Urban planning and Smart City Development

Side-event at the Habitat III Regional Meeting
Transport in action: boosting the take-up of sustainable urban mobility

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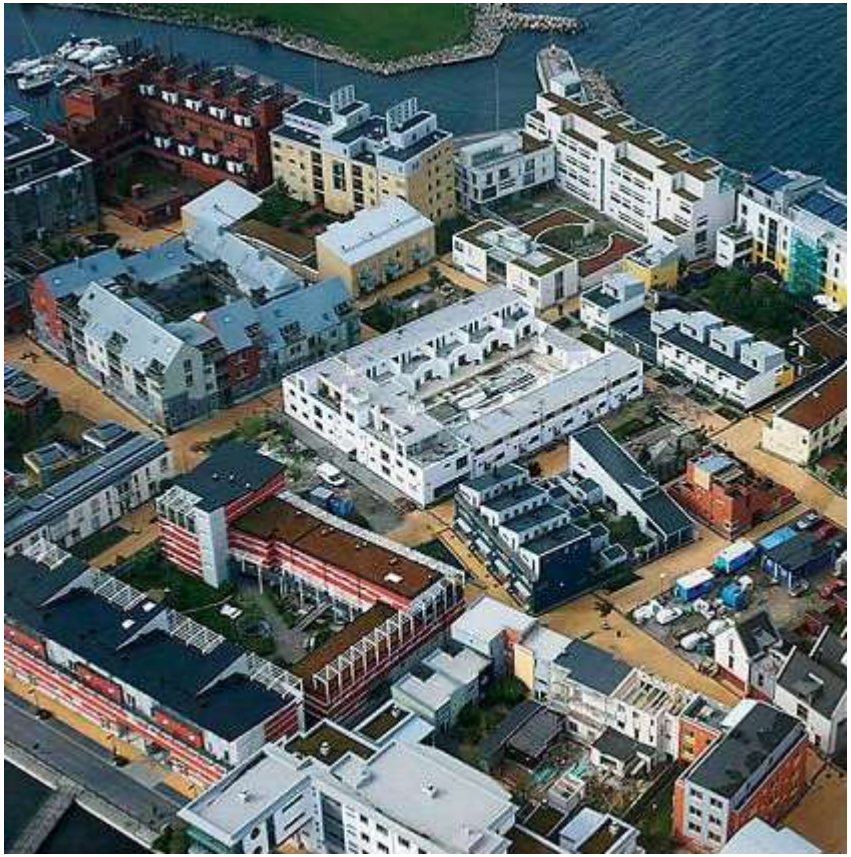
Cities and urban areas are important

- Urbanization is on of the big megatrends
- 78% of European citizens are living in cities
- 85% of GDB in Europe is created in cities
- 90% of all innovations are cone in cities
- At the same time over 70% of all CO_2 emissions are originated from cities

- *In order to avoid negative effects cities need to transform themselves into 'smart cities'*



Sustainability is not only numbers, sustainable development is also

Figure Pekka Huovila

safety, security, health, comfort, space and basic supplies, privacy, dignity, identity, appearance, aesthetics, community, religions, connections, mobility, migration, recreation, recovery, cultural heritage

functioning in economic way

Best way to impact on climate change is to increase eco-efficiency of the community structure, thus reduce energy and material consumption per capita.

Land use

- High efficiency
- Mixed areas (homes, work places)
- Daily services close
- Efficient transport

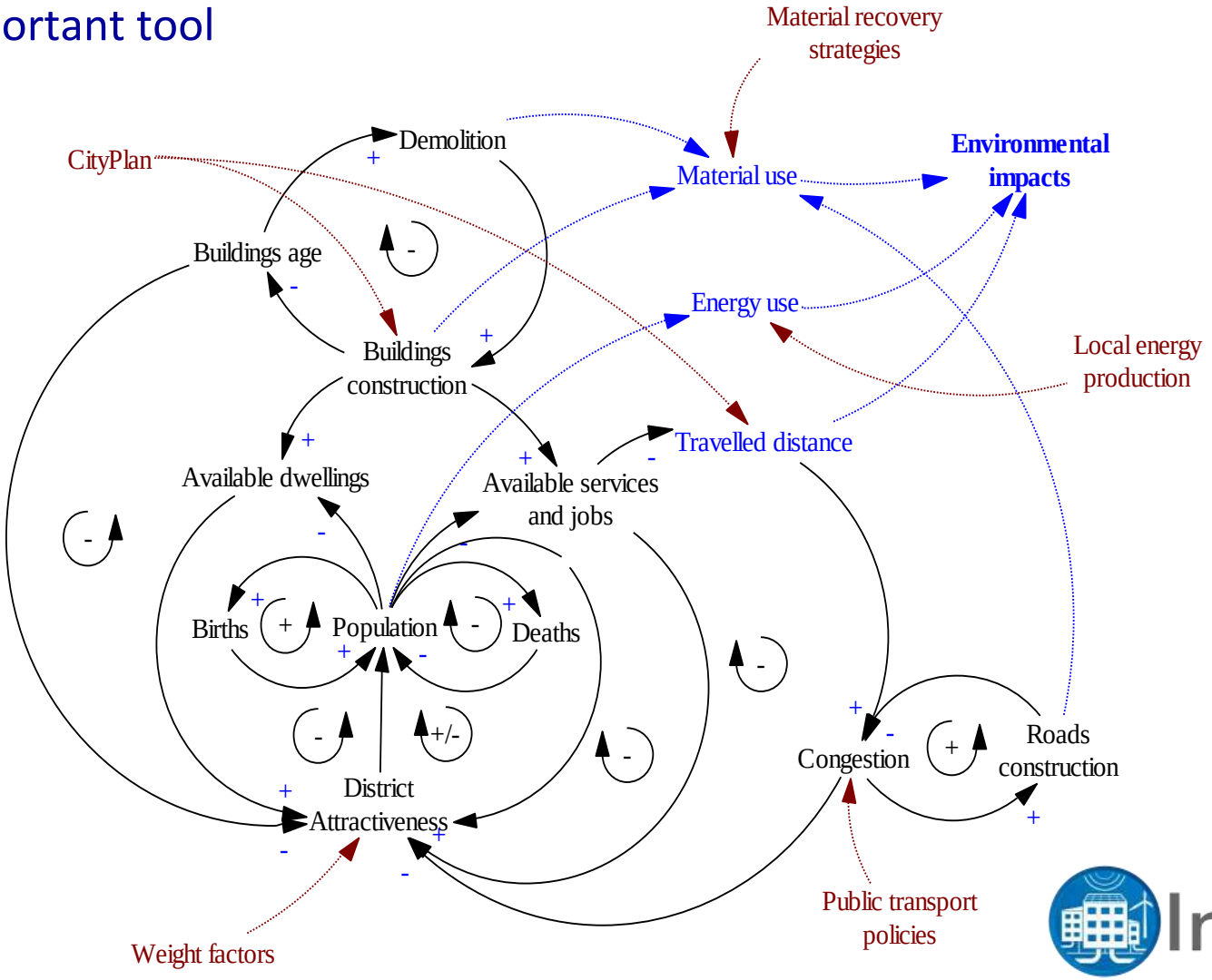
Energy

- Energy efficient buildings
- Efficient energy supply and production

A city has many systems and sub systems which are interlinked and interconnected

A change in one place will affect on the whole system

→Modelling is important tool



Elements determining the environmental impacts of traffic

Community structure

Traffic volumes and choice of transport mode

Energy for transport

Vehicles and user behaviour

System level

Consumer level

Policy orientation

Technology orientation

Analysis & design principles

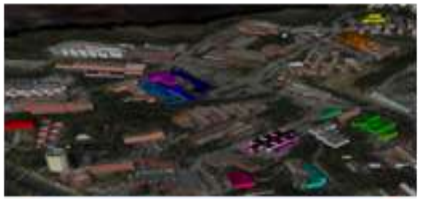
Co-creation with citizens and other stakeholders

Urban design principles,

Citizen and other Sstakeholder consultation

Masterplan and Design codes

User workshops



Cityplan & Building codes

User preferences

People flows and preferences

Modelling people flows and user preferences based on anonymous real data in order to understand user preferences and to give design guidelines

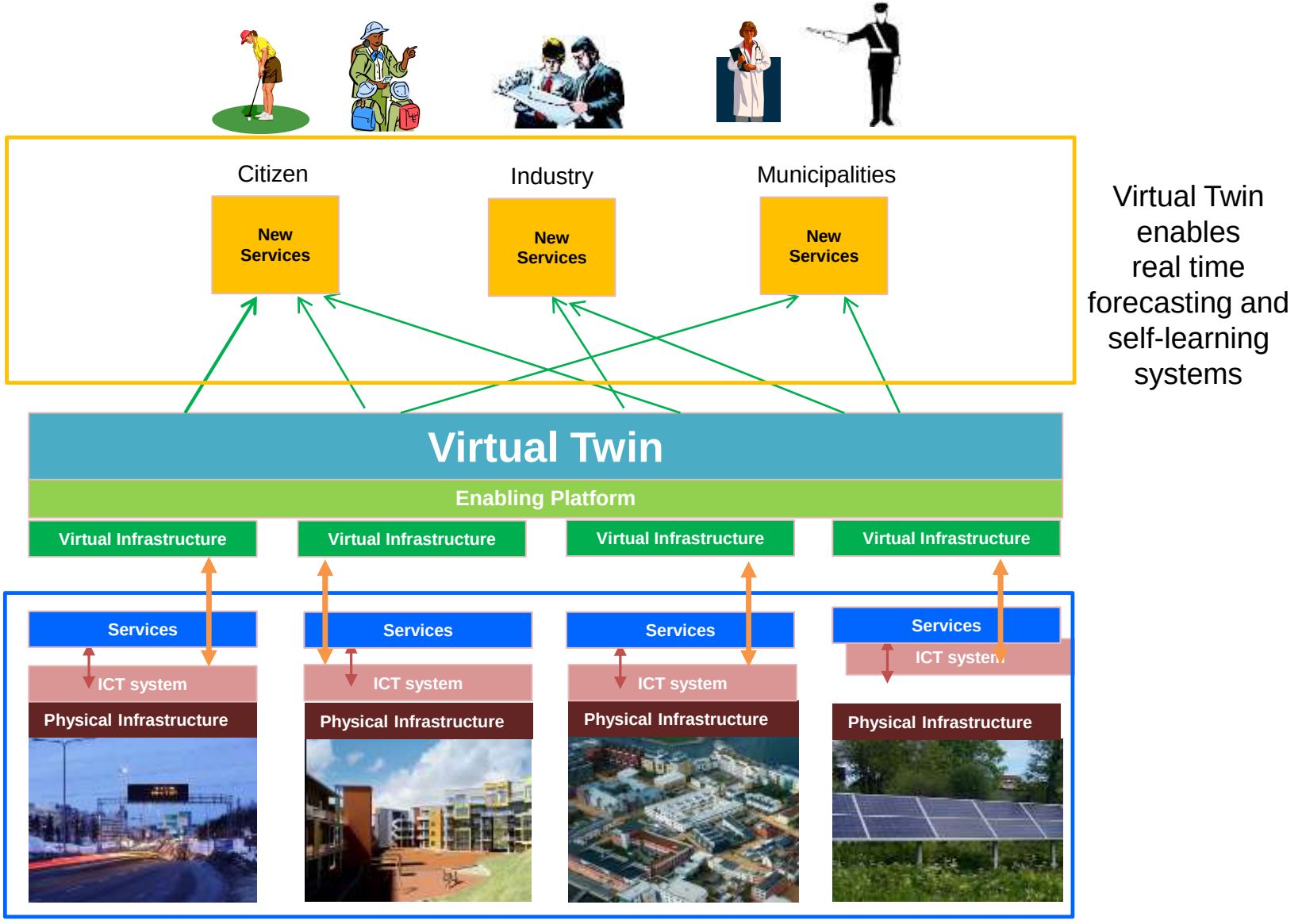
Smart transportation in the cities

- Travellers, vehicles, transport networks and goods – always connected, always located
  - Best possible information of the situation now and in the near future
  - Optimization, handling and preventing the incidents
- "Best" itinerary for every trip
  - real-time, updating itself on the go
  - all modes (public, private, walking/biking, ride-sharing) included
- Traveler and vehicles are not only receiving information, but also collecting and transferring it
- Public Private Partnership – "one counter for the user"

Vehicle-to-infrastructure communications

Vehicle-to-vehicle communications

VTT Virtual Twin



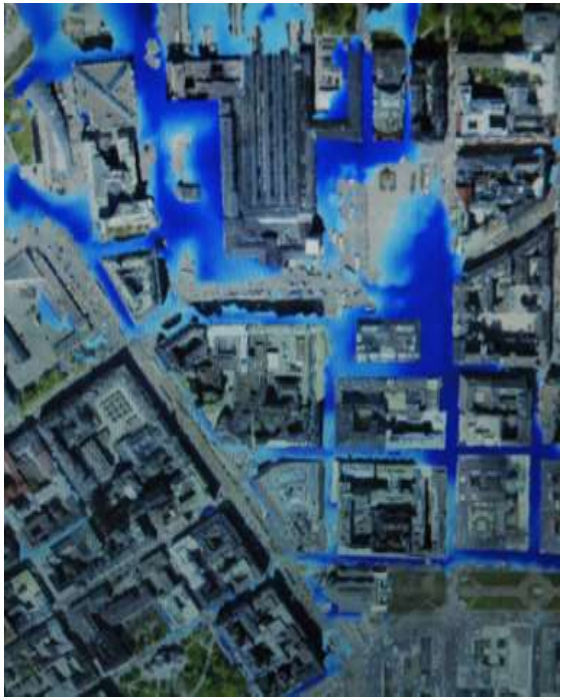
Virtual Twin enables real time forecasting and self-learning systems

Moving from Internet of Things to Things of Meaning

Heavy rain, flooding, security and safety

Local warning system: SmartAlarm

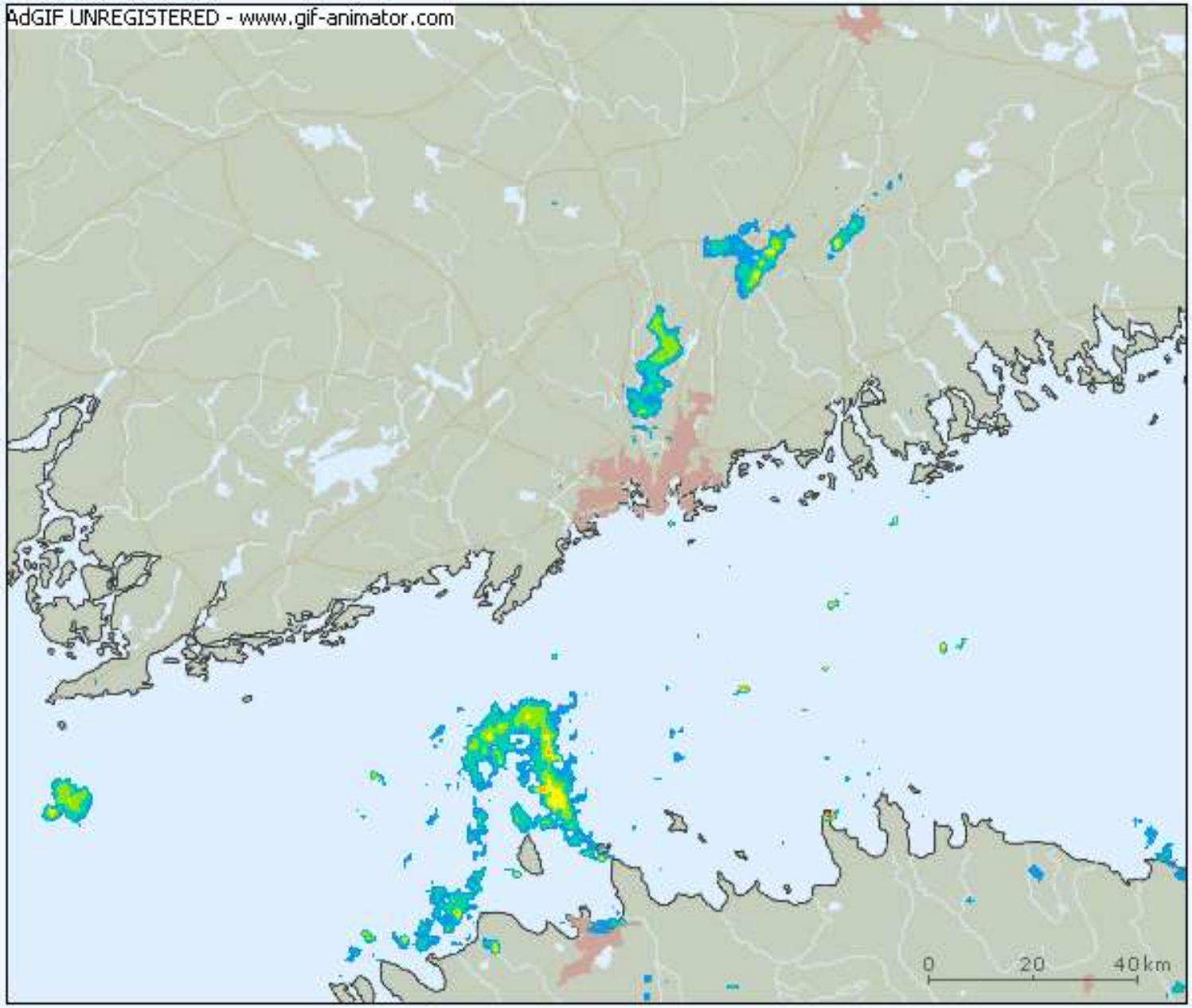
1. Rain measurements
(mittaukset, tutkasade-ennusteet)



2. Flooding prediction by simulations
(10 min, 20 min, 30 min, 1 h, jne.)

3a. Kiinteistötason tilannekuva, tulva-ennuste, hälytykset, toimintaohjeet

3b. Kaupunkitason tilannekuva, tulva-ennusteet ja toimintaohjeet.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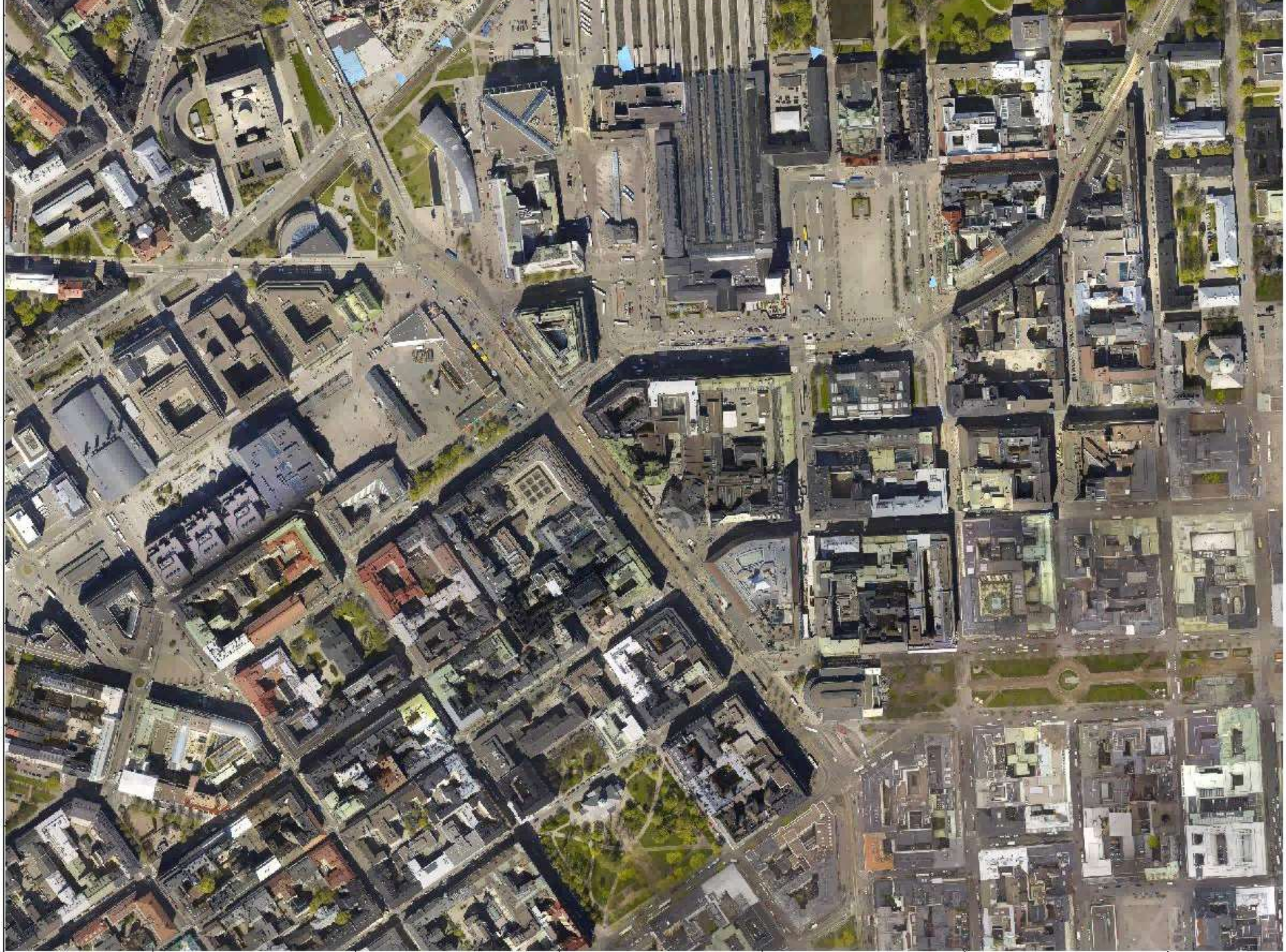
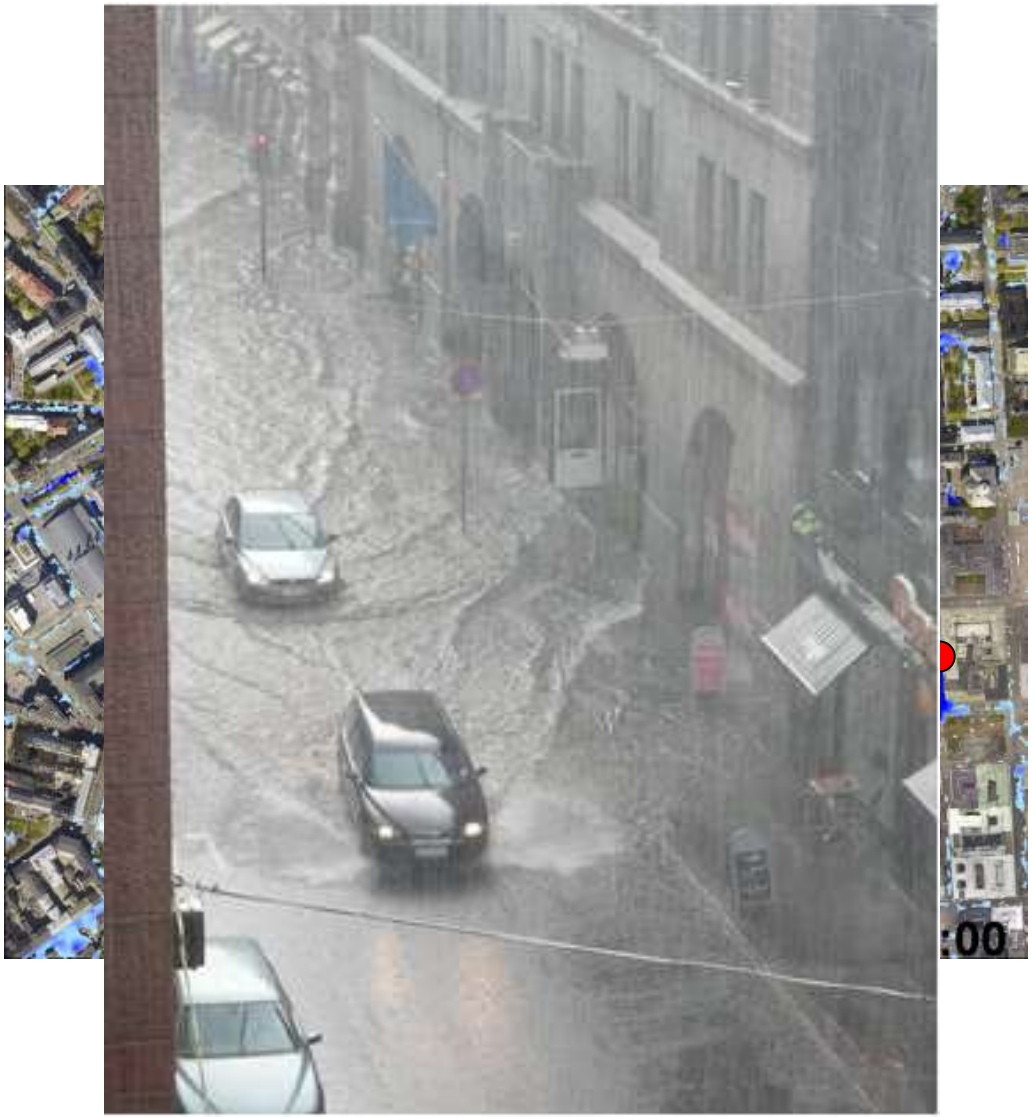
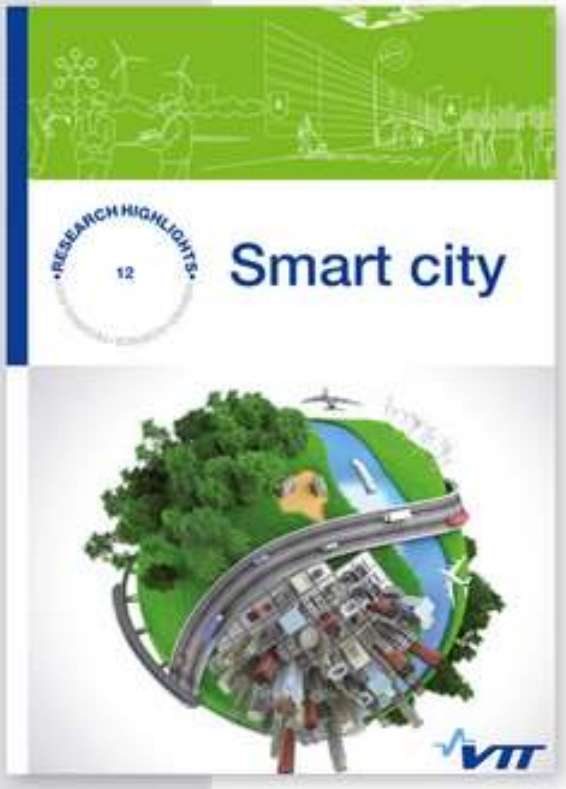




Smart city

The publication presents a compilation of extended abstracts of VTT's recent research on smart cities.

DOWNLOAD THE FREE PUBLICATION



http://www.vtt.fi/inf/pdf/researchhighlights/2015/R12.pdf


TECHNOLOGY FOR BUSINESS