



**NLS**  
FINNISH GEOSPATIAL  
RESEARCH INSTITUTE  
FGI

geo  
portti

European Perspective:

# Geoportti RI -

Lessons learned from 15 years of development

Prof. Juha Oksanen

NFDI4Earth Plenary 2026, 29.5.2026



*portti: gate or a gateway*

 **NATIONAL LAND SURVEY OF FINLAND**  
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 **Suomen ympäristökeskus**  
**Finlands miljöcentral**  
**Finnish Environment Institute**

  
**Luke**  
NATURAL RESOURCES  
INSTITUTE FINLAND

  
**THE NATIONAL  
ARCHIVES OF FINLAND**



**A!**  
Aalto University

 **UNIVERSITY  
OF TURKU**

 **UNIVERSITY OF HELSINKI**

  
**UNIVERSITY OF  
EASTERN FINLAND**

  
**CSC**

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 **Location  
Innovation  
Hub**



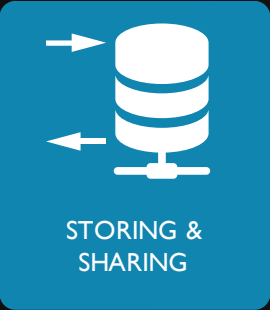
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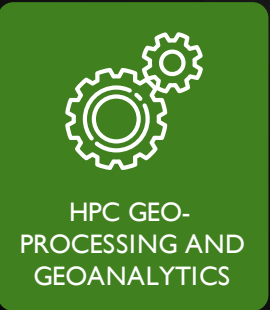
- Paituli geospatial data download and access service
- Paituli STAC
- GeoCubes Finland/Europe



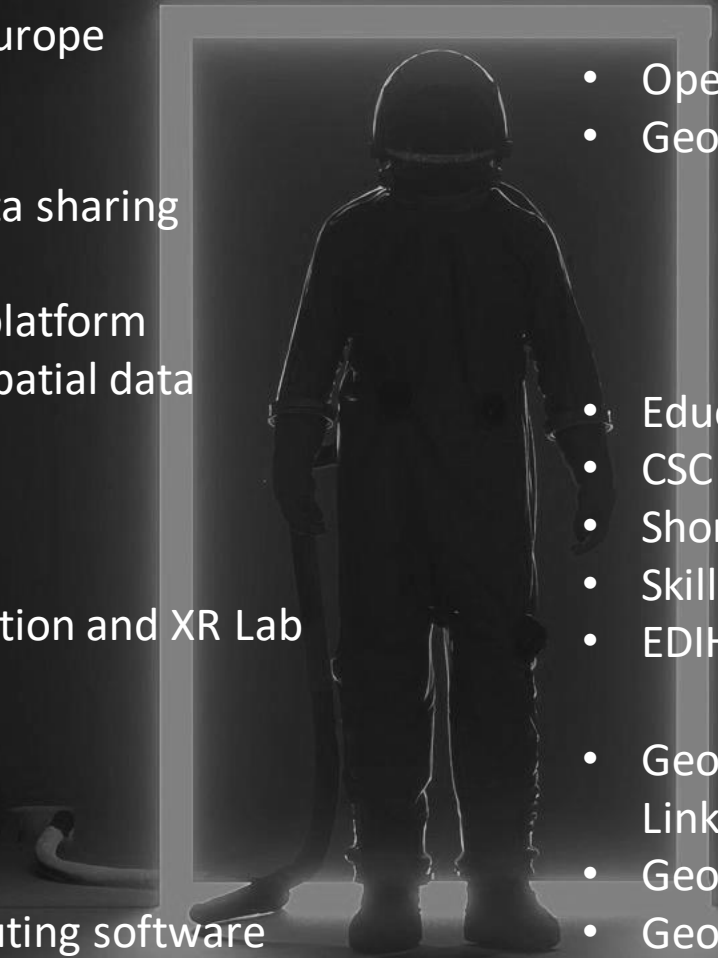
- Paituli geospatial data sharing service
- Drone data sharing platform
- Fairdata.fi with geospatial data support



- UEF Drone Lab
- NLS FGI Geovisualisation and XR Lab



- CSC's HPC geocomputing software stack (Roihu, EuroHPC LUMI etc.)
- Paituli data @CSC's HPC environment



- OpenDroneMap @CSC's cPouta
- Geoprivacy platform

- Education material bank
- CSC Earth Observation guide
- Short courses on geocomputing
- Skills Self-Assessment tool
- EDIH LIH innovation services

- Geoportti.fi website and LinkedIn
- Geoportti Roadshow
- Geoportti invited talks



Research infrastructures are never built – they are continuously negotiated.  
We don't build Geoportti once.  
We shape it together, every day.

We bring the questions and the passion to understand our world.

We build the tools and technologies that make it possible.

We create policies and frameworks that enable and guide.

We adapt, learn and evolve – together.

We connect needs to solutions in practice.

**CHALLENGES**  
• climate change  
• biodiversity loss  
• sustainable societies

**DATA SHARING**  
FAIR

**OPEN SCIENCE**

**SCIENCE & SCIENTISTS**  
• questions  
• data  
• discoveries

**TECHNOLOGY & DEVELOPERS**  
• tools  
• platforms  
• innovation

**INSTITUTIONS & PRACTITIONERS**  
• resources  
• operations  
• real-world use

**POLICIES & POLICY MAKERS**  
• rules  
• funding  
• frameworks

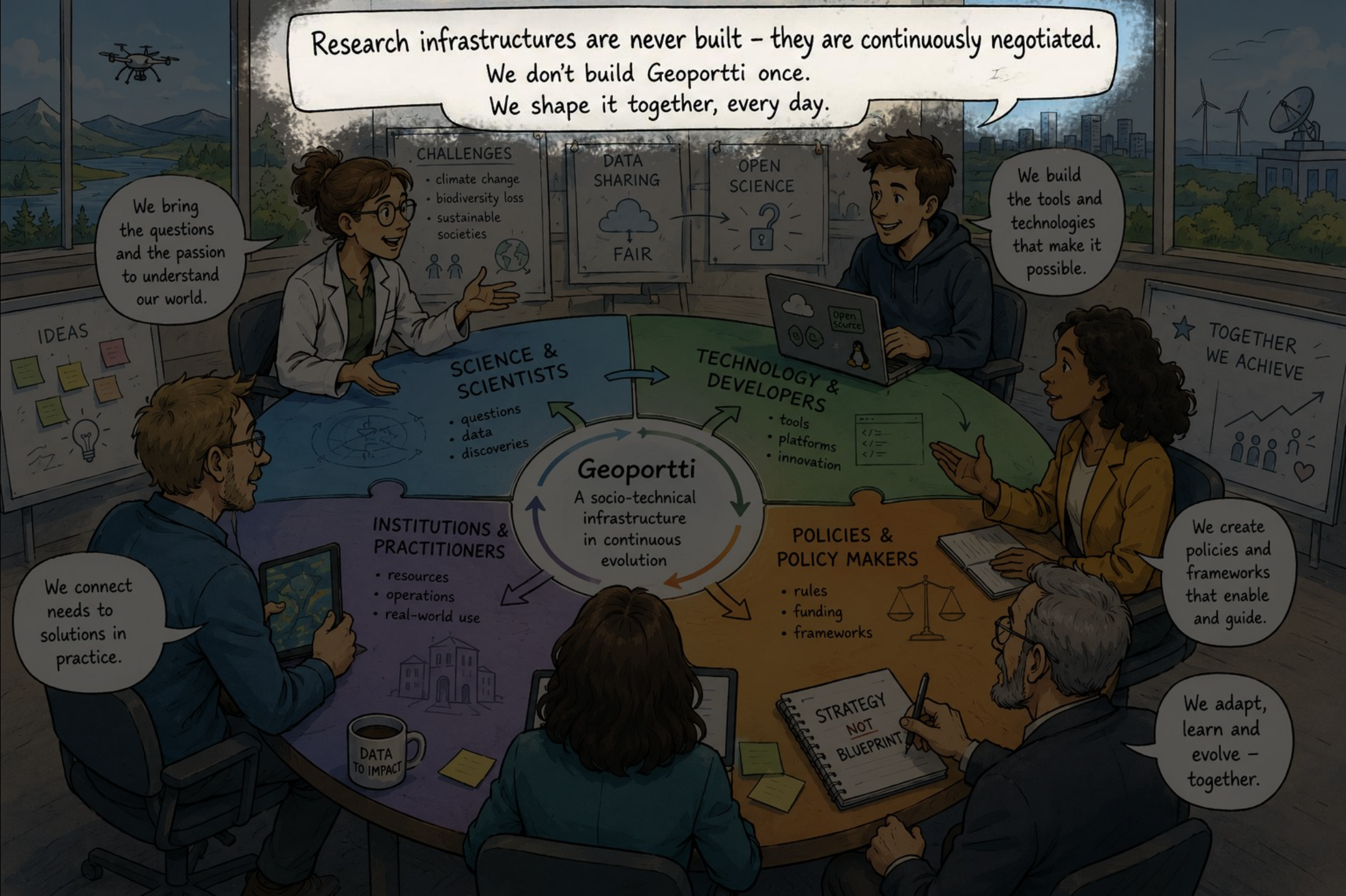
**Geoportti**  
A socio-technical infrastructure in continuous evolution

★ **TOGETHER WE ACHIEVE**

**IDEAS**

DATA TO IMPACT

STRATEGY NOT BLUEPRINT



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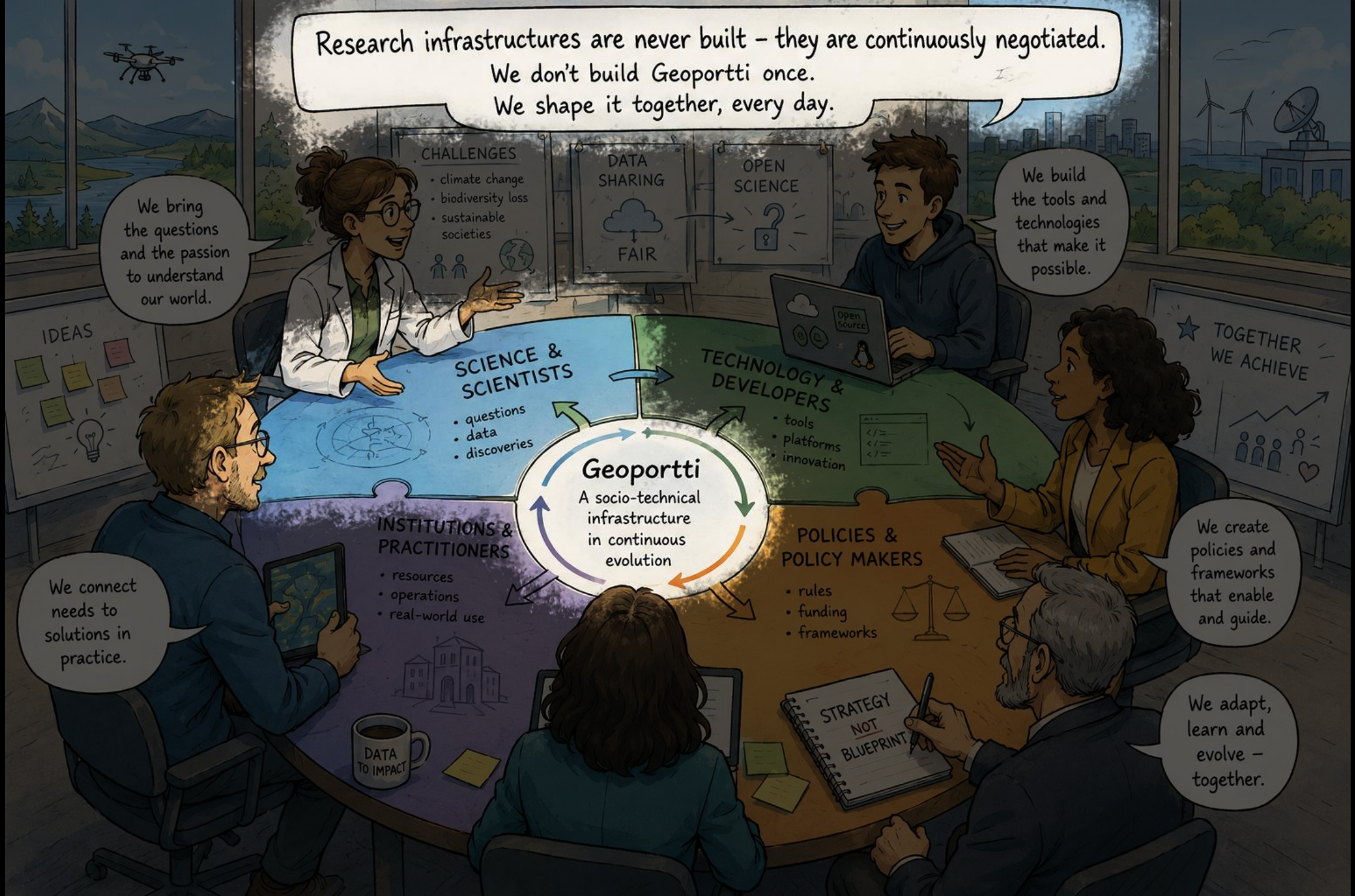
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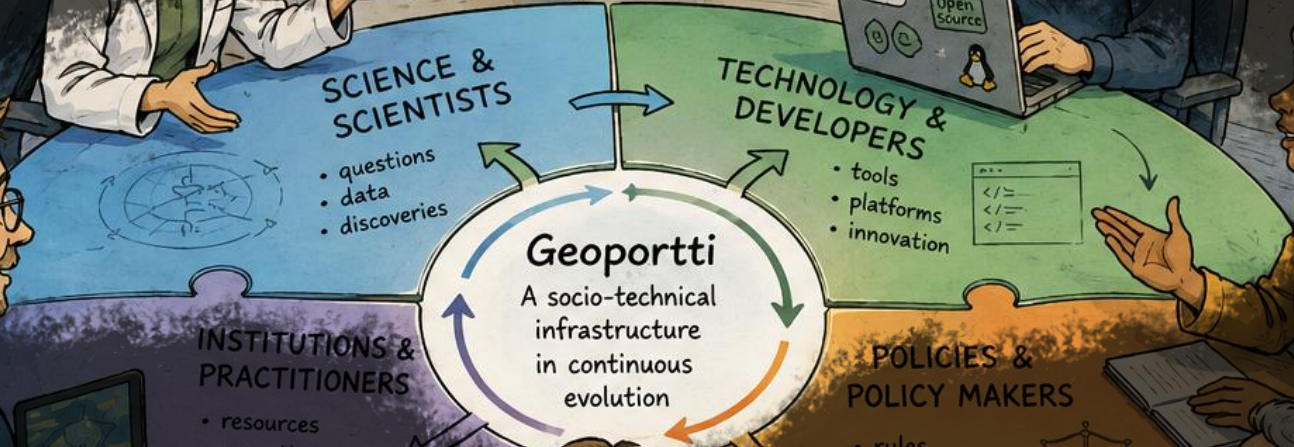
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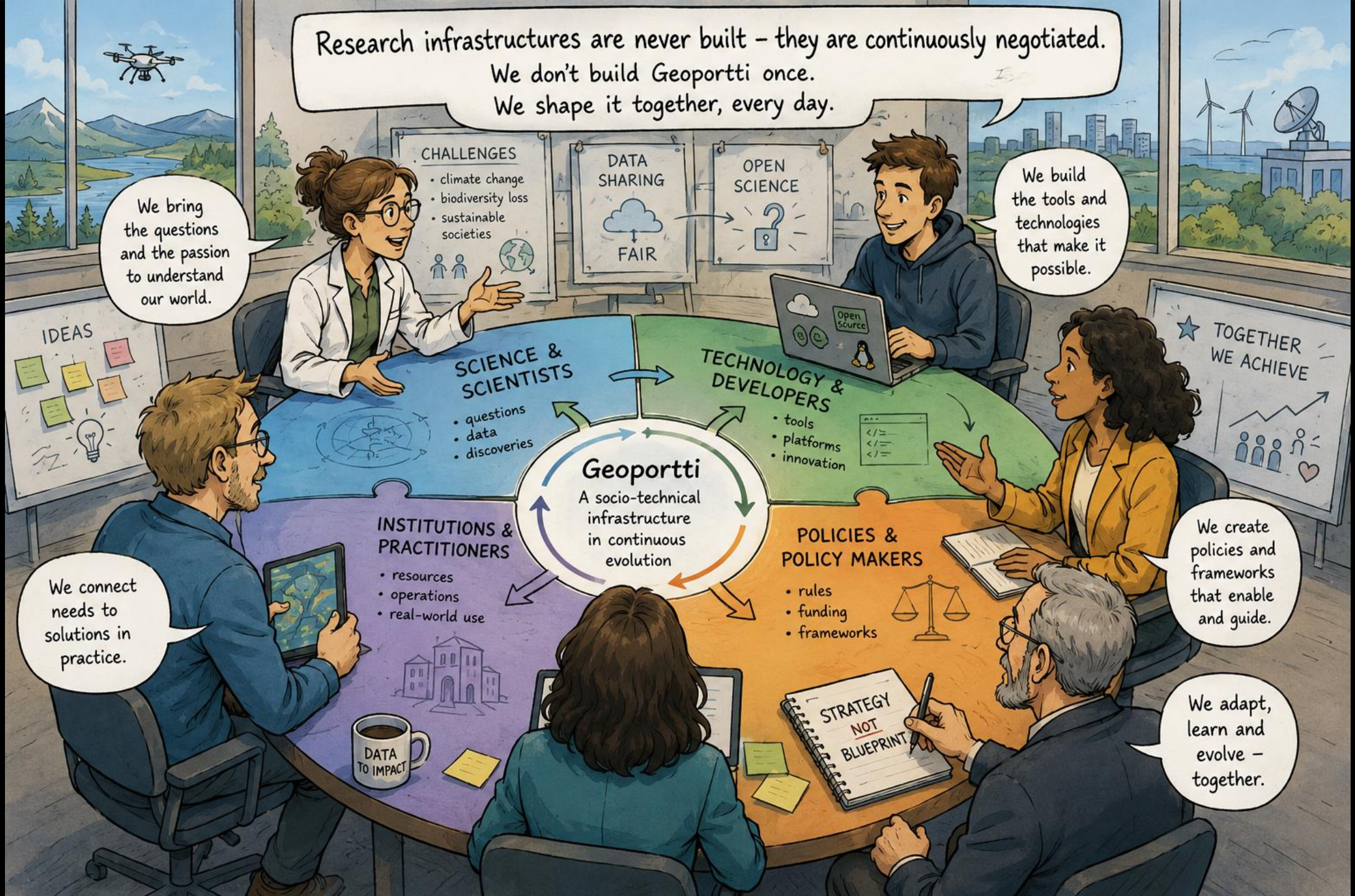
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DATA TO IMPACT

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# The real challenge is not technology – it is alignment

We have the data, the tools, the computing power...



Geoportti has shown that the hardest problems are not about technical data access, harnessing HPC resources and computing platforms... but aligning actors and their incentives, practices, policies etc.

...but how we work together, why we do it, and how we make it last.



- DATA
- HPC
- PLATFORMS
- TOOLS

## EXAMPLES OF KEY TENSIONS

We have solved innumerable technical problems... ✓

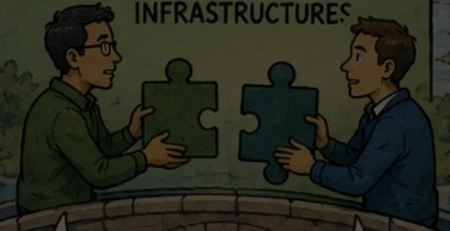
1 SCIENTISTS vs. INFRASTRUCTURE SERVICE DEVELOPERS



We need flexibility and new approaches!

We need stability, standards and sustainability!

2 NATIONAL SDIs vs. RESEARCH INFRASTRUCTURES



We ensure authoritative, high-quality data for everyone.

We transform data into research-ready solutions.

3 OPENNESS vs. SECURITY



Open data opens minds and innovation!

Security protects people, data and our society.

...but alignment problems keep on returning in new forms.



The success of research infrastructures is not determined by what we build, but by how well we continuously adapt them to science, people, and change.

Together, we keep adapting.



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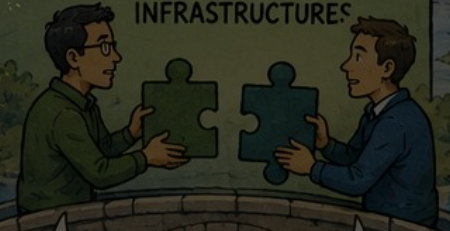
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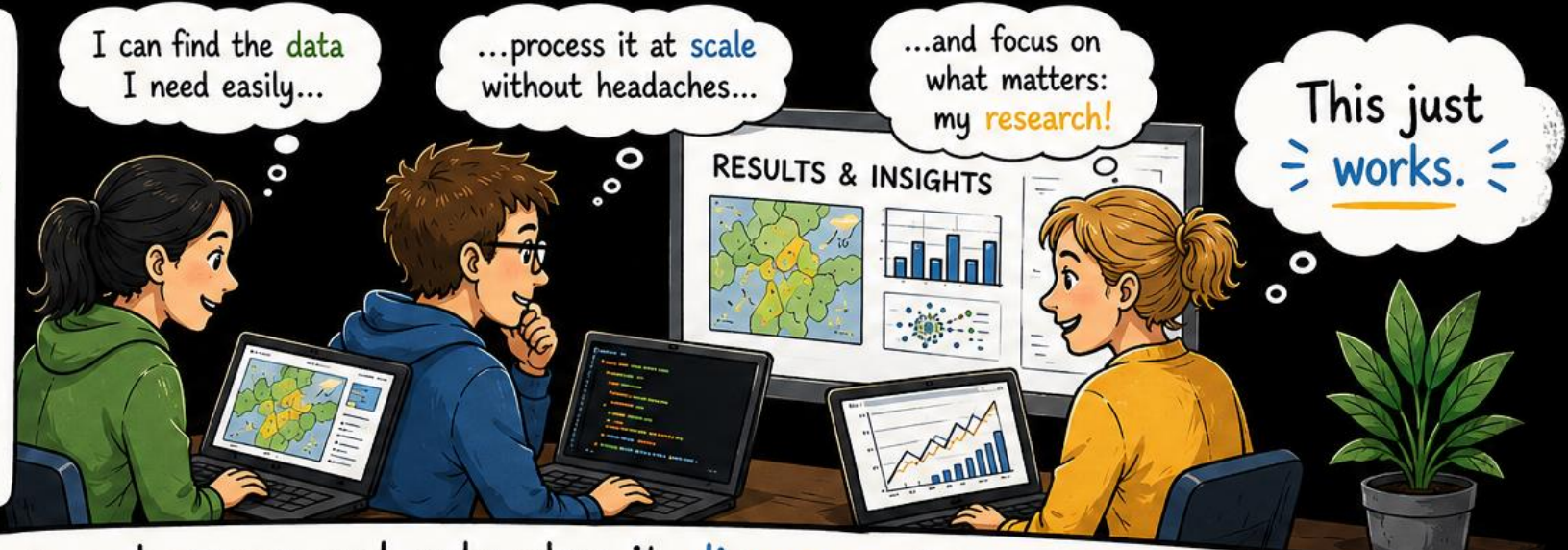
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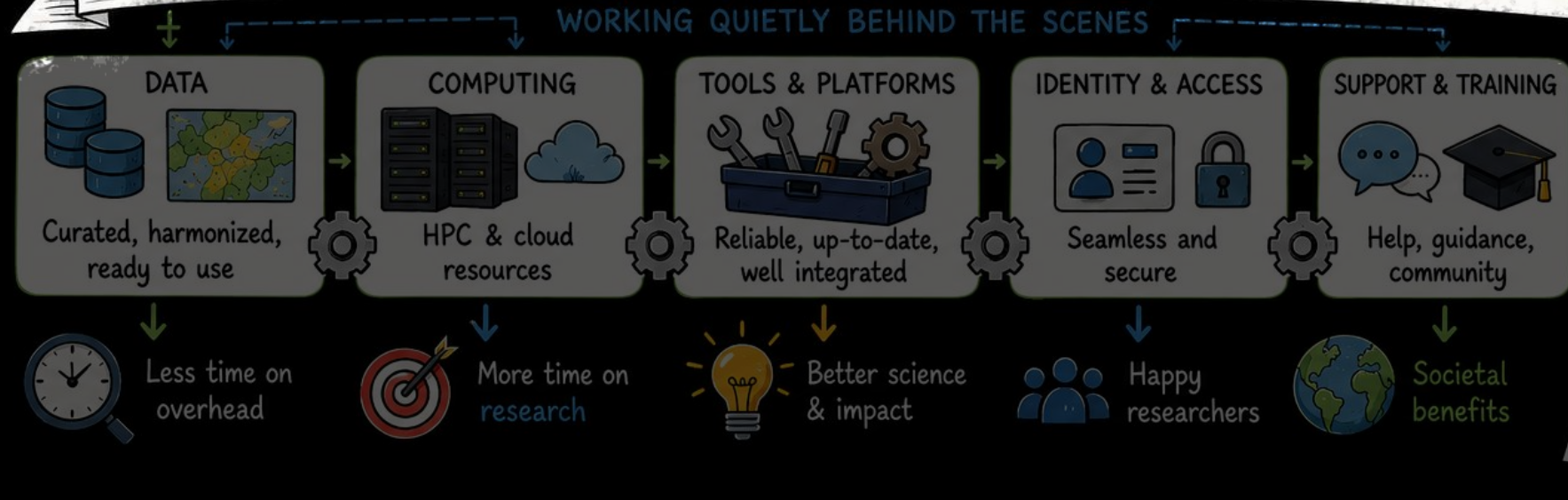
# Value emerges only when infrastructure meets real research practice

Research infrastructure only works if it is:

-  Embedded in workflows
-  Identifiable and visible to users
-  Providing something that is clearly better than alternatives



Infrastructure becomes real only when it disappears into everyday research.



Good infrastructure is like oxygen – you only notice it when it's missing. 😊

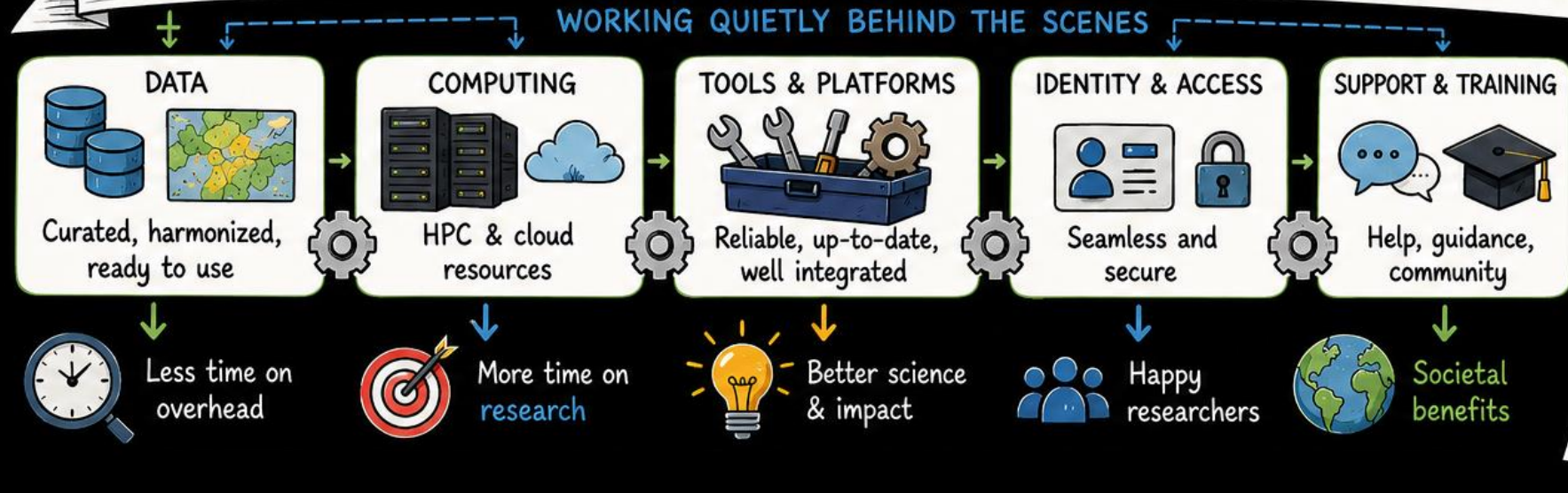
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# Research infrastructure has a lifecycle – relevance has a half-life

PAIN POINT

Lack of ...

GEOPORTTI RESPONSE

⇒ Geoportti action

MILESTONE / OUTCOME

⇒ Impact

TIME GOES ON...

Relevance fades



Lack of open geospatial data

⇒ Geoportti/Paituli started geospatial data sharing

⇒ 2012 Data opening boom in Finland

Open data? That's everywhere now.

Lack of HPC geocomputing resources in Finnish research institutions

⇒ 2017 Geoportti started HPC resource sharing

⇒ 2018 National HPC resources open for Finnish research institutions

HPC access? That's normal now.

Lack of seamless access/download to country-wide geospatial data

⇒ 2017 Geoportti started sharing of country-wide datasets

⇒ Recently many organisations have started to share country-wide datasets

Country-wide data? Easy and available.

What was once transformative becomes **trivial** very quickly.



Research infrastructures must continuously **reinvent** themselves.



In research infrastructure landscape, yesterday's breakthrough is today's **minimum requirement**.



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**Paituli**  
Home Metadata **Download data** Web services Batch download STAC Share your data Help

Select dataset: National Land Survey of Finland  
Producer: Topographic database  
Data: 1:10 000  
Year: 2025  
Format: GeoPackage  
Coordinate system: ETRS-TM35FIN

Download as zip file: ~18000 Mb  
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 MTK-suo  
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 MTK-vakavesi  
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Peeenranta  
Ilmanstrand

SAHKT-Петербург

What was once transformative becomes trivial

Today's minimum requirement

# General-purpose research infrastructures are not weak – they are **enabling**

Geoportti moved from "too broad" thinking to "strategically enabling" thinking.

Too broad?  
Doesn't specialise?

The most important infrastructures are not those that specialise, but those that **connect**.

Evolution needs **INTERNATIONALISATION**

STRONG TRANSITION PHASE OF ECOSYSTEMS

RIs and research workflows

SDIs and ARCO data access

Data Spaces and their role related to SDIs

Digital Twins as data and computing hungry applications layers



INTEROPERABILITY  
STANDARDS  
TRUST  
POLICIES  
PEOPLE

We don't lack infrastructures – we lack the **GLUE** between them.



On-boarded into **EOSC Node Finland!**



We know the Earth  
– we secure the future



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