

EU ECOSmart :

a Microsoft Azure powered APP

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Business Case

- ❑ EU-Energy Consumption Digitalisation? How?
- ❑ Energy Efficiency: Correlations of Western European Countries
- ❑ Trends in Power Consumption?

A Microsoft Azure
powered APP SOLUTION?

EU ECOSmart Can do it!



EU ECOSmart Timeline

BUSINESS CASE

- Digitization of Energy Consumption
- Project OverView
- Project Goals



SYSTEM ARCHITECTURE

- MS Azure Solution
- Software Iteration



Let's
Check
Azure !



Tableau Viz.



Let's
Check: + a b l e a u



CLOUD SOLUTION COST



EU ECOSmart
Energy
Digitization!



REQUIREMENTS ENGINEERING

- SRS (Solution Approach)

EU ECOSmart Pitch

- UML Diagram
- Workflow Process

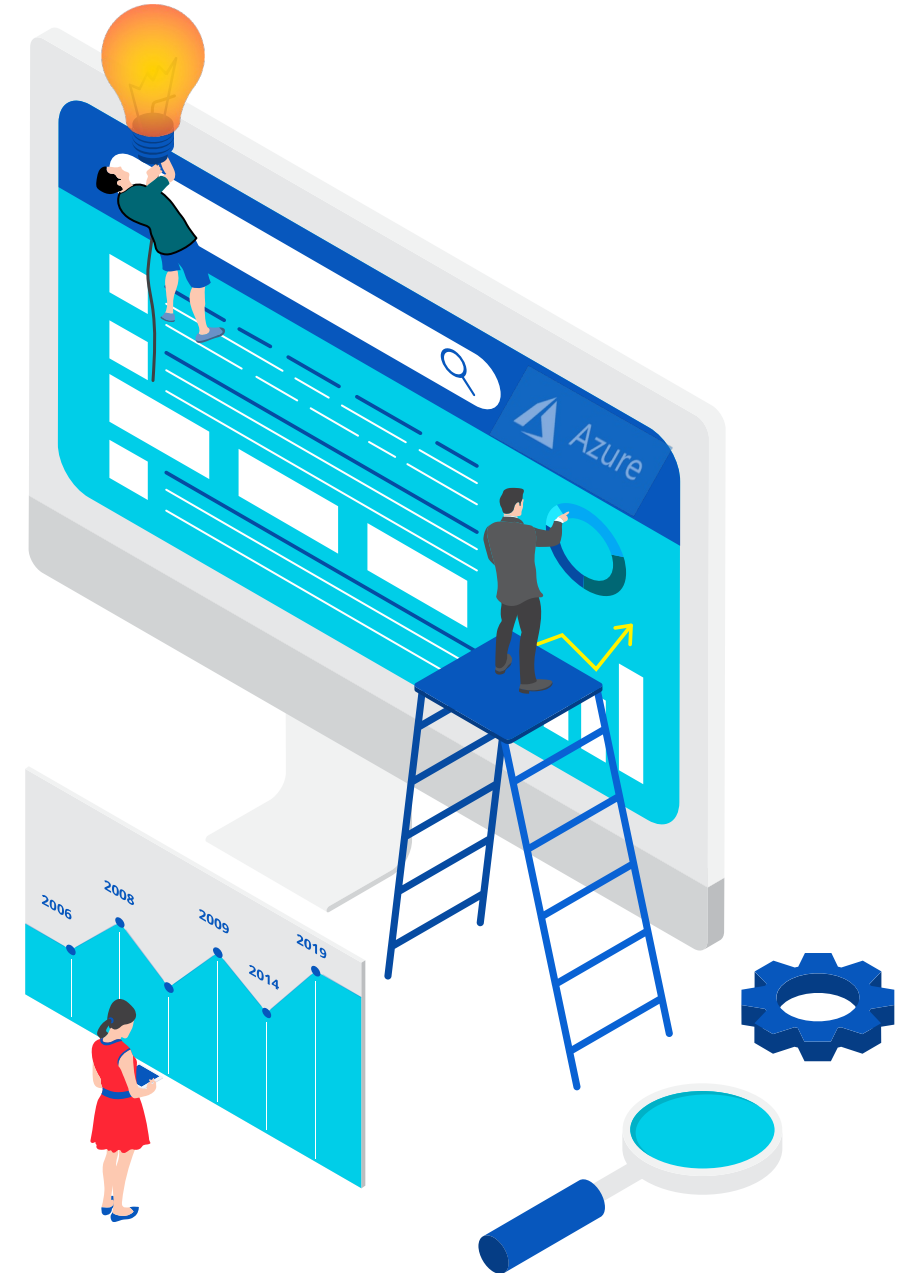
SUPPORT & SOLUTION LIFECYCLE

- SLA

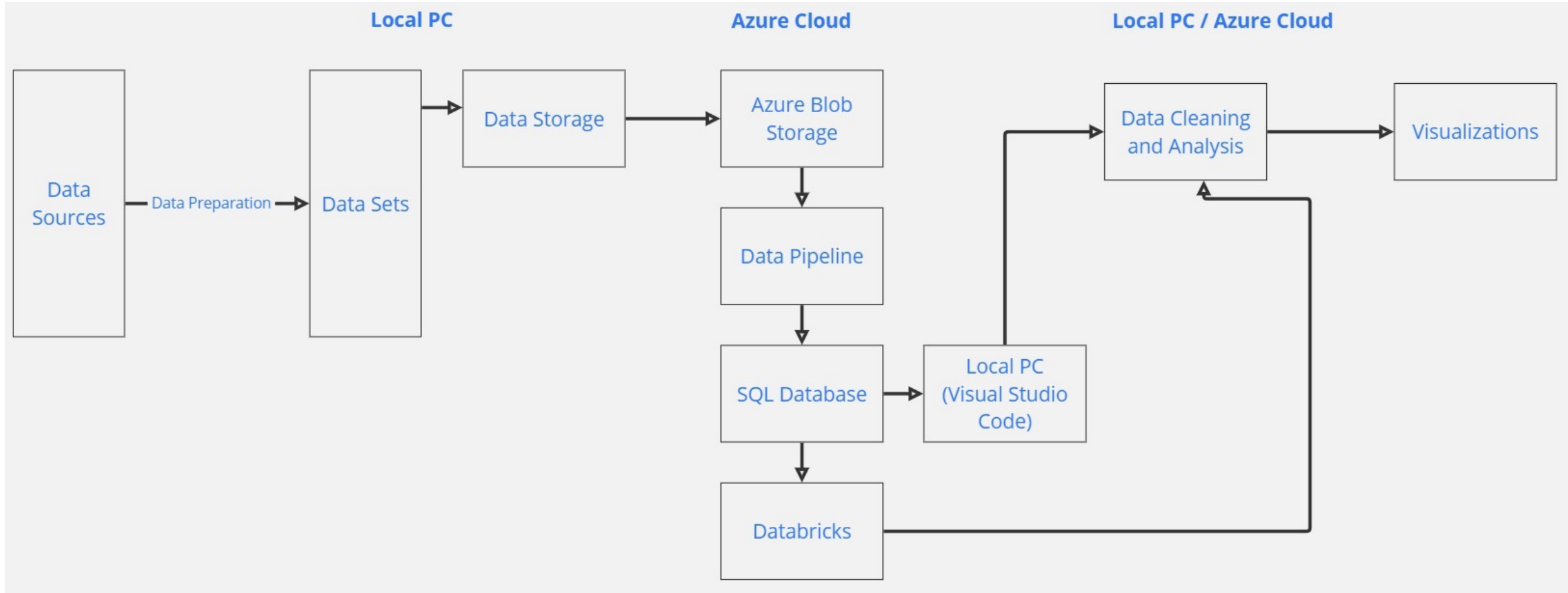
Software Requirements Specification

- Allow users to upload CSV files containing energy consumption data.
- Conduct continuous data verification and cleaning processes.
- Copy uploaded data to the SQL database within 24 hours.
- Enable users to visualize and analyze data through interactive dashboards.
- Ensure timely response to data visualization and analysis requests.
- Implementing robust security .
- Maintaining high system performance and reliability.

EU ECOSmart : Uptime and performance guaranteed by Microsoft Azure !!

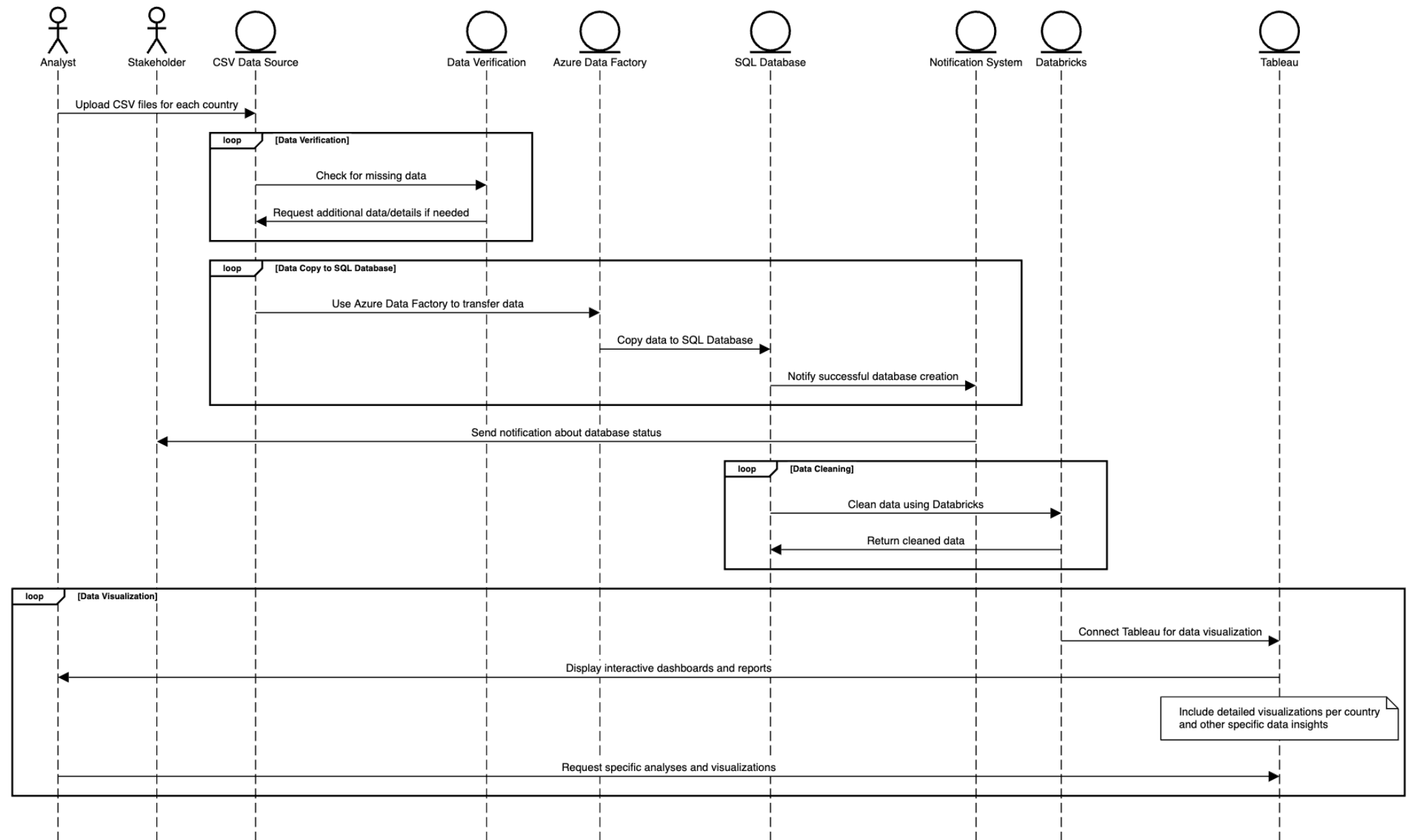


EU ECOSmart General Architecture



EU ECOSmart Use Case – UML Diagram

Power Consumption Data Management System with Event-Based Notifications and Advanced Analytics



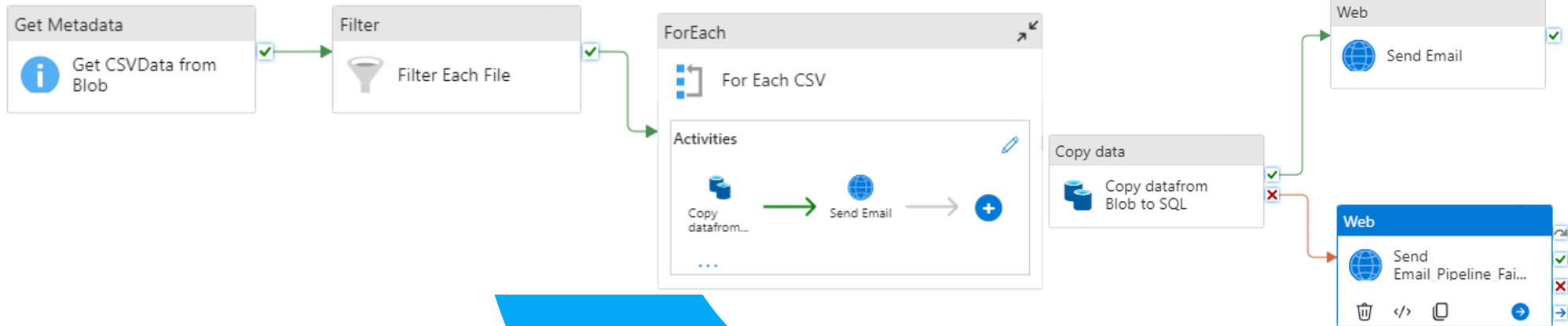
EU ECOSmart WorkFlow Process

Web (Post) Activity

Data Ingestion – Blob Azure
Uploader

Notification for Uploading on time
(Automation Weekly Upload)

Appending new Data



Bigdata Processing

Using Blob Storage for Data
Processing

Connection to tableau

Monitoring Scheduler

Uploader Reminder Notification

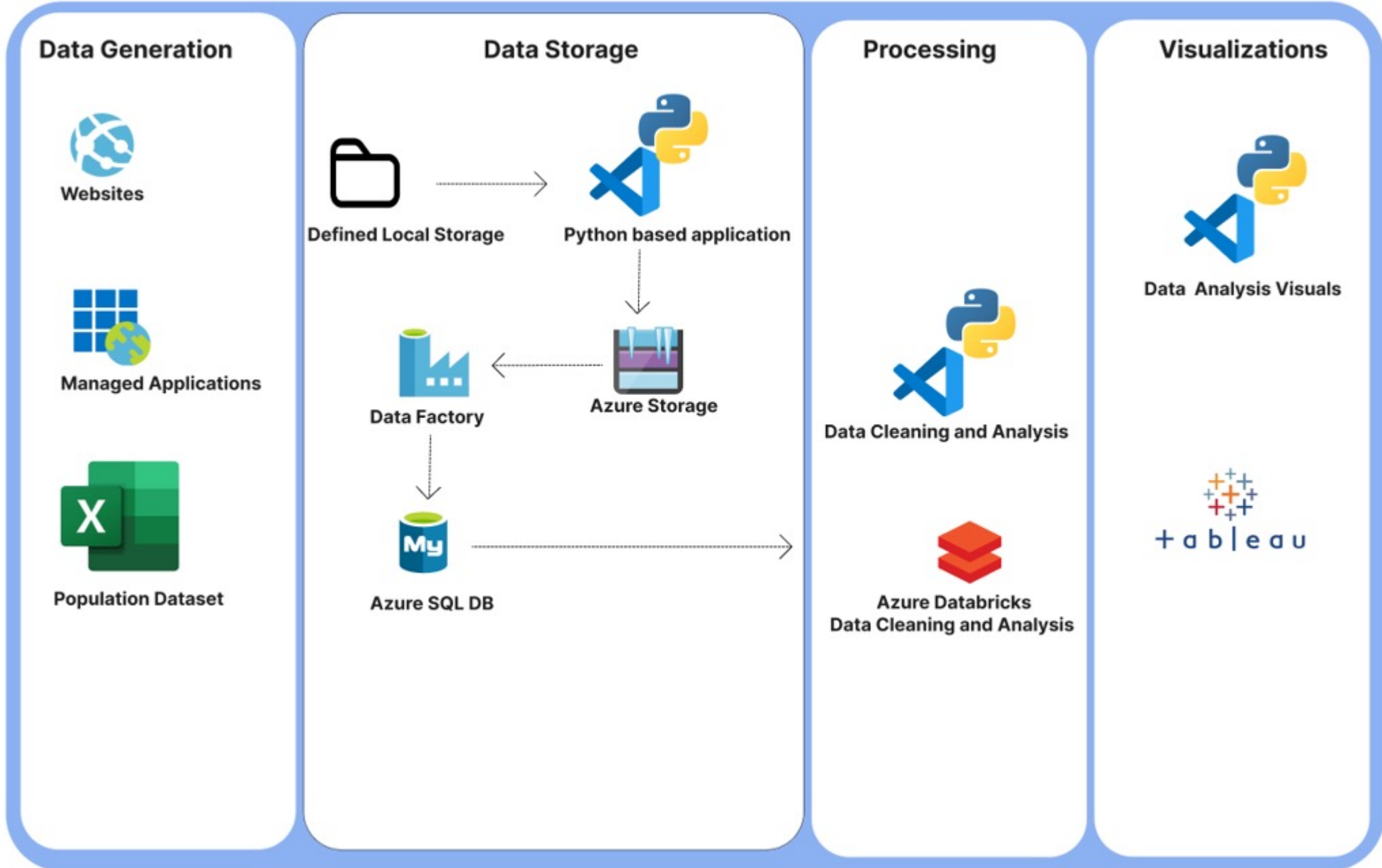
Task Monitoring in Azure

Blob to SQL

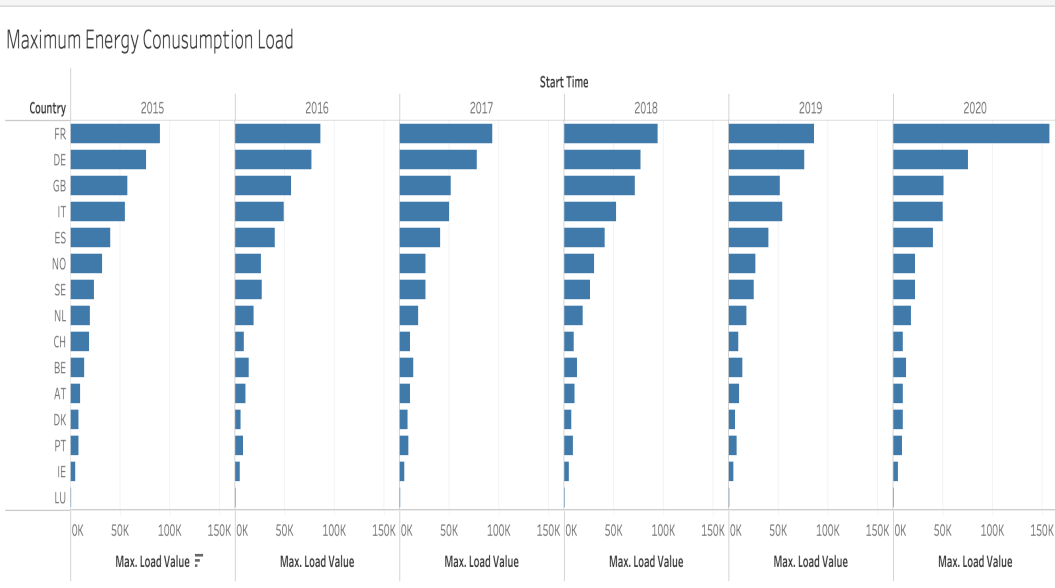
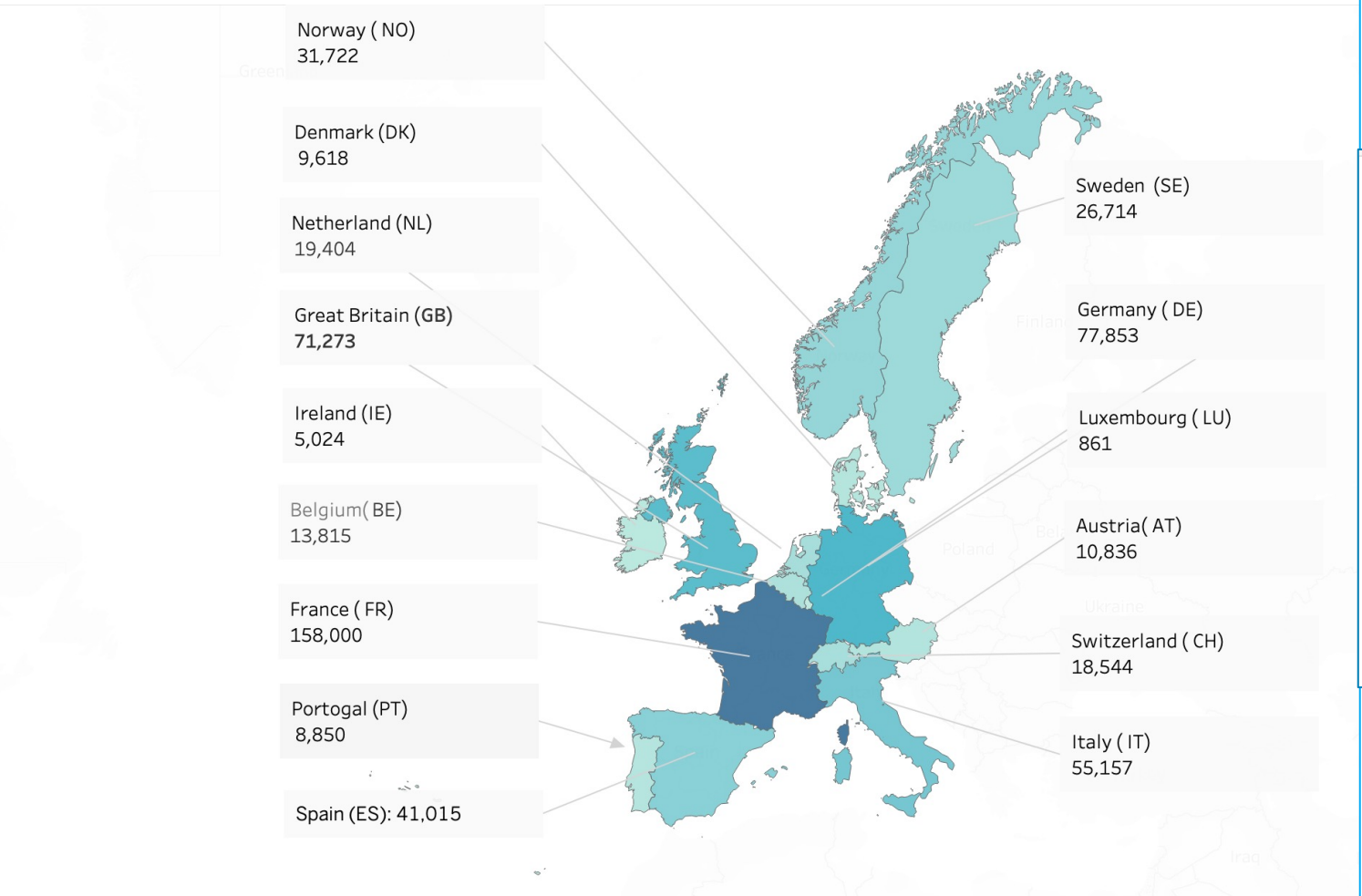
Data Factory /Databricks

Costs and Budget

EU ECOSmart System Architecture



Key findings: Highest Consumption per Country



Key Findings: Power Consumption Correlations in Western Europe

- High energy use correlation in Central Europe, likely due to shared consumption patterns.
- Italy & Spain, Portugal & Spain show notable correlations, possibly influenced by cultural and geographic proximity.
- Norway & Sweden have the strongest correlation (0.95), likely due to similar climates and energy habits.

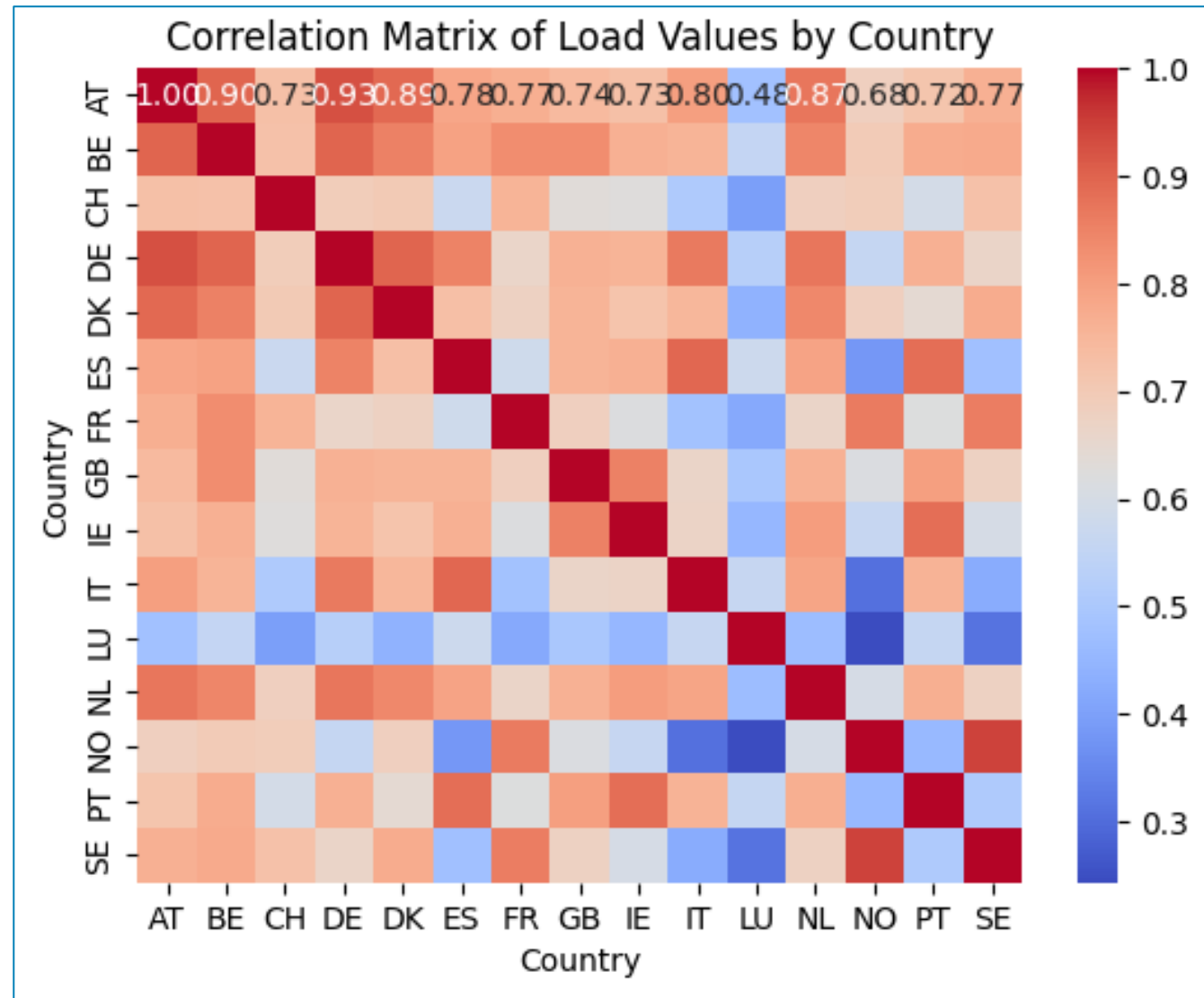
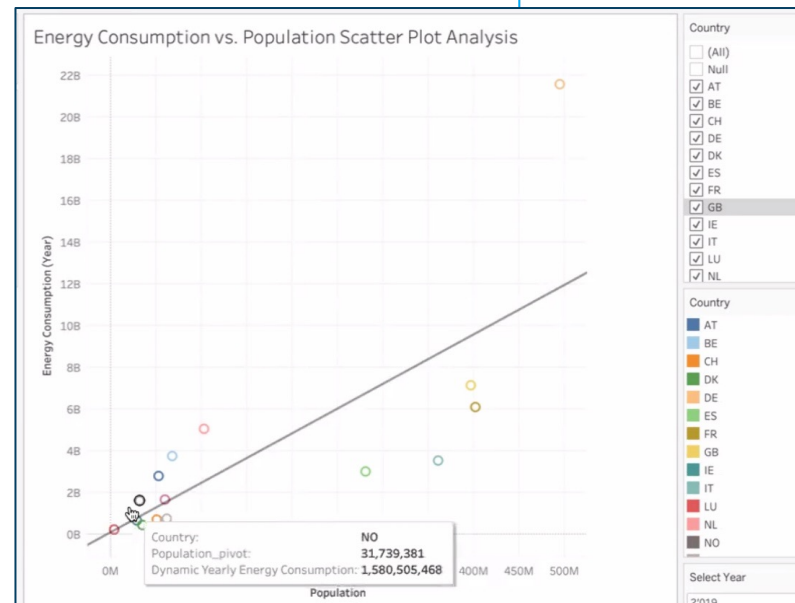
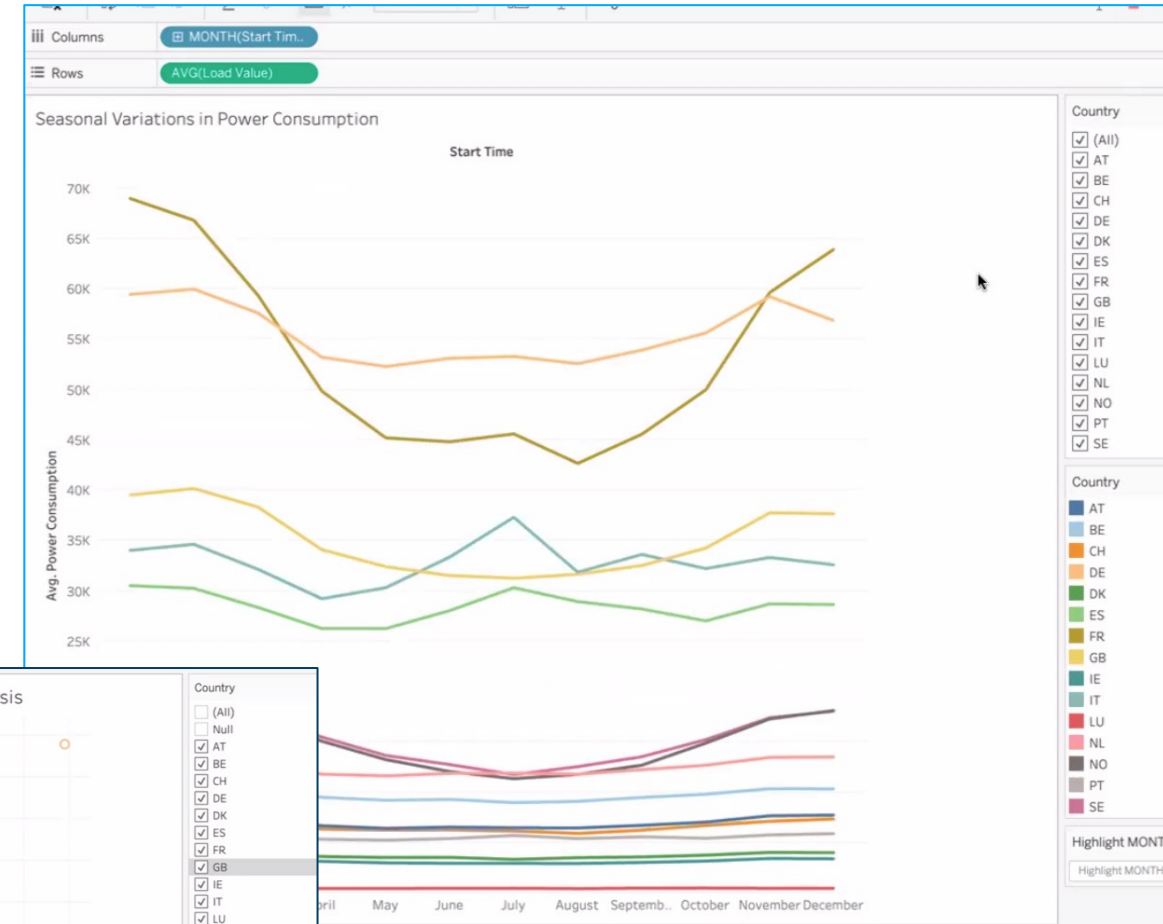


Tableau Visualization

Connecting Databricks to tableau for real time data vizualisation:

[OPEN LINK TABLEAU PUBLIC](#)



Support Solution Lifecycle

System Notifications SLA:

- Instant notifications on successful data transfer and database creation.

Data Upload Response Time SLA:

- Data upload within 24 hours of CSV receipt.
- Immediate notifications upon successful file receipt.

Data Storage and Retrieval SLA:

- Data copied to SQL within 24 hours.
- Instant database creation notifications.

Data Processing and Cleaning SLA:

- Data verification and cleaning with 5 working days from completion of data upload.

Data Visualization and Analysis Response Time SLA:

- Respond to requests within 2 working days.



MS Azure CLOUD Pricing



Region:

West Europe

Storage:

- **Type:** Storage Accounts
- **Details:** General Purpose V2, 1,000 GB, LRS Redundancy, Various Operations
- **Cost:** **CHF 42.78**

Databases:

- **Type:** Azure SQL Database
- **Details:** Single Database, Gen 5, 32 GB Storage, LRS Backup
- **Cost:** **CHF 268.19**

Analytics & IoT:

- **Azure Data Factory:** Data Pipeline Service
Cost: CHF 0.00
- **Logic Apps:** Standard plan, Integration Service Environment
Cost: CHF 155.47
- **Azure Databricks:** Compute Workload, Standard Tier, 0.75 DBU
Cost: CHF 11.86

Estimated Total Monthly Cost: CHF 478.29

First APP-Requirements Fulfilled !



MS Azure Cloud Solution



Notification / Alerts



Data File Uploader APP



Energy Dashboard

**Next UP!
Fututre Outlook!**

ECOSmartX?

Expansion:

Considering Azure as our foundational platform

Innovation:

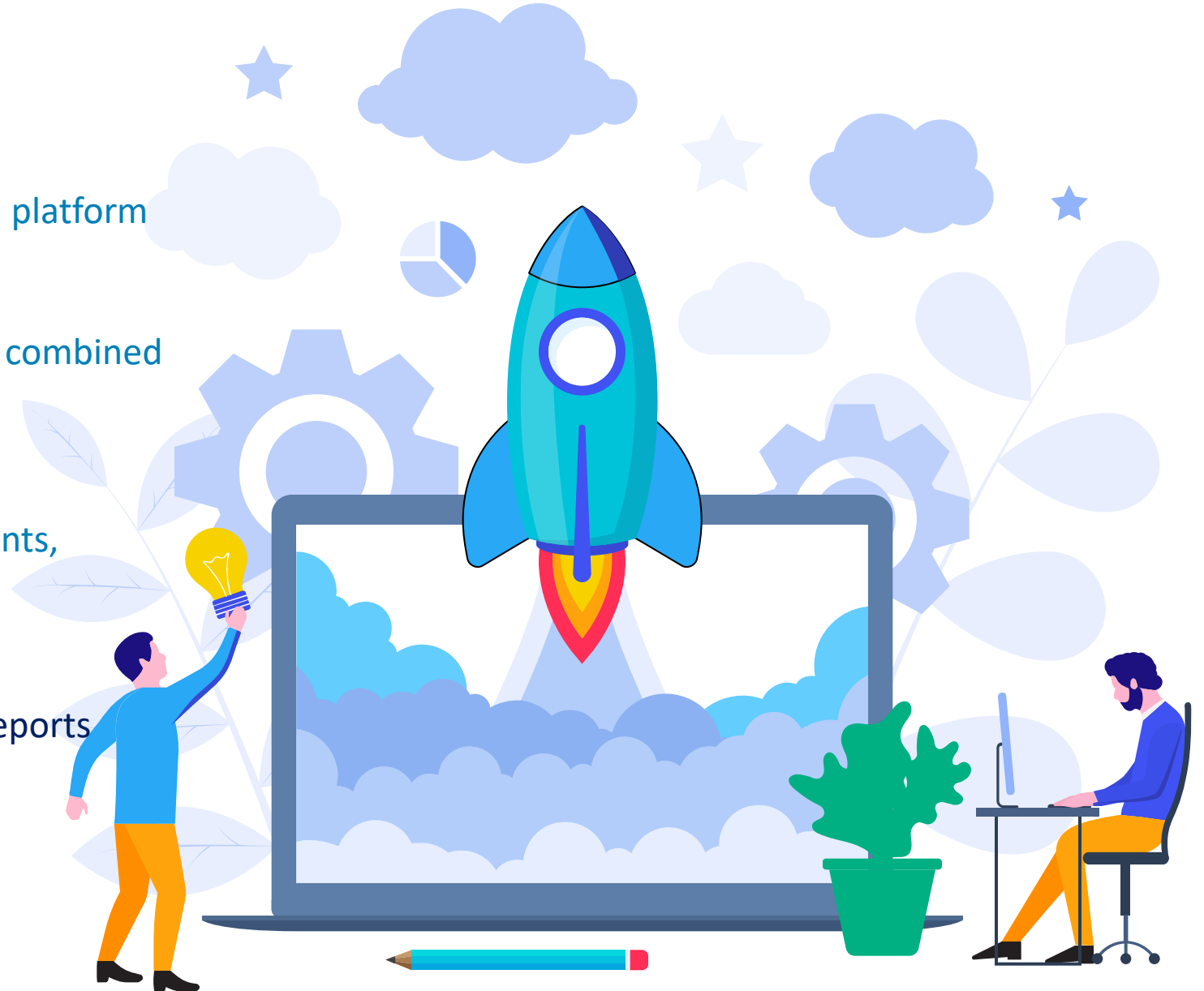
Predicting peak consumption periods, combined with anomaly detection algorithms

Synergy:

Coupling with weather, economic, events, patterns

Autonomy:

Real-time alerts and comprehensive reports deliver clarity



BOOST
Your ENERGY EFFICIENCY
REAL Time Analysis
with
EU ECOSmart!

THANK YOU!

Questions Time !



