Project Charter: Forecasting Food Loss Using AI/ML Models

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1. Project Purpose

To reduce global food loss by 15% within 2 years through AI/ML-driven forecasting tools (ARIMAX, LSTM, FFNN) that empower stakeholders to optimize supply chains and production planning.

2. Objectives

- Achieve a forecast accuracy of **¡10% MAPE** using ARIMAX for short-term predictions.
- Develop a scalable dashboard for NGOs, farmers, and suppliers.
- Train 50+ stakeholders on tool adoption within 6 months post-launch.

3. Team Roles & Responsibilities

Role	Name	Responsibilities
Project Manager	Wael Zaier	Oversee timelines, stakeholder communication
Data Scientist	Mohamed and Ali	Model development (ARIMAX/LSTM/FFNN)
Financial Analyst	Karim Hentati	ROI analysis, cost-benefit reporting
Marketing Lead	Achraf Rekik	Stakeholder engagement, training materials
HR Coordinator	wael zaier	Team coordination, conflict resolution
Software Developer	Dhaker Messoud	App development (FastAPI/ streamlit)

4. Scope

Included:

- Data collection from FAO and partner NGOs.
- Model training/validation using historical loss data.
- Dashboard development (Power BI/Tableau).

Excluded:

- Real-time IoT sensor integration (Phase 2).

- Policy advocacy (handled by external partners).

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5. Key Milestones

Milestone	Deadline	Deliverable
Data collection & cleaning	Feb 5, 2024	Cleaned dataset
ARIMAX/LSTM model training	Feb 12, 2024	Validated models (MAPE ¡10%)
Financial analysis finalized	Feb 14, 2024	ROI report
Final deliverables submitted	Feb 15, 2024	ZIP file (Business Case, Charter, etc.)

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6. Risks & Mitigation

Risk	Impact	Mitigation Strategy
Poor data quality	High	Use outlier detection classifiers
Low stakeholder adoption	Medium	Pilot with NGOs first
Model overfitting (LSTM/FFNN)	Medium	Regularization, cross-validation

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7. Budget Overview

Component	Cost (USD)
Model Development	$20,000
Stakeholder Training	$5,000
Contingency Fund	$3,000
Total	**$28,000**