



## Project Planning & Management

### Manufacturing Downtime Analysis

**Team Name:** InfoVerse Team **Organization:** Digital Egypt Pioneers Initiative (DEPI)

#### 1.1 Project Proposal

**Project Overview:** The Manufacturing Downtime Analysis project is a Business Intelligence solution designed to analyze production line efficiency, downtime patterns, and operator performance. Utilizing Power BI, the system transforms raw manufacturing data into actionable insights to improve operational effectiveness.

#### Objectives:

1. **Increase Production Efficiency:** Minimize downtime and optimize batch operations (Target: 5-10% improvement).
2. **Root Cause Analysis:** Identify key factors contributing to machine failure and delays.
3. **Performance Evaluation:** Assess operator performance to guide training and resource allocation.
4. **Visualization:** Provide real-time visibility into production metrics across shifts and products.

#### Scope:

- **In-Scope:** Data cleaning (ETL), Data Modeling (Star Schema), DAX Calculations, and Dashboard creation for Line Productivity and Downtime.
- **Out-of-Scope:** Real-time sensor integration (IoT), hardware maintenance execution.



## 1.2 Team Roles & Responsibilities

Team Member	Role	Responsibilities
<b>AlHussein AlAttar</b>	Project Lead / documentation	Overall project management, dashboard architecture. Presentaion.
<b>Mohammed AlMukadam</b>	Business Analyst	DAX measure development, KPI definitions. Business Questions.
<b>Youssef Ezzat</b>	Data Analyst	Data cleaning, modelling.
<b>Youssif Ali</b>	UI/UX Designer	Dashboard wireframing (Figma), visual design, layout.
<b>Mina Ayad</b>	Storyteller	Data Visualization

## 1.3 Project Plan & Timeline

**Methodology:** Agile / Iterative Development

Phase	Duration	Deliverable
<b>Milestone 1: Requirements</b>	Week 1	Business questions definition, KPI list, Wireframes.
<b>Milestone 2: Data Modeling</b>	Week 2	Cleaned dataset (Power Query), Star Schema design.
<b>Milestone 3: Implementation</b>	Week 3	DAX measures (Efficiency, Downtime), Mockups.
<b>Milestone 4: Visualization</b>	Week 4	Final Interactive Dashboard, Reports, Presentation.



#### 1.4 Risk Assessment

Risk	Probability	Impact	Mitigation Strategy
Data Quality Issues	High	Critical	Implement rigorous cleaning in Power Query (remove errors, standardize units).
Complex Logic Errors	Medium	High	Cross-validate DAX results with Excel pivot tables manually.
Scope Creep	Medium	Medium	Strictly adhere to the defined "Business Questions" list.

#### 1.5 Key Performance Indicators (KPIs)

- Overall Production Efficiency:** Target > 85% (Current Baseline: 64.02%).
- Batch Target Adherence:** % of batches completed within target time (Current: 7.89%).
- Downtime Duration:** Reduction in total lost minutes (Current total: ~23 hours).
- Operator Error Rate:** Reduction in downtime attributed to human error (Current: 55.91%).