Smart Panels

Enabler of Smart City

Cost effective architectures for energy & asset management

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Schneider Electric

Smart City



Efficient

- Better information sharing
- Improved resiliency to disruptions
- Increased control over city systems

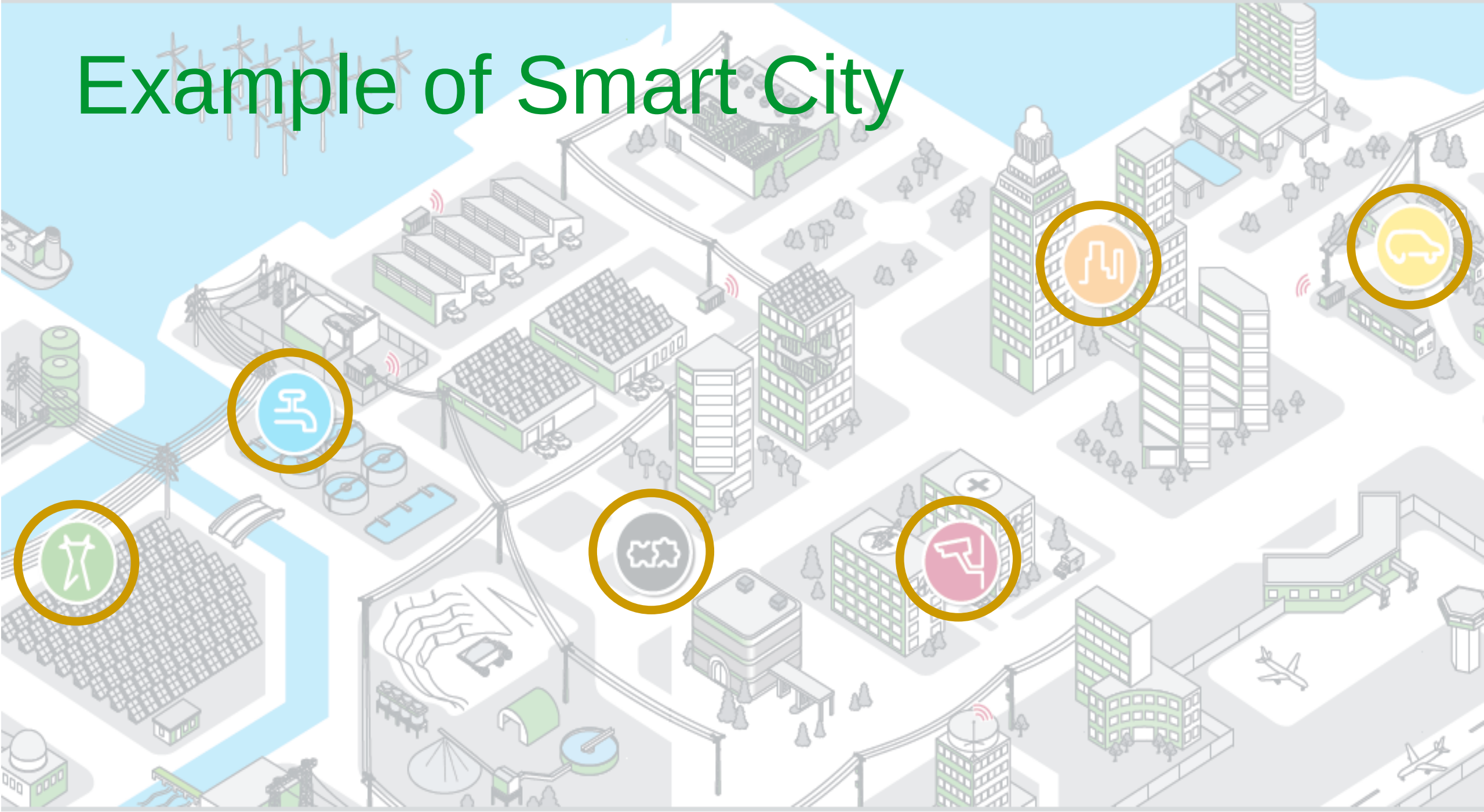
Sustainable

- Reduced Carbon emissions and energy consumption
- Operational cost savings
- Decreased need for massive infrastructure investments

Liveable

- Higher quality of life for city residents
- Increased attractiveness to jobs & talent
- Increased global competitiveness

Example of Smart City



Components of Smart City

Connected

Visible

Control

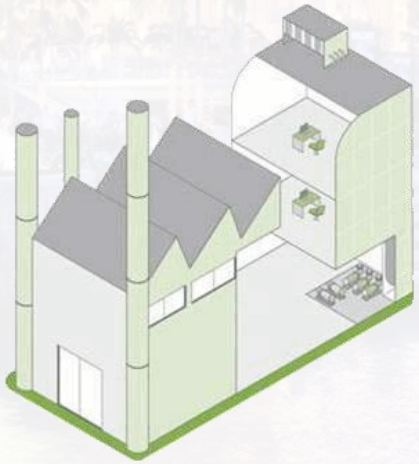
Reliable

Energy Efficient

Smart Buildings

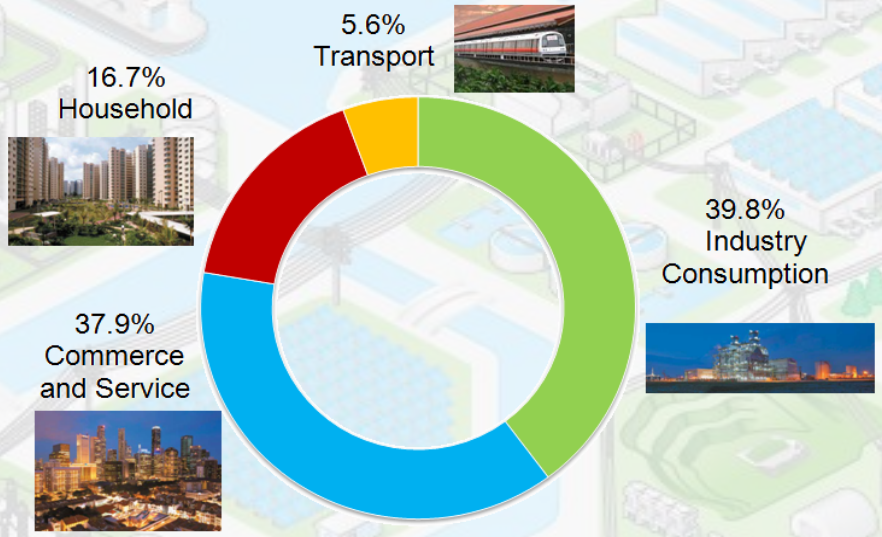


Smart Plant



40% of the energy consumed in most countries, is by Buildings

Energy consumption pattern in Singapore



www.energyportal.sg

Changing Landscape



> Green Building Standards are evolving

ISO 50001 ENERGY MANAGEMENT

SINGAPORE GREEN BUILDING COUNCIL

BCA GREEN MARK



> End Users want more







> Business activities are moving towards system integration

Current solutions are either…

1. Too basic & unreliable

- Require excessive manual intervention



> Error prone,
> Inaccurate
> Unreliable

Or

2. Too expensive & complicated

- PLC based solutions or dedicated software licenses demand heavy investment



> The high cost discourages most people to focus on this important source of savings.



Monitor & control energy consumed



Reduce cost per kWh



Reduce CO2 footprints



Reduce operating expenditures



Realise measurable efficiency

Our response to this Challenge…

Smart Panels!

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Smart Panels!



Smart Panel ?

Smart Panels!



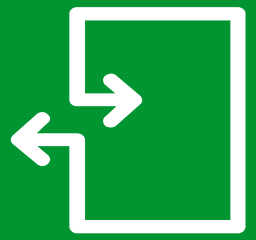
“ Join me to discover how smart panel offer responds to the changing needs”

Our response to this Challenge…

Smart Panels!



>Easy means to comply with green building standards



>Simplified architectures for cost effective Energy & Asset management



>Architectures qualified by Schneider Electric with comprehensive prescription tools

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Smart Panels offer energy & asset management in 3 simple steps

1. Measure

- Embedded and stand-alone metering & control capabilities

2. Connect

- Integrated communication interfaces
- Ready to connect to energy management platforms

3. Save

- Data-driven energy efficiency actions
- Real time monitoring and control
- Access to energy and site information through on-line services



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Energy management has never been simpler

3 Save

On the panel > On local network > Softwares or BMS > Cloud based services



IP Display



Device WebPages



Power Monitoring expert



Energy Operation

2 Connect

Ethernet interfaces





Data logger



1 Measure

Measurement of electrical parameters









Generation 1







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Generation 2









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Generation 3





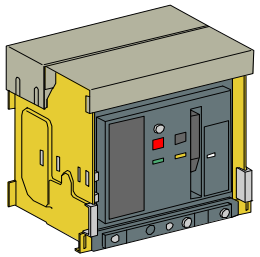


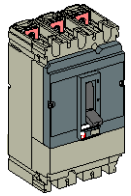


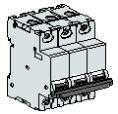


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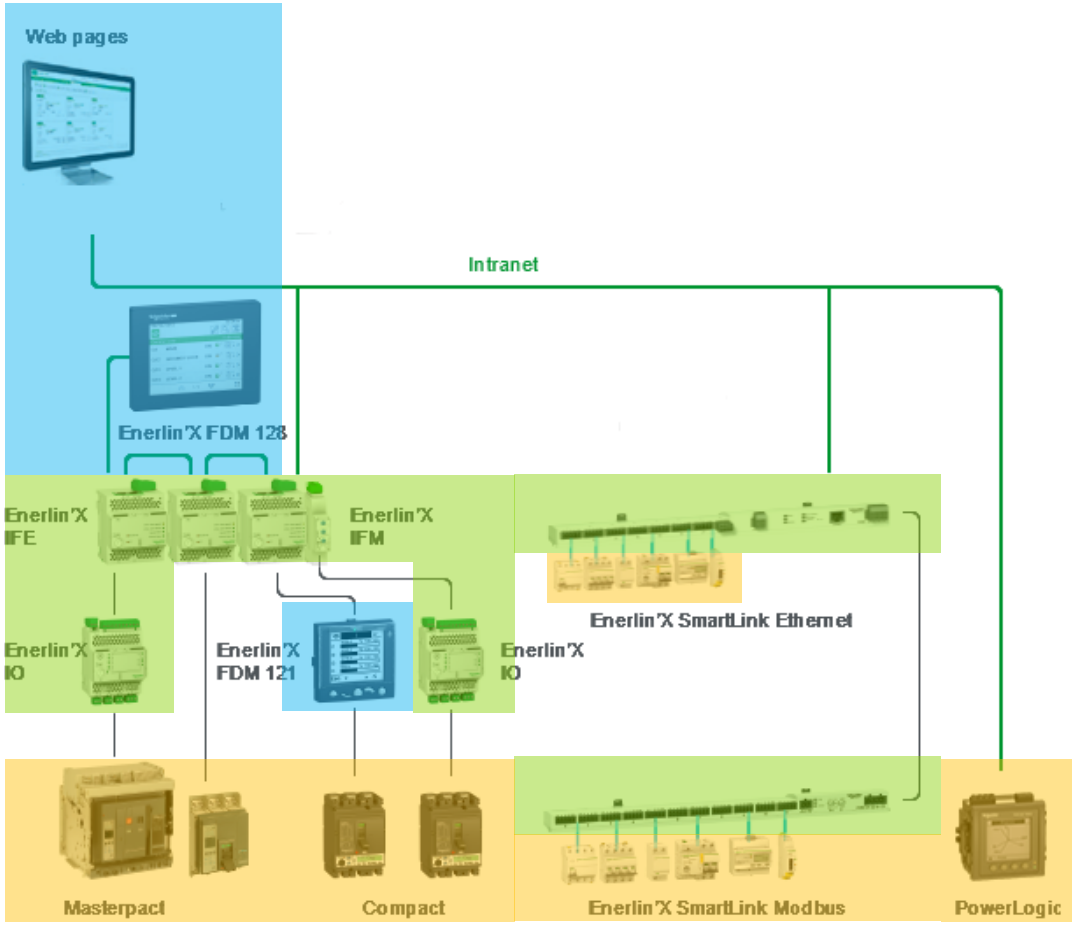






Two simple reference architectures

On-site real time monitoring and control

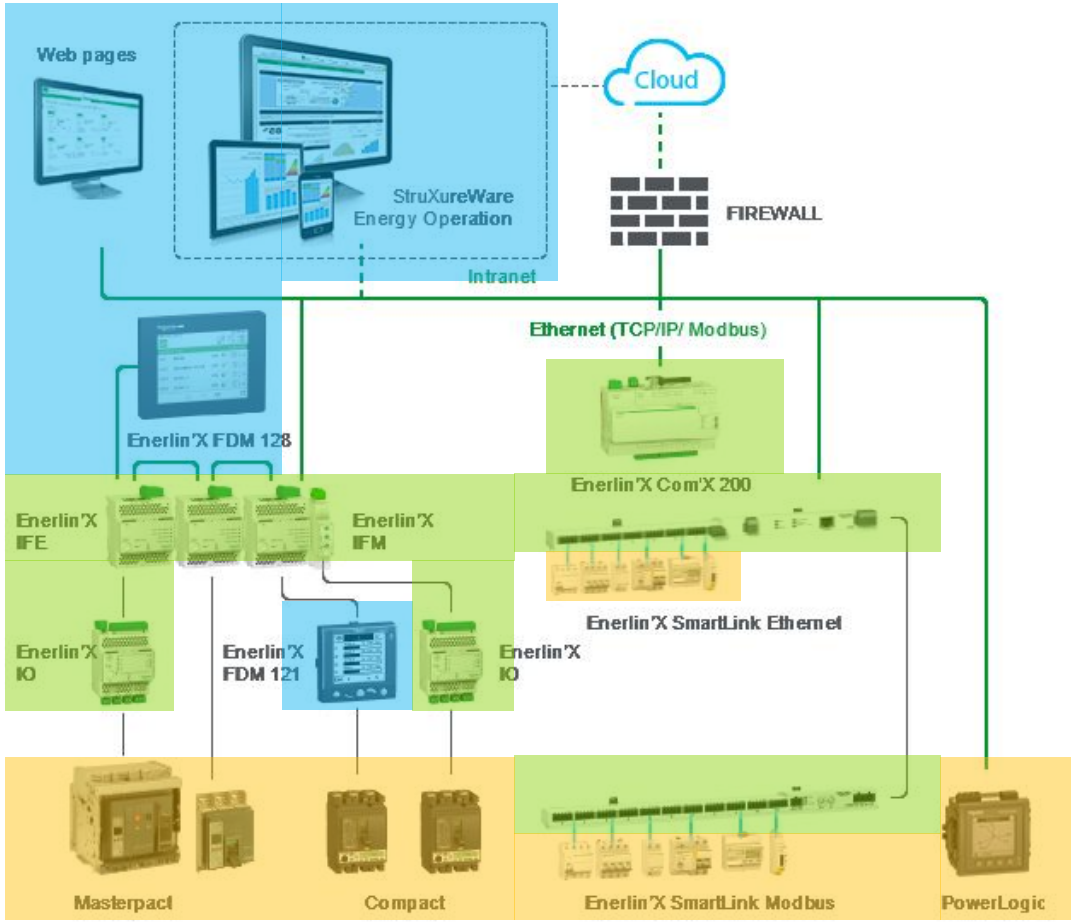


Save

Connect

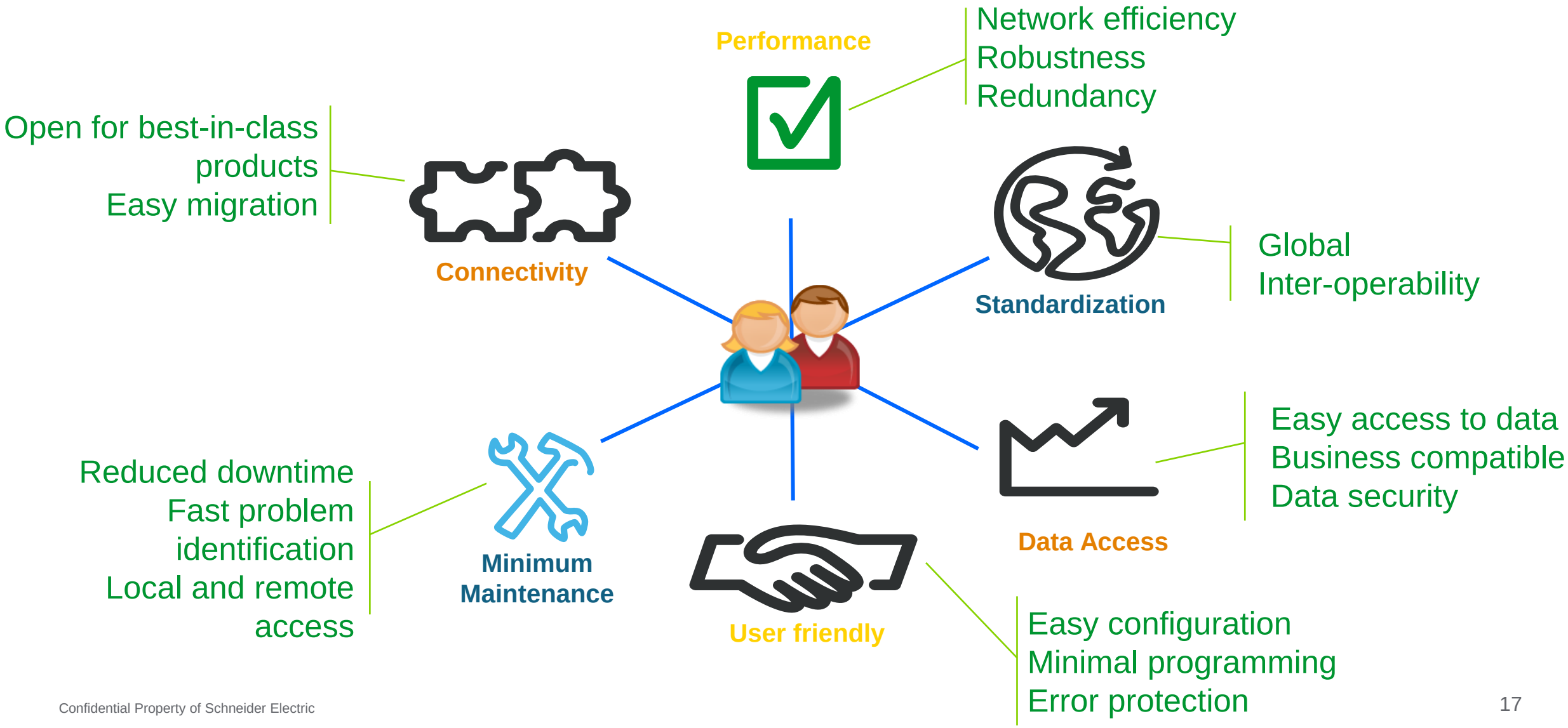
Measure

On-line Energy Management services



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Ethernet based Electrical Distribution



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How are Smart Panels “Smart”?

Standard Panel

- **Measurement is automatic BUT information required for Energy management has to be collected manually, on site.**

- Basic metering data is available only on front face of panel: involves manual operations
  - (risk of error, long operating time to be scheduled, etc.)
- Data processing/analysis requires: expert resources, time, advanced software, etc.
- Alerts (e.g. overcurrent) are visible only on front face of panel without any details of the failures

- **Building / Site Management Process = Scheduled inspections, thus high operating costs**

Smart Panel

- **"Connect" function creates automatic link between "Measure“ and "Save" functions.**

- Ethernet connectivity - Widely used open protocol
- Detailed energy & asset data visible - anywhere and anytime
- Data-driven Energy Efficiency with more detailed and accurate information
- Predictive Maintenance and Proactive alarming with possibility of transmitting all Alarms immediately to Smartphone or PC
- End-user can benefit from global energy management services: Energy management, Network management and Asset management

- **Building / Site Management Process = Continuous + Reliable + Digitized + Cost effective**

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