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**TITLE:** ADAPT: Interoperability through an industry open-source toolkit

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**CURRENT TECHNICAL COMMUNITY:** Information, Technology, Sensors, & Control Systems

**CURRENT SESSION CATEGORY:** Big data, data analysis and APPs (including teaching methods)

**ABSTRACT BODY:**

**Abstract Body:** Precision agriculture (PA) has grown quickly as successive technological innovations led to many forms of field operations data collection. PA was meant to give growers information to keep accurate records (and calculate production costs) of their farms, improve decision-making and promote efficiencies in crop management, enable greater traceability, and so forth. These goals are currently attainable, but are often very difficult given the plethora of proprietary, incompatible data formats among equipment manufactures and farm management information systems (FMIS).

Proposed solutions exist; e.g., the ISO11783.10 standard XML format is well-known and respected, but it is machinery-specific and does not include business-process details needed by growers' FMIS. In 2013-14, AgGateway's SPADE2 project explored the feasibility of an open-source format conversion toolkit. This experience led to what is now the ADAPT committee.

ADAPT created a common object model or "Application Data Model" (ADM) of a superset of field operations data. The goal: replace the current reality, where FMIS must support multiple data formats, with a single ADM integration mediated by a framework (initially built on .NET Framework 4.5) from where manufacturer-specific plug-ins convert to and from proprietary formats. This enables the FMIS to read/write to a wide variety of systems with little incremental effort.

In order to promote their widest distribution, the open-source Eclipse Public License was selected for the ADM, the conversion framework, and community plug-ins (e.g., for ISO11783-10). Manufacturers will offer their own licenses for their own plug-ins. ADAPT has set up a GitHub repository, transparent governance, an email list for questions (ADAPT.Feedback@AgGateway.org), and accepts participants from outside AgGateway.

ADAPT's scope extends beyond self-propelled machines. The goal is to expand compatibility with additional field operations; ADAPT will provide a framework that can evolve as the industry sees fit.

**KEYWORDS:** standards, international, software development, information systems, ISO.

**Student Status:** No

**First Time Attendee:** No