Space Business Forum
Business Finland
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From science to strategy: how SPACECONOMY aims to strengthen Finland's role in the global space economy

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SPACECONOMY in the WELEC program of the Strategic Research Council/Research Council of Finland

- WELEC = **Economy and Welfare in an Era of Strategic Competition**
- In the era of strategic competition, key goals include economic and societal stability, resilient operating models, intangible capital, and societies' ability to attract investments
- How, and by what means, can the **economy develop favorably** and build the foundation for well-being under changing conditions?
- The WELEC program examines **productivity**, develops ways to **strengthen it**, and seeks solutions for **renewing the economy and maintaining well-being**
- The WELEC program runs from 2025 to 2031
- Five national consortia: SPACECONOMY, CO2CREATION, GAINS, EPIC-AI, TRANSFORM-AI

What is Space Economy?

Space activity is an essential, though rather invisible, part of society

We use space applications directly, including:

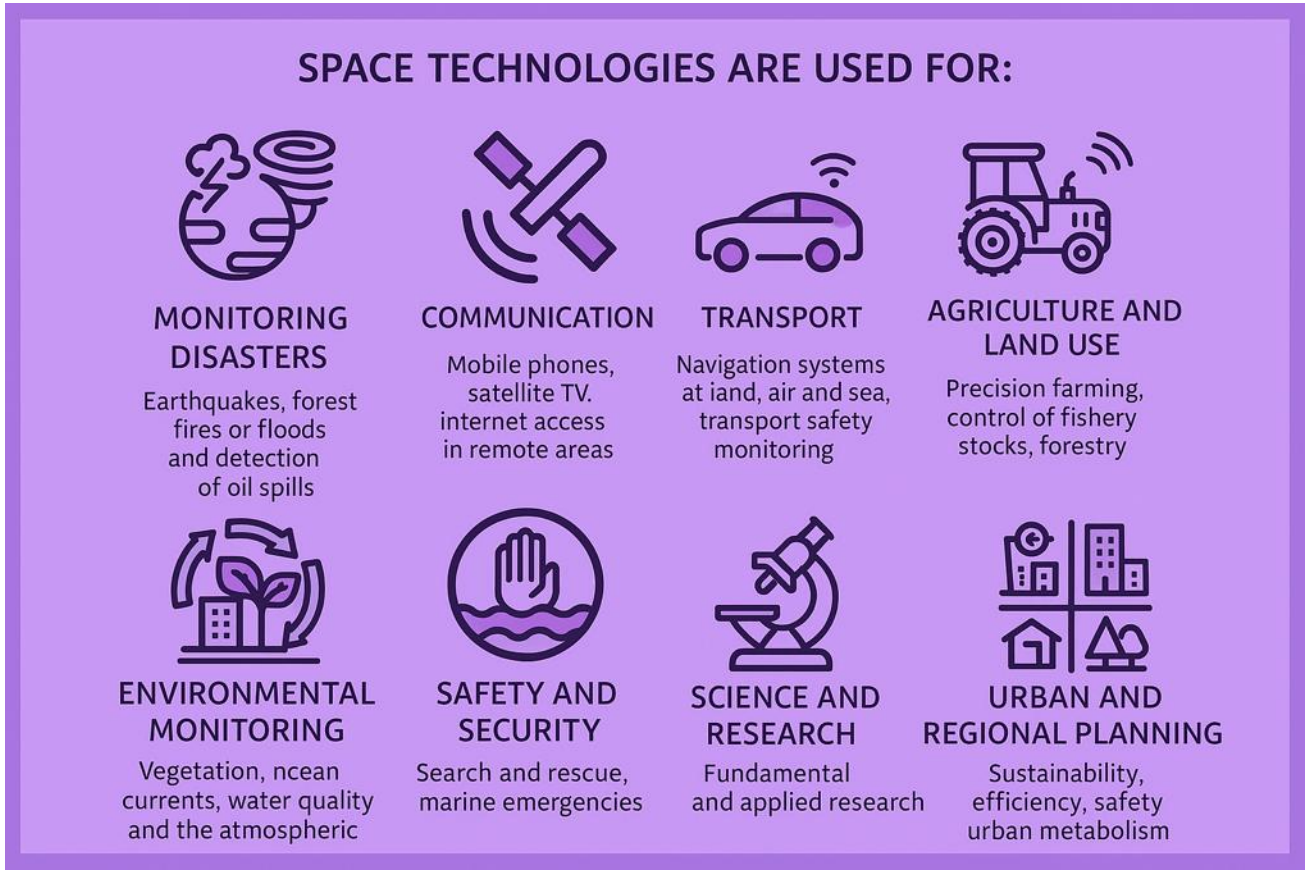
- Positioning (Galileo, GPS…) Saves 3-5 billion euros / day!
- Telecommunications
- Weather information Saves 1-2 billion euros / day!
- Timing (including banking transactions, energy grids)

And indirectly, including remote sensing:

- Disaster response
- Security and monitoring
- Environmental monitoring
- Science and research

Soon also as part of an increasing number of applications, such as space tourism, electricity production, servers in space, industry, mining, etc.

The value of the space economy will exceed 1600 billion euros ($1.8 trillion) by 2035 (WEF/McKinsey)



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On the edge of a new era

More space traffic than ever: an average of one launch per weekday (272 by 12 November 2025).

The cost of access to space has dropped dramatically in recent years:

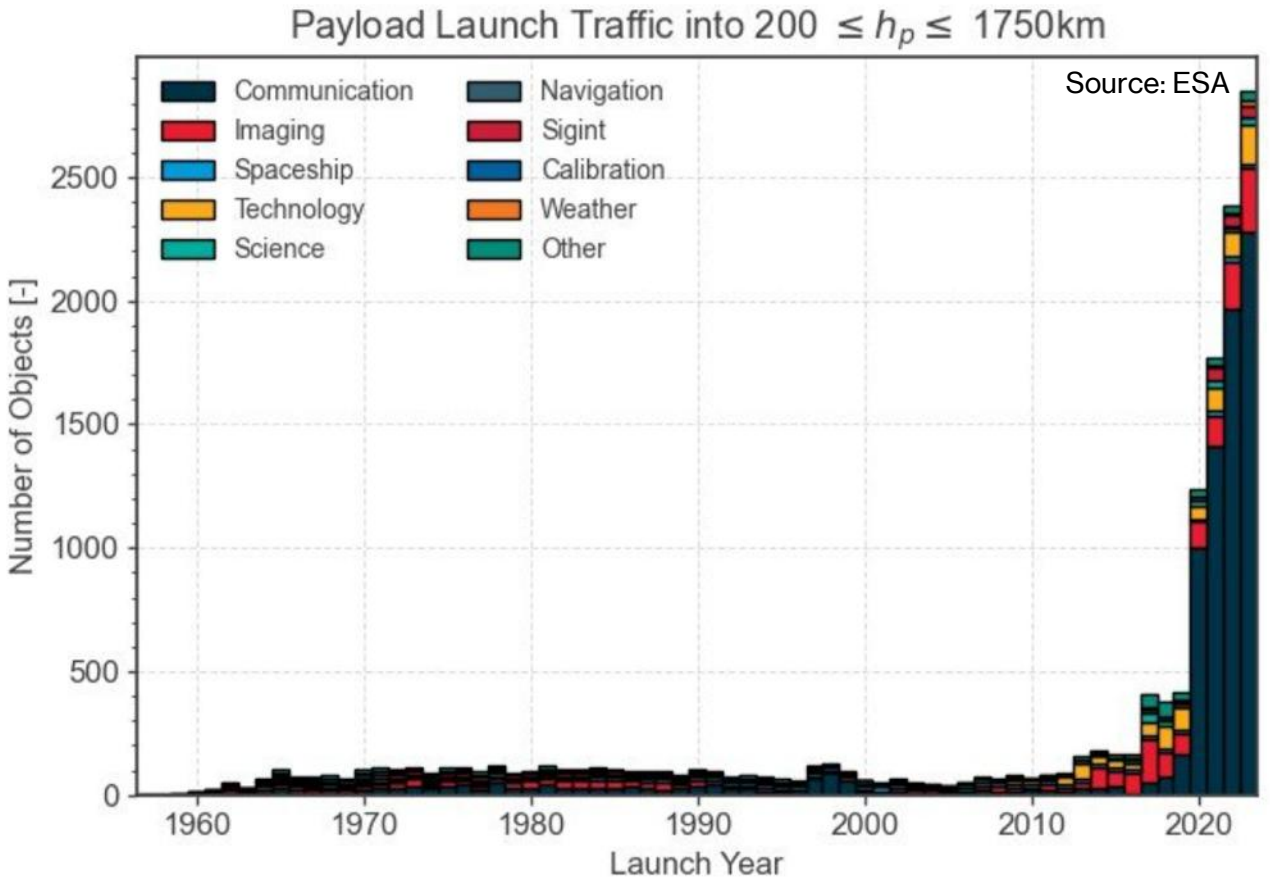
- 2010 (Ariane 5): $15,000 / kg
- 2025 (Falcon 9): $2,700 / kg
- Soon (Starship and New Glenn): apprx. $100 / kg

The amount of cargo to space is increasing massively:

- 2010: approximately 500 tons
- 2025: approximately 1,500 tons
- Soon: 10–20x
- Estimated 500,000 tons by 2030

What can you expect?

- More & different services from space
- Mobile communication via space
- Server farms in space
- Space stations
- Industry in space
- Moon and Mars



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New possibilities, new services

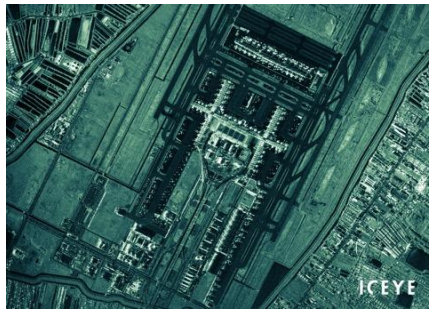
Earth observation for everyone

Value-Added Services, projected to grow the market to $17.2 billion by 2033, include

- AI-driven analytics for precision agriculture
- urban planning
- disaster response

Smallsat constellations and crowd-sourced data from drones/UAS – both Finnish specialities.

The market expected to reach $7.2 billion by 2030.



GNSS advancements benefit all society

High Accuracy Service
precision agriculture, drone delivery, and surveying.

Emergency Warning Satellite System
real-time alerts for natural disasters directly to smartphones

Multi-Frequency and Tilt Compensation Receivers
cm-level accuracy, ideal for GIS fieldwork and construction

5G/GNSS Integration for IoT
low-power, real-time positioning in wearables, smart cities, and aerial vehicles

Resilient signal in Denied Environments
GNSS-alternative navigation for military/EW scenarios, addressing spoofing/jamming – also LEO PNT development

The GNSS market is projected to grow to $703 billion by 2032, driven by autonomy and IoT.

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Finland became a small space superpower

Finland has been involved in space activities (passively) since the 1970s. Finnish devices have been in space since the 1980s.

2017 educational satellites

- Aalto-2, the first Finnish satellite
- Aalto-1, the first officially Finnish satellite

2018 first Finnish commercial satellites

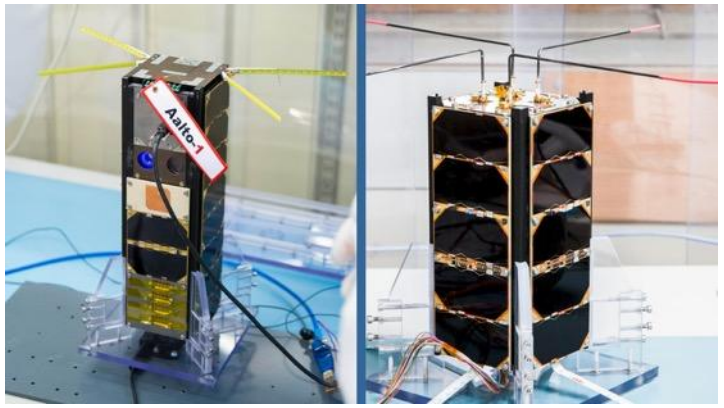
- Iceye X-1 and Reaktor Hello World

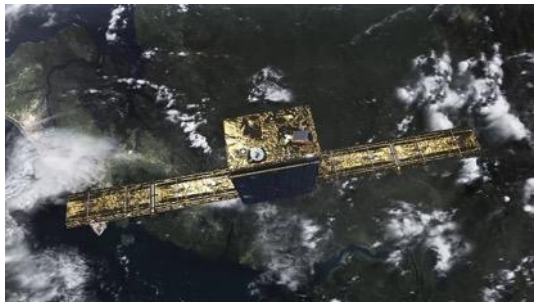
2025

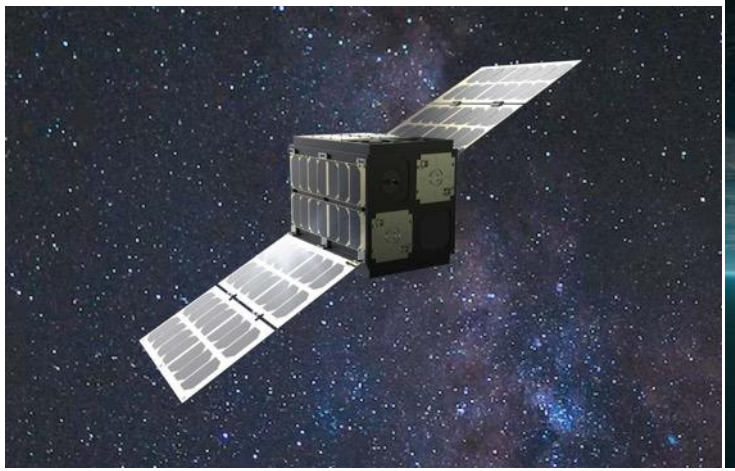
- 34 satellites in the Finnish space object register (24 still operational. Compared to Sweden: 20/10.
- Over 50 Finnish-made satellites in space

Future

Iceye and Kuva Space are building constellations, with over 200 satellites by 2030. Other companies, like Re-Orbit, are expected to join.







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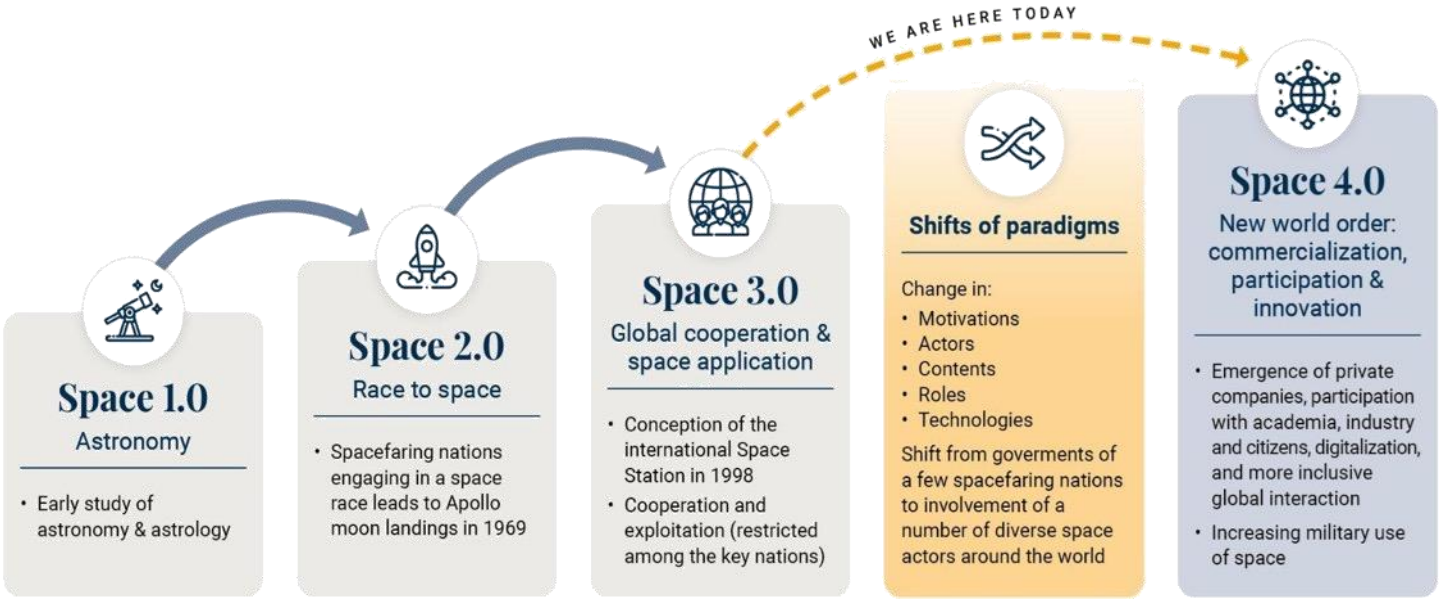
What is SPACECONOMY?

The academic world laid the foundation for Finland's space activities, including the first satellites and the spin-off companies that emerged from them.

Companies have received significant venture capital funding, but the amount of academic space research has somewhat declined – coinciding with the dawn of a new era in space utilisation.

SPACECONOMY is creating a foundation for a new "new space" by bringing together science, industry, and the public sector to boost the space economy.



- AI-driven EO and GNSS solutions to support decision-making
- Sustainable business and governance models / how do we create value?
- International partnerships and competitiveness
- Ethical and responsible regulation and resilience

- Support for expertise, space awareness, and citizen participation

We aim to address the challenges

- Fragmented field and lack of cohesion among actors
- Shortage of experts
- Limited integration of societal and regional perspectives

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What is SPACECONOMY?

The project combines technology and space science, business studies, administration, social sciences, and communication.

The SPACECONOMY consortium includes:

- Tampere University (coordinator, Heidi Kuusniemi et al)
- University of Vaasa (Helka Kalliomäki et al)
- Finnish Meteorological Institute (Jouni Pulliainen et al)
- University of Helsinki (Minna Palmroth et al)
- Aalto University (Jaan Praks et al)
- University of Turku (Marikka Heikkilä et al)
- FGI/National Land Survey of Finland (Hannu Koivula et al)
- Kupla Productions Oy (Jari Mäkinen)

The first funding period is from October 2025 to September 2028 (3 million euros) with an option for a second period from October 2028 to September 2031 (3 million euros). The funding is provided by the Strategic Research Council of the Research Council of Finland.

It is one of ten projects under the SKILLS and WELEC programs (total funding 29 million euros).

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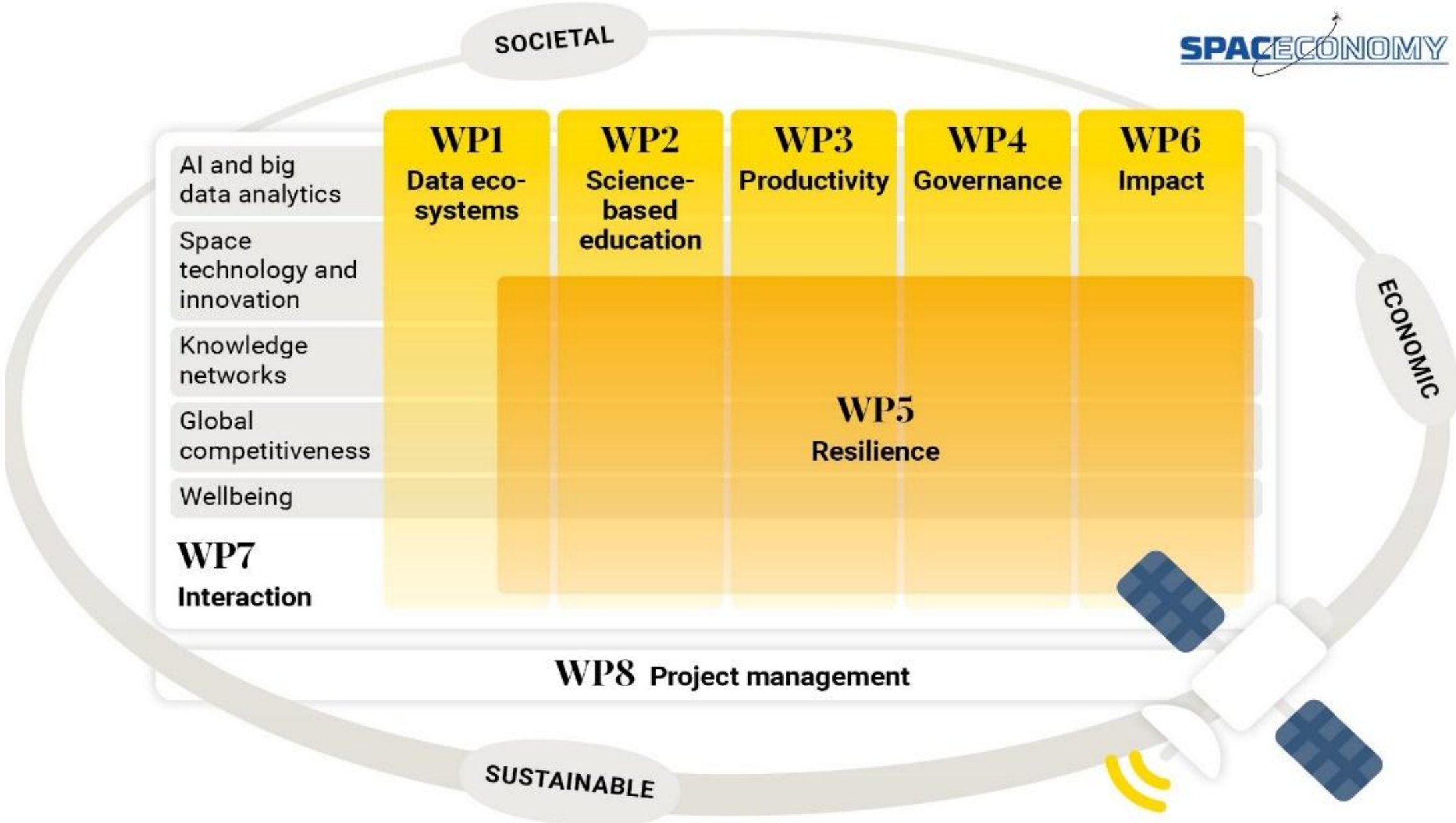
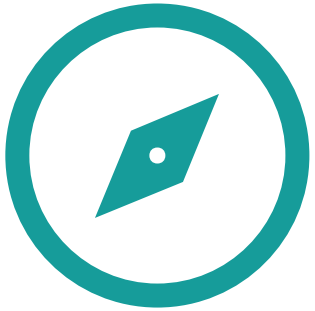

SOCIETAL
SPACECONOMY
AI and big data analytics
Space technology and innovation
Knowledge networks
Global competitiveness
Wellbeing
WP1
Data eco-systems
WP2
Science-based education
WP3
Productivity
WP4
Governance
WP6
Impact
WP5
Resilience
WP7
Interaction
ECONOMIC
WP8 Project management
SUSTAINABLE

Advisory groups nationally and scientifically

National advisory board

- ***Business Finland***
- ***Iceye***
- ***ESA Phi-Lab Finland***
- ***ReOrbit***
- ***CGI***
- ***SYKE***
- ***ESA BIC Finland***
- ***VTT***
- ***SAMK***
- ***TEM***
- ***Traficom***
- ***City of Pori***



Scientific advisory board

Prof. Teemu Roos, FCAI, University of Helsinki
Prof. Andrew Dempster, Australian Centre for Space Engineering Research, University of New South Wales
Prof. Tuija Pulkkinen, University of Michigan
Prof. Scott Pace, Space Policy Institute, George Washington University
Prof. William Baber, Kyoto University
Dr. Mihkel Pajusalu, University of Tartu

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International cooperation

- **Australia** – University of New South Wales (ACSER) & Australian Space Agency
  → Collaboration in GNSS, ML and new space innovations
- **Japan** – Kyoto University
  → Collaboration in the development of sustainable business and investment models
- **USA** – George Washington University & Johns Hopkins Applied Physics Lab
  → Comparison of space policies, science-based decision-making, protection of critical infrastructures
- **Germany** – University of Passau
  → Regulatory and ethical frameworks in the context of space-based data and AI utilisation
- **Estonia** – University of Tartu
  → Research collaboration on space economy & regional impacts of space activities
- **Poland** – Technical University of Gdańsk
  → Collaboration on resilient PNT and maritime risk management
- **Norway** – Jammertest
  → GNSS interference protection testing platform
- **UK** – UK Met Office
  → Collaboration on the impact of space weather on the global economy and societal services
- **Belgium** – Solar-Terrestrial Centre of Excellence (STCE)
  → Joint development of space weather services

SPACECONOMY is building a strong international collaboration network to strengthen Finland's position in the global space economy

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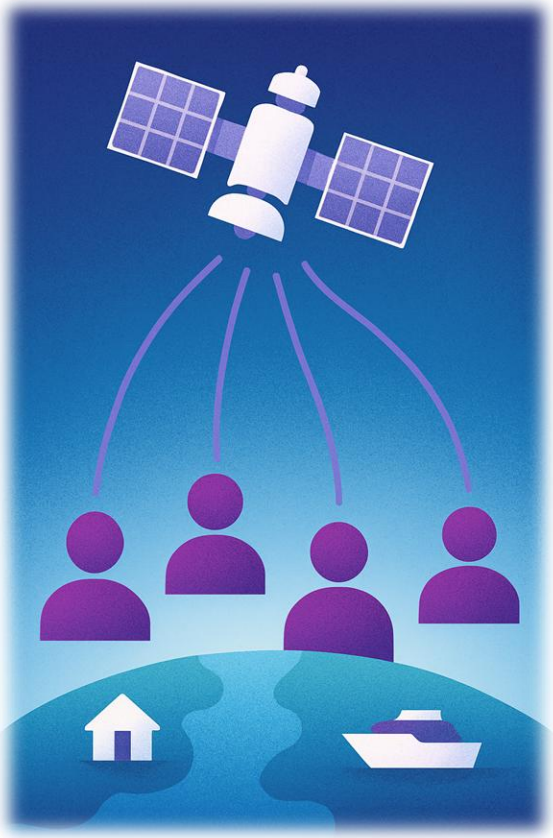
Way forward – expected results and impact

- National roadmap for growth in Finland's space economy
- Cross-sectoral data ecosystem framework
- Impact assessments
- Policy recommendations and investment strategies (innovation uptake, regulation, governance, sustainability)
- Talent pathways and education models
- Decision-making tools based on satellite data
- Citizen science and co-creation around space-based data
- Enhanced resilience of national satellite infrastructures



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Sustainable growth with space-based data and cooperation!

Join us: business cases, regional pilots, educational cooperation, satellite data initiatives etc!