AI FACTORY RAILWAY: PROGNOSTICS AND HEALTH MANAGEMENT OF CATENARY FOR CLIMATE CHANGE ADAPTATION

AIFR-PHMCC

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Nyttor och effekter

The expected benefits of this project are to develop and demonstrate an innovative and scalable platform for Prognostics and Health Management (PHM) of catenary through Digital Twin (DT) and further develop business models for implementation of operation and maintenance in railway infrastructure. The short-term effects of this project are increased knowledge and awareness of climate change's impact on railway catenary, capabilities to encounter climate change using PHM and DT using a scalable platform, and development of innovative business models for implementation of performance-based operation and maintenance. The long-term effects of this project are increased knowledge and awareness of requirements and management of digital assets in a multi-stakeholder environment.

Leveranser

Scientific outcome: Development of methodologies for extraction and representation of catenary information. Integration requirements for multi-source multi-sensor data

Academic outcome: PhD dissemination titled "A Novel Approach to Developing Digital Twins in Maintenance Utilizing Industrial Artificial Intelligence"

Industry focus outcome: Development of governance models and colloboarion for implementation and long-term evaluation

Innovationsstatus

This project has supported the development of digital models, governance models and requirements for data management, which act as the greatest hinderance towards taking the project from the laboratory to the field.

The projects core achievement has been towards improving the understanding towards the requirements to apply PHM, supported by data and information collection, management and governance processes.

Vidareutveckling och implementering

The results from the project has changed the approach towards maintenance of linear assets. The shift is towards the entire data collection pipeline where now data may be collection multiple times per day where previously the data was collected once in 18 months.

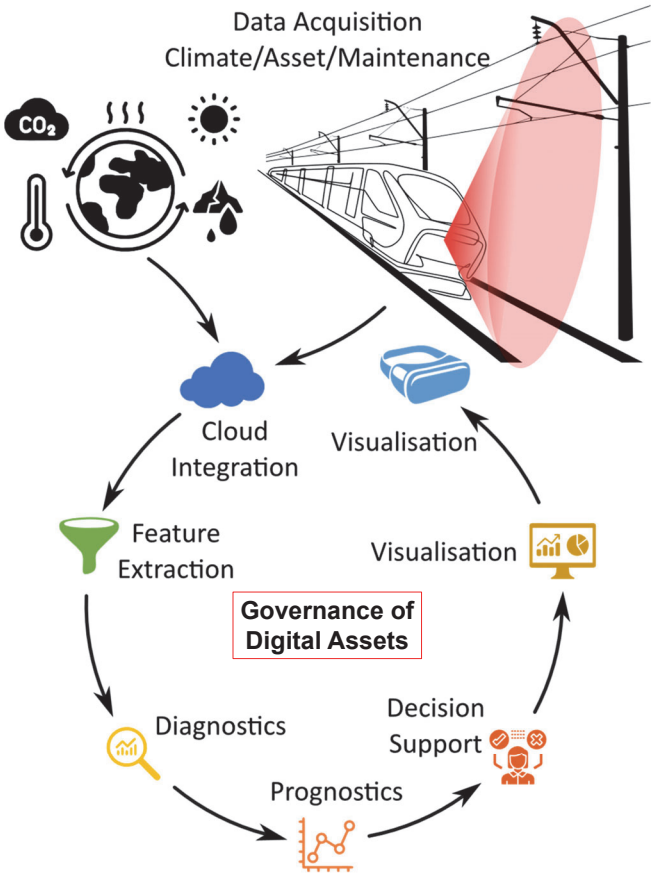
Development and implementation for realtime daata capture and analytics will continue with funding received from Trafikverket and LKAB

Aktörskonstellation

Trafikverket – Problem definition and domain knowledge

Atritec – Data samples

Omicold – Weather impact



Målbild 2040

Today lot more information is available about the rolling stock as compared to linear distributed assets. This is due to complexity of setting up and maintaining the sensor infrastructure along the linear assets. This project will enable real-time structural information from the linear asset to be collected, managed, processed, analyzed and made availalble to the decision makers.

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