

VDI

3rd International VDI Conference Smart Farming

Keynote:
TAFE

May 14 - 15, 2019, Düsseldorf

- Internet of AgriThings: Case Studies – Is the WWW the solution?
- Paving the Way to Smart Farming in real Practice
- Enabling Technologies and Solutions for Digital Farming
- Artificial Intelligence in Agriculture – From Assistive Technologies to Autonomy
- Data-driven Value – How to get the most out of Farming Data
- Start-Ups: Transforming the Agriculture Sector

+ Panel Discussion: Farming as a Service
+ Interactive Round Table Discussions

Meet international Experts from:



An event organized by VDI Wissensforum GmbH
www.vdi-international.com/12K0100019



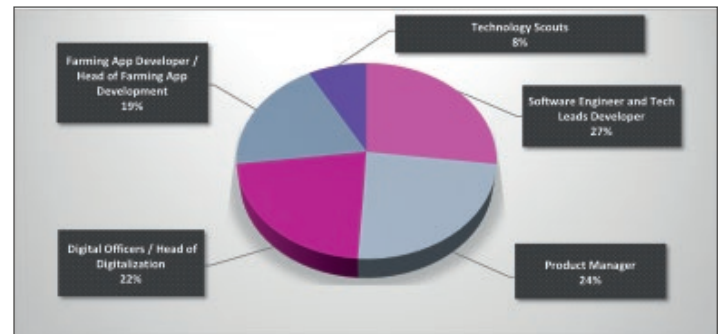


About us



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.

Expected Participants according to Functions



Supporting Experts

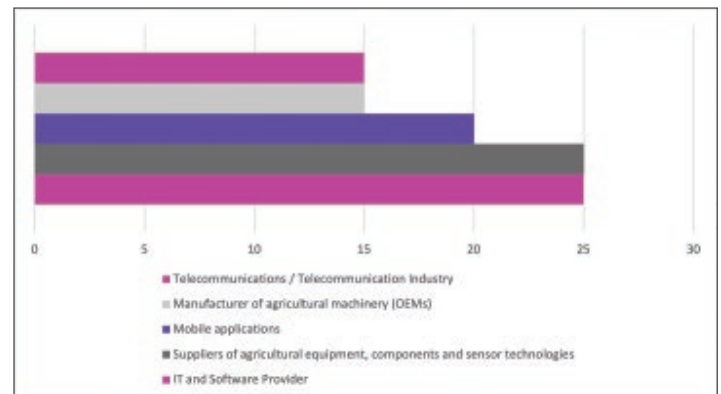
Dipl.-Ing. Ralf Kalmar, Business Development Manager, Fraunhofer Institute for Experimental Software Engineering IESE, Germany

Rhett Schildroth, President, Redshield Consulting, USA

Julian Sanchez PhD, Director, John Deere European Technology Innovation Center, Germany

Silvio Crestana, PhD, Director-President, Brazilian Agricultural Research Corporation (EMBRAPA), Brazil

Expected Participants according to Industries



08:30 Registration & welcome coffee

10:00 Chair's welcome and opening address

I. Smart Farming Business

10:15 Smart and connected Agriculture

- Analysis of key smart farming technologies
- Farm sensors – In-equipment vs. in-soil
- Farming as a service – A future opportunity for OEMs?
- Drones vs. satellites – Which solution will prevail?
- Electric propulsion – Not very promising for farming applications

Dr. Wilfried G. Aulbur, Senior Partner, Head Global Commercial Vehicle, Agriculture & Construction, Roland Berger, USA

10:45 Local Agriculture and direct Business – Is the WWW the Solution?

- ICT solutions for small farming, pricing and direct sales to local communities
- Indicators for small farming: How to collect and process these?
- Local producers and direct sales: Biggest constraints
- Trade-group agreements via the WWW

Teresa Neves, Project Manager, co-authors: Pedro Krupenski, José Luís Monteiro, all: Oikos - Cooperação e Desenvolvimento, Portugal

11:15 Every Drop counts – Digital Farming Trends and a new Take on Crop Production

- Changing societal and regulative demands require novel ideas and approaches
- AI and other technological advancements: Main drivers to spur innovation
- There is no simple solution to a complex task – A history on innovative endeavors for crop production
- What's next? Is it utopia to spray only what is needed, where it is needed?

Clemens Delatrée, Project Lead Smart Spraying, xarvio™ Digital Farming Solutions, BASF Digital Farming GmbH, Germany

11:45 Precision Agriculture in India

- Precision Agriculture from an Indian domestic market perspective
- What are the key market drivers?
- How applicable are global technologies?
- How can these technologies be adapted to suit?

James Miller, Group Chief Technology Officer, TAFE, India

Keynote

12:15  Lunch

II. Enabling Technologies

13:45 Satellite observed Data for Agriculture. Globally. Daily.

- Passive microwave technology
- Data products and service
- Industries and applications

Dr. Richard de Jeu, CTO and Founder, VanderSat, The Netherlands

14:15 Paving the Way to Smart Farming in real Practice

- A drone based application for disease detections in potatoes using emerging and state of the art technology: Multi/hyper spectral cameras
- Progression of application development: research, innovation, product
- How large european projects support this process

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

14:45 AeroFarms – Elevating New Crops and Insights with Indoor Vertical Farming

- Leading the way with proprietary growing technology and commercial growing expertise
- Utilizing machine vision, machine learning, and AI for growing algorithms
- Driving innovation to transform all of agriculture

Marc Oshima, MBA, BA, Co Founder & Chief Marketing Officer, AeroFarms, USA

15:15  Networking & coffee break

15:45 Interactive Round Table Session

1. Importance of Data for Real Time Decision Making · **Dr. Corina Ardelean**, AGCO Corporation, USA

2. Cross Company Collaboration – The fast Lane to Joint Innovation in Smart Agriculture · **Clemens Delatrée**, xarvio™ Digital Farming Solutions, Germany

3. AI in Agriculture – From assistive Technologies to Autonomy · **Josh Gelsinke**, Director AI Systems, Appareo Systems LLC, USA

4. The added Value of Earth Observation Data for Agricultural Applications · **Dr. Richard de Jeu**, VanderSat, The Netherlands

5. Data Accessibility, Ownership, and Shareconomy · **Dipl.-Ing. Ralf Kalmar**, Fraunhofer IESE, Germany

6. Connecting the Dots: Defining and deploying Real-Time Risk Management for the Farmer and his trusted Partners · **Ron Osborne**, Farmers Edge, Canada

7. Digital Innovation Hubs – Digital Transformation of Agriculture at a regional Level · **Dr. Sjaak Wolfert**, Scientific Coordinator of SmartAgriHubs, Wageningen University & Research, The Netherlands

16:45 The Story of VitalFields

- Founding an AgTech company in Europe
- Building scalable sales and marketing in 7 countries
- Selling the startup to a Fortune 500 company – Lessons learned

Martin Rand, AgTech Expert and Founder of VitalFields.com, Estonia

Keynote

17:15  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. Data-driven Value – How to get the most out of Farming Data

09:00 From Machine Data to better Decisions – Examples in Agriculture

- Examining sensors and connectivity as building blocks
- Realizing value through data sharing amongst farm stakeholders
- Examples for visualizing value: Field activity, harvest, animal feeding
- Data focused toward next generation solutions for digital agriculture

Michael Gomes, MBA, VP Business Development IoT, Topcon Agriculture Inc., USA

09:30 How to harvest your Data

- Transforming large amounts of data into relevant information and generate usable knowledge
 - Opportunities provided by data analytics for the agriculture industry
 - Possible application scenarios – From classic applications to autonomous, data-driven systems
 - Developing solutions independently of tools, manufacturers or infrastructure
- Lennart Wilms, M.Sc.**, Expert Data Analytics, ITK Engineering GmbH, Germany

10:00 Networking and Data Usage: Big Data and Data Ownership Outline

- How gathering data can enable growers to continually optimize and become data-driven managers of their fields
- Agricultural data as a grower's tool for minimizing risk and increasing profitability
- Non-proprietary solutions empower farmers to maximize yield and profitability
- Employing an open architecture ensures compatibility within mixed fleets and across the entire farm operations

Dr. Corina Ardelean, Product Manager, Data Integration & Machine to Machine Communication, AGCO Corporation, USA

10:30 ☕ Networking & coffee break

VI. Farming as a Service

11:00 How to bridge the Gap between Farmer and Technology

- 4% GNSS penetration while smartphone is 35%
- Case study: How to build digital product with farmers
- Integrated smartphone platform enables rapid service development

Michael Utkin, Founder and CEO, eFarmer B.V., The Netherlands

11:30 Utilizing Farm Management Software to improve Relations in Agricultural Value-Chain

- The role of farm management software
- Impact of digital transformation on the key stakeholders (farmers, input manufacturers, ag retail, crop buyers, advisory, government)
- Ensuring adoption of Agtech solutions by utilizing the strength of the value chain

Matija Zulj, Chief Executive Officer, Agrivi Ltd., United Kingdom

12:00 🍴 Lunch

13:00 AI-driven Strategy for Farm Finance and Insurance

- Reduce farm risks by utilizing advanced technology, remote sensing, and integrated digital offerings
- How financial service partners can reward farms that adopt risk-reducing strategies
- Enable farmers to better negotiate with insurance companies and other trusted lenders including OEM and retailers

Ron Osborne, Chief Strategy Officer, Farmers Edge, Canada

13:30 Panel Discussion: Farming as a Service

Panelists: Session speakers as well as

Patrick Honcoop, Head of Product Partnerships, 365FarmNet Group GmbH & Co. KG, Germany

14:30 ☕ Networking & coffee break

V. Towards full Automation of the Farm

15:00 The Evolution of Tractor Implement Systems to Modular And Highly Autonomous Machine Systems (Fieldswarm)

- Change of the growth paradigm for Ag-Machinery from „Bigger – Faster – Wider“ to „Smart and Connected“
- The role and requirements of farm management information systems in process control
- Advantages and challenges of autonomous machines in reflection on the example Feldschwarm®
- Fully autonomous robotic systems versus collaborative automation and shared autonomy – Transformation of the operators workplace

Prof. Dr.-Ing. habil. Thomas Herlitzius, Chair of Agricultural Systems and Technology, Faculty of Mechanical Engineering and Science, Dr.-Ing. Jens Krzywinski, both: Technical University of Dresden, Prof. Dr. Matthias Klingner, Fraunhofer Institute for Transportation and Infrastructure Systems IVI, Germany

15:30 Development of Advanced Sensing and Control of Agricultural Applications using ROS (Robot Operating System)

- Overview of ROS: Key characteristics, uses, benefits, and constraints
- Adapting ROS to agricultural machine applications
- Examples of application of ROS in agricultural applications
- ROS as infrastructure towards autonomous agricultural machines

Darcy Cook, M.Sc., Director of Engineering, JCA Electronics, Canada

16:00 Conference chair's closing remarks

16:15 End of conference

International VDI Workshop 1

Cyber Security for Off-Highway Vehicles

Workshop Chair:

Dipl.-Phys. Roland Marx, Head of Competence Center, Embedded Security, OSB AG, Germany

Date and Venue:

May 13, 2019
Crowne Plaza Hotel, Dusseldorf, Germany

Time:

10:00 - 16:00

Content

Introducing security mechanisms into an existing ecosystem and product lifecycle may be both – complicated and dangerous.

Security engineering should start as early as possible to reduce risks and save costs. To be aware of what OEMs/TIERs might consider for future developments, as well as current products, we designed this workshop with a special focus on the Off-Highway industry. It will give you an intuition for the broad spectrum of embedded and cybersecurity topics that (will) concern modern Off-Highway Machines, agricultural vehicles as well as IoT devices. To get a better understanding, we start by virtually designing a secured agricultural grade ECU for onboard communication with a remote link for data transmission and Software Over-The-Air capabilities. We will also cover the most critical part - non-functional prerequisites like secure key storage and the management of keys and X.509 certificates within a PKI (Private Key Infrastructure). With this knowledge we will derive necessary changes to manufacturing processes and will have a guided discussion about several actual topics of interest.

This workshop shall also be a forum for discussing lessons learned, benefits and risks, as well as identifying organizational hurdles and branch specific challenges.

Agenda

- Introduction to cyber security for off-highway and agricultural vehicles intuition
- Understanding security aspects – Virtual design of an OTA capable ECU
- Real life example: Small OEM and security requirements tractor implement management – Securing automation in agriculture
- Guided introduction and discussion on security related topics of interest (such as „Vehicles 2 X - Requirements to join the "Network"“ and „GDPR in Vehicles – Privacy, Authenticity & Security“ or „ISO 21434 – Road Vehicles / Cybersecurity Engineering“)
- Discussion on lessons learned
- Outlook into the future

International VDI Workshop 2

Application of 5G Technology for AG-Process Automation

Workshop Chair:

Dr.-Ing. Norman Franchi, Senior Research Group Leader, 5G Lab and Vodafone Chair Mobile Communications Systems, TU Dresden, Germany

Prof. Dr.-Ing. Thomas Herlitzius, Chair of Agricultural Systems and Technology, TU Dresden, Germany

Date and Venue:

May 13, 2019
Düsseldorf

Time:

10:00 - 16:00

Content

The future 5G mobile communications standard will form the base for technology developments such as autonomous driving, automatic process control outside of fixed infrastructure or machine-to-vehicle communication and data acquisition via sensor networks. For navigation and location, there is already a global navigation satellite system (GNSS). In order to implement automation in the field, further local and regional radio networks are necessary for the secure, real-time capable data and information exchange. These radio networks need to be present or set up ad-hoc as meshed networks in order to temporarily connect participants. Without this infrastructure, there will be no digitization in agriculture in rural areas. The performance of these wireless networks is evaluated by their latency and how many subscribers can network at the same time, etc. Understanding digital communication and cloud infrastructures is the basis for all considerations and developments in the context of digitization in agriculture. The workshop will provide basic knowledge on 5G communication principles and deepen the understanding of the potential and challenges in mobile machine applications.

Agenda

- 5G in general and comparison to 1-4G
- Network slicing technics
- Edge cloud and mobile edge cloud
- Self-organized network mesh – coverage on demand
- Balancing between transmission rate and latency
- Application example for rural areas
- AG process data transfer requirements and their diversity
- What are the real time applications and what is real time
- What are the streaming applications with video and imagery
- New business models for infrastructure provider of private networks
- Example of managing autonomous units in the field using 5G networks

International VDI Conference

Electrified Off-Highway Machines

Date and venue:

May 14-15, 2019
Dusseldorf, Germany

Renowned speakers will present their results on the following topics:

- Developments in Powertrain Electrification
- Approach & Solution in Design and Development
- Emission Regulation and Treatment Technology
- Battery Technology for Off-Highway Applications
- Case Studies in Off-Highway Electrification
- + Workshop on Engine & Aftertreatment Enhancement
- + Panel Discussion on Battery and Fuel Cell Technology

www.vdi-international.com/01K0934019

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4th International VDI Conference

Connected Off-Highway Machines

Connectivity and the Future of Autonomous Machines

Date and venue:

Mai 14-15, 2019
Dusseldorf, Germany

Renowned speakers will present their results on the following topics:

- The Future of Autonomous Mobile Machinery
- The Benefits and Challenges of Connectivity for your Industry
- New Business Models for Connected Mobile Machines
- The Value of Data
- Facing Challenges of Machine Coordination
- Out-of-the-Box: Where are the automotive and aerospace industries heading?

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Become a speaker

Become a speaker at our international VDI Automotive 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, Innovative Sensor Technologies.

Please submit your topic to:
Dr. Maria Georgiou-Smith
Product Manager
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Agricultural Engineering
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Registration

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.

Conference venue

Crowne Plaza Düsseldorf - Neuss
Rheinallee 1
41460 Neuss, Germany
Phone: +49 2131 7700
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You will find more hotels
close to the venue at
www.vdi-wissensforum.de/hrs

Hotel room reservation: A limited number of rooms has been reserved for the benefit of the conference participants at the Crowne Plaza Düsseldorf - Neuss.

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 May 14, 2019.

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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Smart Farming



Register online!

www.vdi-international.com/12K0100019



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Yes, I will participate as follows:

Participation Fee + VAT

VDI Conference 14.-15.05.2019
(12K0100019) € 1840

Workshop 1 13.05.2019
(01ST940001) € 950

or

Workshop 2 13.05.2019
(12ST902001) € 950

Package Price (Please tick the boxes)

(Conference + 1 Workshop) € 2500

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