Pilot 7: Assessing the Quality and Monetary Value of Data Assets

Partners Involved

MOTOR OIL

Leading petroleum company operating one of Europe's most complex refineries, providing large-scale industrial IoT sensor data for analytics and monetisation.

Innov-acts

ICT and software development firm specialising in data-driven solutions, AI and digital transformation.

Pilot 7 shows how industrial IoT sensor data from Motor Oil's refinery can be transformed into quality-assured, monetisable assets and advanced analytics services through the FAME Marketplace. The pilot evaluates data quality across key dimensions (volume, completeness, accuracy, temporal consistency, contextual relevance) for large-scale sensor streams and uses FAME tools to create forecasting, anomaly detection and federated learning services. Two main use cases are implemented: (1) **Quality Assessment & Pricing** and (2) **Value-Added Asset Creation.**

Key Benefits

Predictive maintenance with measurable impact, using LSTM forecasts and anomaly detection to reduce unplanned downtime by up to 35%.

Transparent, quality-based monetisation of industrial data assets, with objective scores that support fair pricing and build trust between data sellers and buyers.

Better cyber-risk and insurance pricing, as high-quality, well-documented data improves risk assessment and enables more accurate cyber insurance premiums.

Access to advanced analytics without heavy in-house development, leveraging FAME's federated learning, XAI and energy-efficient analytics instead of building bespoke tools from scratch.

New revenue streams from industrial data, turning refinery sensor histories, pre-processed datasets and trained models into tradeable assets on the FAME Marketplace.

User Groups

Industrial manufacturers & process plants: Use quality-scored datasets and predictive models to optimise operations and reduce equipment downtime.

Cyber insurers & risk carriers: Access objective data quality scores and operational indicators to refine cyber-risk models and insurance premiums.

Industrial maintenance & service providers: Integrate forecasting and anomaly detection services into maintenance contracts and monitoring solutions.

Data analytics & AI firms: Consume high-volume, high-quality refinery datasets and models as inputs for new analytics services.

FAME ecosystem data users: Financial institutions, insurers and other marketplace participants.

FAME Technologies Being Used

Analytics, XAI & Energy-Efficient Models: LSTM forecasting, anomaly detection with explainable AI, and energy-efficient analytics for large-scale sensor streams.

Federated Catalogue (FDAC) & Integration Layer: Secure APIs, federation manager and interoperability services for publishing and discovering industrial datasets and services.

FAME Federated Data Marketplace: Indexes MOH's industrial data assets and models, enabling quality-based pricing, smart-contract trading and federated governance.

Main Data Assets Created

Raw IIoT sensor datasets from refinery equipment (temperature, pressure, vibration, displacement).

IIoT Data Quality Assessment service with LLM-enhanced evaluation and multi-dimension quality scores.

Predictive maintenance models (LSTM) providing short-term forecasts of critical sensor behaviour.

XAI-enabled anomaly detection models offering transparent explanations for flagged events.

How It Can Be Used

Pilot 7's data assets can be leveraged to:

- Implement predictive maintenance and reduce unplanned equipment downtime.
- Monitor asset health with real-time anomaly detection and explainable alerts for operators.
- Benchmark and improve internal data quality using quality assessment methodology and scores.
- Provide cyber insurers and risk analysts with objective indicators of data quality and operational transparency when calculating premiums.

Funded by the European Union

The FAME project has received funding from the European Union's Horizon 2023 Research and Innovation Programe under grant agreement No. 101092639. Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or Horizon Europe. Neither the European Union nor the granting authority can be held responsible for them.

FAME