Evolution of Smart Buildings and Their Place in the Internet of Everything

Jeremy Towler

Senior Manager - Energy & Smart Technologies - BSRIA Worldwide Market Intelligence

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BSRIA

www.bsria.co.uk

BSRIA WMI

BSRIA is…..?

What?

**Member based
Association
Since 1955**

For whom?

**Owner/Operators
Specifiers
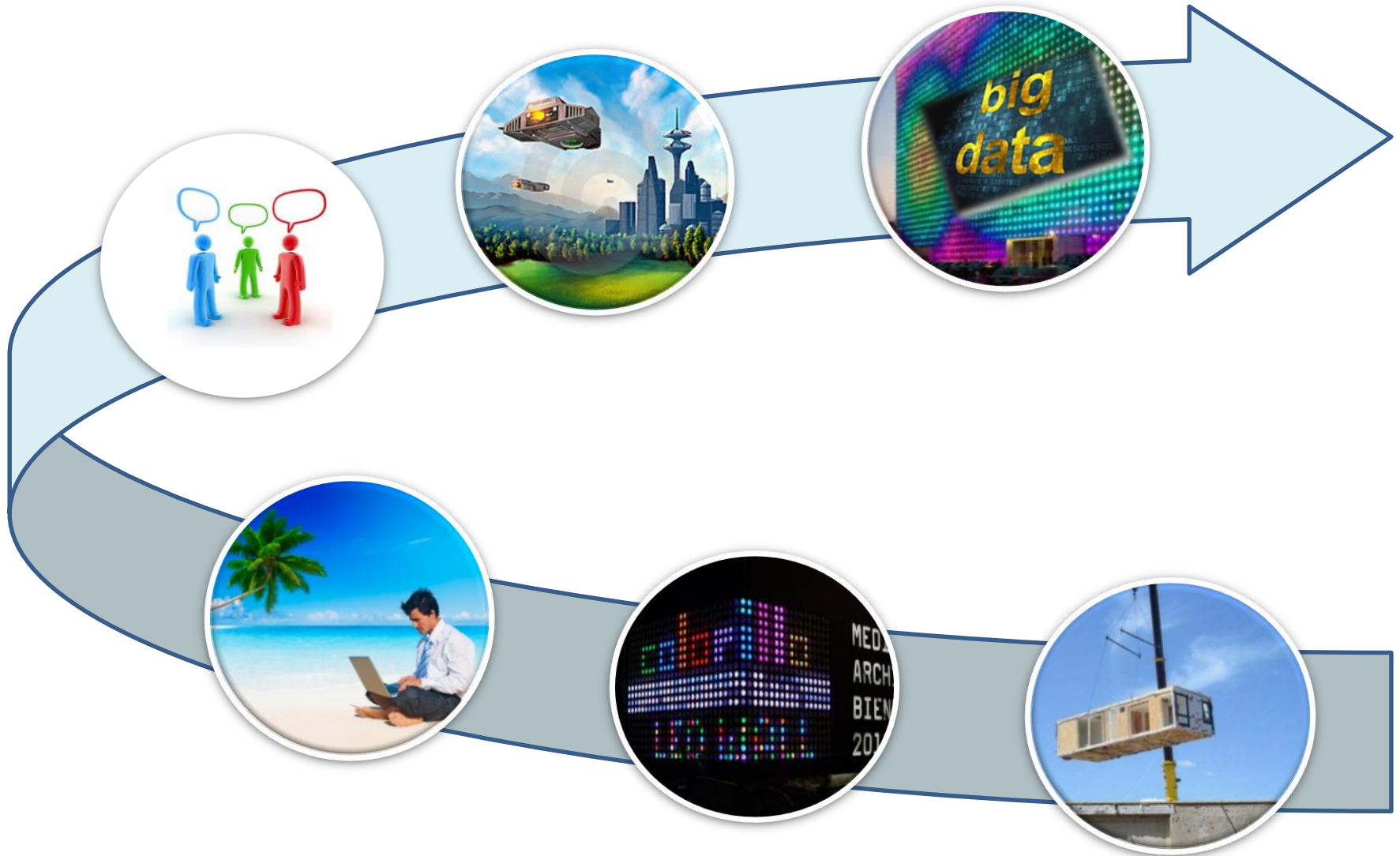Manufacturers
Contractors**

How?

**Consultancy services
Test
Instruments
Publications
Training
Information
Research**

Why?

**To help industry
and clients be
more efficient
and effective**

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Trends for Smart Buildings

Technologies are already Interacting...

Smart Cities

Smart Devices / Appliances

Smart Buildings
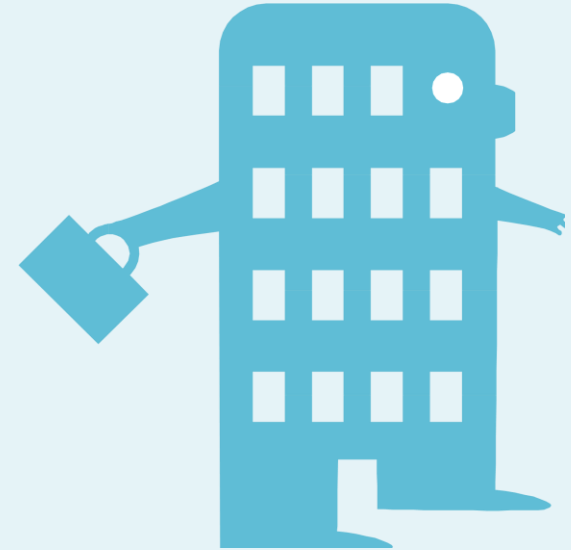
Data Communications

Energy

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Smart City

Broadband connectivity, Knowledge workforce, Innovation, Digital inclusion...

Smart Building

Information and Communications Technology, Passive design, Energy & Water efficiency, On-site renewables, Controls & Lighting, Monitoring and Management…
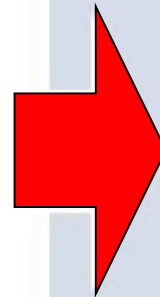
Smart Grid

Bi-directional flows of energy, 2-way communications, remote control/automation of power, integrated distributed energy, energy storage…

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Smart Grid

Source: Prysmian Group

Smart Buildings
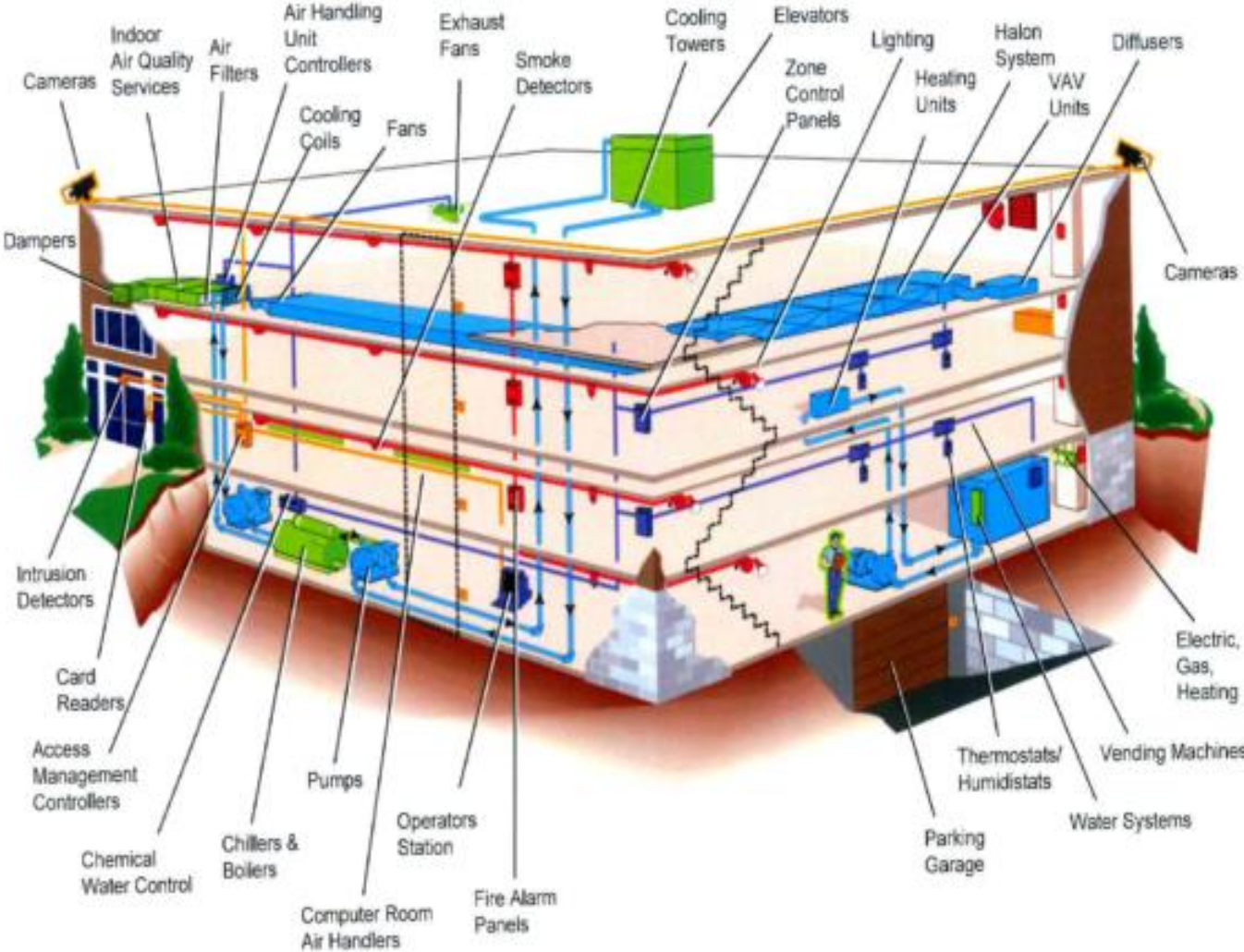
Integration with the Smart Grid

Connecting to Smart Cities

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Home Automation Evolution

Smart Automation: Visualization - Interaction

System Integration

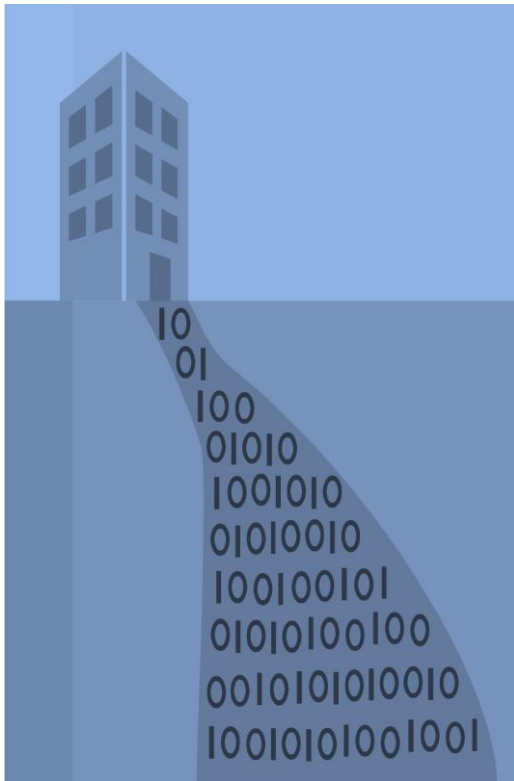BSRIA
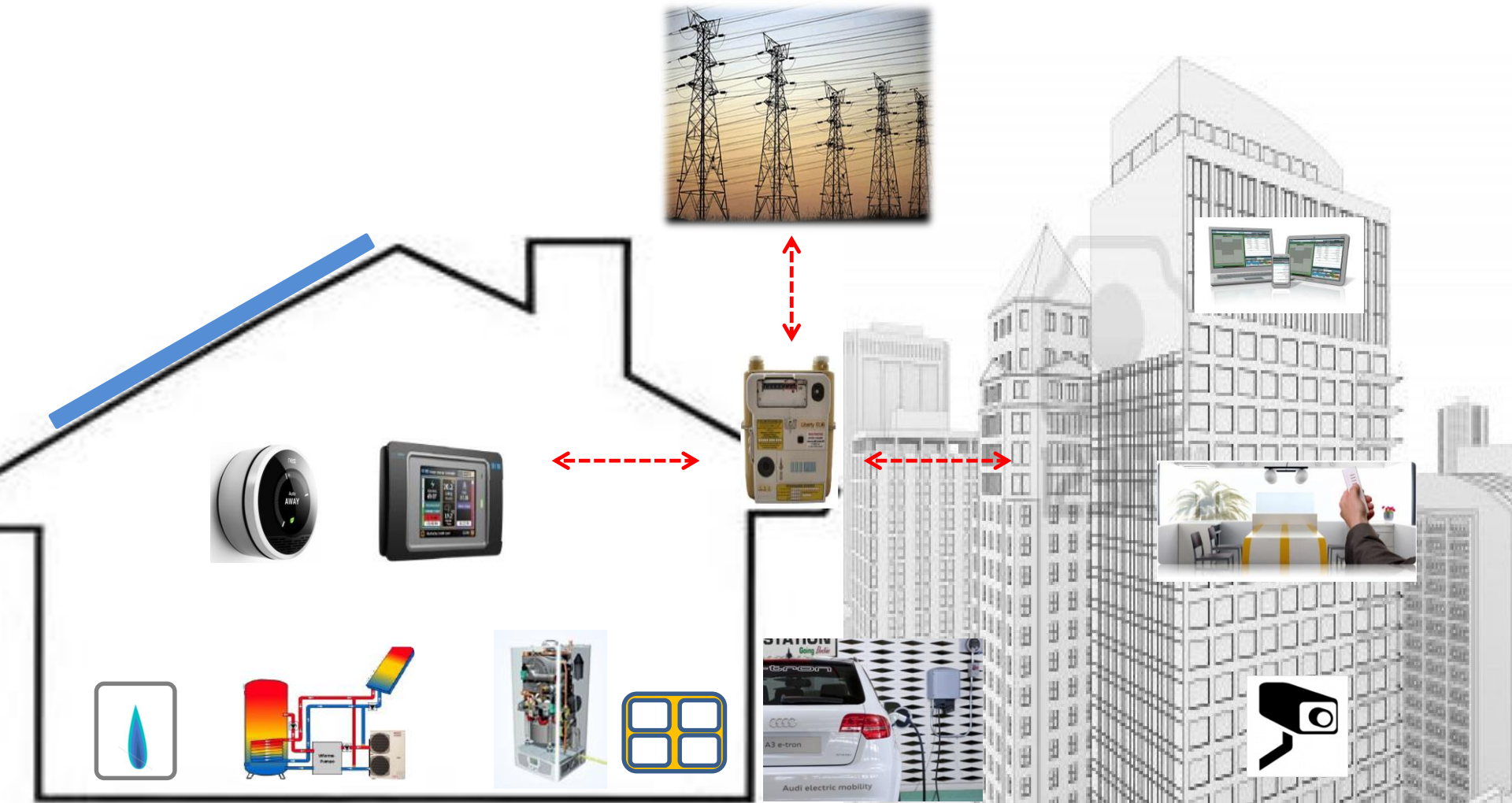
The Challenge of Software and the Cloud

Big Buildings -Big Data

Advanced Analytics

The Cloud: - Universal Access

Major opportunities for IT companies which combine these

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Smart City Elements

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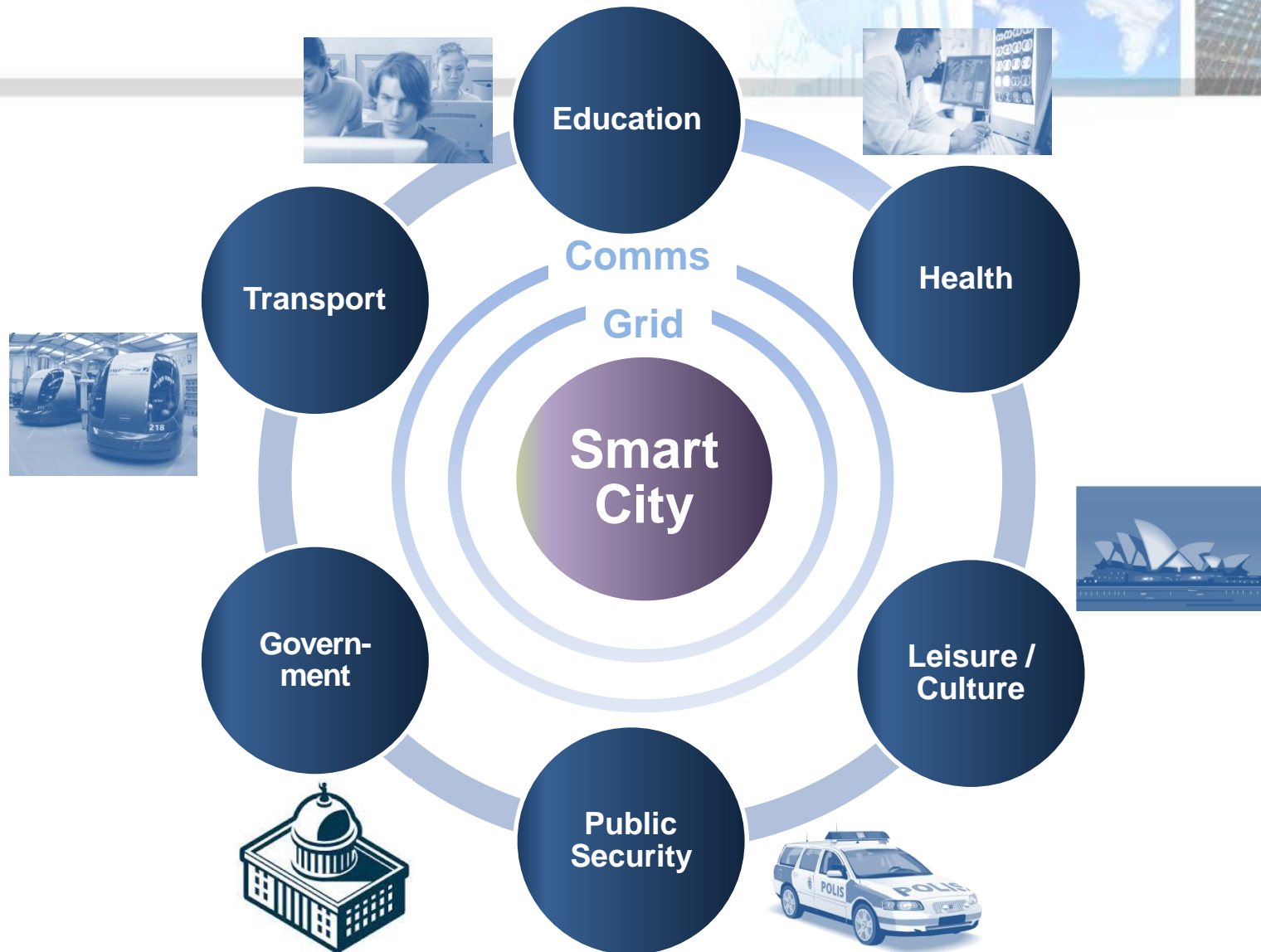
The Information Dimension

18 month payback

500 million data elements daily

10% energy savings

48% faults detected in <60 secs.

750 Air Handling Units

125 buildings

4 million per building

58,000 employees

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When?

2015   2020   2025   2030

**Building Energy Management:
Systems - Services - Analytics**

Cyber-security for Building Systems

Smart Meters

Smart Grid

Dynamic Energy Pricing

Distributed Energy: Generation and Storage

LEDS

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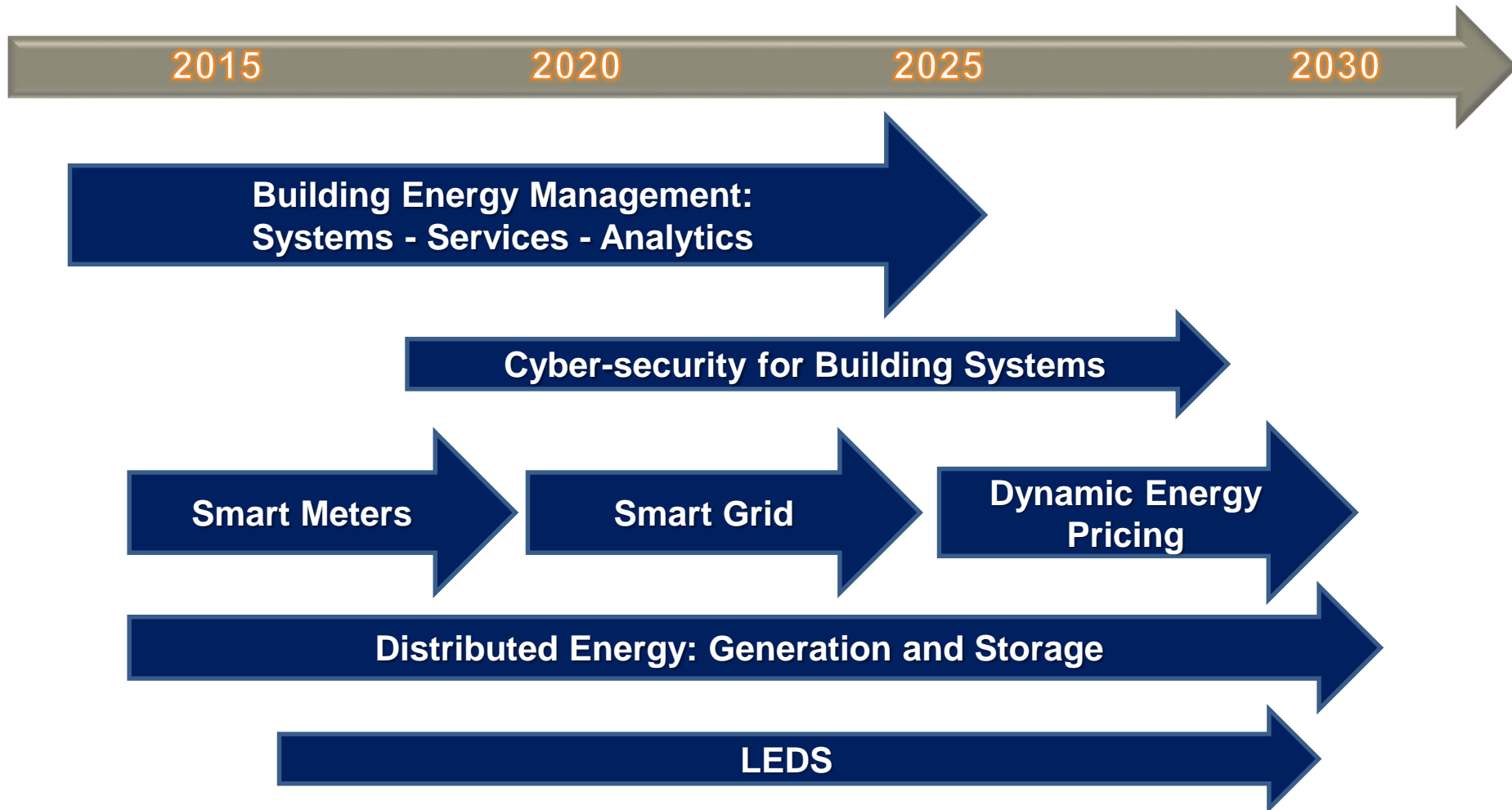
Who is best placed to Lead the 'Smart New World'?

Smart Reach

A 2x2 matrix chart with axes "Breadth of Competency" (vertical) and "Breadth of Services" (horizontal). Quadrants labeled: Potential Leaders (top left), Leaders (top right), Narrow (bottom left), Wide (bottom right).

- Microsoft — upper area, left quadrant
- Google — middle left, left quadrant
- IBM — top right quadrant
- Schneider Electric — top right quadrant
- Siemens — top right quadrant
- Honeywell — top right quadrant
- Johnson Controls — top right quadrant
- Building IQ, Jones Lang Lasalle, ABB, SAP, Fujitsu, Honda, Dalkia - Veolia, LG, Samsung, Apple, NEC, Hitachi, Trane, UTC (Carrier/ALC), Cofely (GDF Suez), Panasonic, Vodafone, Verizon, e.on — bottom left (Narrow) quadrant

More than 75% of Buildings have no Intelligent Controls

1991-2010
15%

1961-1990
44%

Before 1960
41%

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150-300 sensors and actuators

ESL-IC-14-09-09

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Towards the Information-based Building

"How can I manage my buildings to provide a safe, secure, comfortable and productive environment as cost-effectively as possible?"

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New Skills Needed

Evolve

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