

Data reuse in healthcare

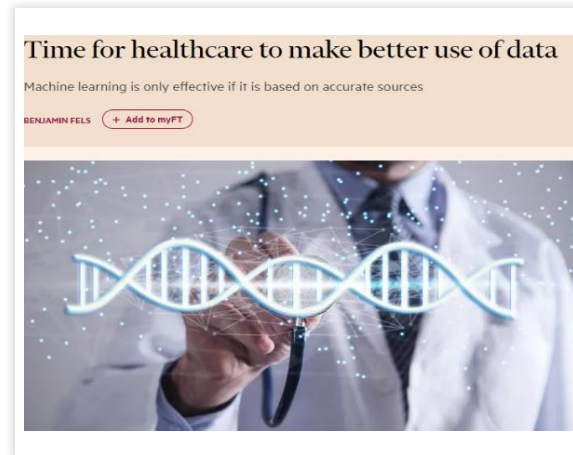
as urgent as challenging

HERACLES and IDEA4RC as an example of how we aim
to address this in the oncology domain

Simon Dalmolen



Reuse of data has become an indispensable cornerstone of our healthcare system, becoming mandatory



Personalized medicine



Predictive Analytics

Cost Efficiency

European Health Data Space: Council and Parliament strike deal

The Council of the EU and the European Parliament have reached a provisional agreement on a new law making it easier to **exchange and access health data** at EU level. The agreement will now need to be endorsed by both the Council and the Parliament.

Cross border collaboration

Resource Allocation

Meanwhile there is a growing Importance of privacy and confidentiality



Renewed privacy regulations

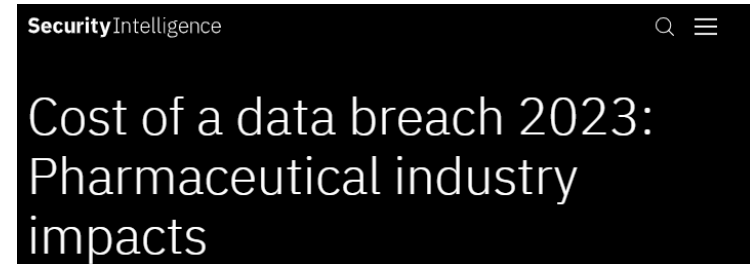


Home > Kennis > Artikelen

AI, data en cyber: Europese wetten om in de gaten te houden

Begin december heeft de Europese Unie dan eindelijk een politiek akkoord bereikt over de AI Act. Deze wet zal grote veranderingen met zich brengen voor de toekomst van AI. De AI Act is echter onderdeel van een veel groter pakket aan AI-, data- en cyberwetgeving vanuit de EU. Veel van die wetten zijn minstens net zo interessant als de AI Act. Op welke moet u als bedrijf gaan letten? En op welke regels kunt u zich alvast voorbereiden?

More public debates



Commercial interests prevent data sharing

The screenshot shows the Privacy First website with a purple header. The main content area features several article cards:

- Uitgelicht:** Rechtszaak Privacy First tegen ANPR massa-surveillance
- De Verklisamenleving:** Surveillance 16 maart, 2024
- Inschrijving Nederlandse Privacy Awards 2025 geopend!** Privacy Awards 15 maart, 2024
- Rechtszaak Privacy First tegen ANPR massa-surveillance** Surveillance 6 maart, 2024
- TAXUD:** Uw bankrekening: de sluiproute naar uw privéleven (deel 2) Financieel 28 februari, 2024
- Automotive:** Geen 'slim verkeer' zonder jouw voertuig- en locatiegegevens Automotive 27 februari, 2024
- Financieel:** Uw bankrekening: de sluiproute naar uw privéleven (deel 1) Financieel 13 februari, 2024

Data fragmentation still persists

Skepticism towards data reuse and sharing

1. Initiatives are small and also fragmented
2. Lack of standardization
3. Lack of Authority & Leadership



A privacy preserving dataspace for cancer research

 **LINKSIGHT**


PHARMO


Netwerk voor vrouwen
met gynaecologische kanker

SURF

TNO innovation
for life

Radboudumc
university medical center


almende
ORGANIZING NETWORKS

 **HERACLES**



AstraZeneca 

KNL integraal
kankercentrum
Nederland

 **UMCG**

janssen 

Roche

Health~Holland



Why HERACLES?

The aim of this project is to **reduce the impact of cancer** by retrieving **novel insights** into peoples' health journey, which can only be gained through **joint analysis of data**

To create an Ecosystem for agnostic (privacy-by-design) for secondary-use of data for cancer healthcare research

Impact

Quality of Diagnosis

Quality of Treatment

Cost reduction in healthcare

Trustworthy ecosystem

Actors

Pharma

Hospital

Infrastructure service provider

Health insurance

National Fund raiser

Patient organizations

Netherlands Cancer Organization

Research Institutes

Applications

Ovarian cancer insight counter

Lung cancer insight counter

Datasets

IKNL
NKR



Pharmo
INSZO-STIZON



RadboudUMC
EPD



UMCG



CZ



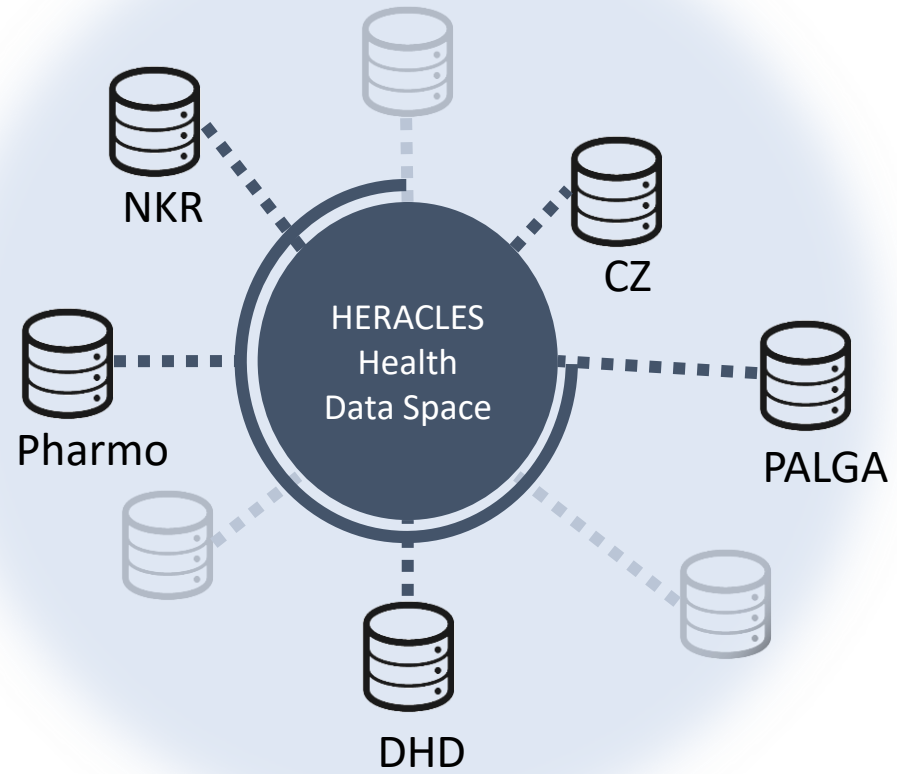
Infrastructure

Health Data Space

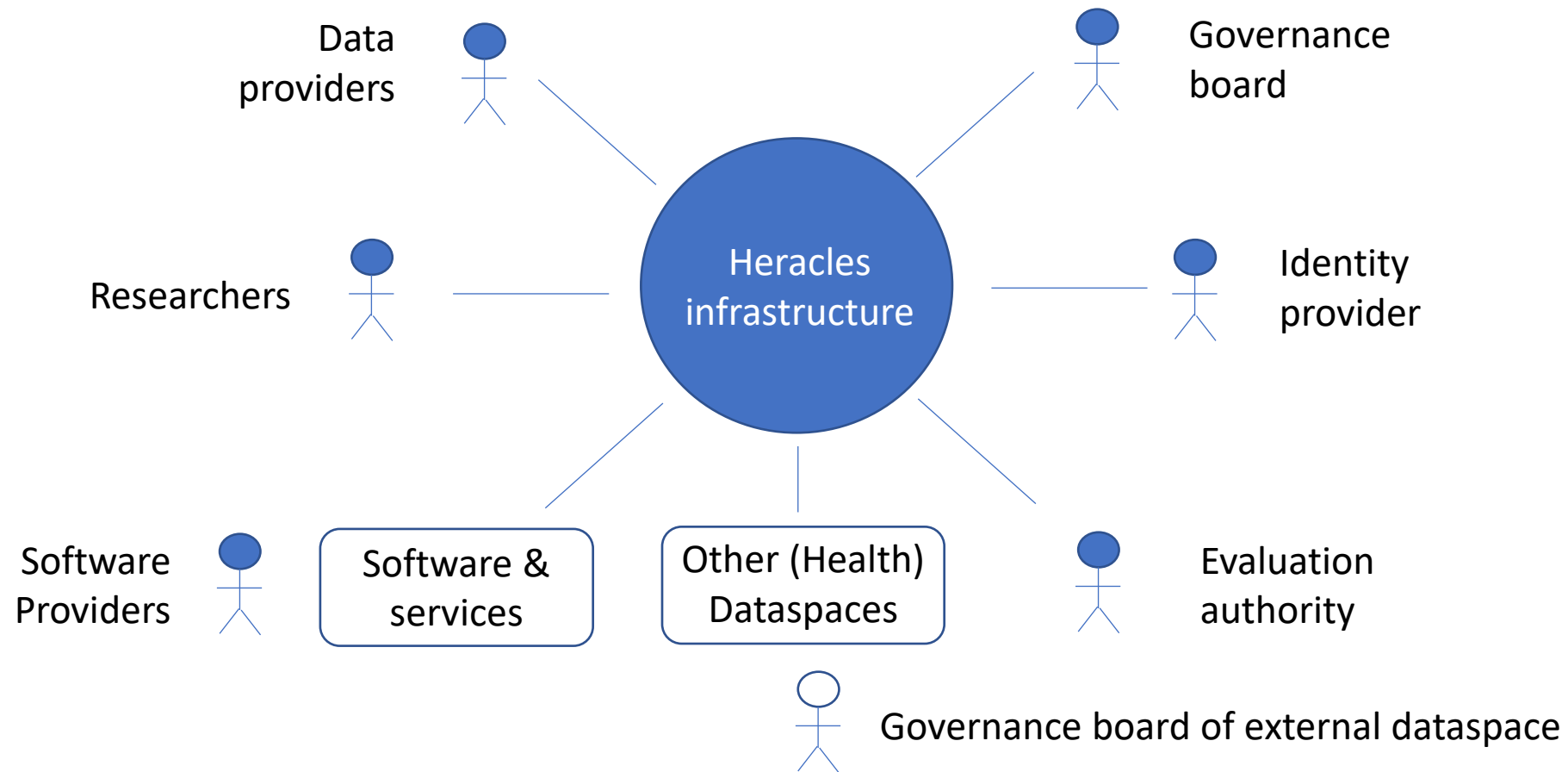
Data Sharing Meta model, including business models and governance structure

Secure Gateway, identity provisioning, clearing house, registry/broker
servers, computing, OS, storage, network

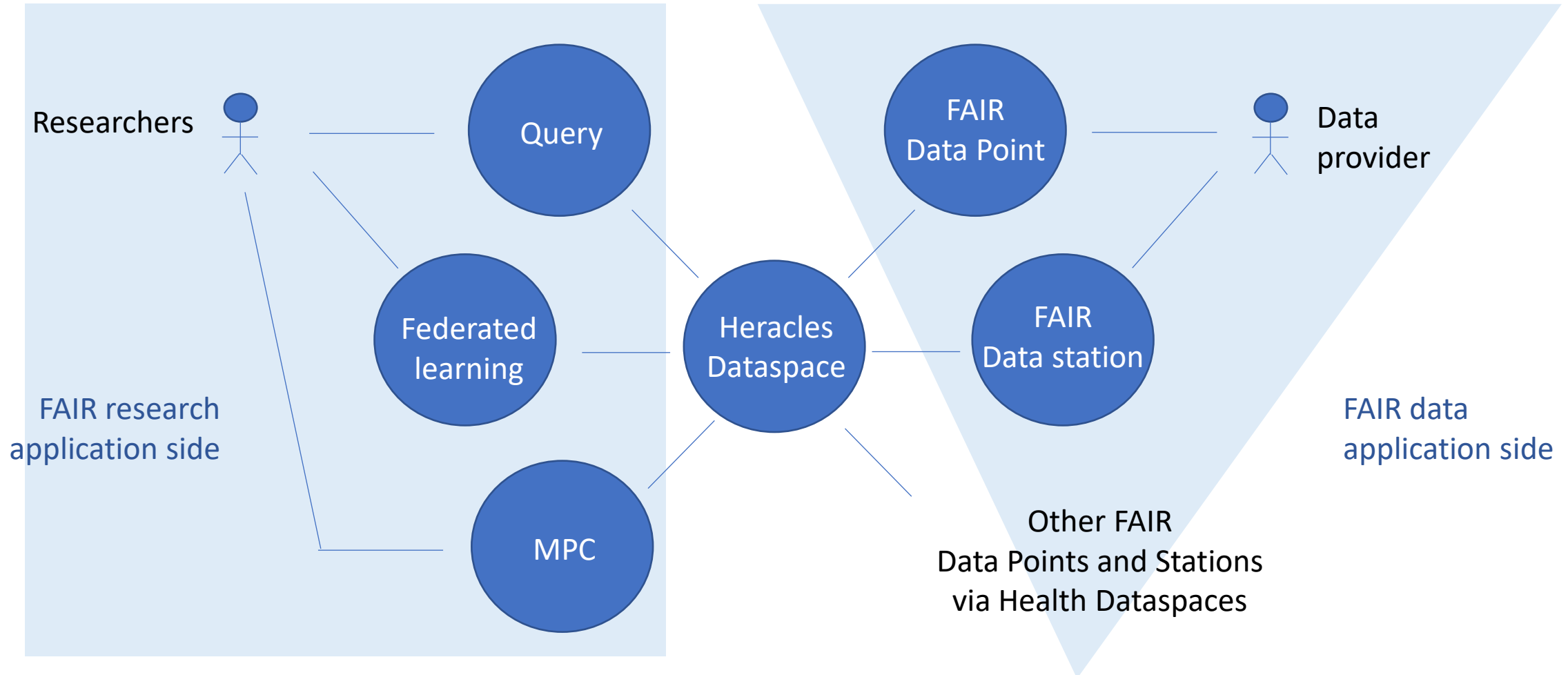
HERACLES: Create an Ecosystem for agnostic (privacy-by-design) re-use of data for cancer healthcare



HERACLES infrastructure context diagram



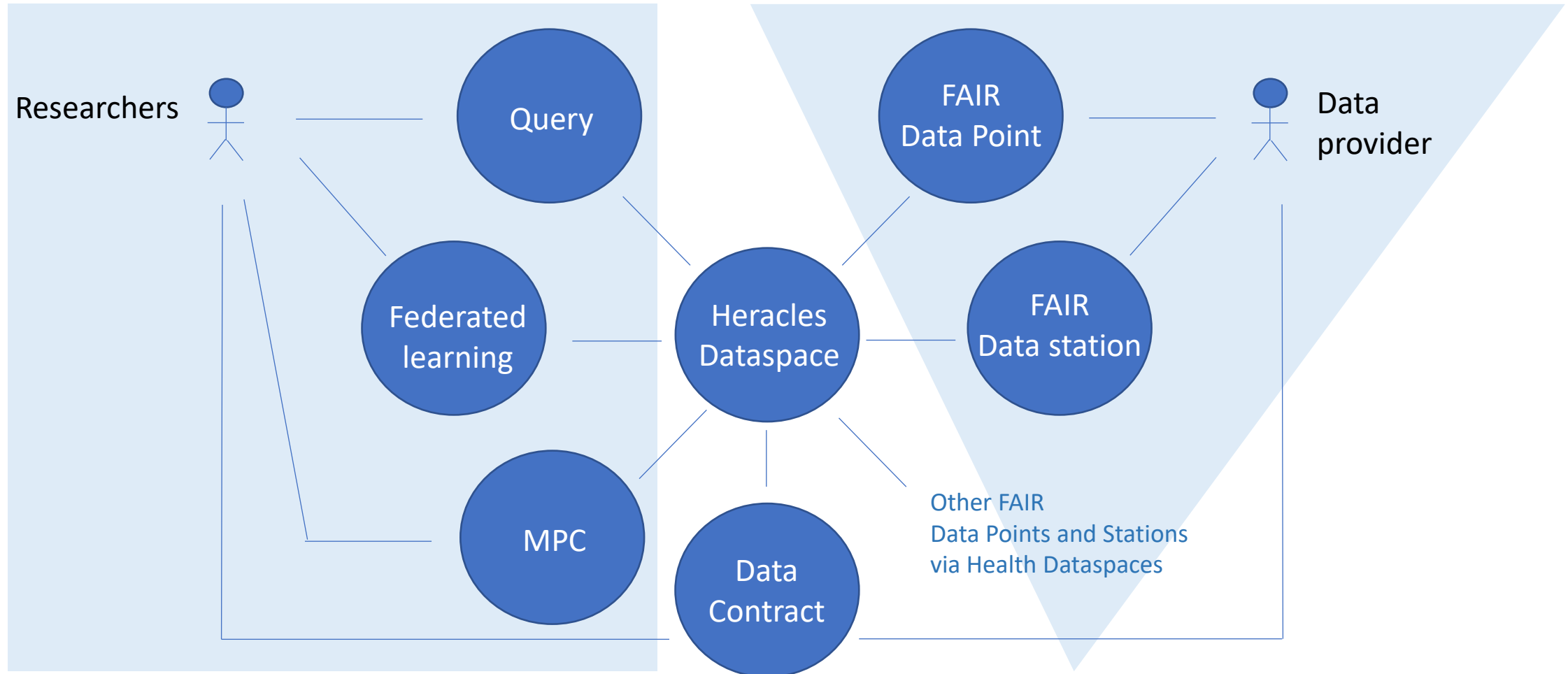
HERACLES infrastructure decomposition



HERACLES infrastructure decomposition

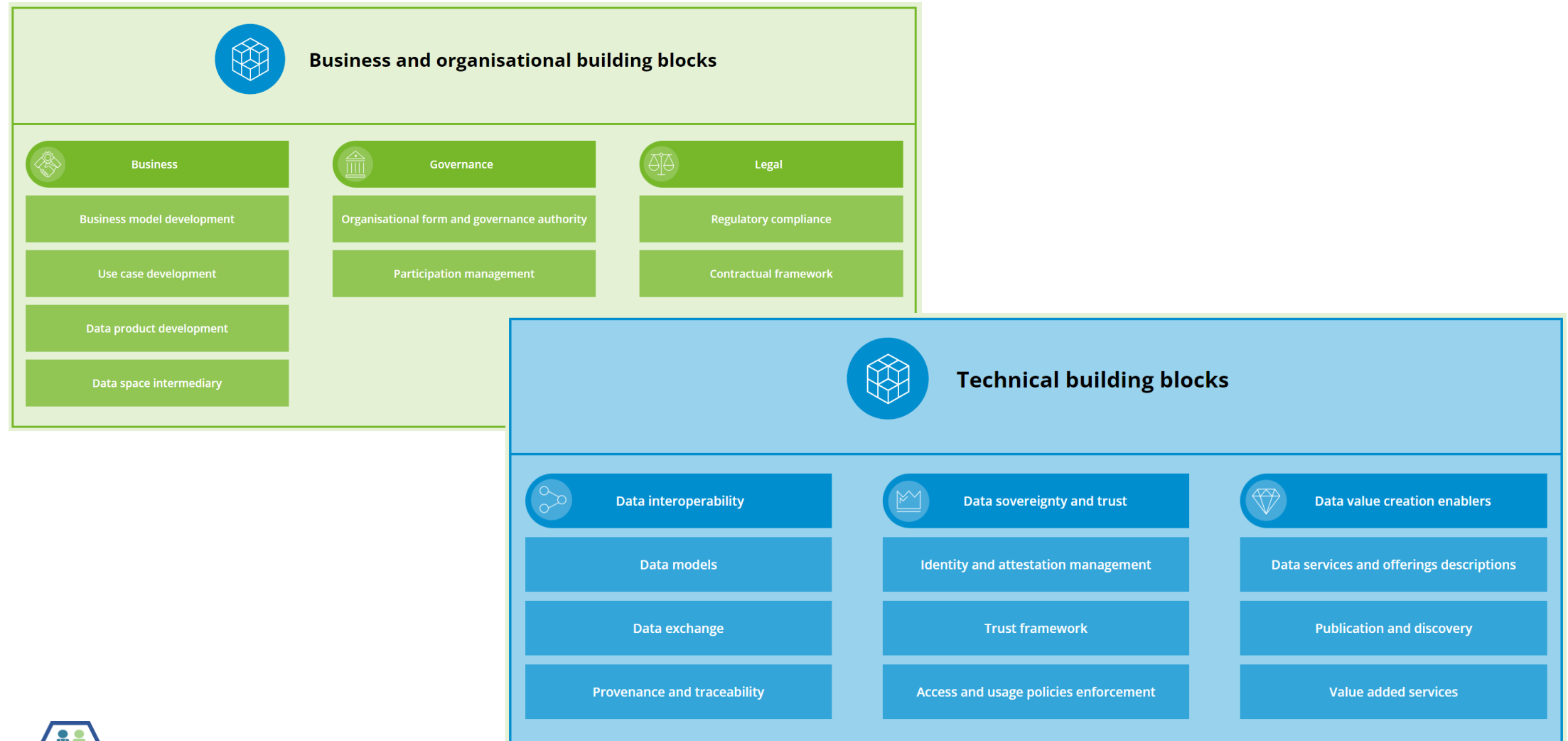
Research application side

FAIR data application side



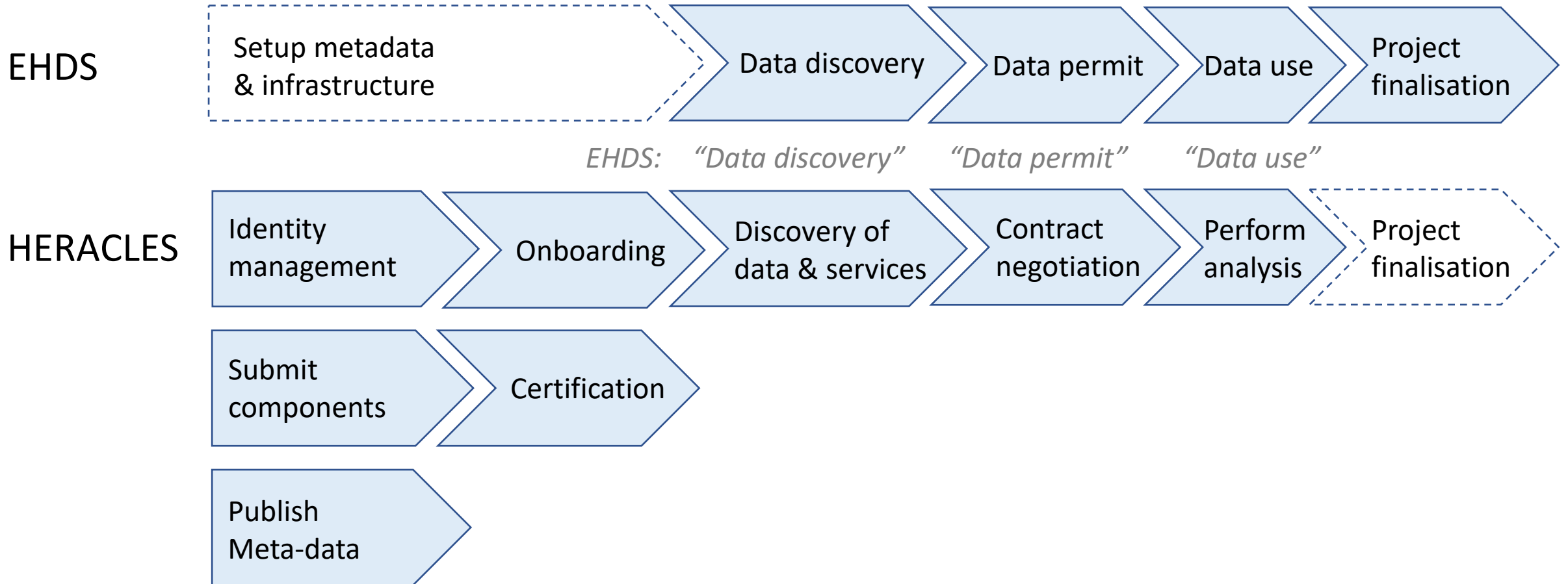
DSSC Blueprint

a path to European standardisation & collaboration



High level infrastructure process flow

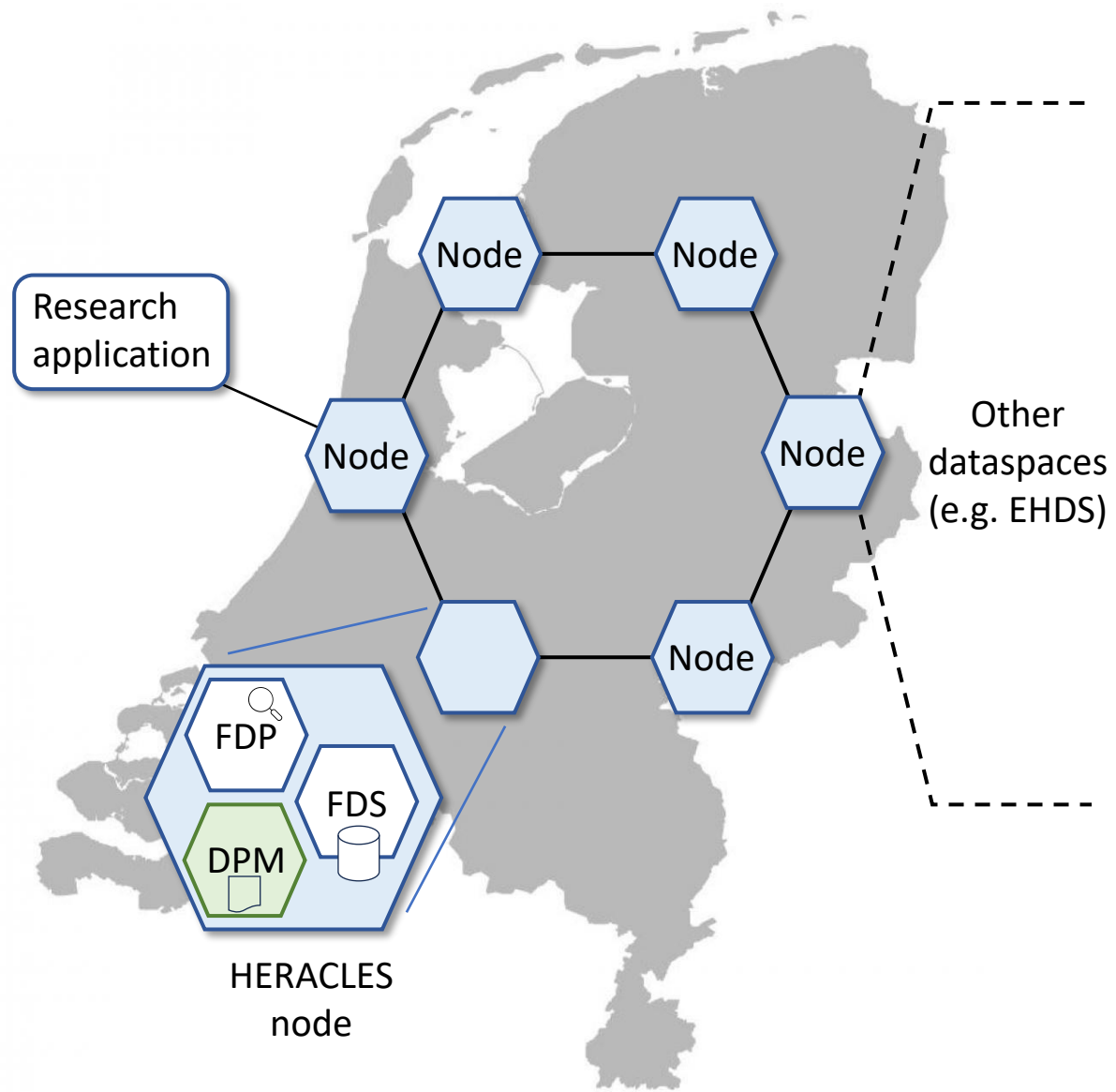
Compliant to European Health Data Space

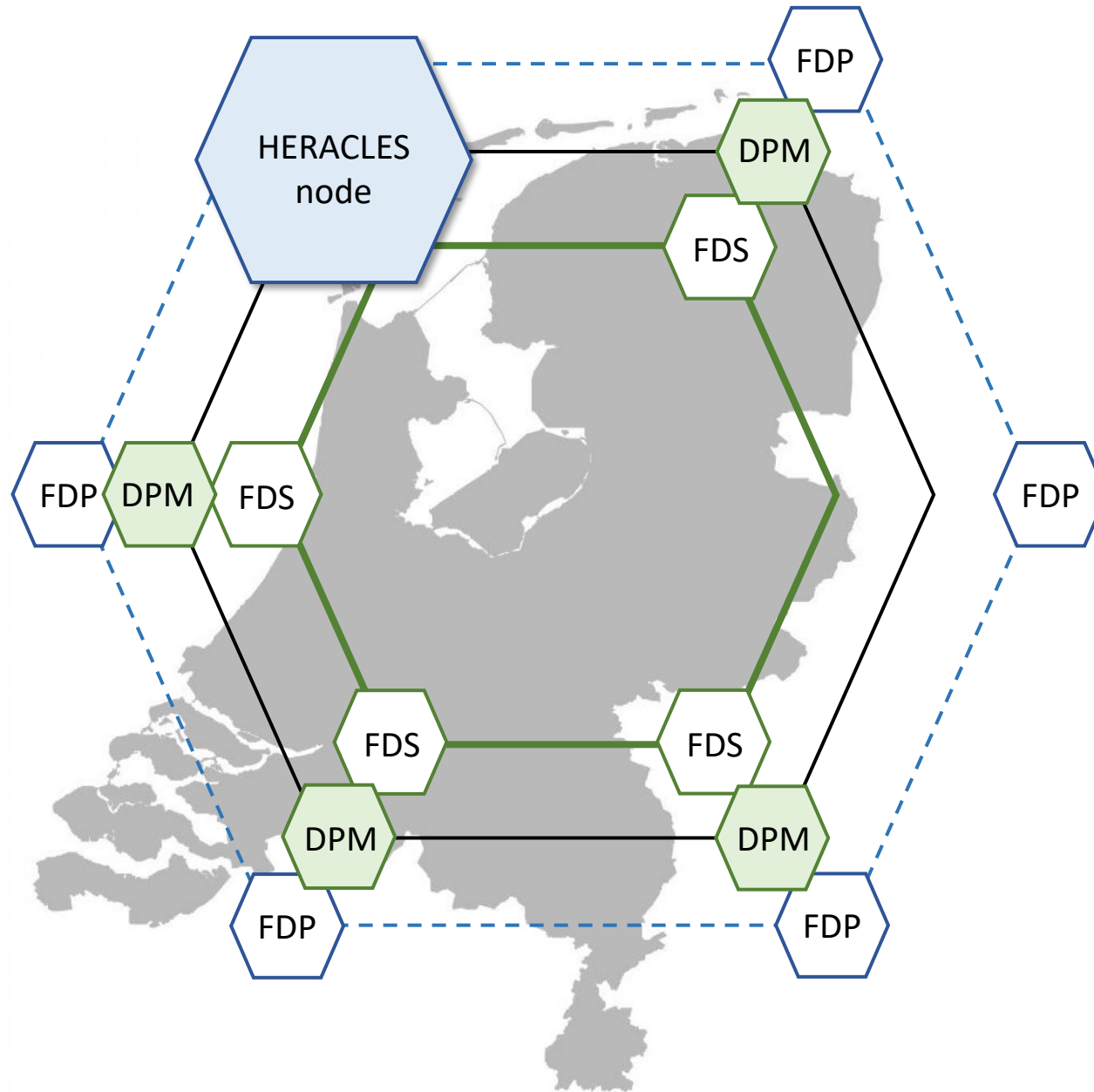




A privacy preserving dataspace for cancer research

Simon Dalmolen (TNO)





What is Data Space Interoperability?

- **Legal Interoperability**
 - Contracts allow exchange with partners within your data space and from other spaces
 - Potential need for addendums to data space contracts
- **Organizational Interoperability**
 - Identify the partner and validate his identity
 - Define rules for accepting each other's credentials and Trust Frameworks
- **Semantic Interoperability**
 - Mappings between rules and policies from the two spaces
- **Technical Interoperability**
 - Data Exchange, Data Discovery, Data Models





Thank you for your attention

The TNO logo is displayed in a large, bold, black sans-serif font on a white rectangular background.

Contact

 +31 6 30 71 31 07

 simon.dalmolen@tno.nl

 www.tno.nl

 <https://nl.linkedin.com/in/simon-dalmolen-79501230>

