

INSTITUTE FOR ENERGY TECHNOLOGY HELPS UNLEASH DIGITAL INNOVATION IN NORWAY



Using Cloudera Data Platform (CDP), IFE created a Data Factory infrastructure to support research-driven innovation for businesses and public administrations that focus on data as an asset in their digital transformation to remain competitive and resolve societal challenges.

CDP underpins IFE's efforts as part of the My Digital City smart city program in Halden, Norway, to help the population adapt to climate change and create new jobs by becoming a zero-emission society.

IFE used CDP to develop a data factory aligned with the EU's Digital Single Market strategy to provide AI services for Norway's public sector and SMEs, giving them a 'test before invest' infrastructure.



Solution(s)

- Cloudera Data Platform
- Cloudera Data Science Workbench

Data Architecture

- Data Lakehouse
- Data Fabric

Industry

- Research

Country

- Norway

Customer Website

- www.ife.no



Located in Norway, the Institute for Energy Technology (IFE) is one of the world's foremost energy research organizations. Since 1948 IFE has been a pioneer in international research, contributing to the development of renewable energy and zero-emission transport solutions, energy-efficient industrial processes, forward-looking energy systems, and digitalization.

A Data Factory to Help Today's Companies Build Tomorrow's Solutions

In 2018, most of Norway's population agreed digitalization would have a positive impact on their economy. At the time, however, the country's development projects were **not fully exploiting new technologies**. IFE's pioneering work has helped Norway make great progress in developing a digital transformation strategy to unleash the country's full potential.

A key part of IFE's plan is leveraging the European Commission's (EC) Digital Europe Programme, established to create European Digital Innovation Hubs (EDIHs) that help shape digital transformation throughout the European Union (EU). IFE is one of the forefathers of **Nemonoor**, functioning as one-stop shops to help companies respond to digital challenges. The hubs offer access to technical expertise, experimentation, and the means to "test before investing".

IFE received approval for this EDIH application in collaboration with several partners in Norway. It is now setting up a hub to help the public sector and the country's SMEs build and test business models and use cases for implementing artificial intelligence (AI).

To facilitate this work, IFE created a data factory infrastructure that implements a data fabric architecture to orchestrate disparate data sources and make relevant information available to end users in a way that's both secure and compliant with local regulations. The infrastructure likewise uses a data lakehouse approach to optimize the sharing and re-use of structured and unstructured data for multiple analytics.

IFE's goal is to provide the open standards and building blocks the EC needs to transform 28 national digital markets' distributed vocabularies, terminologies, code sets, and classification systems into a **Digital Single Market** for data that will ensure the EU's global competitiveness and data sovereignty.

“Cloudera Data Platform (CDP) can help us manage the data through the entire data life cycle of My Digital City, whose purpose is to improve the quality of life for the people of Halden by contributing to a sustainable and future-oriented societal development.”

Petter Kvalvik, IFE Head of Business Development

About Cloudera

At Cloudera, we believe that data can make what is impossible today, possible tomorrow. We empower people to transform complex data into clear and actionable insights. Cloudera delivers an enterprise data cloud for any data, anywhere, from the Edge to AI. Powered by the relentless innovation of the open source community, Cloudera advances digital transformation for the world's largest enterprises.

Learn more at cloudera.com

A System of Systems for Fata Serenity

IFE partnered with Cloudera in 2020 to create the data lakehouse as part of the institute's [OECD Halden Reactor Project](#) to preserve all the historical data from 50 years of nuclear operations. [Cloudera Data Platform \(CDP\)](#) gave IFE the key component it needed to create the data factory.

CDP's analytic capabilities and portal were instrumental to its selection. “We used Cloudera Data Platform (CDP) to develop a data factory aligned with the EU's Digital Single Market strategy to provide AI services for Norway's public sector and SMEs, giving them a ‘test before invest’ infrastructure,” said Per-Arne Jørgensen, Senior Engineer, at IFE's Risk, Safety and Security department.

The data factory is part of a system of systems that interoperate to foster the additional capabilities companies may want. The data factory also enables calculations and other functions that occur in the infrastructures of its partners' datacenters. This gives partners a way to test ideas — all of which are hosted on CDP.

A key aspect of IFE's strategic ambition is for “data sovereignty”. Using CDP, the institute is building an infrastructure to support its vision of data as an asset for the companies can access and share. The data infrastructure will be applied to research projects, collecting and managing data from sensors and other sources that companies can use to provide, for example, machine learning or data visualization capabilities.

Smart Cities — Developed by and for Halden Citizens

IFE is also involved in a smart city program called [My Digital City](#) in Halden, Norway. This joint initiative includes Smart Innovation Norway, Østfold University College, Halden Municipality, eSmart Systems, and Halden Næringsutvikling. The program aims to help the population adapt to climate change and create new jobs by becoming a zero-emission society — as well as focusing on decarbonization strategies, quality of life, digital sovereignty, and resilience.

IFE is developing a digital infrastructure for Halden city. The institute is also collaborating with the local municipality on the city's reference architecture – the documents outlining the recommended structures and integrations of IT products and services.

Using CDP to underpin the data infrastructure, IFE will pilot a small-scale data market using Halden's water supply system as a use case. The municipality will deploy new digital water meters in the city's households and connect the data to make it available to start-ups, the municipality, and other parties interested in conducting research to drive innovation.