4th International VDI Conference
Smart Farming

March 03-04, 2020, Dusseldorf, Germany

- When Digital meets Physical: An Automation Journey
- Autonomous Tractors – A Short Term Reality?
- How to create a digital Data Ecosystem with the Farmer at the Steer
- Combining Flexible Agricultural Services and Data Sovereignty
- Measuring the Environmental Impacts of Ag

+ Interactive Round Table Discussions
+ Workshops: Turning Data into Value & Machine Data

Meet international Experts from:

An event organized by VDI Wissensforum GmbH
www.vdi-international.com/12K0100020
**About us**

The Association of German Engineers (VDI) is one of the largest technical-scientific associations in Europe. Throughout the years, the VDI has successfully expanded its activities nationally and internationally to foster and impart knowledge about technology-related issues. As a financially independent, politically unaffiliated and non-profit organization the VDI is recognized as the key representative of engineers both within the profession and in public.

**Supporting Experts**

**Dipl.-Ing. Ralf Kalmar**, Business Area Manager, Fraunhofer IESE, Germany

**Rhett Schildroth B.Sc.**, President, Redshield Consulting, Redshield Consulting, USA

**James Miller**, Group CTO, Tractors and Farm Equipment (TAFE) Limited, India

**Silvio Crestana Ph.D.**, Director-President, EMBRAPA Amapa Brasil, Brazil

**Julian Sanchez**, Manager User Experience, John Deere European Technology Innovation Center, Germany

**Expected Participants according to Functions**

- Farming App Developer / Head of Farming App Development: 39%
- Software Engineer and Tech Leads Developer: 27%
- Technology Scouts: 8%
- Digital Officers / Head of Digitalization: 32%
- Product Manager: 24%

**Expected Participants according to Industries**

- Telecommunications / Telecommunication Industry
- Manufacturer of agricultural machinery (OEMs)
- Mobile applications
- Suppliers of agricultural equipment, components and sensor technologies
- IT and Software Provider

**Sponsoring Partner**

![NovAtel Logo](image)
08:30 Registration & Welcome Coffee

10:00 Chair’s Welcome and Opening Address

I. Towards more Automation in Agriculture

10:15 Automation driving continuous Optimization of Ag Production Systems
- Automation examples of production system optimization
- Automation increasingly fueled by digital platforms
- How automation enables the commercialization of autonomy

Dr. Alex Foessel, Enterprise Lead Architect, Automation to Autonomy, John Deere, USA

10:45 Autonomous Tractors – A short term Reality?
- Farmers willingness to adapt self-driving tractors
- Cost reduction potential for various farm sizes
- Identified technology gaps for self-driving tractors
- Sensor fusion technology to support autonomous tractors

Dr. Elza Marisa Paiva de Figueiredo, Autonomous System Manager, Dr. Thomas Langer, Market Development Manager, both: Danfoss Power Solutions, Denmark

11:15 Automated L2 Trucks for Sugarcane Harvest: Faster Operation, less Fuel, better Crop Yield and relieved Driver
- Advantages of truck vs. tractor in the 24/7 sugarcane harvest in Brazil
- New configuration with additional axle, wider track and high flotation tires
- SAE level 2 automation includes geo-referenced steering and cruise control
- Cooperation with reliable partners to execute modifications

Jonathan Peter Marxen, Product Engineering MB Trucks, Testing & Validation, co-authors: Marcus Kliwer, Camilo Abduch Adas, all: Mercedes-Benz, Brazil

11:45 Autonomy and Automation: Solving Real World Problems
- What challenges are seen in Automation, in the real world
- Automating the task, not the machine
- Looking forward

James Szabo, Product Manager – Autonomous Agriculture, Trimble Inc., UK – Live Broadcast

12:15 Lunch

13:45 Ag Robots: From Prototype/Early Adopter to Industrialization and Mass Market Adoption
- Where are we now?
- What are the main challenge still to solve?
- Let’s dream, what’s next?

Gaëtan Séverac, Co-founder, Naïo Technologies, France

II. Digital Integration Platforms

14:15 How creating a universal Data Collection and streaming Solution can unlock the Adoption of a Digital Agriculture Platform?
- The challenge in standardizing data management throughout the industry
- Accelerating the adoption rate of farm management solutions using easy data management
- The next challenge: How to inspire farmers to utilize their data

Fabio Roverso, Field Product Lead Europe, The Climate Corporation, Italy

14:45 Precision Collaboration – B2B Collaboration meets Precision Ag
- Orchestrating business processes between farmers and his supporting service providers
- Connect precision algorithms with the farmer’s data
- Maximizing “value creation” from using production related solutions for farmers

Martin Bernhard, Country Manager DACH, Proagrica, Germany

15:15 Networking & Coffee Break

15:45 Robust AI at the Edge – Grain Handling Quality Assurance Sensor
- The costly mistake of mixing different grain types
- Sensor architecture and data collection strategy
- AI for crop type image classification
- Ensuring robust outputs and confidence measures
- Seeing inside the “black box” Convolutional Neural Network model

Josh Gelinske, Director AI Systems, Intelligent Ag Solutions, USA

16:15 Interactive Round Table Session
The most interactive session of the program! The focus is on the delegates – Choose your preferred topic from the list below, and join the numbered table in the main auditorium. Hosted by an industry leader, it’s a valuable opportunity to share ideas, ask questions and network with other delegates focused on the same issue. Here are the first few confirmed topics:
1. What does „User Friendly“ mean for Automated/Smart Farming Equipment?
   Gaëtan Séverac, Naïo Technologies, France
2. How to adapt or retrofit Security Aspects into an existing Fleet – Example: TIM Security Requirements
   Roland Marx, Head of Competence Center, Embedded Security, OSB AG, Germany
3. Central and independent Data Platforms for the agricultural Data Space
   Bernd Rauch, Fraunhofer IESE, Germany

17:15 End of Conference Day One

17:45 Get-together

At the end of the first conference day we kindly invite you to use the relaxed and informal atmosphere for in-depth conversations with other participants and speakers.
### III. Farm Data Value

**09:00** FarmBeats: How Data & Analytics are enabling Data-Driven Farming
- Enabling better farming decision to increase yield, lowering cost, sustainable farming, and dealing with uncertain conditions
- Eliminating data silos and reasoning over geospatial and time aligned data
- Detecting coherences & patterns with AI that allow to take preventative action

**Claudia Roessler**, Director Agriculture Strategic Partnerships, Microsoft, USA

**09:30** Balancing global OEM digital Agronomy with regional FMIS Partners
- As digital hurdles come down, service demands rise
- Farming is local, demanding regional services
- More access leads to better services
- Partnerships and relationships are required for balance

**Dan Danford**, Global Industry Relations/Digital Agriculture, co-author: Claudio Ladeira, Sr. Manager Connected Products, both: CNH Industrial, USA – Live Broadcast

**10:00** Combining flexible agricultural Services and Data Sovereignty
- Data driven business models in the agricultural domain are on the rise
- Keeping control of data is becoming increasingly hard for data originators
- The research project „Cognitive Agriculture“ explores concepts for digital ecosystems
- Proposal of a concept for data usage control by technological means

**Bernd Rauch**, Architecture Centric Engineering/Senior Software Architect, co-authors: Jens Henningsen, Manuel Rudolph, all: Fraunhofer Institute for Experimental Software Engineering (IESE), Germany

**10:30** Networking & Coffee Break

**11:00** The Data Hub for Agri-Food in Flanders: Digitizing the Ag Code of Conduct to create a digital Data Ecosystem with the Farmer at the Steer
- DjustConnect: A unique data sharing platform in the Flemish agro food chain
- Creating trust based on the The EU Code of Conduct on Ag data sharing: The farmer is recognized as owner of the raw data
- A fundamental tool for developing more secure and smart applications

**Dr. ir Jurgen Vangeyte**, Director of the Agricultural Engineering Department, Research Institute for agriculture, fisheries and food (ILVO), Belgium

### IV. Key enabling Technologies

**11:30** Smart Farming towards Precision Ag with a Case Study – Levelling & Sensing Technology
- Smart Farming towards precision agriculture introduction in India
- Requirements of land levelling in India and its effect on Farm Field
- Tractor electro hydraulic system
- Case study – Smart way of using laser land levelling

**Raja Elango**, Principal Member – Centre of Excellence, R&D, Precision Agriculture

**12:00** Lunch

**13:00** Seeing the Visible – Real Time Image Analysis for Agriculture
- Unique challenges for vision systems in agriculture
- Design of a real time image system used for obstacle detection
- Lessons learned deploying machine vision on agricultural platforms

**Rhett Schildroth**, President, Redshield Consulting, USA

**13:30** Seeing the Invisible – Multispectral Image Analysis for Ag Use Cases
- Foundations of multi- and hyperspectral image capture and processing
- Drone as a service – An overview about current remote sensing technology and upcoming trends
- Plant stress factor detection in multispectral imagery – Examples
- Use cases – Variable rate applications for fertilization and crop protection

**Henrik Battke**, Regional Managing Director, co-author: Dr. Klaus Schneider-Zapp, Technical Lead radiometry, both: Pix4D, Germany

**14:00** Networking & Coffee Break

**14:30** Panel Discussion
The next five Years – What new Trends will occur in Agriculture?

### V. Addressing ecological Sustainability with Smart Farming

**15:00** eAgronom AI: Harvesting CO2 from Air into Soil
- eAgronom has working AI and paid customers who use it
- Most successful farmers turn CO2 from air into soil to increase humus each year
- Factory in farming is environment around the farm
- By improving environment (factory) farmers can save a lot of money

**Robin Saluoks**, CEO, eAgronom, Estonia

**15:30** Smart Farming Technologies and Sustainability: An NGO Perspective
- Seductive technologies: Digitalization, precision, automation, geo-spatial
- Examples from the field: US, Brazil and Africa
- Technology as moral hazard: Climate change
- The political economy of access: Realizing technology’s promise in the real world

**David Cleary**, Director of Global Agriculture, The Nature Conservancy, USA

**16:00** Conference Chair’s closing Remarks

**16:15** End of Conference
Content
One of several “V”s in the definition of Big Data stands for Value. Interestingly, it was missing in the first definition, and in recent years many projects seem to not have delivered the expected value. There are many reasons for this, among them, misaligned goals and exaggerated expectations. In particular, for smart farming, the value proposition for farmers is a crucial element. During this workshop we will use a smart farming scenario to, on the one hand, give you an overview of a well-proven, lessons learned-based methodology that addresses above mentioned issues and, on the other hand, take a deep-dive into important steps for making data useful in the agri-domain such as business understanding, data preparation, modeling, evaluation as well as into the underlying technology.

Agenda
- Motivation & Overview
- Alignment to Smart Farming EcoSystems
- Derive Business Goals, -Propositions, -Models
- Identify Data Sources and determine Quality
- Methods for Data Preparation, Analysis, Modeling
- Methods to assess Business Value
- Integration and Deployment
- Discussion & Conclusions
5th International VDI Conference  
**Connected Off-Highway Machines**  
From Smart Sensors to Smart Systems

**Date and Venue**  
March 03-04, 2020  
Van der Valk Airporthotel, Dusseldorf, Germany

**Following Topics will be discussed:**  
- Driving Business with Data  
- Data Management across multiple Stakeholders  
- Remote Monitoring for enhanced Efficiency and Maintenance  
- Connected Vehicle Technologies and 5G  
- Automation on the Machine and on the Edge  
+ Panel Discussion on „Changing Competencies due to Digitization“  
+ Interactive World Café Sessions  
+ Workshop on Machine Data

www.vdi-international.com/01K0902020

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2nd International VDI Conference  
**Electrified Off-Highway Machines**

**Date and Venue**  
March 03-04, 2020  
Van der Valk Airporthotel, Dusseldorf, Germany

**Following Topics will be discussed:**  
- New Electrification Solutions for increased Efficiency and lower Emissions  
- Hybridization of Off-Highway Machines  
- Developments in Battery Technology  
- Well-to-Wheel: Alternative Fuels and Powertrain Solutions  
- Practical Experiences and Use Cases  
+ Panel Discussion on „Net Zero: Carbon-free Economy“  
+ Interactive World Café Sessions

www.vdi-international.com/01K0934020
Exhibition / Sponsoring

If you want to meet with and reach out to the first-rate experts attending this VDI conference and to powerfully present your products and services to the well-informed community of conference participants, please contact:

Vanessa Ulbrich
Project Consultant Exhibitions & Sponsoring
Phone: +49 211 6214-198
Fax: +49 211 6214-97-198
Email: ulbrich@vdi.de

Conference venue
Van der Valk Airporthotel Düsseldorf
Am Hülserhof 57
40472 Dusseldorf
Phone:+49 211/20063-0
Email: duesseldorf@valk.com

Hotel room reservation: A limited number of rooms has been reserved for the benefit of the conference participants at the Van der Valk Airporthotel Düsseldorf. Please refer to “VDI Conference”. For more hotels: www.vdi-wissensforum.de/hrs

VDI Wissensforum service package: The conference package includes the conference documents (online), beverages during breaks, lunch and the get-together on March 3, 2020.

Conference attendance conditions and terms: By way of your registration you accept the conference attendance conditions and terms of VDI Wissensforum GmbH as binding. Any cancellation of your registration must be made in writing. We will charge you only an administrative fee of € 50.00 plus German VAT if you cancel your registration earlier than 14 days ahead of the conference date. Any cancellation that reaches us after this deadline will entail the conference attendance fee as stated in our invoice to be charged in full. The date of the post office stamp of your written cancellation will be the decisive criterion. In that case, we will gladly mail you the conference documents on request. Subject to agreement, you may name a substitute participant. Individual parts and sections of conferences and seminars cannot be booked. You will be informed without delay if an event has to be cancelled for unforeseeable reasons. In that instance, you will be entitled only to a refund of your conference attendance fee if already paid. We reserve the right to exchange speakers and/or change the program sequence in exceptional cases. In any case, the liability of VDI Wissensforum GmbH is restricted exclusively to the conference attendance fee.

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Become a speaker

Become a speaker at our international VDI Off-Highway Conferences. Make yourself known in the industry and discuss best practice examples with other international experts. We are looking for speakers on: Automation and Robotics in Agriculture, Sensors for Off-Highway Machines, Connected Off-Highway Machines.

Please submit your topic to:
Dr. Maria Georgiou-Smith
Product Manager International Business Agricultural Engineering
Phone: +49 211 6214-467
Email: georgiou-smith@vdi.de

Terms and Conditions

Registrations: Registrations for conference attendance must be made in writing. Confirmation of your registration and the associated invoice will be mailed to you. Please do not pay your conference attendance fee until you have received our invoice and its invoice number to be stated for transfer. German VAT directives apply. Please state your VAT-ID with your registration.

Registration

Conference by VDI Wissensforum GmbH | www.vdi-international.com/12K0100020 | Phone +49 211 6214-201 | Fax +49 211 6214-154
Yes, I will participate as follows:

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<tr>
<th>Participation Fee + VAT</th>
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<tr>
<td>□ VDI Conference 03.-04.03.2020 (12KO100020) € 1840</td>
<td>□ (Conference + 1 Workshop) € 2450</td>
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<tr>
<td>□ Workshop „Machine Data“ 02.03.2020 (01ST952001) € 950</td>
<td>and/or □ Workshop „Turning Data into Value“ 02.03.2020 (12ST906001) € 950</td>
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□ I am interested in sponsoring and/or exhibition
□ Participation Fee VDI-Members* Save 50 € for each Conference Day.

* For the price category 2, please state your VDI membership number

Participants with an invoice address outside of Austria, Germany and Switzerland are kindly requested to pay by credit card. Please register at www.vdi-international.com. Your credit card information will be transmitted encrypted to guarantee the security of your data.