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# Digitization in Austria: First steps to introduce a platform and first projects

SCAR SWG AKIS, 31.5.2017, BONN  
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# SITUATION IN AUSTRIA

## DIGITIZATION: CHANCE AND RISKS



- in relation **small** and middle **sized farms** in Austria
- Data **acquisition** and **processing** at the farm is already **reality** (production technology and management)
- **digital competence** is a precondition/ a **key factor** in the Future
- Increasing need of **information** concerning **big data, data security** and use – **awareness** still at an **early stage**
- **International** acting **companies** (supplier of Agriculture) built up data pool
- **necessary for the Ministry:**
  - To inform farmers and also to save their interests
  - To support services and advanced training

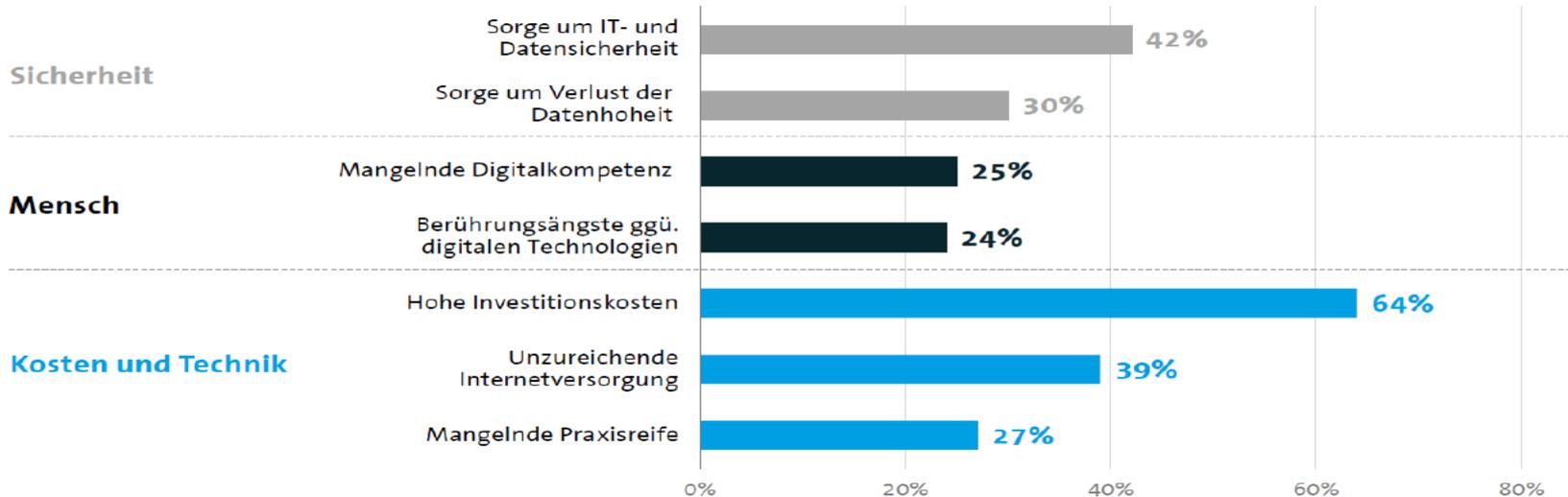
# Barriers of Digitization in Agriculture

data from Germany (source DBV)



## Hohe Investitionskosten und Datenfragen hemmen Innovation

Welche Hemmnisse bremsen Ihrer Meinung nach die Digitalisierung der Landwirtschaft?\*



Basis: Alle befragten landwirtschaftlichen Betriebe (n=521) | \*3 Nennungen möglich | Quelle: Bitkom Research

# I. PLATFORM OF DIGITIZATION



We stay at the beginning!

## Goals for Austrian Agriculture (with small scale farms):

- Improve the business documentation (**automated data**)
- Improvement of **data integration**
- Management and ecological **documentation** (e.g. sub-area specific crop farming)
- more **automation**
- Clear definition for **terms of use** and **data management**

## II. PLATFORM OF DIGITIZATION



### **Members of the Platform:**

- Responsible departments of the Ministry
- Applied research - subordinated agency of the ministry (BLT Wieselburg, AWI, Raumberg Gumpenstein)
- University of life science
- Chamber of agriculture (special interest group for farmers, training, advisory service)
- Austrian curatorship of agricultural engineering
- Cooperation of machineries
  
- For Working groups: expertise as necessary

# III. PLATFORM OF DIGITIZATION



## Goals of Platform:

- Work on **priorities** and the **need for action**
- Realise **possibilities** and **risks, work on solutions**
  - differentiate between users: farmer, special interest groups, managing authorities, industry
- **advice for the Ministry** to reach the goals for environment, documentation and plausibility of support programmes
- **Survey of activities**, science projects, data sources
- Linking of stakeholders
- **Awareness raising** of farmers, functionary for the **value** of their **data**, awareness of their **digital identity** (if they want to change from John Deere to New Holland - lost of their data)
- Dissemination of **neutral information**: education, training

# IV. PLATFORM OF DIGITIZATION



## Needs of action to be evaluated in detail :

- Legal frame conditions: e.g. data security, using conditions
- Data and system security: e.g. data abuse
- Ecology: requirements of documentation of environment protection
- Agrar statistic and administration: interface
- Technic: data entry at the farm, Interface, sensors
- Economic and Management: requests for a Farm Management and information system
- Rural development: social effects, SME, infrastructure
- Education and training, advisory service

# V. PLATFORM OF DIGITIZATION



## structure of evaluation for needs of action (what we have to do):

### Fact sheet:

- Level/situation of development
- Relevance/ interface to FMIS
- Survey of actors in the field (contact person)
- Currently running projects
- Chances and risks
- concrete need of action: who?, what?, when?
- Sources
- Conclusions
- Volume: max. 4 pages

# FIRST PROJECTS

## Use of geographical information systems for site specific cultivation in order to improve efficiency and ecology in Austrians agriculture (GIS-ELA)

Duration: 2017-2020

### Topics:

- **sub-area specific** crop farming
- improved resource efficiency (fertilizers, seed, etc.) and ecology (avoidance of over-fertilization for water protection)
- **focus on small-scale farms** (like in Austria)

### Goals:

- apply **existing technologies** and methods
- develop **free applications** for farmers
- **trainings** and seminars for farmers and teachers

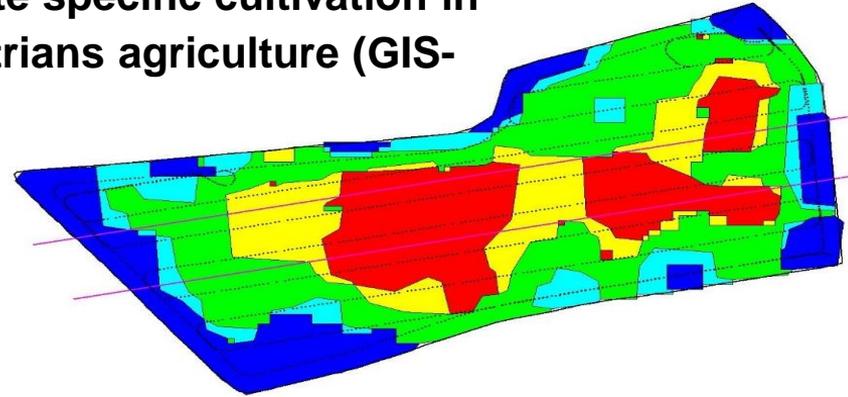


image source:  
<http://www.iva.de/>

This project will be funded by the EIP programme

# PROJECT GIS-ELA (2)

## "From data to fertilizing"

- field data from InVeKoS GIS
- existing governmental authorities soil maps
- soil samples/analyses
- yield record maps
- cameras mounted on tractors and UAVs
- satellite imagery
- CAN-/ISO-BUS data
- weather forecasts



data integration from different **sources**

**creation of sub-area zone maps**

**zone maps** reflecting yield potential

**creation of application maps**

considering guidelines for proper fertilization, ...

**application maps** for seeding, fertilizing, spraying, ...

**application of maps** in the field

(primarily focus on fertilizers)

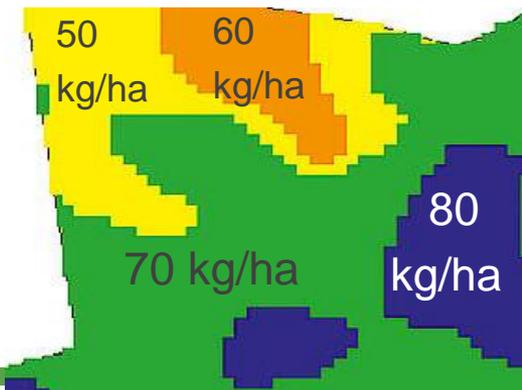


image source: <https://www.dlg.org/>

data integration  
and map  
management

usage of  
maps

# Digitization of agriculture & forestry (edu. project)

## goals I



### Project “Education campaign Digitization in Agriculture and Forestry“

- Project Operator:
  - Rural Institute for Further Education ([www.lfi.at](http://www.lfi.at))
  - Austrian Chamber of Agriculture ([www.lko.at](http://www.lko.at))
- Project period: **01.04.2017** - 31.12.2018
- project volume: 218.000 € ( M1 – RDP)



# Digitization of agriculture & forestry (edu. project)

## goals II



- **Awareness raising** and **transfer of knowledge** (esp. difficult to reach farmers)
    - Recognizing the high relevance of the topic as well as the opportunities and risks of digital technologies for on farm decisions
  - **Facilitating** transfer of knowledge and **networking** among key actors and farmers
  - Promoting and **strengthening** farmer's digital **competences**
    - Increased farm competitiveness through better knowledge and data driven decision making
  - Increasing **pace & degree** of digitization
    - Strengthening competitiveness of Austrian agriculture
    - More efficient operations - lower environmental impact
    - increase the value added for the farm
- Make benefits accessible for **small farms** - “**Big data for small farms**”

# Digitization of agriculture & forestry (edu. project)

## output I



- **Strategic education masterplan** for advisory and further education services
  - Presenting the benefits of digitization & Big Data; analysis and evaluation of the existing services as well as identification of further steps of action for next 3-4 yrs.
- **Networking meeting (conference)**
  - Bringing together all relevant stakeholders and experts with farmers who are already using new technologies -> platform for knowledge transfer (hub)
- **Awareness raising activities** and transfer of knowledge (esp. for difficult to reach farmers)
  - facilitating the entry into the topic for "Digital Immigrants" & advancing experts
  - Info material / presentation frequencies / Multiplier trainings

# Digitization of agriculture & forestry (edu. project)

## output II



- **web based knowledge platform**
  - central hub for farmers on the subject of digitization
  - Time and location-independent knowledge transfer for all interested parties
  
- **deepening educational product “Digitaler Bauernhof (digital farm)”**
  - Modular course (82 hrs.) incl. case studies & best practice examples of successfully implemented digital practices & involvement of relevant stakeholders

# I. SMART FARMING - ENERGY EFFICIENCY (COOPERATION PROJEKT MACHINERY CLUSTER)



- **Cooperation with** the University of life science, farm advisory service
- **Goals:**
  - **Support of small scaled farms to use atomised** relevant **data** for managing and improve their operative process
  - **certification** of the **energy potential savings** via Austria Energy Agency
- **Awareness building** in cooperation with the University of life science, farm advisory service
- **First steps:** to **implement** a **RTK signal** with **free access** for all interested farmers (not controlled by companies)

## II. SMART FARMING - ENERGY EFFICIENCY (COOPERATION PROJEKT MACHINE CLUSTER)



- **targeted group:** cooperation's with machines
- **Next step:** to include this system also in the online manger for disposing the use of common machines
- **Documentation** of results of pilot projects
- **Develop a data platform**
- **Project costs:** 213.000 €
- **Project start:** April 2017

# I. NUTRITION EFFICIENCY AND GROUNDWATER PROTECTION (COOPERATION PROJECT MACHINERY CLUSTER)



- **Goal:** implement a GIS supported parcel related nitrogen balancing and a groundwater preserving liquid manure management
  - That farmers can fulfil the groundwater preserving on an easy way
- **Project costs:** 200.000 €
- **Project start:** June 2017

## contact

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