



AgGateway Portfolio Overview

Q1 2023 PMC Overview



PMC Groups



Found within [Portfolio Management Center](#)



Advisory Groups

Strategic in nature, providing longer term guidance in a subject area



Working Groups

Shorter in duration, delivering defined digital resources



Member organizations affirmatively join a Working Groups via [Join Form](#)

Company participation must be confirmed by AgGateway primary contact per IP policy

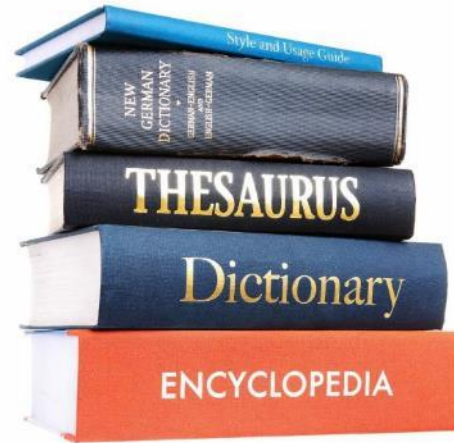
Agrisemantics Advisory Group

Purpose and Areas of Oversight:

- Ensure that as data is shared among systems the meaning is also shared enabling better interoperability
- Glossary of Agricultural Terms
- Controlled Vocabularies & Units of Measure
- Common model to express geo-political context

Related Working Groups and Digital Resources:

- WG04, WG11 Ag Lab Data (Modus)
- WG00 Agrisemantic Infrastructure PoC
- Controlled vocabularies for an ADAPT
- Shipped Item Instance Controlled Vocabularies
- Dataset Metadata Controlled Vocabularies



Chair: Andres Ferreyra (Syngenta)

Staff Liaison: Jim Wilson

Member Organizations:

Agrimetrics
CDMS, Inc.
Enterprise Ag Strategies LLC
FarmBelt North, Inc.
Lexagri SAS
ListenField
Syngenta Crop Protection

Data Linking Advisory Group

Field -> Combine



Combine -> Cart



Cart -> Semi



Semi -> Elevator



Truck -> Bin



Purpose

- Provide scope, direction, and prioritization of data linking related topics in coordination with other organizations and AgGateway efforts
- Allows awareness and linkage of related agricultural data
- Helps farmers who work with more than one data repository
- Enables farmers to share their data to gain insights
- Assist in product recalls, traceability, and consumer confidence

Related Working Groups and Digital Resources:

- Infield Product ID / Shipped Item Instance
- Dataset Metadata
- WG13 Closed Loop Spray
- WG14 Potato Provenance
- WG20 Traceability API

Co-Chair: Joe Tevis (Vis4Ag)
Co-Chair: Scott Nieman (Land O'Lakes)

Staff Liaison: Ben Craker

Member Organizations:

Agricultural Industry Electronics Foundation
Bushel
Combyne Ag
DTN
National Institute of Standards and Technology
Vis Consulting
Winfield United

Field Boundaries Advisory Group



Purpose

- An unambiguous, core definition of a field and field boundary that can serve as the basis for different business use cases, can reduce effort and confusion across the value chain
- Preserving the meaning of that core definition, while adding relative meaning for different use cases
- Enable farmers to share their field data without having to learn a multitude of terms and meanings
- Assist in traceability efforts

Related Working Groups and Digital Resources:

- WG17 Field Boundaries Use Cases and Definitions
- WG13 Closed Loop Spray
- WG14 Potato Provenance

Chair: TBD

Staff Liaison: Jeremy Wilson

Member Organizations:

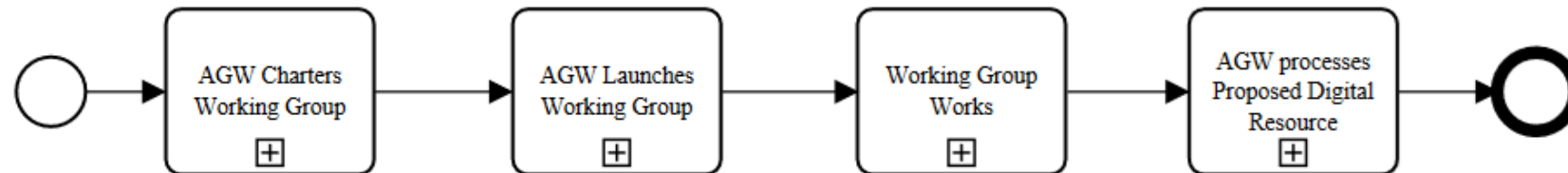
Bayer Crop Science LP
Ceres Solutions
Enterprise Ag Strategies, LLC
Growmark, Inc.
Nutrien
Proagrica
Raven Industries
Software Solutions Integrated, LLC
Traction
Winfield United



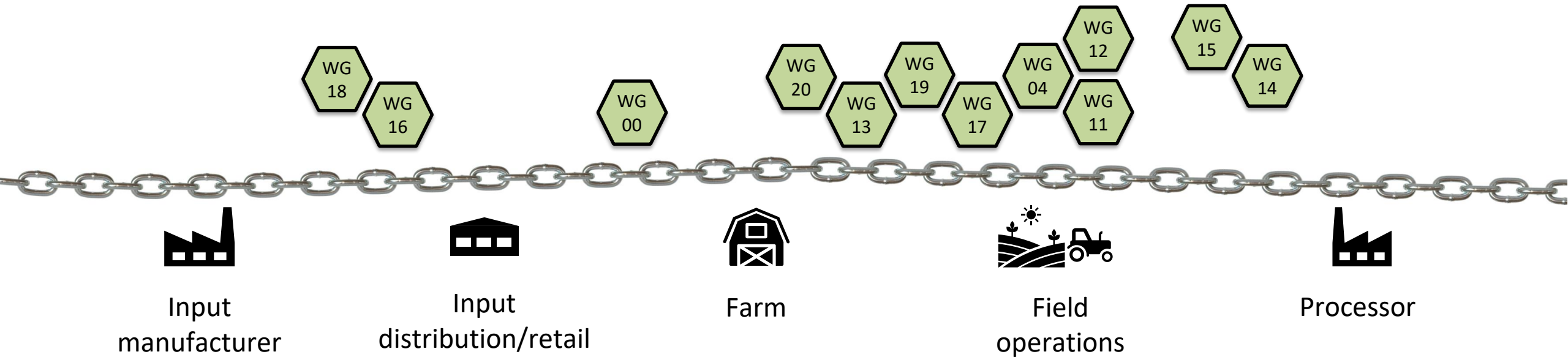
Current Working Groups

AgGateway Digital Resource Development Process

AgGateway Produces a New Digital Resource (top-level process)



Active Working Groups



- WG00 Agrisemantic Infrastructure PoC
- WG04 Ag Lab Data (Modus)
- WG11 LATAM Soil Data
- WG12 PAIL
- WG13 Closed Loop Spray
- WG14 Potato Provenance
- WG15 Scale Ticket

- WG16 Crop Protection Product Guidelines
- WG17 Field Boundary Terms & Definitions
- WG18 Crop Nutrition 3rd Party Warehouse Management
- WG19 ADAPT Serialization
- WG20 Traceability API

WG00 Agrisemantics

Business Value:

Develop and implement infrastructure to provide the industry with controlled vocabularies or variable-type registries seeking to enable the communication and preservation of the meaning of digital agriculture data as it is exchanged between different actors in agriculture.

Deliverables:

- Proof of concept semantic type registry for the ag industry
- Crop list objects and data able to map to other crop lists within the PoC Infrastructure
- Recommended policies and procedures to manage semantic resources administered by AgGateway

Status: Relaunching WG with better defined scope and deliverables.

WG04 Chair: Andres Ferreyra (Syngenta)

Staff Liaison: Ben Craker

Member Organizations:

Agrimetrics
CDMS, Inc.
Enterprise Ag Strategies LLC
FarmBelt North, Inc.
Lexagri SAS
ListenField
ListenField
Syngenta Crop Protection
Syngenta Crop Protection, LLC

WG04, WG11 Ag Laboratory Data Standardization (Modus 2.0)

Business Value:

Automated test data management to improve labs' efficiency and enable increased sample throughput.

Scope: Soil initially, Water, Plant Tissue, Manure to follow

Deliverables:

- Updated MODUS Tables
- Observation codes
- JSON and XML Schema

Status: Finalizing MODUS 2.0 table for soils, handing materials over to DRC, updating schema, engaging testing experts for Manure, Botanicals, and other test matrix

WG04 Chair: Open

WG11 Chair: Ronaldo Pereira de Oliveira (Embrapa)

Staff Liaison: Ben Craker

Member Organizations:

A&L Great Lakes Laboratories	AsBrAP
AGCO Corporation	Centro de Inovação no Agronegócio (CIA)
Agriculture Laboratory Testing	Embrapa Informatica
Embrapa Informatica	Embrapa Informatica
Land O Lakes	Embrapa Informatica
Nancy Bohl Bormann	Nutrien
National Institute of Standard	Nutrien
Simplot Grower Solutions	Nutrien Ag Solutions, Inc.
Soil and Plant Analysis Coun	Nutrien Ag Solutions, Inc.
Soil Science Society of Amer	Proagrica
Syngenta Crop Protection, LL	Venturus
TELUS Agriculture	Venturus
Varda Ag	
Winfield United	



WG12 PAIL

Business Value:

Improve agricultural irrigation by developing a common set of data standards and formats to convert data for use in irrigation data analysis and precision prescription programs. Effort broken down into three Parts:

1. Core Concepts
2. Observations & Measurements
3. Equipment Operations

Status: Working through ISO to make all three parts a global standard. Parts 1 and 3 approved as a US national standard through ASABE

Chair: Charles Hillyer (Fresno St.)
Staff Liaison: Ben Craker

Member Organizations:

Charles Hillyer
ListenField
Syngenta Crop Protection, LLC

WG13 Closed Loop Spray

Business Value:

Help farmers comply with regulations and minimize mistakes. Provides traceability of product used.

Scope:

Product Discovery: When an input is loaded into the machine, the system enables unambiguous product identification

Status:

Final touches on deliverables, winding down working group. Documenting initial thoughts on follow on effort scope.

Chair: TBD

Staff Liaison: Conny Graumans

Member Organizations:

Agro EDI Europe

BASF

BASF

BASF

CDMS, Inc.

Lexagri SAS

Praxidyn

Proagrica

Syngenta Crop Protection, LLC

Syngenta Crop Protection, LLC

Winfield United

WG14 Potato Provenance

Business Value:

Provide potato processors specific data on a batch of potatoes they receive.

Scope:

Farm and field polygons, coordinating with newly established Field Boundaries subcommittee. This group will primarily focus on data elements and formats used within the potato industry.

FMIS companies are mainly interested in Field Identification and field boundaries.

Status: On hold, dependencies on several other working groups, working though splitting scope up into additional working groups

Chair: TBD

Staff Liaison: Conny Graumans

Member Organizations:

Agriculture Laboratory Testing Associati
Lexagri SAS
National Institute of Standards and Techn
Proagrica
Proagrica
Simplot Grower Solutions

WG15 Scale Ticket

Business Value:

Provide electronic proof of receipt from entity to entity, starting at the point of origin in a standardized way (leveraging current standards), to a retailer or cooperative/retailer/ processor who has received the commodity at the destination at the time of receipt.

We will define the Minimum Viable Product (MVP) that will help facilitate the financial settlements between the parties and provide sufficient identification that enables traceability.

Deliverables:

- Sequence diagrams showing interactions among parties
- OpenAPI spec addressing the MVP

Status: Building first version in Score to express as JSON, OpenAPI, XML, etc.

Chair: Phil Kubish (VitaPlus)
Staff Liaison: Ben Craker

Member Organizations:

AgGateway
AgGateway
Bushel
CHS, Inc
CNH Industrial
Combyne Ag
DTN
Key Cooperative
Mosaic Company
Mosaic Company
Mosaic Company
Mosaic Company
Mosaic Company
National Institute of Standards and Technology
Nutrien
Red Wing Software, Inc.
Software Solutions Integrated, LLC
Traction
Vita Plus Corporation
Winfield United



WG16 Crop Protection Product Guidelines

Business Value:

The working group proposes to develop a set of industry agreed-upon documents that allow data owners to consistently load reference data to AGIIS or similar repositories, as well as providing data owners and consumers best practices in managing and implementing the reference data so loaded.

Scope:

- Industry agreed-upon field-level mapping and examples of crop protection product
- Industry agreed-upon best practices for product maintenance for both data owners and consumers
- Impact assessment for implementing GTINs in eBusiness Messages already in industry use

Status: Reviewing best practices to inform guidelines

Chair: TBD

Staff Liaison: Brent Kemp

Member Organizations:

AGCO Corporation
AgGateway
Agrian
Agro EDI Europe
AgVantage Software, Inc.
BASF
BASF
Bayer Crop Science LP
Bayer Crop Science LP
CDMS, Inc.
Ceres Solutions
Corteva Agriscience LLC
Corteva Agriscience LLC
Corteva Agriscience LLC
DXC Technology
Effingham Equity
Effingham Equity
Growmark, Inc.
Growmark, Inc.
GS1 US
Key Cooperative
Lexagri SAS
LNRS Data Services Inc
LNRS Data Services Inc
Praxidyn
Proagrica
Rosen's, Inc.
StrataBuilt
Syngenta Crop Protection, LLC
Syngenta Crop Protection, LLC
Winfield United
Winfield United
Winfield United
Winfield United

WG17 Field Boundary Use Cases & Definitions

Business Value:

An unambiguous, core definition of a field and field boundary that can serve as the basis for different business use cases, can reduce effort and confusion across the value chain. Preserving the meaning of that core definition, while adding relative meaning for different use cases enabling farmers to share their field data more easily as well as assist in traceability efforts

Scope:

The Working Group will lead the effort in defining the overall use cases, terms and definitions surrounding field boundaries. The group will start with existing content from SPADE artifacts, work already done by WG14 Potato Provenance, work in the PAIL project as well as leverage existing standards and methods where possible. Such as ISO 19115 Geographic information — Metadata and ISO 19157 Geographic information — Data quality.

Status: Reviewing and finalizing content generated from WG face to face meeting with the broader group

Chair: TBD

Staff Liaison: Ben Craker

Member Organizations:

AGCO Corporation
AgGateway
Agro EDI Europe
BASF
Corteva Agriscience LLC
Enterprise Ag Strategies, LLC
Growmark, Inc.
IntelinAir, Inc.
John Deere
John Deere
National Crop Insurance Services, Inc.
Nutrien
Nutrien
Nutrien
Nutrien
Proagrica
Raven Industries
Raven Industries
Software Solutions Integrated, LLC
Software Solutions Integrated, LLC
Syngenta Crop Protection, LLC
Syngenta Crop Protection, LLC
Traction
Varda AG
Vis Consulting
Winfield United

WG18 Crop Nutrition 3rd Party Warehouse Management

Business Value:

Crop nutrient product manufacturers and distributors have agreements for storage and handling of fertilizer to more readily and efficiently service customers. In order to effectively manage the inventory and resupply, stakeholders desire to implement electronic processes for ordering, shipping, and inventory management that align to existing ebXML processes for the segment.

Scope:

Develop implementation guidelines based on the existing OrderCreate, OrderResponse, ShipNotice, Invoice, and ReceiptNotice messages. ReceiptNotice will require a new profile, while the other messages will likely only need tweaks in implementation rules.

- Messages and process documentation for Receipt into a *Warehouse Partner* location
- Messages and process documentation for Purchase out of *Warehouse Partner* location
- Messages and process documentation for Third-Party Sales Order out of *Warehouse Partner* location
- Messages and process documentation for *Warehouse-to-Warehouse* Stock Transfer as requested by the product owner

Status: Reviewing existing messages for gaps

Chair: TBD
Staff Liaison: Brent Kemp

Member Organizations:

AgGateway
Agro EDI Europe
Growmark, Inc.
Helena Agri-Enterprises, LLC
Nutrien
Nutrien
Proagrica
Smartwyre Inc.



WG19 ADAPT Serialization

Business Value:

With the widespread adoption of the ADAPT Framework and the ongoing ADAPT Standard work many stakeholders have expressed a need for a common method for serializing data. Once the standardized schema for the data model is complete a need will still exist to better facilitate the exchange of data between parties. This working group will develop a common approach to serializing data conformant to the ADAPT Standard.

Deliverables:

- Standardized method for serializing data conforming to the ADAPT Standard
- Experiment/proof of concept to determine best serialization method based on requirements
- Tools to enable easy human readability of data if a more binary (i.e. protobuf) centric approach is taken
- Controlled vocabularies managed by Agrisemantics group within AgGateway where possible

Status: Documenting requirements to inform technical descisions

**Co-Chair: Chris Ruttencutter
(Corteva)**

**Co-Chair: Stuart Rhea
(Syngenta)**

**Co-Chair: Zac Oler (Corteva)
Staff Liaison: Ben Craker**

Member Organizations:

CNH Industrial
Corteva Agriscience LLC
Corteva Agriscience LLC
DKE Data
FarmBelt North, Inc.
Google LLC DBA Mineral
John Deere
Syngenta Crop Protection, LLC
Traction



WG20 Traceability API

Business Value:

Throughout the industry there are a variety of perceptions and needs of data through the value chain. The team will review and model two key elements and their relationship, the Traceable Resource Unit (TRU), and Critical Tracking Event (CTE). This will define the interface between partners for traceability to support general traceability initiatives like sustainability of FSMA (Food Safety Modernization Act) building off previous work in projects like CART (Commodity Automation for Rail and Truck) and Scale Ticket.

Deliverables:

- Analysis of prior work and proof of concept(s)
- Creation of core components in Score that represent the superset of data elements needed across multiple scenarios
- Profile these components in Score needed to support these industry use cases
- Create the RESTful behavior including resource path definitions and verbs needed and path/query parameters

Status: Gathering, organizing, and reviewing artifacts from previous work to inform deliverable development

Co-Chair: Scott Nieman (Land O'Lakes)

Co-Chair: Joe Tevis (Vis 4 Ag)

Staff Liaison: Ben Craker

Member Organizations:

AGCO Corporation
CNH Industrial
Combyne Ag
John Deere
Mtech Digital Solutions Oy
Mtech Digital Solutions Oy
National Institute of Standards and StrataBuilt
Vis Consulting Inc.
Winfield United




Other Activities

Work being done outside of current Working Groups



ADAPT

AgGateway

 [AgGatewayADAPTFramework](#) by: [AgGateway strhea knelson-farmbeltnorth](#)
↓ 168,055 total downloads ⌚ last updated 23 days ago 📦 Latest version: 3.0.0
🔗 [aggateway adapt agriculture](#)
AgGateway ADAPT framework

 [AgGatewayADMPlugin](#) by: [AgGateway strhea knelson-farmbeltnorth](#)
↓ 61,523 total downloads ⌚ last updated 17 days ago 📦 Latest version: 3.0.1
🔗 [aggateway adapt adm agriculture](#)
AgGateway ADM Plugin for the ADAPT framework

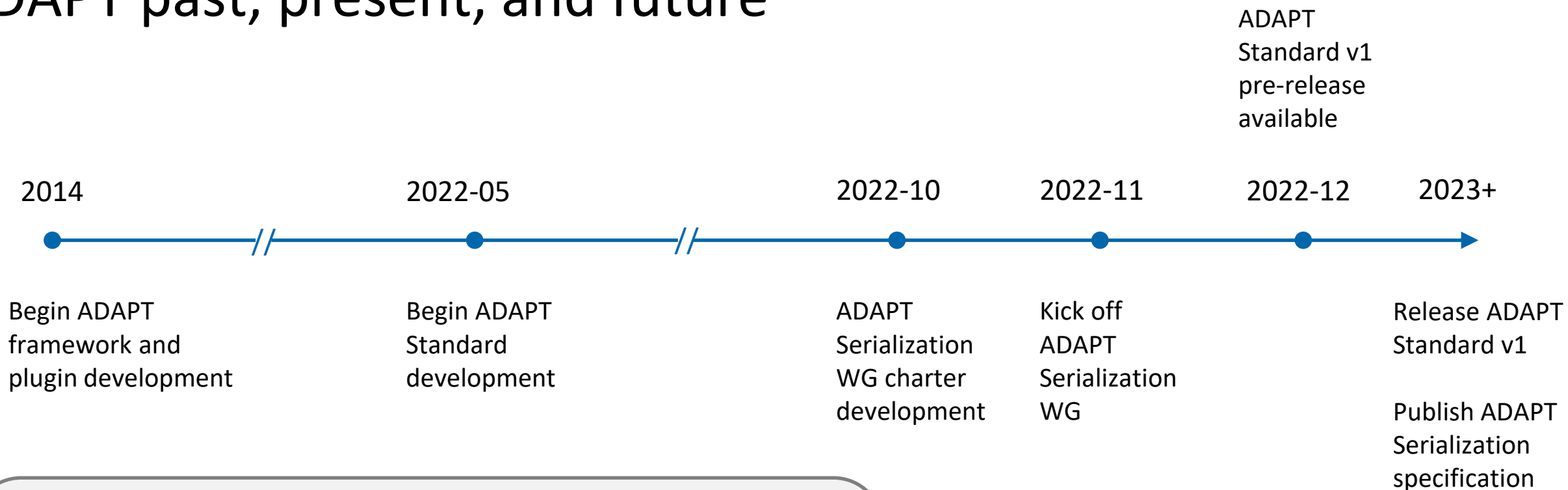
 [AgGatewayISOPlugin](#) by: [AgGateway strhea knelson-farmbeltnorth](#)
↓ 51,446 total downloads ⌚ last updated 18 days ago 📦 Latest version: 5.0.0
🔗 [agriculture aggateway adapt isoxml isoxmlv4 11783 11783-10](#)
AgGateway ISO v4 Plugin for the ADAPT framework

Technical Co-Chair: Stuart Rhea
Technical Co-Chair: Kelly Nelson
Business Chair: Dan Danford
Staff Liaison: Jim Wilson

3
Packages

281,024
Total downloads of
packages

ADAPT past, present, and future



*Other

- ADAPT Standards development and maintenance
- ADAPT Framework and plugin development and maintenance
- Explore seamless interoperability among ADAPT Data Model, ADAPT Plugins, and ADAPT Standard
- Consider process for ADAPT Standard → ISO Standard

AgGateway's approach to developing the ADAPT Standard

- Completely open activity. AgGateway membership is not required.
- Using a GitHub project for issue management.
- Using a cutting-edge tool for model development: Score
 - Developed by AgGateway member NIST and AgGateway partner OAGi
 - Enables creating ISO 15000-5-compliant information models
 - Enables creating ISO 15000-5-compliant message profiles in defined business contexts
 - Enables model expression in multiple syntaxes (currently OAS v3, JSON Schema, and XML Schema; future XMI, RDF, OWL as required)
 - Browser-based and multi-user
 - Supports versioning, model element state management

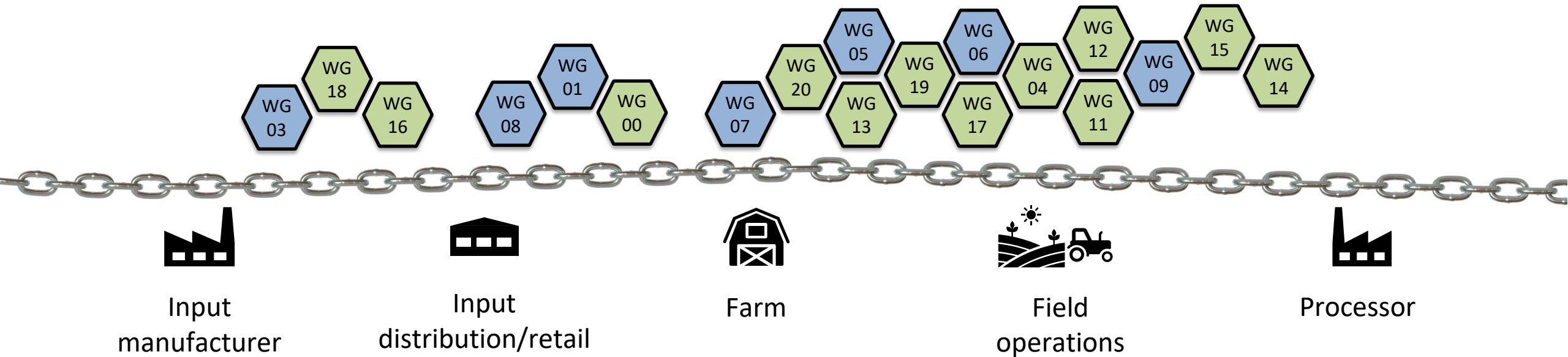


Completed Work

Completed digital resources delivered by previous Working Groups



Active & Completed Working Groups



- WG01 In-Field Product ID Seeding Pilot
 - Seed list from retailer to farmer/planter controller (ShippedItemInstance)
- WG03 Product Catalog
 - Common information on products for ecommerce
- WG05 Mix Ticket
 - Work order/record from product mixing

- WG06 Farm Inputs: Reference Data
- WG07 Farm Inputs: Work Order, Work Record
- WG08 In-Field Product ID ADAPT Plugin
- WG09 Linked Data (DatasetMetadata)



Future Working Groups

- Potential future working group identified by member's pain points or follow on work from current/past Working Groups



Future WG's

- European reporting data ADAPT mapping – Meetup scheduled
 - Map several prominent European reporting models to ADAPT
- Weather and forecast data standardized API
 - Standardized interface for sharing weather and forecast data
- ASN (Advanced Ship Notice): Farmer to elevator/processor
 - Standardized message for an advanced ship notice from a farm to elevator/processor
- Scale head to ERP interface
 - Standardized interface between scale heads and ERP systems
- ShippedItemInstance gap check for crop protection, crop nutrition
 - Review ShippedItemInstance for support of crop nutrition and/or crop protection products
- DatasetMetadata controlled vocabularies
 - Identify or create controlled vocabularies needed by DatasetMetadata

- Other ideas?



Questions?