart Cities Maturity Model Research
- Workshops & Webinars
- Sustainability Assessment
- Customer Experience

Smart Buildings
are a
Microcosm
of Smart Cities



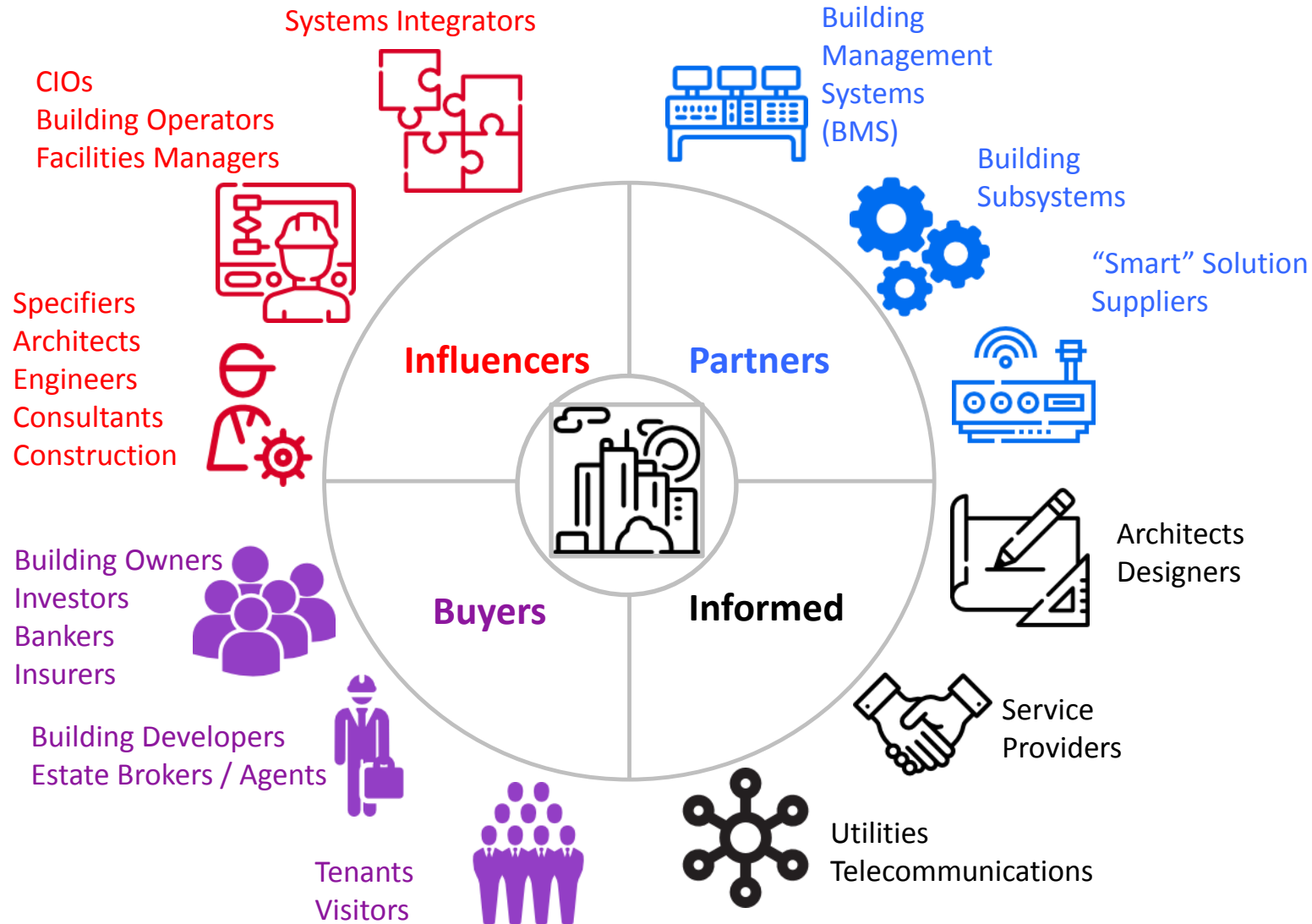
Smart Campus



Smart City



Smart Buildings Ecosystem

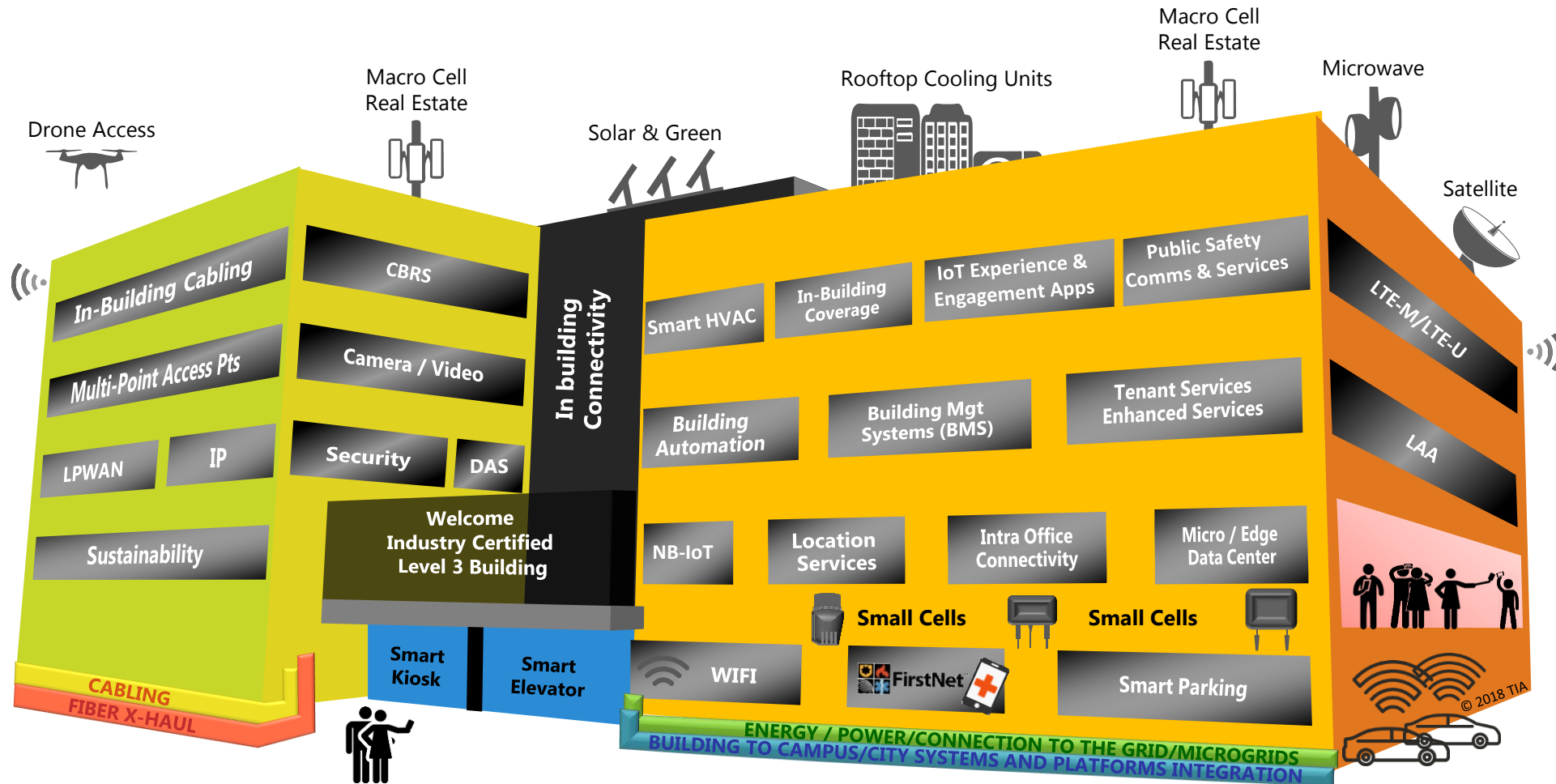


Building Types

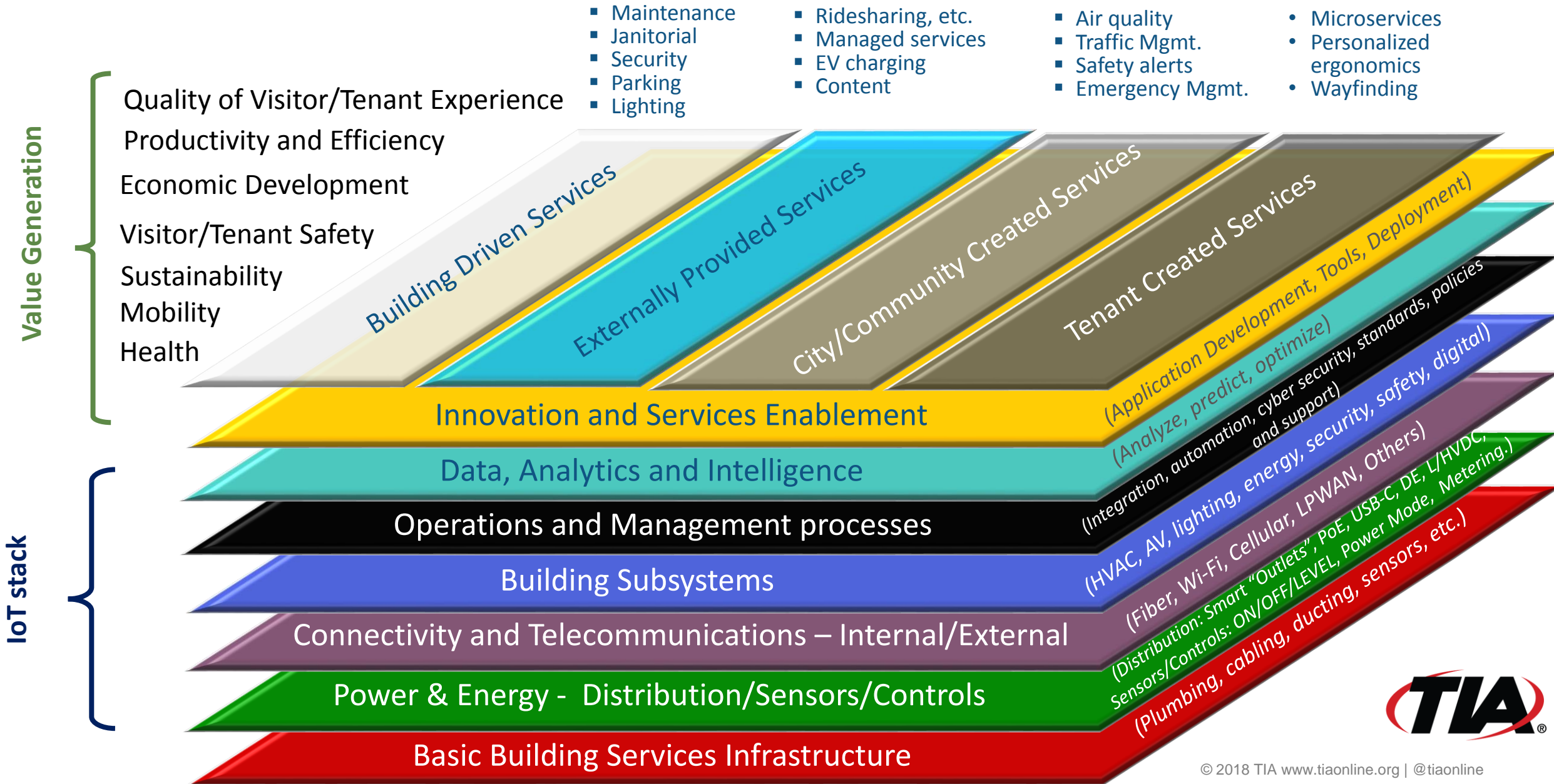
- Campuses of all kinds
- Airports
- Office Buildings
- Commercial Buildings
- Government Buildings
- Data centers
- Education/Universities
- Medical/Hospitals
- Cruise Ships
- Industrial and Manufacturing
- Hotels and Hospitality
- Religious
- Warehouses
- Parking / Storage
- Stadiums/Entertainment
- Residential/MDU Properties



Smart Building As Connected Asset: NxtGn IoT Ready



Smart Building Layered Ecosystem



Basic Building Infrastructure



IoT stack



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

Basic Building Services Infrastructure



POWER & ENERGY –Distribution & MGT



IoT stack



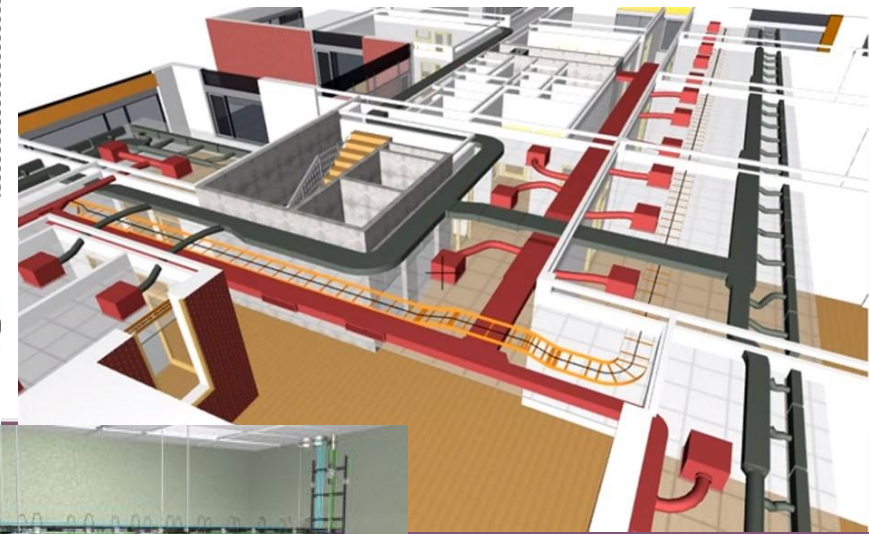
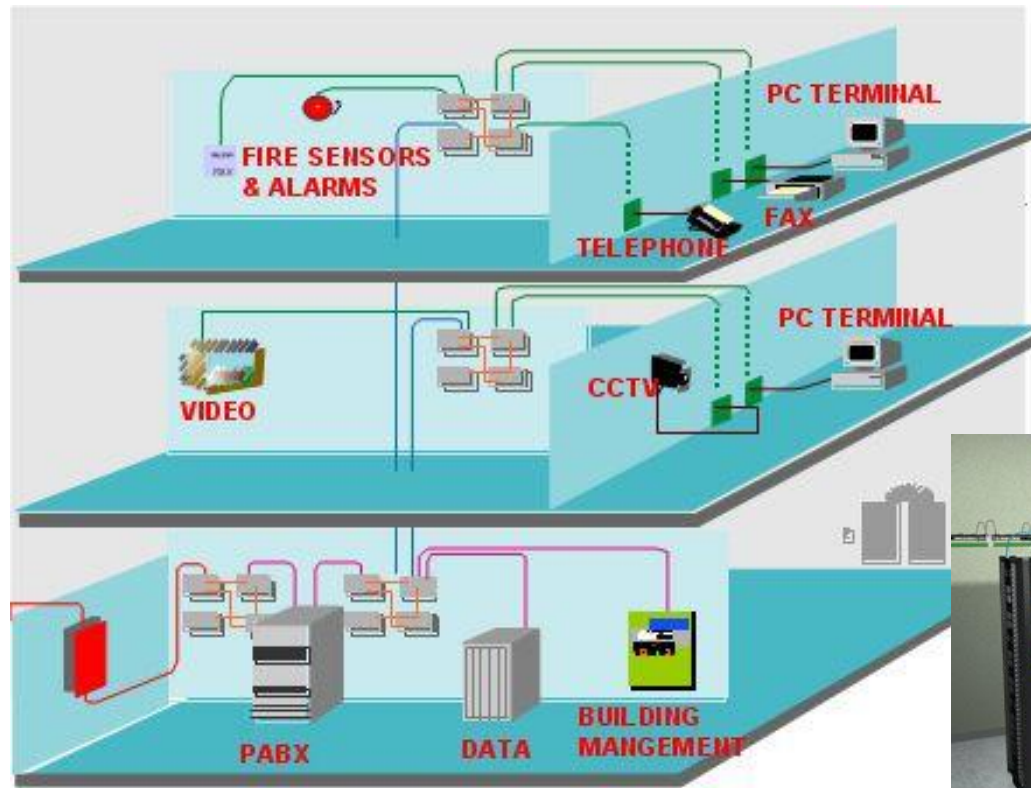
Power & Energy - Distribution/Sensors/Controls

Basic Building Services Infrastructure

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



Connectivity & Telecommunications



IoT stack

Connectivity and Telecommunications – Internal/External

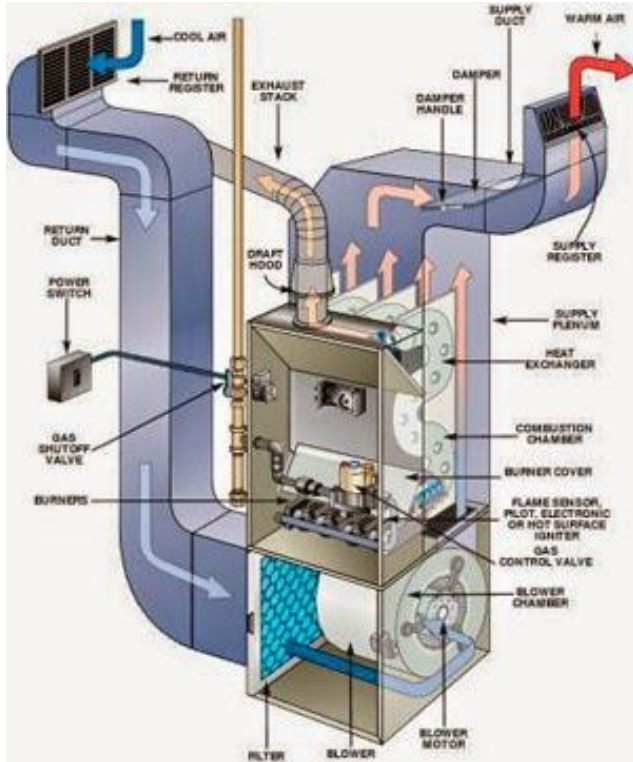
Power & Energy - Distribution/Sensors/Controls

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)
 (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 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)

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

(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.)



Innovation and Services



IoT stack

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

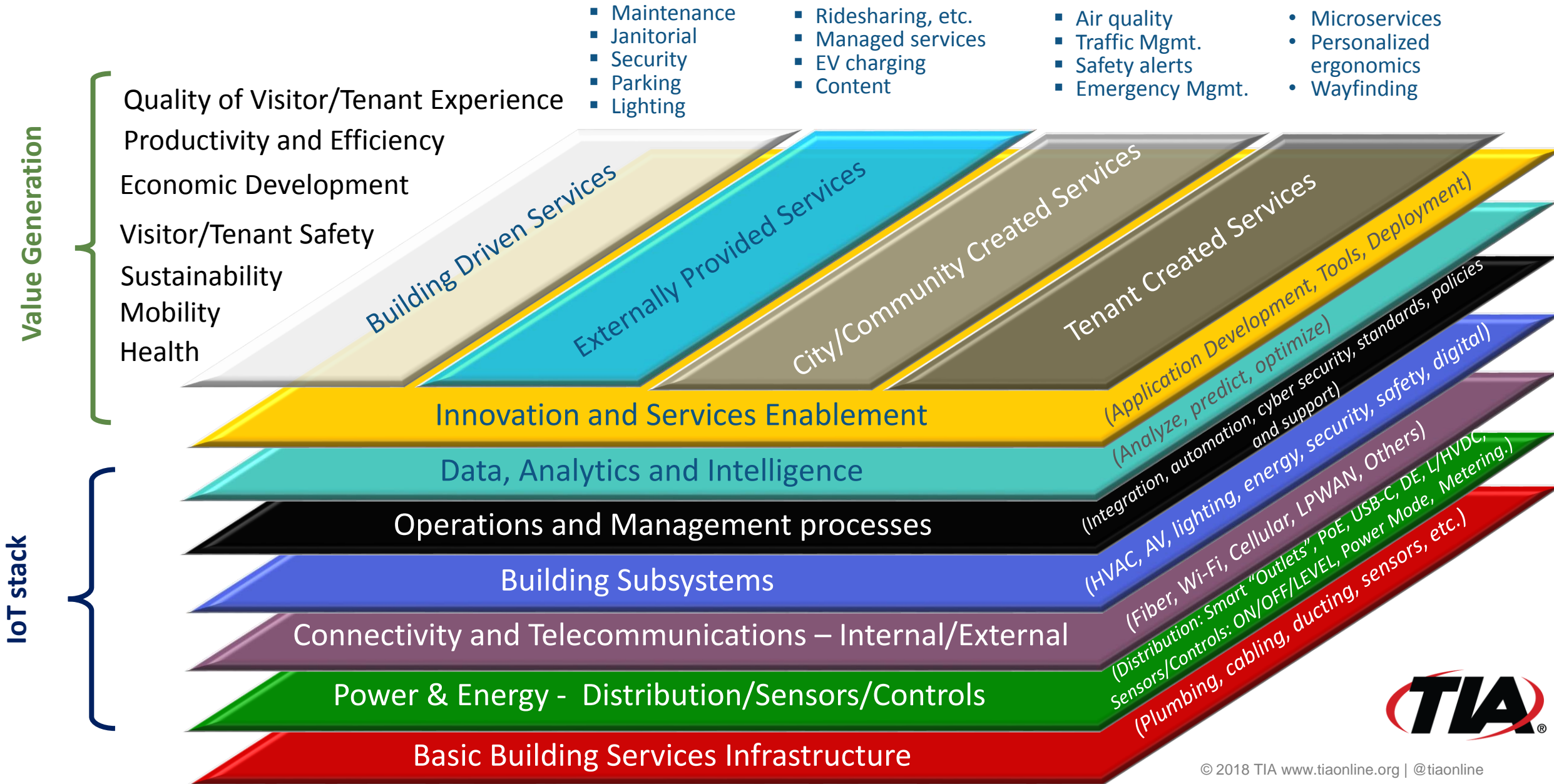
(Application Development, Tools, Deployment)
(Analyze, predict, optimize)
(Integration, automation, cyber security, standards, policies and support)

(HVAC, AV, lighting, energy, security, safety, digital)
(Fiber, Wi-Fi, Cellular, LPWAN, Others)
(Distribution: Smart "Outlets", PoE, USB-C, DE, L/HVDC, Sensors/Controls: ON/OFF/LEVEL, Power Mode, Metering.)

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



Smart Building Layered Ecosystem



“Smart Buildings Cookbook”

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. This cookbook will be designed with different “readers” in mind.

Smart Buildings Cookbook Ingredients

Levels and Certification /Tools

Interoperability

Standards Review / Education and Training

Network and IoT Security & Privacy

Getting Buildings X- Tech Ready

It Takes A Collaborative Community to Execute on the Vision

Smart Buildings Community



Thank you!

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