Siemens

We make real-world technology that works for everyone

Jussi Mäntynen

SIEMENS

Employer with vision

Zero Harm Culture

Our **Zero Harm Culture@Siemens** program follows three principles:

Zero incidents – it's achievable!

We take care of each other!

No compromises on health and safety!

Our employees are our greatest asset. That's why we want every single Siemens employee to be able to rely on a safe working environment at all times.

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Global trends are changing our markets & living – structurally and profoundly

#Digitalization

#Globalization

#Urbanization

#ClimateChange

#DemographicChange

#FlexibleWorking

#PhysicalDistancing

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The European Union strives to make Europe the first climate-neutral continent by 2050.

Source: European Commission

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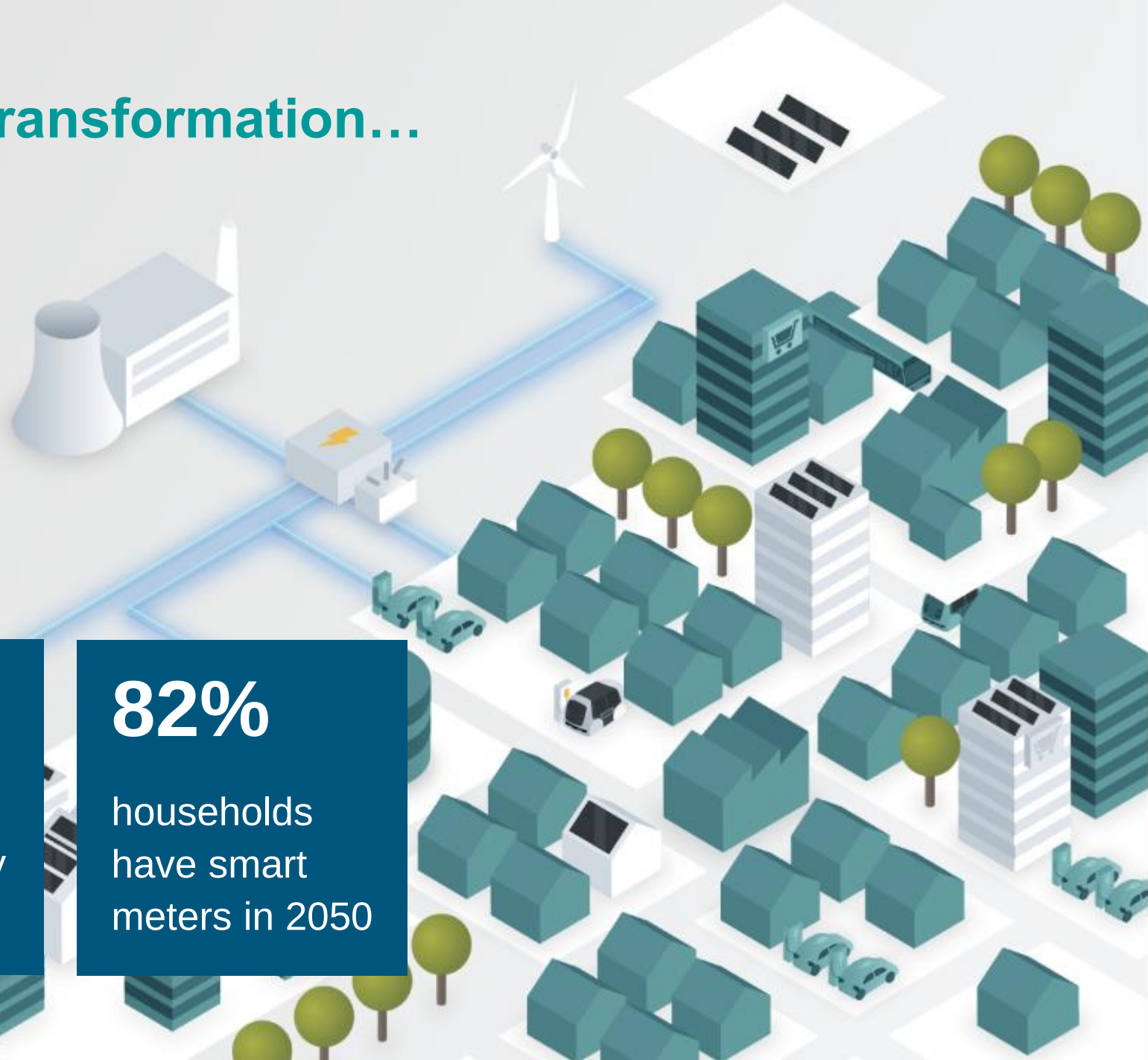
We are in the middle of a transformation…

Decarbonization

Decentralization

Digitalization



2x

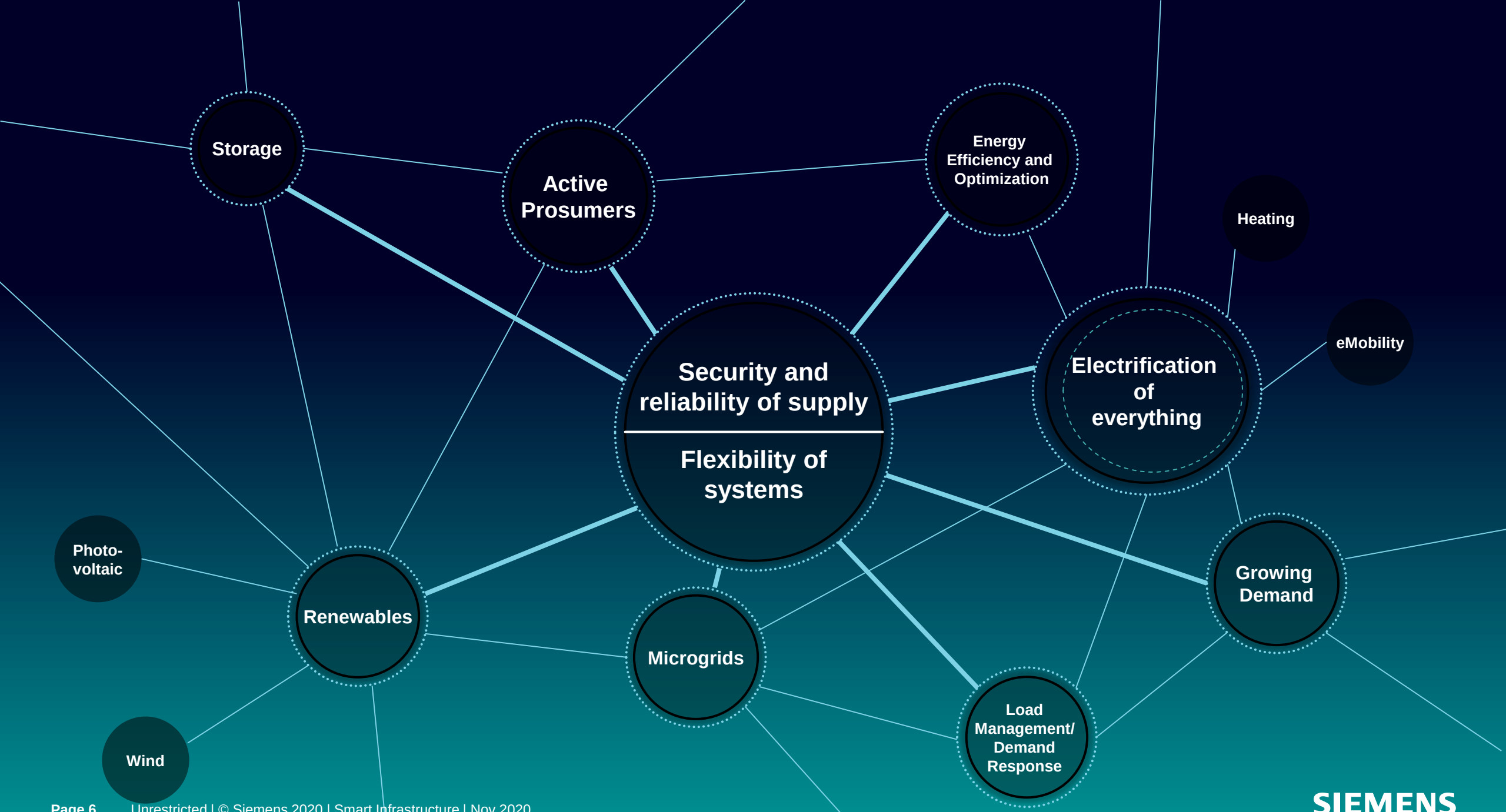
electricity consumption by 2050

>50%

renewable annual energy by 2035

82%

households have smart meters in 2050



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Technology Transform to Everyday & Everyone

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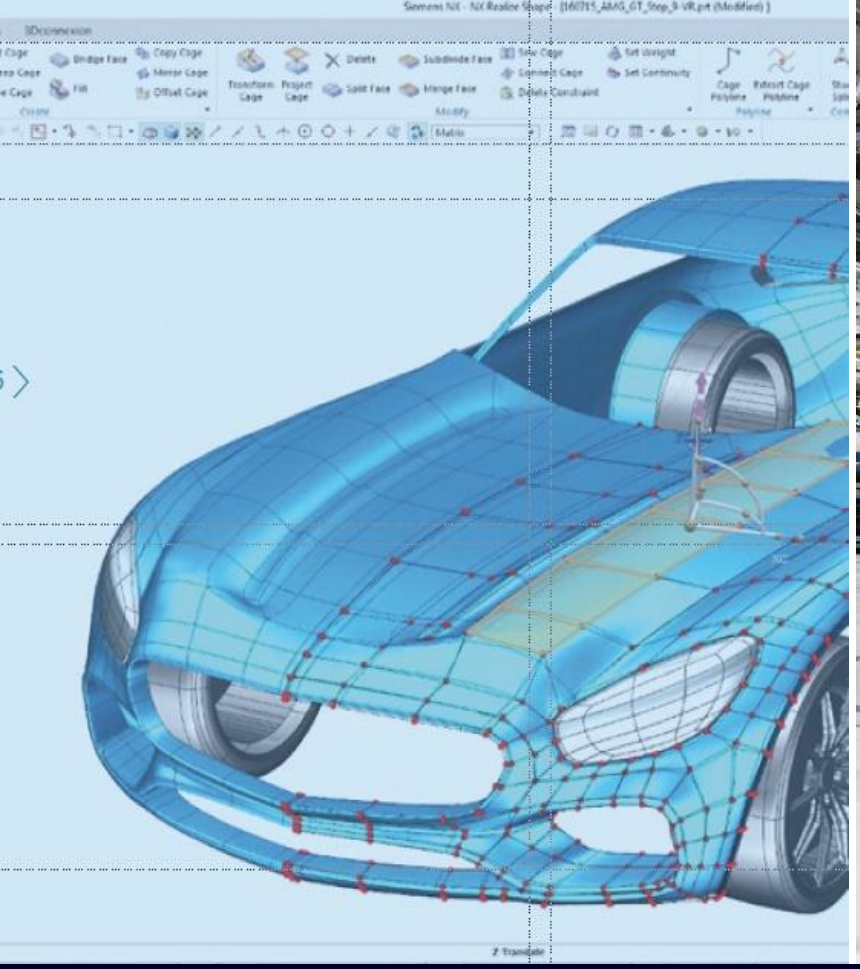
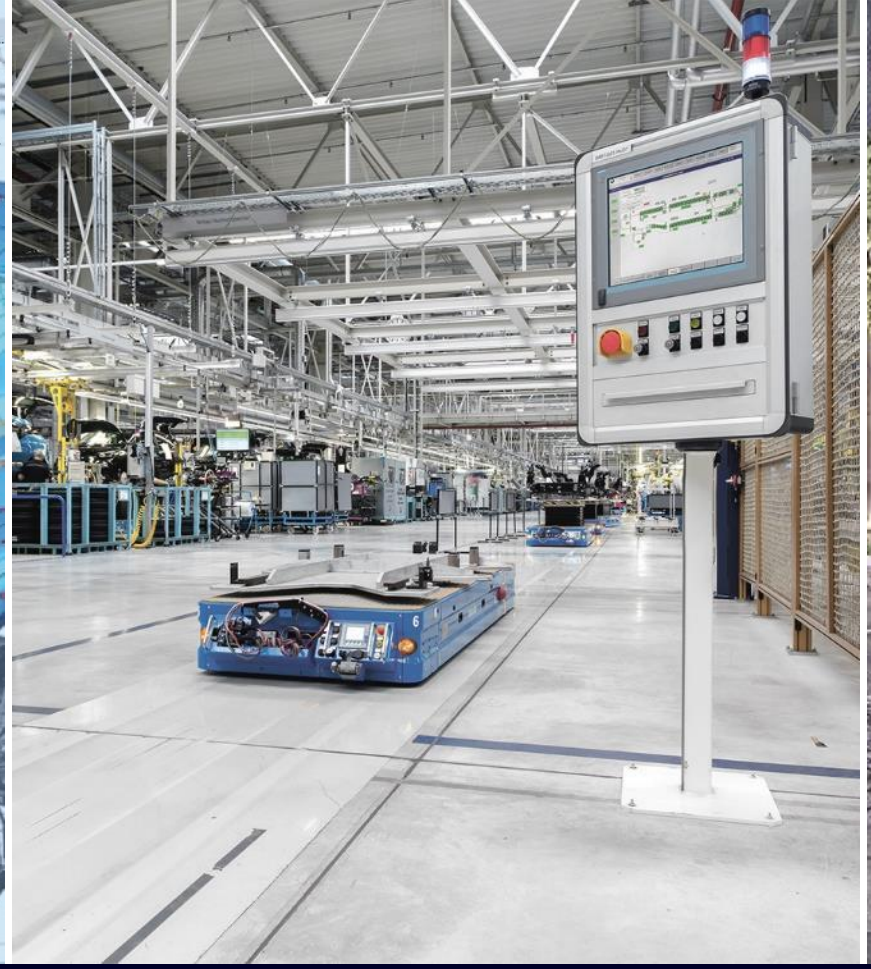


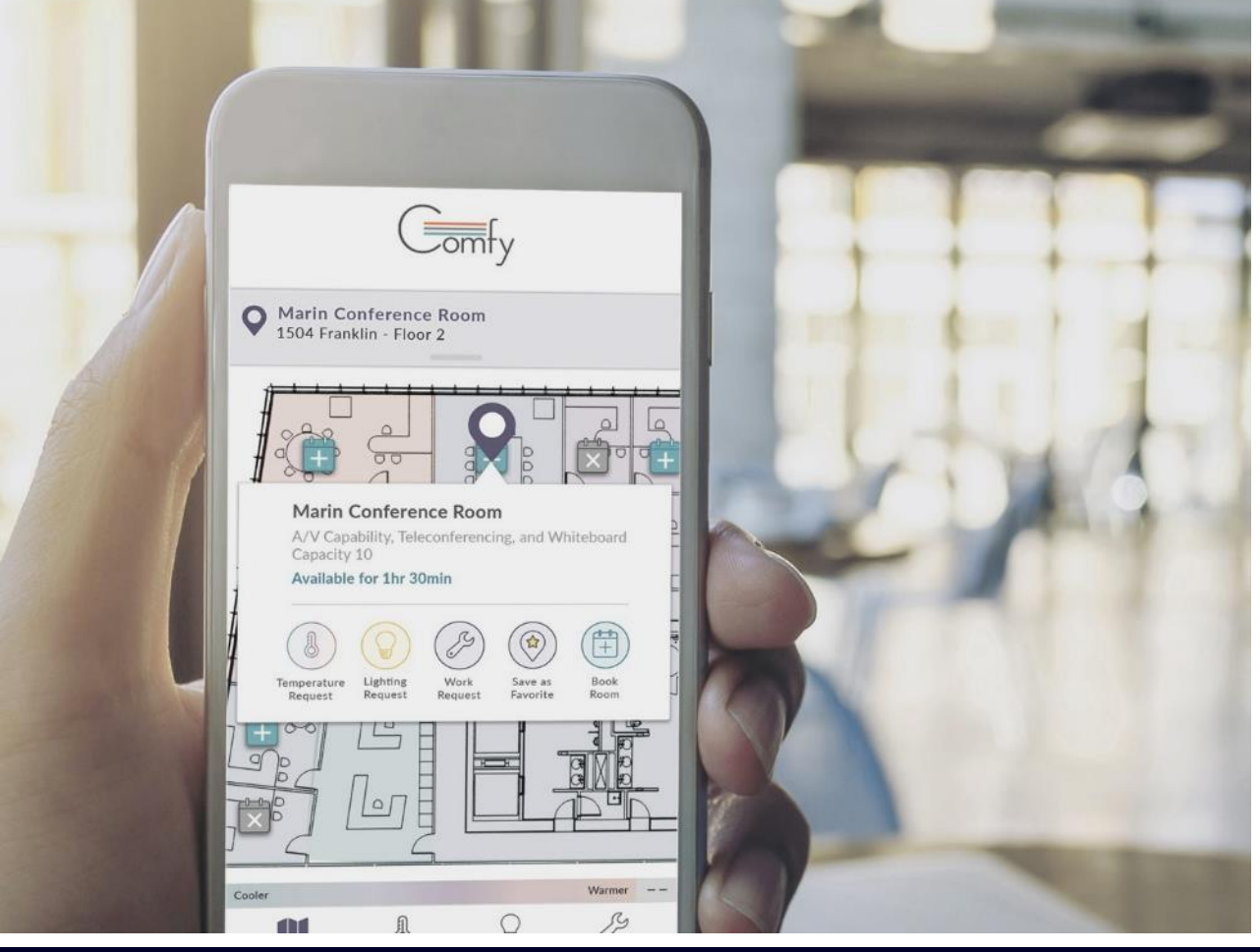
We commute in cars designed with **Siemens software …**



… built in factories running on **Siemens automation …**

… charged by a renewable and decentralized **Siemens smart grid.**

SIEMENS



We work in **smart buildings** that keep us comfortable and healthy …

… with a **carbon neutral footprint** that keeps the planet healthy as well.

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We travel on **Siemens trains …**

… and on planes brought to life using **Siemens technology.**

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We rely on **lifesaving drugs** to market …

… thanks to **Siemens innovations.**

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Siemens is shaping the future

SIEMENS

Our four strategic priorities

Customer impact

We're putting customer impact at the very center of Siemens.

Empowered people

Siemens is driving progress through empowerment.

Technology with purpose

Innovative technology has been at the core of Siemens for more than 170 years and it will remain at the core of the future we're building.

Growth mindset

Being open to change, to new ways of working, always learning. Because being successful today does not guarantee success tomorrow.

SIEMENS

€5.7 bn
R&D expenditures1[1]

45,100
R&D employees[2]

Ingenuity drives innovation

6,850
Inventions[3]

3,750
Patent applications[3]

Cooperation
with universities

8
CKI universities[4]

17
Principal partner universities

1 In fiscal 2019 (with Siemens Energy) | **2** On average during fiscal 2019 | **3** In fiscal 2019 (with Siemens Energy and Siemens Healthineers). As of September 30, 2019, Siemens held about 68,300 patents worldwide in its continuing operations. | **4** Centers of Knowledge Interchange

SIEMENS

The areas our research and development is focusing on

- Additive manufacturing
- Autonomous robotics
- Blockchain applications
- Connected (e)mobility
- Connectivity and edge
- Cybersecurity
- Data analytics, Artificial intelligence
- Distributed energy systems
- Energy storage
- Future of automation
- Materials
- Power electronics
- Simulation and digital twins
- Software systems and processes

SIEMENS

Charter of Trust
A joint initiative for a secure digital world

Charter of Trust

charteroftrust.com

AES, AIRBUS, Allianz, Atos, Cisco, Dell Technologies, IBM, Infineon, Mitsubishi Heavy Industries, Munich Security Conference, NTT, NXP, SGS, Siemens, T, Total, TÜV SÜD

Associated Partner Forum

Bundesamt für Sicherheit in der Informationstechnik, CCN Centro Criptológico Nacional, HPI Hasso Plattner Institut, TU Graz

1

Protect the data of individuals and companies, …

2

… prevent damage to people, companies and infrastructures and …

3

… establish a reliable foundation on which confidence in a networked, digital world can take root and grow.

SIEMENS

Next47 powered by Siemens

Next47 is an independent, global venture firm backed by Siemens AG. We combine capital with hands-on business development capabilities that help our portfolio companies grow revenue through the Siemens ecosystem. Next47 works with start-ups that use deep and frontier technologies such as artificial intelligence, augmented and virtual reality, cybersecurity, autonomous driving, IoT, robotics, and advanced manufacturing to solve the most difficult and fundamental industry challenges facing Siemens and Siemens customers.

Next47 is also an enabler of “intrapreneurialism” within Siemens. The Next47 Accelerator, a program built in partnership with Alchemist, aims to identify and nurture big, breakthrough ideas within Siemens with the goal of empowering internal talent to create new business opportunities for the company.

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What’s important? Expectations from the markets, but us humans…

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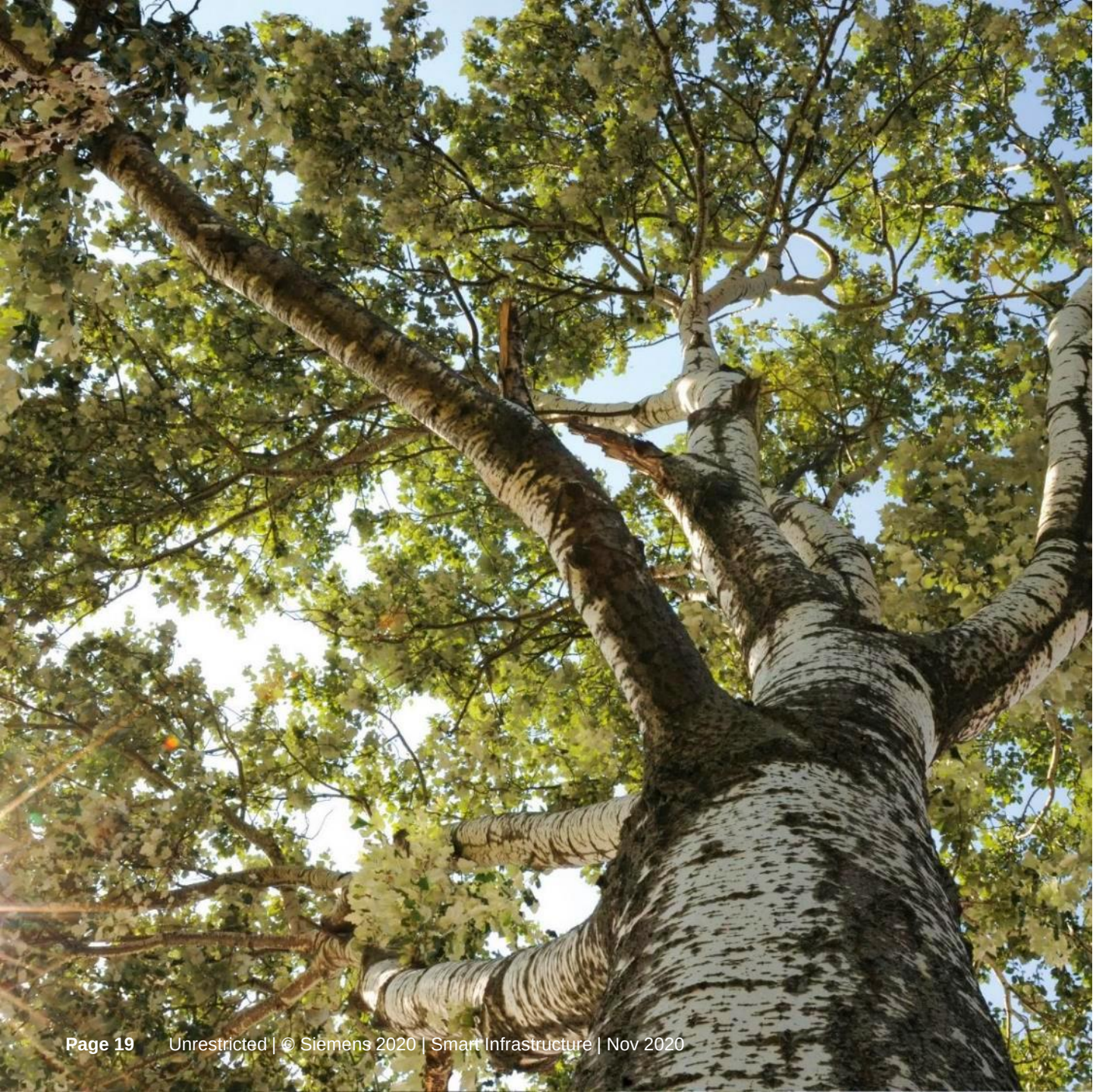

Our contribution

Sustainable society

637 million
metric tons of CO2-emissions were curbed for customers yearly.

10 900
students in vocational training yearly

2030 goal:
Siemens will be carbon neutral

4.3 million
jobs supported through our contributions

SIEMENS

Markets

Ecosystem across energy supply, buildings and industry.

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Sustainable Society and Smart Infrastruture drives transformation of transactive grid edge and new consumer opportunities

Smart grid

Electrification

Grid edge

On-site supply

Demand side efficiency

Energy Efficiency
Decentralization
Decarbonization

Smart buildings & Industry

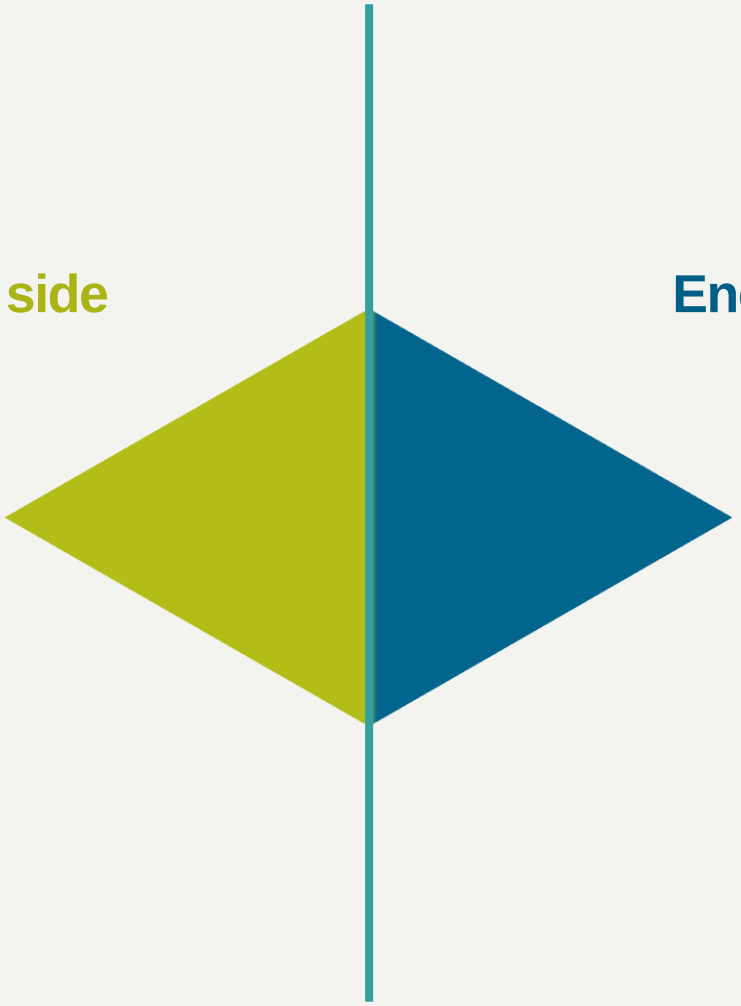
Vertical technologies

Digitalization

… enables new services and new business models

Energy supply side

Smart grids



Energy demand side

Smart buildings
and industries

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Energy supply side
Smart grids

Energy demand side
Smart buildings
and industries

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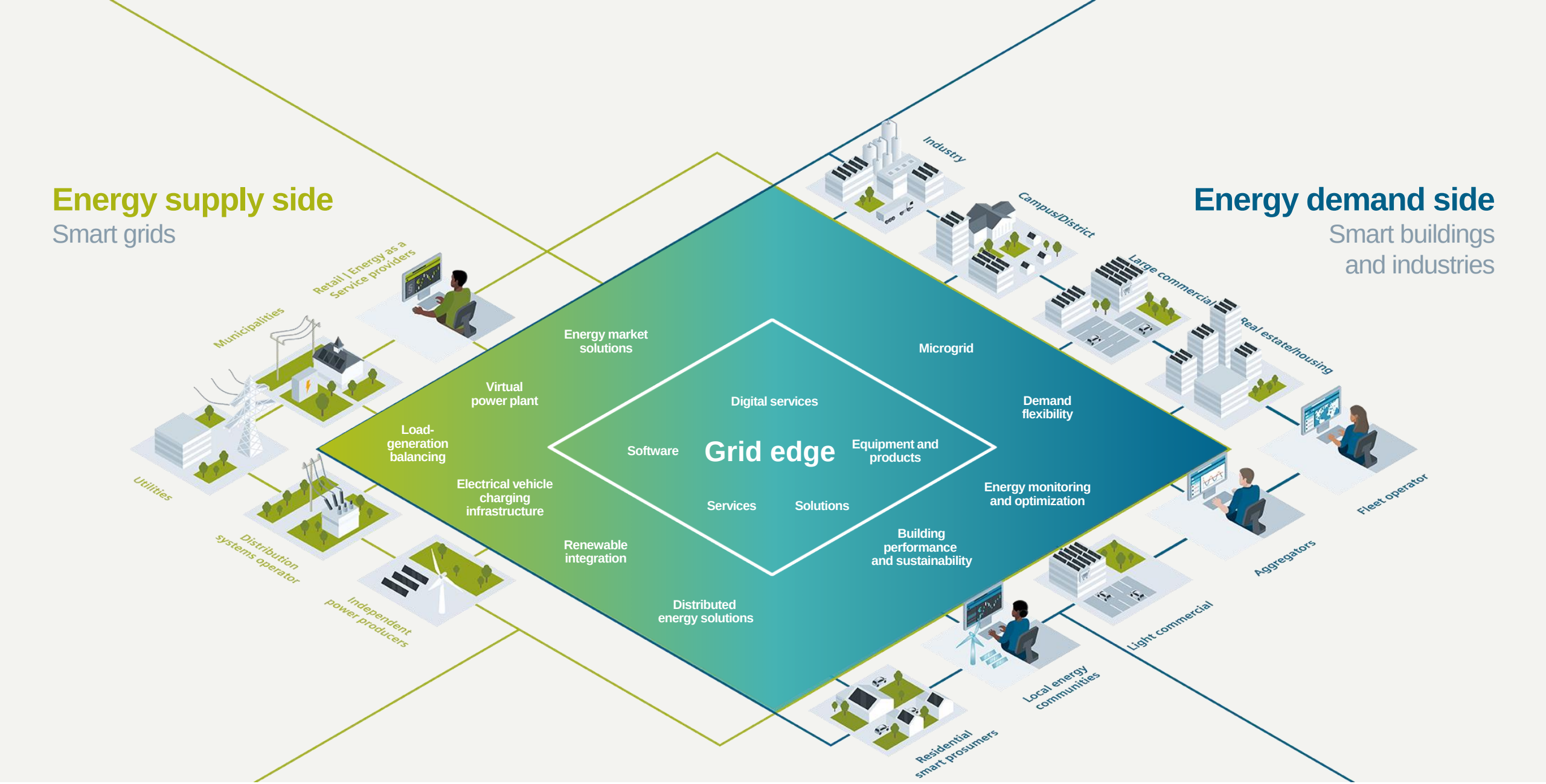
Energy supply side
Smart grids
Energy demand side
Smart buildings and industries
Grid edge
Software
Equipment and products
Services
Solutions
Digital services
Energy market solutions
Virtual power plant
Load-generation balancing
Electrical vehicle charging infrastructure
Renewable integration
Distributed energy solutions
Microgrid
Demand flexibility
Energy monitoring and optimization
Building performance and sustainability
Retail | Energy as a Service providers
Municipalities
Utilities
Distribution systems operator
Independent power producers
Industry
Campus/District
Large commercial
Real estate/housing
Fleet operator
Aggregators
Light commercial
Local energy communities
Residential smart prosumers

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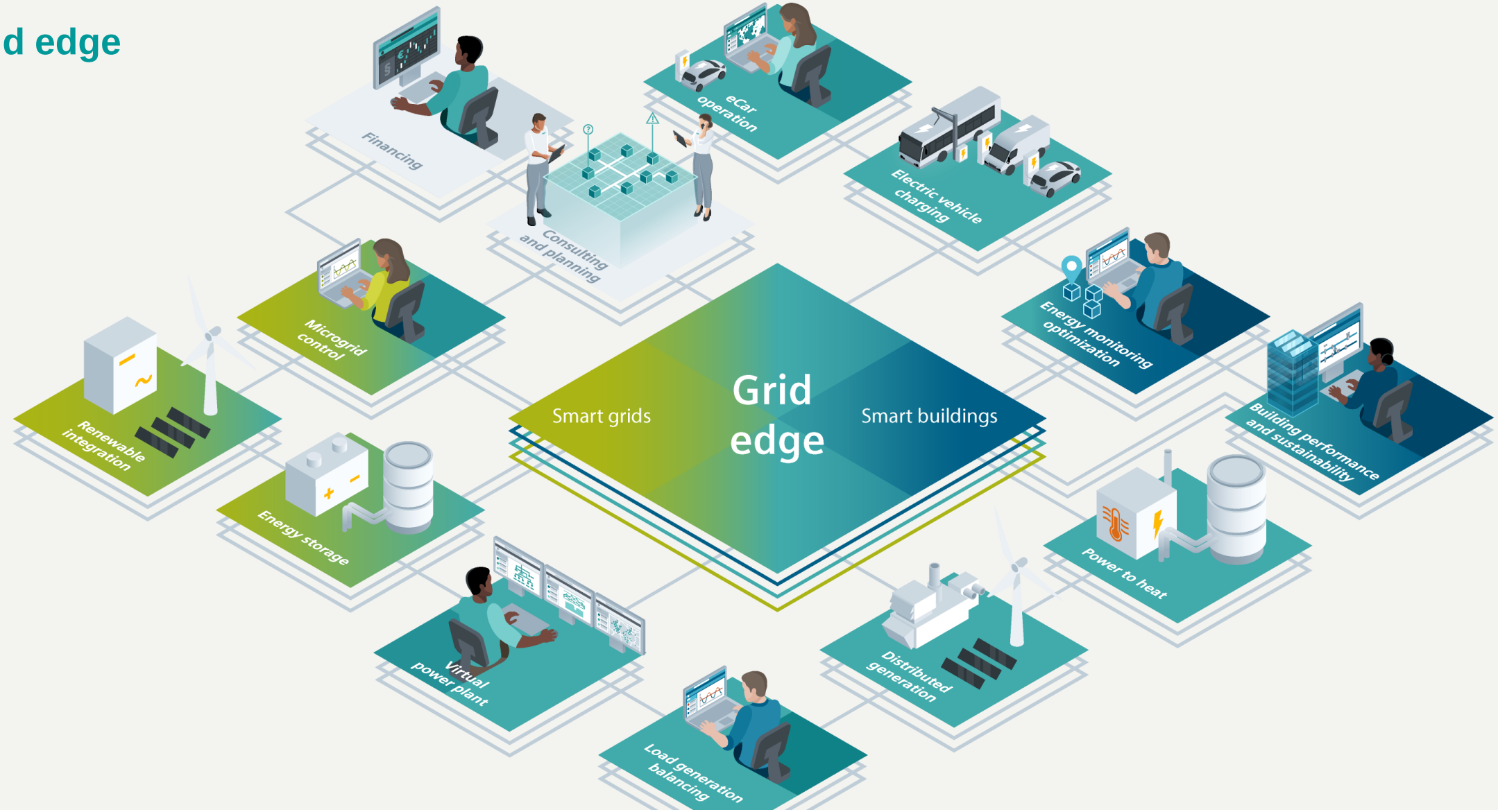
Grid edge



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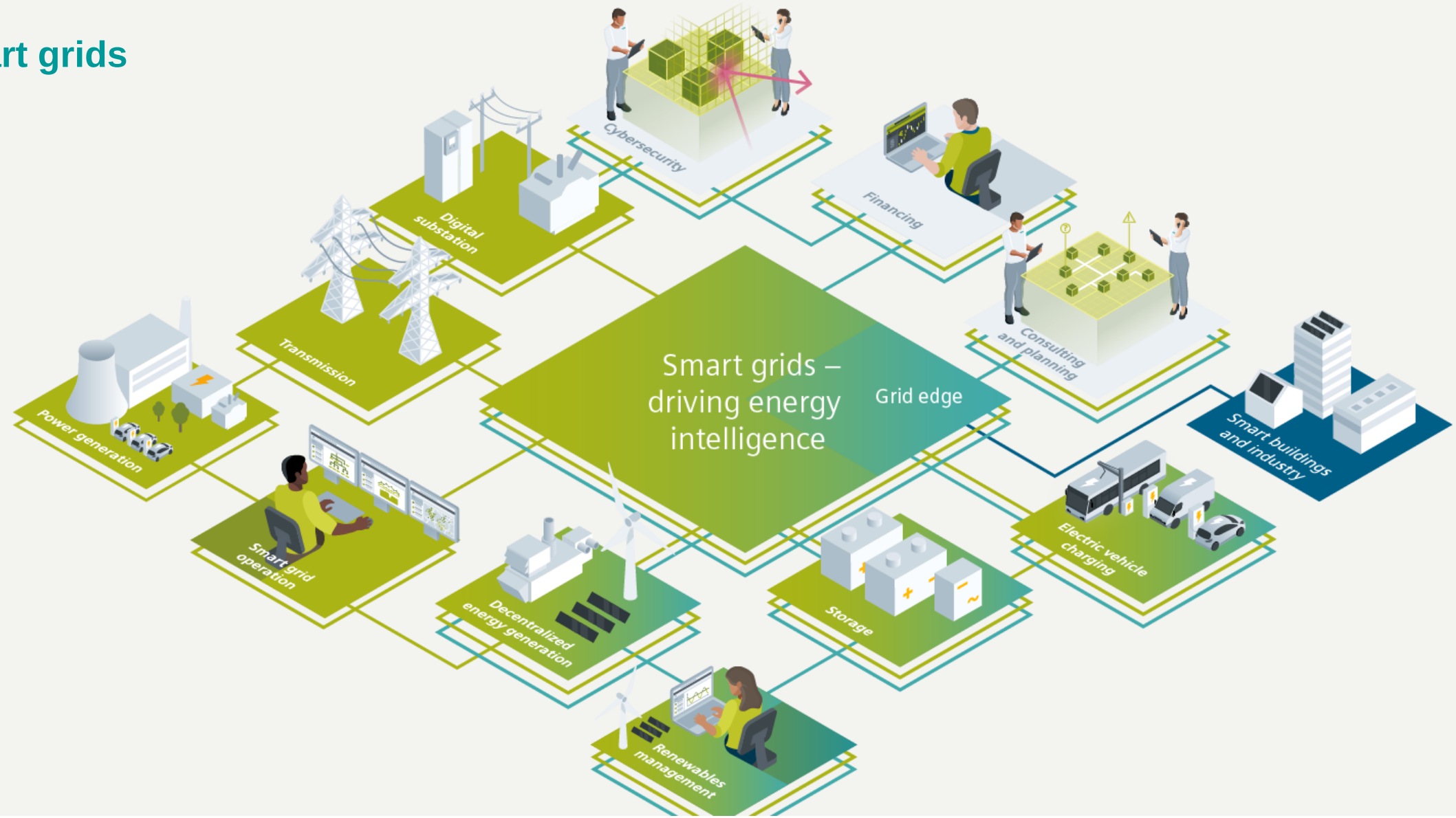
Smart grids



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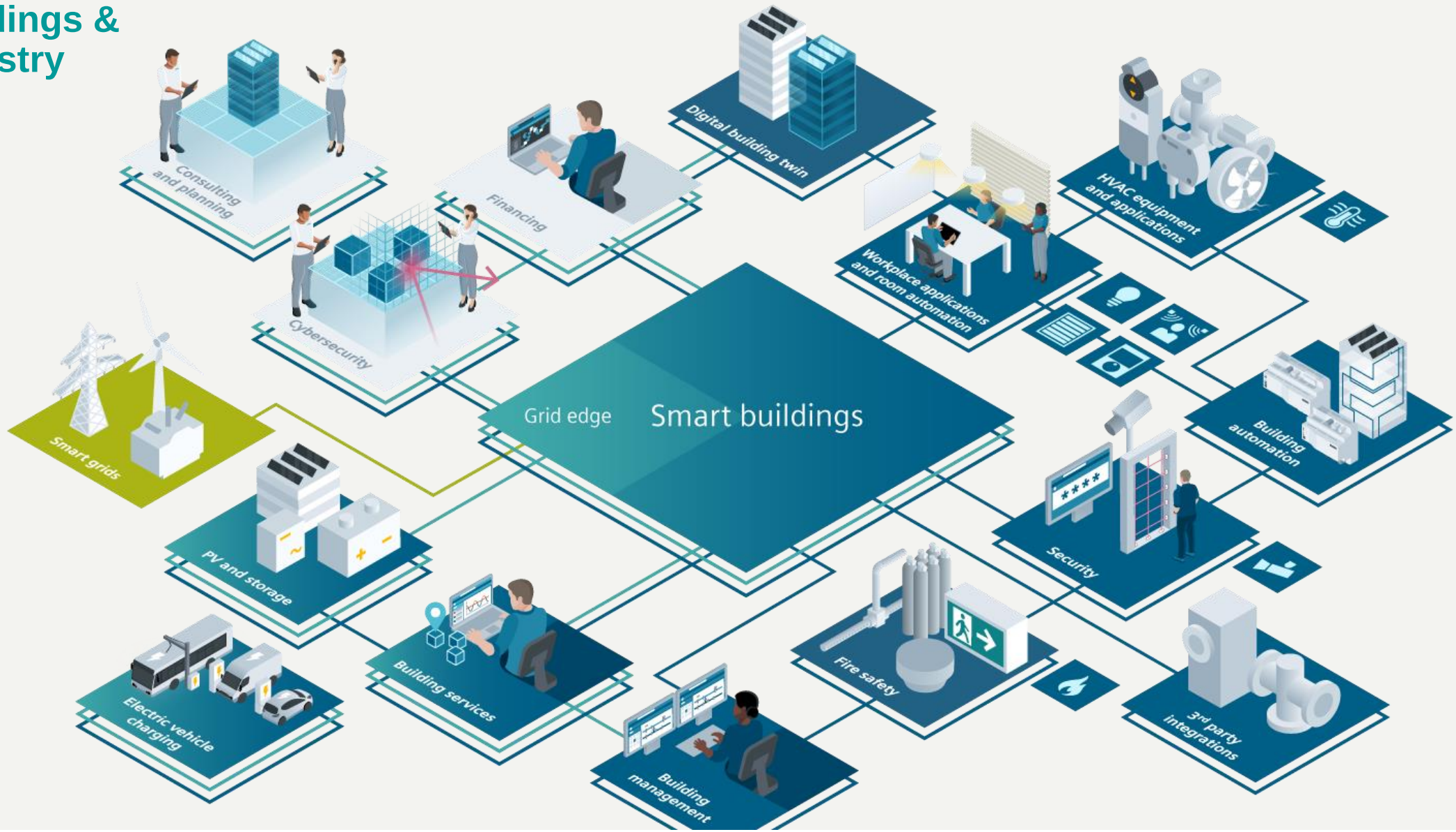
Smart buildings & industry



SIEMENS

Delivering energy intelligence – efficiency, flexibility, sustainability and reliability across the energy value chain

SIEMENS
Ingenuity for life

On-site energy supply

- Energy generation
- Storage solutions
- Energy mgmt. and grid control (Microgrid)
- Advisory services

Smart energy solutions and services

Business and delivery models

Data-driven services and digital twin

Demand side efficiency

- Energy audit and monitoring
- Advisory services
- Turnkey energy efficiency solutions
- Asset performance management

eCharging

Virtual Power Plant

Use cases

Grid Edge technologies

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Digital substation with grid IoT applications
Glitre Energi Nett, Norway

Challenge

- Modernize aging infra-structure
- Growing grid complexity
- Increasing number of e-vehicles
- Optimize the utilization of grid assets

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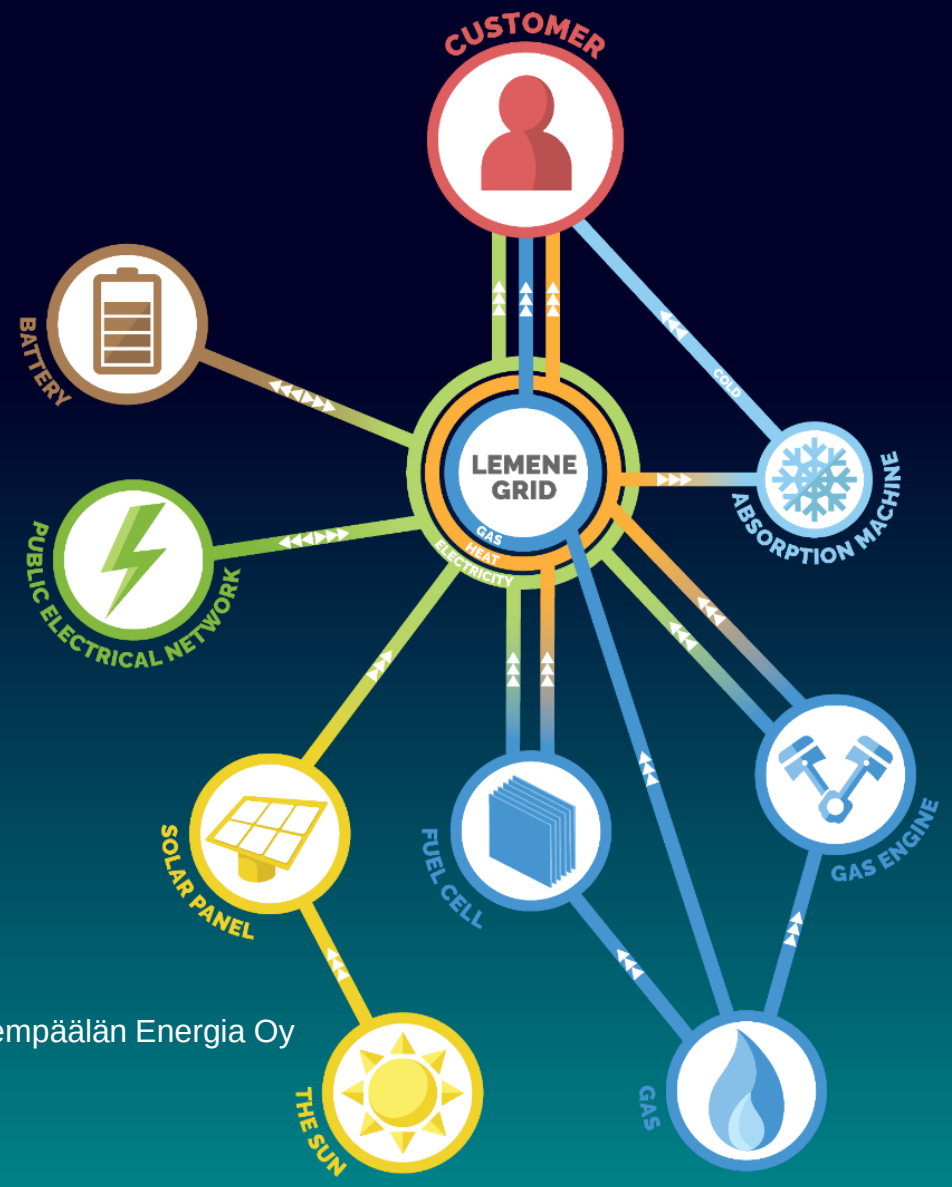
Smart Energy Ecosystem - LEMENE



Picture: Lempäälän Energia Oy

- Solar power 4 MW
- Gas engines 8,1 MW
- Fuel cells 130 kW
- Electrical storages 4 MW@30 min
- District heating
- MicroGrid management
- Virtual Power Plant
- Main grid connection at 20 kV

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Smart energy solutions provides value with comprehensive lifecycle services and utilize the full breadth of technology

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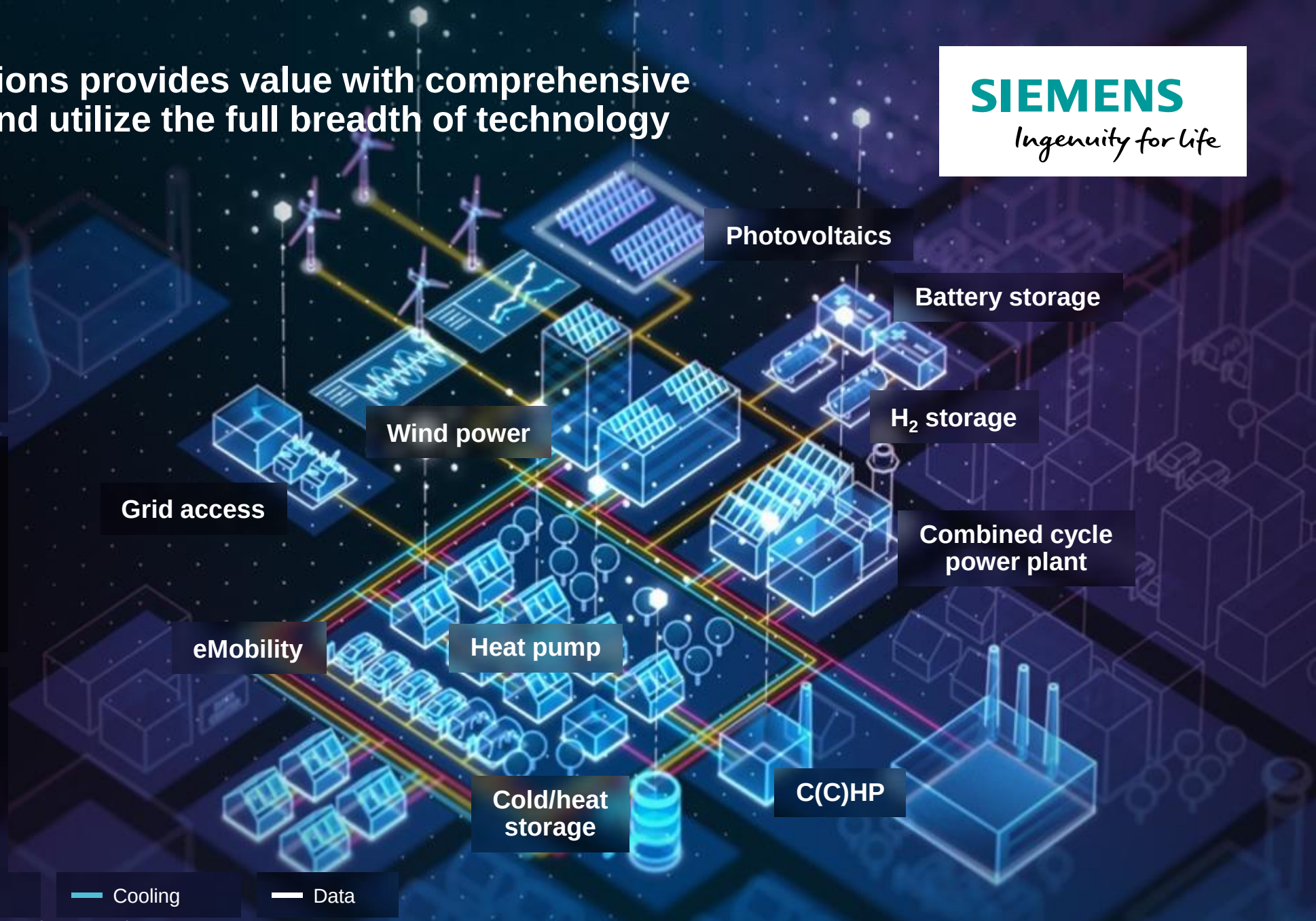
Ingenuity for life

Resilient energy supply

Reduced costs

Improved sustainability



Power | Heating | Cooling | Data

€118,000
savings in energy efficiency and maintenance

€480,000
gains in energy market

281 t
CO_2 emission reduction

Sello shopping center, Commercial, Finland

"Every sunny day generates a clear financial saving for us."

***Olli Paunola** – Property Manager at Sello shopping center*

"The partnership with Siemens has enabled Sello to reduce emissions and enhance its image as an environmentally friendly company."

***Matti Karlsson** – CEO of Sello shopping center*

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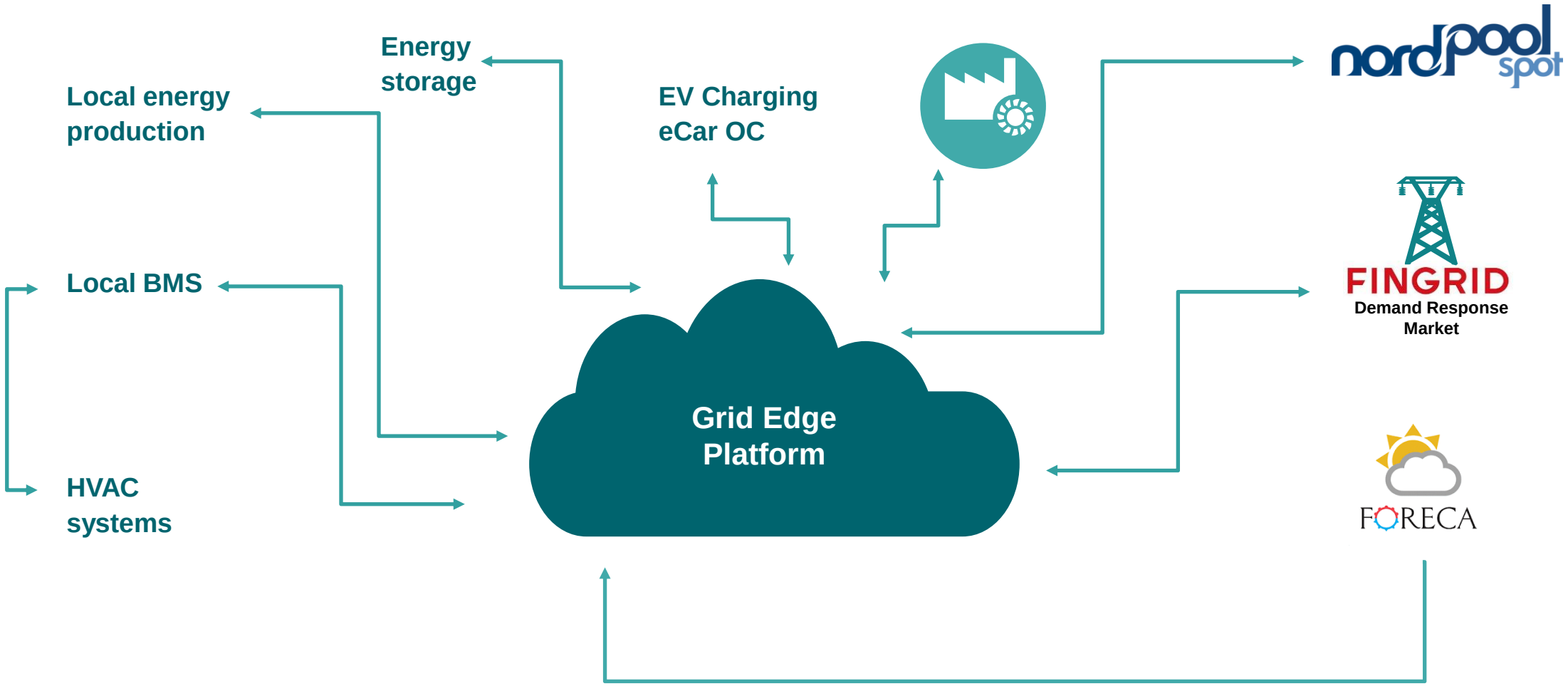
Virtual power plant – Grid Edge Platform



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Flexibility in energy markets

Aurora Pyramids, Levi

- Building technology
- Regional electrification
- 132 kWp solar panels: 114 MWh/a
- 1,3 MW energy storage
- 10 vuoden guarantee for functionalities
- Connection to virtual power plant
- Finance: Siemens Financial Services

VIBECO
Virtual Buildings Ecosystem Oy

Sello
Lappeenranta City
VR Group
Goodman
Hartwall

SIEMENS

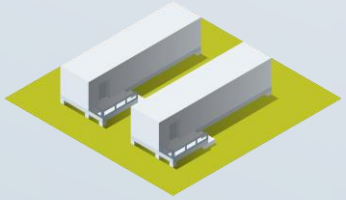
INNOVATIVE SERVICE MODEL

helps brewery Sinebrychoff make the transition to the green economy

Virtual power plant

+

Lease-based energy storage



+

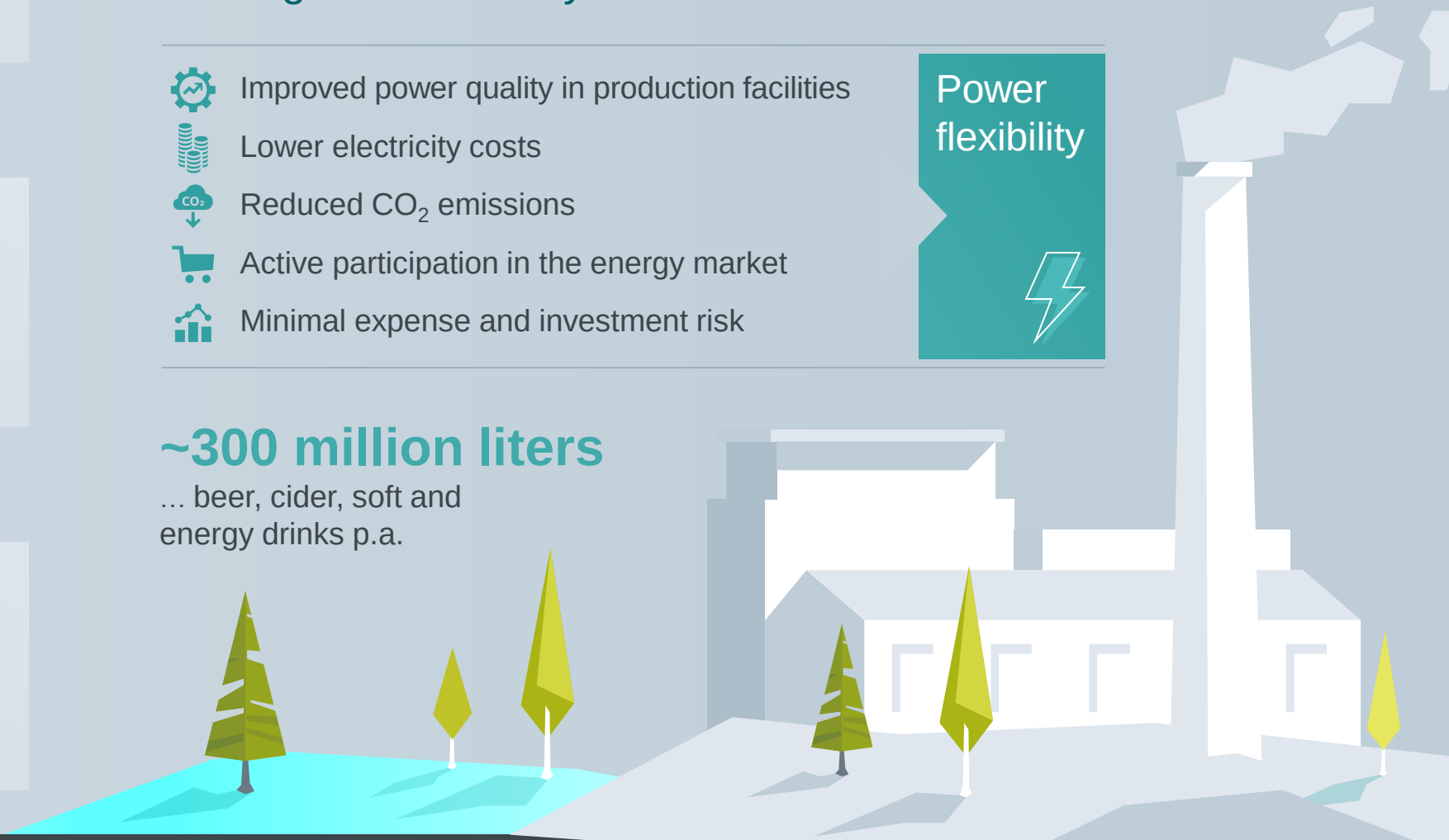
Financing solutions

- Improved power quality in production facilities
- Lower electricity costs
- Reduced CO_2 emissions
- Active participation in the energy market
- Minimal expense and investment risk

Power flexibility

~300 million liters

… beer, cider, soft and energy drinks p.a.



SIEMENS Ingenuity for life | FLUENCE A Siemens and AES Company | mw STORAGE | VIBECO Virtual Buildings Ecosystem Oy

Modern co-creation model for digitalization

VALUE HACKER®

Value

- Solving the business critical challenges
- Creation of measurable value

Cooperation

- Modern and agile working model
- Co-creation with customers
- Next step for digital transformation

SIEMENS

Digital factory

Nestlé Juuka

- Shared vision
- Development of a digital twin
- Modernization of a automation system
- Virtual comissioning
- Business model based on outcome economy
- Sharing of benefits
- Continuous development

KPI

Cost of production

Annual production
M4 kg

+100 sauce recipices

Several raw material providers

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Siemens in figures

SIEMENS

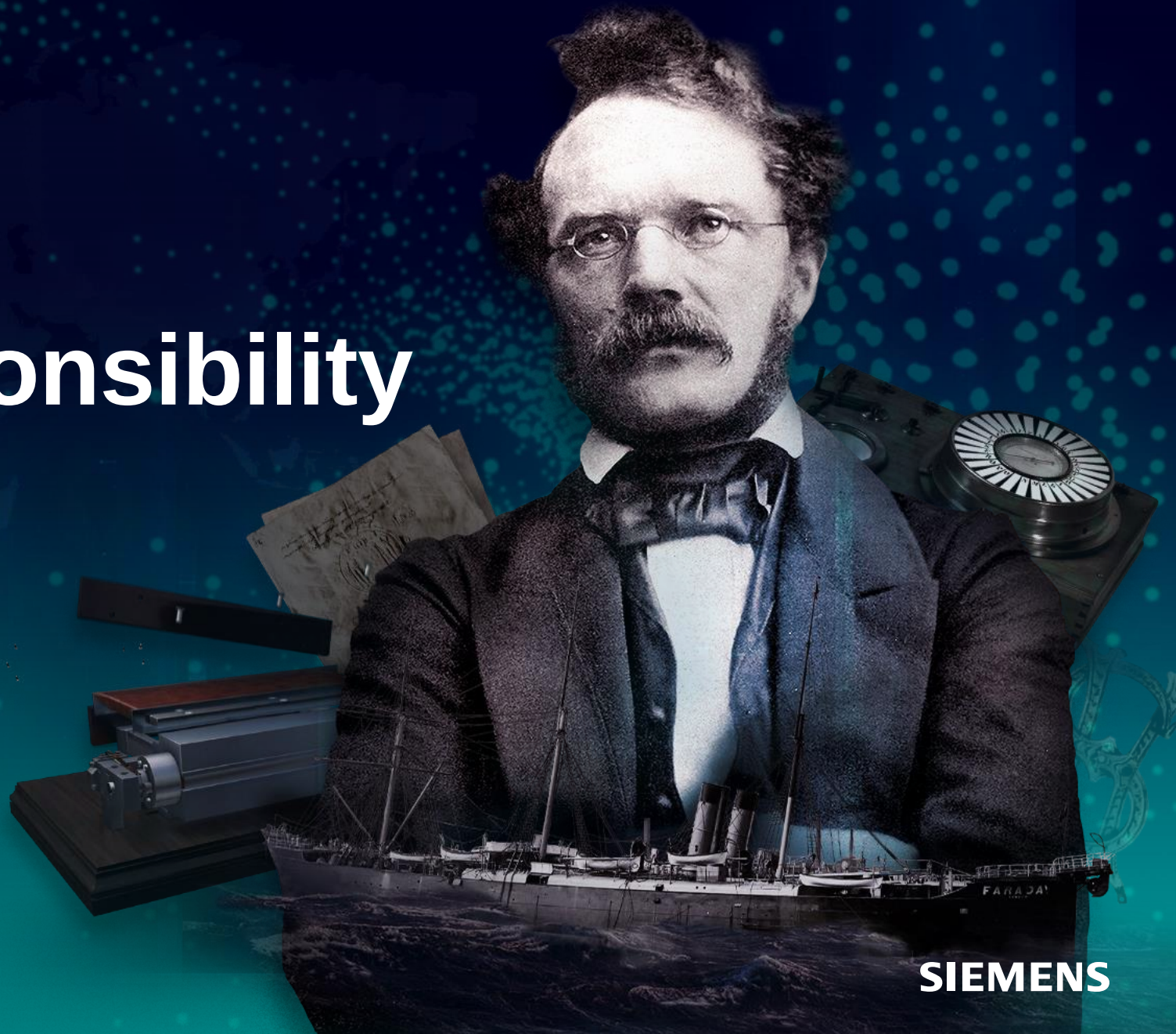
More than 170 years ago

Siemens was founded on a powerful idea: a company should not only focus on maximizing profit. It should also serve society – with technologies, with its employment practices, with everything it does. This idea is still alive today. Serving society while doing successful and profitable business is at the heart of Siemens' strategy. It's our company's ultimate purpose."

– Joe Kaeser, President and CEO of Siemens AG

SIEMENS

173 years
of social responsibility



SIEMENS

As a leading technology company, we provide industry-specific support to our customers. That’s what we do today and will do tomorrow.

293,000
employees*

€57.1 bn
in revenue*

>8% R&D
from revenue*

14.3%
adjusted EBITA margin for the Industrial Businesses*

*** Official FY2020 numbers in press release 12.11.2020, shown numbers might have some deviation**

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Outlook

Future

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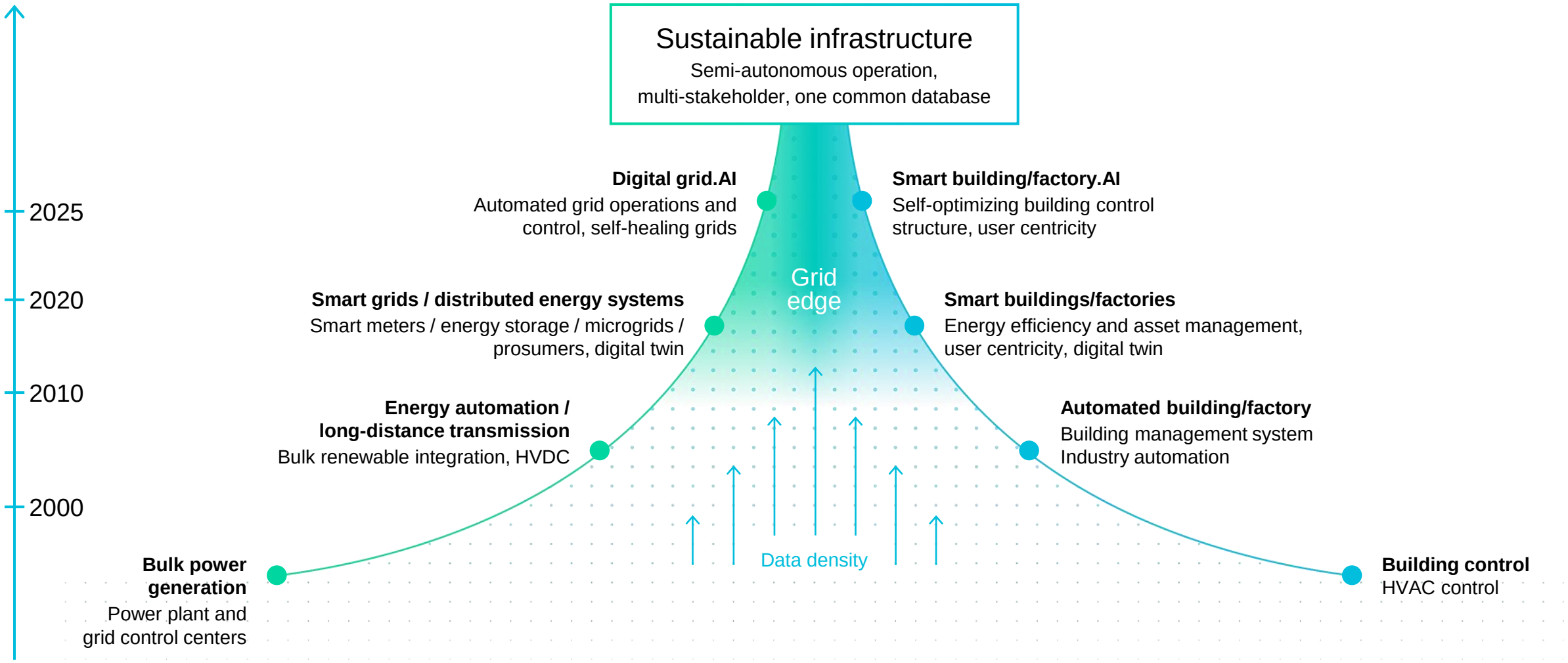
Market drivers
Evolution of smart grids and smart buildings & industries



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Enjoy the Event!
Stay Healthy!

For further information:
siemens.com/smart-infrastructure

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