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Irrigation scheduling and water management

Automated irrigation scheduling system that monitors soil conditions, weather forecasts, and crop needs to optimize water usage and maintain ideal growing conditions. Reduces water waste by 25-40% while ensuring optimal crop hydration.

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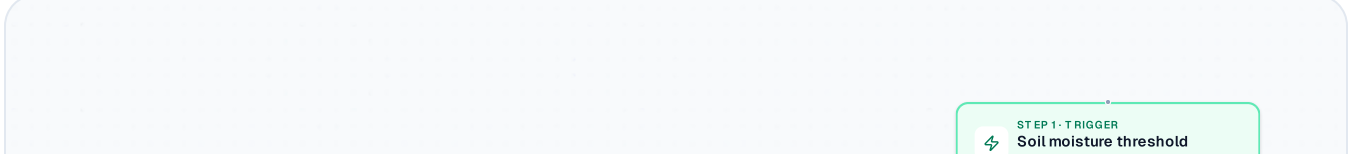
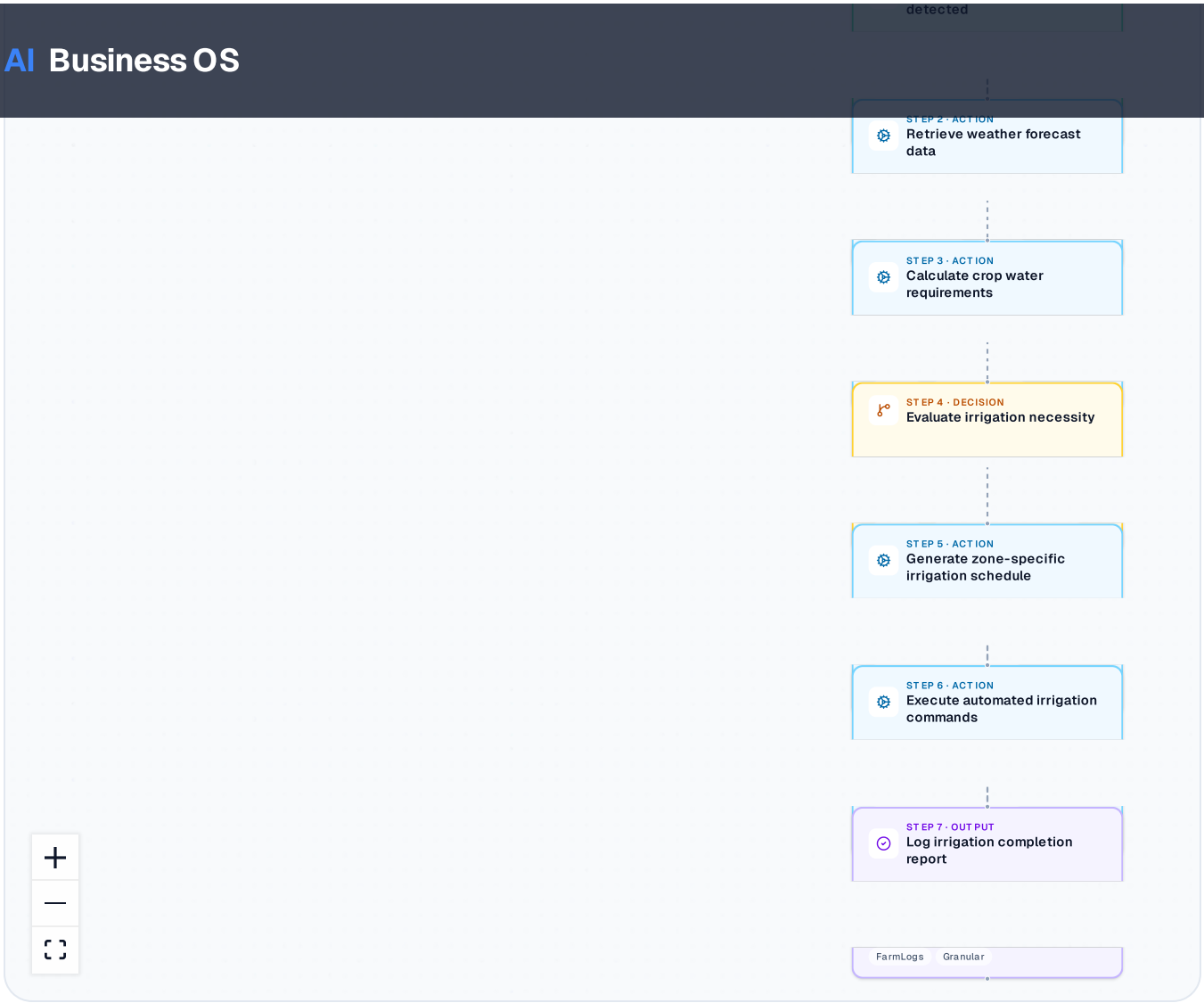
WORKFLOW TRIGGER

Daily soil moisture sensors report moisture levels below preset thresholds for specific field zones

Visual Flow

Each node represents an automated step. Connections show how data and decisions move through the workflow.





Step-by-Step Breakdown

Detailed explanation of each automated stage in the workflow.

1

TRIGGER

Soil moisture threshold detected

IoT soil moisture sensors across field zones automatically report when moisture levels drop below crop-specific thresholds. Data is collected from multiple sensors to create field-wide moisture mapping.

John Deere Operations Center | Climate FieldView

2

ACTION

Retrieve weather forecast data

System pulls 7-day weather forecast including precipitation probability, temperature, and humidity data for the field location. This data helps determine if natural rainfall will meet crop water needs.

Climate FieldView | Granular

3

ACTION

Calculate crop water requirements

AI analyzes current crop growth stage, soil type, and environmental conditions to determine precise water requirements for each field zone. Calculations include evapotranspiration rates and root zone depth.

Granular | Climate FieldView

4

DECISION

Evaluate irrigation necessity

System compares calculated water needs against forecasted rainfall and current soil moisture to determine if irrigation is required. Factors in cost optimization and water conservation goals.

Granular | John Deere Operations Center

5

ACTION

Generate zone-specific irrigation schedule

Creates detailed irrigation plan with specific timing, duration, and water volume for each field zone. Schedule optimizes for equipment availability and energy costs.

John Deere Operations Center | Trimble Ag Software

6

ACTION

Execute automated irrigation commands

Sends control signals to irrigation equipment including pivot systems, drip lines, and pumps. Monitors execution and adjusts flow rates based on real-time sensor feedback.

John Deere Operations Center | Trimble Ag Software

7

OUTPUT

Log irrigation completion report

Generates comprehensive report documenting water usage, field coverage, system performance, and cost metrics. Updates crop management records and compliance documentation.

FarmLogs | Granular

Outputs

- Zone-specific irrigation schedule with timing and volumes
- Water usage efficiency report with cost analysis
- Updated crop management records with irrigation history

Key Metrics

- Water usage reduction percentage
- Irrigation cost per acre
- Crop yield per gallon of water applied

Tools & Integrations

- John Deere Operations Center
- Climate FieldView
- Granular
- FarmLogs
- Trimble Ag Software

AI Business OS