



5G

Sustainable Smart

Cities

Taina Mäkelä

Professor, Aalto University

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NOKIA

PROPOSAL

PROGRAM

for the **20. ENERGY GLOBE
WORLD AWARD**
and **ENERGY GLOBE DAYS**

12th to 13th November 2019

Espoo, Finland



www.energyglobe.info



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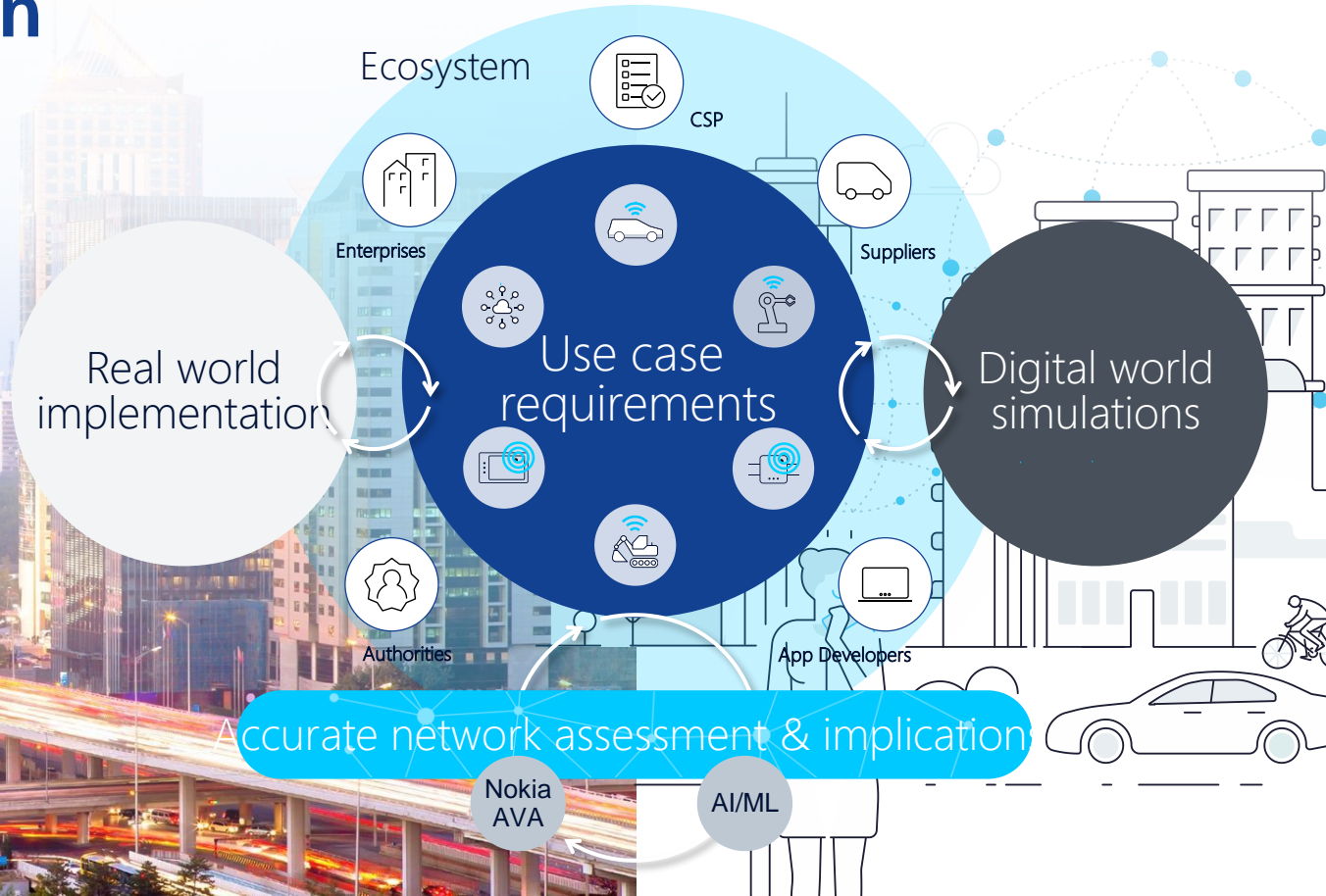
SUSTAINABLE ESPOO THE MOST SUSTAINABLE CITY IN EUROPE



UN SDG City 2018 – 2025
Intelligent Community of the
year 2018
Energy Globe Award 2018
"Sustainable City" Most
Sustainable City in Europe

NOKIA

Future opportunity: Speeding up 5G Digital Design



Fast and accurate 5G network design matching the use case

Prioritized investments/ CAPEX spend, cost validation

SLA's guaranteed

Connected industries

- 0 | Experiential
- 4 | 5G RAN evolution with network slicing
- 5 | 5G cloud native core: Fuel the next industrial revolution
- 6 | Nokia edge cloud with cloud RAN for monetizing extremely low latency applications
- 7 | 5G transport evolution with dynamic network slicing
- 8 | 5G security builds trust for business



- 1 | 5G E2E Future X Solution
- 2 | Power of end-to-end: Fast and agile 5G design and deployment

Connected cities

- 6 | Nokia AirScale – Future-proof site solution for all generations
- 8 | 5G NEF + Openness, with CCTV Use Case



■ Private

Connected consumers

- 0 | Revolutionizing consumer experiences
- 1 | 5G FWA + WiFi
- 3 | 5G mobile cloud gaming network
- 4 | Dual-Connectivity mMIMO over 5G and LTE
- 6 | Software for the 5G era: Monetize new business models
- 7 | Software for the 5G era: AI-driven customer and business experience
- 8 | Software for the 5G era: Create and operate new business models
- 9 | Nokia-Intel-Sony: Multi-player VR gaming experiences powered by 5G



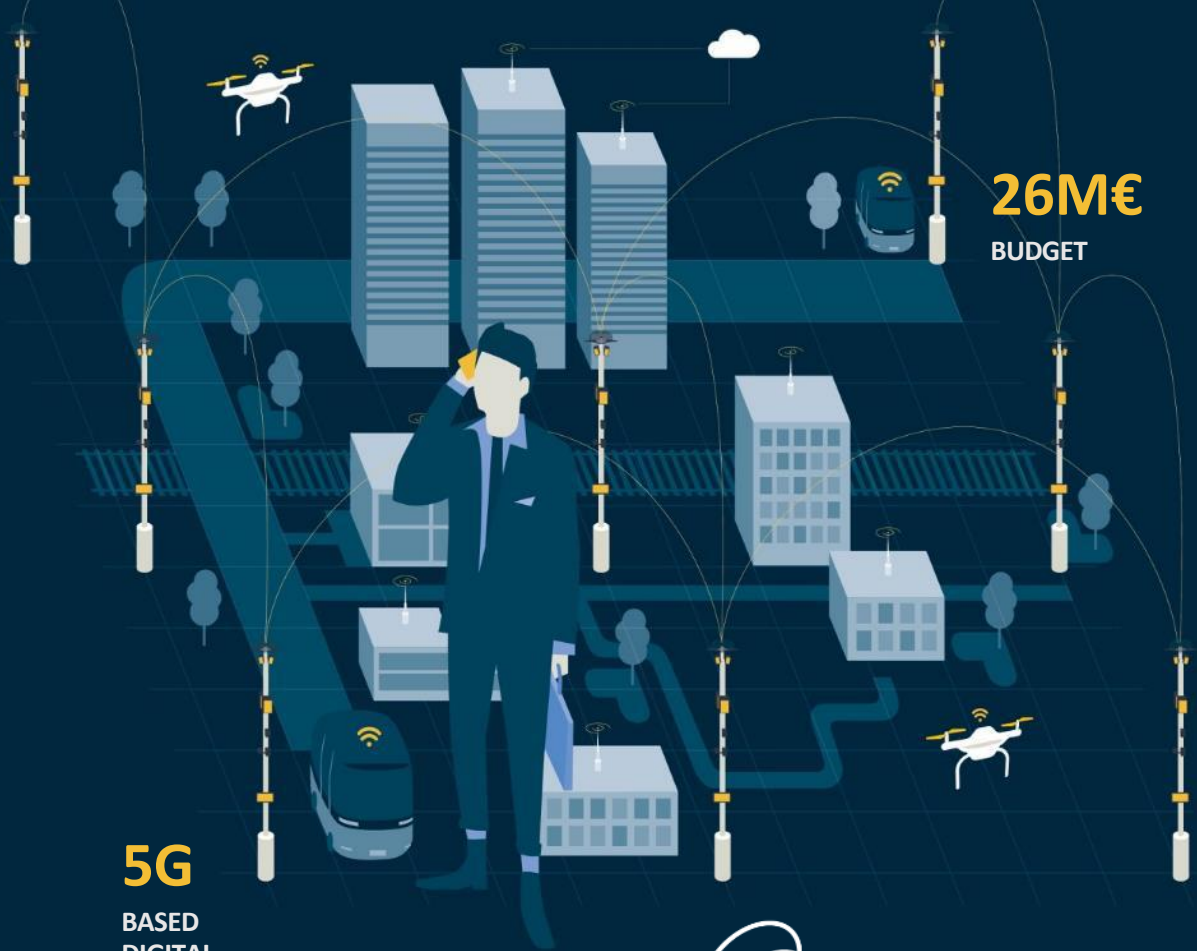
DIGITAL URBAN PLATFORM

- Building a holistic digital platform for city innovators, citizens and companies
- A tool to co-create the most sustainable city
- A testbed for 5G based digital platform operated by Neutral Host

5G

BASED
DIGITAL
PLATFORM

26M€
BUDGET



ESPOO

KERA

CIRCULAR ECONOMY

- Energy solutions
- Planning and constructing
- Traffic and logistics
- Urban manufacturing
- Sustainable lifestyle
- Well-being and services

ENERGY
POSITIVE

2021
FIRST WAVE



ESPOO

KERA

INTERNATIONAL EXAMPLE

- Kera will be an international example of a urban digital platform for circular economy
- Reaching UN Sustainable Development Goals by 2025

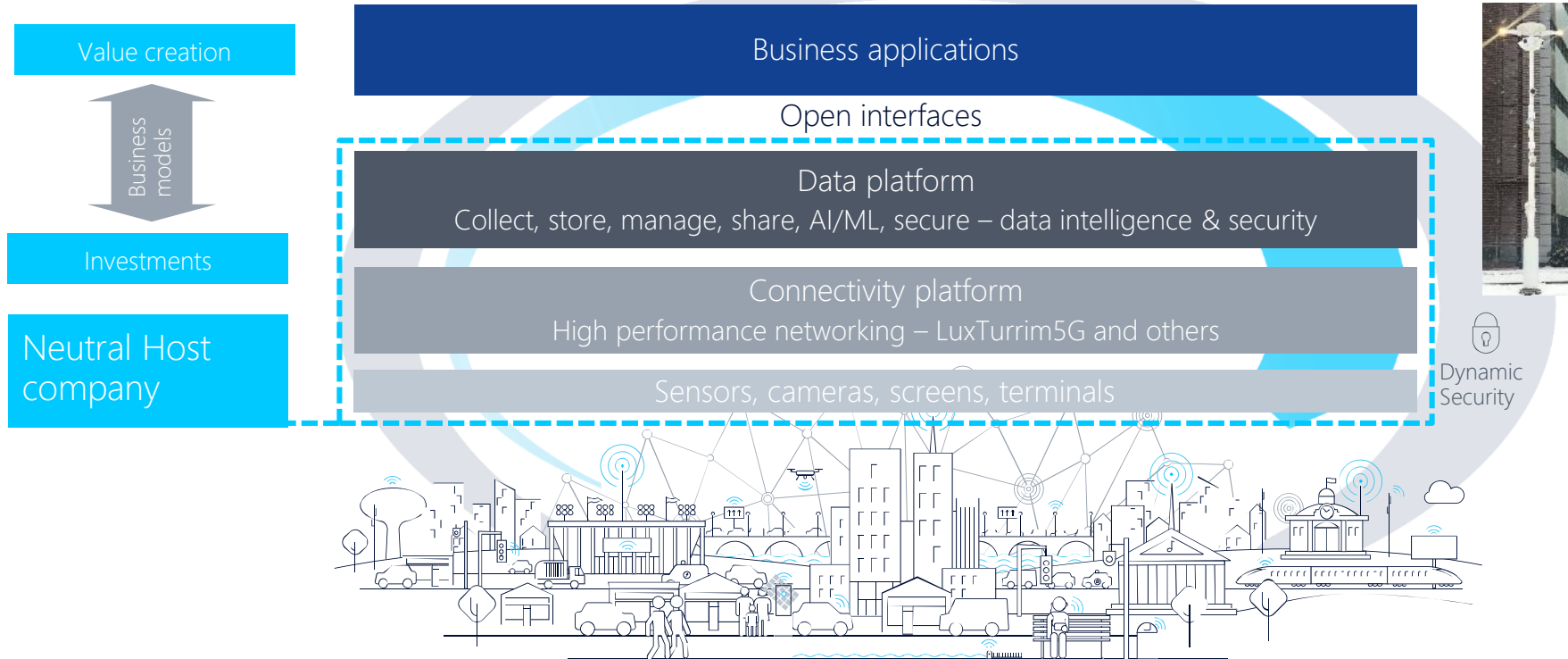
10,000
JOBS

3-4 billion €
INVESTMENTS

14,000
RESIDENTS

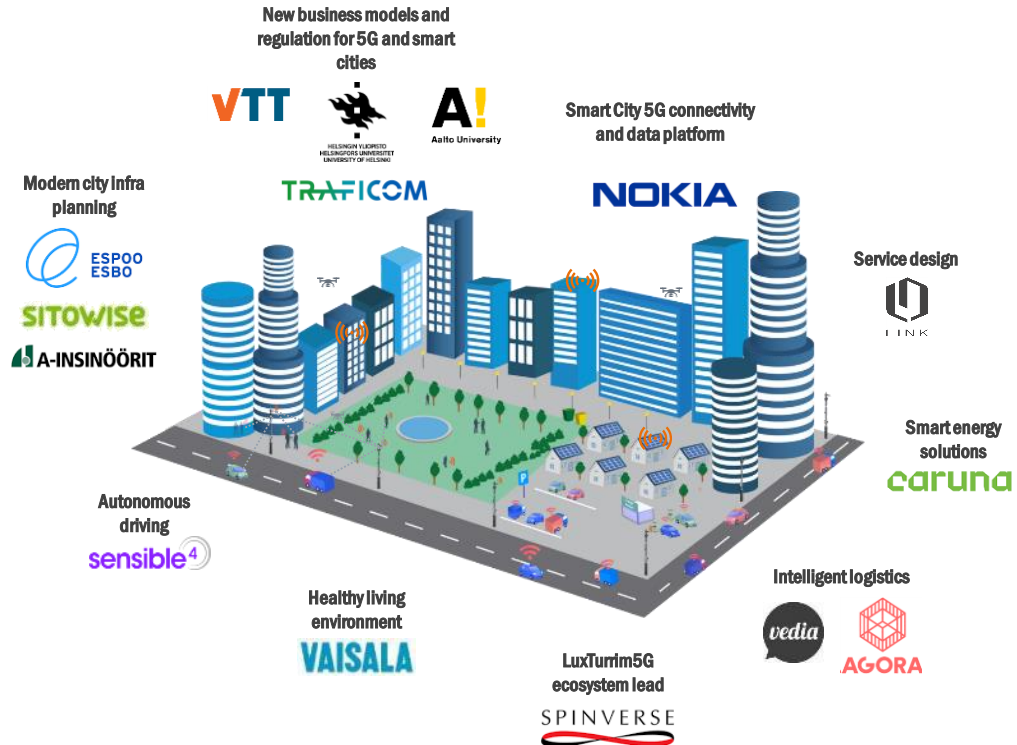
Neutral Host Pilot

City wide network with multisided, secure multitenant platform for service creation



Neutral Host Pilot – goals and partners

- Project will create a **business model** and a **data platform** to enable digital smart city ecosystem
- Project will use and demonstrate fast 5G network connectivity and data platforms especially optimized for local needs of smart cities.
- Business model for these operations **does not exist**. New “neutral host” model is needed to enable **open citywide digital service ecosystem**.
- Hosted network can also be **shared** to others like mobile operators and public authorities (5G slicing).

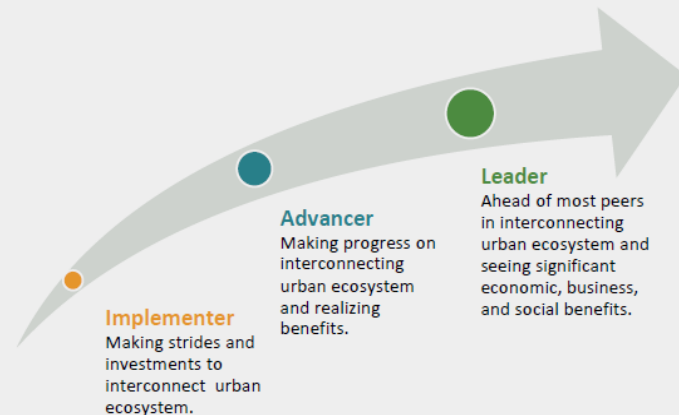


Smart and Sustainable City transformation



Three stages of building a hyperconnected city

To underpin each of the four pillars, our economists used data from several survey questions, calculating a score for each, and then normalizing and combining them to arrive at a pillar score. We then aggregated the pillar scores into an overall index score. Based on these scores, we stratified the cities into three categories: implementer, advancer, and leader. (Please see the appendix for additional information on how we calculated the Hyperconnected City Index.)



Smart and Sustainable City Focus



Sustainability / Recycling

City Maintenance solutions

Mobility and Transportation

Health Apps

Sustainability / SDGs

Public Safety solutions (Connected Zone)

1H/2020

2H/2020

1H/2021

2H/2021



Health and Wellness
Mental, physical and social care and well being



Quality of Life
Standard of living, satisfaction and happiness



Government Efficiency
Governance effectiveness and ease of doing business



Economic Development
Business, employment and productivity



Mobility
Transportation, transit and traffic management



Resilience
Hardening and continuity of services and operations



Sustainability
Environmental, energy, water and air quality management



Public Safety
Welfare and protection from crime, hazards, and disasters

The interconnected urban ecosystem of the future

