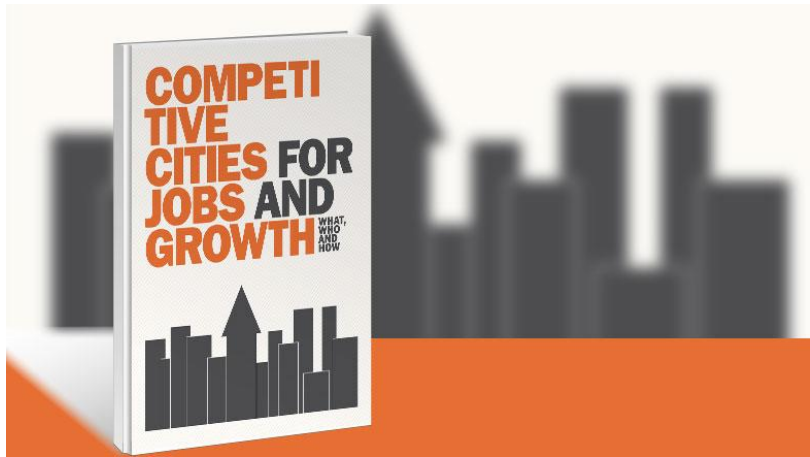


Smart District in the centre of Tartu



**Tartu Planning Conference
Nov 4, 2016
Project manager: Raimond Tamm**



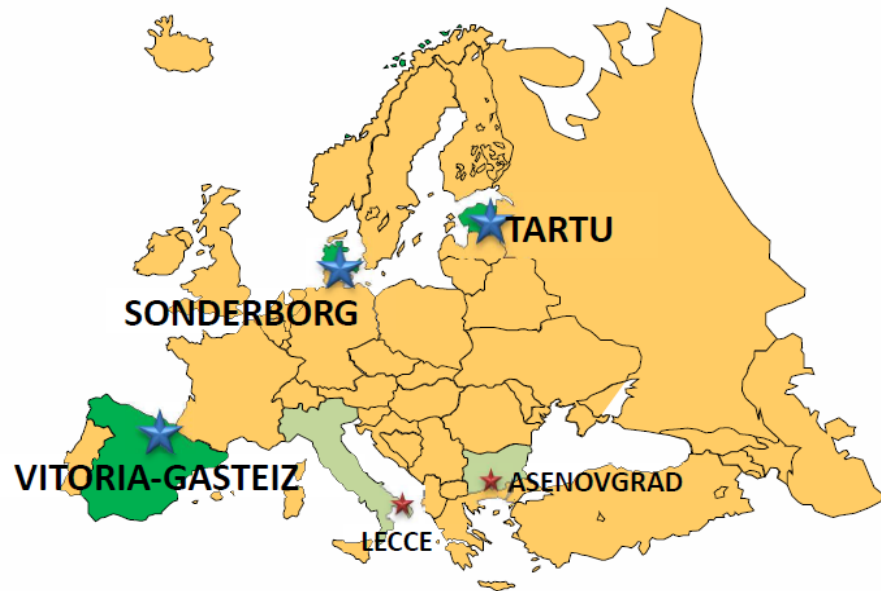


European
Commission

Horizon 2020
European Union funding
for Research & Innovation

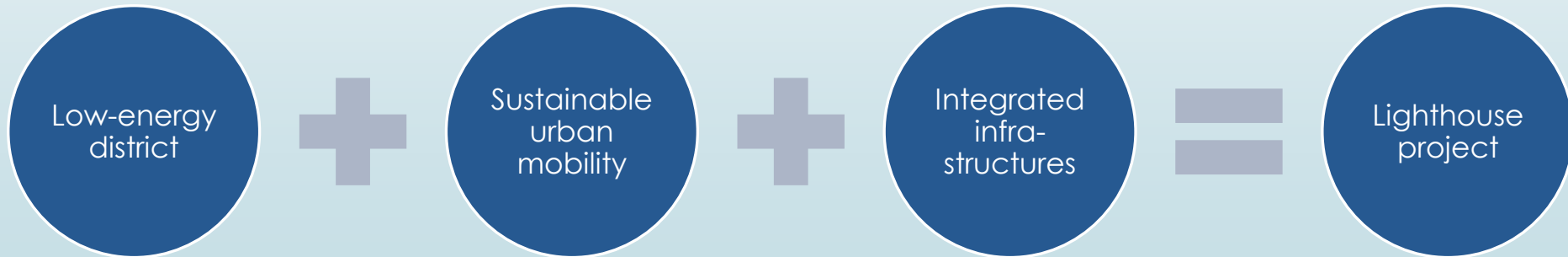
BACKGROUND

- Initiative „*Smart cities and communities*“
- 42 proposals were placed, 4 are funded
- Project period: **Feb 2016 – July 2021**



TARTU – the first and only Lighthouse from Eastern Europe

- **3 sectors combined – energy, transport and ICT**
- **Innovate, integrate, replicate!**



Main goal:

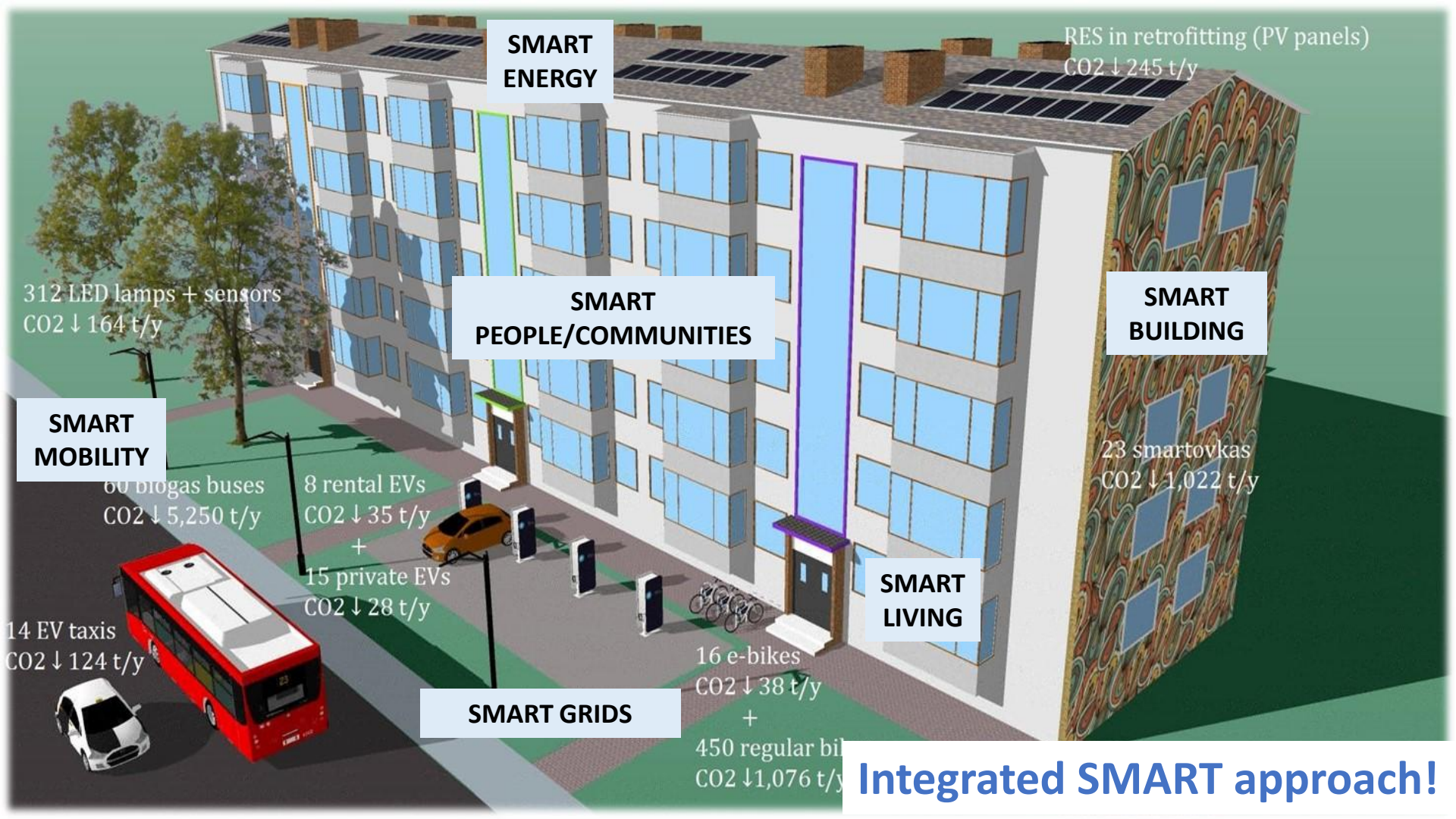
- ~~the deployment of fancy technology~~
- ~~energy efficiency, minimum energy consumption~~
- **increase in the quality of life**



Care about different social groups!



Make people happy!



SMART ENERGY

RES in retrofitting (PV panels)
CO2 ↓ 245 t/y

312 LED lamps + sensors
CO2 ↓ 164 t/y

SMART PEOPLE/COMMUNITIES

SMART BUILDING

23 smartovkas
CO2 ↓ 1,022 t/y

SMART MOBILITY

60 biogas buses
CO2 ↓ 5,250 t/y

8 rental EVs
CO2 ↓ 35 t/y

+
15 private EVs
CO2 ↓ 28 t/y

14 EV taxis
CO2 ↓ 124 t/y

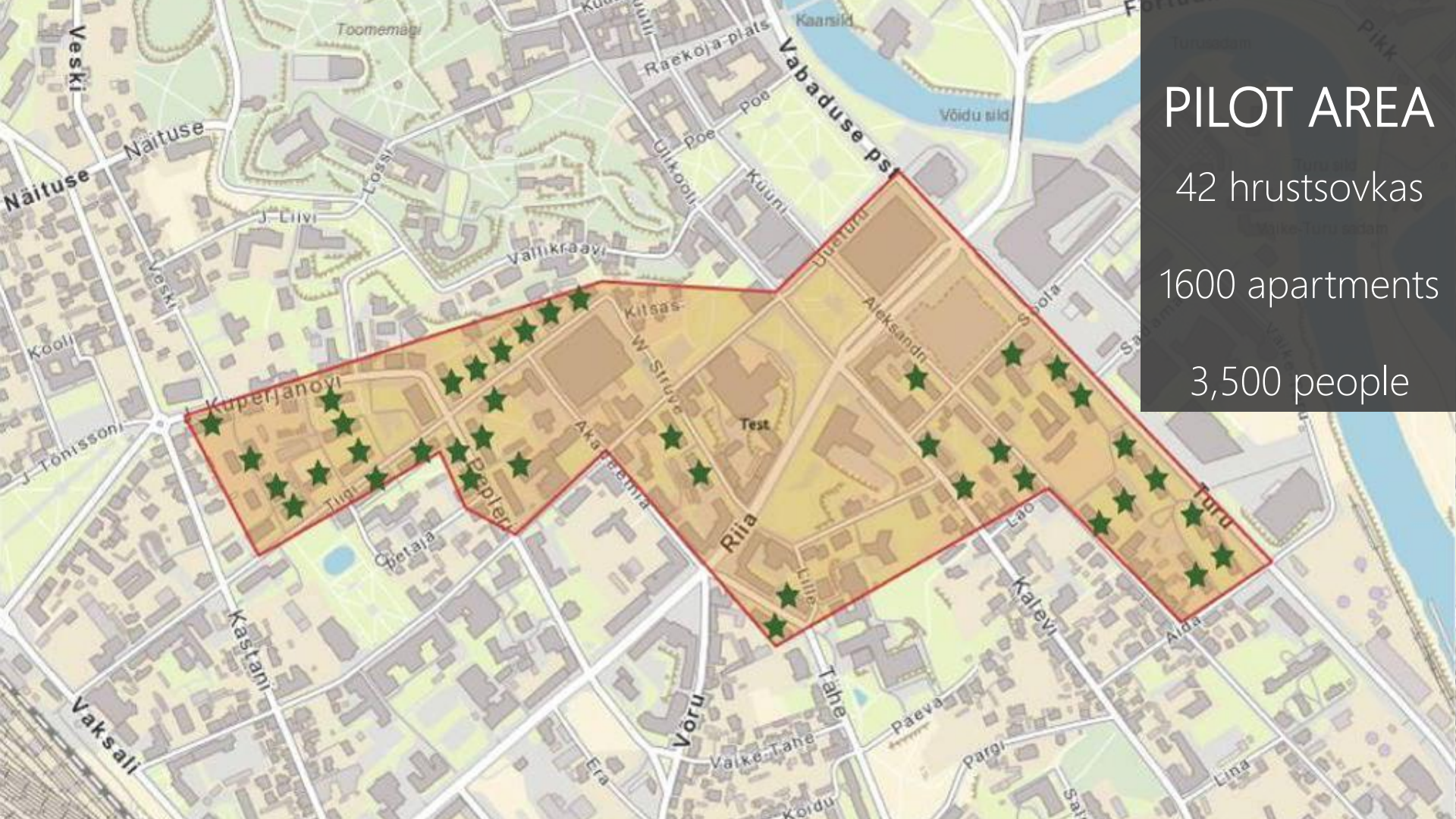
SMART LIVING

16 e-bikes
CO2 ↓ 38 t/y

SMART GRIDS

+
450 regular bil
CO2 ↓ 1,076 t/y

Integrated SMART approach!




PILOT AREA

42 hrustsovkas

1600 apartments

3,500 people



Ambition: developing a model for turning old Soviet apartment buildings into smart buildings and replicating the solution elsewhere

When the old meets the new

THE CHALLENGE

high number of quickly deteriorating panel buildings with an energy consumption of 270 kWh/m²/year

Retrofitting of apartment buildings

Goals of SmartEnCity:

- retrofitting of **20 apartment buildings**.
- decreasing the energy use from 270 kWh/m²/a down to **90kWh/m²/a**.

Planned financing:

SmartEnCity – 1/3

National scheme – 1/3

Housing co-operatives – 1/3



Renovation for People



- Decreased **living costs** (reduced energy consumption)
- Increased **comfortability**, preferred **indoor climate**, avoided **health problems**: Smart Home Management, need-based regulation of heating and ventilation (fresh air)
- Reduced **environmental footprint** (renewable energy, reduced energy consumption)
- Increased **life-time and value of real estate**
- **Aesthetic appeal**: art solutions



SMART CITY AS ART CITY

Art solutions for apartment buildings



SMART HOME SOLUTIONS



- **Smart Home Management** – energy use, indoor climate, alarms etc
- **Sensors** – movement, smoke, CO₂-, air moisture, temperature etc
- **Real-time information** – situation at home; outdoor climate; road conditions; city environment; availability of rental cars and bicycles



CITIZEN ENGAGEMENT

- People and their **will** to be opened for changes is the key
- Share information!
- Involve!
- Educate!
- Motivate!

Social innovation models will be developed and experimented

Why alternative fuels?

- Essentially decreased local air pollution
- Remarkably decreased noise pollution
- Cost/km less compared to gasoline vehicles

Mobility for People

SmartEnCity



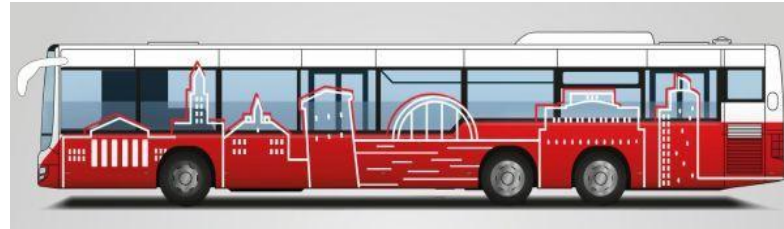
EV Rentals: 2 cars + 4 bicycles in each (2018)



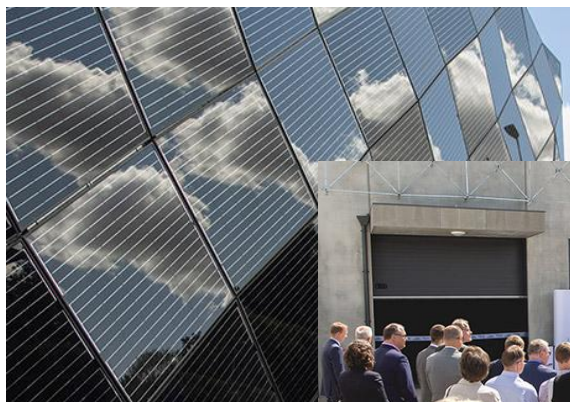
Bike-sharing (2018)

100% gas buses in public transport (2019)

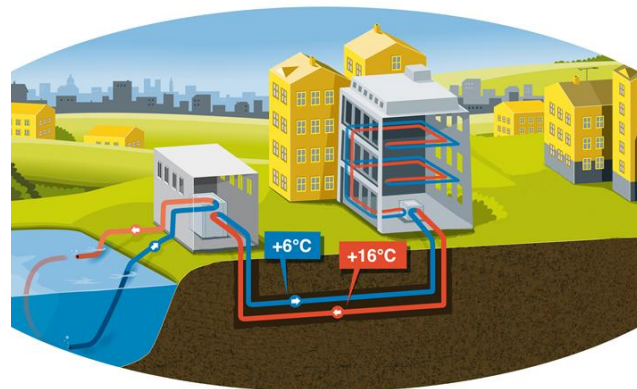
Public EV fast chargers (2017)



SmartEnCity Infrastructure for People



- Residual heat from district cooling system into district heating system
- Renewable energy for district cooling station: PV panels and river water



Street lighting with intelligent control systems (by 2017)

- Over 300 LED lamps
- Movement detectors (some with cameras), light reflection sensors, noise sensors and environmental sensors (air pollution, temperature, humidity etc)

LET'S GROW SMARTER, TOGETHER!



Raimond Tamm
raimond.tamm@raad.tartu.ee