



Tartu
city of good thoughts

Smart City Tartu

Raimond Tamm
Member of Tartu City Council

Gdynia, October 28



Tartu – City of Good Thoughts

- Estonia's second-largest City
- Research and education centre
- University of Tartu was founded in 1632
- Centre of medical and biotechnological landscape
- Fast developing ICT sector
- Increasingly popular tourist destination



- Tartu first mentioned in written: 1030
- Population: ca 100 000

Why we are highlighting Smart City activities in Tartu?

- Enhanced quality and performance of public services;
- reduced costs and resource consumption;
- improved quality of life;
- efficient and active involvement of citizens (e-participation);
- quicker response to new challenges.

Digital technologies or ICT are just tools, not the goals itself!



city of good thoughts

SMART supportive environment

- Estonia is well-known as one of the **most advanced e-societies** in the world. Innovation at the **state level** is important.
- Tartu is a **traditional university city** and a **city of youth**, 50% of our inhabitants are less than 35 years old.
- Internationally competitive R&D institutions. **High science potential** – more than 60% of Estonian research potential is concentrated in Tartu
- **Forward-thinking city government**
- **Pro-active ICT sector**



What does Smart City mean for us?

Best practices available

- smart governance
- smart technology
- smart energy
- smart mobility
- smart infrastructure

Best practices in the pipeline

- smart building
- smart people/communities
- smart living
- smart healthcare
- smart economy

Smart Governance – success factors of digital cities

Digital cities need smart administrations

- Small municipalities are good incubators for new e-solutions
- Continuous modernisation of public services.

Municipality adapts to the e-needs of the community

- The more open the governing of the city, the more secure and aware is the citizen
- Citizens and communities need to be engaged with the creation of e-services

E-involvement creates new networks and million new ideas

- Great challenge to raise interest and receive feedback from citizens
- Citizens are not only needed for voting at the elections
- We need to be where the citizens are – in the internet!
- Citizens enjoy well-prepared e-involvement and they happily participate

Smart Governance – Best Practices

- Tartu is well-known for extensive implementation of Smart technologies in the Urban environment.
- **Mobile payment system for street parking** in 2000 – first city in the world!
- „**Paperless government**“ implemented in 2003.
- **e-Elections** (since 2005) – first in the world!



Smart Governance Involvement of citizens

- Tartu is the first city in Estonia that opens up its budget decision process for citizens
- The process was developed in collaboration with e-Governance Academy (eGA)
- Citizens of Tartu can decide how their city should spend 1% of next year's investment budget

Smart Governance – electronic services for citizens

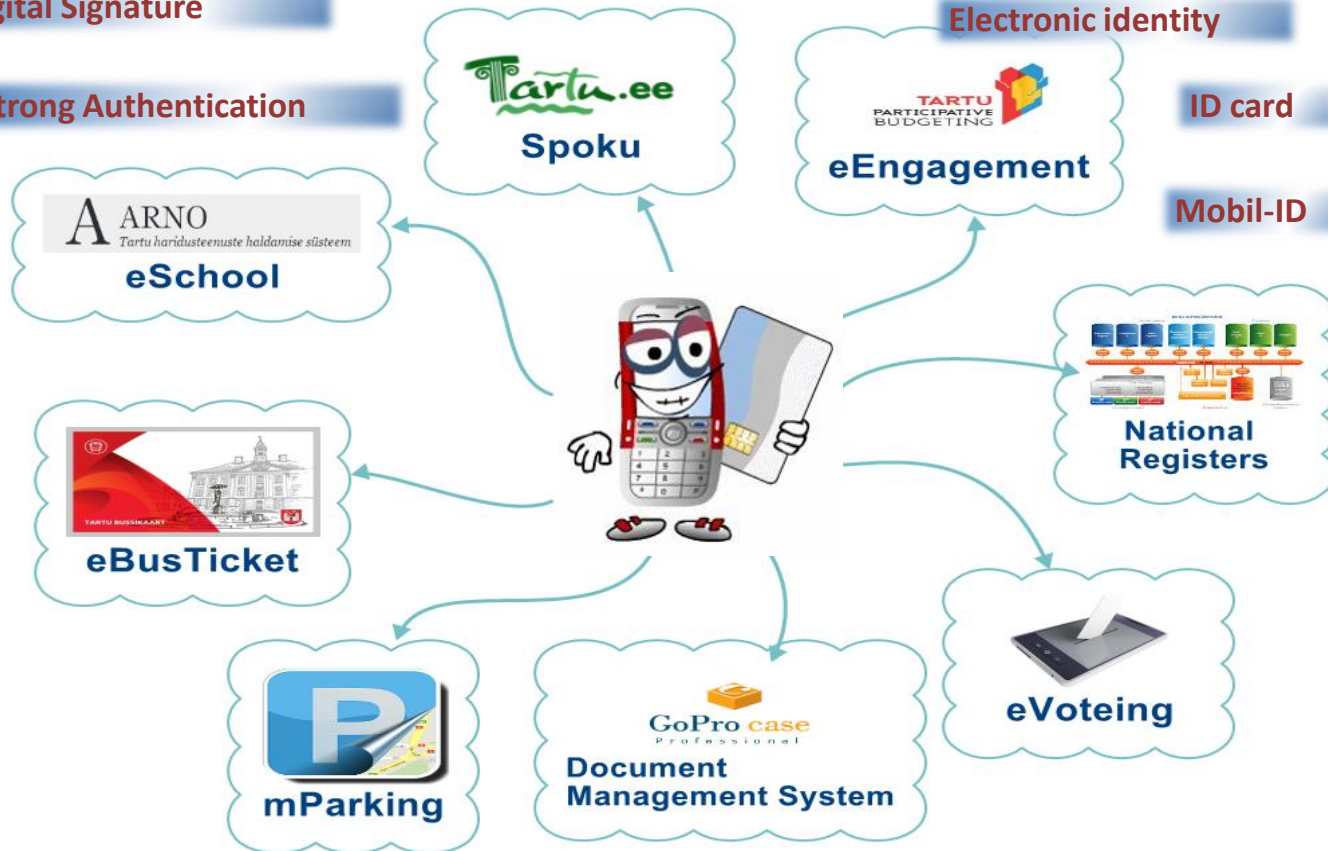
Digital Signature

Strong Authentication

Electronic identity

ID card

Mobil-ID

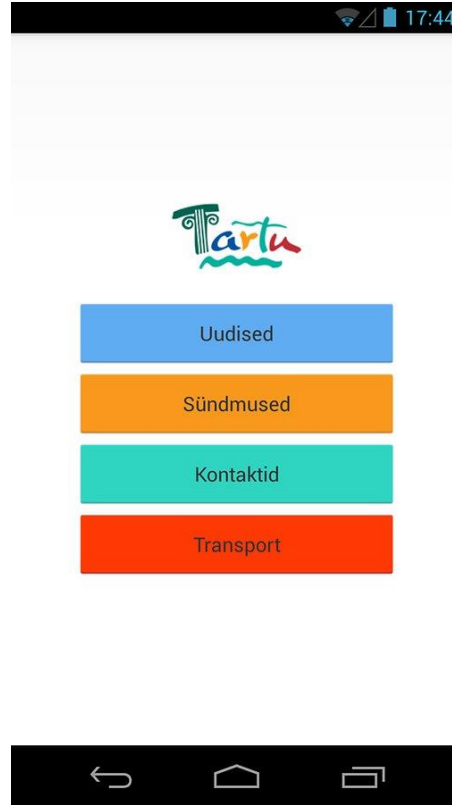
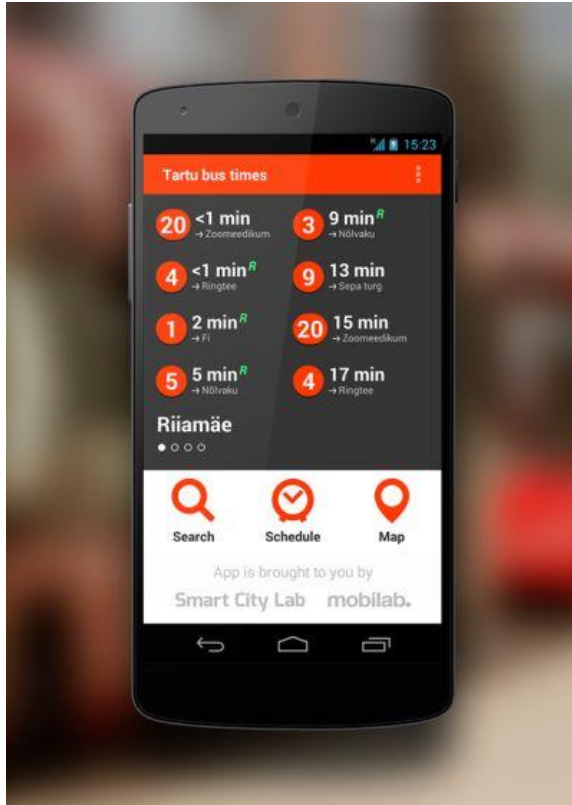


APPLICATION eFORM FOR PARENTAL BENEFIT

FAMILY COMMUNICATING WITH THE STATE
WITHOUT LEAVING HOME...



Mobile services



- m-Tartu
- m-Parking
- m-Library
- m-Teacher
- m-Ticket
- m-Payments
- m-Public upkeep
- m-Bus information (incl real-time)

Open Data as booster of innovation

- Availability of open data is one of the critical issues when development of needed e- and m-solutions is considered.
- Open data: certain data should be freely available to everyone to use and republish as they wish.
- Easy and free access to necessary data enables municipalities and our collaboration partners to spend essentially less on the development of e- and m-services.

Smart Mobility

In 2011 first 5 gas buses,
pioneers in Estonia



Goal: 100% biogas buses by 2017



Electric cars

As the first country in the world, Estonia constructed an **extensive charging network for electric cars**. 11 existing public fast chargers also in Tartu.

2 electric car rental points

22 electric taxis + around 50 other electric cars

- No CO₂ emission
- Remarkably decreased noise pollution
- Cost/km ca 1/3 less compared to gasoline car

Smart Mobility



DISTRICT HEATING

Smart Energy

Heat & power combi-stations

Ca 90% of heat production is based on local fuels – peat and wood chips

SELF-SUSTAINED
ENERGY

SECURITY OF SUPPLY

PRICE OF FUELS



Production of biogas at local water company

Smart Energy

Sewage sludge in anaerobic process in metan tank

Combined heat & power production

Biogas capacity 150 m³/h

SELF-SUSTAINED
ENERGY

SECURITY OF SUPPLY

PRICE OF FUELS



Production of biogas at Aardlapalu landfill

Smart Energy

Collection of landfill gas started in July 2012.

Combined heat & power production.

Ca 200 m³/h, methane content ca 50%.

SELF-SUSTAINED
ENERGY

SECURITY OF SUPPLY

PRICE OF FUELS



Smart Infrastructure

Street lighting

12 000 lamps in total, use of power ca 8 GWh (ca 1 MM EUR) annually.

Ca 1000 sodium lamps have been replaced by LED lamps for now. Expected savings of 80 M euros annually.



Smart Economy

Smart Specialisation Strategy

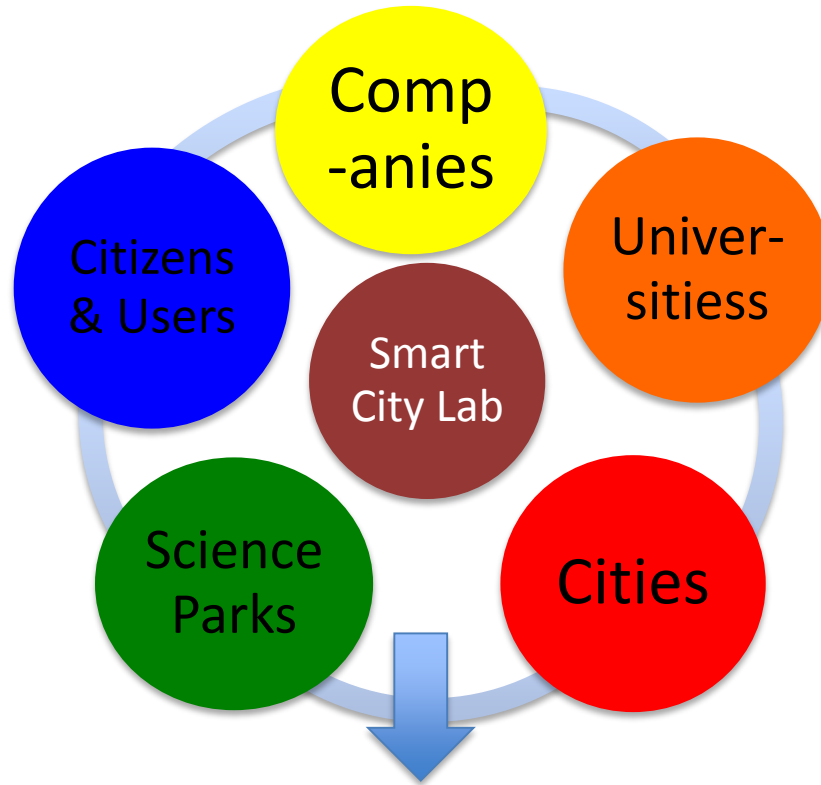
- Identified and selected priority/growth areas.
- Business sectors with **higher-than-average growth potential and added value**, as well as opportunities to achieve a competitive advantage through investing into research and development
- Growth areas:
 1. ICT & electronics
 2. Health tourism & biotechnology
 3. Food industry (especially dairy industry & functional food)
 4. Wood industry (especially wooden houses)
- Triple helix concept: universities, industries and local governments work together



Smart City Lab cluster initiative

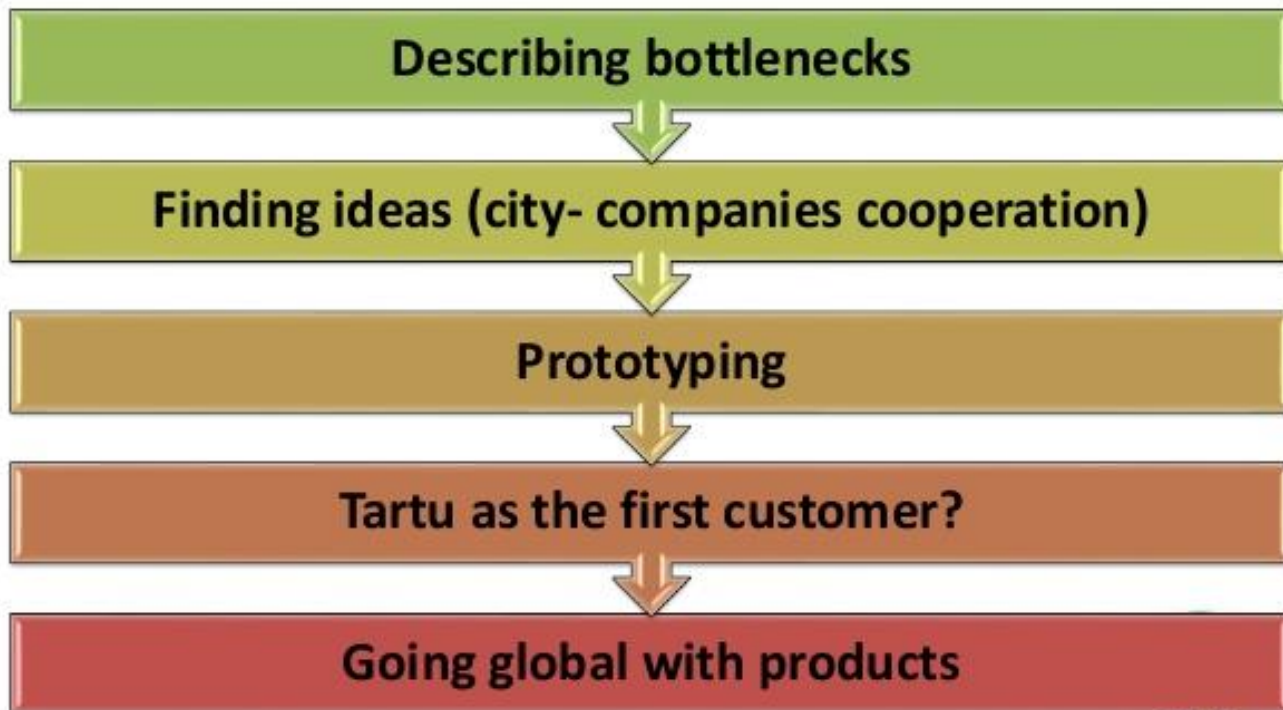
- Aims increase in competitiveness of Estonian companies which actively develop Smart City Solutions
- 23 members from private, public and academic sector





SMART PRODUCTS

From bottlenecks to smart products



Smart City Lab – focus topics

Integrated and Smart ICT Solutions in:

- Intelligent transport
- Energy Efficiency
- Healthcare and Social Care
- Government and Governance



Ca 20 new product ideas developed, tested or in the pipeline!

Smart City Lab – what could be tested in Living Lab?

Ideas, concepts and prototypes including:

- Mobile applications
- Web applications
- Physical devices

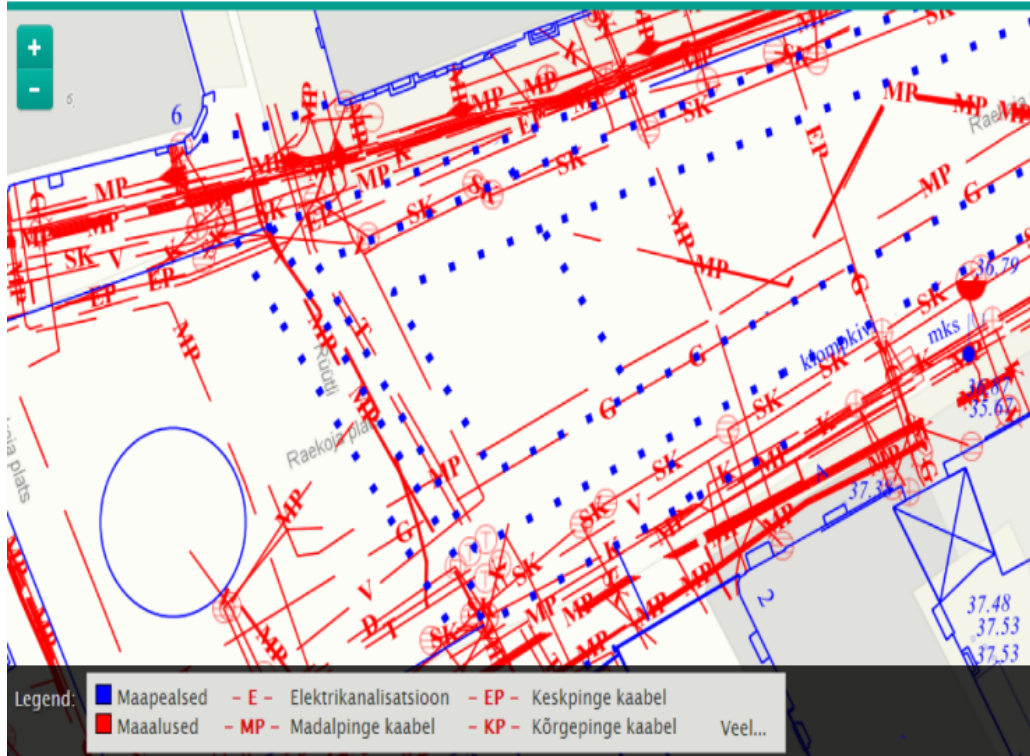


Smart City Lab – Geo-archive citizen interface

Minu kinnistu

Näidisobjekt: Raekoda

Kinnistul on 23 maamõõdistustööd

 × Otsi

Data on underground infrastructures pertaining to their real estate

The first application created in co-operation with the local IT enterprises in Smart City Lab

Smart City Lab – Public Transportation Mobile App



SMART CITY DEMOCENTRE OPENED IN JUNE 2015 IN TARTU CITY HALL

**Demonstrates solutions
grown out of the cluster and
living lab to citizens, tourists,
formal international
delegations etc.**



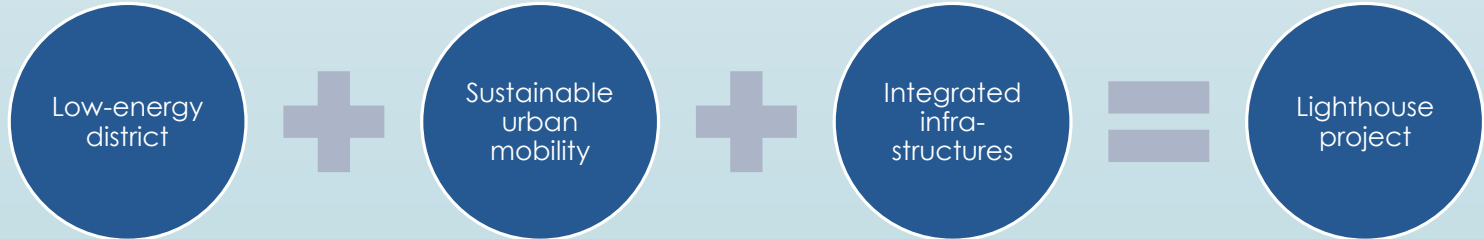


TARTU AS A FLAGSHIP CITY

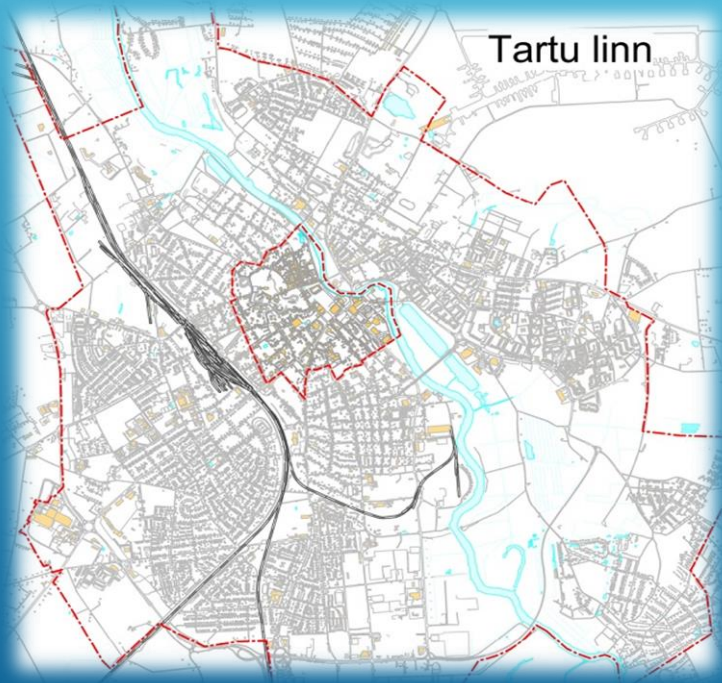
HORIZON 2020

SMART CITIES AND COMMUNITIES CALL

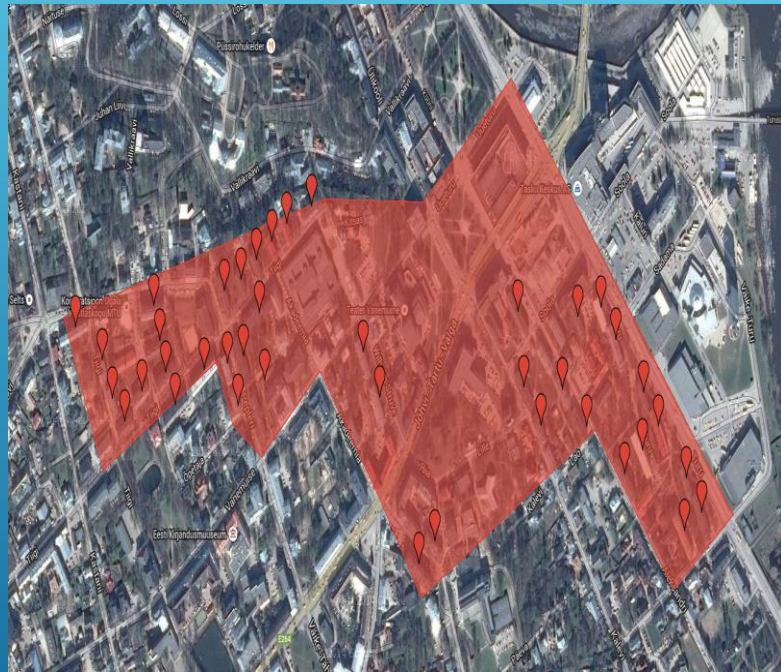
- 3 sectors combined – energy, transport and ICT
- Innovate, integrate, replicate!
- Low-energy district
- Sustainable urban mobility
- Integrated infrastructures



TARTU CITY



PILOT AREA – CITY CENTRE



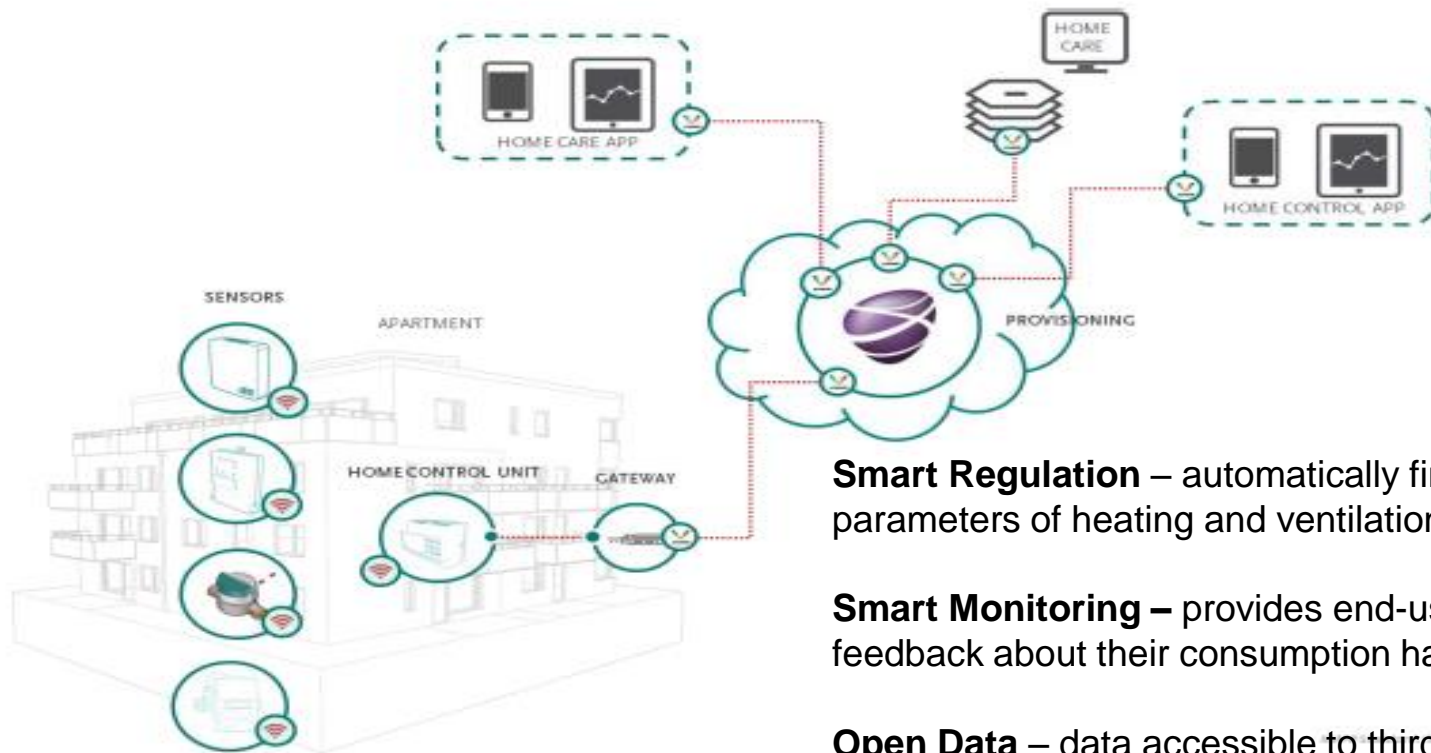


FROM HRUSTSOVKA TO SMARTOVKA



- Advanced renovation methods employing state-of-the-art building materials
- Adding smart automated solutions that enable remarkable improvements in energy saving
- Electric car and bike sharing as an alternative to private ownership

OPEN ICT PLATFORM FOR SMART HOMES



Smart Regulation – automatically fine-tunes the parameters of heating and ventilation.

Smart Monitoring – provides end-users with direct feedback about their consumption habits.

Open Data – data accessible to third parties (such as SMEs, NGOs, start-ups etc.) for building up services.

CITIZEN FOCUS

- Just a few changes can be implemented without cooperation from users.
- Propose a social innovation model that will be tested in the communities of the renovated buildings
- Citizen Empowerment and Smart Governance Approaches for allowing citizens to be more directly involved in decision making
- New co-creation practices: a testing and feedback system will be developed for citizens to evaluate the quality of public services
- Community Building: platform that helps to connect residents of an area and gradually creates a 'we'-feeling
- Emphasize the aspect of 'learning from the smarter'



Let's meet in the city of good thoughts!

You can have a glimpse of our doings on our webpage:

www.visittartu.com

- Information available in 12 languages
- Everything concerning accommodation, dining, entertainment, transport etc.

www.tartu.ee

- Information available in Estonian, English, German, Finnish, Russian

<http://smartcitylab.eu/>



Thank you for your attention!

RAIMOND TAMM

Tartu City Council

Tartu Science Park

+372 515 4738

raimond.tamm@raad.tartu.ee

