ADAPT & ISO 11783

In a Nutshell

Problems:

- There is a misperception that ADAPT and the ISO 11783 standard are competing ideas.
- This can prevent users from getting the full value of industry's advances in field operations data exchange.

Solutions:

- The truth is that ISO 11783 and ADAPT are complementary.
- ISO 11783 defines a format, ISOXML, that serves to extract data from, and send data to, many brands of agricultural machines and implements.
- ADAPT is a data conversion tool. It enables converting various formats to/from the ADAPT data model, for easy interaction with (and among) farm management systems.
- It is designed to be compatible with ISO 11783, and also covers field operations beyond the scope of ISO 11783 (e.g., irrigation, crop scouting).

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ADAPT & ISO 11783: *Friends, Not Foes*

The misperception that ADAPT and the ISO 11783 standard are competing ideas is a common one. In reality, the opposite is the case and the two complement each other. This document aims to set the record straight.

Definitions

ISO 11783 is a two-part system:

- **Machine Control & Safety Communication (commonly referred to as "ISOBUS")**, a communication protocol for the agriculture industry based on the SAE J1939 protocol. It governs the way farm implement electronics (including sensors, actuators, control elements, and information-storage and -display units) communicate with the mobile implement control system ("MICS") via their controller area network (the "ISObus" proper).
- **A data standard ("ISOXML"),** defined in part 10 of ISO 11783, that allows the task controller in the tractor, combine, etc. to communicate with farm management software ("FMIS"). This note focuses on the ISOXML aspect of ISO 11783.

AgGateway's ADAPT is an open-source framework developed to enable global interoperability between various software and hardware applications in agriculture. It uses a common framework and **data model** in combination with proprietary original equipment manufacturer (OEM) **plugins** to provide a comprehensive translation of field operations (e.g., planting, crop protection, irrigation, etc.) data. It can be used both in FMIS and cloud systems.

The Similarities

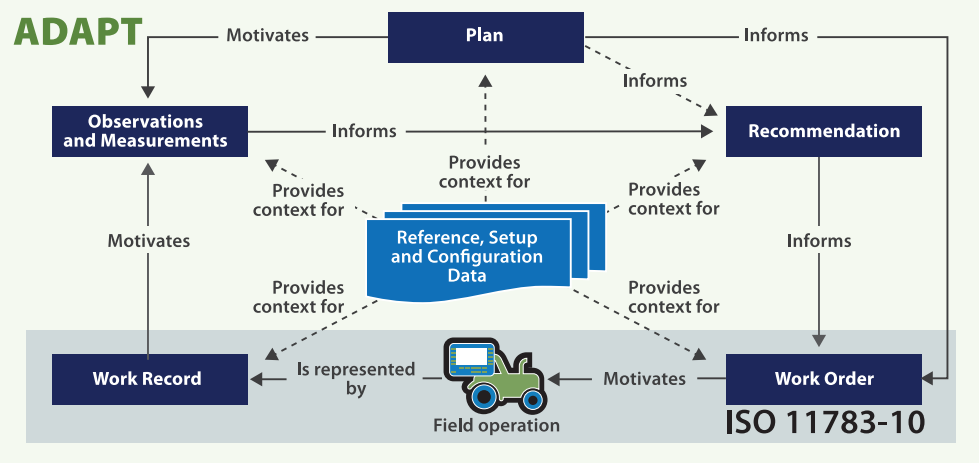

Figure 1: ***Scopes of ISO 11783 and ADAPT, in terms of AgGateway's Core Documents***

Figure 1 shows how documents (*see AgGateway's Core Documents Model note*) are exchanged in agricultural field operations. Note how the scope of ISO 11783 is limited to specifying what the machine has to do: the "what", "where", and "how"; controlling the execution; and capturing what it did. All other aspects of planning (e.g., the "who", "why" and "when") are out of scope, but within scope of ADAPT.

Closely Related Documents

Core documents flyer:
https://bit.ly/2ayfV5N

ContextItem System flyer:
http://bit.ly/2rWH7Ds

For more detail, follow this QR Code:

http://adaptframework.org

Questions?

To learn more about ADAPT, email:

ADAPT.Feedback@aggateway.org

To learn more about AgGateway, including how to join:

www.AgGateway.org

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Differences Between ADAPT and ISO 11783

In general, ISO 11783 has a narrower and more machine-specific scope than ADAPT. ADAPT is more abstract and enables inserting ISO 11783 data into the broader context of farmers' field operations business processes. Specifics follow below.

ADAPT + ISO 11783 plug-in	ISO 11783 ISOXML
Not meant to "talk" directly with a machine / implement. Uses plugins (e.g., ISO 11783) to convert to the necessary format.	Can "talk" directly with a machine or implement.
Business-process-centric	Machine- and implement-centric
Includes ISO 11783 scope	Does not include ADAPT scope
Data model & translation tool	Data format
Handles Plans, Work Orders, Work Records, Setup Data, (detailed) Reference Data, Observations, containers & more.	Handles Work Orders, Work Records, Setup Data and Limited Reference Data
Can enable interoperability in a mixed fleet with non-ISOXML machines.	Meant to be produced and consumed in ISOXML environments.
Can handle scouting, soil, weather and other observations and measurements (including those by task controller).	Limited to observations and measurements logged by task controller.
Includes a sophisticated resource identification scheme that enables tracking farms, field, etc. across multiple systems with UUIDs, URIs, etc.	Pre v4, only supported locally-scoped identifiers. Currently supports UUIDs and URIs, using the LINKLIST.XML file.
Supports country, regional and local data through its ContextItem system. This enables farmers' regulatory compliance.	Data dictionary is limited to "universal" variables such as yield, plant density, etc. BUT can support ADAPT's ContextItems.

How They Can Fit Together in the Big Picture

- ISOXML has a narrowly-scoped, specialized data model. This is good.
- ADAPT has a comprehensive, ever-growing data model that is meant to be compatible with ISOXML as well as multiple other formats.
- Using ISOXML in the ADAPT context provides a gateway for ISOXML-enabled equipment to interoperate in the greater digital agriculture landscape along with proprietary, non-ISOXML OEM data. This is critical for mixed fleets.
- Some ADAPT infrastructure, such as the ContextItem system, can be used in ISOXML files to enable them to carry localized (e.g., regulatory) information.

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