Towards an integrated industry
The Internet of Things, Services and People
ABB
Power & Automation: today and tomorrow

Utilities
- Renewables
- Grid automation
- Smart upgrades
- Emerging markets
- New consumption points

Industry
- Productivity
- Energy efficiency
- Automation penetration
- Power quality and reliability
- Emerging markets
- US re-industrialization

Transport & Infrastructure
- Urbanization
- Energy efficiency
- Electric transport
- Power quality and reliability
Integrated industry vision  Challenges & opportunities
Changes of Paradigms
4th Industrial Revolution

Industry 1.0 – 1712
First Steam Engine

Industry 2.0 – 1870
First Assembly Line

Industry 3.0 – 1969
Electronics- / Software-based Control

Data as game changer

People

Supervisors

Decision makers

Services

Analytics

Value

Internet of

Devices

Data
Automation Systems
The Internet of Things in the power & automation domain
Internet of Things
Shifting focus: Industrial Internet / Industrie 4.0

Infrastructure + Data + Cloud

**Instrumentation of infrastructure:**
- Use existing or new data & sensors?

**Data communication:**
- Federation vs. uniform data models/interfaces
- Vendor-specific vs. cross-vendor
- Cyber security

**Data storage (cloud):**
- Granularity, scalability, reliability
- Data privacy: our cloud vs. your cloud?

Operation insights → Business value
Internet of Things and Services
Value proposition, differentiation

Optimized operations and maintenance

- Weather data
- Log files
- Service data
- Pricing information
- Other data sources (cloud storage)

Data fusion
- Multiple sites
- Heterogeneous data
- Time and event alignment

Exploration
- Access to data and analytics
- Monitoring and diagnostics
- Early problem detection

Analytics
- Enablers not drivers
- E.g., fleet analytics, predictive maintenance

Source: Information exploitation - New data techniques to improve plant service. C. Ganz et al, ABB review 1|15
Power and productivity for a better world™