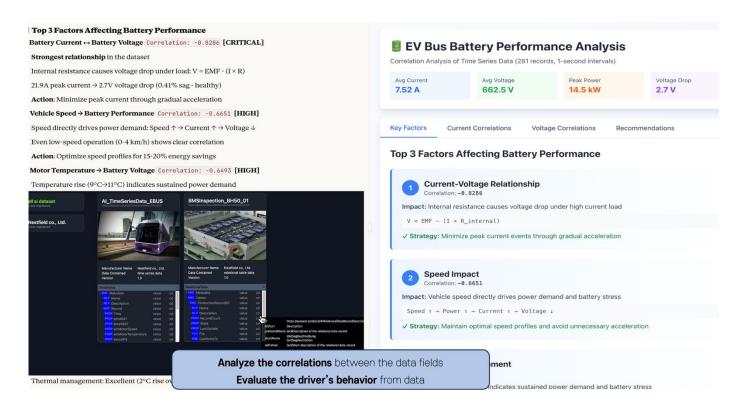
Industrial data exchange framework for Al



AAS SIMPLIFIES THE USE OF INDUSTRIAL DATA FOR AI

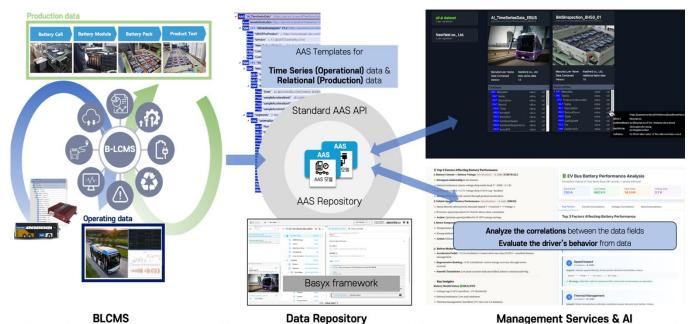
- Industrial data can be easily connected and utilized with AI services.
- Al services can interpret and process various type of industrial data from different companies.

Although companies have large amounts of raw data, even simple Al-based data analysis and utilization still require significant time and cost. In contrast, Al services require substantial time and cost to rearrange and preprocess the various formats of raw data in companies into forms that Al can understand. In this project, we used the Asset Administration Shell (AAS) and a standard API as a common interface connecting companies' raw data with Al services, and although the case was simple, it demonstrated very impressive potential.

Asset Administration Shell bridges Manufacturing data and Al

The AAS, as a self-descriptive and machine-interpretable standard data model, can provide the simplest and most effective way to connect manufacturing companies' data with AI services. The AAS includes precise semantic information within the data itself, and the Time Series Data Submodel Template provides metadata information, enabling machines to accurately interpret the data without any additional information.

Connecting commercial AI services with AAS via standard API



EV Battery LifeCycle Management System A Repository for Industrial data represented by AAS Al uses Machine interpretable data represented by AAS

In this use case, the AAS was used as a standardized data model to connect industrial data with AI. An AAS repository was adopted to use multiple datasets simultaneously, and the standard AAS interface was used to connect data to external services. The functionality of this framework was validated using data from Nestfield's Battery Pack Lifecycle Management Solution (BLCMS), an integrated solution that combines production and operating data of electric vehicle battery packs using AAS.

For manufacturing companies, standardized data provides a unified way to link their data to Al services. For Al service providers, standardized self-descriptive data containing all necessary information for understanding and identifying can be used without additional data preprocessing.

Even without prior AI or statistics knowledge, the AI service could locate AAS containing electric vehicle battery data and accurately interpret vehicle operation parameters. It provided insights into driving patterns, analyzed correlations, and suggested additional data collection to improve predictions and operational analysis. This was possible because the machine-interpretable semantic information in the AAS gave clear context, highlighting a key advantage of the framework.

This pilot project in Korea, developing AI specialized for manufacturing data, was carried out by a consortium led by Gyeongnam TP, under the support of KICOX and MOTIE.