

Digitalisation for Agriculture

Webinar 2 – D4Agriculture: Transformative and disruptive

April 20, 2021

Sjaak Wolfert – curriculum vitae

- 1990 1996: MSc Crop Science at Wageningen Agricultural University
 - Thesis: Modelling crop growth using literate programming
- 1996 2002: PhD at Wageningen University, depts. of Organic Agriculture/Applied Computer Science
 - Thesis: Sustainable agriculture: how to make it work a modeling approach to support management of a mixed ecological farm
- 2001 now: Strategic Senior Scientist and Theme Ambassador on Digital Innovation in Agri-Food at Wageningen Economic Research, Wageningen University & Research
 - Scientific project coordinator of several large EU projects: IoF2020, SmartAgriHubs
- 2009 now: Assistant Professor Information Systems at Information Technology Group of Wageningen University
- 2018 now: Value Creation at Wageningen Data Competence Center

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Outline Webinar 2

- 2.1 Key Digital Agriculture Policies in EU
- 2.2 Subsectors of D4Ag for value chain development
- 2.3 Key digital technologies for agriculture
- 2.4 Key enablers of digital agriculture

Q&A

Conclusions & Wrap-up



Learning objectives

Webinar 2

- 1. Understand the EU approach to digitalization applied in the agriculture sector
- 2. Acquire knowledge about the main sub-sectors where digitalization can support value chains
- 3. Learn about the main digital technologies that are used to support operationalization of agriculture
- 4. Acquire knowledge about the key enablers of innovation in the agricultural sector



Ice Breaking Exercise

Where are you on the Digitalisation vs Agriculture axis?



Digitalisation for Agriculture

2.1 Key Digital Agriculture Policies in EU



Topics outline 2.1 Key Digital Agriculture Policies in EU

- Digital Europe Programme
- Horizon Europe
- Green Deal
- Farm-to-Fork strategy

- Data Governance Act
- Code of Conduct for Agricultural Data Sharing
- GODAN





Digital Europe programme



Frequent question: complementarities with HE

Horizon Europe

- supports the early stages of the innovation chain
- fund research and innovation (R&I) activities, including preliminary testing, proof of concept and pilot projects

Digital Europe

- enables the technological deployment
- large scale pilots in real conditions
- take over successful research results and use them for new deployments



Horizon cluster 4, CEF Digital and Digital Europe programme will be managed by the same Executive Agency

 \rightarrow ensure further coherence between the programmes

High Performance Computing

This action will be managed by the EuroHPC JU

Information below is only preliminary and will be finalised by the EuroHPC Governing Board

Procure exascale machines	
Upgrade existing supercomputers	
Build a Quantum Computing Infrastructure	
Widen the access to and use of supercomputing	European Commissior



Al, data and cloud

Data spaces	Horizontal actions in support to data spaces	Cloud federation	Al on demand platform	Testing & Experimentation Facilities
Green Deal				Manufacturing
Manufacturing	support centre	Market place		
Health				Health
Agriculture	open data portal	Cloud to Edge	Central access	
Mobility		based services	resources	Agriculture
Public Administrations				Smart
Cultural Heritage	high value data	platforms, building		
Media	Sets	cutting software		Edge AI HW
				Cur



Cybersecurity and trust

Quantum Communication Infrastructure

Joint Preparedness, Situation awareness and Response

Support to Implementation of relevant EU Legislation

Support to market players and skills





Advanced digital skills

Design and implementation of specialized education programmes and modules in key capacity areas (master classes)

Traineeships in key capacity areas

Short term trainings in advanced technologies (contribution to SME strategy)

Digital skills platform

Digital transformation of Education



Actions will be managed through new EASME

Accelerating the best use of digital

EDIH	Green Deal	Blockchain	European Digital Government Eco System	Enhancing Confidence in Digital Transformation
European Digital Innovation Hubs: one per region	Destination Earth Data ecosystem for	European Blockchain	Basic services from CEF and ISA2 eInvoicing eProcurement Interoperability framework	Safer Internet
	climate-neutral and smart communities Digital Product Passport	Service Infrastructure	Once only Principle Justice and Consumer Protection Law enforcement	European Digital Media Observatory

Actions will be managed through new EASME, with the exception of the EDIH, which will be managed by CNECT

Horizon Europe structure



European Commission



Example RI: Food, Nutrition & Health

Healthy and sustainable diets for 21st century citizens



Food, Nutrition & Health Data Architecture







Horizon Europe structure



European Commission

European Innovation Partnership-Agri network



- EIP-AGRI has been launched in 2012 to contribute to 'Europe 2020' for smart, sustainable and inclusive growth, strengthening R&I supporting a new interactive approach to innovation
- EIP-AGRI brings together innovation actors (farmers, advisors, researchers, businesses, NGOs, etc.) and helps to build bridges between research and practice.
- In Operational Groups, new insights and ideas, tacit knowledge are built into focused solutions that are quicker put into practice
- Service point with a help desk



EIP-Agri Digital Agriculture



- Distinguished theme <u>https://ec.europa.eu/eip/agriculture/en/digitising-agriculture</u>
- Project database searchable for e.g. data-driven agriculture, ICT, etc.
 - Various Operational Groups
- Focus Group "Mainstreaming Precision Farming"
- Events and publications on Digitalization
- News, newsletters, video's etc.



EIP-AGRI Focus Group Precision Farming FINAL REPORT NOVEMBER 2015





Farm to Fork Strategy: overall goals



Reduce the Lead a Tap into Create a **robust** global transition environmental and resilient food new and climate towards competitive opportunities system footprint of the sustainability from farm to fork food system



Objectives of the Common Agricultural Policy post-2020



Cross-cutting / horizontal objective:

Modernising the sector by fostering and sharing of knowledge, innovation and **digitalisation** in agriculture and rural areas, and encouraging their uptake



Digital Declaration

Declaration of cooperation on 'A smart and sustainable digital future for European agriculture and rural areas'

- signed by most Member States in 2019;
- self-commitment by Member States to joint action;
- fosters synergies between policy programmes and instruments, including Common Agricultural Policy, Digital Europe Programme, Horizon Europe;
- aims at stimulating cooperation between Member States and various stakeholders;
- points to concrete actions and initiatives in agri-food, such as support to a Common European Agriculture Data Space.



Farm to Fork: enabling the transition by digitalization

- strengthen role of the EIP-AGRI
- Support to advanced digital skills
- European Regional Development Fund (ERDF) invest through smart specialisation
- Horizon Europe partnerships "Safe and sustainable food systems for people, planet and climate" and "Agriculture of Data"

- accelerate the roll-out of fast broadband internet in rural areas to achieve the objective of 100% access by 2025
- convert Farm Accountancy Data Network (FADN) into the Farm Sustainability Data Network
- Establish a common European agriculture data space





Data Governance Act



Why to act?

1

2

- Creating an **alternative for the current business models** around data
- Development of data economy in Europe inhibited by:
 - High transaction costs of data sharing;
 - Insufficient availability of data for reuse; and
 - Emerging regulatory fragmentation

Objective

A Single Market for data





European

Commission



Data Governance Act

LEVERAGING THE POTENTIAL OF DATA FOR THE ECONOMY AND SOCIETY

Pillar 1: Re-use of sensitive data held by public sector bodies

Pillar 2: Framework for new data intermediaries in the Single Market: Data broker

Pillar 3: Framework for data altruism

Pillar 4: Co-ordination and interoperability: European Data Innovation Board (expert group)



Legal basis, data sharing scenarios in scope

Single Market for Data → Article 114 TFEU

Non-personal and **personal data** in scope, building on GDPR (no modification of rights under GDPR)

- Voluntary B2B data sharing (for personal data, companies need a legal basis)
- Re-use of public sector information, but through novel mechanisms that protect information privacy (personal data, confidental business data)

> Voluntary sharing of data by individuals, for altruistic and other motives



EU Code of conduct on agricultural data sharing by contractual agreement



EU code of conduct on agricultural data sharing by contractual arrangement

Transparency, defining responsabilities, creating trust!

- Voluntary aproach driven by the agri-food sector create trust
- Right on data produced on the farm or during farming operations is attributed to the farmer and may be used extensively by him/her;
- Leading role in controlling the access to and use of data from their business
- Benefit from sharing the data with different partners
- It adresses portability of data, opt out, sensitive information (e.g. machinery), security, etc;
- Compatible with the GDPR. Referred in the Commission data strategy;

EU Code of conduct on agricultural data sharing by contractual agreement

12 A MALL SE



EU code of conduct on agricultural data sharing by contractual arrangement

- Data must be collected and used for the specific purpose agreed in the contract
- This should be done without compromising restricted access to machine data or sensitive data (e.g. functioning of machines)
- The terms of liability should be clearly laid out in the contract.
- Protection of trade secrets, intellectual property rights and protection against tempering should be respected

How to ensure compliance with European Data Governance? What is the role of agri-cooperatives?

Explore IT solution to implement the EU code of conduct on agricultural data sharing by contractual arrangement

How can we ensure that the farming community benefits from data sharing?



CREATING AN OPEN-DATA REVOLUTION TO END HUNGER, IMPROVE NUTRITION & TACKLE GLOBAL FOOD SECURITY

<u>www.godan.info</u>



Building a global data ecosystem for agriculture & food



see: www.godan.info



9 Donors steering group/600+ partners



Department

Development

for International

<u>k</u>s

Bundesministerium für Ernährung und Landwirtschaft

Government of

the Netherlands



CGIAR





THERE IS ENOUGH FOOD MADE IN THE **WORLD FOR EVERYONE BUT...**

MILLION Children die as a result of malnutrition each year

300



The Global Open Data for Agriculture and Nutrition (GODAN) is a rapidly growing collaborative alliance of 1000+ global innovators across governments, businesses, and NGOs from over 121 countries.

GODAN is convinced that the solution to ending extreme poverty and hunger, improving nutritional choices, and tackling global food security lies within existing, but often unavailable and inaccessible datasets.

GODAN's mission is to make all agriculture and nutrition data open available, accessible, and usable for unrestricted use worldwide - to shift the global food and agriculture system profoundly.

In doing this, we can unlock our potential to respond to the needs of millions of food insecure people worldwide for generations to come.



GODAN does this in two ways:



ACTION

by developing, implementing, and investing in innovative agriculture methods and processes led by open data practices.

ADVOCACY

by convening high-level public and private institutional support for effective open data use to ensure better policy and decision making.

GODAN is supported by the United Nations and the Governments of UK, USA, Netherlands, and Germany.

European Commission

Exercise

Poll via Mentimeter and Group discussion: what are the most relevant policies in your country of work?


Digitalisation for Agriculture

2.2: Subsectors of D4Ag for value chain development



Outline 2.2: Mapping the Sub-sectors

- Advisory and information services;
- Market linkages;
- Supply chain management;
- Macro-agricultural intelligence;
- Financial access.



Advisory & information services Definitions





- Digitally delivered information on topics such as agronomic best practices, pests and diseases, weather and market prices
- → More sophisticated digital advisory services and farm management software tailored to the specific farmer, farm or field that enable smallholder farmers to <u>make decisions</u> that maximise output from their land, improve the quality of agricultural production and maximise farm revenues and profits
 - Thanks to lower costs of production, improved ability to identify markets and/or better farm gate price



Advisory & information services Examples of solutions

Advisory & information services



- Applications providing access to **good practices**
- Market information systems and services
 - Agriculture input, crop/livestock price intelligence
- Early warning tools for weather/climate advisory or pest/disease control
- Customised (precision) advisory services at the level of farmer, farm or specific field
- Participatory platforms (e.g. peer-to-peer smallholder communities, curated farmer videos)
- Livestock and farm management software



Market linkages Definitions





- Digitally-enabled solutions to link smallholder farmers to:
 - high-quality farm inputs (e.g., seeds, fertilisers, herbicides/pesticides)
 - production and post-harvest machinery and mechanisation services (e.g., irrigation, tractors, cold storage)
 - off-take markets, including agro-dealers, wholesalers, retailers, or even to end-consumers.
- → Digital <u>market linkage solutions</u> allow smallholder farmers to lower their costs of production via access to lower-cost and/or higher-quality inputs, reduce the costs and risks of finding and transacting with buyers and ultimately increase their yields and incomes.



Market linkages Examples of solutions

- Linkage to agri-inputs
 - Digitally-enabled input distribution, online input marketplaces, etc.
- Mechanisation linkage platforms
 - Shared economy for mechanisation, pay-as-you-go irrigation, etc.
- Linkage to market access
 - Digitally enabled linkages to wholesale buyers

- End-to-end integrated market linkage models
 - Digital linkage to both inputs and markets
- Ag buyer-seller digital marketplaces/exchanges





Market

Supply chain management Definitions





- Digital supply chain management solutions are **business-to-business services** that help agribusinesses, cooperatives, nucleus farms, input agrodealers and other smallholder farmer value chain intermediaries to **manage their relationships with smallholder**
- → Lower costs through greater **efficiency**,
- → Improve value chain quality through better traceability and accountability
- → Increase smallholder farmer yields and incomes by making it easier for more commercial players to formally engage with large numbers of smallholder farmers.



Supply chain management Examples of solutions





- Traceability solutions
 - Digital sustainability and organic product certification tracking
- **ERP** (Enterprise Resource Planning) platforms for smallholder farmer cooperatives, nucleus farms, agribusiness out-grower schemes
- Digital quality assurance solutions for farm inputs and produce
- Logistics management solutions for post-harvest cold chains, storage and transport



Macro-agricultural intelligence Definitions





• Data analytics solutions and digital decision support tools that integrate a <u>variety of data sources</u> on smallholder farmers, farms and markets and convert this information into useful country- and value-chain level insights and decision tools for government policymakers, extension agencies, agronomists, agribusinesses and investors.



Macro-agricultural intelligence Examples of solutions

- Government agriculture sector tracking dashboards
- Agriculture extension system management tools
- Agribusiness and agriculture investor national and regional intelligence systems
- Agronomy/R&D agenda setting digital tools
- Weather and climate observatories for agriculture



Macro agricultural intelligence

Financial access Definitions





- Digital financial services (DFS) relevant for smallholder farmers, such as digital payments, savings, smallholder credit, and agricultural insurance, which increase financial access and equip smallholder farmers to improve yields and incomes and invest in the longer-term growth of their farms
- Includes business-to-business digitalisation and data analytics services for **financial institutions** that enable such institutions to serve smallholder farmers at substantially lower cost and risk.



Financial access Examples of solutions

- Agronomic/livestock management good practices
- Smallholder farmer **payment solutions**
 - Agribiz to farmer, government to farmer, farmer to input supplier, etc.
- Digital agri-wallets and commitment savings systems
- Smallholder credit
 - Digital credit assessment/delivery/collection platforms and products

- Smallholder insurance
 - Digitally-enabled index weather, precipitation, pest insurance
- Crowdfunding platforms for smallholder farming
- Business-to-business FinTech data analytics intermediaries (e.g. digital credit profiles)







Financial access Examples of solutions: Bulambuli Valley Crowdfunding



Welcome to Bulambuli Valley



Financia

access



Exercise

Poll via Mentimeter: where can digitalisation contribute the most in your country of work?







Break!



Digitalisation for Agriculture

2.3: Key digital technologies for agriculture



Digital Transformation of Agri, Food, Nutrition & Health in 4 areas



https://www.linkedin.com/pulse/transdisciplinary-data-driven-research-social-sjaak-wolfert/

General ICT Trends everywhere everything everything

- Mobile/Cloud Computing smart phones, wearables, incl. sensors
- Location-based monitoring GPS, remote sensing, augmented reality
- Internet of Things everything gets connected in the internet (virtualisation, digital twins, autonomous devices)
- Social media Youtube, Facebook, Twitter, etc.
- Big Data Web of Data, Linked Open Data, Big data algorithms
- >Next step: Artificial Intelligence Deep learning, Machine learning, etc.

High potential for unprecedented innovations!



Topics 2.3: Key technologies

- Mobile services
- IoT
- Blockchain
- Frontier Technologies



Mobile services The best gateway to access information (?)



Some issues:

- Mobile penetration is high, but for mobile internet there's a long way to go
- Mobile phones are not suitable to perform all the tasks that can be done with a computer
- Rate of smartphones in the developing world still relatively low



Mobile services A technological framework

Technology	Description	Availability	Benefits	Drawbacks
Voice	Basic voice calling	Basic phones	Avoids literacy barriers	High host of operation
Short Message Service (SMS)	Text-based messaging	Basic phones	Low cost of operation	Limited to 160 characters
Unstructured Supplementary Service Data (USSD)	GSM mobile data protocol	Basic Phones	Low cost, two-way communication	Limited to 182 characters
Voice-to-text/text-to-voice	Programs that convert voice to SMS	Basic phones	Reduced costs, avoids literacy barrier	Limited capacity, high programming cost
Interactive Voice Response	Computer programs that respond to voice input	Basic phones	Avoids literacy barriers	Potential linguistic barriers, high cost
Wireless Application Protocol (WAP)	Limited web access	Smart phones	Greater information capacity	Limited to smart phones
Multimedia Messaging Service (MMS)	Messaging with image/video	Smart phones	Higher information capacity	Higher per-use cost than SMS
Camera	Image/video capture	Smart phones	Greater ability to capture information	Limited availability
Bluetooth	Data transfer over short distances	Smart phones	Enables local networking	Limited range/capacity
Mobile Web	Full web access	Smart phones	Greatest information capacity	High cost of use, limited availability
Global Positioning System (GPS)	Location-based information	Smart phones	Ability to generate detailed user info	Limited availability



Mobile services A technological framework for D4Ag solutions

Agriculture issue	Service	Potential outcome	
Low access to financial services	Mobile Payment System		
	Micro-Insurance System	Increasing access/affordability of financial services tailored for agricultural purposes	
	Micro-Lending Platform		
Lack of agricultural information	Mobile Information Platform	Delivering Information (agricultural techniques, commodity prices, weather forecasts)	
	Farmer Helpline		
	Smart logistics		
Low supply chain efficiency	Traceability & tracking system	Optimizing Supply Chain management across agriculture sector & improving transportation logistics	
	Mobile management of supply networks		
	Mobile management of distribution networks		
	Agricultural trading platform	- Enhancing links between commodity exchanges, traders, buyers/sellers of agricultural products	
Low access to markets	Agricultural tendering platform		
	Agricultural bartering platform		

European Commission

Mobile services example Access to advisory services: iCow



www.iCow.co.ke

- Provides integrated services to breeders via mobile + internet
- Among the services: cow calendar, market information, access to extension services
- Available in Kenya on multiple operators via Safaricom, Orange and Airtel
- Platform: mobile phone, SMS, web-based interface, Ushahidi crowdmapping
- Fees: Farmers pay 5 shillings (roughly US\$0.05) per SMS, which amounts to approximately 1,200 shillings annually based on average estimated usage (US\$ ~60)



Mobile services example smart phone Risk Management: Plantix



Health Check

Take a picture of your arable crop by using a simple 3G-enabled smartphone. Plantix analyzes it within the blink of an eye and reports detailed information about the plant's species and its potential disease



 \checkmark

Plantix Community

Get in touch with a community of scientists, farmers and plant experts to exchange information about plant issues on a local or global level

Plantix Crop Advisory

This is the third pillar for multiplying your farming expertise. The Crop Advisory is a holistic tool that reminds you about all the steps necessary for the highest yields and best quality of your farm produce



Disease Library

Plantix provides the largest independent database for plant problems and their treatments





Internet of Things (IoT)

Objects become a uniquely identifiable 'thing' real-time connected in a network

- Sensors
- Long Range
 communication
- Digital Twins







IoT application areas in agriculture and food¹

- enhanced sensing and monitoring of production, including farm resource use, crop development, animal behaviour and food processing;
- better understanding of the specific farming conditions, such as weather and environmental conditions, emergence of pests, weeds and diseases;

¹ Verdouw, C., Wolfert, S., Tekinerdogan, B., 2016. Internet of things in agriculture. CAB Reviews 11. doi: 10.1079/PAVSNNR201611035

- sophisticated and remote control of farm, processing and logistics operations by actuators and robots, e.g. precise application of pesticides and fertilizers, robots for automatic weeding;
- improving food quality monitoring and traceability by remotely controlling the location and conditions of shipments and products;
- increasing consumer awareness of sustainability and health issues by personalized nutrition, wearables and domotics.



IoT example: end-to-end sustainable wine chain





display devices, agronomic parameters and weather forecast

NIR spectrometer % alc., sugar, etc.





IoT example: soil analysis



https://www.agrocares.com/







2





Scan Scan your leaves, feed or soil Connect Upload the data via the app Analyse

Let the database do the magic

Act Receive your report



IoT example: low cost platform







Key Aspects of Blockchain Application

Blockchain is an implementation of Distributed Ledger Technology

• Technology (Components, Architecture, Frameworks, Performance)



- Ecosystems (actors, context, enabling environments)
- Governance & Business Models



Smart Contracts

- Smart contracts are self-executing agreements that are triggered on the basis of predefined and agreed events
 - E.g. Rainfall > 200 mm
 - Market price of commodity > USD 100





SMART CONTRACT



Blockchain example: provenance



Cow: RFID tag







Trace cow movement



Consumer is able to get provenance information



Blockchain example: Insurance

 Index insurance based on smart contracts can automate and greatly simplify the process thereby facilitating instant payouts to the insured in the case of adverse weather incidents.

 Automatic data feeds provide continuous and reliable hyperlocal data to the contract thereby eliminating the need for on-site claim assessment by the surveyor.



Frontier technologies How could a future farm look like?





IoT + Big Data example: HAPPY COW







#70 is in estrus and can be inseminated. Tuesday 23:00 - Yesterday 01:00

Insights

8

6 months.

Ida works by understanding data and providing you with the key information to act on. Ida is constantly learning and as it learns more, new insights will start appearing in your timeline.

> Estrus Over 93% accurate estrus detection together with best time to inseminate.

Feeding

Know which cows are having digestive disorders such as ketosis or are not ruminating for optimal efficiency.

Efficiency (available in beta) Identify cows that are better suited to be bred for future generations.

Health

Ida detects cases of mastitis, lameness and 24-48 hours before they are critical.

Heat Stress

Learn which cows are impacted by high temperatures and humidity more than other.

Calving (coming soon)

Know when a cow is expecting to calve and track the critical hours after calving for sians of distress.





Big Data example: FieldView







PRESCRIPTIVE FARMING

based on PRECISION AGRICTULTURE


Robots: few examples



Home-garden automated production



Milking robot



Autonomous robot to harvests soft fruits



Autonomous weeding

European Commission

Exercise

Word cloud on Mentimenter: which technology did you use/find already across agricultural projects in your region?



Digitalisation for Agriculture

2.4: Key enablers of digital agriculture



Topics 2.4: Key enablers of digital agriculture

- Digital Innovation challenges
- Multidisciplinary, collaborative, agile approach
- Digital Innovation Hubs



Digital Innovation: challenge and issues to be solved

How to create infrastructures and ecosystems that utilize the potential of digital data to address the grand challenges of sustainable food production?

Multidisciplinary, Collaborative, Agile approach:

- Data Infrastructure & Analytics -
- Business models
 - Governance and Ethics



Matching public and private funding







Internet of Food and Farm 2020 Innovation Action:

2017 - 2020 30 M€ funding by DG-CNCT/AGRI

Large-scale uptake of IoT in the European farming and food sector





UC1.1. WITHIN-FIELD MANAGEMENT ZONING

Soil map based variable rate applications and machine automation in potato production

Coordinators: Peter Paree (ZLTO) & Corné Kempenaar (WUR)





Product Impressions







Product Factsheet

High spatio-temporal monitoring dashboard



Variable Rate Application Map Service Smart application of resources: seeds, pesticides, fertilizers

Customer & Provider



Farmers and advisors



Data-, service, infra-, knowledge providers Major Challenge

Existing variable rate maps are often based on tweaking expert judgement and lack a certain level of precision in tasking / lack of validation.

Core Product Features

Minimum Viable Products



Variable planting distance map – Validation in 2017 and 2018. Nov. 2018 portal where maps can be ordered.

Variable rate herbicide use map - Validation in 2016 and 2017. May 2018 portal where maps can be ordered.

VRA additional N spraying June 2018 on Growth + Soil Maps.

Added Value

Here is what we aim to improve (KPIs)



Better distribution of plants leads to +5% kilos and +5% better quality (more potatoes in desired size). Taking soil characteristics for weed growth into account: -23% less herbicide and +2% more yield.

Enriching canopy index with soil characteristics lead to -10% less additional N fertilizer (2nd phase).

These values derive from comparison of a standard farm's performance prior to the installation of our system and after.





A multidisciplinary, collaborative, agile approach



Verdouw, C.N., Wolfert, S., Beers, G., Sundmaeker, H., Chatzikostas, G., 2017. IOF2020: Fostering business and software ecosystems for large-scale uptake of IoT in food and farming, in: Nelson, W. (Ed.), The International Tri-Conference for Precision Agriculture in 2017, Hamilton, p. 7. http://doi.org/10.5281/zenodo.1002903

European Commission

Overall objective

Consolidate and foster EU-wide network of Ag DIHs to enhance digital transformation for sustainable farming and food production





Digital Innovation Hub – local one-stop shop



DIH innovation services



Ecosystem



Technology



- Community building
- Strategy development
- Ecosystem learning
- Project development
- Lobbying

- Strategic RDI
- Contract research
- Technical support on scale-up
- Provision of technology infrastructure
- Testing and validation

- Incubator/accelerator support
- Access to finance
- Skills and education



The 5 basic concepts of SmartAgriHubs



SAH Innovation Portal

- Existing DIH network of SMEs/startups/scale-ups, etc.
- Network of Competence Centres
- Flagship Innovation Experiments
 (> 60 incl. IoF2020)
- Can be used for matchmaking to generate new Innovation Experiments by Cascaded EU funding Attracting additional funds





Extend SmartAgriHubs to Africa?



Wrap-up Webinar 2

Revisiting the learning objectives

- 1. Understand the EU approach to digitalization applied in the agriculture sector
- 2. Acquire knowledge about the main sub-sectors where digitalization can support value chains
- 3. Learn about the main digital technologies that are used to support operationalization of agriculture
- 4. Acquire knowledge about the key enablers of innovation in the agricultural sector



Digitalisation for Agriculture

Webinar 2

Q&A



Thank you... and see you tomorrow for our 3rd webinar!

Contact: sjaak.wolfert@wur.nl



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