

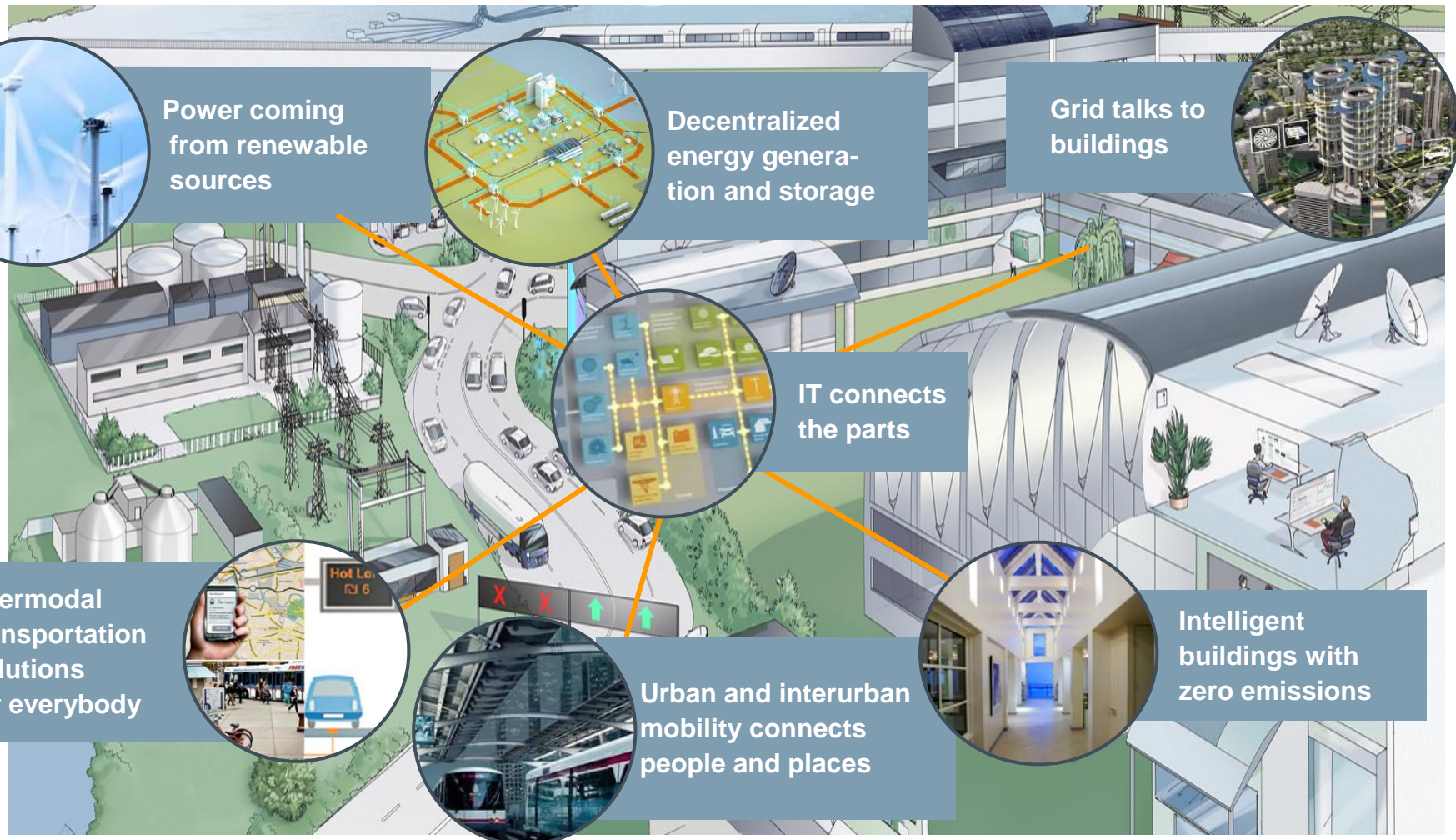
Smart Cities | Urban Technology Portfolio | Solutions and Integration

Smart City - Infrastructures

Vasilis Kastanis

A state-of-the-art Smart City in 2020

SIEMENS



An aerial night view of a city, likely New York City, showing a mix of modern glass skyscrapers and older brick buildings. The streets are illuminated with yellow streetlights, and a highway with multiple lanes is visible on the right side. The overall scene is a vibrant urban landscape at night.

SIEMENS
Ingenuity for life

Energy Management

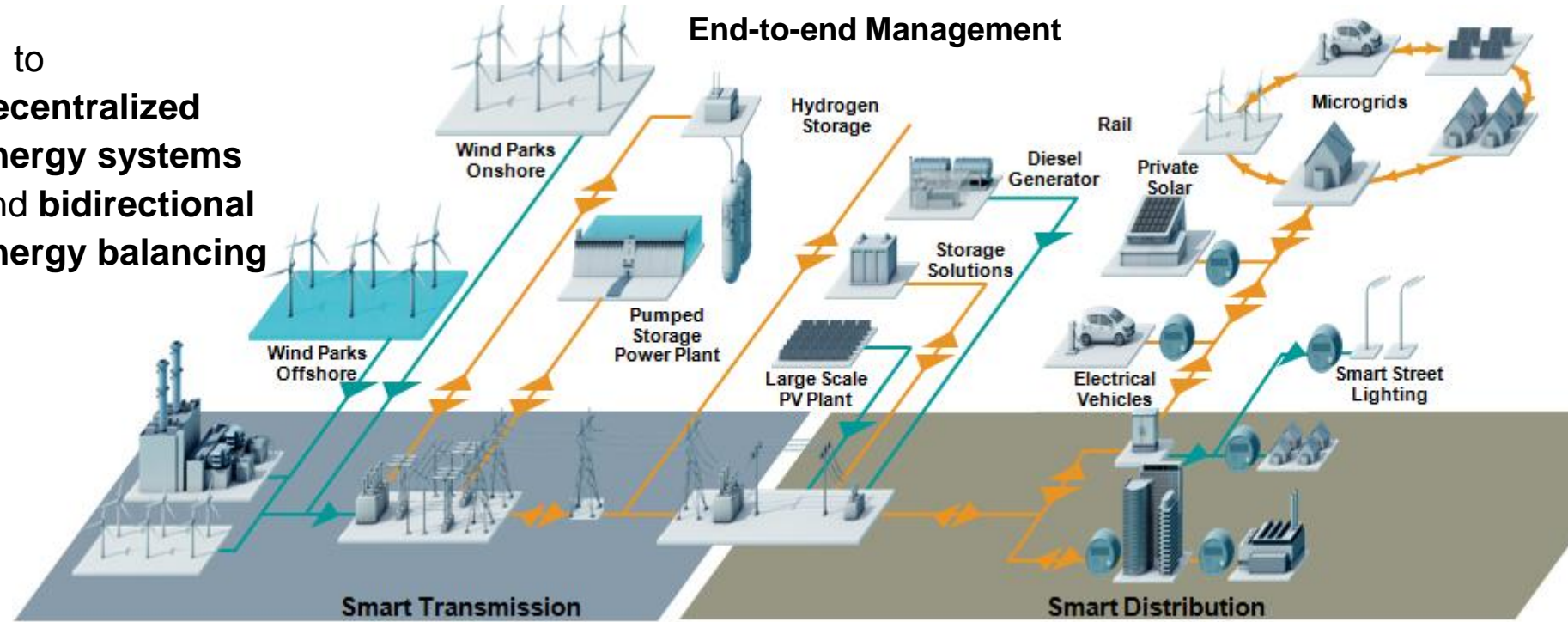
A constant reliable energy supply is central for economic growth and stability, as well as social wellbeing. However today's grids were not designed to handle the growing power requirements or the increasing proportion of fluctuating power generated from renewable sources.

Significant changes in energy systems

The new age of electricity



... to
decentralized
energy systems
 and **bidirectional**
energy balancing



Balancing of generation & consumption

Load management & peak avoidance

Resilience automatic outage prevention & restoration

CO₂ avoidance & cost curtailment

Avoidance of non technical losses

Cost optimization and improved supply security

A modern glass skyscraper with a grid-like facade reflects a historic building with a prominent dome and ornate architectural details. The reflection is clear and detailed, showing the intricate carvings and windows of the older building. The sky is blue with some light clouds, and green foliage is visible at the bottom of the frame.

SIEMENS

Ingenuity for life

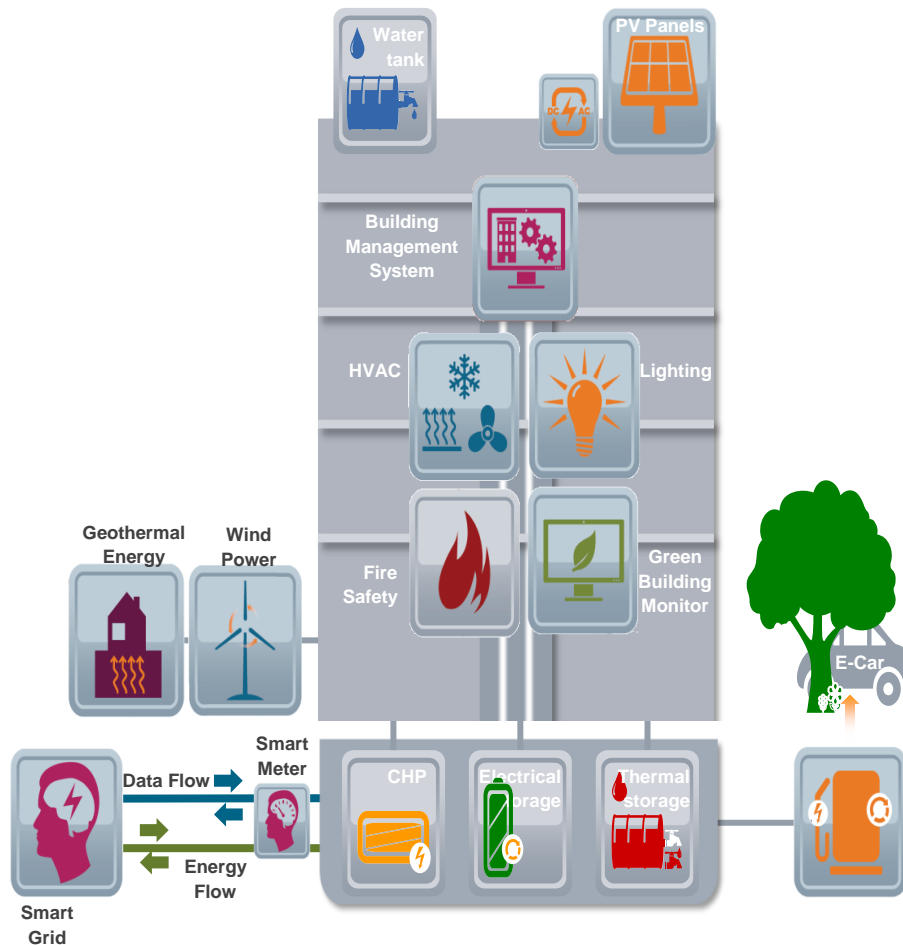
Smart Building in Smart Grids

Buildings not only offer space for working and living, they are also capital investments. Their value can be maintained only if they are operated cost-effectively.

Smart Buildings within a Smart Grid

Intelligently linked buildings are key for a City

SIEMENS



Smart energy consumption
Building reacts on price signals from the grid and shifts or reduces energy consumption during high tariff periods

Smart Storage
Building stores energy in electrical and thermal storage devices during off-peak times to save costs and help to balance the grid

Smart on-site generation
Building generates power for own usage and can even act as electricity provider to the grid

EU: all new constructions must be zero net energy in member states by 2018 ⁽²⁾

CA, USA: New residential / commercial buildings will be zero net energy by 2020 / 30 ⁽¹⁾

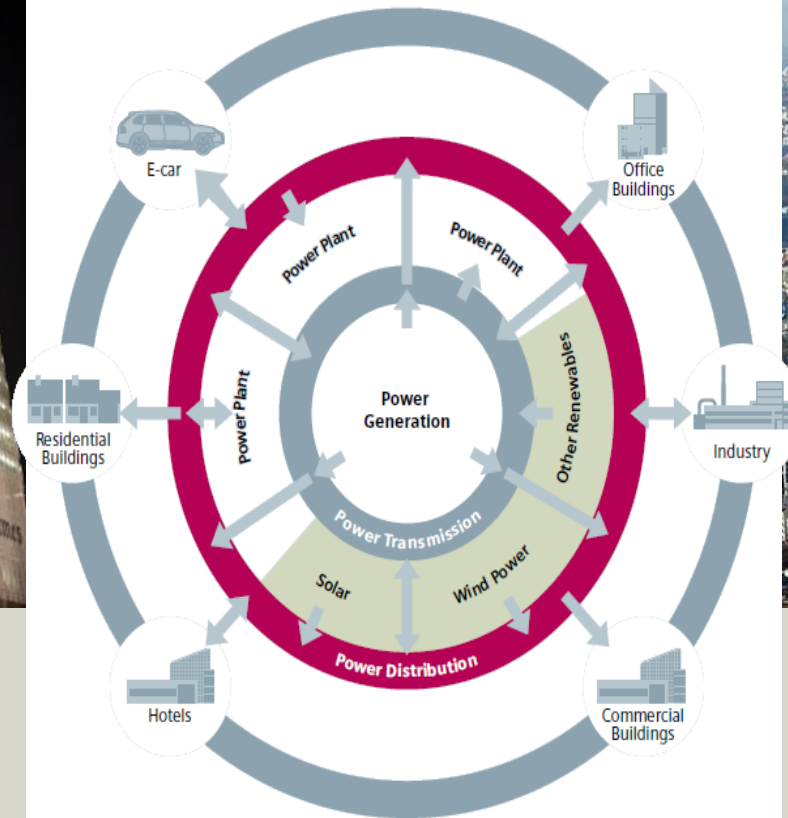
With smart grid from smart buildings to smart cities

Smart building



Smart buildings communicate and integrate with the smart grid

Smart Grid



Smart cities



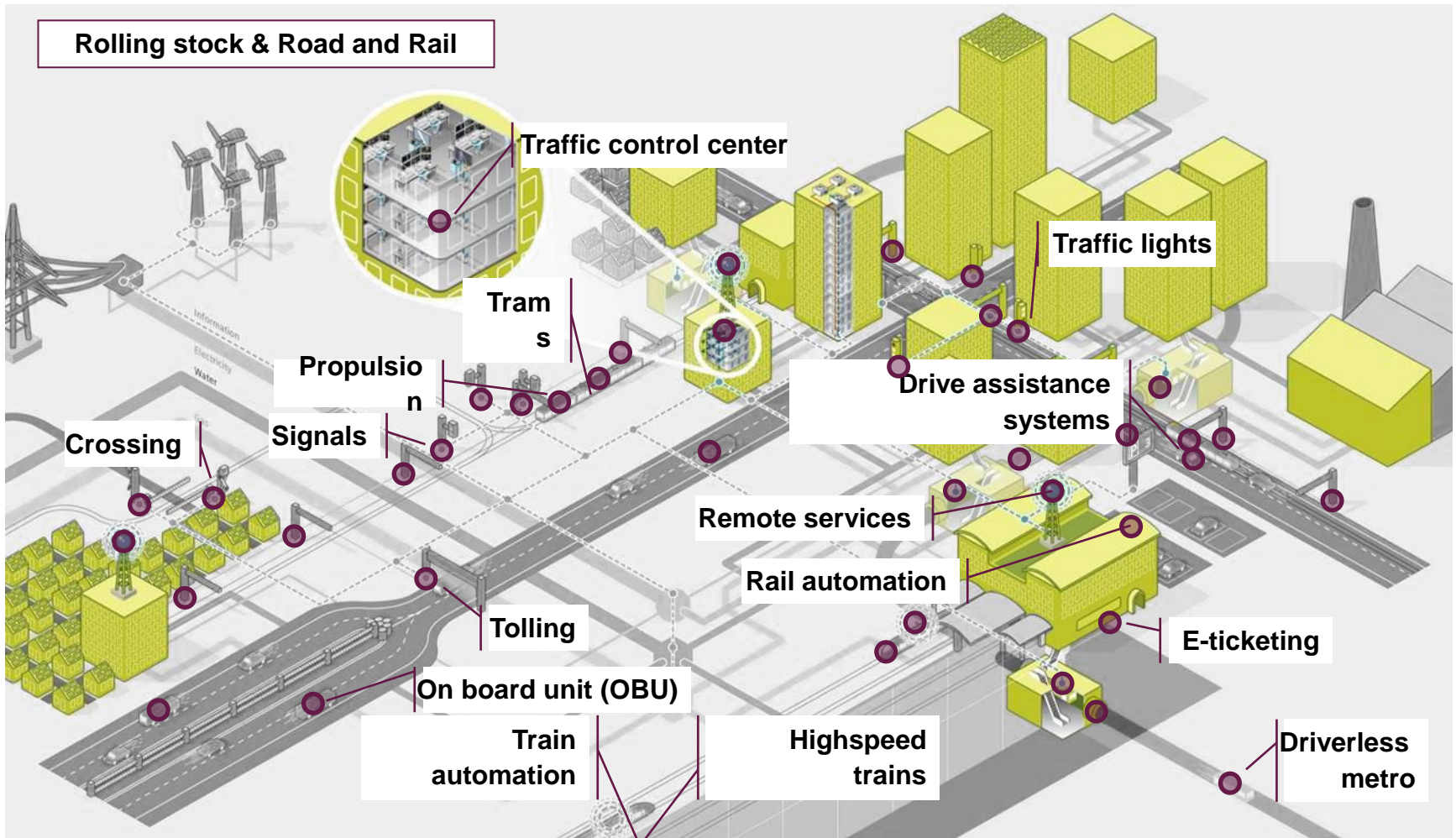
Together with the smart grid, smart buildings form the basis for a smart city



Mobility

Transportation of people and goods is a top priority for metropolitan areas. Population growth, congestion and the growing demand for mobility all place increasing burdens on transport systems with negative impacts for businesses, residents and overall quality of life.

The powerhouse for intelligent infrastructure



Smart Mobility

“The Future of integrated, multi-modal Transport”

SIEMENS

Requirement

Citizens / Visitors

Easy „end-to-end“ travel
with individualized info

Business

Smart Payment
Less congestion
Easy parking

Environment

CO2 friendly transport
and traffic

Administration

Integrated traffic and
transport control

Smart Mobility Solutions (Examples)



Benefits

Convenient and
seamless multi-
modal travel

Value added services
for citizens / visitors
(attractiveness of city)

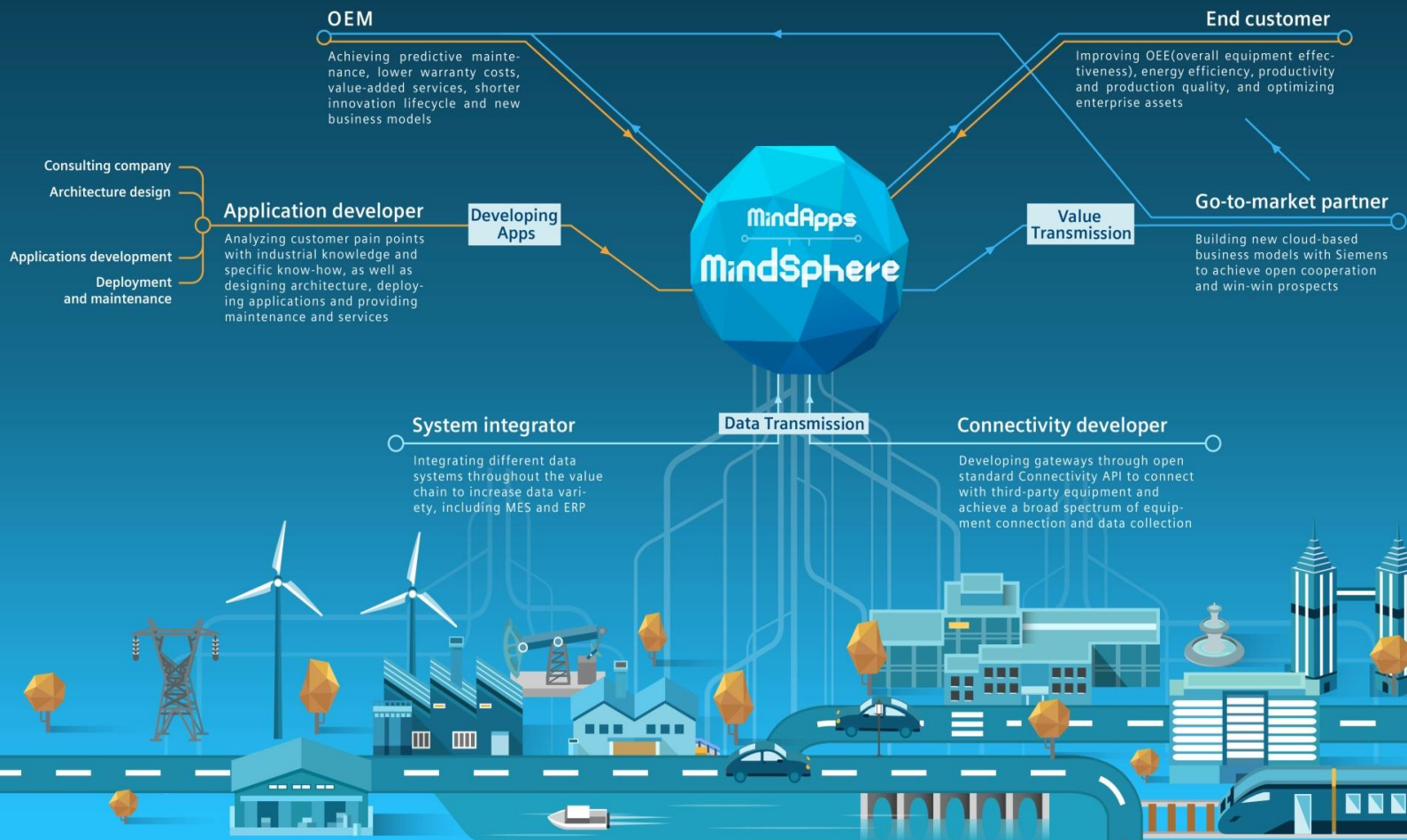
Easy collaboration
and real-time
information across
different
modes of transport

A powerful cloud-based open IoT operating system for cities



MindSphere

More open ecosystem



Smart City – Our Understanding

Thank you for your attention!

