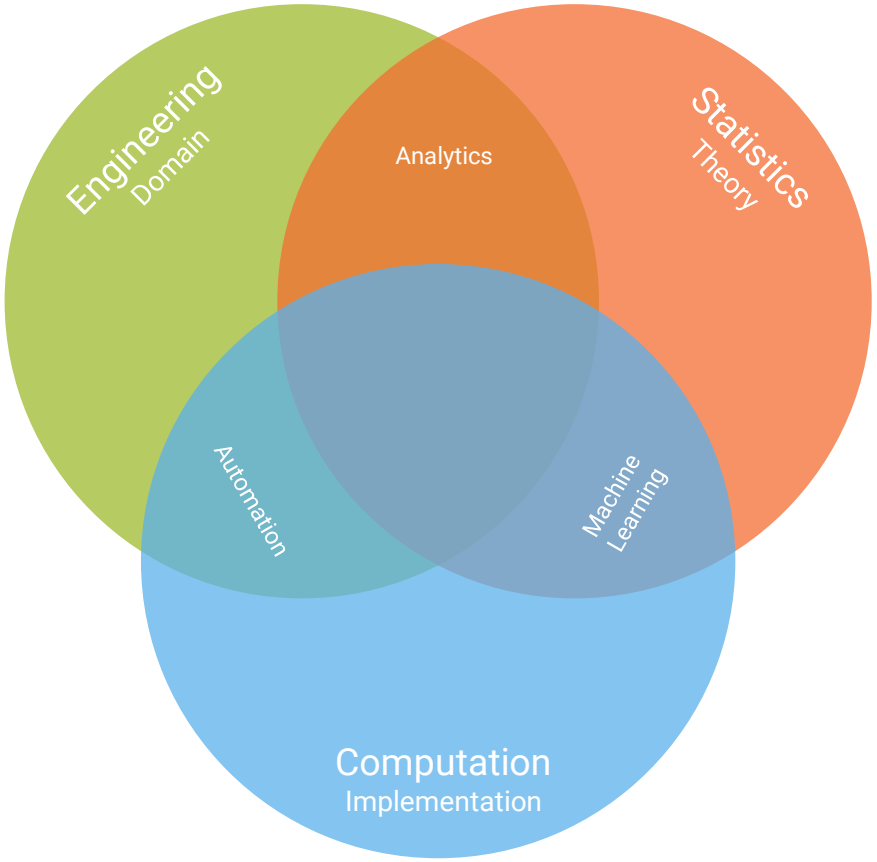
Field Labs

Data Science in Practice

Universiteit
Leiden
The Netherlands

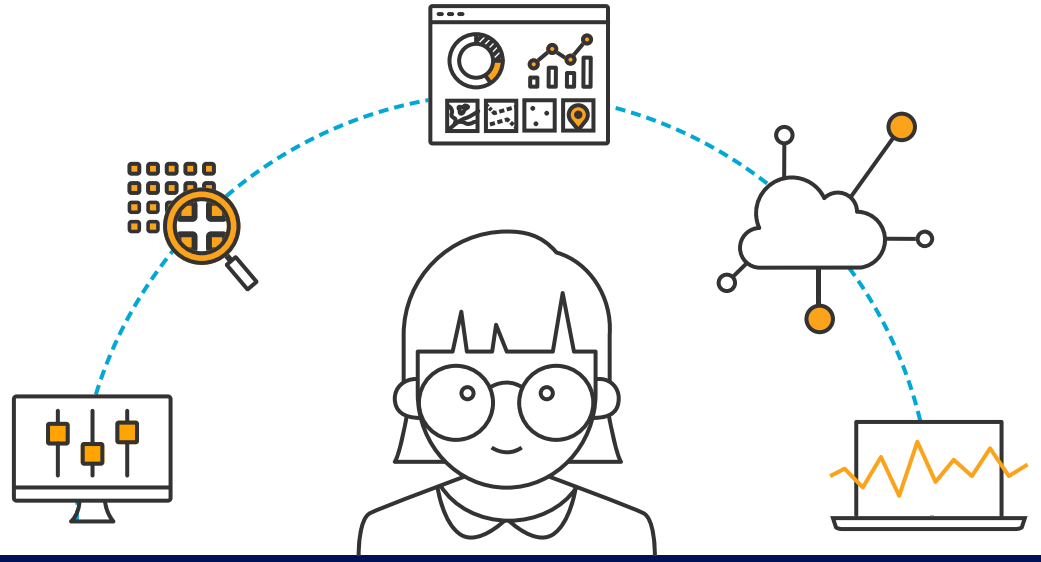
Data Science

In Practice



Data science in practice is a team-based effort

Stakeholders should be involved in every step

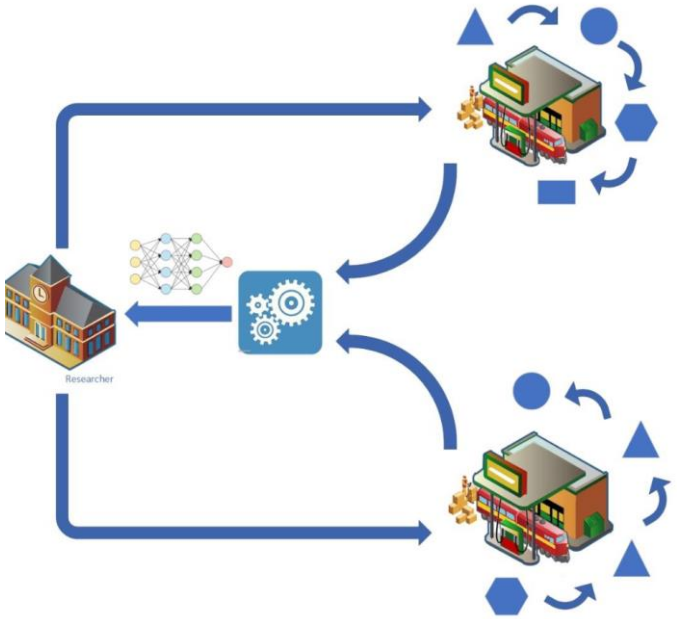


Field Labs

- Field Labs are the main practical component of DSiP
- There are 8 different field labs in total
  - Intradisciplinary
  - Many different organizations
  - Various technical challenges, similar practical challenges
- You will be working with teams of 2-4 people
- Approximately 2 months

Field Lab 1 – Personal Health Train

- Develop Architecture for Personal Health Train
  - Health application of data federation
  - Specify Engineering requirements with domain stakeholders in health
  - Develop architectural specifications based on recent academic literature

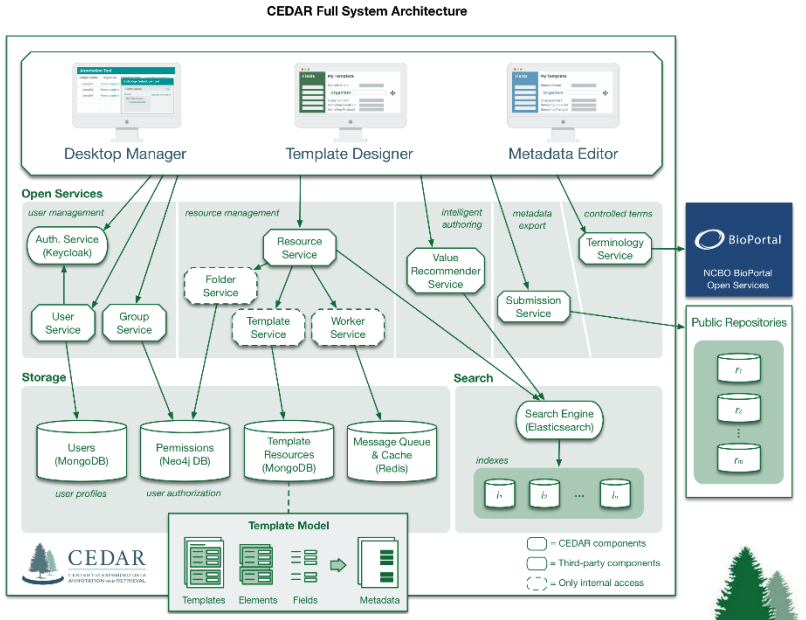


Erik Flikkenschild

Modelling Challenge

Field Lab 2 – Data Service Deployment

- Deployment of FAIR Metadata Service
  - Develop a Localized Stanford CEDAR service within LUMC
  - Document deployment process and analyze remote deployment strategies
  - Explore possibilities for automation and optimization of deployment



Olzhas Aldabergenov
Erik Flikkenschild

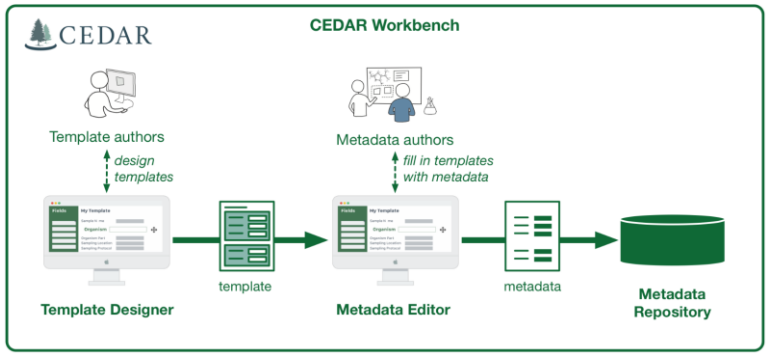
Engineering Challenge

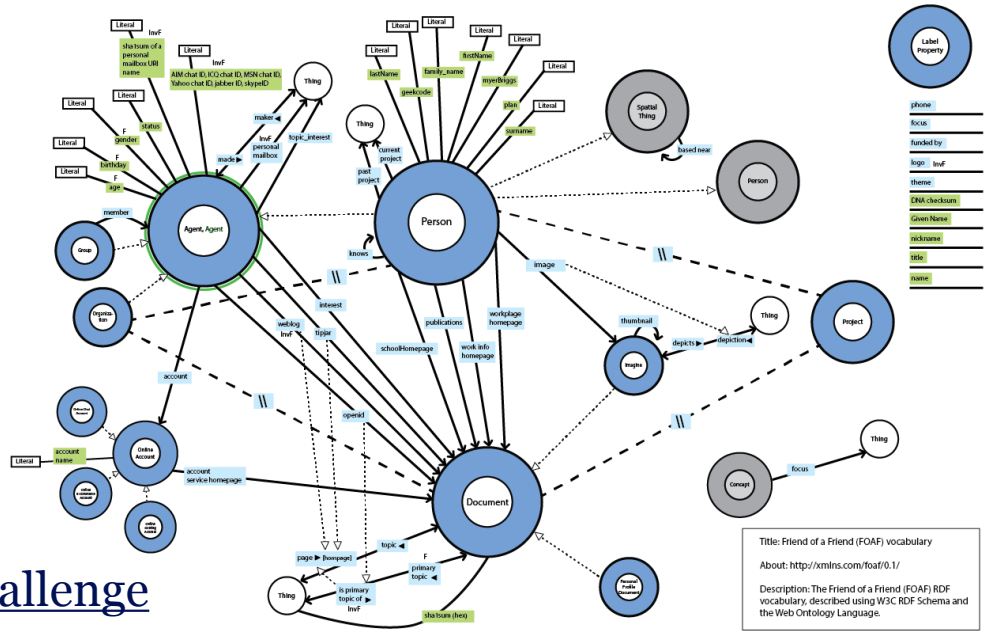
CEDAR

LUMC

Field Lab 3 – FAIR Vaccine Metadata

- Develop Metadata Templates for New Vaccine Developed by LUMC
  - Based on rigorous controlled vocabulary and ontology specification
  - Requires extensive collaboration with domain experts
  - Implementation of FAIR principles



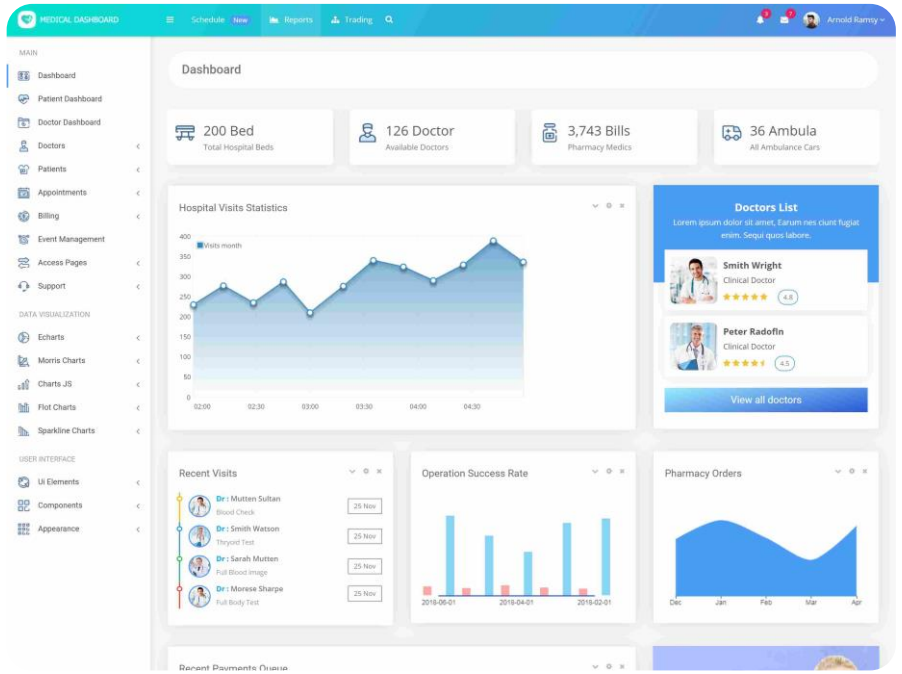


Aliya Aktau

Modelling Challenge

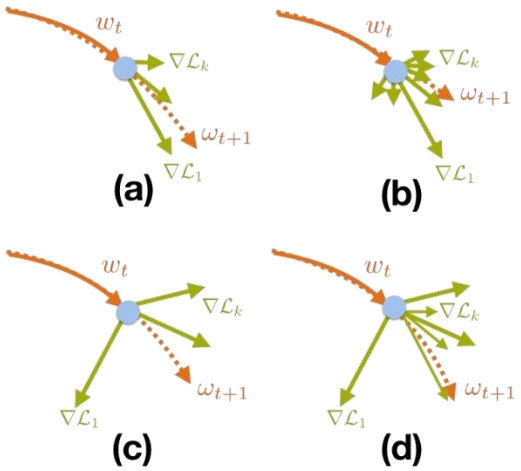
Field Lab 4 – Querying and Visualization

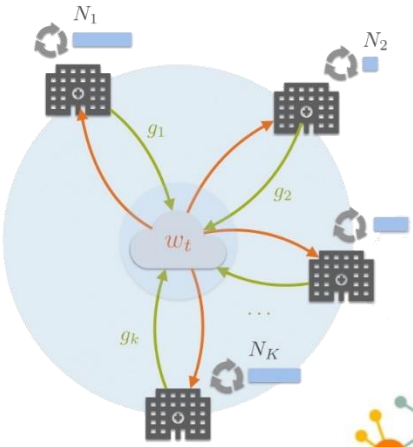
- Development of Analytics and Visualization for Health Facilities
  - Develop from a Full Front-End Prototype Solution for Client-Responsive Visualizations
  - Driven by requirements specifications and value for domain stakeholders
  - Research and design possibilities for interactivity or modularity



Field Lab 5 – Federated Data Analytics

- Prototype Service to Query and Analyze Federated Data Sources
  - Implementation of the state-of-the-art federated data model
  - Analysis of the challenges and recent scientific developments
  - Scientifically-rigorous focus



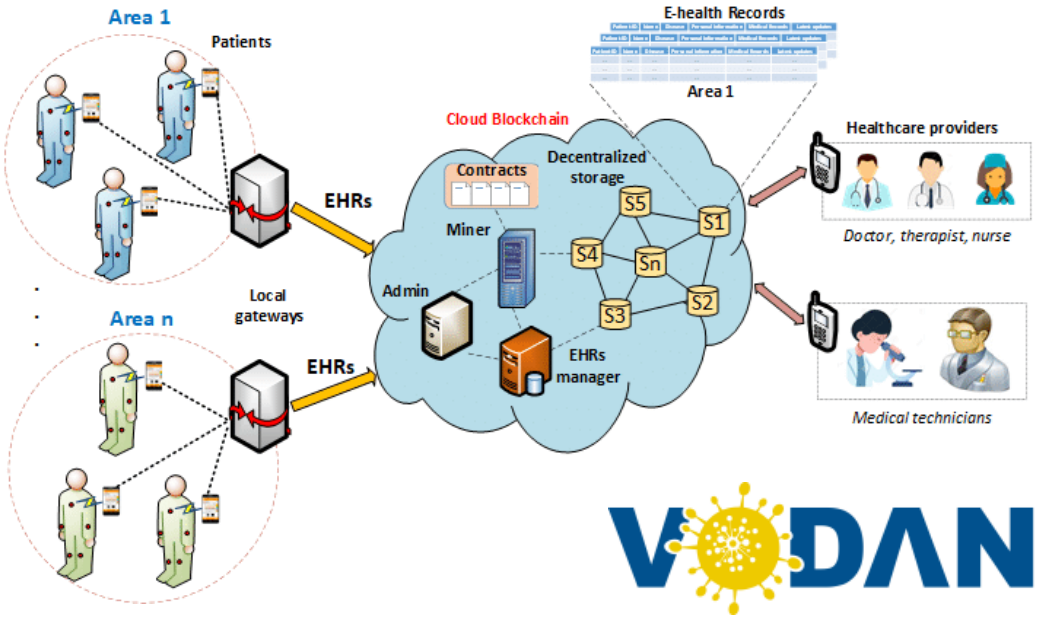


Ruduan Plug

Engineering Challenge

Field Lab 6 – Automated Security Contracts

- Develop an Automated Authorization Model for Data Processing
  - Research possibilities for automated auditing of processed data and models
  - Identify challenges in automated security and privacy analysis
  - Develop Smart contracts based on transparent access and control schemas



Putu Hadi Purnama Jati

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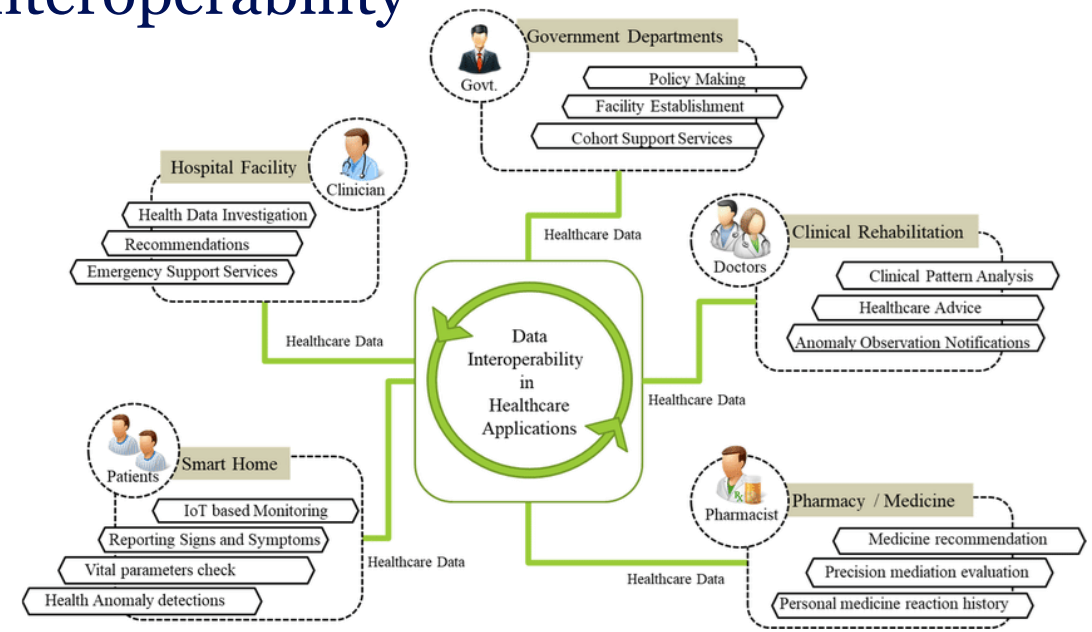
Field Lab 7 – Health Data Interoperability

- Model Data Interoperability on COVID-related Health Programmes
  - Develop business intelligence model for interoperability
  - Produce metadata templates based on common data elements
  - Discover and visualize opportunities for new research



Yi Lin

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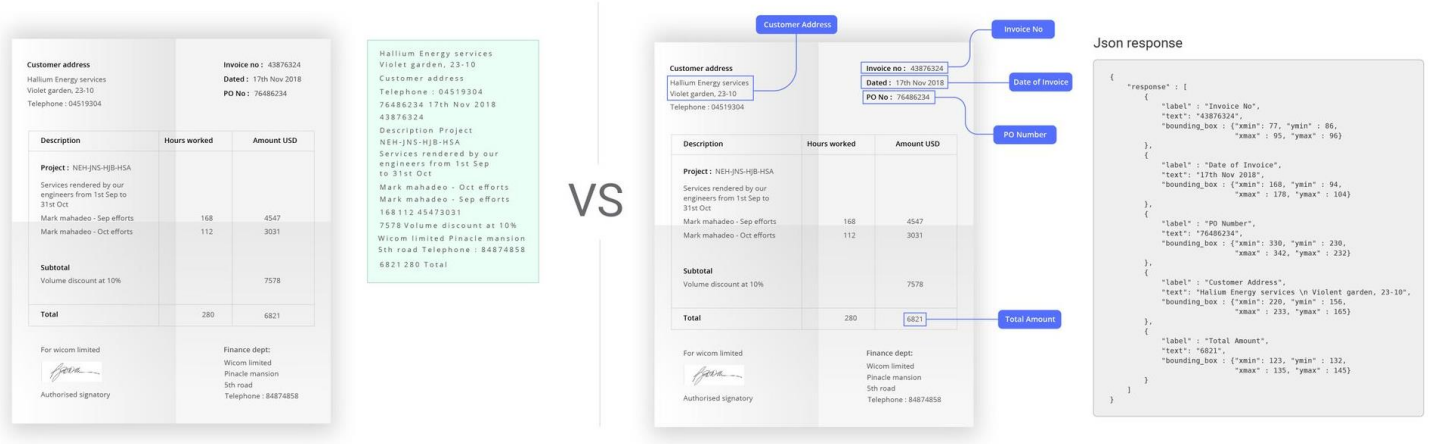
Philips Foundation

Field Lab 8 – Document Digitalisation

- Develop a Prototype that can Digitize Physical Documents
  - Apply modern optical character recognition strategies on PDF scans
  - Research state-of-the-art methods to process diagrams or pictures
  - Consider the challenges in terms of FAIR and GDPR in digitization

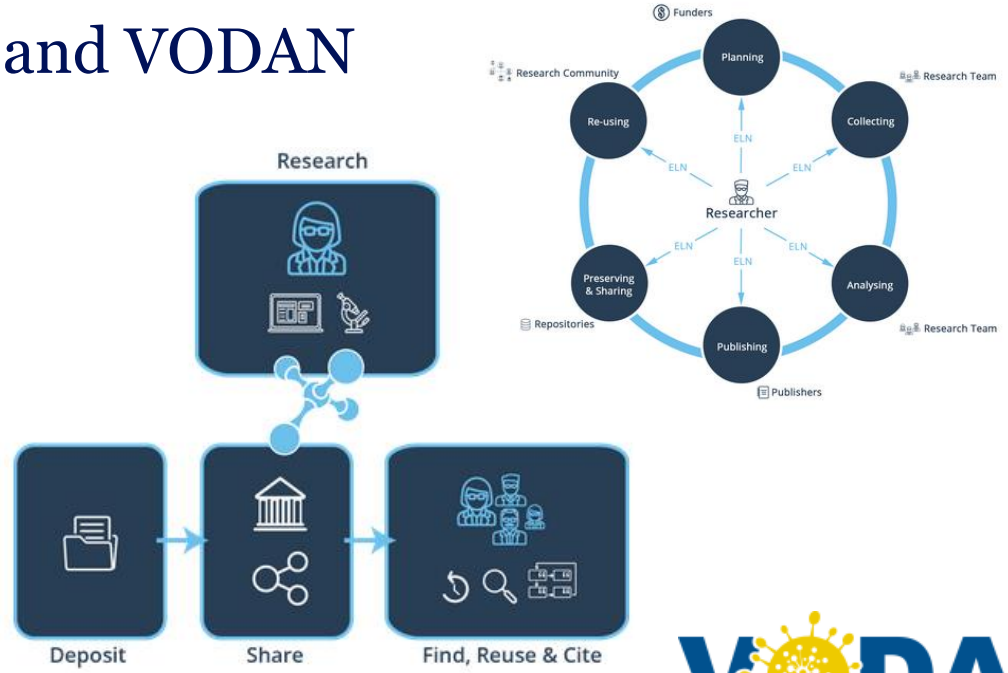


Jelena Prokic
Ruduan Plug

Engineering Challenge

Field Lab 9 – Scientific Data Interoperability

- Explore Possibilities for Interoperability between Research Projects
  - Large Scale Health Research from ZonMw and VODAN
  - Mediate between prominent scientists associated to ministries and NWO
  - Design and document promising leads to reusability of large-scale data



Erik Schultes

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