Quantifying Data Quality and Value for a UK Police Force using Python and Azure

Butterfly Data built a proof of concept metadata framework and interactive dashboard on Azure to help a UK police force measure the quality and value of its data.

Challenge

A UK police force wanted to strengthen its data strategy by understanding the quality and value of the data it holds.

Much of its knowledge about its datasets was held in unstructured formats, which made detailed analysis difficult. The force needed to turn this knowledge into measurable metrics and practical insights to support data-driven decisions.

Solution

Butterfly Data built a proof of concept using mocked-up data based on the force's operations. It included:

- A metadata framework for structuring data quality and data value metrics
- A workflow showing how datasets from different systems could be evaluated
- An interactive Data Quality and Data Value (DQ/DV) dashboard, built with Python's Plotly Dash library and hosted on Microsoft Azure

The dashboard ran fictitious scenarios to show key performance indicators and flag data issues, so stakeholders could see the approach working in an operational policing setting.

Impact

The proof of concept showed how the force could gain clear insight into the quality and value of its data. Its flexible data structure means metrics can be calculated dynamically and views tailored to different users, while issues can be logged and summarised at batch level for percentage-based reporting.

The work laid the foundations for a business case to advance the force's data strategy, and showed the potential of new ways to value information assets.

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