Better Water Management through Precision Ag Irrigation Leadership

PAIL Data Exchange Standards

More than ever,
I need actionable data
to manage my field
operations.

Data to plan and manage my irrigation.

I need stand-alone components to work together.

LOCALIZED HARDWARE
- Weather stations
- Moisture sensors
- Pumping plants
- Smart meters
- Flow valves

EXTERNAL DATA SOURCES
- Soil maps
- Weather networks

IRRIGATION SCHEDULING TOOLS
- VSI
- VRI
- SIS

ONLINE ADVISORY SYSTEMS
- Crop type
- ET
- Schedules
- Weather
- SIS

I NEED HELP!

BUT…

- One piece of equipment doesn't always talk with another

- Complexity is compounded if I'm running a mixed fleet of equipment

- I spend valuable extra time trying to analyze data and interpret it to make us more productive

Help is here with the Precision Ag Irrigation Leadership (PAIL) Data Standards
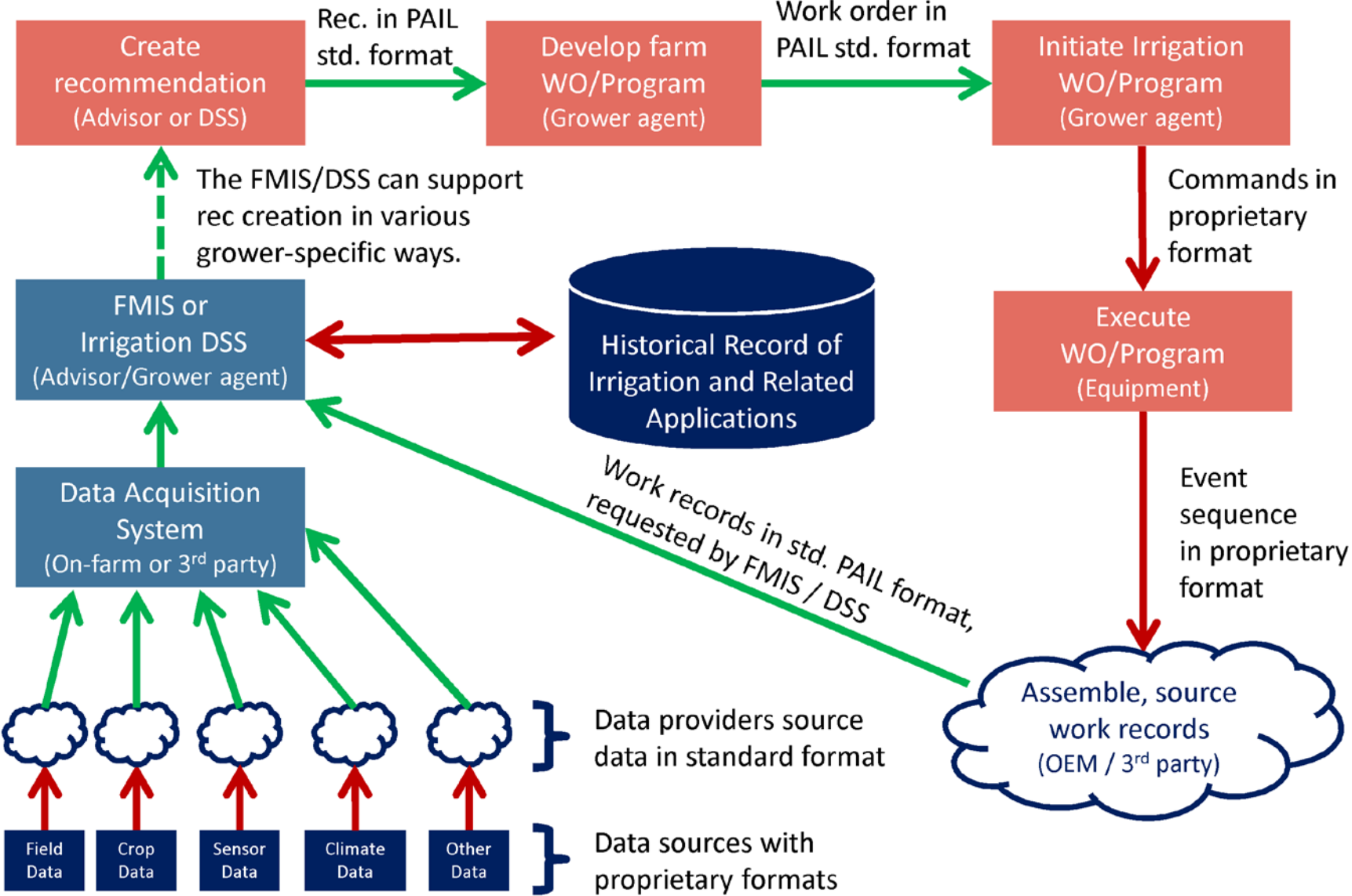
Goal

Improve agricultural irrigation by developing a common set of data standards and formats to convert data for use in irrigation data analysis and prescription programs

Deliverables

- Use Cases
- Datasets Definitions
- Data schemas and formats
- Business Rules
- Glossary of terms
- Testing
- Supporting Documentation

PAIL Irrigation Data Flow

Create recommendation (Advisor or DSS)

Rec. in PAIL std. format →

Develop farm WO/Program (Grower agent)

Work order in PAIL std. format →

Initiate Irrigation WO/Program (Grower agent)

The FMIS/DSS can support rec creation in various grower-specific ways.

FMIS or Irrigation DSS (Advisor/Grower agent)

Historical Record of Irrigation and Related Applications

Commands in proprietary format

Execute WO/Program (Equipment)

Data Acquisition System (On-farm or 3rd party)

Work records in std. PAIL format, requested by FMIS / DSS

Event sequence in proprietary format

Data providers source data in standard format

Assemble, source work records (OEM / 3rd party)

Data sources with proprietary formats

| Field Data | Crop Data | Sensor Data | Climate Data | Other Data |

PAIL Data Exchange Standards

Irrigation system setup, configuration, performance specification
- ✓ Location and geometry of the irrigation system
- ✓ End gun, corner arm specification
- ✓ Flows and pressure

Field and environmental information
- ✓ Location
- ✓ Soil conditions
- ✓ Local and regional weather conditions & forecasts

Irrigation system operation, control, and status
- ✓ Schedules (how much and when)
- ✓ Irrigation work orders to drive pivot controllers
- ✓ Error reporting
- ✓ Reporting on how much, and where, water was applied

Why I Support the PAIL Data Standards

As an Ag Irrigation Equipment and Service Provider, I want to help my customers:

- Get the best data for making irrigation decisions without jumping through hoops

- Plan and track their irrigation efficiency so they can use less water while improving yield

As an Ag Irrigation Equipment and Service Provider, I want to help my team to:

- Spend less time rewriting code every time a partner's software program or application is changed.

- Interact with other manufacturers, increasing our market reach

Adopting the PAIL data standards makes it easier for my customers to connect with me and others…

…And

- Creates new market opportunities with data-driven products and services

- Makes it easier to do business, upstream and downstream

- Helps grow the overall precision ag irrigation market

How about you? Are you ready to:

- **Make life easier for your customers?**
- **Reduce time and effort for your programming staff?**
- **Grow your Precision Ag Irrigation business?**

JOIN the dozens of companies who support the PAIL Standards

To find out more about the PAIL Data Standards, contact:

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