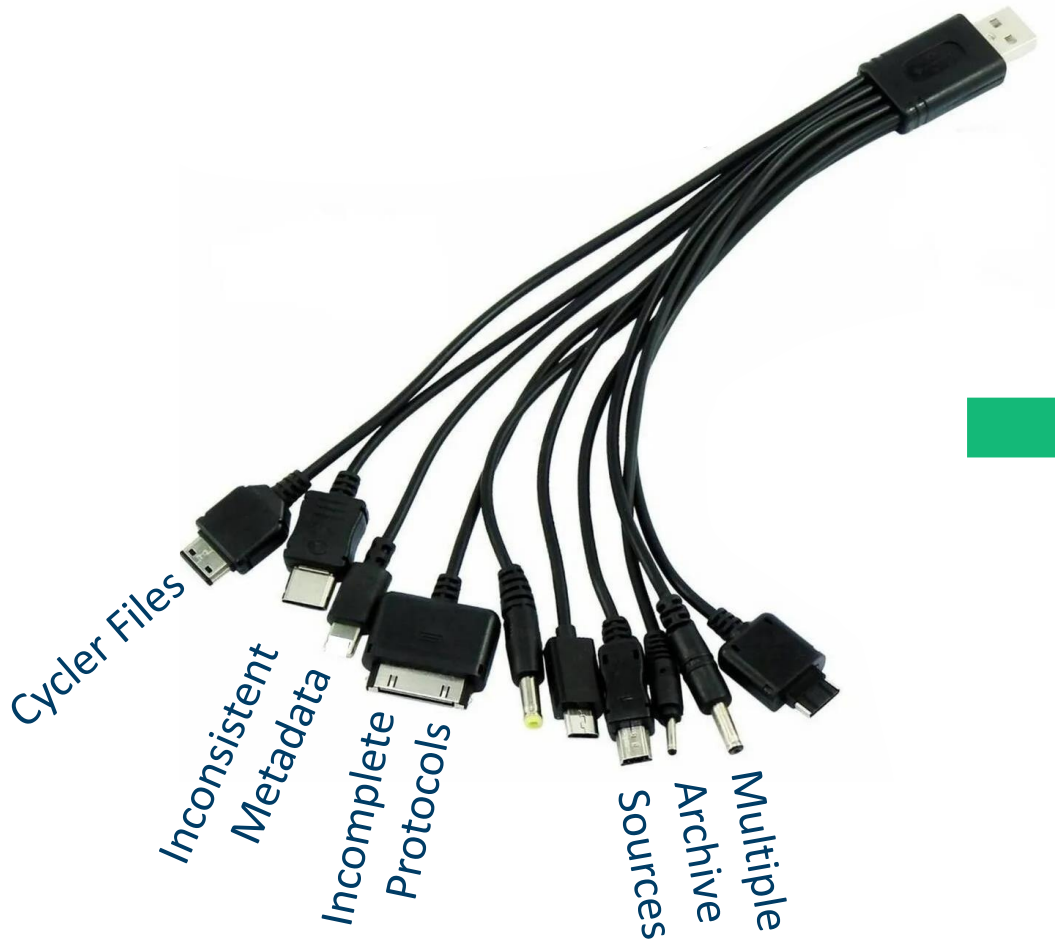
Best Practices in the Battery Space

Dr. Simon Clark

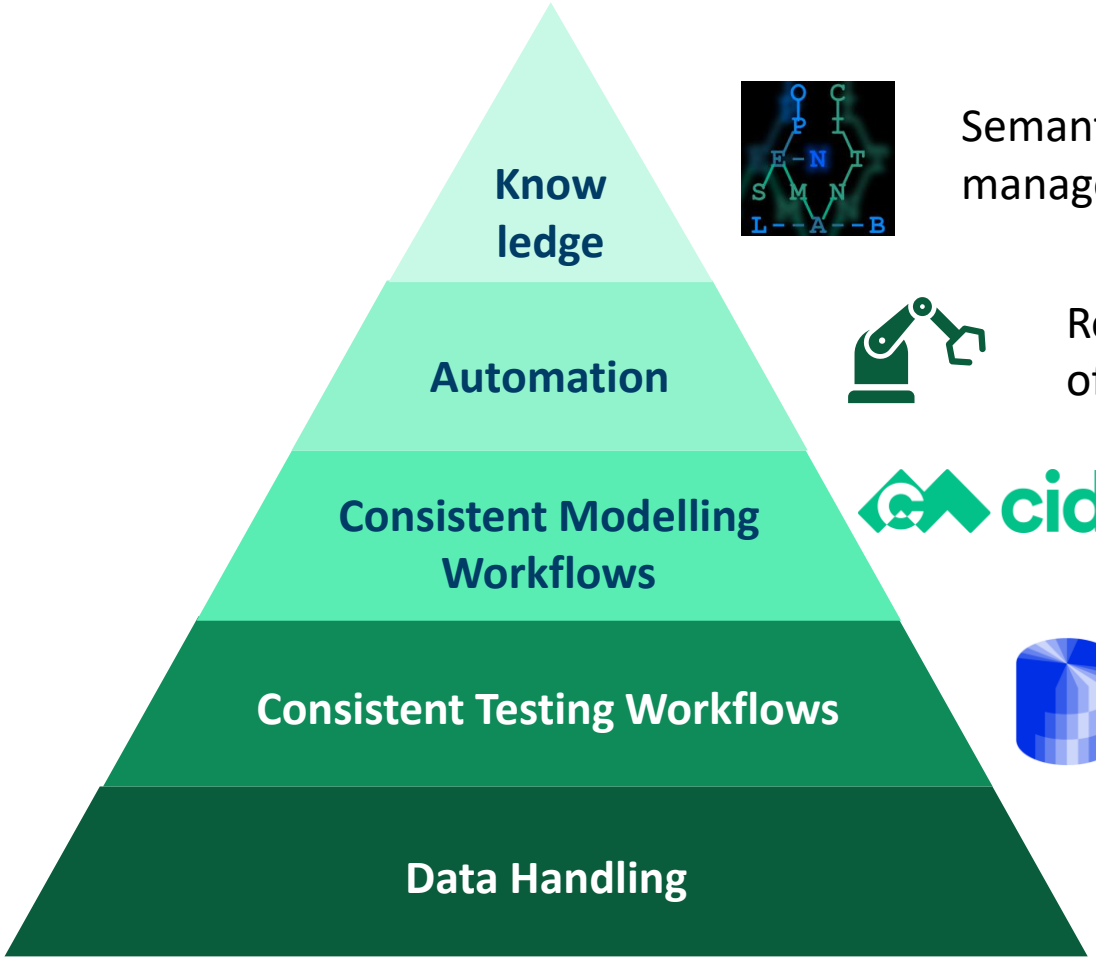
Scandic Holmenkollen Park - 2024-06-26

What is the problem?



Standards for Universal Interoperability

What is the solution?



Semantic Media Wikis for knowledge management and sharing

Robotic assembly and testing of battery cells

cideMOD

PyBaMM

BattMo

Galv

Harvesting, storage, and analysis of test results

BattINFO

Ontologies, Linked Data, FAIR Data

Hybrid power-energy electrodes for next generation lithium-ion batteries (HYDRA)

Topic: Gen 3b Li-ion Batteries

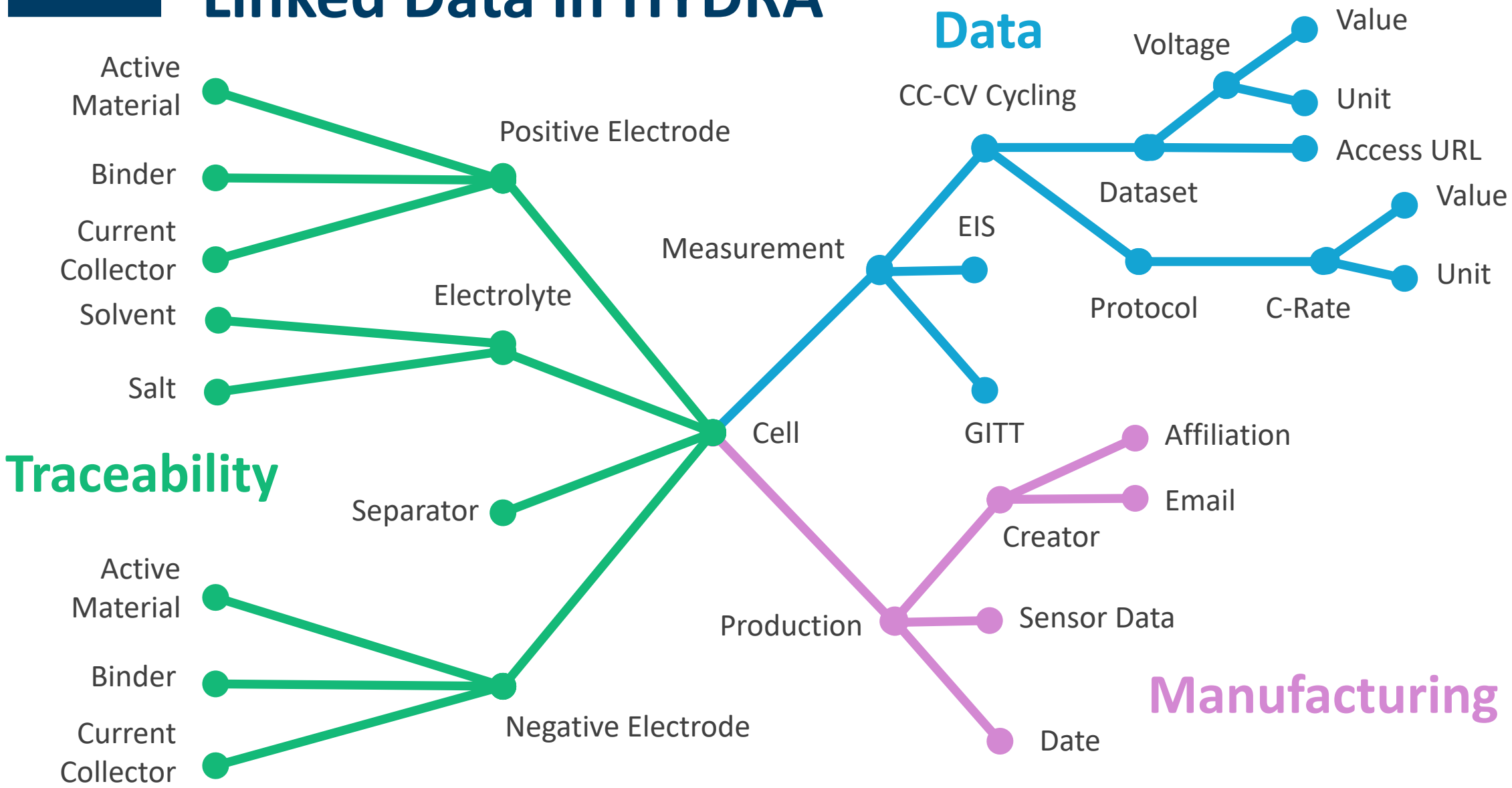
Duration: 4 years (Start September 2020)

Budget: 9.4 million Euro

Coordinator: SINTEF

Partners: CEA, Corvus, DLR, Elkem, ICSI, JM, POLITO, Solvionic, UCL, Uppsala University

Linked Data in HYDRA



Data!

A Linked Data Primer

- How can we create meaningful links between data coming from different sources?
- Help us get quickly find and re-use the data that we are looking for
- Create a common, traceable thread that passes through our experiments, models, and knowledge

Eibar Flores

Cell Testing!

Galv: an open-source platform for harvesting and managing battery cycler data

- How can we implement a common solution to deal with the inconsistencies in cycler data formats?
- Help us get quickly from running a test, to visualizing the data, to extracting knowledge from the results
- Contributing to a common solution brings the community forward.

Brady Planden

Models!

Addressing challenges in battery parameterization: model-based approaches toward standardized practices

- How can we improve the parameterization of physics based battery models?
- Help us understand the driving forces behind cell performance and degradation
- Ensures apples-to-apples interoperability among models and frameworks

Elixabete Ayerbe

Materials Research Workflows!

Towards an autonomous robotic battery materials research platform powered by automated workflow and ontologized FAIR data management

- How can we improve the quality and reproducibility of materials research in coin cells?
- Help us generate more data that is useful to more people
- Ensures that we have the information that we need to draw appropriate conclusions

Nukorn Plainpan

Knowledge!

An interactive semantic battery knowledge base

- How can we improve the parameterization of physics based battery models?
- Help us understand the driving forces behind cell performance and degradation
- Ensures apples-to-apples interoperability among models and frameworks

Philipp Veit

Lukas Gold

Thank you for your attention

This project has received funding from the European Union's Horizon 2020 innovation programme under grant agreement number: 875527, 101104022