

Ingenuity for life creates perfect places.

Building Technologies Division Presentation
2018/19

Achievements FY18

~4,700

New sites connected

~310,000

Service agreements under contract

~1”

Migration revenue

~230,000

Data points connected

~4,200

Designo CC licenses sold

~45,000

New system installations

~3,200,000

Valves & actuators sold

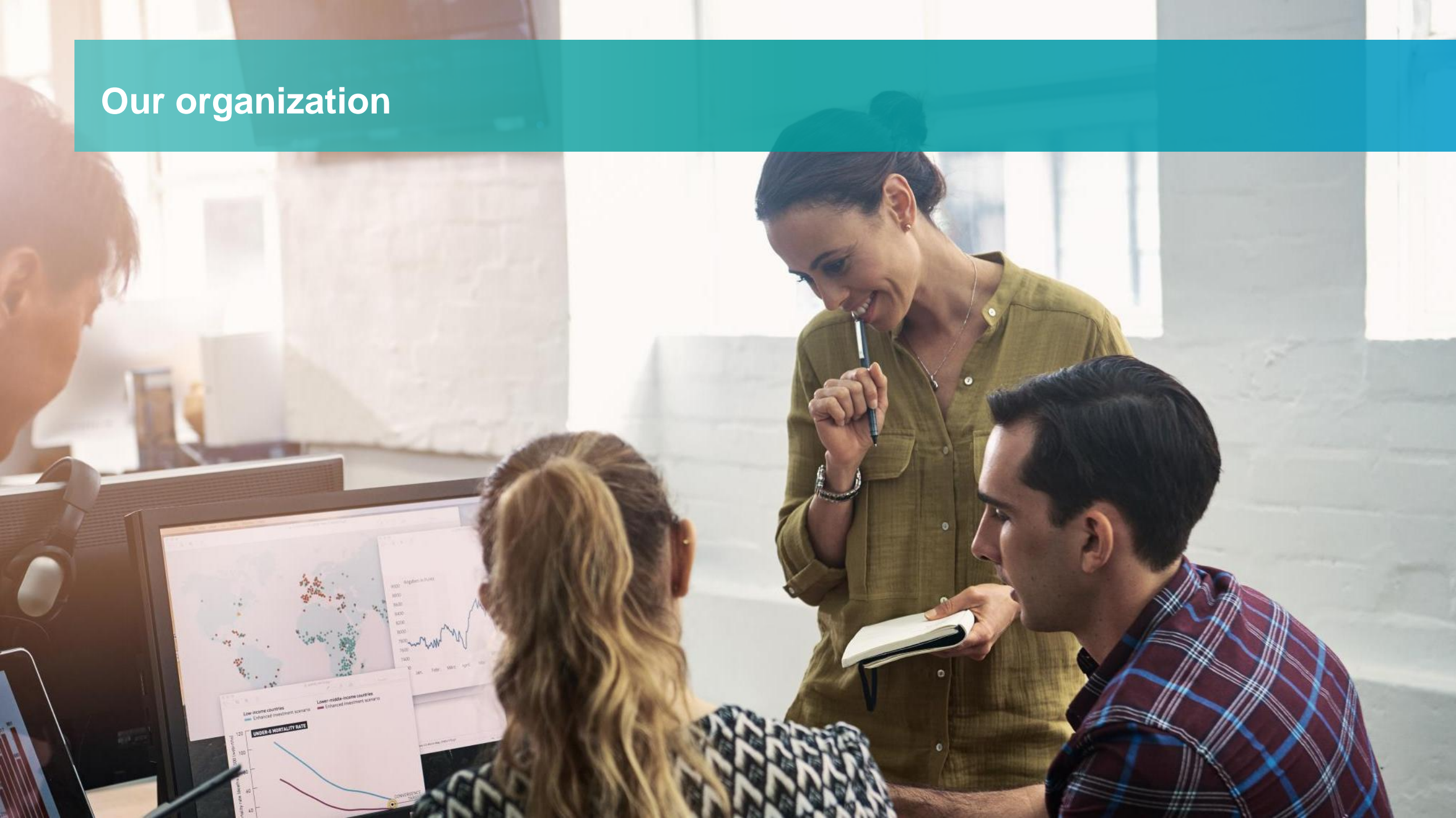
~190,000

Rooms equipped with
Room Automation

~5,000,000

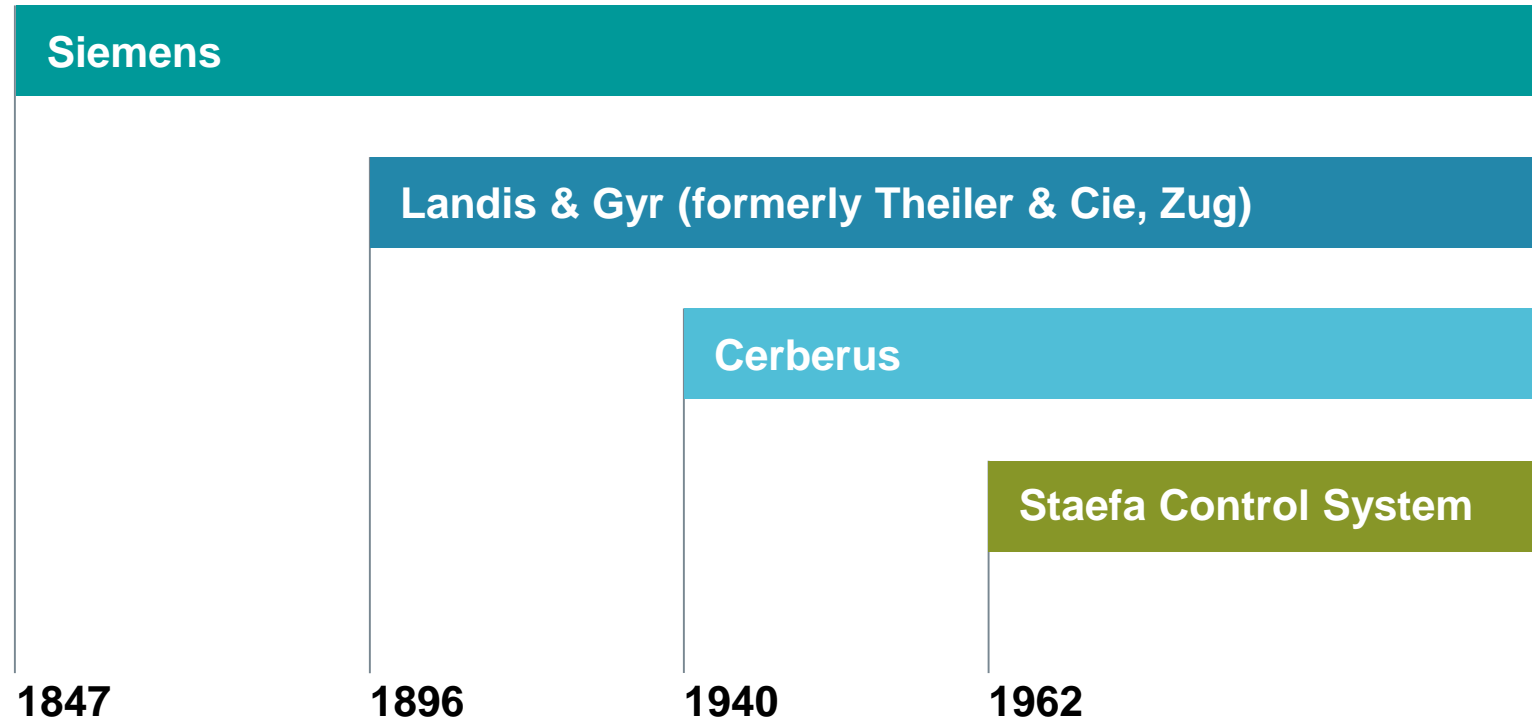
Fire and smoke detectors sold

Our organization



Our history – We can draw on more than 100 years of experience in building technology

SIEMENS
Ingenuity for life



Our history is based on a successive merging of different companies.

Picture shows Building Technologies Division headquarters in Zug, Switzerland



Since 1998
Siemens Building Technologies

Our organizational structure



Matthias Rebellius
CEO



Axel Meier
CFO

Solution and Service Portfolio (SSP)



Eike-Oliver Steffen
Head



Beat Vanza
Head BA

Region Americas



David Hopping
CEO



Peter Kamps
CFO (a.i.)

Region Germany



Uwe Bartmann
CEO



Hubertus Bernhard
CFO

Region Europe



Carsten Liesener
CEO



Thomas Stöffler
CFO

Region Middle East/Asia-Pacific



Elangovan Karuppiah
CEO



Wolfgang Eger
CFO

Control Products and Systems (CPS)



Henning Sandfort
CEO

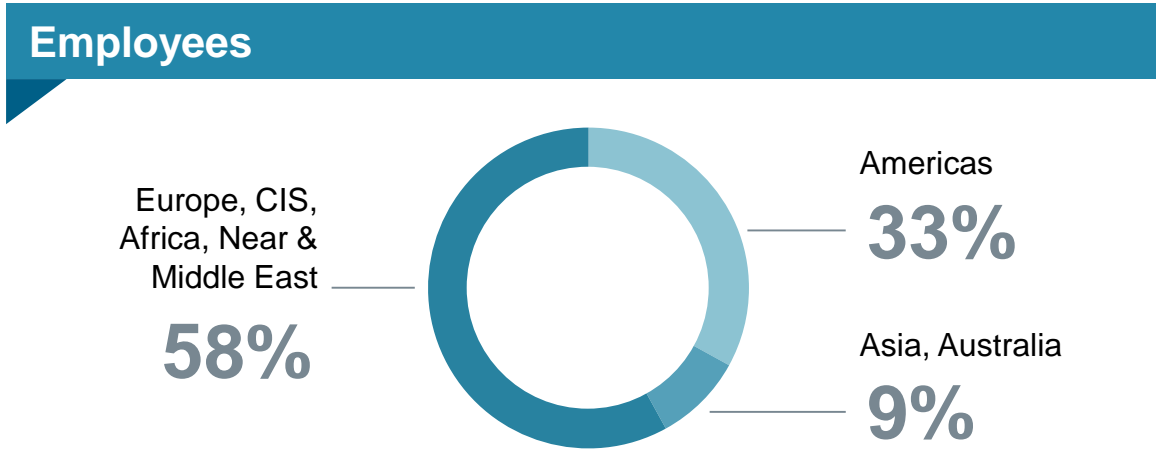
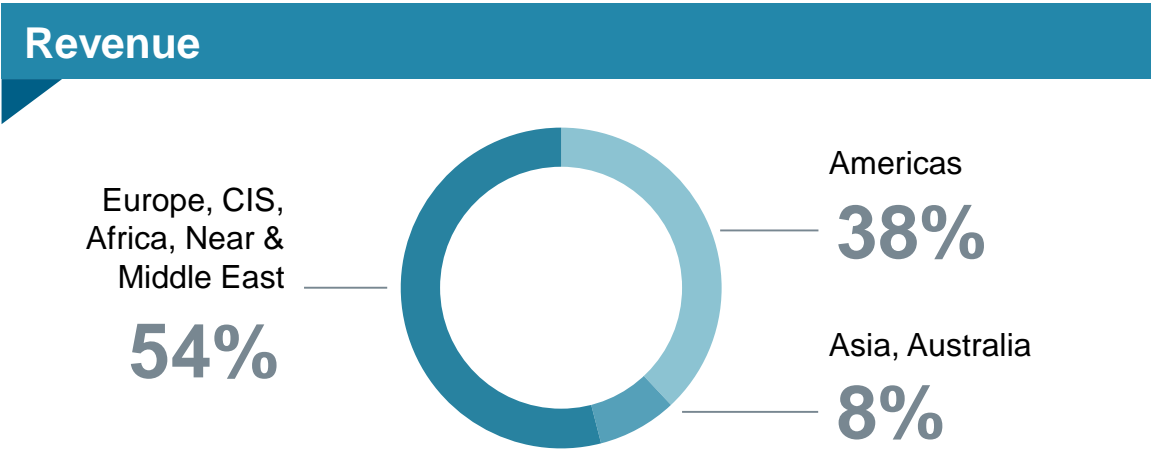


Mariana Porley
CFO

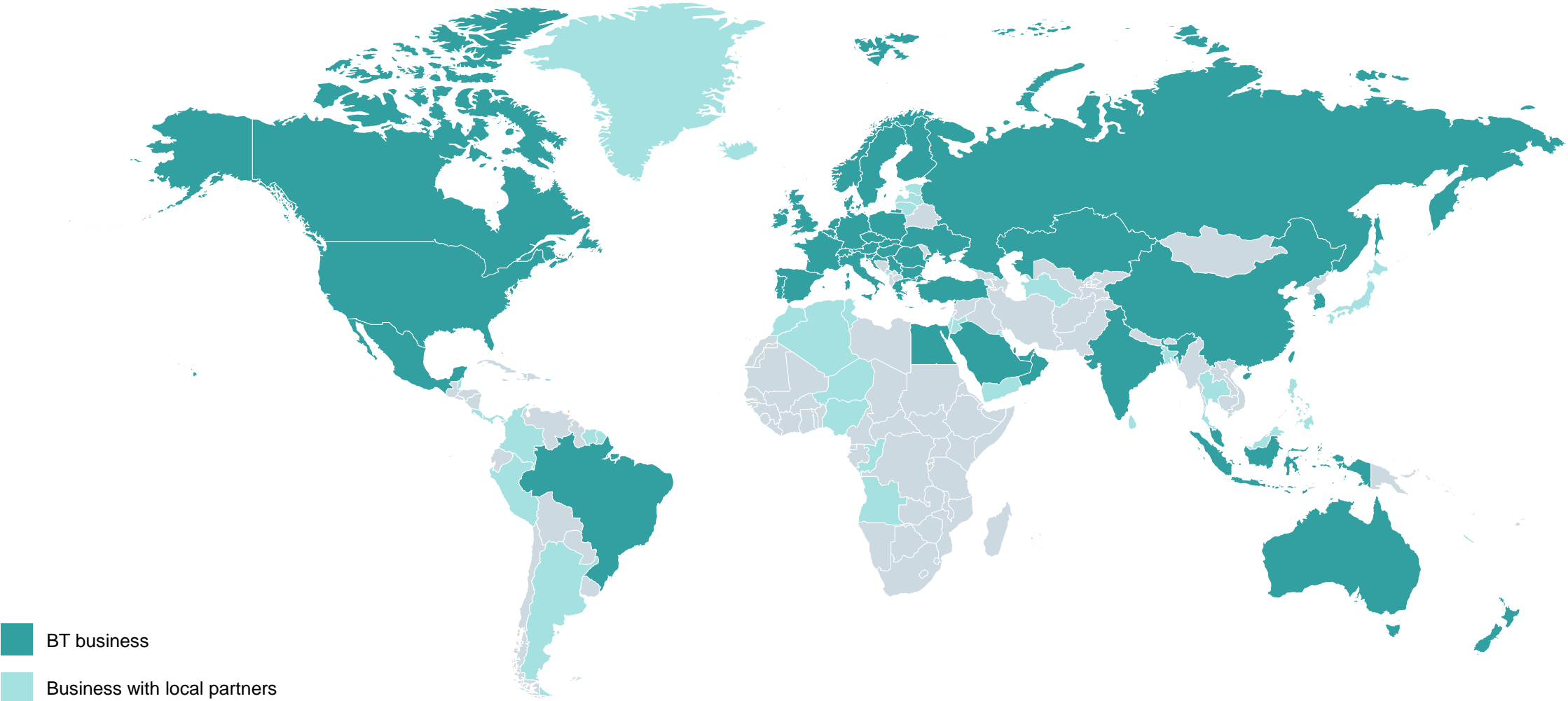
Our key figures



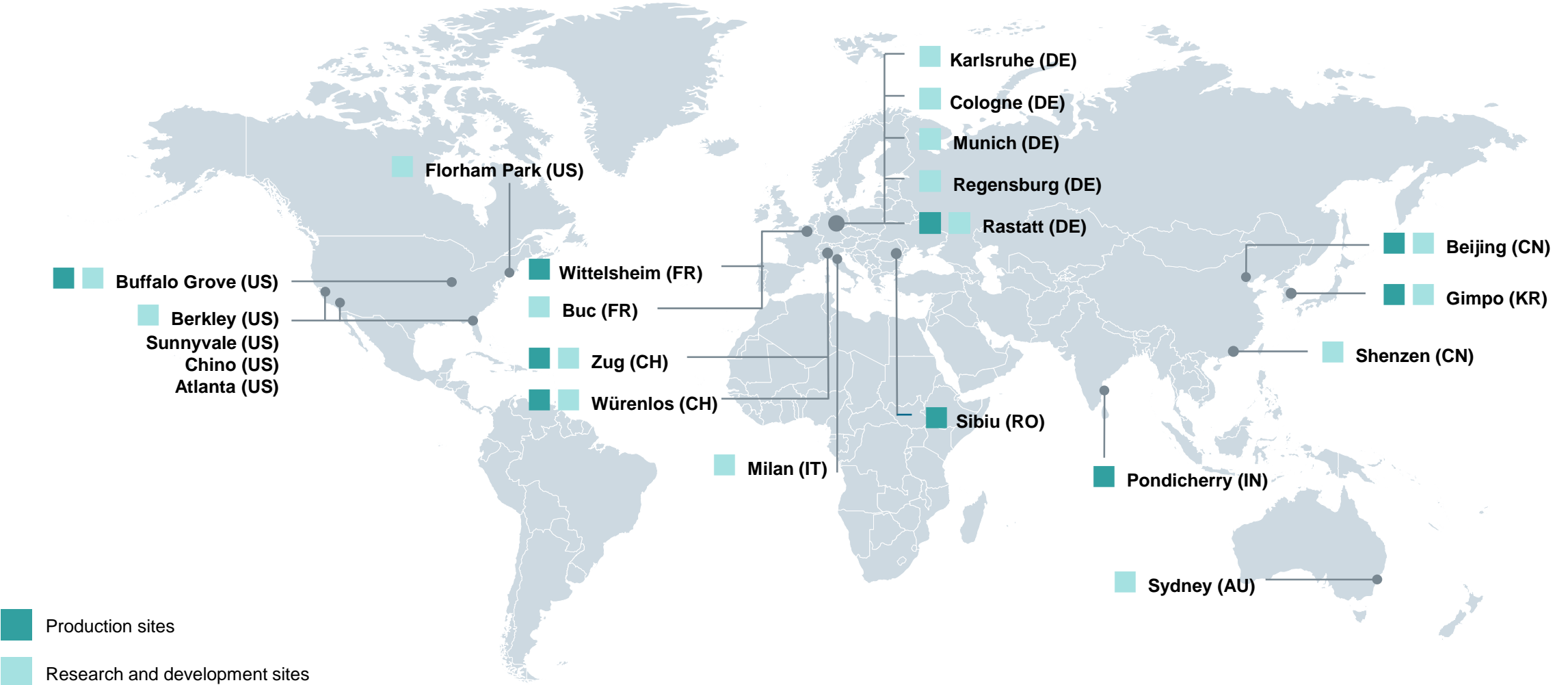
| | 2018 fiscal year 10/01/2017 – 09/30/2018 | % Change (comp.) |
|--|---|------------------|
| New orders (€ million) | 7,077 | +4% |
| Revenue (€ million) | 6,613 | +6% |
| Profit (€ million) | 755 | |
| Employees Headcount (on 09/30, excl. trainees) | 29,282 | |



Close to our customers in more than
400 locations all over the world



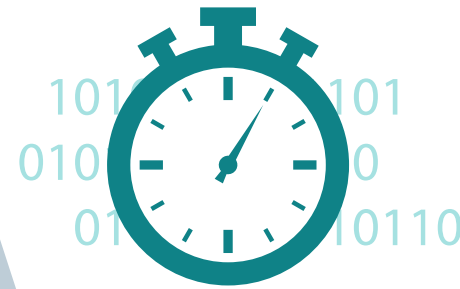
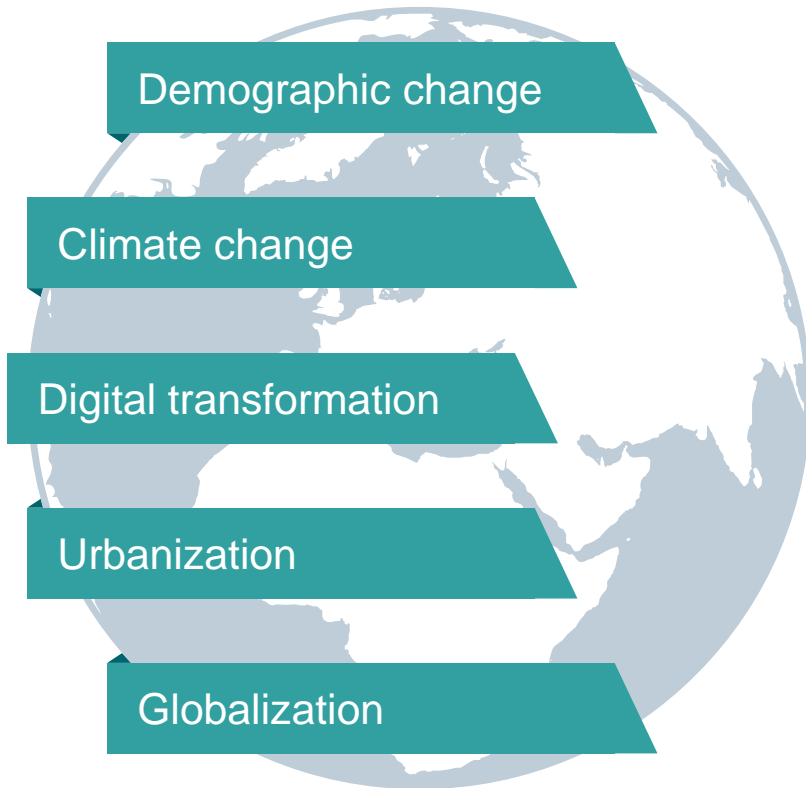
Driving research and development of new products and solutions in 19 R&D and 9 production sites around the globe



Our markets & customers



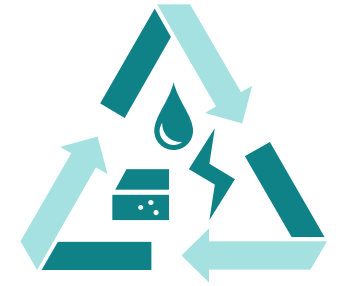
Our world is undergoing big changes...



Higher
innovation
speed



Increased
need for
security



Growing importance
of energy efficiency
and sustainability

**that influence the
building technology industry.**

Our customers represent different industries and markets...

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Premium office



Data centers



Industrial



Hotels



Universities



Schools



Healthcare



Life science



and for all of them, buildings are a crucial factor.

Real estate is often the

2nd

largest expense
on organizations'
income statement



Worldwide buildings
account for

41%

of all global
energy demand



Energy costs alone
represent about

30%

of an office buildings
total operating costs



In most organizations, the
real estate portfolio is the

3rd

most valuable or
expensive single asset



Improving building performance is a big lever for cost saving AND efficiency increase

Our vision



Something drives us every day to make buildings better.

People spend about
90% of their lives indoors.

We believe that the places we spend time in
have a **great influence** on our lives.

They affect how we grow, how we develop,
what we achieve, **who we become.**



Creating perfect places for every stage of life.

We believe in “**Creating perfect places**”.

With our ingenuity.
Our technology.
Our products.
Our solutions.
Our services.
Our innovation.
Our people.
Our commitment.

Creating perfect places is our daily motivation
for improving building technology to improve
people’s lives.



We all begin our lives in a perfect place.

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#CreatingPerfectPlaces
siemens.com/perfect-places

Why shouldn't all our lives be lived in perfect places?
That's our inspiration. Our vision.

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Our mission



Digitalization has a tremendous effect upon our business



By 2018 there will be more **connected devices** than people alive; Est. **50 billion** by 2020



Business **IP traffic** will grow at a **CAGR of +20%** from 2014 – 2019



Mobile computing to grow by **+57% CAGR** from 2014 – 2019



Costs sinking dramatically
\$500 per 1 million transistors in 1990;
\$0.05 per 1 million transistors in **2012**

Large amounts of data can be turned into value for our customers

Our mission – we are the leading automation and digital service provider

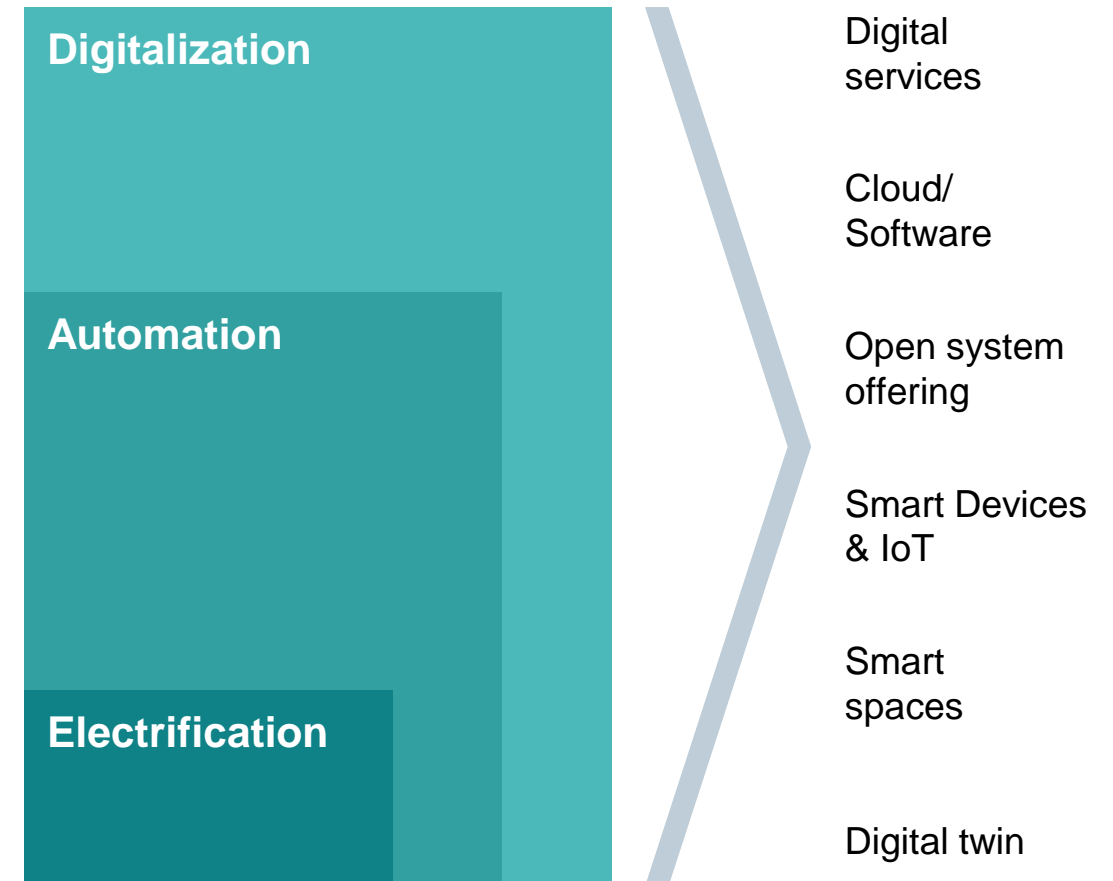


Based on a strong core in automation...



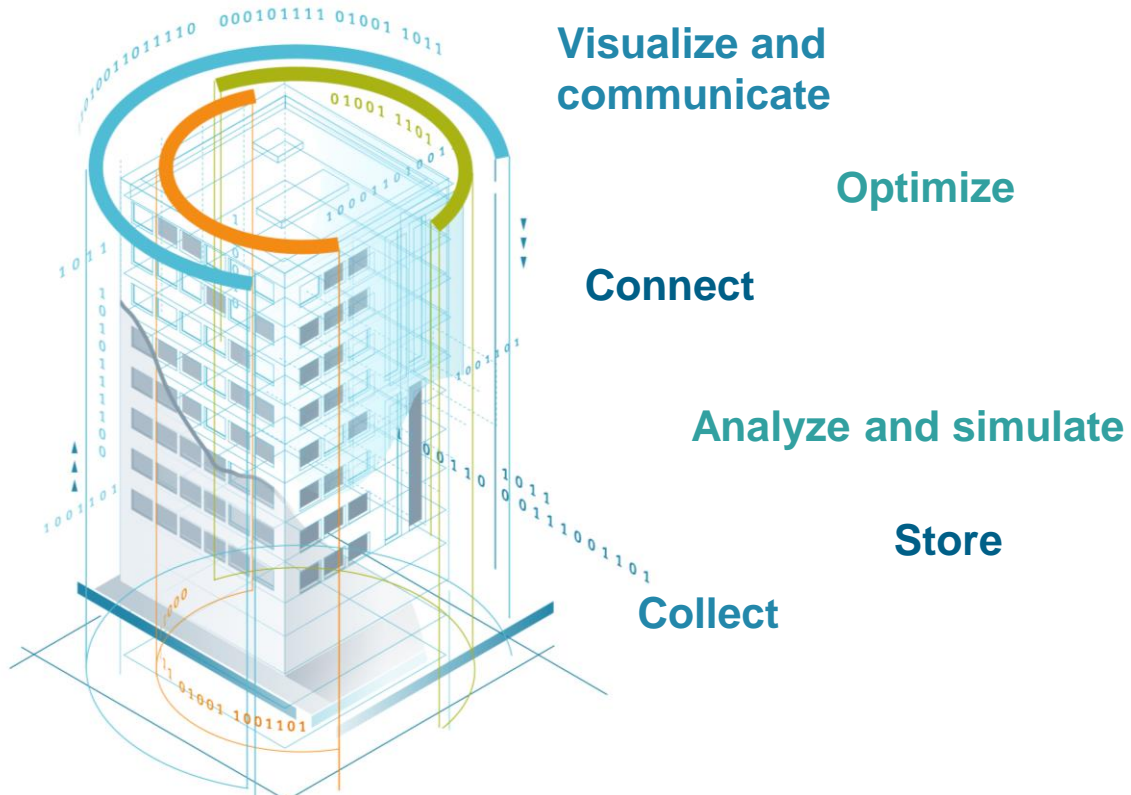
A trusted partner for high performance, safe, efficient, sustainable and secure buildings

BT drives the digital transformation.



**With our digitalization competence,
we can drive additional customer value for our customers**

From building data...



to customer value

Increase energy efficiency

Optimize energy supply

Increase sustainability

Be legal- and regulatory-compliant

Ensure business continuity

Reduce cost

Increase building value

Better informed decisions, optimized investments and effective use of buildings

Our customers want more transparency and added value from their building data



80%

of customers want
visualization of data



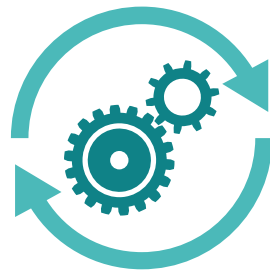
65%

of customers demand
**location-independent
access to their data**



69%

of customers
expect an **improved
service process**



50%

of customers expect
**new digital services
and business models**



Source: Siemens customer survey, 2014, 2015

Existing services get digitally enhanced...

and new data-driven services are

and new data-driven services are created by using building data intelligently.

What we are doing



What we are doing

Portfolio



Our portfolio provides answers to building technology questions



**Building automation
and energy management**

Fire safety

Security

**Enterprise
business**



Energy efficiency and sustainability management, enterprise security solutions

**System
house
business**



Integrated building solutions, solutions for vertical markets (data centers, life science industries, premium offices, healthcare), building automation solutions, fire safety and security solutions







**Product
business**



Building automation and control systems, HVAC, fire safety, extinguishing, evacuation, security, including access control, video surveillance

Our market offering covers the integration of all building disciplines into dedicated vertical market solutions



|  Fire safety |  Security |  HVAC |  Energy efficiency |  Lighting |  Power | 3rd Integration |
|---|---|---|--|---|---|--|
| <ul style="list-style-type: none">• Fire detection• Extinguishing• Evacuation | <ul style="list-style-type: none">• Access control• Video surveillance• Intrusion detection | <ul style="list-style-type: none">• HVAC control• Room automation | <ul style="list-style-type: none">• Maximize efficiency• Optimize supply• Enhance sustainability | <ul style="list-style-type: none">• Lighting control• Shading | <ul style="list-style-type: none">• Monitoring• Reporting• Decentralized energy systems | <ul style="list-style-type: none">• 3rd-party integration of all building disciplines |

Data center



Life science



Premium office



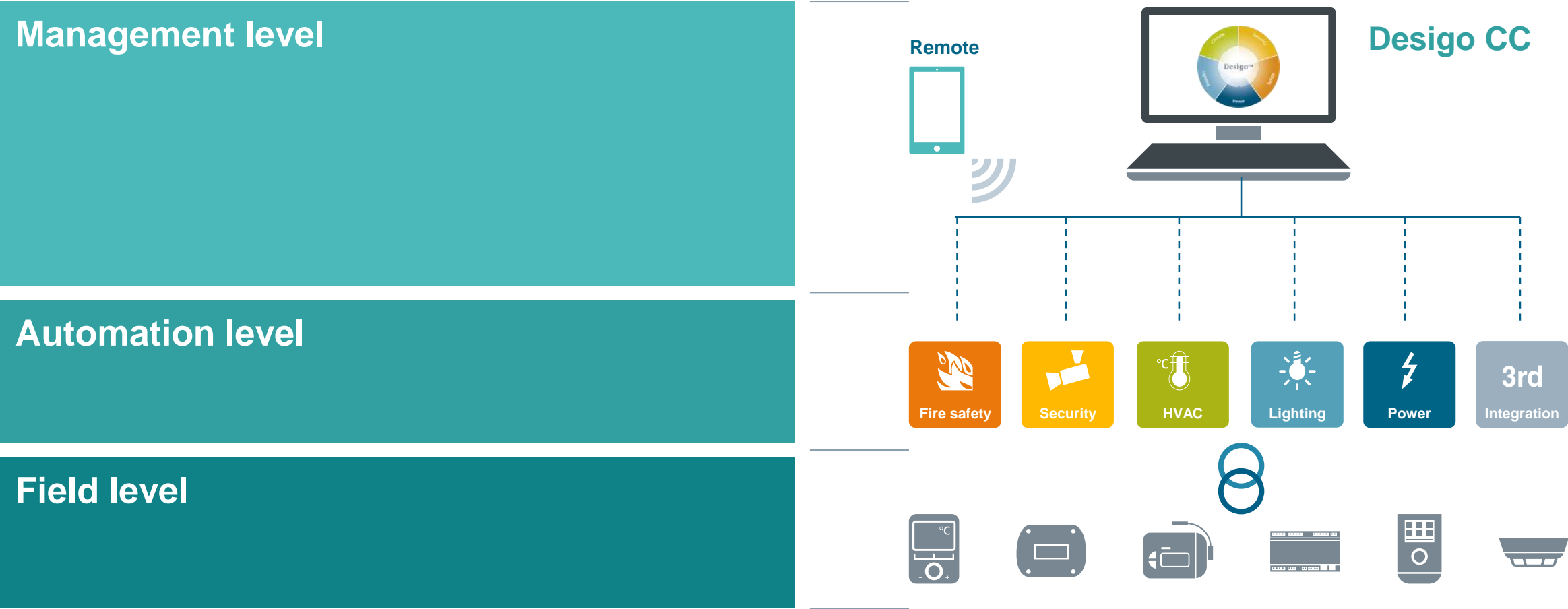
Healthcare



Industrial



Desigo CC is the leading integrated building management platform in the market place



Applications increase the added value of Designo CC



**Increase
building value**



**Increase energy
efficiency**



**Customer
satisfaction**



**Increase
sustainability**

Smart room operator



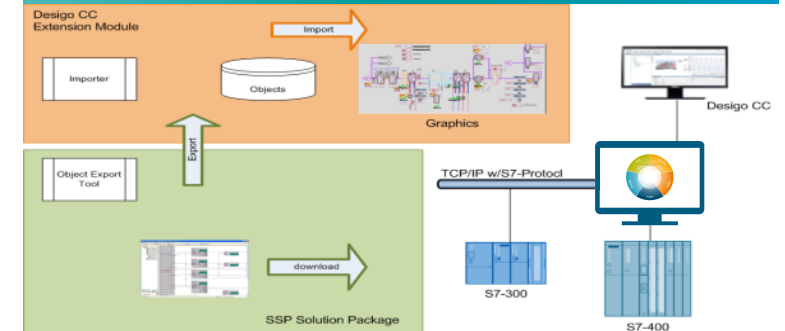
Easy room operation of lights, blinds and HVAC from a PC, tablet or smartphone

Annual shading



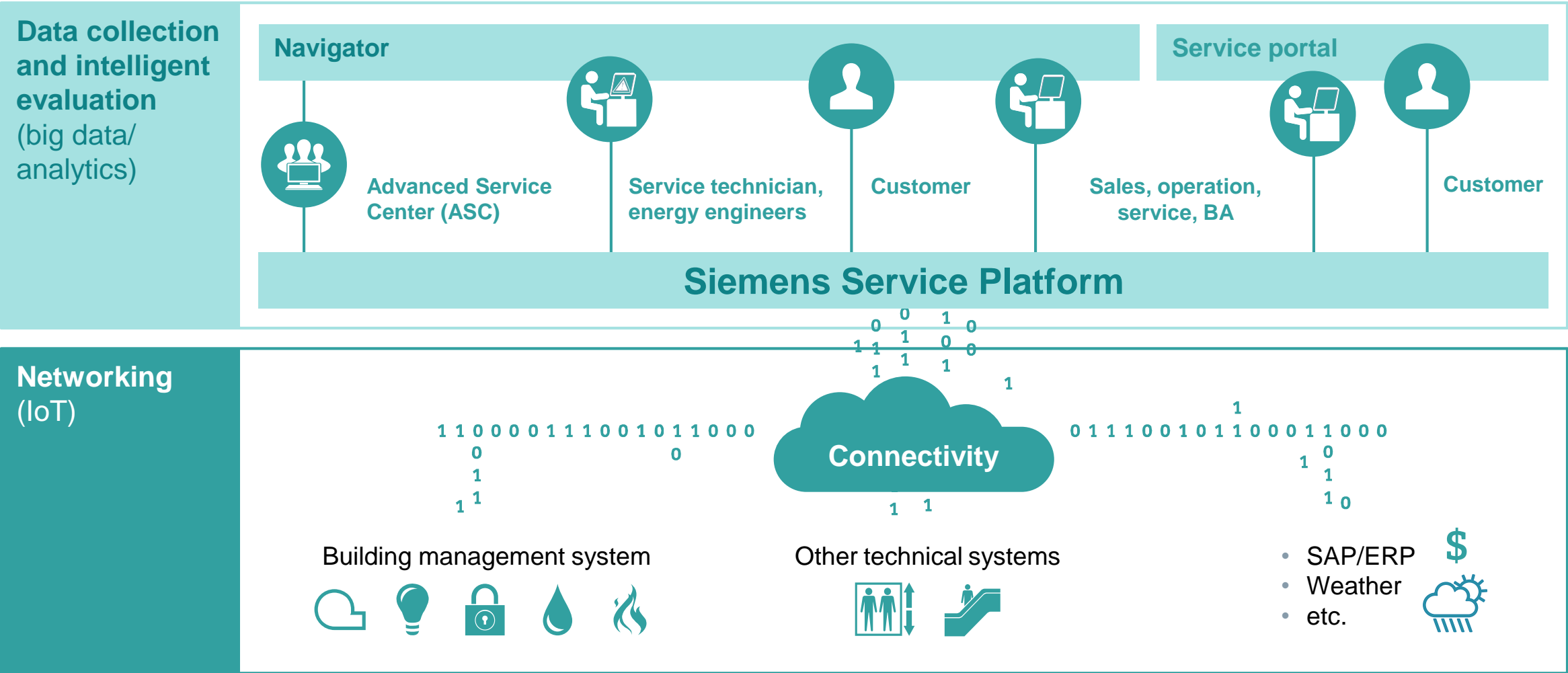
Shadow calculation for each window or group of windows, based on external changes in e.g. time of day and position of the sun

Simatic S7 integration



High availability of critical plants or equipment through integration of Simatic S7 into Designo CC, including migration of Siclimat X

With our service platform, we are connecting buildings and provide digital services based on advanced analytics



Enrich the service portfolio based on data-driven services – increased performance



Increase building value



Increase energy efficiency



Optimize energy supply

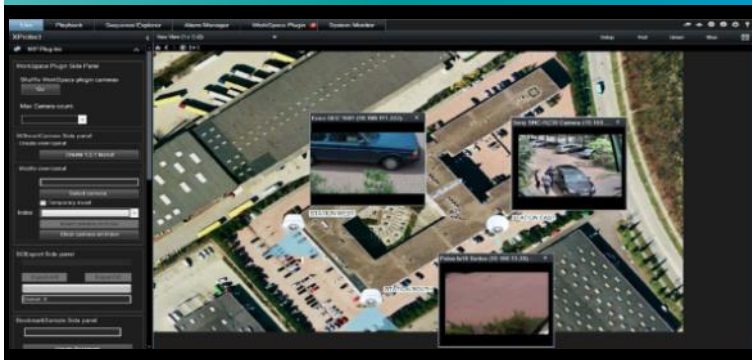


Ensure business continuity



Increase sustainability

System performance reporting



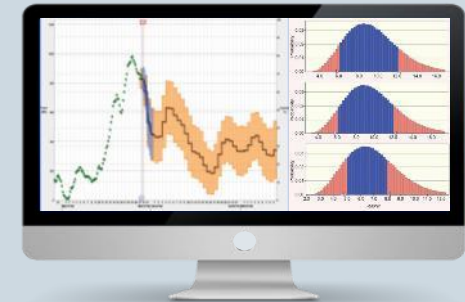
Decide if and when it makes sense to replace the systems

Benchmarking



Identify cost saving potential by comparing with other buildings

Forecasting



Forecasting helps to create energy supply mix scenarios, e.g. when and to what extent to invest in PV

Enrich the service portfolio based on data-driven services – transparency and cost reduction



**Reduce
cost**



**Increase energy
efficiency**

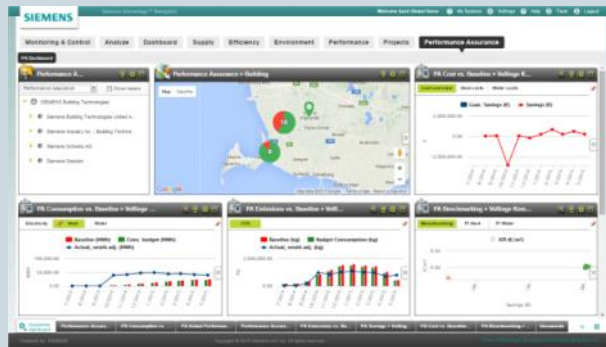


**Increase
sustainability**



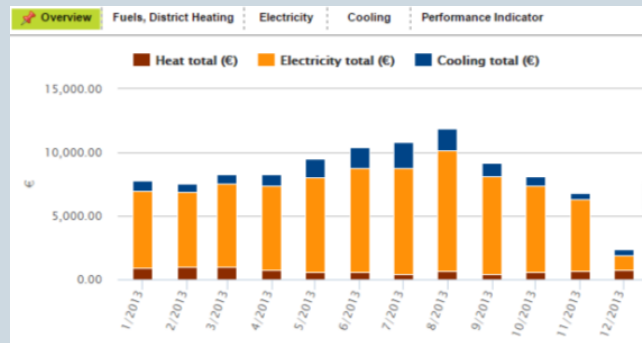
**Be legal- and
regulatory-compliant**

Smart Room Operator



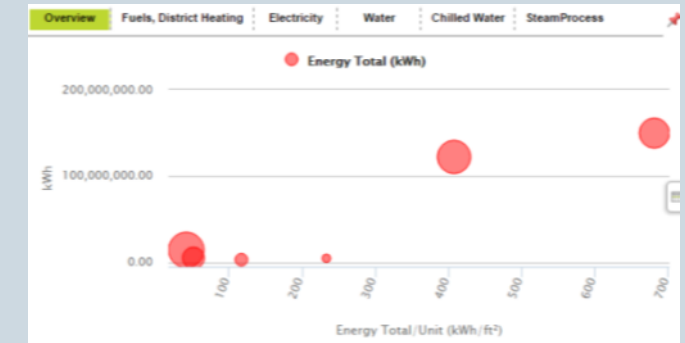
Individual dashboards give full transparency

Show KPI development



Tracking KPIs ensures a clear status of the reduction achievements

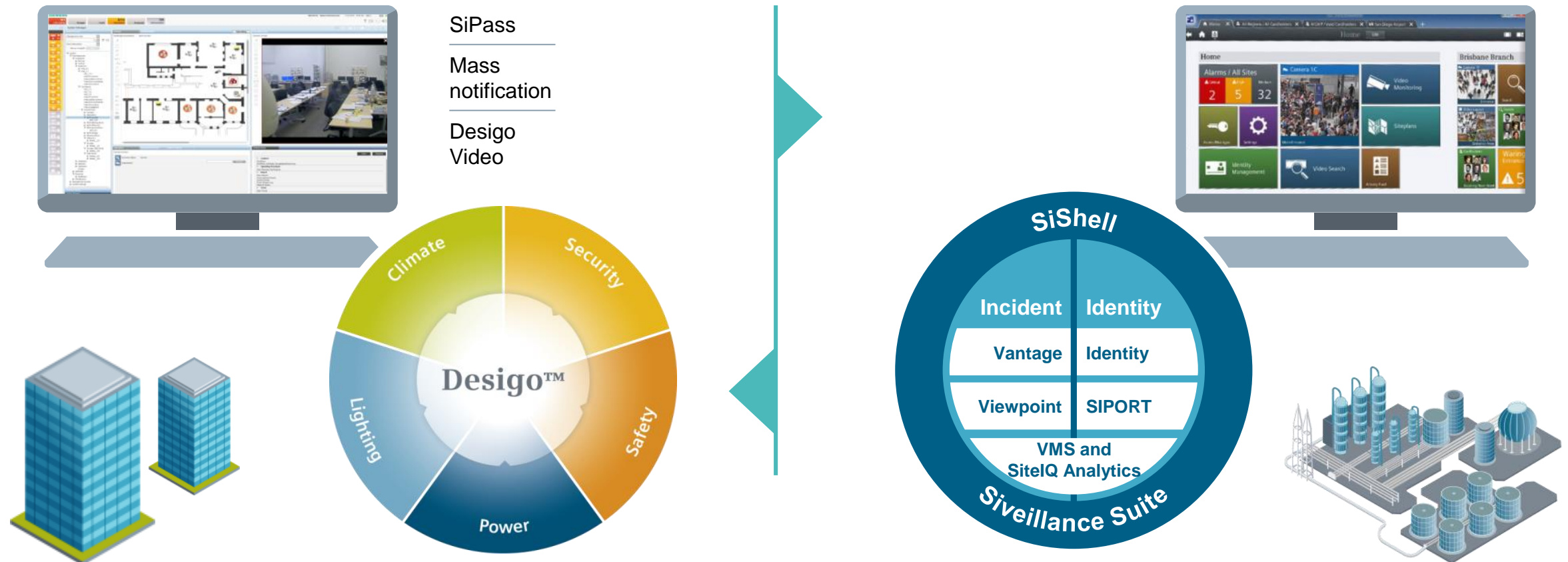
Compare key parameters



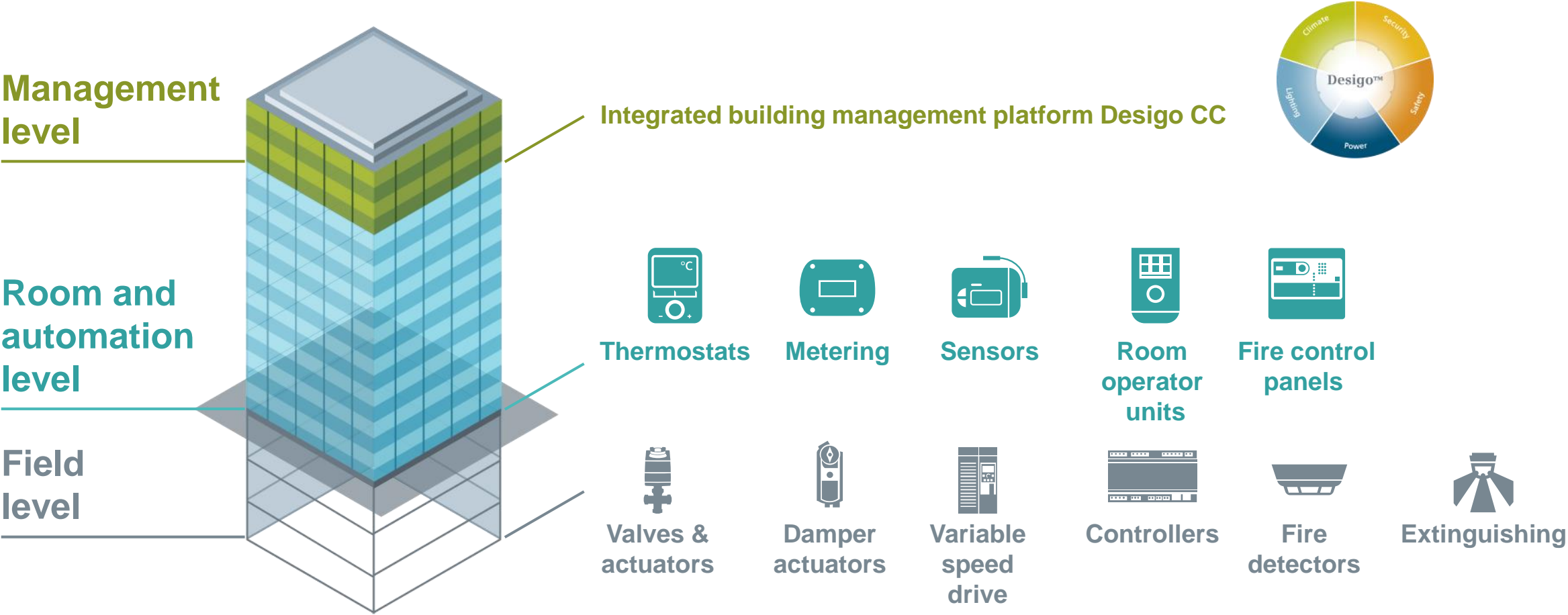
Benchmark with other similar buildings and identify further savings

Security

Complementing portfolio based on Desigo CC for single buildings and the Siveillance Suite for corporate security and critical infrastructure



Our product and systems portfolio contains
a unique width, depth and quality



Designo CC – Integrated building management platform

Designo CC is suitable for **small to large**
and for **simple to complex** buildings

- Building management platform that enhances **safety, comfort** and **productivity**
- Makes building run more **efficiently** in terms of **cost and energy**
- **Open** platform allows to design building management according to user needs
- Offers multi-discipline **building control in just one platform, reduces complexity**
- Thanks to intuitive, easy engineering and unique user interface, Designo CC **saves time for engineering efforts and costs**



Acvatix 6-port control ball valve – an excellent choice for your business

6-port control ball valves ideal **for 4-pipe systems**
in heated and chilled ceilings

- **Lower project costs** thanks to fewer data points
- **Flexible planning** and **installation**
- **Energy efficiency** thanks to 100% bubble-tight valves

Benefits of the OpenAir family of damper actuators

- KNX for **easy integration**
- **Tool-free** actuator coupling
- **Easy operation**

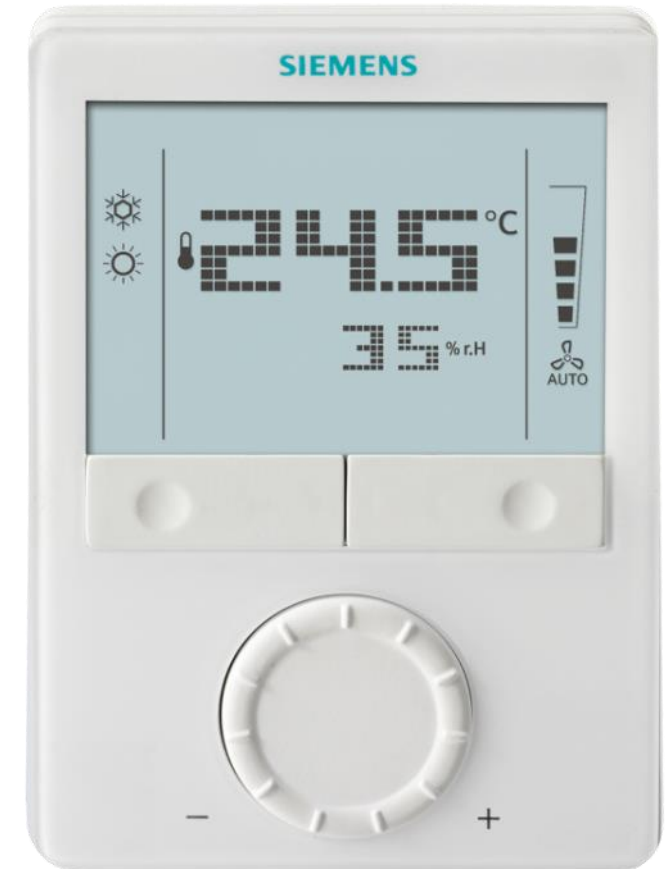
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Room thermostats and controllers with open communication standards to easily combine electrical and HVAC applications



- Wide HVAC application range:
Very attractive price/performance ratio
- **Integrated in Desigo building automation system**, for remote room management
- Meets highest energy efficiency standards: e.g. **EN 15232**
- Controlling functions inside: **less wiring, simple set-up**
- Preloaded applications: **no programming**



ASAtSM technology – An innovation that sets new standards and give a Genuine Alarm Guarantee

Multi-sensor fire detectors with ASAtSM technology

- **Smart sensors**
Increased detection reliability with two thermal and two optical sensors
- **Patented chamber**
Reduces background light, making detector resistant to dust
- **Unique ASAtSM technology from Siemens**
Converts signals into mathematical components and compares them in real time with programmed values using intelligent algorithms
- **Dynamic ASA parameter sets**
Influence the algorithms; selection according to current environmental conditions



What we are doing

References



We have satisfied customers underlining our positioning #CreatingPerfectPlaces around the world

SIEMENS
Ingenuity for life



A perfect place to study.

University of Applied Sciences (HAW)
Hamburg, Germany



SIEMENS
Ingenuity for life

Customer requirements

- Energy efficiency and renovation of outdated HVAC system
- Reduction in maintenance and energy costs
- Innovative building management system that meets the needs of students and employees

Siemens solution

- Building management system migrated to Desigo V5.1
- Measurement, control and regulating systems modernized
- Energy Performance Contracting

Customer benefits

- Building Technologies guarantees annual energy savings of more than 27%; HAW thus saves €500,000 – and 2,077 t CO₂
- The building automation system saves another €200,000



A perfect place to work.

ThyssenKrupp
Essen, Germany



Customer requirements

- Sustainable use of resources and energy efficiency
- Comfortable workplaces
- Protection of people, data and business processes against intrusion, theft and fire

Siemens solution

- Multi-discipline solution, including building automation
- Danger management system with video surveillance, intrusion detection and video-based access control system
- Fire detection system, including voice alarm
- Green Building Monitor displays energy consumption

Customer benefits

- Comfortable, tailored building management system
- Optimum, phone-operated workplace conditions
- Energy efficiency and cost savings



A perfect place to rely on.

Citigroup Data Center Frankfurt, Germany



Customer requirements

- Reliable and redundant energy supply
- Fire safety and security technology
- Energy efficiency, especially in terms of building cooling

Siemens solution

- Building automation, fire safety technology and energy supply with Desigo, Sinteso and GMA Manager
- 1,600 fire detectors, 150 SIESTORAGE surveillance cameras, 168 door sensors

Customer benefits

- Efficient energy consumption and LEED certification
- Maximally redundant system with 99.995 percent availability



A perfect place to generate power.

SylWin alpha Offshore Converter Platform North Sea, Germany



Customer requirements

- Availability and reliability for the unmanned platforms; all systems have to be redundant, low maintenance and remote-controllable
- High priority for fire safety

Siemens solution

- Complex fire safety technology with different extinguishing systems (e.g. gas, foam or spray deluge systems)
- Video surveillance and access control
- HVAC

Customer benefits

- Reliable extinguishing with easy operation
- Data transfer and control from the mainland

A perfect place to visit.

Tett nang Castle
Tett nang, Germany



SIEMENS
Ingenuity for life

Customer requirements

- Reliable fire safety solution
- Historic preservation status makes for special challenges in terms of installation aesthetics

Siemens solution

- SWING wireless fire detection system with two redundant paths installed in the museum and office rooms
- Hardwired fire detector in the basement and attic areas

Customer benefits

- Extremely reliable fire safety solution so that the castle interior remains untouched
- Fast installation with no disruptions during business hours



A perfect place to communicate around the world.

Digital Realty
Santa Clara, USA



Customer requirements

- Digital Realty needs a partner in energy management, fire safety and security in order to quickly provide data centers

Siemens solution

- Cross-divisional project for developing and producing premounted electrical modules for data centers, including switchboards, distribution transformers, low and medium voltage, fire safety and security systems

Customer benefits

- Energy-efficient, reliable and permanently available electrical infrastructure for data centers
- Digital Realty was able to reduce the time required to provide data centers from 179 to 80 days



A perfect place to research.

Fraunhofer Institute
Boston, USA



SIEMENS
Ingenuity for life

Customer requirements

- Integration of different disciplines into the 100-year-old building, which serves as a “living laboratory” for building technology research

Siemens solution

- Building management platform Desigo CC
- Building automation with heating, ventilation and air conditioning
- 1,000 data points
- 16 ONVIF cameras

Customer benefits

- The integration of different disciplines makes it possible to analyze the efficiency of materials and technologies
- Desigo CC simplifies data collection and evaluation



A perfect place to trade.

Port Manatee
Florida, USA



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Customer requirements

- A robust and integrated access control system to improve security as well as processes and workflow on site

Siemens solution

- Siemens security technology solution SiPass and Siveillance Vantage from Siemens
- Unification of sub-systems into a single user interface with command and control functionality over port security operations

Customer benefits

- Improved security accountability, reporting and operational efficiency
- Expanding business and improving profitability while keeping the real cost of security as minimal as possible helps reaching their business objectives



A perfect place to learn.

Algonquin College
Ottawa, Canada



SIEMENS
Ingenuity for life

Customer requirements

- Energy savings cover implementation costs within 20 years
- Significant greenhouse gas emission reduction

Siemens solution

- Apogee building management system
- Energy performance contracting and sustainability consulting plus on-site Sustainability Coordinator
- Lighting and controls, water conservation, HVAC upgrades
- Energy management including Demand Flow technology, scaled solar PV, power storage and EV charging stations

Customer benefits

- US\$3.2 million in operating cost reductions and over 12% GHG net reductions
- Algonquin College as a model for energy management and sustainability



A perfect place to live.



Seestadt Aspern Vienna, Austria



Customer requirements

- This research project is intended to help development a new business model for the changing power market while linking the pilot applications and building technology

Siemens solution

- Building management platform Desigo CC
- Desigo Room Automation with heating, ventilation, blinds and lighting; 110 apartments with Gamma KNX
- Energy management
- Sinteso FS20 fire detection system
- Navigator collects and evaluates data

Customer benefits

- Building management and basis for research project
- New business models can be developed



A perfect place to keep a tradition on tap.

Feldschlösschen Rheinfelden, Switzerland



Customer requirements

- Modernization and optimization of the fire safety systems to protect the iconic brewery building
- The goal was a more simple structure with fewer, but networked, control stations

Siemens solution

- Over 2,000 fire detectors
- Thanks to the modernization of the fire safety system, now only 5 fire control panels are required instead of 17

Customer benefits

- Fast and reliable maintenance and service
- Advanced planning continues: For instance, Sinteso Mobile may be integrated sometime in the future for remote access by smartphone or tablet

A perfect place to stay.

Marriott Hotels Europe



Customer requirements

- Reducing energy consumption and CO₂ emissions

Siemens solution

- Energy audits and optimization of building management systems
- Green Building Monitors visualize energy consumption and urge viewers to save energy

Customer benefits

- Pilot project Paris Charles de Gaulle Airport Marriott Hotel: 15% cut in energy costs; 6% lower electricity costs and 17% lower gas costs as well as 15% reduction in CO₂ emissions



A perfect place to marvel.

Fondation Louis Vuitton
Paris, France



SIEMENS
Ingenuity for life

Customer requirements

- Maximum requirements for a multiple award-winning design object

Siemens solution

- Fire safety solution Sinteso and automated extinguishing systems with nitrogen
- Desigo PXC automation stations
- Service agreement: 7/7, 24/7
- UAE MM8000 danger management station

Customer benefits

- Complex overall solution (fire safety, security, comfort from a single source)



A perfect place to succeed.

Lilacs International Commercial Center Shanghai, China



Customer requirements

- Lower energy costs for owners and tenants
- Tenant satisfaction
- Improved range of services

Siemens solution

- Multi-discipline solution, including energy management
- SiPass access control
- Apogee Building automation
- Cerberus PRO fire alarm system
- Lighting
- Parking space management

Customer benefits

- LEED Silver certification
- 15% lower costs, thanks to technical integration



A perfect place to collaborate.

Shanghai Tower Shanghai, China



Customer requirements

- Reliable power supply and energy efficiency for one of China's tallest buildings
- Fire safety for people and the building

Siemens solution

- High voltage, low voltage
- Fire detection system
- Intelligent lighting (EIB)

Customer benefits

- LEED Platinum certification
- 5% – 10% energy savings expected, along with improved comfort
- The world's most reliable power supply system
- Comprehensive, secure fire safety solution



A perfect place to celebrate.

WAFI

Dubai, United Arab Emirates



Customer requirements

- Flexible, modular and reliable building management system
- Energy efficiency
- Access control

Siemens solution

- Building management with Desigo
- Energy optimization with the Demand Flow solution, including optimization of the cold water system
- Data acquisition and creation of energy profiles with Navigator

Customer benefits

- Guaranteed €320,000 savings in energy costs per year, i.e., energy consumption reduced by 17%



A perfect place to work.

Marina Bay Financial Center Singapore



Customer requirements

- Integrated building management system with central control from one platform
- Standardized, transparent security concept, integration of video surveillance into access control system

Siemens solution

- VeriNET E4
- OPC DA interface to the building management system
- Siveillance Fusion security management station
- Apogee building automation system, Navigator and Green Building Monitor

Customer benefits

- Improved comfort, fire safety and security, along with simplified system integration
- Standardized security processes



A perfect place to study.

United World College South East Asia
Singapore



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Customer requirements

- Management, control and monitoring of a large campus
- Lowering energy consumption, increasing energy efficiency of the system and communicating these improvements to the students

Siemens solution

- Pilot project for “3for2” concept from ETH Zurich and partners: Reducing space for lighting and cooling system helps to economize an entire floor
- Desigo CC (first time installed in Singapore), Navigator, Desigo Room Automation

Customer benefits

- Consumes 40% less energy than comparable buildings



An aerial view of a city at sunset, with a digital overlay of a network grid. The grid consists of glowing blue lines connecting various points across the city. Several icons are placed along these lines: a lightbulb, a thermometer, a leaf, a snowflake, a hand holding a smartphone, and a circular arrow. The city lights are visible in the background, and the sky is a mix of orange and blue.

Thank you for your attention.