



Disruption is coming to town – How IoT makes cities smart for the next generation

Smart City Expo World Congress (Barcelona, November 19-21, 2019)
Dr. Roland Busch | Deputy CEO, CTO and
Member of the Managing Board of Siemens AG

A satellite night view of China, showing the country's outline and major cities illuminated by city lights. The lights are concentrated in the eastern and central parts of the country, with a few smaller clusters in the west. The background is the dark night sky.

In a rising era of
Gigacities –

Beijing

We are facing
giga challenges...

Hebei

Tianjin

Perception

Megacities >10mn

Gigacities

Cities >5mn

Cities >1mn

Cities ~1mn

Growth

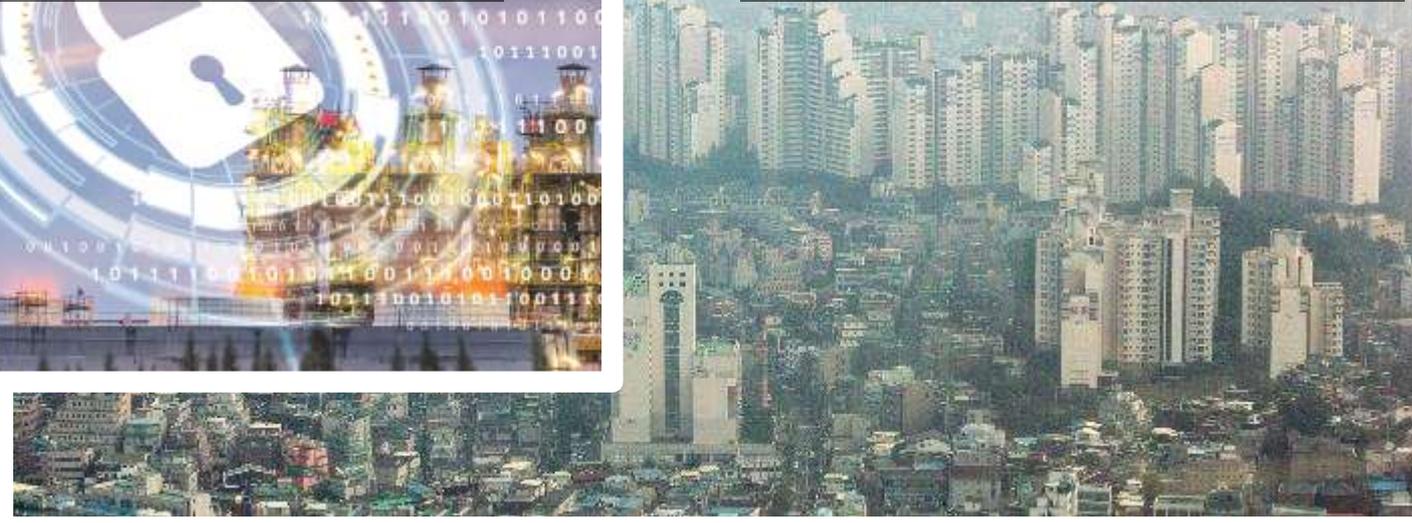
**Urban
mobility**



(Cyber)security



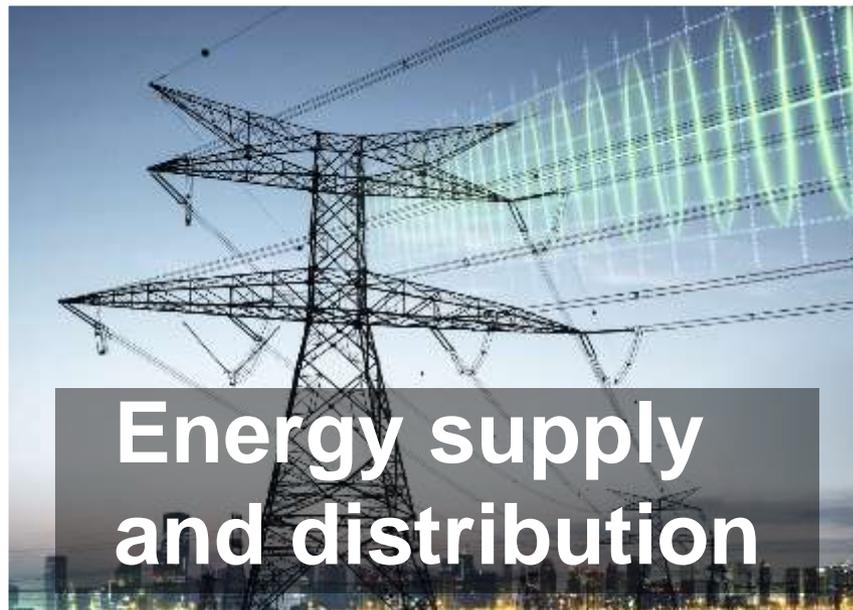
**Microclimate
and water**



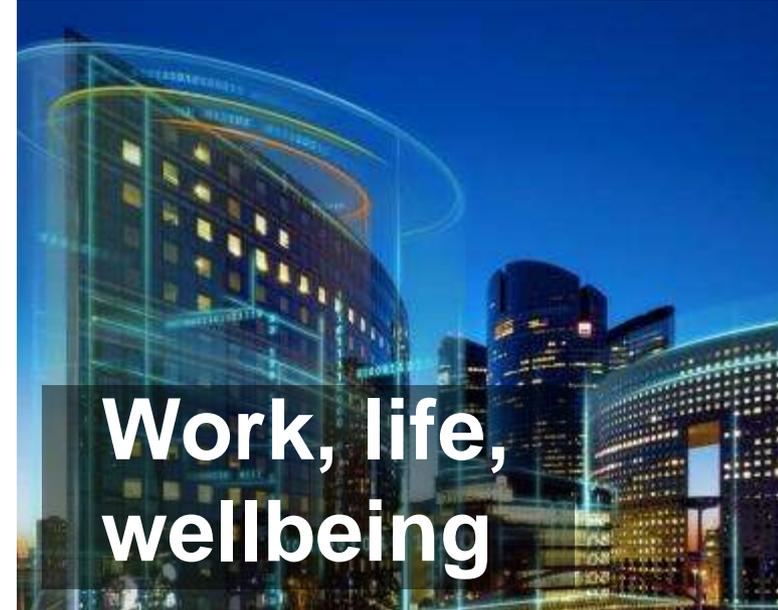
**Infrastructure
spending**



**Energy supply
and distribution**



**Work, life,
wellbeing**





How do we create smart
urban environments for
future generations?

**IoT can advance digital transformation of cities
in mainly two ways**

Optimization

- beyond normal productivity -

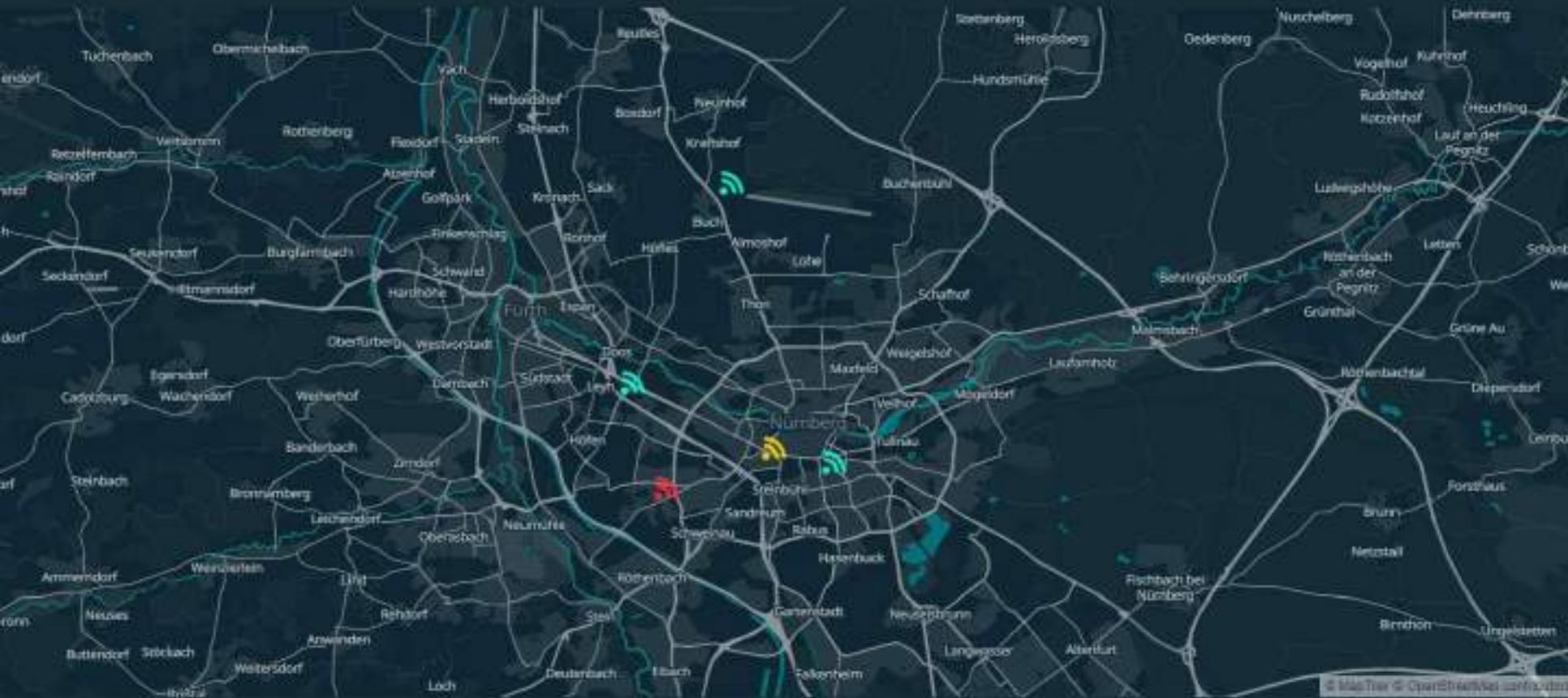
Rhein-Ruhr-Express: 99% availability in the most densely populated area in Europe with real-time data monitoring and predictive maintenance

SIEMENS
Ingenuity for life



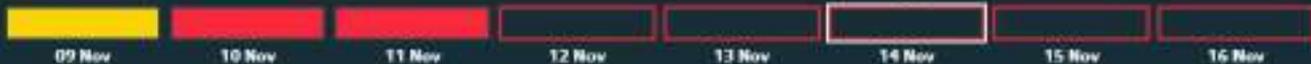
Sello Shopping Center, Finland: 50% less energy consumption, 20% less CO₂, better air quality through cloud-based analytics





Thursday, November 14, 2019

Daily Hourly



Notifications

NO₂

- Hotspot 1 >
- Urban Background 2 >
- Urban Background 1 >
- Urban Background 3 >
- Hotspot 2 >

PM₁₀

- Hotspot 1 >
- Urban Background 2 >
- Urban Background 1 >

PM_{2.5}

- Urban Background 2 >
- Urban Background 1 >

Complete train network in Norway: Transformation from analogue to digital

Today



11,200

Signals

330

Interlockings

10

Types of IXL*

15,000

km of cables

Migration

0

Signals

1

Digital interlocking

1

Data center

3,000

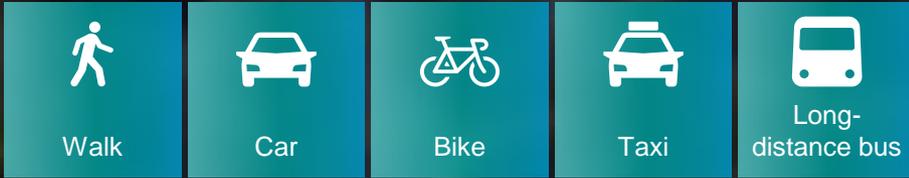
km of cables

Tomorrow



* Railway interlocking systems

Interconnected and digitalized mobility: One application for all private and public transport



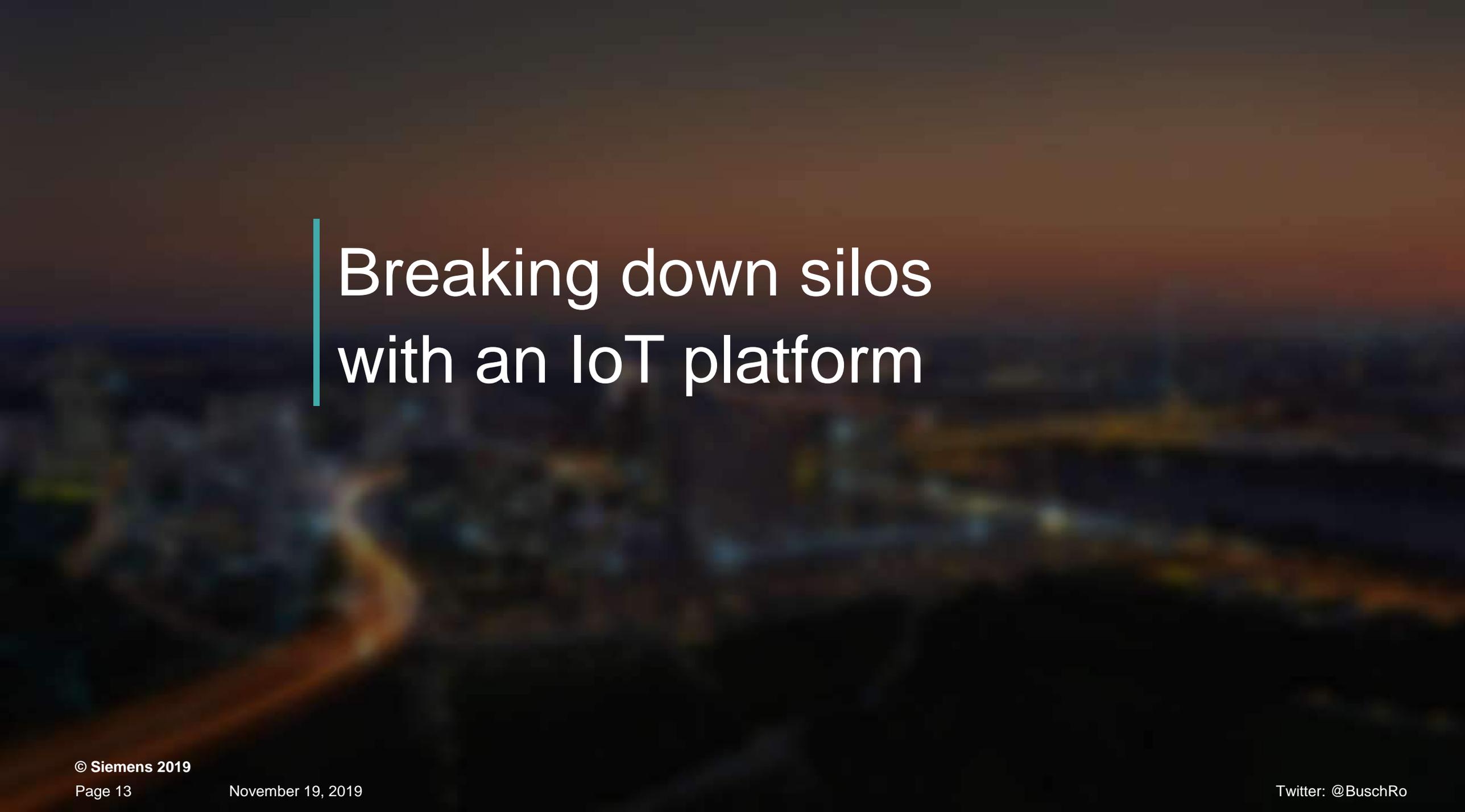
IoT can advance digital transformation of cities
in mainly two ways

Optimization

- beyond normal productivity -

Disruption



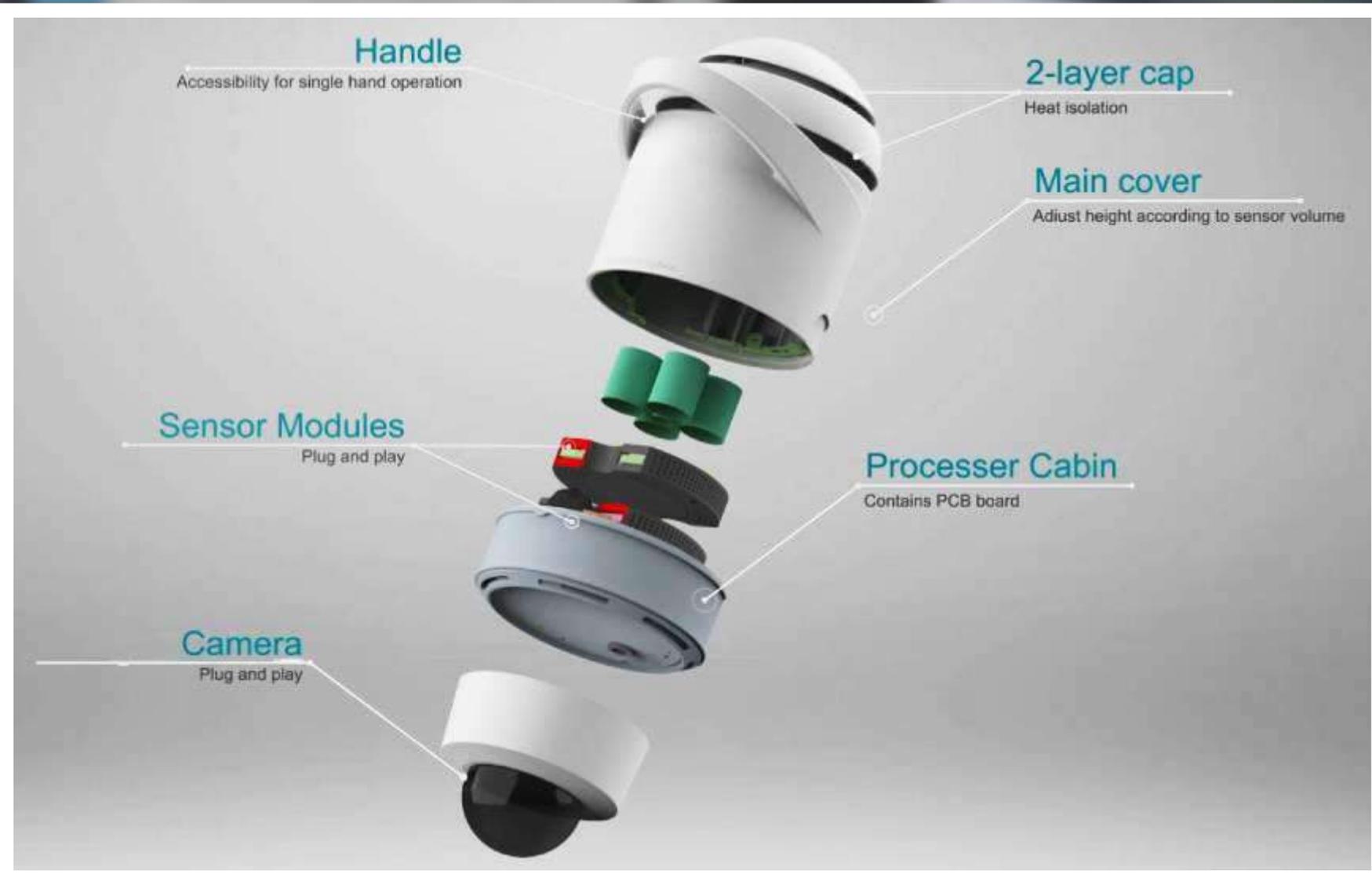


Breaking down silos with an IoT platform

Smart Cities



Embedded City Box



IoT applications realize the vision of smart cities



1. Collection of data from:
 - 130+ buildings connected to Navigator
 - 200,000+ data points connected to Desigo CC
 - 3,500+ doors connected to Sipass Integrated
 - 6,500 cameras connected to Siveillance VMS
2. Data integrated into Operational Centers for monitoring and control
3. MindSphere IoT cloud technology analyzes data for intelligent decision-making





This is only
possible by
joining our forces

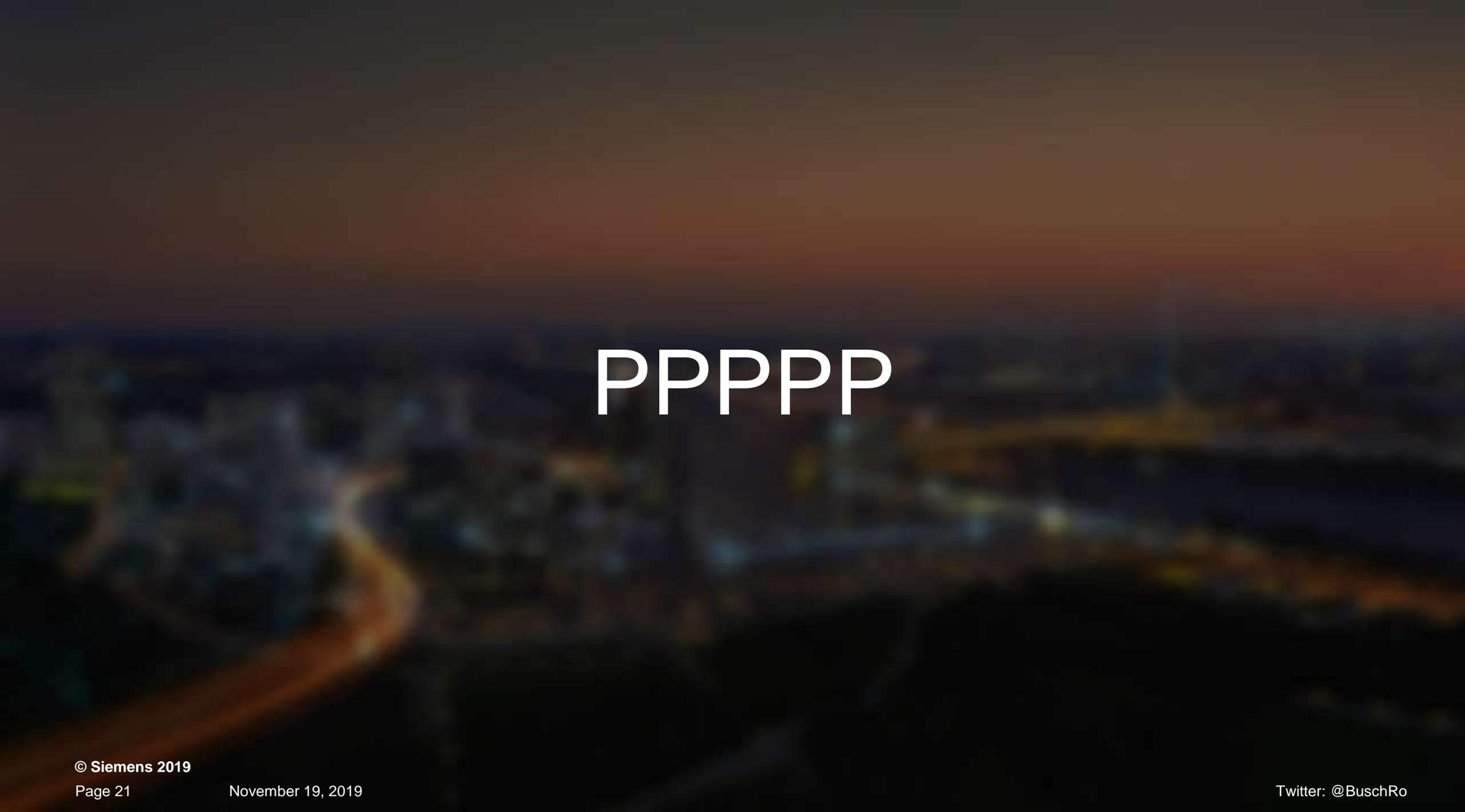
Private Public Partnership



Planning

PPP

People

An aerial night photograph of a city, showing a network of roads and buildings illuminated by streetlights and building lights. The image is slightly blurred, giving it a dreamlike or artistic feel. The colors are primarily dark blues and blacks, with warm yellow and orange lights from the city.

PPPPP

An aerial night photograph of a city, showing a network of roads and buildings illuminated by streetlights and building lights. The lights create a pattern of yellow and white against the dark background of the city. The sky is a deep, dark blue.

P5

Cybersecurity



IoT platform