The challenges of Digitalization and Big Data from the John Deere Perspective

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Challenges for Agriculture
Challenges for Farming Industry

- **Limited Resources**
  - Land
  - Water
  - Nutrients
  - People

- **Population**
  - Growth
  - Diet

**Digitalization (Smart Farming)**
Digitalization / Smart Farming

Use of modern automation and information technology to increase the productivity and efficiency of modern farming in a sustainable way with minimal impact on the environment.
The Journey of Integrated Solutions
The Journey of Integrated Solutions

1. Product
2. Smart Product
3. Smart, Connected Product
4. Product System
5. System of Systems

Farming 4.0

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Telemetry as Basis for Smart Digital Farming
Connected Nutrient Management

N-Status
0.8
1.1
1.4
1.6
1.8
2.0
2.4

John Deere
Sulky
Land-Data
Eurosoft
Raucher

Agritechnika 2015
Goldmedaille

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How did we succeed?
Welcome to AEF

The AEF wishes to provide the necessary resources and appropriate know-how so that important technical challenges concerning electronic and electrical systems in agricultural technology and farming can be jointly addressed by the industry.

Initially, a succession of important tasks associated with ISOBUS formed the main focus of their work.

But now the agricultural industry no longer sees the potential of AEF as limited only to ISOBUS. Their work is therefore being expanded to include other important areas such as electric drives and camera systems.
AEF support

Agricultural Industry Electronic Foundation
Project Team Organization

AEF Project Teams on ISOBUS
- Coordinated implementation of ISO11783 in the market
- Common industry wide interpretation of the standard
- Identification and closure of issues in the standard
- Definition of technical guidelines
- Organization of PlugFest’s
- Manage complexity of the standard during role out

Chairman
Steering Committee

ISOBUS
Marketing

AEF Web Page
- SharePoint – Online dB – Web Portal –

Manufacturer
Dealer
Farmer
Press
...

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AEF support

Agricultural Industry Electronic Foundation
Project Team Organization

AEF Project Team ISOBUS Conformance Test
- Provide definition of ISOBUS Conformance Test details
- Develop common ISOBUS Conformance Test Tool
- Manage stepwise implementation and release of tool functions by ISOBUS features => Release 2015R6 in use
- Manage interfaces between implementation partners
- AEF Test Labs:
  - TCI (DE); DLG (DE); NTTL (USA); REI (IT); Kereval (FR)
- Test Status (Mar 2015)
  - 2360+ products listed
  - 244 conformance tests with AEF tool
  - 181 companies / 5098 registered users
- Results are for end-customers accessible in AEF dB

AEF Web Page
- SharePoint – Online dB – Web Portal –

Manufacturer  Dealer  Farmer  Press  ...
Cloud-based Connectivity

Farming 4.0
Cloud-based Connectivity

- MTG in base machine since 2012
- > 100,000 Ag machines with cellular modem

John Deere Operations Center

6030 & 6R Tractors

7030 & 7R Tractors

8030 & 8R/RT Tractors

9030 & 9R/RT Tractors

R4030, R4038, 4630, 4730, 4830 Sprayers

S, T, W Series Combines

7050, 7080 Forage Harvesters

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MyJohnDeere Operation Center

- **MyMachineConnect**: Machine & Fleet Monitoring
- **MyJobConnect**: Operator & Job Management
- **MyFieldConnect**: Plan/Analyze/Interpret

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Cloud-based Connectivity
Vertical and horizontal approach
IoT SDOs and Alliances Landscape (Vertical and Horizontal Domains)

Source: AIOTI WG3 (IoT Standardisation) – Release 2.5

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Summary
Summary

• Digitalization in agriculture will play a key role to address the needs for food of our growing population in a sustainable way.

• We are already in the middle of the digitalization of Agricultural machinery.

• More and more players provide services and offer big data based prescriptions. This will foster the adoption of smart farming.

• Smart Farming can only be successful with cloud-based seamless data exchange and partnering of the companies in the value chain.