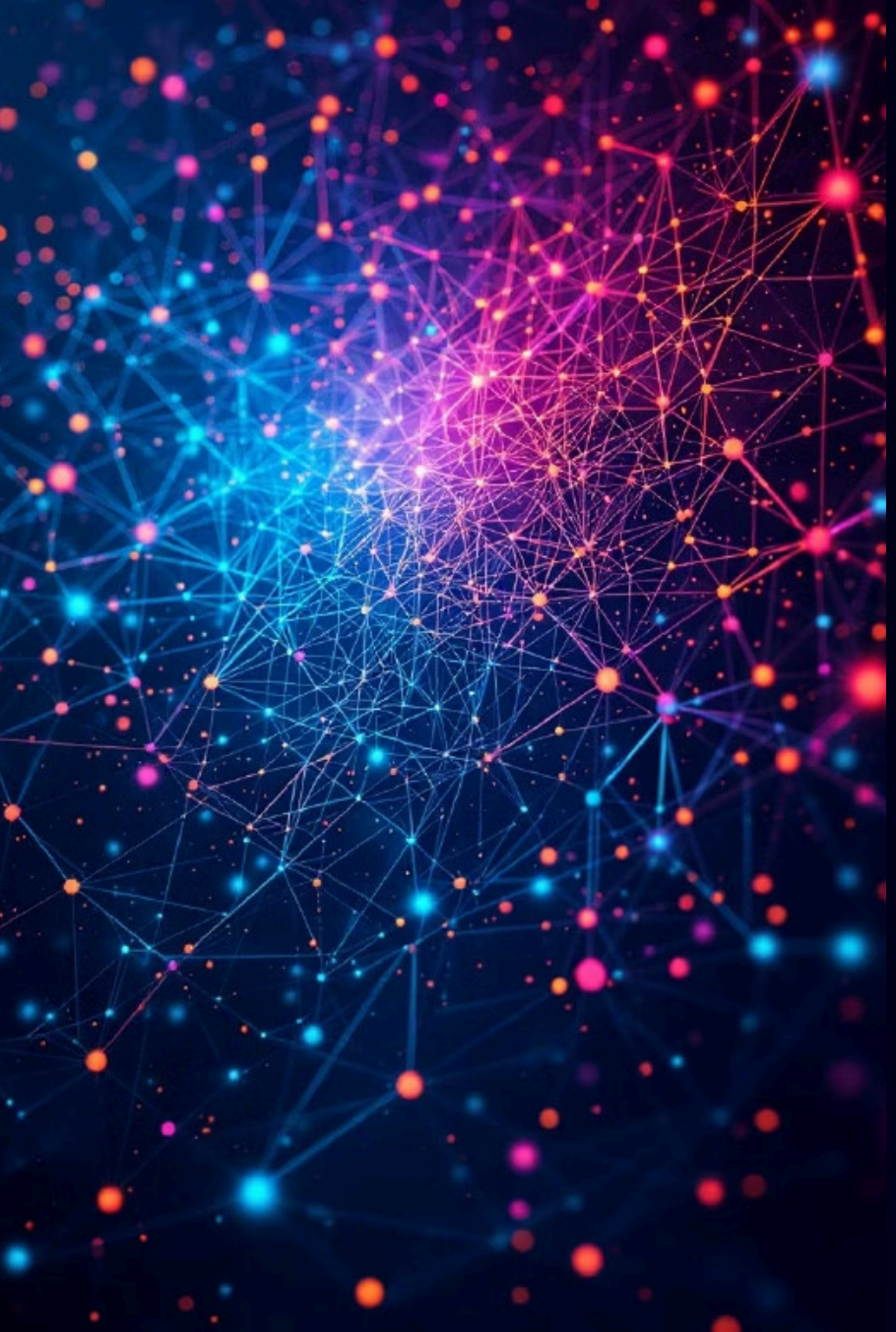


AI Driven Reporting Pipeline

An automated AI-powered reporting system for spend data built on AWS and OpenAI's GPT-4.0 model.

Transform raw data into executive summaries and visual dashboards with zero manual effort.

Key Features

End-to-end Automation

Uses S3 Event Notifications and AWS Lambda for seamless processing.

Multi-stage Processing

Handles analysis, AI summary, and email delivery automatically.

GPT-4.0 Integration

Creates natural language summaries from complex data.

Interactive Dashboards

Provides visual insights and trend forecasting capabilities.

Technology Stack

Core Technologies

- Python
- AWS (S3, Lambda, SES)
- OpenAI GPT-4.0 API

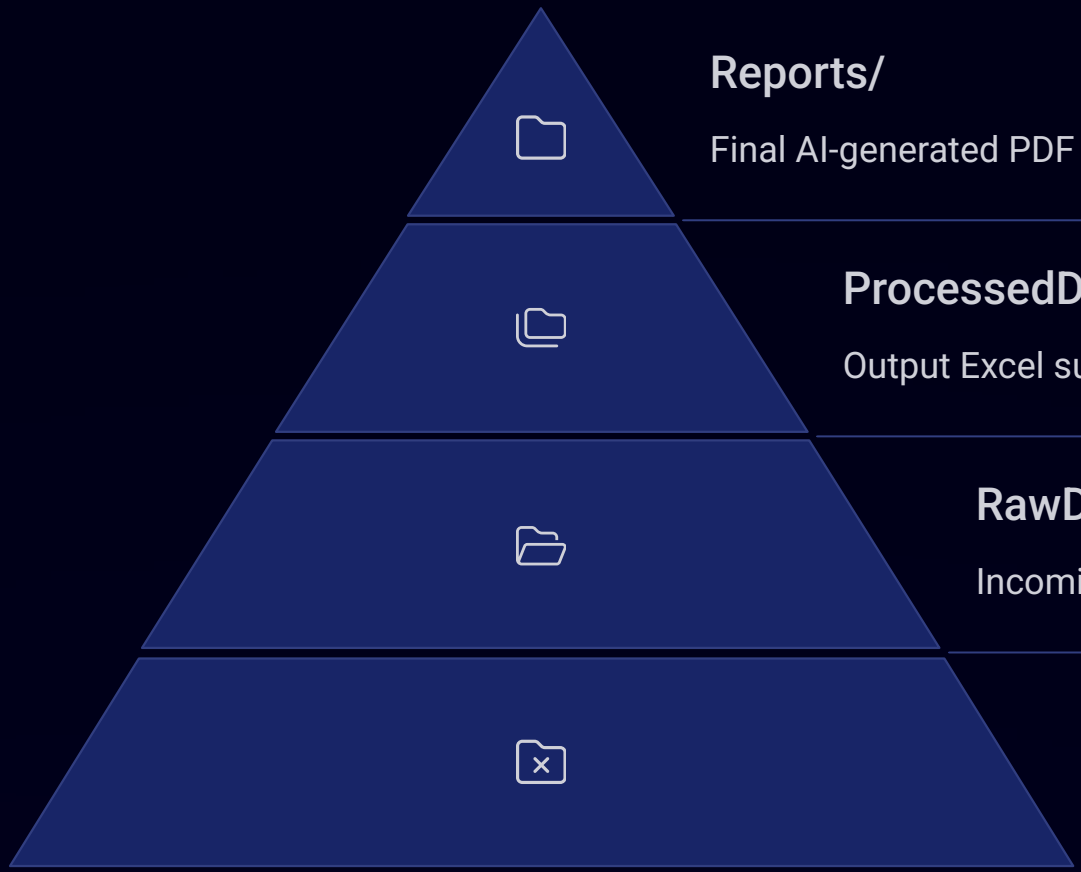
Data Processing

- Pandas
- NumPy
- StatsModels
- SciPy

Visualization & Reporting

- Plotly
- FPDF
- SES Notifications

S3 Folder Structure



Reports/

Final AI-generated PDF summaries

ProcessedData/

Output Excel summary+ HTML dashboard

RawData/

Incoming data for analysis

config/

Secure config file storing OpenAI Access

Trigger Flow

Step 1: Data Upload

User/ETL upload to RawData/ triggers analysis (Lambda #1)

Output: Data summary + HTML dashboard in ProcessedData/

Step 2: GPT Processing

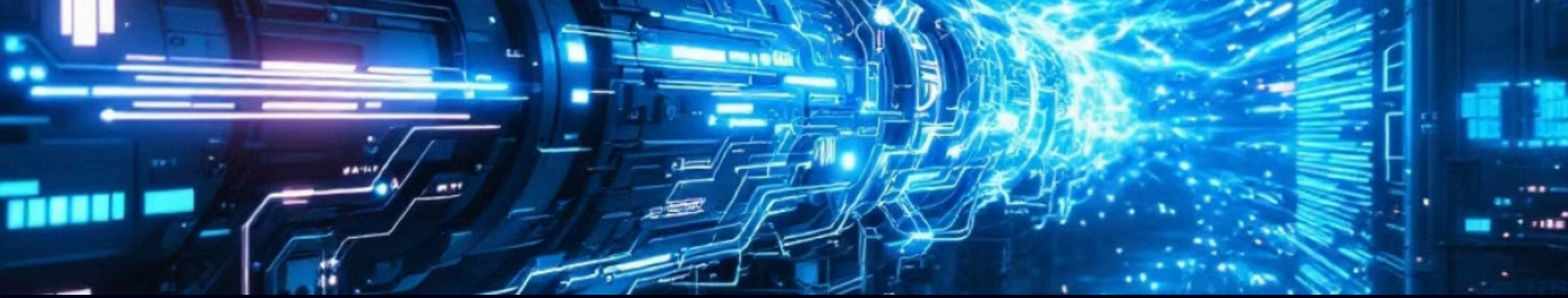
New file in ProcessedData/ triggers AI summary and content generation (Lambda #2)

Output: PDF Report in Reports/

Step 3: Email Delivery

New file in Reports/ triggers email (Lambda #3)

Output: Email with attachments to stakeholders



Lambda Functions

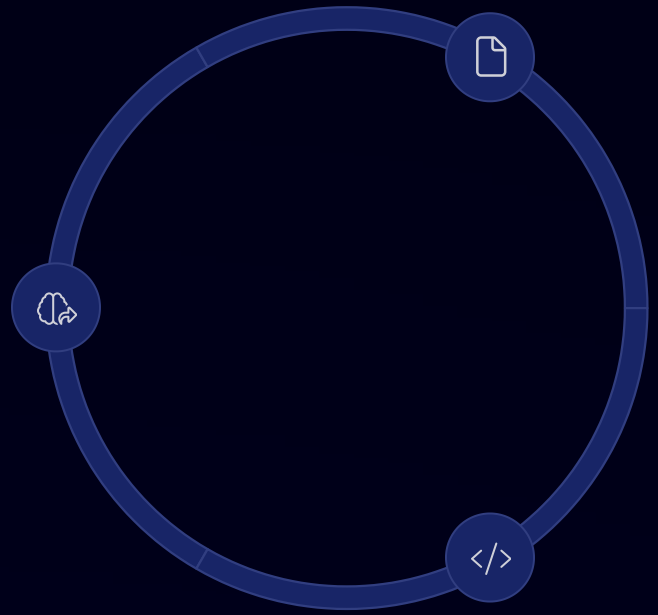
Function	Purpose	Trigger	Key Features
Lambda #1	Data analysis	S3: RawData/	SARIMA modelling, decomposition, outliers
Lambda #2	AI summary	S3: ProcessedData/	Thinker + Doer roles
Lambda #3	Email delivery	S3: Reports/ or Scheduled	SES email with attachments

AI Roles

Thinker Role

AI model analyzes data and visuals

Extracts executive insights from complex information



Doer Role

AI Agent Formats AI model's output

Generates professional PDF reports

Implementation

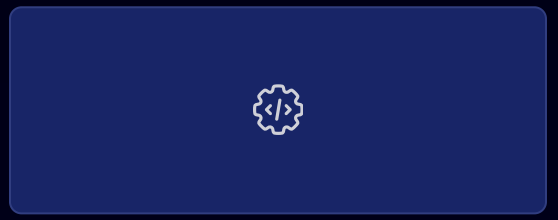
Both roles in one function

Seamless integration with AWS Lambda

Complete Architecture

Data Ingestion

Raw procurement data uploaded to S3

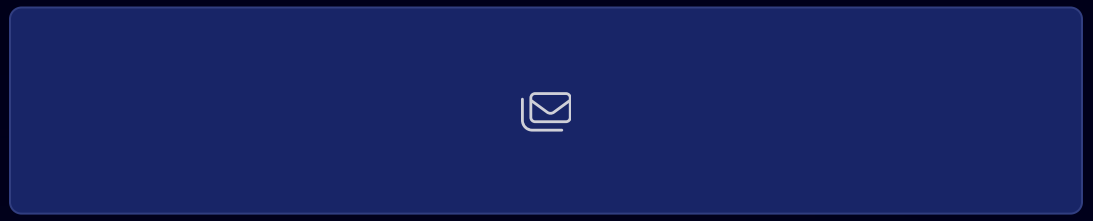


Processing Pipeline

Lambda functions analyze and transform data with an AI model

Report Generation

AI agent creates executive summaries as PDFs



Distribution

Reports emailed to stakeholders automatically