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# The future of cities electrification

ABB Ability™ building tomorrow's smart cities



# ABB Ability™ solutions for Industry 4.0



**1712 – Industry 1.0**  
Thomas Newcome builds  
the first steam engine

158 Yrs.



**1870 – Industry 2.0**  
Electricity is used for  
Industrial Production

99 Yrs.

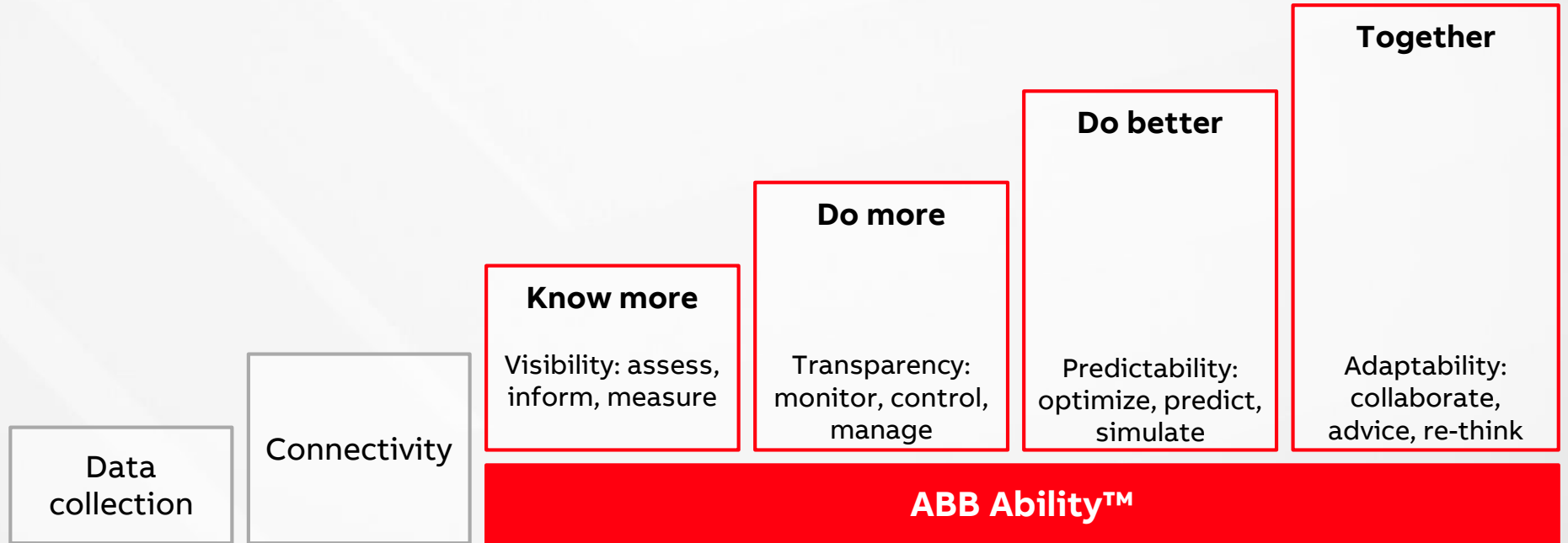


**1969 – Industry 3.0**  
Programmable logic

47 Yrs.

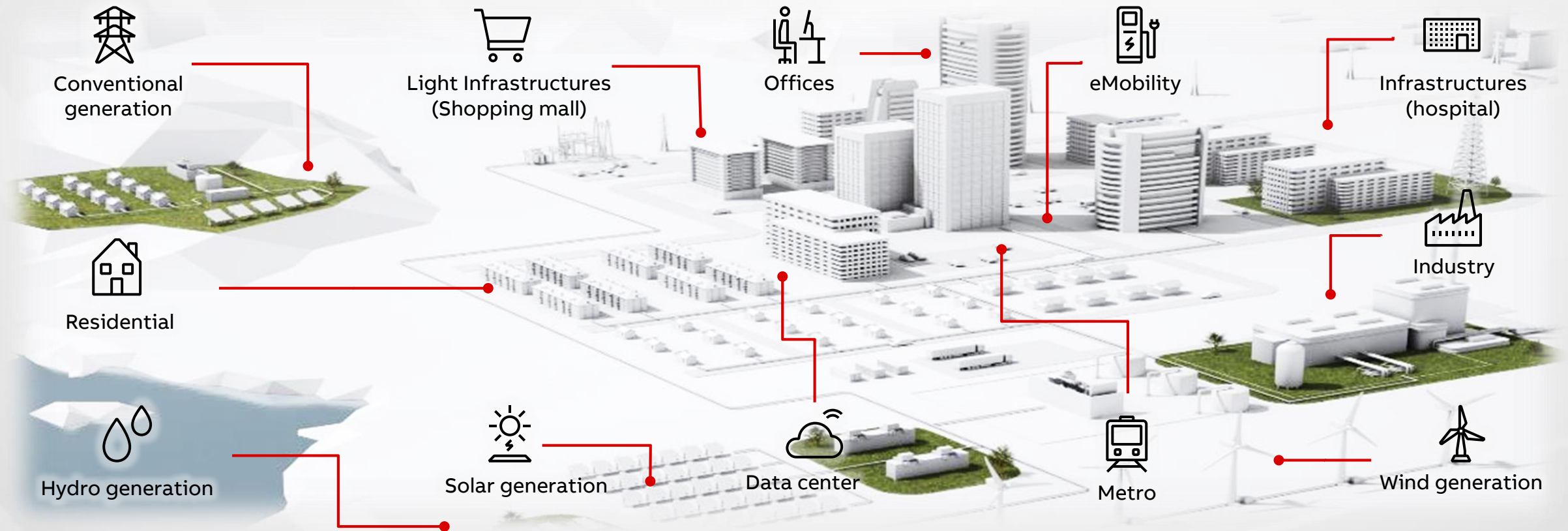


**Today – Industry 4.0**  
Communications between people,  
services, and things





# Smart cities



# ABB Ability™ values for smart cities electrification

## Digital cities of tomorrow



Safety and asset  
availability



Power reliability



Sustainability



Flexibility and security

Unlocking IT/OT convergence

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# Safety and Asset availability

## People and equipment protection

Certified switchgear against internal electrical arc fault.

Fast acting and coordinated arc protection systems applicable also on existing switchgear, to increase safety and minimize downtime.

## Condition monitoring

Sensors to detect possible failure causes.

Switchgear condition monitoring to support troubleshooting and drive service activities.

## Predictive maintenance

Site and multi-site asset health analysis to predict and notify potential faults, minimizing maintenance, while increasing safety and asset lifetime.





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# Power reliability

## Self healing network

Fault location and restoration to minimize power outages, with motorized and automated solutions. Automatic ring reconfiguration solution to guarantee power supply on critical infrastructure.

## Stability

Advanced control of distributed energy resources, like renewables, and EV chargers.

Energy Storage Modules for load shifting, peak shaving, renewable energy smoothing, voltage leveling.

## Supervision

MV/LV electrical control system for infrastructure, building and plants.

Remote control solutions for reliable distribution network





# Sustainability

## Eco-efficiency

Reduce environmental impact minimizing switchgear energy loss using sensors technology.  
Low environmental impact with SF6 gas-free switchgear and components.

## Renewables

Easy integration of renewables with automatic-synchronization protection function.  
Energy Storage Module to optimize the distributed energy resources within the grid.

## E-mobility

Easy to deploy e-mobility solution packaged with compact secondary substations.  
Energy Storage Module for scalable deployment of EV chargers.





# Flexibility and security

## Digital switchgear

Easy to update during lifecycle.

Wide-range current and voltage sensors.

Wiring reduction up to 90% using digital bus communication.

## Smart substation

All-in-one protection for any power distribution application, fully modular and upgradable software  
Centralized substation protection and control, ready to follow the evolving grid, with extensive application coverage

## Cyber security

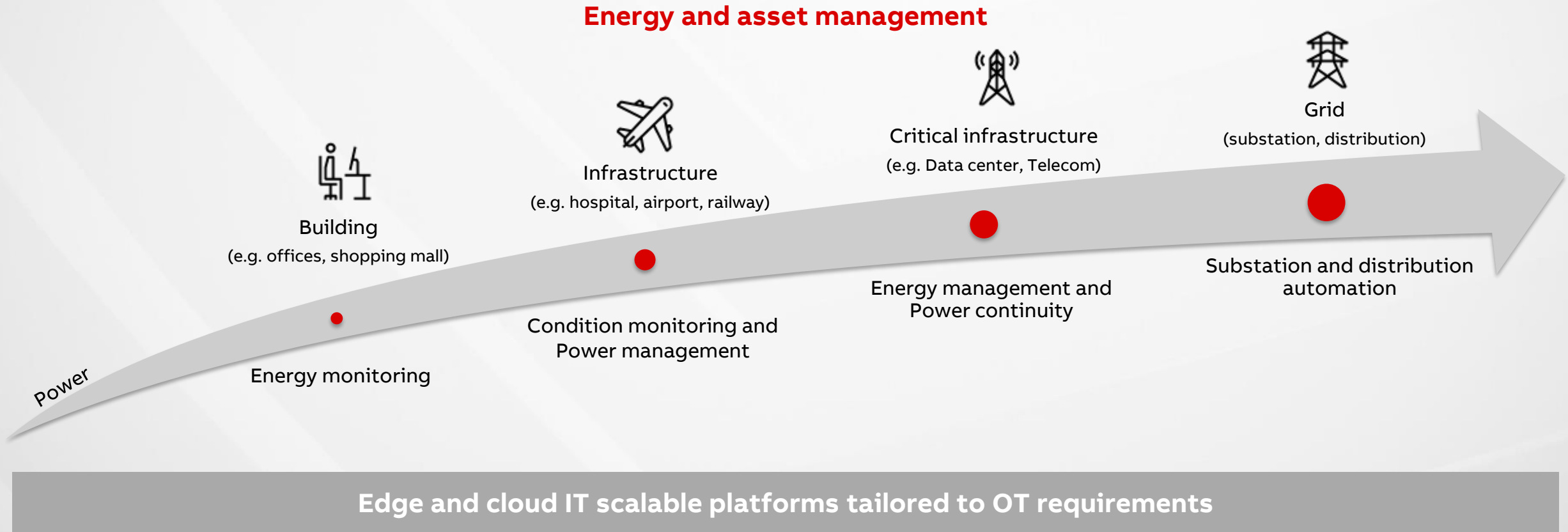
Secure local and remote connectivity with network monitoring.

Cyber asset management with firmware updates, automatic devices backup and supervision.





# IT/OT convergence



# ABB Ability™ global and local support



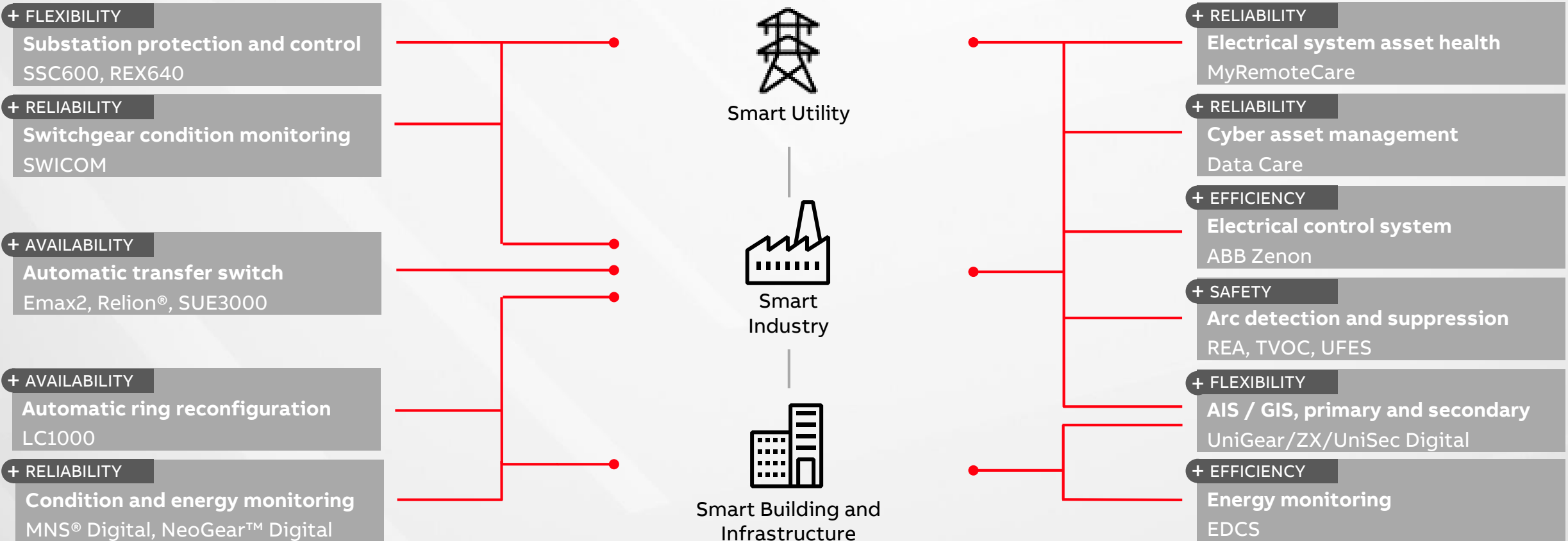
10 Digital solution centers



40 Digital service centers



# ABB Ability™ electrification offering



**ABB**