

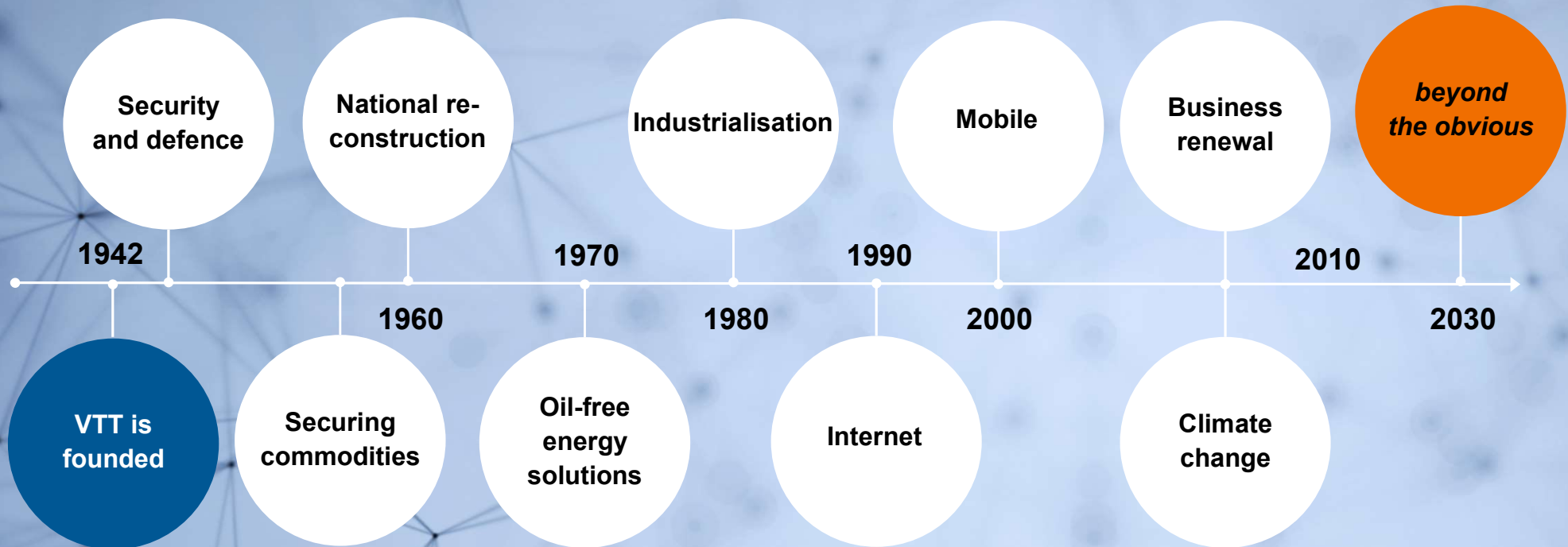


**VTT**

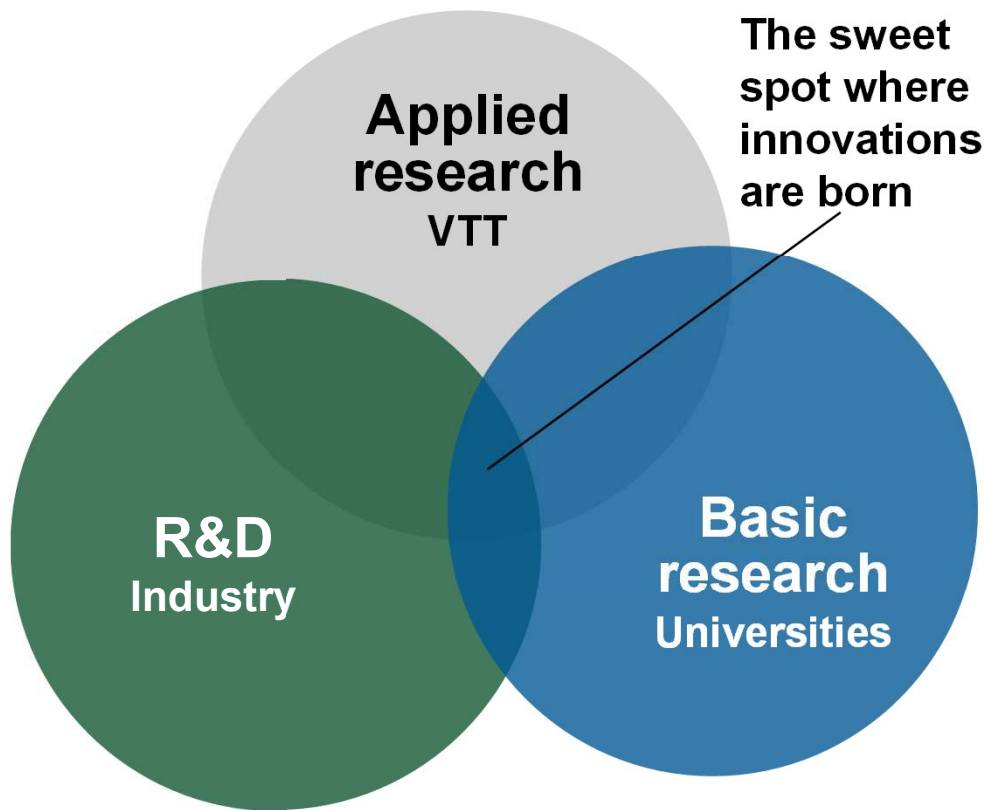
# **VTT – beyond the obvious**

14/02/2024 VTT – beyond the obvious

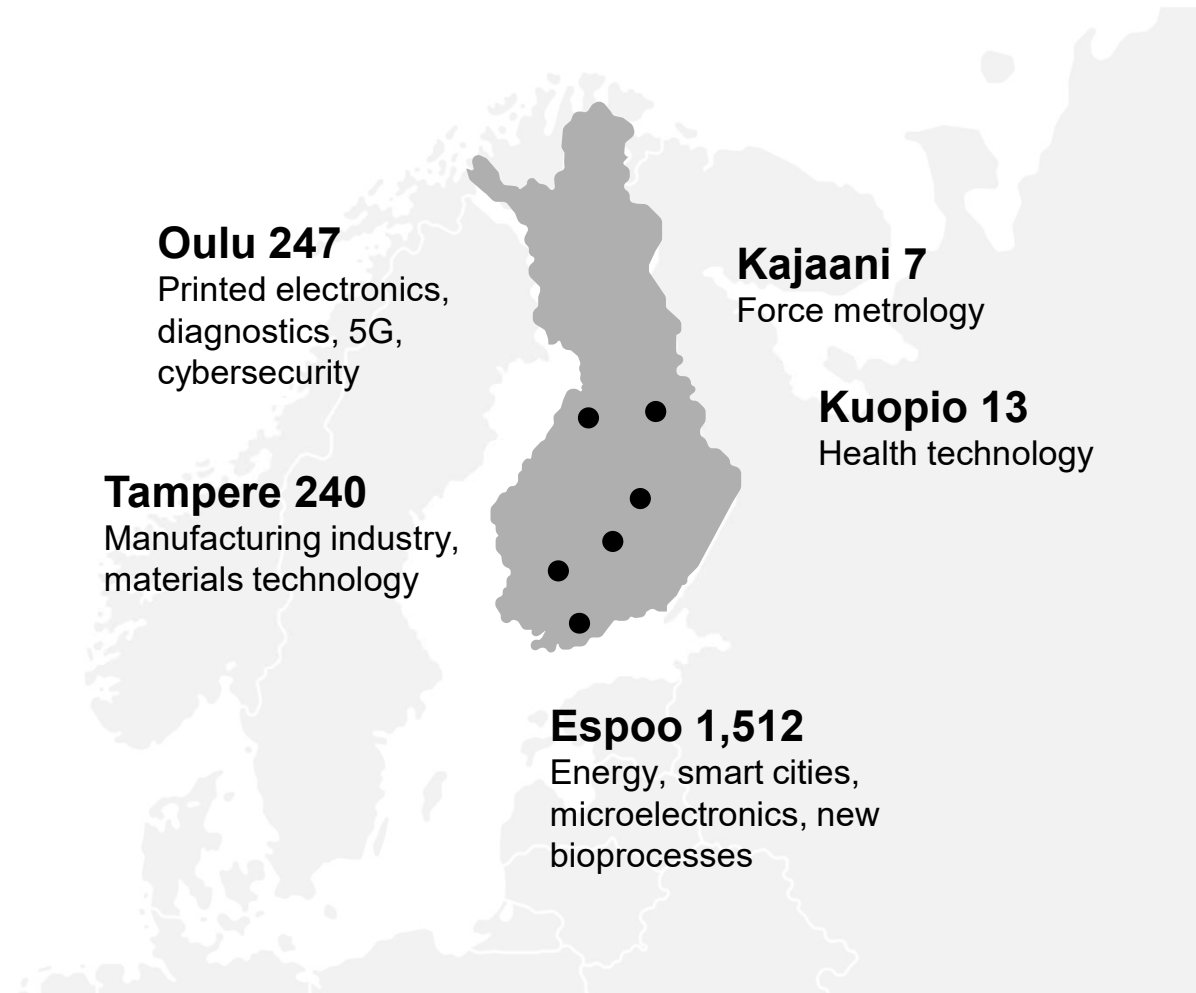
# More than 80 years of solving societal challenges



# VTT turns science into practical innovations through applied research



VTT – beyond the obvious



## VTT – *beyond the obvious*

VTT is a visionary research, development and innovation partner for companies and society and one of the leading research organisations in Europe.

Our role is to promote the utilisation and commercialisation of research and technology in business and society. Through science and technology, we turn global challenges into sustainable solutions for business and society in a responsible way.

**261 M€**  
turnover and other  
operating income

**2,213**  
employees

**43%**  
of the net turnover  
from abroad

**32%**  
a doctorate or a  
licentiate's degree

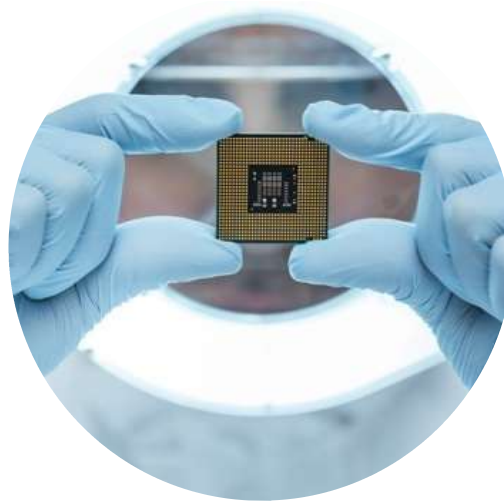
Establishment year  
**1942**

Steered by Ministry  
of Economic Affairs  
and Employment

# VTT creates solutions in three business areas



**Carbon neutral solutions**



**Digital technologies**



**Sustainable products and materials**



**VTT**

# Carbon neutral solutions

14/02/2024 VTT – beyond the obvious

# Where are we good at?

- **Smart, proactive**, responsive and immersive built environment solutions
- **Energy-efficient**, connected and value-driven built environment
- **Green and circular** solutions for smart cities, construction and renovation
- **Sustainability** of building stocks and resilience to natural and man-made hazards
- **Nature-based** solutions, promoting biodiversity
- **Low carbon materials** and bio-based material solutions, infrastructure aging and resilience management

# Infrastructure

**We develop technologies for reducing emissions and promoting circularity, biodiversity and nature-based solutions for urban development, smart buildings and a healthy indoor environment.**

Our key infrastructure:

- VTT IntelligentEnergy testbed
- Smart Grid Lab
- Clean Air Laboratory
- VTT FutureHub Living Lab





# VTT solutions for smart and resilient buildings and districts

## Healthy indoor environment

- VTT CleanAir services to ensure healthy air for people

## Resilient energy system

- Conceptual design of the building for resilient energy system
- VTT EnergyTeller – AI based optimisation of the energy system
- Energy Management Agent for building as a battery operation (BaaB)
- VTT Smart eFleet to ensure mobility resiliency

## Resilient heating & cooling

- Design a cost-efficient building concept for heating and cooling systems to secure the comfortable indoor climate
- VTT's optimiser tool for charging the building with heat to extend habitability and utilisation of heat and electricity storages



## Digital preparedness

- VTT's building data platform as digital twin for maintenance operations, to predict and plan operations
- Digital prioritisation and the control of the building energy end-uses resources
- Cybersecurity solutions to ensure continuity of the systems

## Climate resiliency

- Systems of local nature-based solutions to build district and city level resiliency
- Integrated blue-green-grey solutions for sustainable water and heat management
- Foresight capabilities to anticipate future scenarios
- Conceptual design for backup power to secure water, sanitation and food supply

# Selection of R&D projects

- **Automating digital building permit and compliance processes**
  - ACCORD 2022-2025 (Horizon Europe)
- **Improving construction productivity through data solutions**
  - ACTOR, AIXCon, LiveCol
  - Business Finland funding
- **Life-cycle assessments**
  - BIM-based building LCA (BIM4LCA)
  - Reduce CO2 emissions in built environment supply chains (CO2 DataHub)
- **Immersive Digital life in built environment (MetaBee)**
  - Funding pending
- **Future building material showroom**
  - Under preparation

# bey<sup>0</sup>nd

## the obvious

Thank you!

@VTTFinland

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