

# Buildings as key players in the carbon neutral society

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7.11.2019

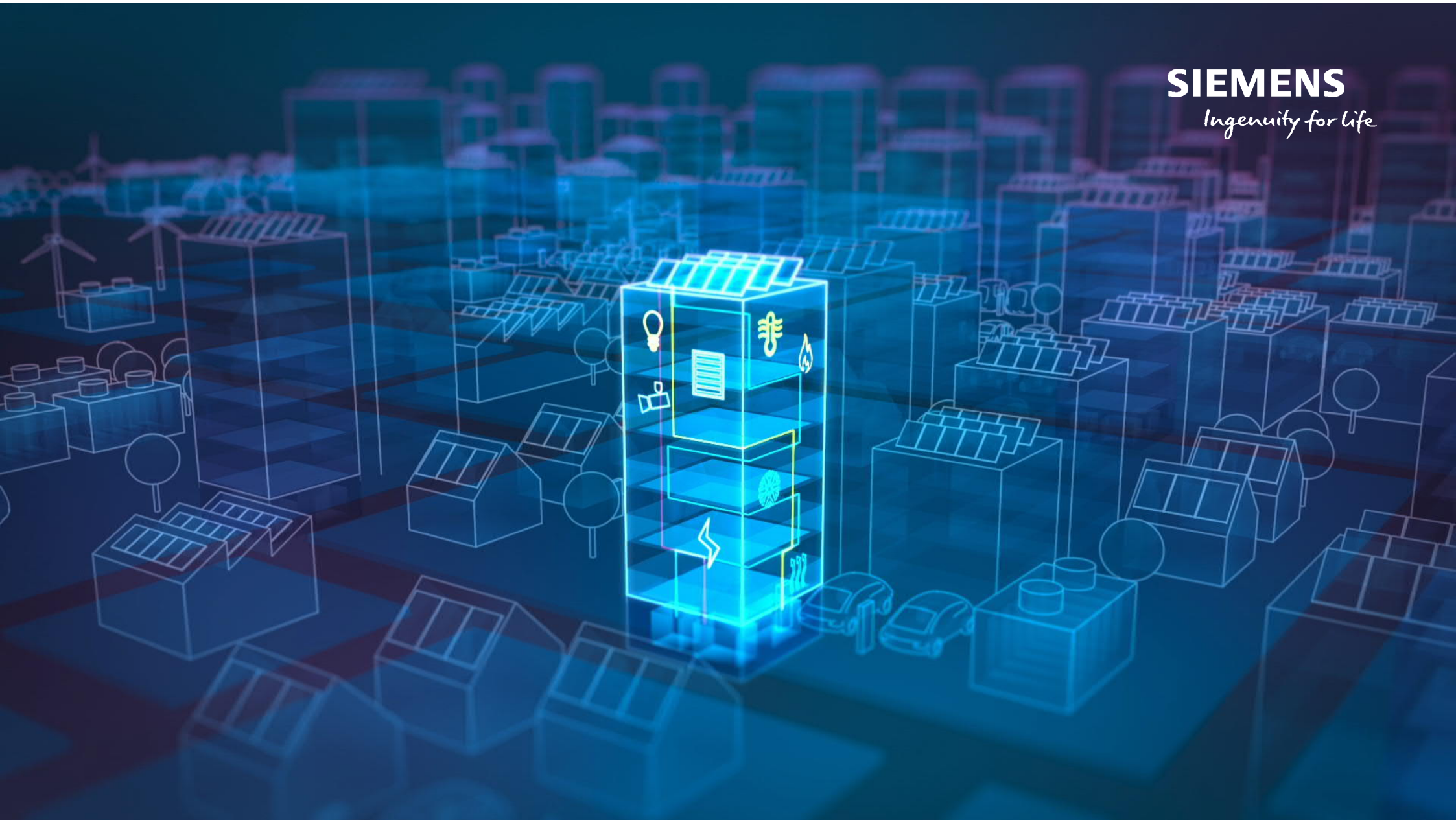
**Buildings consume 40 % of energy globally  
We spend 90 % of our time in buildings**

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# Digitalization enables a holistic approach



People  
Equipment  
Surroundings

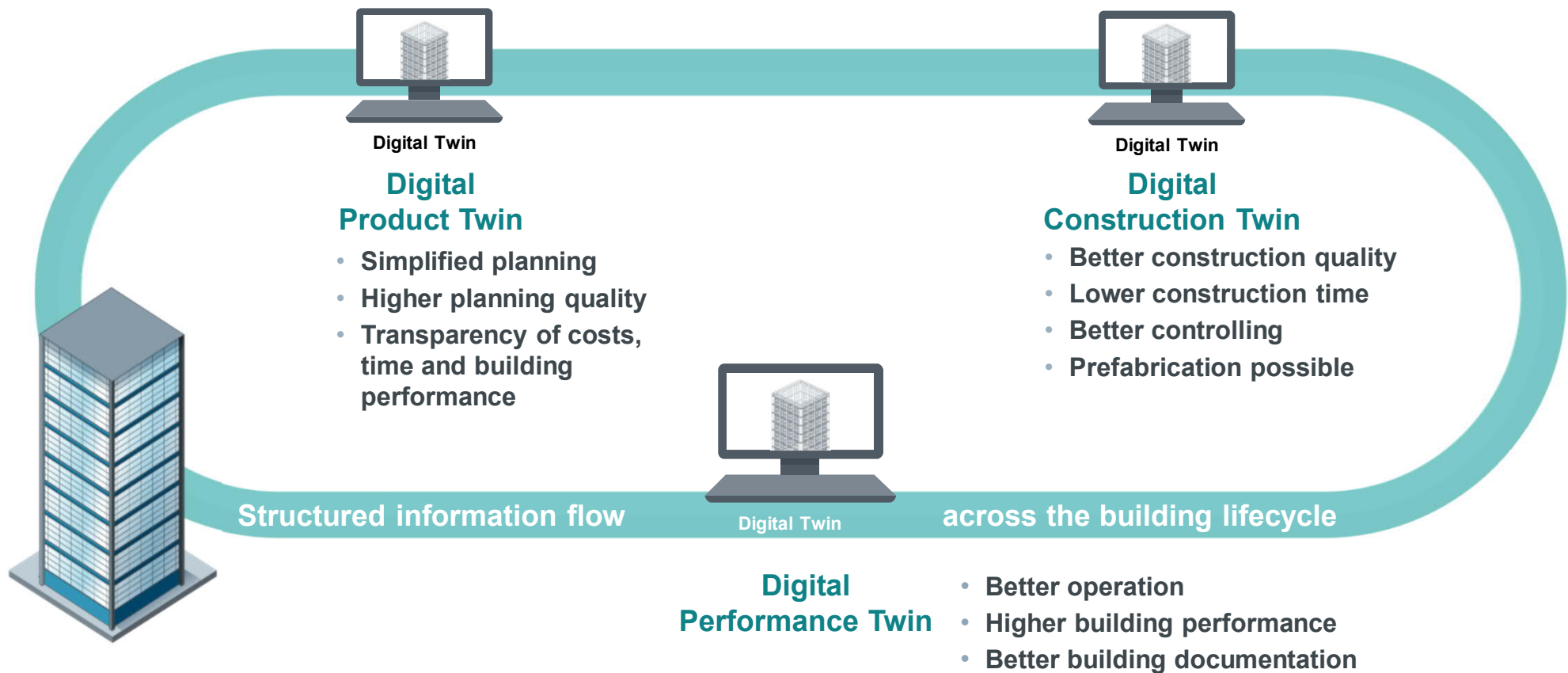


Comfortable  
Safe  
Efficient  
Resilient

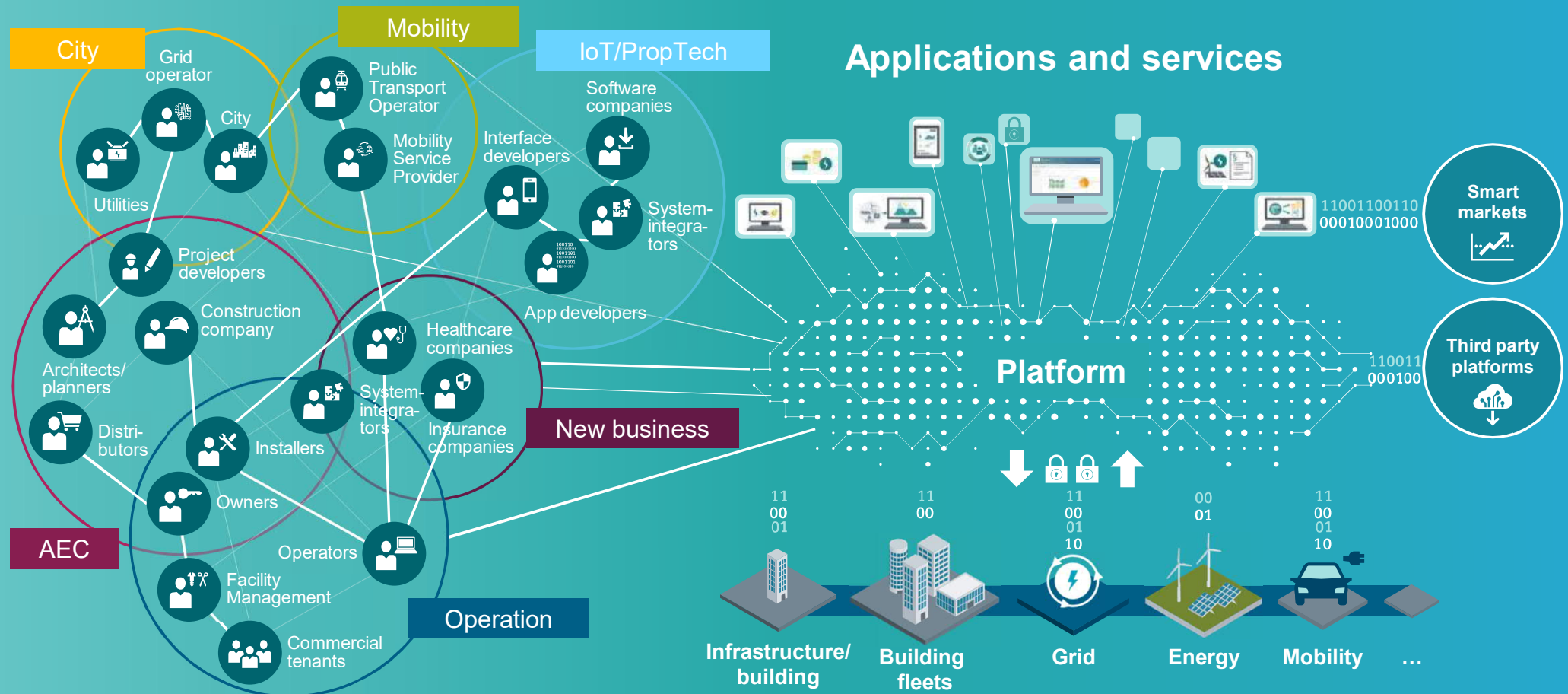
Top-line growth  
Lower costs  
Less risks

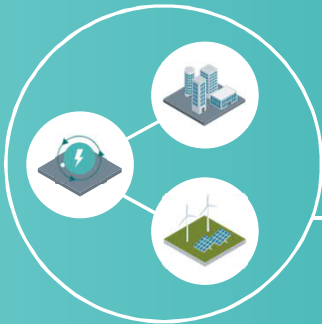
# Digital Twin in the building industry

## Potentials along the entire building lifecycle



# An open and secure ecosystem





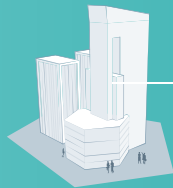
# Integrated building and energy management



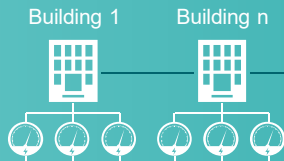
On site  
**Resiliency and control**

**Transparency and awareness**

**Building Management – Designo CC**



**Metering and Sub-Metering**



**Micro grid Controller**



Web Apps  
**Efficiency and optimization**

**Power Management – Navigator**

- CO<sub>2</sub> emissions and alarm statistics
- Fault identification and recommendation optimization measures



Monitoring/Reporting

**Meter Data Management**

electricity, gas, district heating and water meters



Customer Information Systems



Workforce Management



Data Warehouse

**Distributed Energy Optimization**



Load forecasting



Optimization of own requirements



Price forecasting

Aggregator  
**Monetization**

**DEMS**

**Aggregator**



Trading optimization and ancillary services



Smart Grid



Smart Market



Virtual Power Plant



Market interaction



Demand response



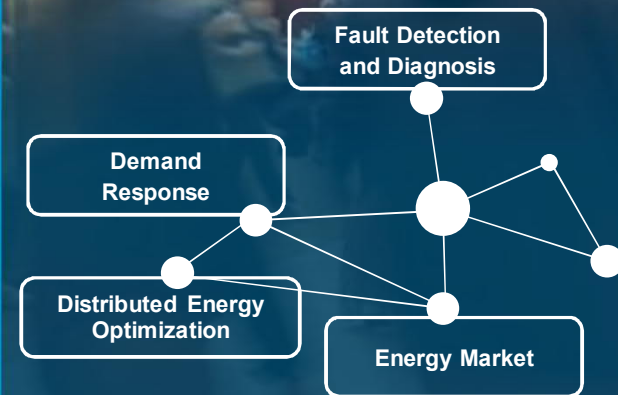
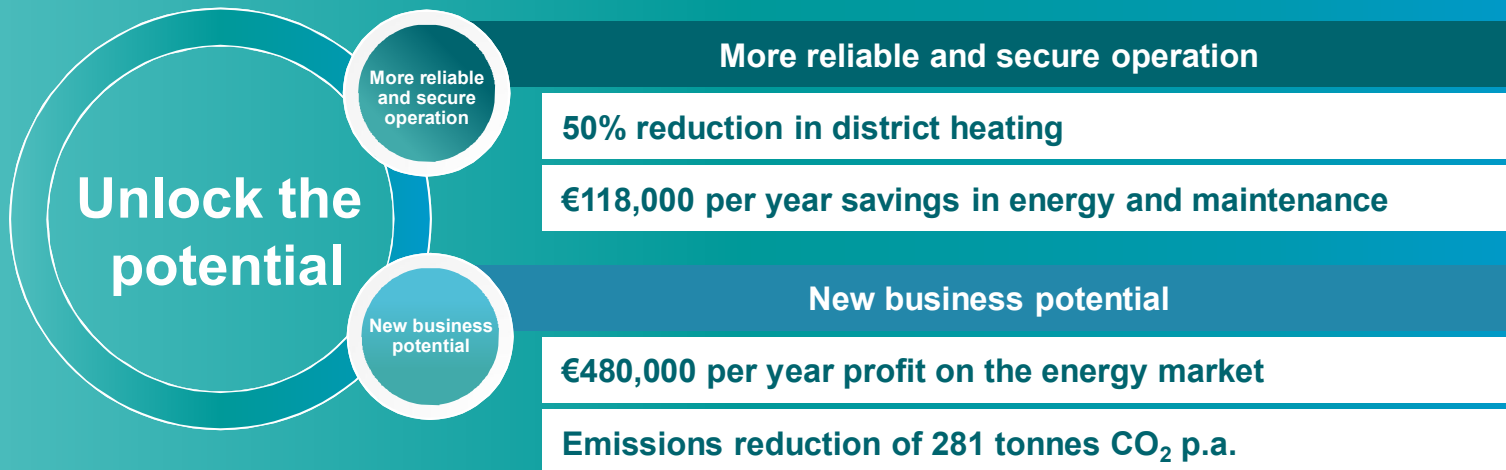
Trading energy



## Sello Shopping Center, Finland

### »Data-driven services transform Sello into one of the greenest shopping centers in Europe«

- Remote Analytics: connecting 1,500 energy- and heating/cooling/air conditioning data points with a cloud-based building automation system
- Micro-Grid: 0,5 MW own solar electricity, 2 MW energy storage
- Demand response: enabling participation on the energy market
- Dedicated operations manager ensuring continuous development



## Smart Readiness Index - Sello



Building type	Year of construction	Assessed services	Absolute SRI score	Relative SRI core
Shopping centre	2003	41/52	73%	91%
Office	1990	36/52	43%	60%
Office	2014	44/52	48%	55%
Educational	2018	45/52	47%	52%
Office	2013	44/52	42%	50%
Educational	2015	33/52	35%	46%
Office	2004	36/52	35%	46%
Residential	2018	28/52	28%	46%
Hotel	(2020)	39/52	33%	41%
Residential	1967	20/52	11%	40%

### Project data

Location: Espoo, Finland

Floor area: 100 000 m<sup>3</sup>

Environmental certificate:  
LEED Platinum

Indoor climate class: S2

91%

### Basic design features

- District heating
- Air heating
- Mechanical balanced ventilation with heat recovery
- Solar PV utilization
- Advanced demand management
- Electricity storage

# VIBECO - 4win approach to protect climate by combining energy system and building know-how

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## Buildings

- New earning model
- Efficiency increase
- Future readiness for smart cities



## Society

- No need to maintain reserve power plants
- Open platform for new service providers
- Climate protection as a service

## Users

- Better conditions in the buildings
- #CreatingPerfectPlaces

## Environment

- Enabler of renewable energy and eTraffic
- Less need for fossil based balancing power
- #timetocare





Sello Shopping Center



VR Group



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City of Lappeenranta



Ski resort, Levi

Forerunners for  
creating sustainable  
future.



Goodman  
Shopping Center

# Smart society

Smart platform connects buildings, energy systems and industries to boost efficiency and sustainability in a society.







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**The world needs a new approach.**



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**Thank you.**