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TEKNOLOGIAN TUTKIMUSKESKUS VTT OY

Developing new cooperation models in winter maintenance

31st Winter Road Congress

Tampere 17.2.2016

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A few points about Finnish winter maintenance

- Finnish road weather expertise is well-known and internationally recognized
- companies, authorities, individual experts and research institutes hold a lot of know-how
  - This know-how and knowledge is a bit scattered
- Long tradition in operating with quality-driven winter maintenance management policy

FIRWE-project's goals

- To form a modular, flexible product-service package
  - Individual companies would put an effort to make their products/services interoperable
- Interoperable products and services
  - Open interfaces and modularity
    - Necessary since all customers are different.
- To test and develop solutions as a part of operational activities
- To utilise existing marketing channels and international customer relations
- To gain plausible results and references in Finland

FIRWE's benefits

- For the society
  - Increased awareness of driving conditions
  - Smaller maintenance expenses and less environmental load
  - Smoother and more reliable traffic
  - Less accidents and related losses
- For a maintenance operator
  - Better timing and accuracy of actions
  - Effective vehicle tracking and reporting
  - Real-time information on maintenance operations can be given to road users
- For FIRWE partners
  - Wide development and testing possibilities (i.e., agile piloting)
  - Collaboration, thought exchange and coaching with other partners (i.e., joint-development)
  - Strong references (essential when exporting)
  - Export potential of modular solution package

Outcomes

- Testing of the service/product modules was made in real-world environment
  - 2013-2014 in Lappeenranta-Imatra area with NCC Roads
  - 2014-2015 more testing of individual modules in Vantaa area with Destia
- Decision support system got new features
  - Automatic generation of twiits, for example
- Improvement of near future driving conditions forecast
- Improvement of longer time driving conditions forecast's quality
- Optimisation algorithm for de-icing materials dosage
- Automatic data collection from maintenance vehicles and UI
- Map UI for real time driving conditions and friction
- Friction measurement program development and testing
- Assessment of socio-economic impacts, value network research (within BECSI-project)
- Partially thanks to FIRWE National Roads Authority of Ireland purchased a maintenance decision support system from Vaisala.

FIRWE partners

- Vaisala: measurement solutions, integrating measurement and forecast data to DSS, visualisation
- Arctic Machine: smart on-board-solutions for maintenance vehicles incl data exchange interface for background systems
- Foreca: weather and driving conditions forecasts
- Teconer: mobile solutions for measuring driving conditions and friction
- VTT: socio-economic impacts of services, market reporting, value network assessment
- Tekes: funding and steering

- FIRWE was made possible by cooperating authorities (LiVi, ELY, Trafi), maintenance companies and research institutes

VAISALA

arctic machine
ROAD INTELLIGENCE

Teconer

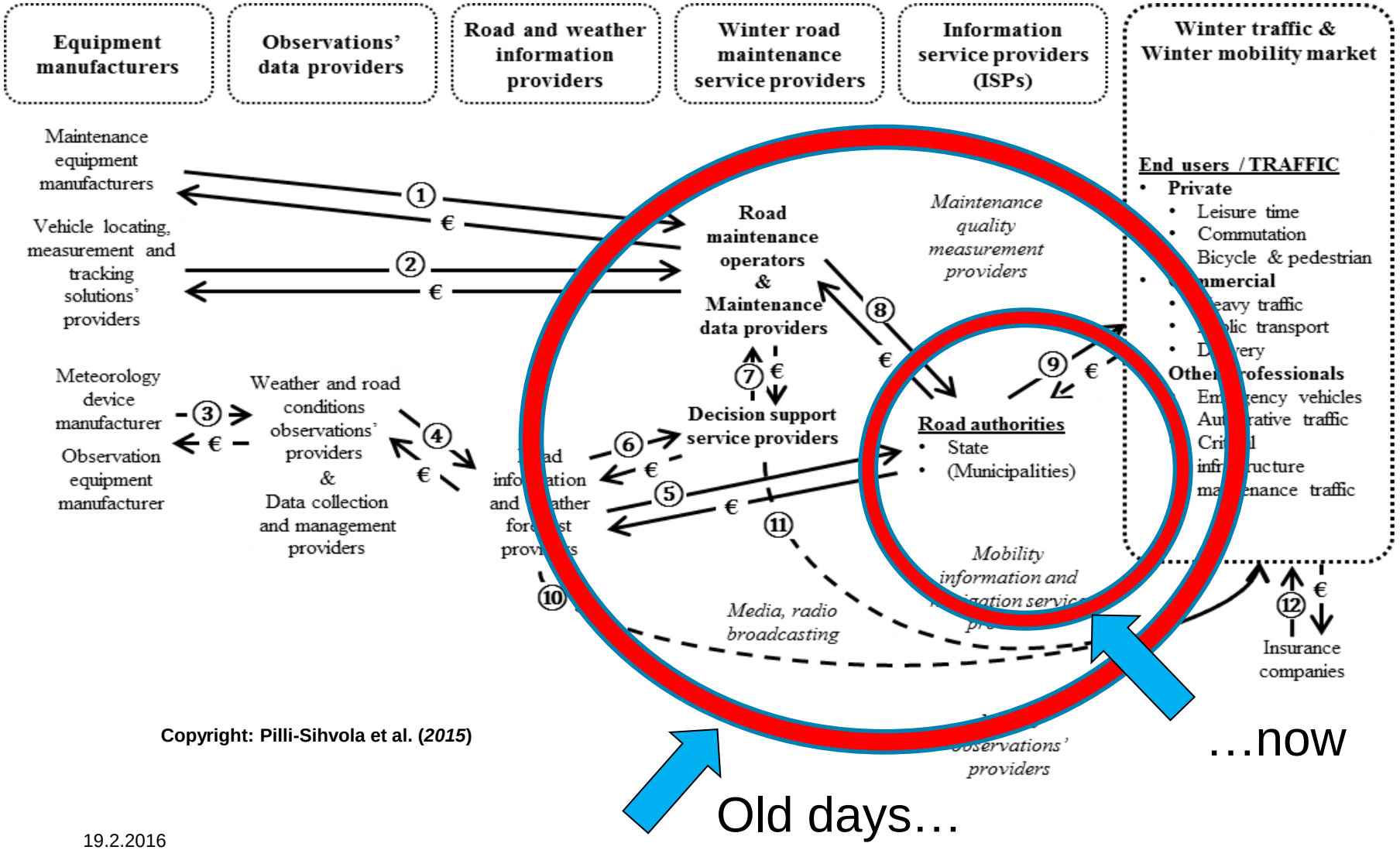
FORECA

Tekes

The role of authorities in innovations

Back in old days in Finland….

…and now



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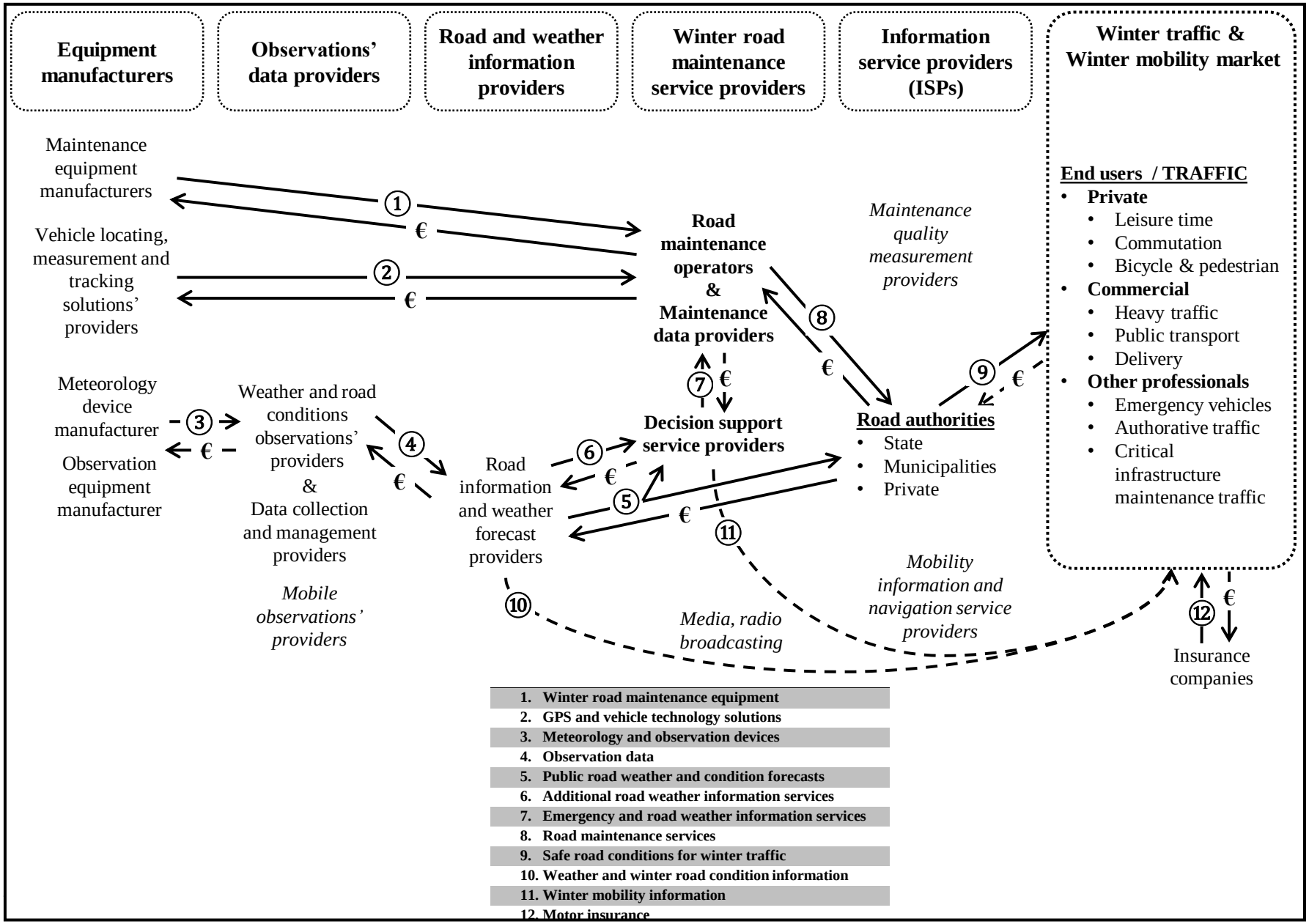
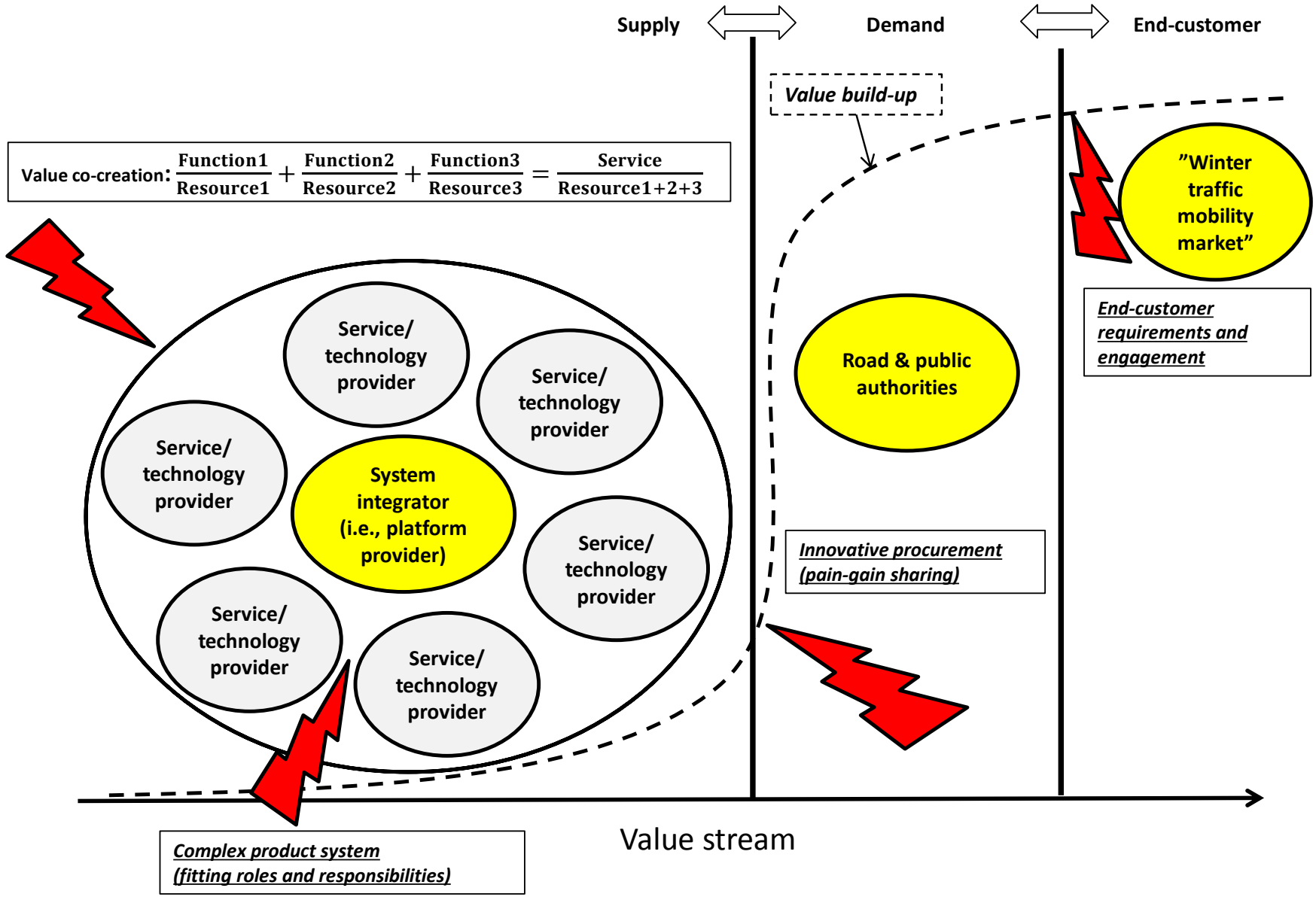
Challenges in status quo

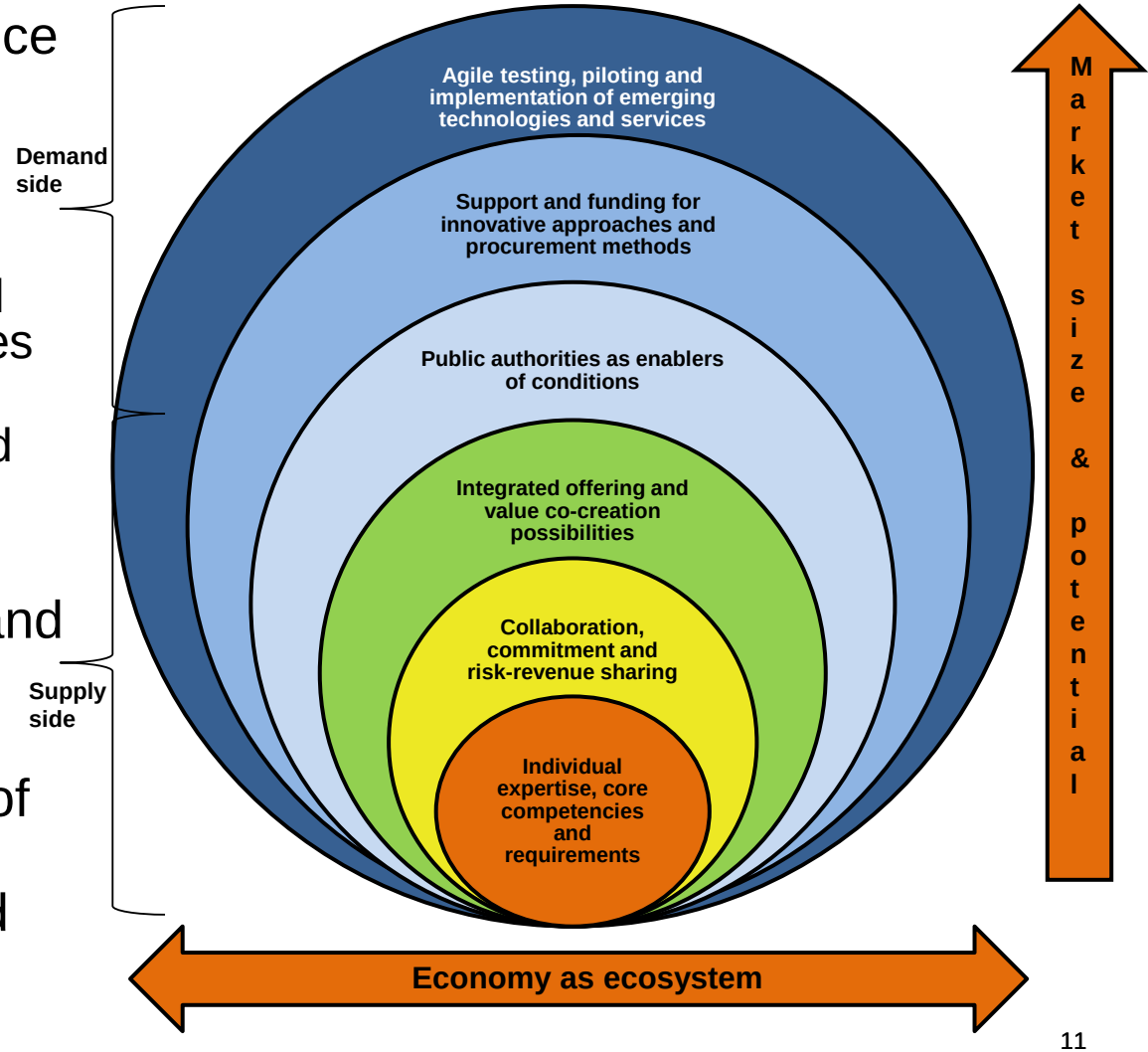


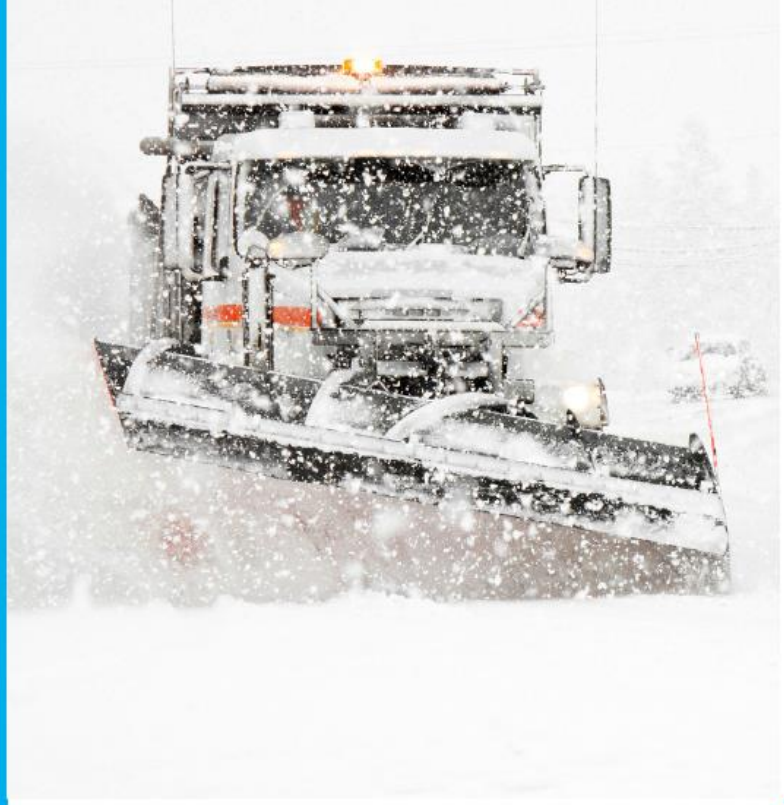
Enhancing innovations…



Recommendations for actions

1. Recognition of authorities' significance
2. Integrated project deliveries (alliance model)
   a) Combining all the viewpoints, competencies and services for gaining the best results
   b) Actors' selection should be based on ones competencies, capabilities and expertise in ecosystems
   c) Pains and gains should be shared
3. Stressing long-term collaboration
   a) Utilising research institutes in disseminating best practises and lessons learned
   b) Agile testing and piloting
   c) Impact assessment as a part of systematic development
4. Research funding agencies should support innovative procurement models





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Finnish winter road management – the evolving business ecosystem

BECSI WP2 project report

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Thank you!

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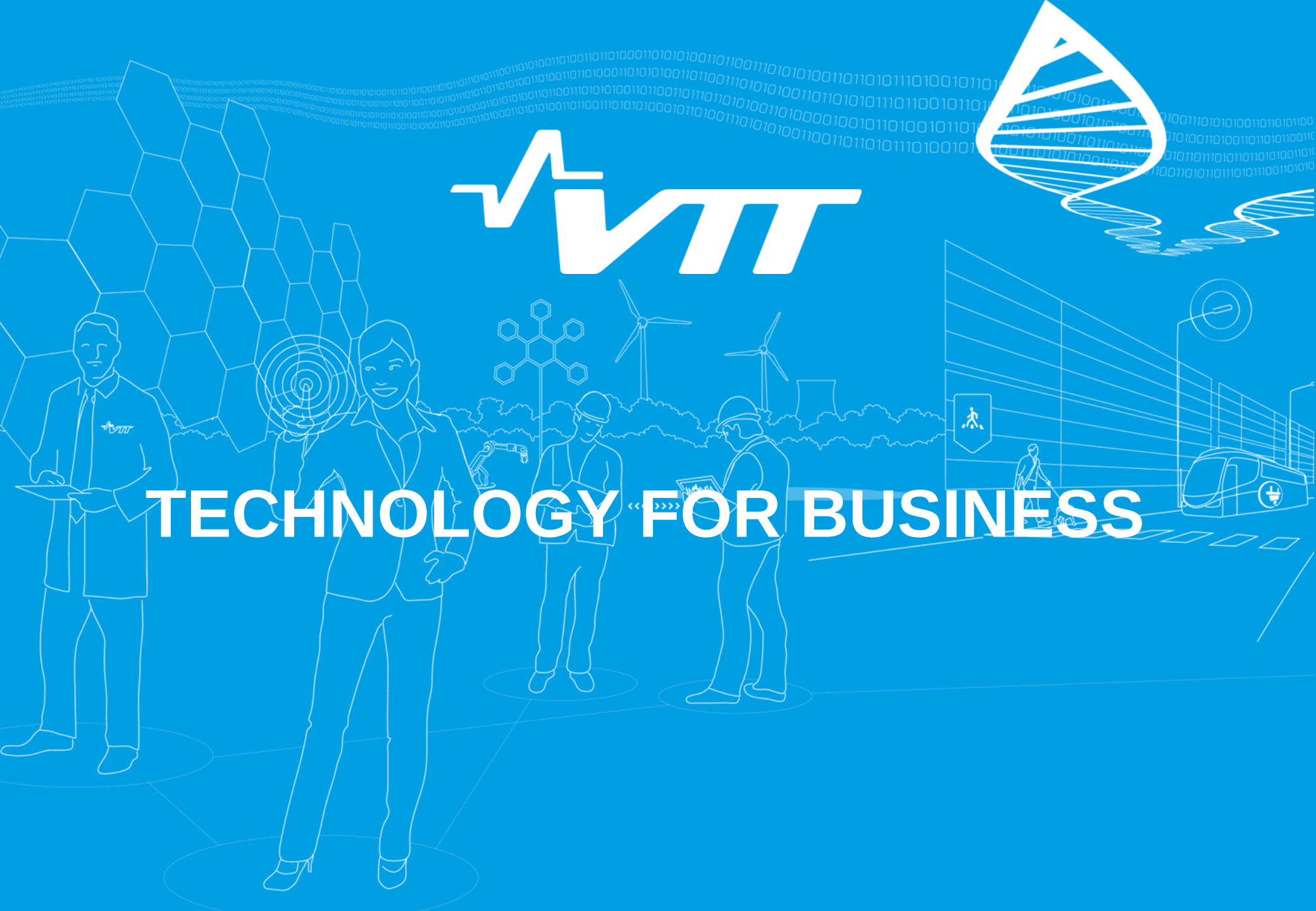
Available at:
http://www.vtt.fi/inf/pdf/technology/2015/T208.pdf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