

Shaping Digitalization. Innovation at Siemens

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Dr. Roland Busch, Chief Technology Officer and
Member of the Managing Board of Siemens AG

Notes and forward-looking statements



This document contains statements related to our future business and financial performance and future events or developments involving Siemens that may constitute forward-looking statements. These statements may be identified by words such as "expect," "look forward to," "anticipate" "intend," "plan," "believe," "seek," "estimate," "will," "project" or words of similar meaning. We may also make forward-looking statements in other reports, in presentations, in material delivered to shareholders and in press releases. In addition, our representatives may from time to time make oral forward-looking statements. Such statements are based on the current expectations and certain assumptions of Siemens' management, of which many are beyond Siemens' control. These are subject to a number of risks, uncertainties and factors, including, but not limited to those described in disclosures, in particular in the chapter Risks in the Annual Report. Should one or more of these risks or uncertainties materialize, or should underlying expectations not occur or assumptions prove incorrect, actual results, performance or achievements of Siemens may (negatively or positively) vary materially from those described explicitly or implicitly in the relevant forward-looking statement. Siemens neither intends, nor assumes any obligation, to update or revise these forward-looking statements in light of developments which differ from those anticipated.

This document includes – in IFRS not clearly defined – supplemental financial measures that are or may be non-GAAP financial measures. These supplemental financial measures should not be viewed in isolation or as alternatives to measures of Siemens' net assets and financial positions or results of operations as presented in accordance with IFRS in its Consolidated Financial Statements. Other companies that report or describe similarly titled financial measures may calculate them differently.

Due to rounding, numbers presented throughout this and other documents may not add up precisely to the totals provided and percentages may not precisely reflect the absolute figures.

Global trends



Digitalization



Globalization



Urbanization

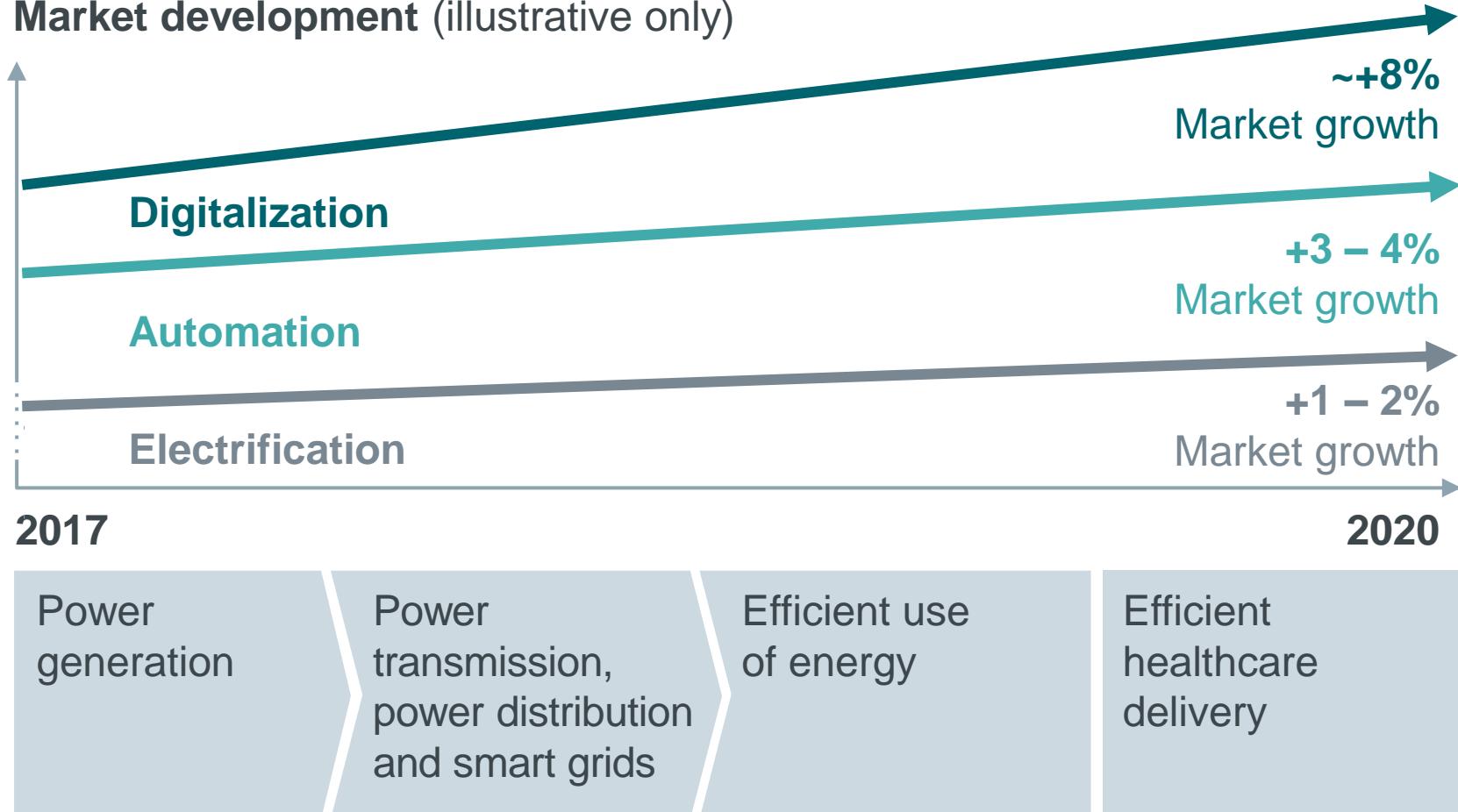


Demographic change



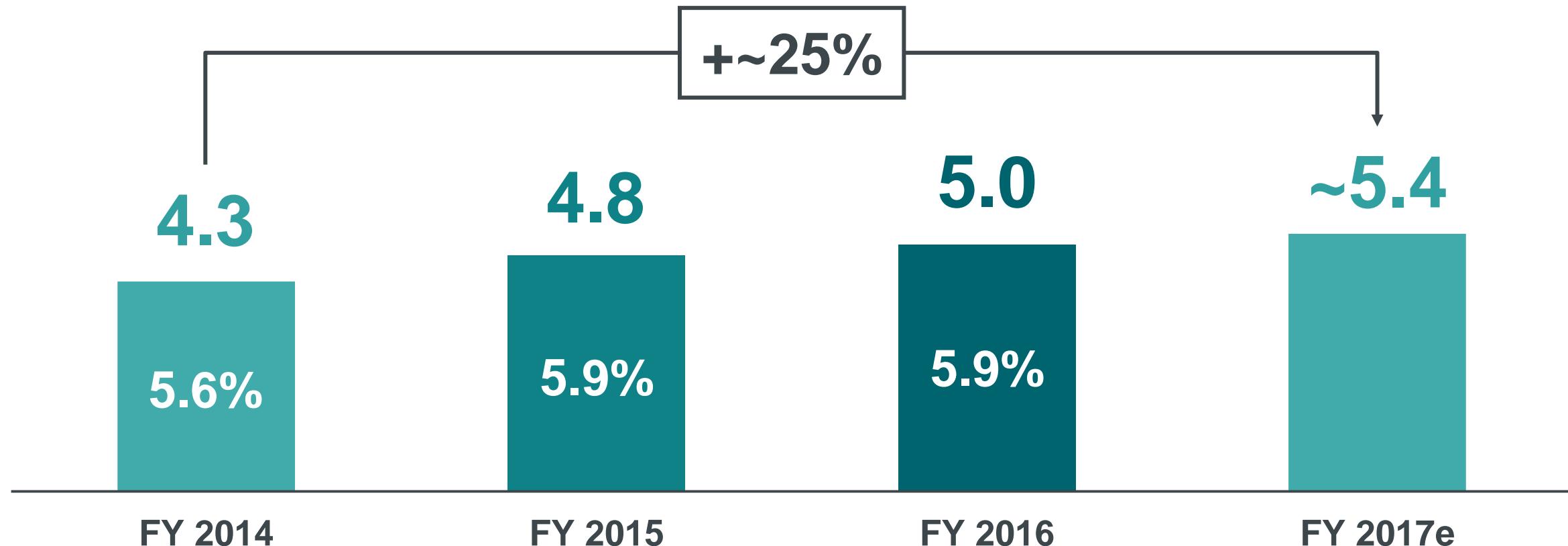
Climate change

Market development (illustrative only)



We're increasing R&D spending

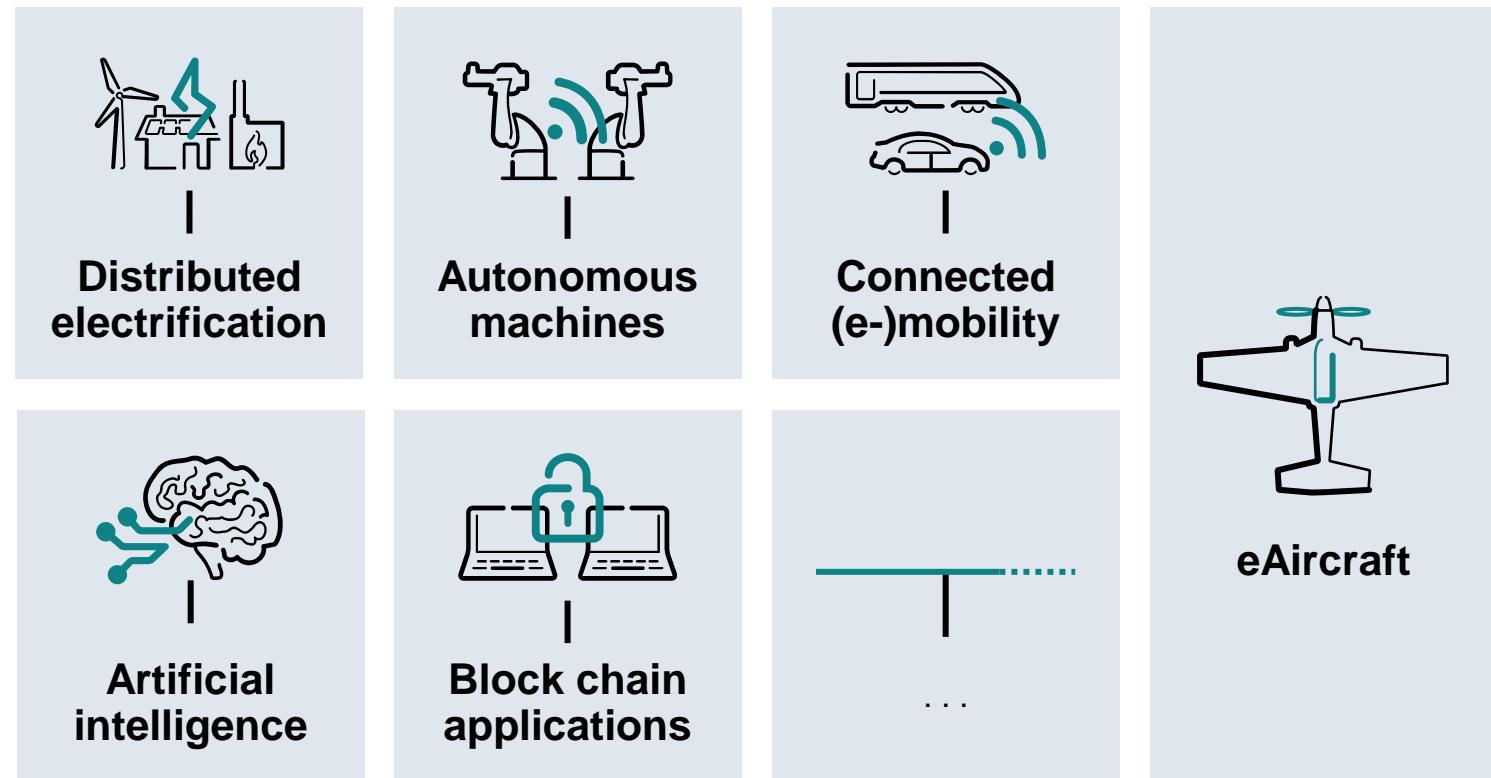
Research and development spending in billions of \$
and as a % of revenue



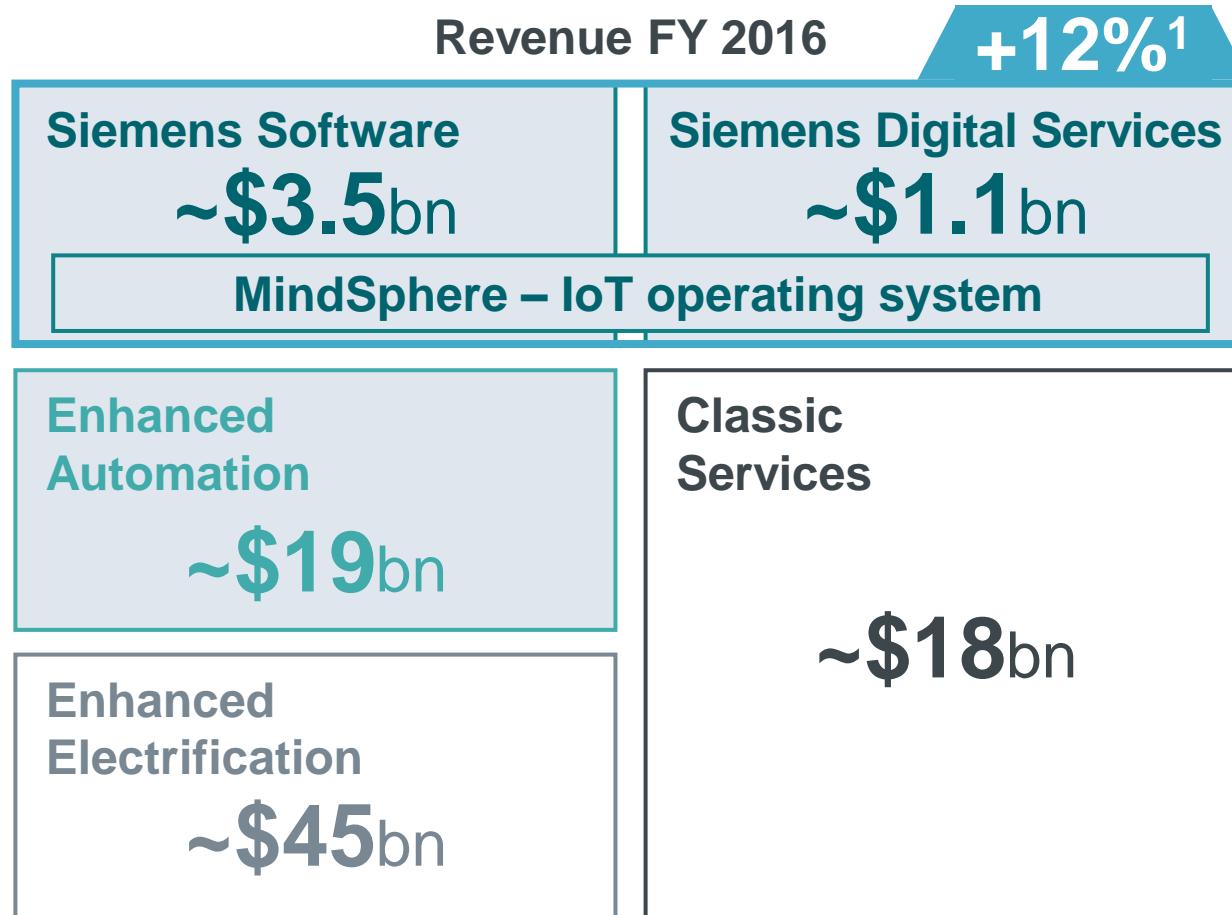
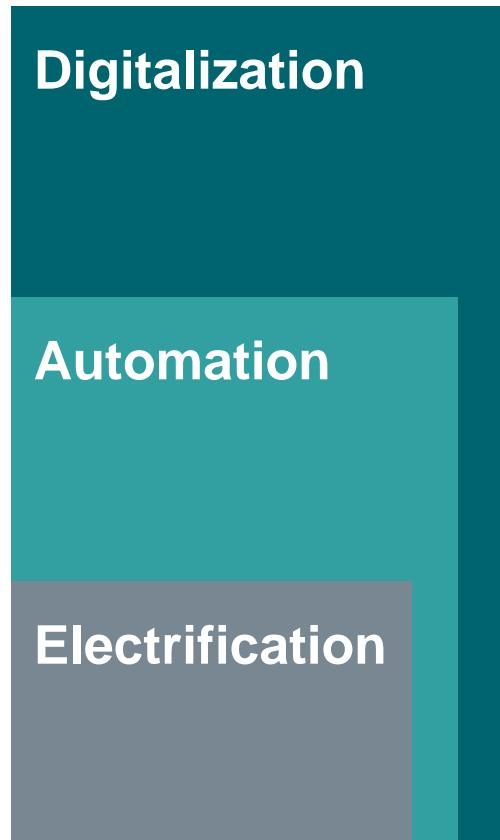
Strategic focus

- Funding volume:
 >\$1bn in funds over 5 years
- Focus on investments
 in start-ups
- Strategy:
 Capital, Create, Catalyst

next 47 Innovation fields



Digitalization provides growth momentum



Customer value

- Time-to-market
- Efficiency
- Flexibility
- Productivity
- Energy and resource optimization
- Extendibility (open standards)

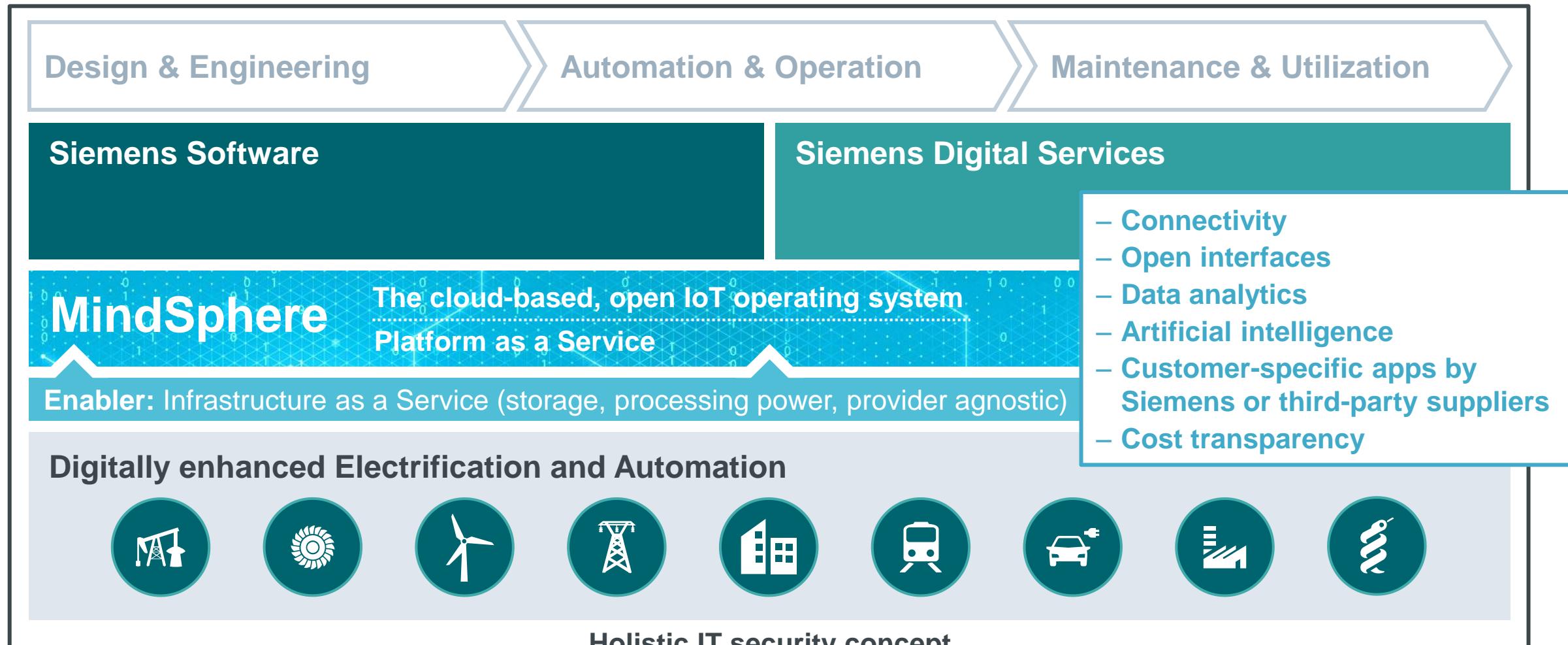
¹ Comparable; portfolio adjusted

Our offering separates us clearly from our competitors



- Deep domain-knowhow in a broad range of markets and industries
- Strong installed base/connected fleet
- Powerful eco-system
- Unmatched digital portfolio:
MindSphere, software, services, security
- Numerous Siemens-internal use cases as proof points

Holistic approach to meet customer needs



Open partner eco-system

SIEMENS
Ingenuity for life

Consulting/strategy partners



Technology Provider



Application Developer



System Integrator



IaaS Provider



Connectivity Developer



Holistic approach to meet customer needs

Design & Engineering

Automation & Operation

Maintenance & Utilization

Siemens Software

Unmatched Software Suite
~70m contracted meters

\$3.5bn

Siemens Digital Services

800k connections,
\$3.2bn order backlog at Power

MindSphere

The cloud-based, open IoT operating system
Platform as a Service

Enabler: Infrastructure as a Service (storage, processing power, provider agnostic)

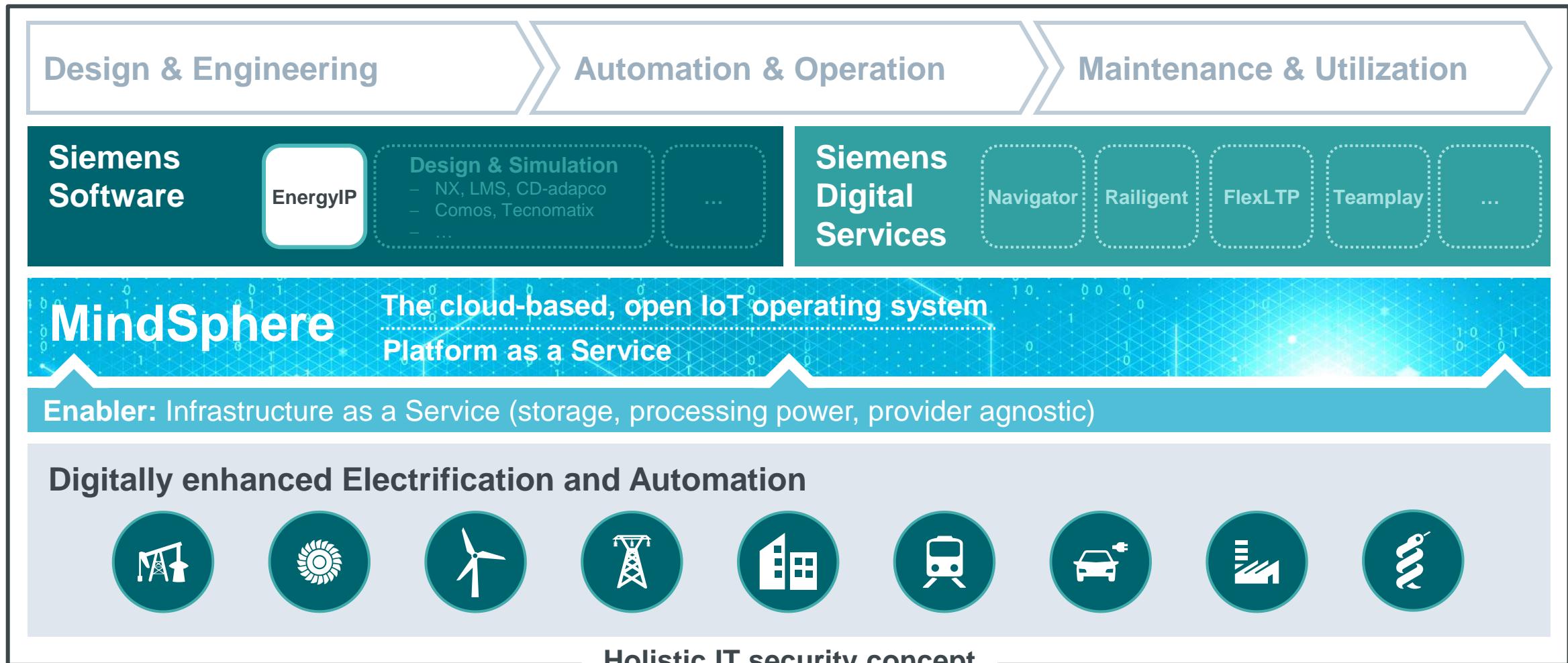
Digitally enhanced Electrification and Automation

#1 position in automation,
~30mn automation systems



Holistic IT security concept

Holistic approach to meet customer needs





Smart power grids

Challenge

Community-owned electric and water utility in Jacksonville, FL, to upgrade its infrastructure towards advanced metering

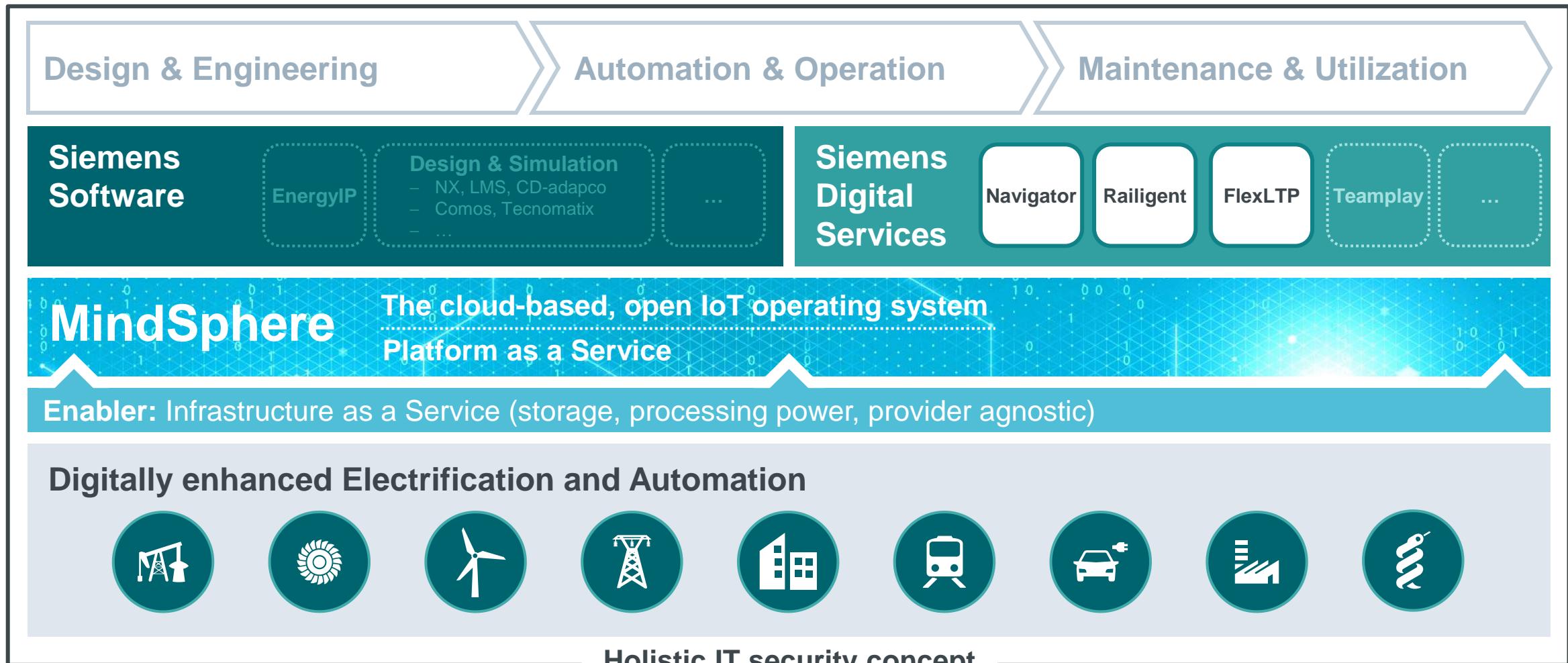
Solution

EnergyIP: collects, consolidates and validates meter data and outage events, passes data on to automate workflows

Outcome

Utility can remotely connect-disconnect customers at any time; improved reliability, maintenance savings of >\$1.5m in 1.5 years

Holistic approach to meet customer needs





Optimize building performance

Challenge

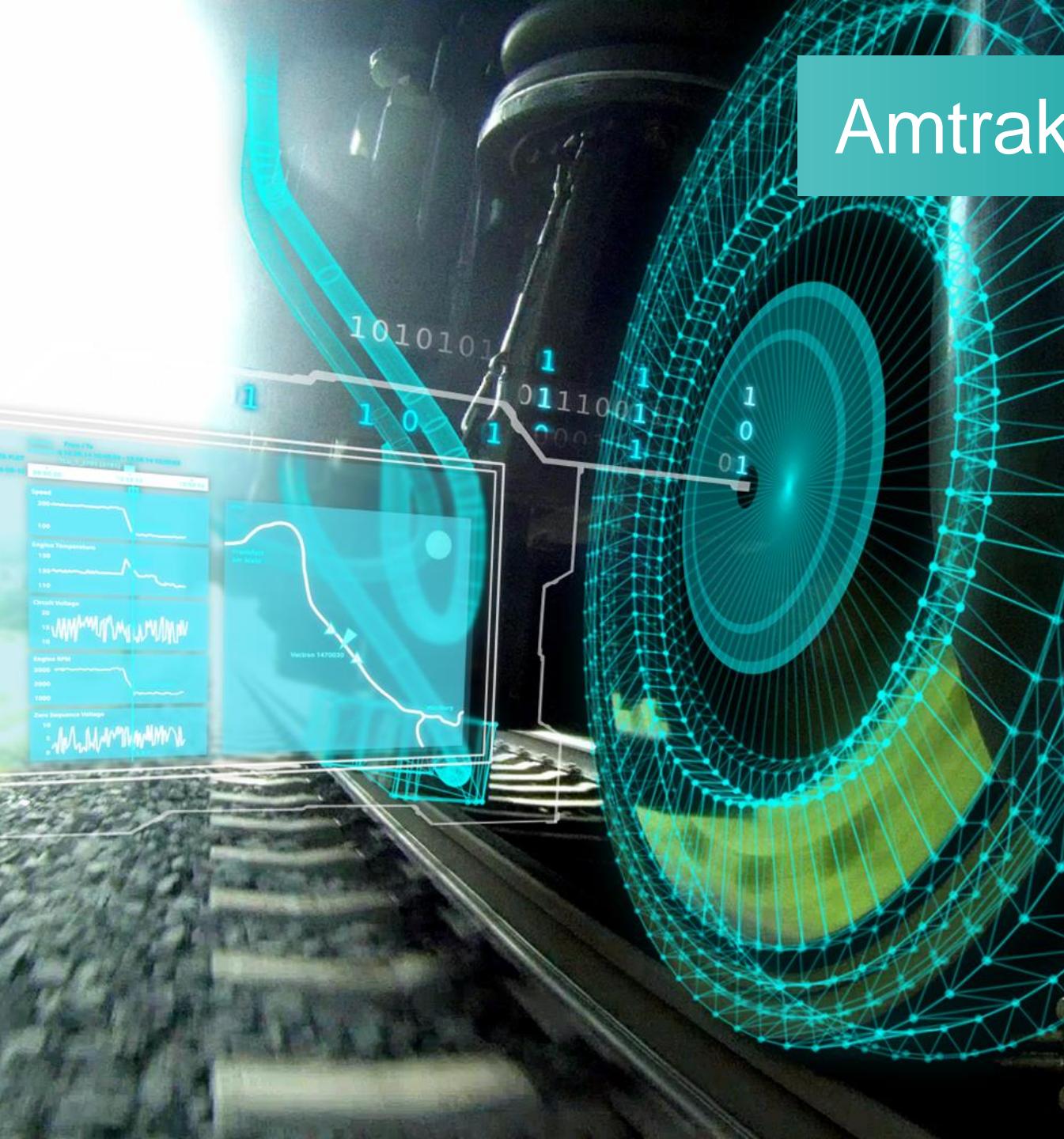
Residential and commercial buildings are to account for 40% of total U.S. energy consumption

Solution

Navigator: Bank company Capital One monitors >20 office buildings to improve energy efficiency

Outcome

10% energy savings, based on 14m data records per week



Amtrak locomotives

Challenge

Amtrak aims for maximum availability of 70 Vectron locomotives for their North East Corridor High Speed Passenger Service

Solution

Railigent: Maintenance optimization, smart monitoring and obsolescence management

Outcome

Target is to guarantee >99% availability and reliability of rolling stock



Machine learning – NO_x emission reduction

Challenge

- Conventional NO_x emission reduction approaches reaching limits
- Tightening environmental regulations

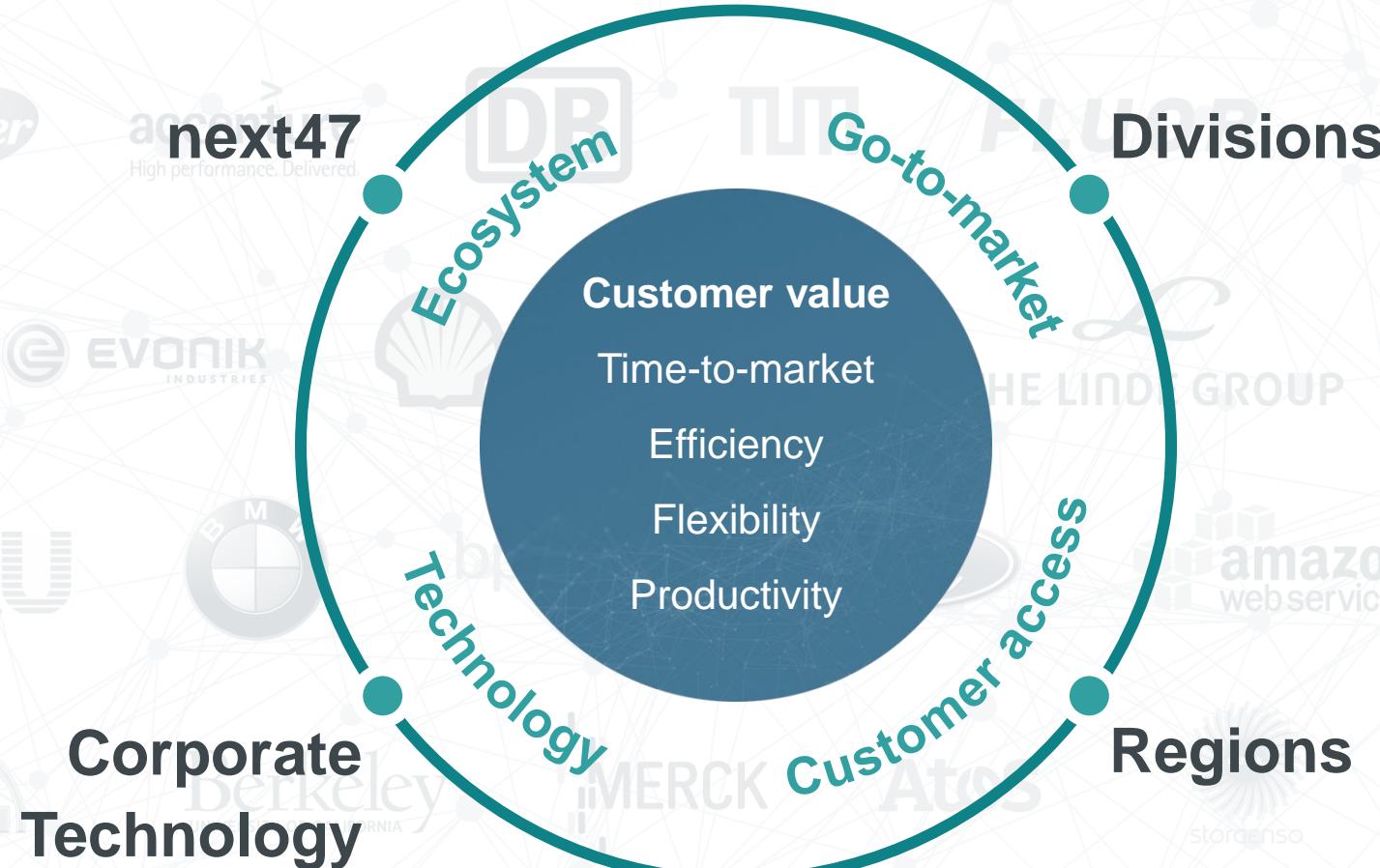
Solution

Machine learning algorithms for optimization of control parameters

Outcome

- 15-20% additional NO_x reduction
- Providing more sustainable balancing power





New York 2016

8.6 m

Inhabitants

\$570 bn

GDP (\$66,000 per capita)

Extreme weather conditions increase pressure on resilience of infrastructure



ConEd grid automation

Grid stabilization <0.5 sec



Hudson 660MW HVDC

~10% of peak load served



Microgrid for Co-op City

Reliable energy supply for > 60,000 people



New York 2030

9.5 m

Inhabitants
→ +10%¹

70%

Of energy supply
still conventional

60%

Fewer
CO₂ emissions¹

1 compared to 2016



New York 2030

eCar charging

20% of all cars are eCars and balance grid peak loads

Energy trading/ Blockchain

PV on all roofs supply 25% of the city's energy demand

Demand management

CHP in every public building lowers energy consumption by 30%¹

Energy trading/
Block-chain

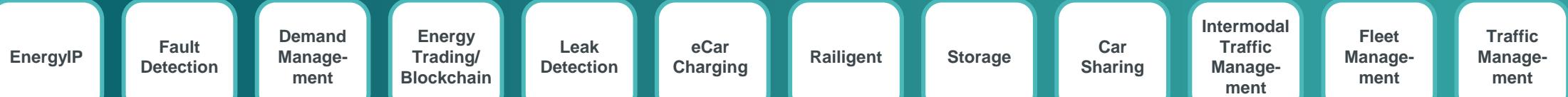
Demand management

eCar charging

Unique digital offering to meet a city's needs

Operating system of a city

Siemens Software and Digital Services



MindSphere

The cloud-based, open IoT operating system
Platform as a Service

Enabler: Infrastructure as a Service (storage, processing power, provider agnostic)

Electrical field devices of a city



Holistic IT security concept