Creating perfect places with the power of data

Matthias Rebellius, CEO Building Technologies Division, Siemens
Smart buildings help our customers become even more competitive
<table>
<thead>
<tr>
<th>Percentage</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>41%</td>
<td>41% of energy worldwide is consumed by buildings</td>
</tr>
<tr>
<td>80%</td>
<td>80% of total lifecycle cost of a building occur in the operation phase</td>
</tr>
<tr>
<td>30%</td>
<td>30% of corporate real estate portfolios will consist of flexible office space</td>
</tr>
<tr>
<td>50%</td>
<td>50% of workforce will be millennials by 2020</td>
</tr>
</tbody>
</table>
**Owner**
- Occupancy rate
- Increase in property value
- Compliance with standards and regulations
- Reducing costs

**Operators**
- Operational efficiency
- High reliability of the facility and its equipment
- Lower maintenance costs

**Tenants**
- Productivity of employees
- Safe and secure workplace

**Visitors**
- Feeling welcome, safe, and secure
- Easy navigation in a new building
Comfortable and safe

• Optimized room conditions
• Enhanced air quality
• Safe and secure place to be
• Intuitive operation
Energy and asset efficient

- Asset availability
- Maintenance costs
- Preventive/predictive maintenance
- Optimized energy footprint (CO₂)
Space and user efficient

• Transparency on space occupancy
• Asset tracking
• Indoor navigation
• Intelligent evacuation
Enhancing building performance with unique domain know-how
10,000 service technicians
200 performance engineers
4 locations
200 services overall
thereof 70 digital services
Navigator powered by MindSphere

...based on domain know-how and built-in data analytics
Navigator powered by MindSphere

- 580,000 data points connected
- 80,000 connected buildings
- 400 million data values analyzed per day
“We want to stop the effects of time and create a condition where things no longer deteriorate so the next-generation can know our story, too.”

John Patten
Manager of Bunjilaka Aboriginal Cultural Centre at Melbourne Museum
Customer challenges:

- Reducing electricity, natural gas and water usage across the various facilities
- Public perception and visitor satisfaction
- Greater control of the thermal conditioning of the facility

35% CO₂ and greenhouse gas reduction
31% project utility cost reduction
“We earn our money by managing 170 shops and therefore renting out 102,000 m².”

Marianne Harjula
Sello Event Manager
Customer challenges:

- Tenant satisfaction and retention
- Public perception and visitor satisfaction
- Modernization and efficiency (€/sqm.)

€118,000 savings in energy efficiency and maintenance per year

50% immediate reduction of the district heating
<table>
<thead>
<tr>
<th>Premium office</th>
<th>Data centers</th>
<th>Industrial</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hotels</td>
<td>Corporate real estate</td>
<td>Universities</td>
</tr>
<tr>
<td>Schools</td>
<td>Hospitals</td>
<td>Life science</td>
</tr>
</tbody>
</table>
Key figures FY17

€6.1 bn assets under management

€2.5 bn revenue

13.9 m square meters rentable building space

2,000 locations
Game changer

• Digitalization
• Connectivity and agility
• New ways of working
• Health and wellbeing
• Sustainability
Carbon Neutral Program

2.2 million tons of CO2-equivalent emissions reductions by 2030:
- 50% reduction by 2020
- 100% reduction by 2030

Energy Efficiency Program

- €100 m Investment
- €20 m OPEX reduction
- ~5 yrs. Return on investment

Unrestricted © Siemens AG 2017
Page 20  December 15, 2017
Space efficiency

Better utilization of space

Improvement of operating expenses and services

Optimization of footprint

Enabled by suite of services and applications from Building Technologies

Example: Occupancy detection
Digital CREM

- Individual workplace control and personalized comfort
- Competitive advantage through smart building technology
- High asset and system performance

Enabled by Building Information Modeling, sensors and suite of applications from Building Technologies
Connected real estate assets drive efficiency and productivity.
Closed loop innovation – the digital twin improves development, construction and operation

MindSphere connects the virtual with the real world – from factories to infrastructure

Manufacturing/ factories

Digital Product Twin

Infrastructure/ buildings

Digital System Twin

powered by MindSphere

Digital Production Twin

Digital Construction Twin

Digital Performance Twin
By enabling our customers to be more competitive, we create additional business potential for Building Technologies:

• Digital Business of €300 million in FY17, growing by more than 20% p.a. in the next 5 years
• Drives continued overall growth more than market

#CreatingPerfectPlaces