Let’s venture beyond the obvious
Opportunities in the world of huge challenges

Growth with sustainable innovations

- Climate action
  Clean energy for the future

- Resource sufficiency
  Prosperity from resource wisdom

- Industrial renewal
  Innovations empowering industry

- Safety and security
  Resiliency in turbulent world

- Good life
  Improved quality of life and work
VTT’s business areas

**KNOWLEDGE INTENSIVE PRODUCTS AND SERVICES**
- Sensing and integration
- Connectivity
- Data-driven solutions
- National Metrology Institute VTT MIKES
- Micronova manufacturing services

**SMART INDUSTRY AND ENERGY SYSTEMS**
- Lifecycle solutions
- Nuclear safety
- Smart energy and transport solutions
- Digital engineering
- Business innovation foresight

**SOLUTIONS FOR NATURAL RESOURCES AND ENVIRONMENT**
- Industrial biotechnology and food solutions
- Biomass processing and products
- Sustainable energy and chemical technologies

Personnel 2,054
Operating income 241M€
VTT’s R&D infrastructure – an essential part of the national research infrastructure

VTT’s research environments are world-class. They enable product development from basic research to piloting and even small-scale production.

Bioruukki
The largest bioeconomy pilot and research facility in the Nordic countries.

Biotechnology and food research piloting environment
offers unique facilities for the development and customisation of bio and food industry technologies.

Micronova
World-class cleanroom facility, fully equipped for the fabrication of silicon, glass and thin film-based microsystems.

VTT MIKES Metrology
is the National Metrology Institute of Finland and performs high-level metrological research and develops measuring applications in partnership with industry.

Engine and vehicle laboratory
enables research on passenger cars as well as heavy-duty vehicles up to 60 metric tons to develop energy efficiency, emissions reduction and use of 2nd generation biofuels.

PrintoCent
World’s first pilot factory for printed intelligence industrialisation.

ROVIR
Remote Operations and Virtual Reality Centre for the development of remote operations and virtual reality technology in industry.

A pilot-scale research environment for fibre processes
enables the development of novel products and supports the renewal of the pulp and paper industry.

Centre for Nuclear Safety
for nuclear technology safety research.
Energy use by communication technology

VTT’s capabilities, services and activities:

- Heat recovery from data centers
- Data centers as flexible resources
- Data transfer optimization
- Solar energy and energy storage in base stations e.g. in VTT’s 5G pilot
- 5G and beyond

VTT’s capabilities, services and activities:

- SMR programme support
- Analysis of SMR’s as a part of the city energy system
- Coordination of ecosystem for business opportunities
- Euratom project ELSMOR to confirm European capabilities of ensuring safety

Source: VTT’s study about introducing an SMR in the energy system of a mid-sized Finnish town in Finland.
# VTT’s participation in Finnish and European research alliances

## VTT in the Academy of Finland’s Centres of Excellence
- CoE in Molecular Engineering of Biosynthetic Hybrid Materials (2014 - 2019)
- CoE in Quantum Technology (2018 - 2025)

## VTT’s national development platforms
- Bioruukki – Research and pilot environment for the bioeconomy
- SMACC – Smart Machines and Manufacturing Competence Centre
- PrintoCent – Innovation centre for printed electronics
- 5G test network
- Micronova – Cleanroom for silicon-based micro systems
- MIKES – National metrological institute
- VTT Centre for Nuclear Safety

## VTT’s key European research alliances
- EARTO – an umbrella organisation that promotes and defends the interests of European research and technology organisations
- EERA – European Energy Research Alliance
- EIT Digital – European Institute of Innovation & Technology
- EIT Raw Materials – European Institute of Innovation & Technology
- EIT4Food – European Institute of Innovation & Technology
- NUGENIA – Research cooperation between the European nuclear industry and research institutes

## VTT in PPP initiatives (H2020 programme)
- Contractual PPPs
  - Photonics
  - 5G
  - Big Data
  - Cyber Security
  - Robotics
  - FoF (Factory of the Future)
  - SPIRE (Sustainable Process Industry and Resource Efficiency)
  - EeB (Energy Efficient Building)

- Joint Technology Initiatives / Joint Undertakings
  - Electronic Components and Systems ECSEL
  - Biobased Industries BBI
  - Fuel Cells and Hydrogen FCH