Siemens Smart Infrastructure Digital business strategy

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Market drivers: smart infrastructure is sustainable infrastructure

Sustainable energy transition

- Changing from fossil fuels (~80% today) to renewable energy
- Moving to an all-electric world, growing electricity demand (+20% by 2030), due to growth in electric transportation and digitalization

Sustainable communities

 Creating communities that adapt to people's needs for health, comfort and productivity

 Making buildings more human-centric and sustainable – consuming 40% of energy demand, with 1/3 wasted



Our markets: electrification, buildings, and electrical products

Electrification

Sustainable energy transition

~€185bn Infrastructure market¹

~3% Compound annual growth rate Electrical products

Buildings

1 €187bn according to Siemens common market model



Sustainable

communities

Market split: growth pockets of digitalization and grid edge Portfolio mix – in billion €



Source: Siemens common market model based on market analysts data **1** "Grid edge" = technologies near or at the end of electrical grids - electric vehicle charging, distributed energy systems and storage



Market split Geographical – in billion €

Trends

EU recovery plan (Green Deal) impacts energy and buildings; demand for digitalization in grids and buildings; growth in discrete industries

Stimulus positively impacts energy transition and 'healthy indoors'; requirement for grid stability; data center growth

More construction due to urbanization; strong investment in infrastructure; increased digitalization efforts (esp. China)





Digital Business Strategy

Smart Infrastructure

In **Electrification**, **#1** player In **Buildings**, **#2** player

Digital revenue

Target: double digital business revenue from EUR 750 million currently to EUR 1.5 billion by 2025

Digitalization and digital twin

Key enablers for sustainable infrastructure



Data twins for key domains enable digital business



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Examples of value creation: Resilient building services

Market drivers

Sustainable communities call for livable cities and energy efficient, human-centric buildings

Buildings need to reduce emissions and adjust to user needs, while reducing lifecycle costs and managing increasing IT/OT complexity

Customer challenges

Our offer

Supporting efficient and sustainable building operations: transition to new, data-driven digital services, based on our customer insights and deep domain knowledge

Creating value

How we scale Significant ROCE contribution, virtuous circle of new business opportunities based on insights from services provided, substantial recurring revenues

The Smart buildings IoT market is growing from €15bn in 2020 to €50bn by 2030; less than 10% of buildings are smart today. Regulatory framework increases requirement for sustainable buildings

Key data

€ 3.2bn revenues from services

750,000 service customers

2.3m devices connected to our cloud platform

Double-digit growth in our digital building services for FY 20-25



Our smart building vision



Why digital buildings?

30% energy savings vs other¹

Supports reaching LEED Gold/Platinum

Green buildings usually have 4% lower vacancy, up to 13% higher rental rates ²

80% of total cost of ownership of a building occur in the operation phase – innovation and IoT can reduce operating costs by up to 30% ³ 81% of occupants report that digital buildings improve employee retention⁴

Up to 14% increase in student test scores with improvements to lighting⁵

20% fewer illnesses and absenteeism in an improved working environment⁶

Digitalization and interconnectivity can reduce the ecological footprint of a building by up to 80% ⁷

Source: 1) IEA, Energy Efficiency 2020 2) CBRE, 2009 3) Gartner, 2018 4) STOK (2018) The financial case for high-performance buildings

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5) Business Case for Green Buildings, World Green Building Council 20136) World Health Organization (WHO), 20177) Siemens, 2021



Siemens Smart Infrastructure strategic focus for digital buildings

Building software, digital services, and digital solutions



Building operations digital twin





COMPANY CORE TECHNOLOGY Digital Services, Integrated CMMS Solution

TRIDENT GRAND RESIDENCE Enhancing building operations with digitalization

Customer challenge

Premium property in Dubai. Requirement: Integrated CAFM solution with automatic fault detection and notification through mobile application for proactive building operations. **Target:** zero complaints from end users.

Solution

- Migrated from 3rd party BMS system and provided data-driven service model approach
- Fault Detection Diagnostics with proven outcome services on improving Comfort, Reducing Reactive Tickets, and improving Availability
- Integrated CMMS solution with Navigator for automatic work order generation and fast FM Coordination across the building

Customer benefit

- Improvement in system availability from 72% to 95%
- 38% reduction in reactive alerts in the field
- AED 12K avoided cost in a quarter driven by analytics



RAND





COMPANY CORE TECHNOLOGY Data Analytics & Al SOUTHERN METHODIST UNIVERSITY Optimizing building performance through remote services

Customer challenge

SMU is a private university in Dallas, Texas, comprising 131 buildings on 234 acres with nearly 12,000 students. As a trusted advisor, Siemens supports the university in modernizing the campus-wide building automation and optimizing the building performance through remote services.

Solution

- Remote Digital Service Center with data-driven service model
- Fault Detection Diagnostics for > 80 buildings and constant expansion in each new building
- Continuous technology improvement and ease of service portal use

Customer benefit

- \$2m operation and maintenance costs reduction
- 60% remote resolutions of issues
- \$3.5m annual budget reduction driven by analytics





UNIVERSITY OF BIRMINGHAM Smartest university campus

Customer challenge

One of largest in UK, £680m annual income, 30,000 students

- Create "Living Lab" linking building tech, core infrastructure, plant and University Research with an Innovation Collaborator
- To drive behaviours and technologies that would support Net Carbon Zero by 2050

Solution

- Living Lab: Largest worldwide rollout of IoT technology at any university campus.
- 2 years of collaboration incl. IGA of the campus for energy efficiency, onsite generation and digitalization and highlighted range of opportunities and created Net Zero Carbon Pathway
- Year 1 reduction of 2,856 tCO2 (5% of total emissions). First phase of Net Zero transition.
- Digitalisation creates major benefits in space, cost and carbon.
- No upfront capital





CHANG GUNG MEMORIAL HOSPITAL Increasing energy efficiency at radiological proton therapy center, Taiwan

Customer challenge

 Target to receive LEED New Construction Healthcare supplement Platinum certification and increase energy savings

Siemens solution

- Consultancy works for LEED NC Healthcare Supplement- Platinum certification application
- Improvement works on BMS Apogee system, Ice storage control, VAV on-demand control, integrated with lighting control and submetering systems

Customer benefits

- 42% more energy efficient than baseline buildings
- Reduced water consumption by 61%
- Recycled 98% of construction waste



Data twins for key domains enable digital business



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Wunsiedel

We connect all levels – from single-family homes, to the European grid, from wind turbines to industrial plants.

Every building becomes a small power plant, producing electricity and heat sustainably.

Using solar, wind, biomass, battery storage, smart grid... 100MW battery to supply 20,000 households in green hydrogen plant by mid 2022



Summary

Smart infrastructure is sustainable infrastructure – strong contribution to ESG, enabling the energy transition and creating sustainable communities

Innovative technology leadership across electrification and buildings



A resilient business mix of products, services, and systems, solutions & software, serving building & campuses, utilities and industry

Supporting customers' digital transformation in infrastructure – commitment to double digital revenues by FY 25

