

# LuxTurrim5G and Neutral Host Pilot

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5G Momentum Älykaupungit verkostotapahtuma  
Juha Salmelin, Nokia

 **LuxTurrim 5G**





## Nokia Bell Labs driven Business Finland Consortium Project

“Smart 5G small cell street pole infrastructure for digital service ecosystem in future urban city environments”

18Me Business Finland funded project, 28month, started 2/2017



# Smart cities require fast communication networks

Smart cities require **a new service infrastructure and a truly digital ecosystem** enabling :

- Development of smart city **services**
- **High data capacity** for citizens
- New service and **business opportunities** for companies
- **Big Data** for local use of city, citizens and companies
- **Sustainable growth**
- To meet **UN SDG's**
- To keep the **privacy**

## Need

Our modern society and growing cities face great **challenges** nowadays, e.g. to improve :

- safety
- energy efficiency
- air quality
- effectivity of transportation
- general quality of living



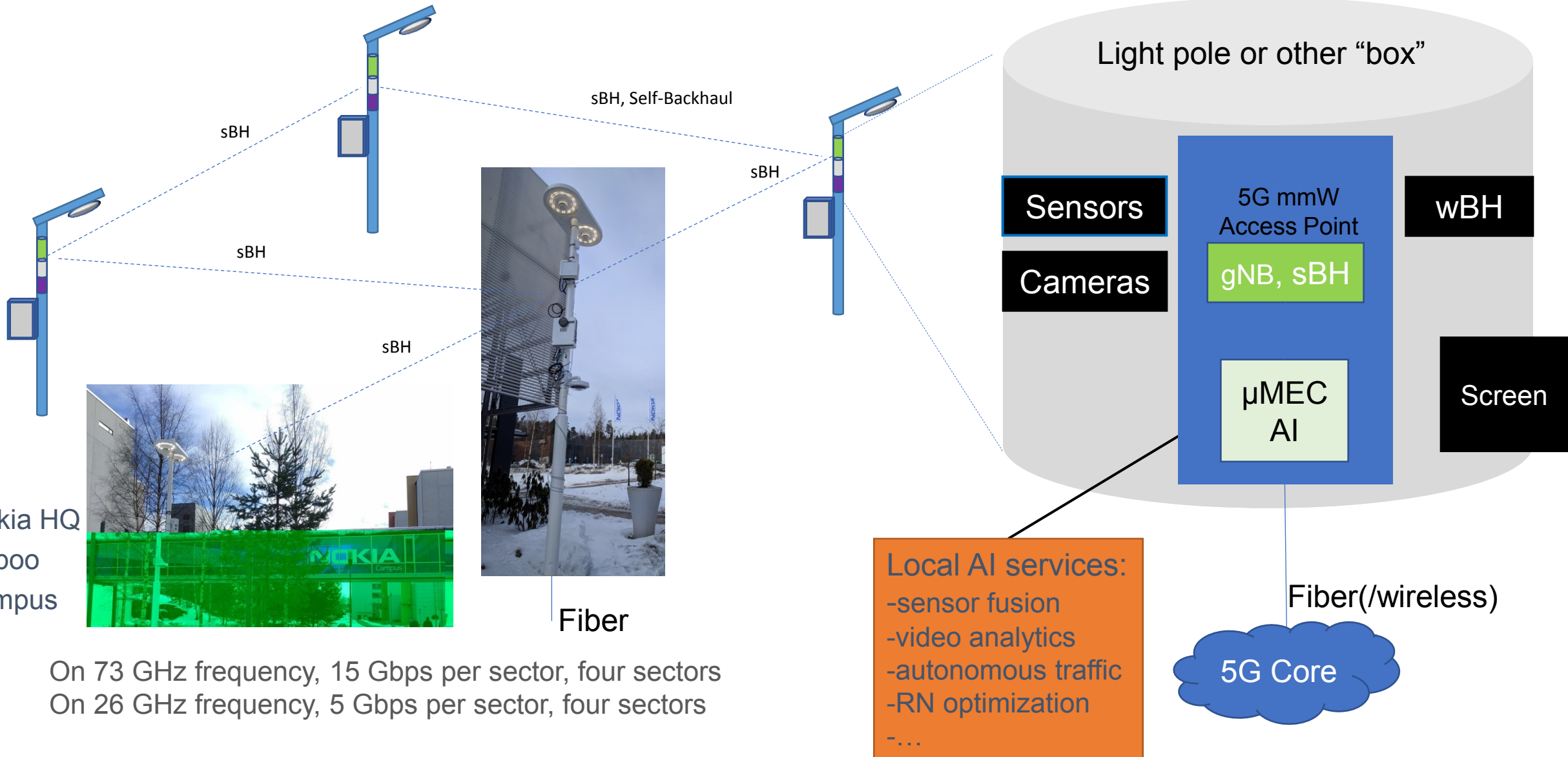


# Digital Smart City: LuxTurrim5G

5G mmW access points in every light pole

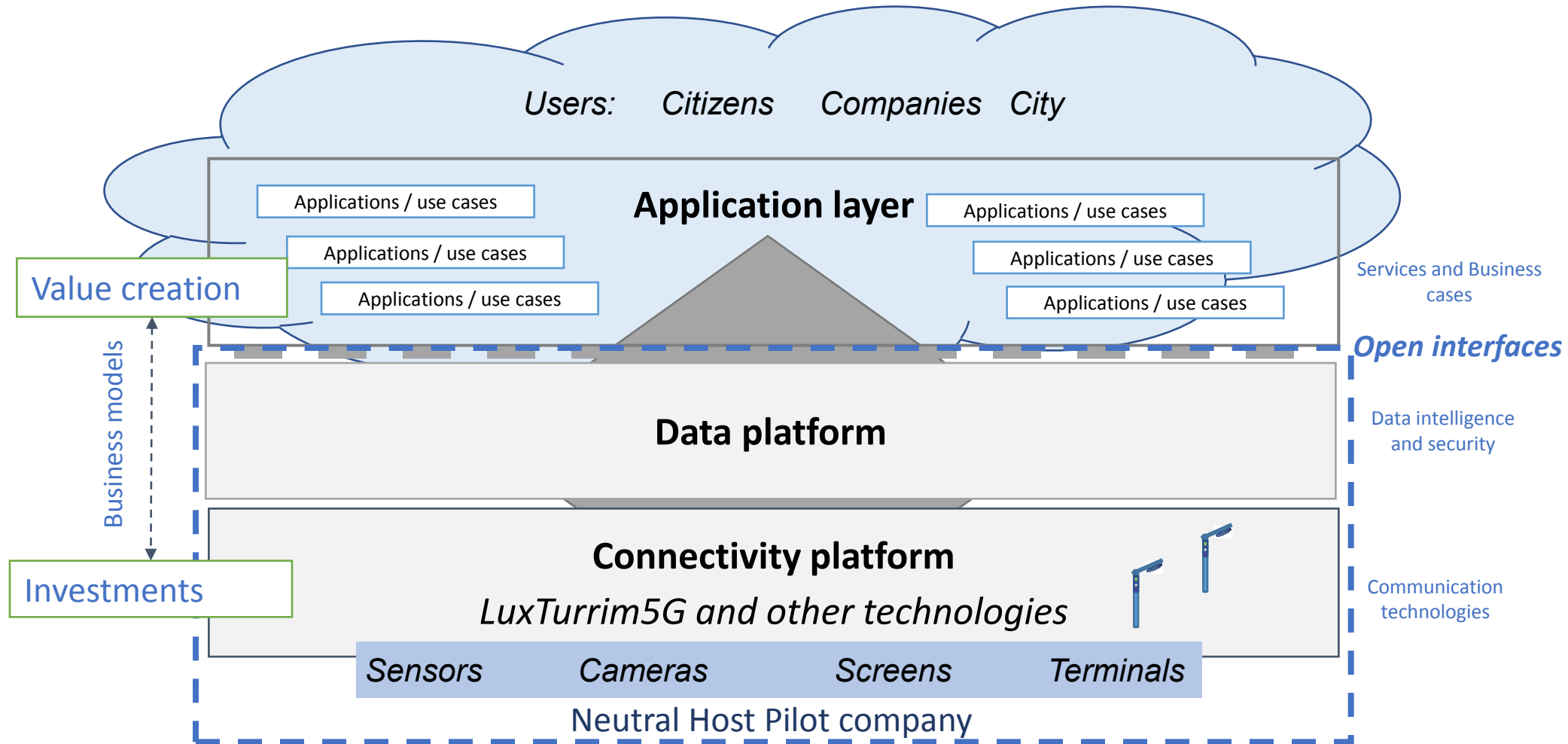


5G Base station with sensors, cameras, sBH,...



# Neutral Host Pilot - Approach

City wide network (Metropolitan Area Network, MAN)



Only one 5GmmW network feasible, shared with operators and the city



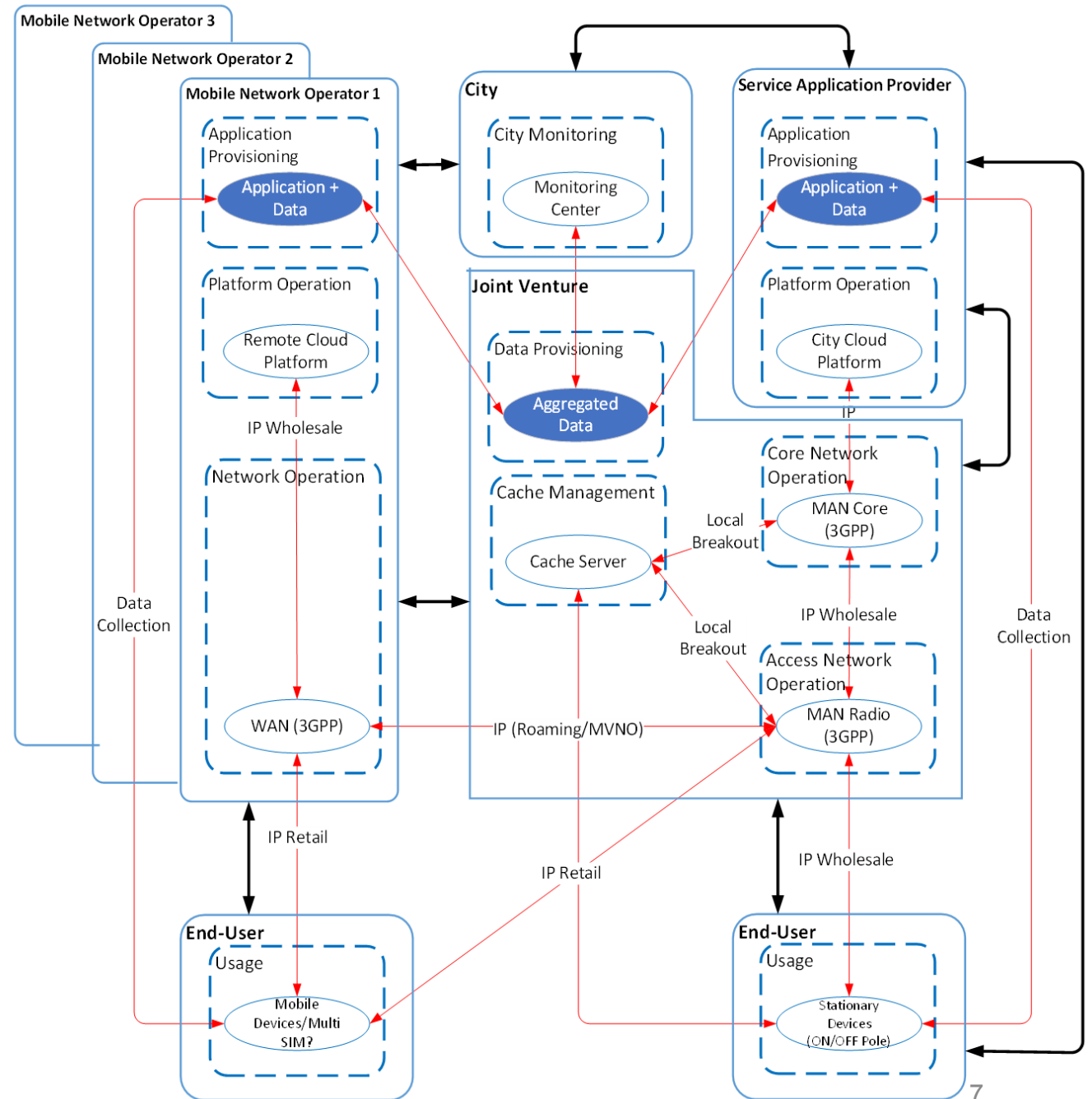
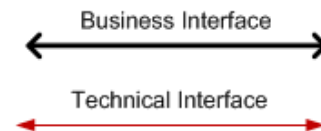
# City 5G Network

## - Example -

### Joint MNO driven Value Network Configuration (VNC)

In case of 5G MAN driven by MNO joint venture:

- Also cooperation in roaming?
- Also cooperation in data part?



# Results

## VNC 's Comparison Table

5G MAN OWNER	Main Asset	WAN-MAN Relation	City data Synergies	Cloud Competence	3GPP Competence	Global Scalability	Regulatory Concerns	5G MAN Investment Capability
Single MNO driven VNC	WAN	Cooperation	Low	High	High	Medium	National MNO asymmetry	Medium
Joint MNO								High
FNO driven VNC	Fiber infra	Cooperation and/or competition		Low	Low	Low	Local monopoly	Medium
Power Company driven VNC	Power infra, digging sync	Cooperation and/or competition		Low	Low	Low	Local monopoly	Medium
Cloud (International) driven VNC	Data platform	Competition		Very high	Low	High	National autonomy	Medium







# LuxTurrim5G and Neutral Host Pilot

## LuxTurrim5G ecosystem:

**LuxTurrim5G outdoor test network** in Nokia HQ Espoo Karaportti campus area in Espoo.

Part of Finland wide 5G Test Network Finland (**5GTNF**) co-operation and **5G research** funded by Business Finland

## Close co-operation with city of Espoo:

- Kera area building: “**Clean and Smart Kera**” -Project
- **Smartest city and community** of the year 2018 (ICF):
- Selected by UN as an example of future digital smart city (OiER, UNGII):
  - Aim to meet UN sustainable goals already in year 2025
  - Target to leverage best practices within UN SDG 25+5 cities Leadership Platform

## Cooperation on standardization:

Alliance for the Internet of Things Innovation (AIOTI)

Open and Agile Smart Cities (OASC, 120 cities worldwide)

Kera District, smart city innovation:  
digitalization, sustainability



Kera railway station

ICF, International Community Forum  
OiER, Organization for International Economic Relations  
UNGSII, Global Sustainability Index Institute



**Excellent possibility to promote the pilot to all cities globally**



# LuxTurrim 5G

Data for local use of cities -> sustainable growth -> meet UN SDG's -> save the Planet

**Kiitos !**

[www.luxturrim5g.com](http://www.luxturrim5g.com)

