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# Contextualizing SDGs through SDMX and GenAI

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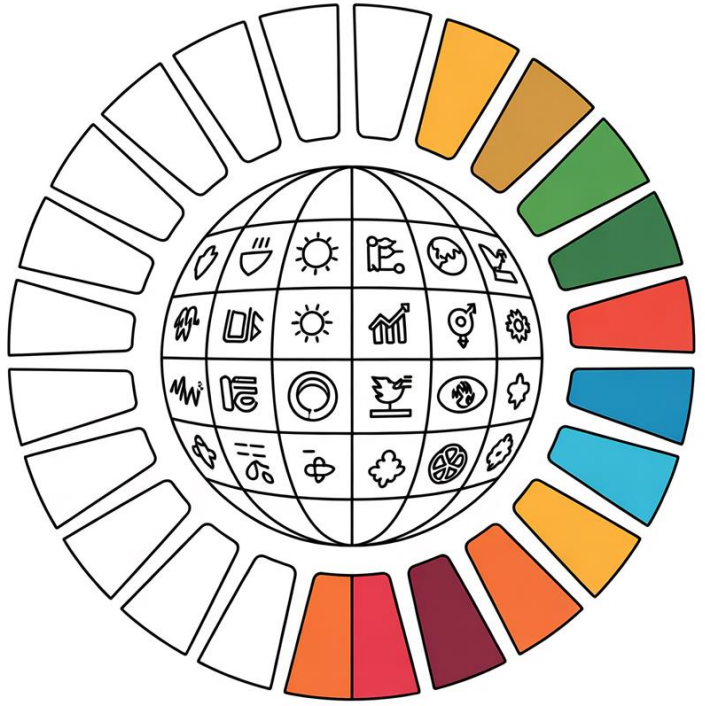
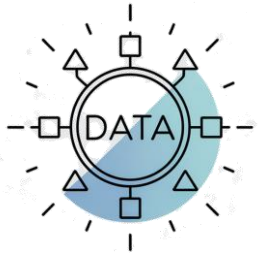
# SDMX+GenAI: Contextualized Country Briefs

- SDG benchmark provides powerful insights
  - Still, country briefs are under-utilized
- Narrative makes the difference
  - When explained, stakeholders engage; when static, reports remain unread
- Only 5% of UN reports are downloaded +5,000 times
  - Downloading doesn't necessarily mean reading (source: Reuters)
- Opportunity:
  - SDMX+GenAI to scale contextual narratives for +190 countries

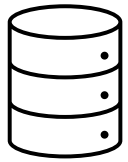


# SDMX in UNICEF Data Lifecycle



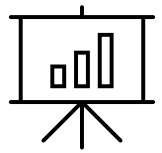

Data Production

Harmonized indicators from multiple sources



SDMX Warehouse

Standardized storage



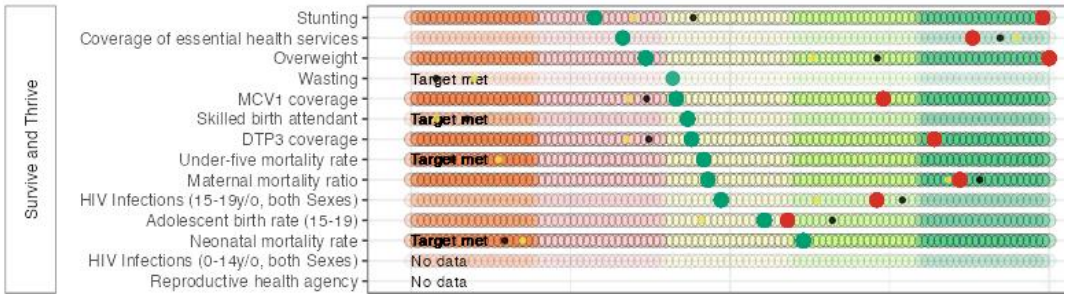
Cross-Unit Analytics

Different teams access unified data

- SDMX enables UNICEF's cross-unit analytics and dissemination:
  - Analysts across units (e.g. education, nutrition, etc.) rely on the SDMX warehouse for harmonized indicator data
- SDMX enables SDG benchmarking across countries, time series, and outcome groups:
  - Structured, standardized data is merged and pulled into the analysis framework

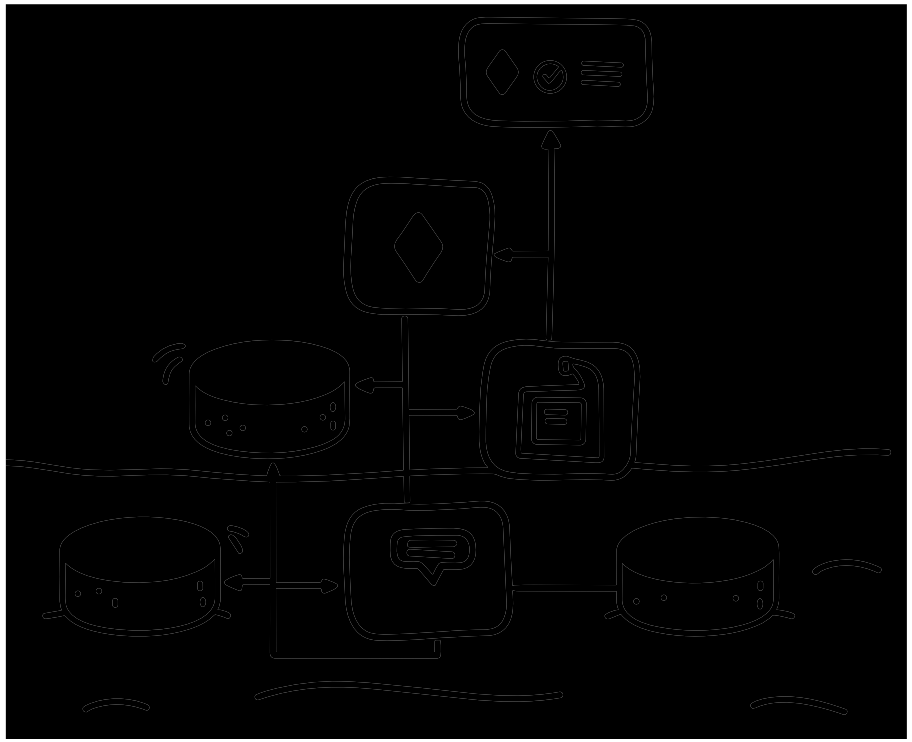
# What SDG Country Briefs Need to Explain

- Two plots summarize SDG country briefs:
  - Levels: where a country stands today versus world distribution and its 2030 targets
  - Changes: mean historical rate of progress and expected rate to meet targets by 2030
- Without narrative, these plots remain numbers
- It's difficult for decision-makers to interpret or act upon

# Transform briefs into actionable narratives

- Challenge
  - Manual narrative writing is not scalable across 190+ country briefs
- Opportunity
  - GenAI offers scalable summarization, but must be grounded in trusted data
- Approach:
  - Combine structured SDMX data with contextual documents and GenAI



# From Data to Narratives Workflow

A modular pipeline to integrate SDMX data with contextual documents and GenAI:

## Inputs

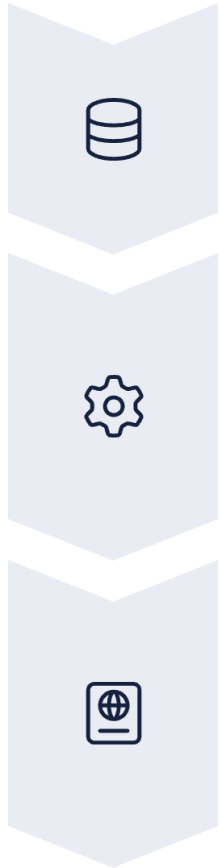
SDG benchmarks in SDMX warehouse + context documents in SharePoint (RAG: Augment Generation from Retrieved content) + config-driven prompts

## Processing

Pull documents into vector DB (RAG) + pull Data into prompts + generate responses from Azure OpenAI models (Python code run in Databricks)

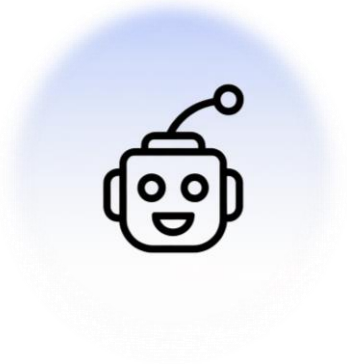
## Outputs

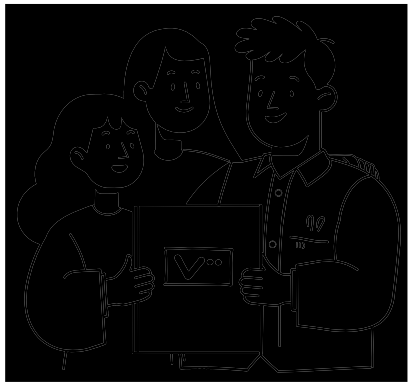
Plots + generated contextual insights integrated in a Quarto template: rendered report pushed to SharePoint for Quality Assurance



# Quality Assurance

- Semi-automatic testing with DeepEval:
  - Combining AI-testing-AI + Human review to balance scale with trust





### AI Generation

Narratives from SDMX data generated from Azure Open AI responses

### DeepEval Testing

Factual consistency in AI-generated narratives evaluated with a score

### Human Review

Analysts retain control over Quality Assurance (outputs in SharePoint)

# Summary: From pilot to impact

- GenAI can contextualize SDG briefs
  - RAG accuracy 
  - Insights from structured data 
- Scaling impact needs cross-functional collaboration
  - Piloted framework is promising
  - Early MVP stage: engage domain specialists in prompts fine-tuning
- Challenge ahead: the pilot-to-production gap
  - 95% of generative AI pilots at companies deliver little impact on income statement (MIT report: State of AI in Business 2025)

# THANK YOU

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