HR BONUS ANALYTICS

Technical Documentation

1. Solution Architecture

The HR Bonus Analytics solution follows a layered architecture separating data processing logic (SQL Server layer) from semantic modeling and visualization (Power BI layer).

Architecture Layers:
• Data Layer: SQL Server (tables and views)
• Semantic Layer: Power BI Dataset (Star Schema model)
• Presentation Layer: Power BI Report (5 pages including tooltips and drillthrough)

2. Data Model

2.1 Fact Tables

fact_cumplimiento_supervisor
• fecha_id
• supervisor_id
• objetivo_id
• valor_real
• valor_objetivo

fact_incidentes
• incidente_id
• supervisor_id
• fecha_id
• tipo_incidente
• es_critico

2.2 Dimension Tables

dim_supervisor
dim_manager
dim_objetivo
dim_area
dim_fecha
dim_pais

All relationships are 1:* from dimension tables to fact tables. The model follows star schema best practices.

3. SQL Layer Logic

3.1 Core View: vw_hr_bonus_base

This view centralizes business logic before ingestion into Power BI.
Key transformations:

- Normalization of pct_cumplimiento to 0–1 scale
- Join with dim_objetivo to retrieve objective weight and target
- Critical incident flag restricted to 'Incident Management' objective
- Monthly granularity at supervisor-objective level

3.2 Supporting Views

vw_manager_accidente_critico
vw_supervisor_accidente_critico
vw_supervisor_budget_period
vw_supervisor_monthly_kpi
vw_supervisor_proporcionalidad
vw_supervisor_proporcionalidad_mes

These views encapsulate business rules and reduce transformation load within Power BI.

4. DAX Measures

4.1 Monthly Supervisor Compliance

```
% Cumplimiento Mensual Supervisor =
SUMX(
   DimObjetivo,
   CALCULATE(AVERAGE(FactSupervisorBonus[pct_cumplimiento]))
   * DimObjetivo[peso]
)
```

4.2 Supervisor Bonus Classification

```
SWITCH(TRUE(),
   Cumplimiento >= 0.95, 1,
   Cumplimiento >= 0.60, 0.5,
   0
)
```

4.3 Manager Compliance

```
AVERAGEX(
   VALUES(DimSupervisor[supervisor_id]),
   [% Cumplimiento Supervisor]
)
```

5. Performance Considerations

• Iteration over dimension tables instead of fact tables to prevent context duplication.
• Avoided unnecessary division by 100 through data normalization in SQL.
• Penalization logic implemented at SQL layer to simplify DAX calculations.
• Star schema structure ensures optimal filter propagation.

6. Version Control Strategy

The project uses PBIP (Power BI Project) format for Git compatibility.
Recommended repository structure:

```
HR-Bonus-Analytics/
  dataset/
  report/
  sql/
  docs/
  README.md
```

Commit Example:

```
git add .
git commit -m "refactor: normalize compliance logic and optimize monthly aggregation"
git push origin main
```