# Workshop: Farmer data space

24-4-2024 AGROS Symposium

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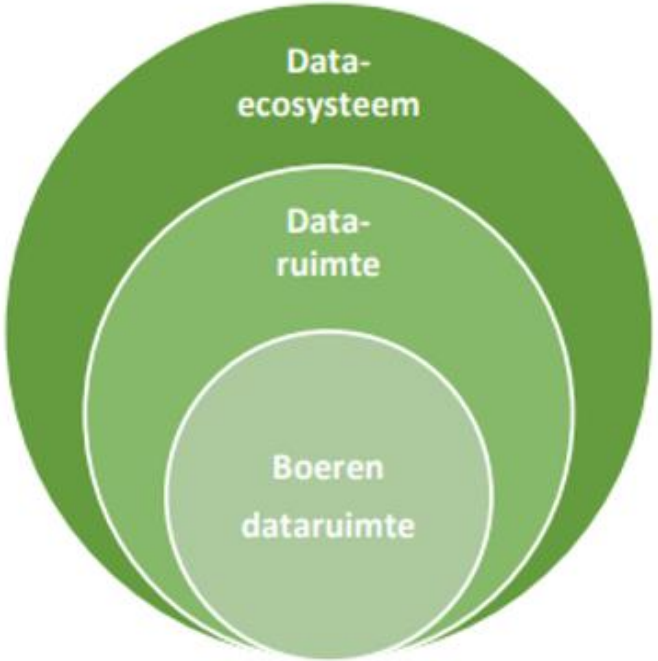
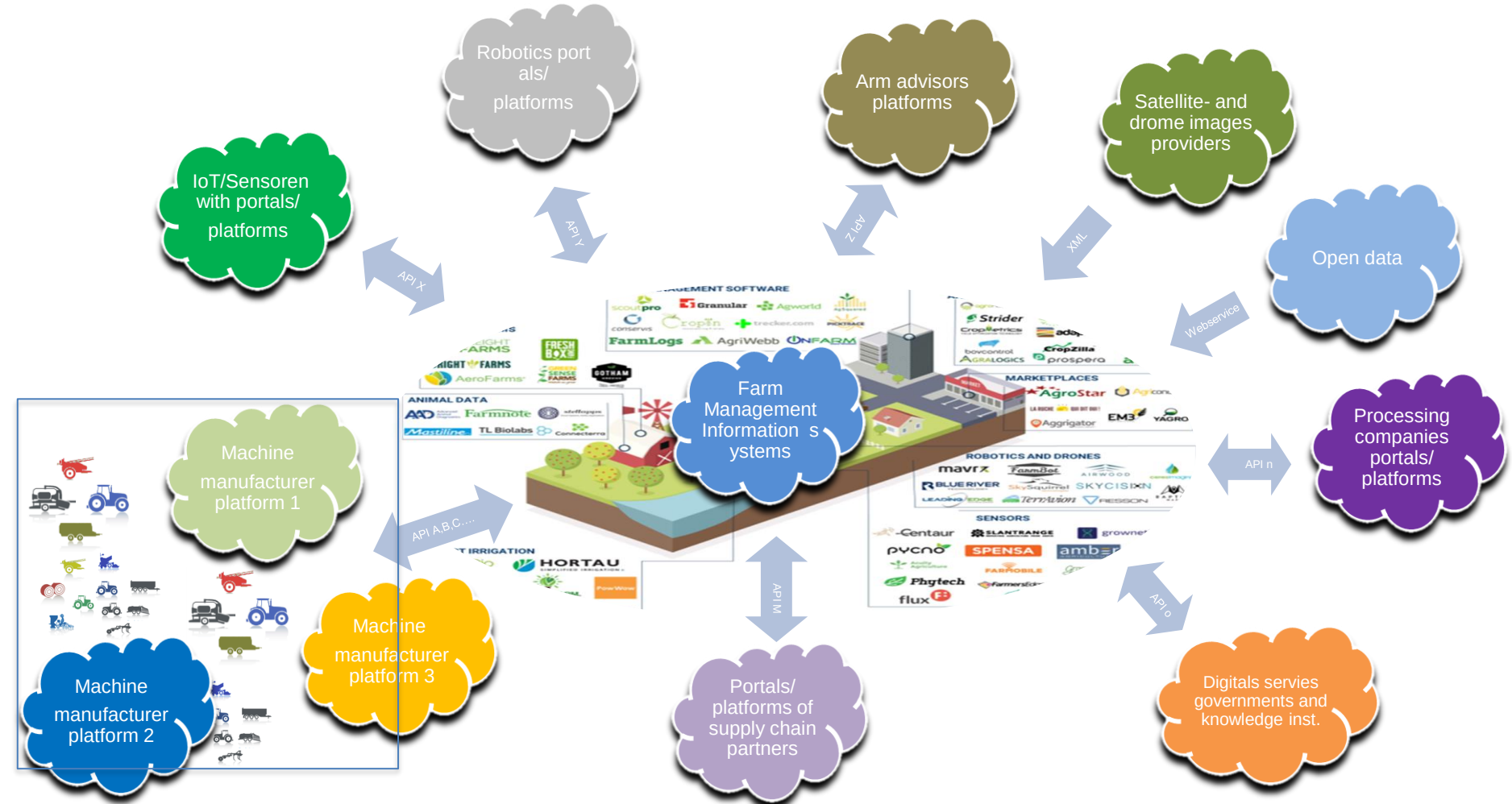
# Program

- Introduction Farm Data Space
- Analyses Farm Data Spaces Dutch farms
- Example of a Farm Data Space tool and smart data uses
- Discussion

# Farm data space (Boerendataruimte / dataruimte van de teler)

- A data space comprises a set of agreements, governance and technical, within a specific sector, e.g. field crops
- Data of farms is often scattered over more than 20 digital tools, which makes it hard to use this data by the farmer
    - Enough reasons to wait with adoption of digital tools

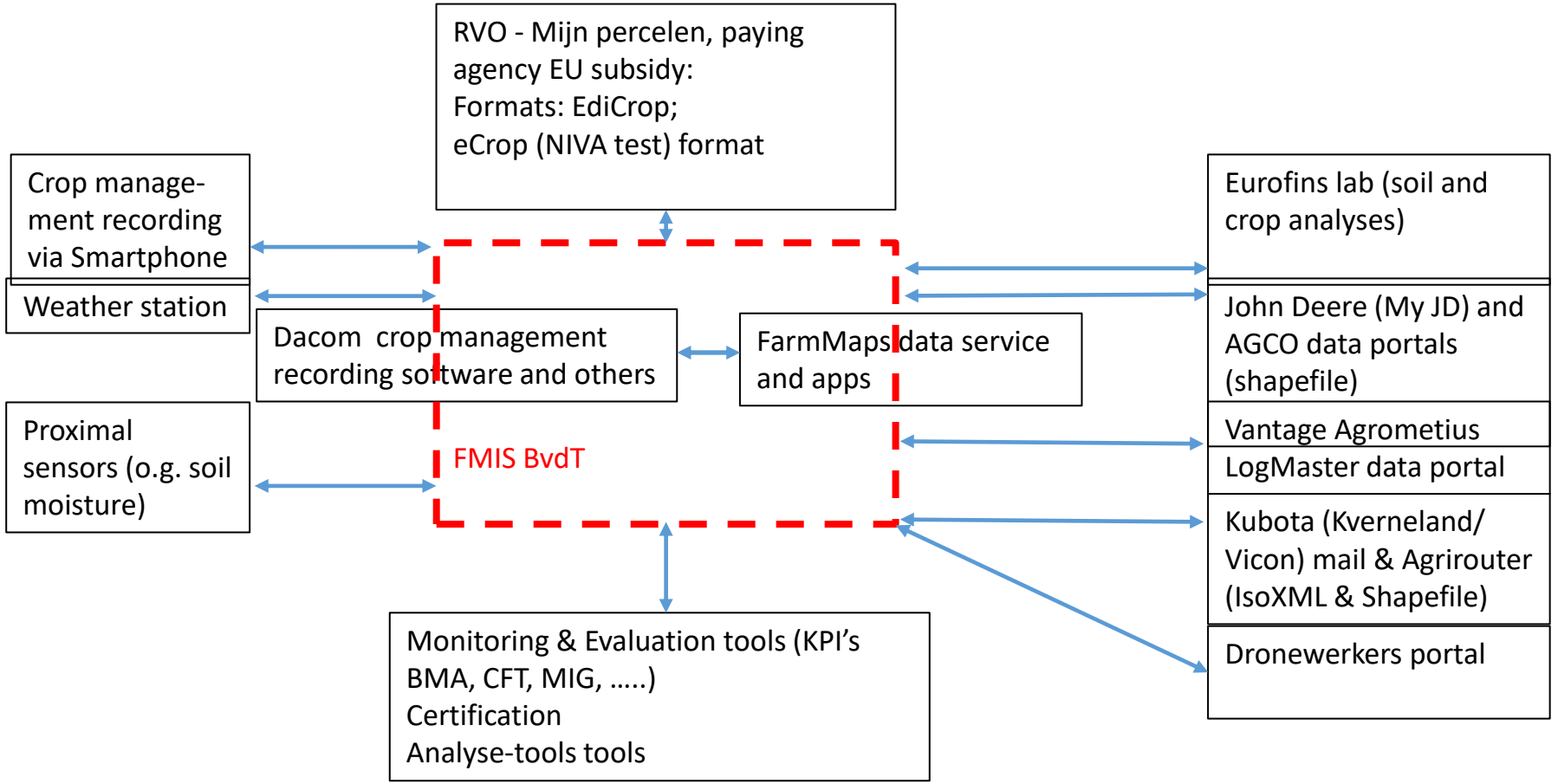



Robotics port als/ platforms
Arm advisors platforms
Satellite- and drome images providers
IoT/Sensoren with portals/ platforms
Open data
API X
API Y
API Z
XML
Webservice
Farm Management Information s ystems
Machine manufacturer platform 1
Machine manufacturer platform 2
Machine manufacturer platform 3
API A,B,C....
API n
API M
API o
Processing companies portals/ platforms
Portals/ platforms of supply chain partners
Digitals servies governments and knowledge inst.
MANAGEMENT SOFTWARE
ANIMAL DATA
MARKETPLACES
ROBOTICS AND DRONES
SENSORS
IRRIGATION

# Why and how to develop farm data space?

- Why: Benefits of data-driven farming
  - Farm optimization, accounting, benchmarking, new knowledge
- Roadmap Towards data-ecosystem field crops
  - Projects like DOOPT, HDL, AGROS, EU Ag Data Space, …..
- Code of Conduct Data Use field crops
  - Sovereignty, transparency, interoperability, portability, ...
- Stimulate tools that give farms grip on data of their farms
  - Such a tool ensures that the farm can access, open, use, share, protect and delete data from and about the company

# Farm data space 'Boerderij van de Toekomst' in Lelystad

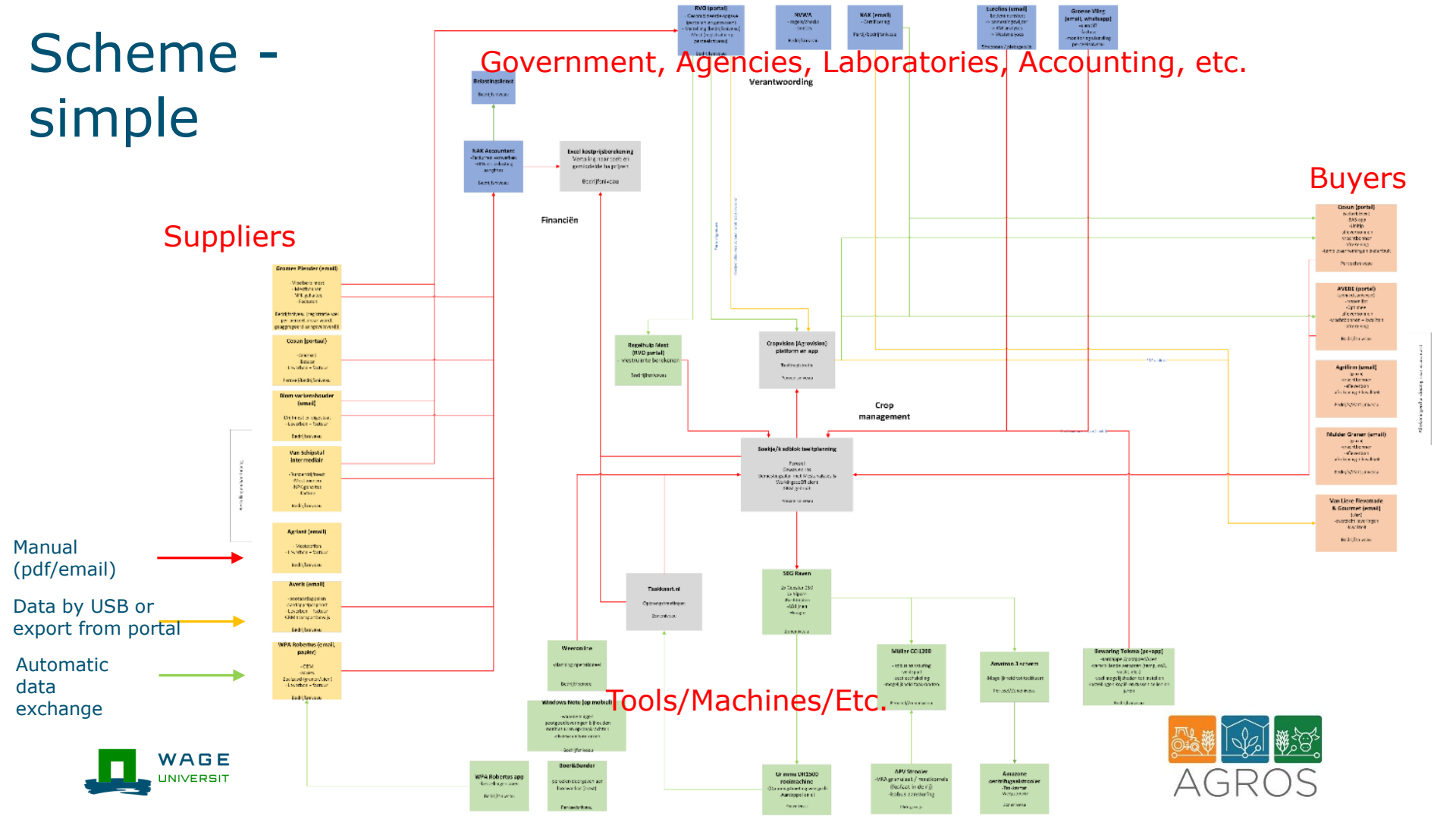


# Challenges in the farmers data space

Analysis bottlenecks on data-infrastructure farms

- Interviews with 8 farms to identify the stakeholders, type of data, level of precision (farm, field, zone), level of accessibility, use of data (goals) and future requirements
- Schematic overviews of data-infra
- Confirms outcomes in '*Haalbaarheidsstudie PL4.0 data-ruime: knelpuntenanalyse datagebruik op boerenbedrijf en aanbevelingen om de impasse te doorbreken*' (2020)

# Scheme - simple

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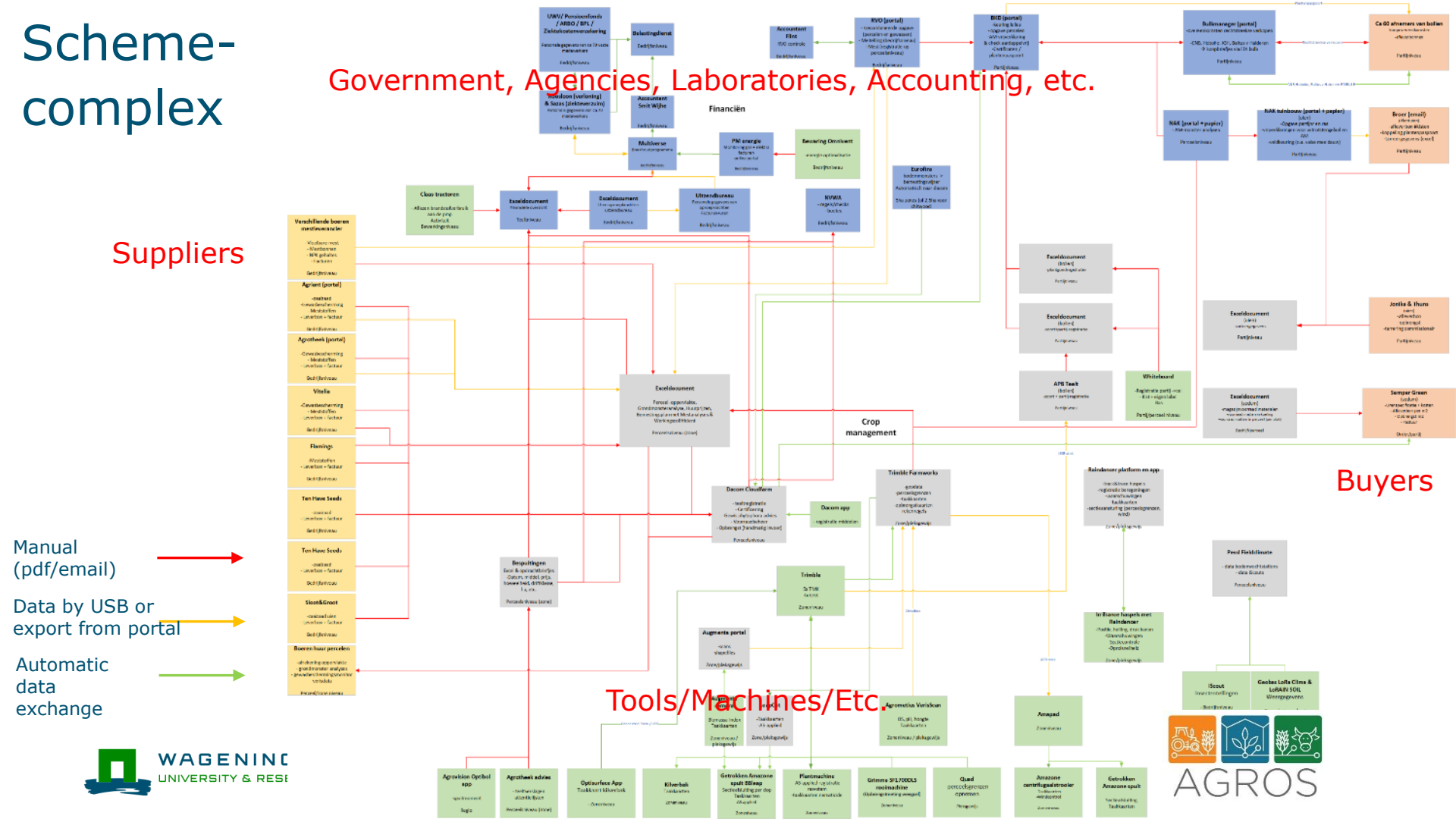
# Scheme-complex



# Bottlenecks:

- No ‘all-in-one’ platform for the goals and functionalities in the different portals
- Monitoring and evaluation on field- and zone level not possible (difference in level op precision data and yieldmonitoring is missing)
- Ignorance or unwillingness (to expensive) to use digital tools
- Supply data to ‘others’ (license to produce) is experienced as a burden, with mostly no direct (financial) benefit for the farmer

# Market solutions?

- Cloudfarm
- CropVision
- Farmmaps
- Precisieteelt Plus
- NEXT (Agrifirm)
- NEXT Farming (FarmFacts/BayWa/AGCO)
- Fieldview/Hortiview
- JoinData
- John Deere Operation Center
  icm Geopard (DE)
- 365Farmnet
- MyEasyFarm (FR)
- IntoAgri
- Farm24
- Trimble Farmer
- Watch It Grow (BE)
- MyDataPlant
- SMS (Agleader)
- Topcon Agriculture Platform
- Xarvio
- …

# R&D on farm data space

- PPS DOOPT: governance topics (code of conduct, self test, …)
- NXTGEN HIGHTECH: technical solutions BDR and standardization
- ESLA: ethical, societal, legal
- AGROS II: Integration crop protection tools in Farm data space
- EU: AgriDataSpace, AgIN, AgriFoodTEF, …..

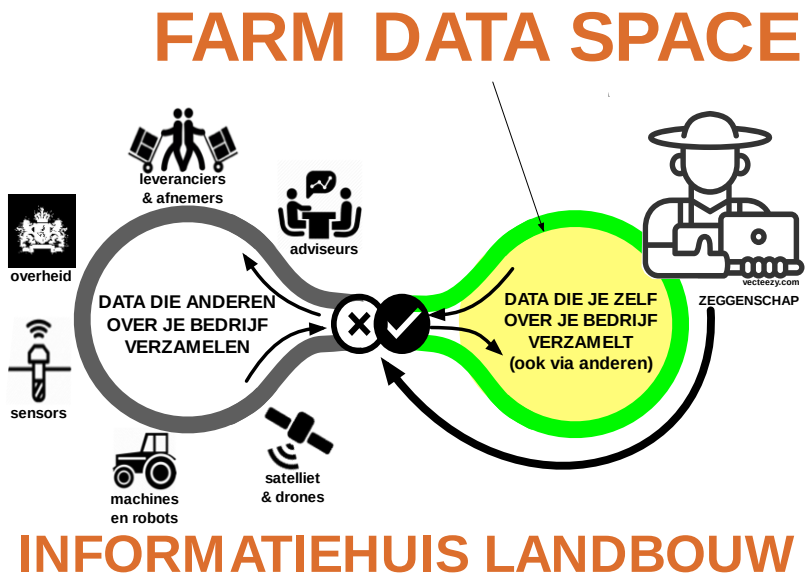
# Multiple ongoing projects

NXTGEN High tech: Hollandse datalinie

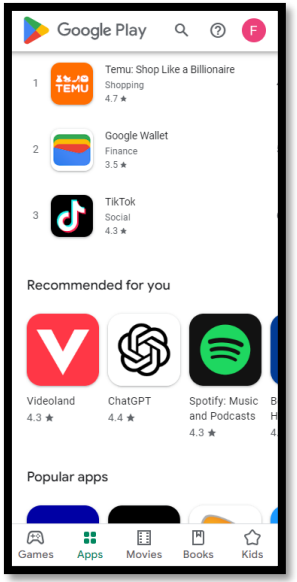
- Data storage
- Farmer is in control

Doopt

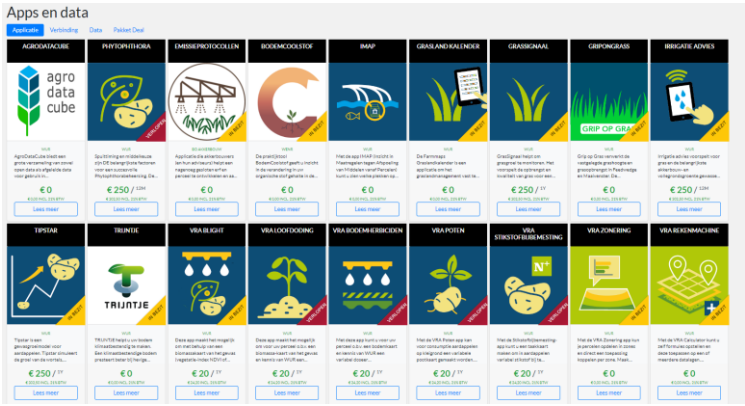
- Data position of farmers in data-ecosystem



# **Farm**maps: implementation knowledge




- Platform for **smart farming** > 20 apps / advice modules
  - Monitor and collect farm data
  - Visualise farm data
  - **Users** are in control of their data
  - From data to advice
    - *Scenario studies, predictions, benchmarking and compliance*
- Benefits
  - Savings crop protection, Increased efficiency

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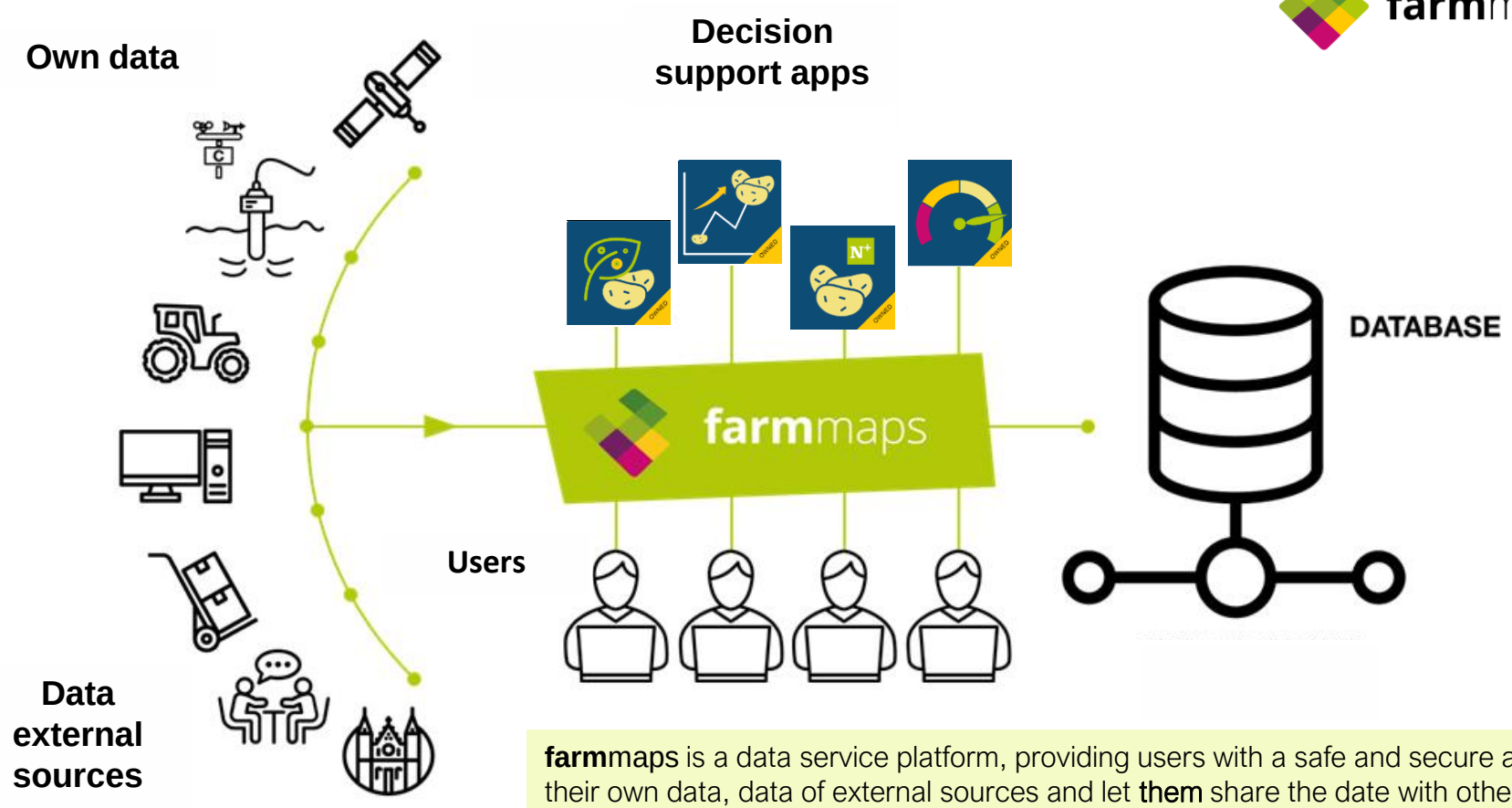


**farm**maps is a data service platform, providing users with a safe and secure access to their own data, data of external sources and let **them** share the date with others.
On **farm**maps there are decision support apps available, both from **WUR** and **third parties**; o.a. apps for timing of applications, growth models, BMA KPI's.

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# **farm**maps – type of apps

**Timing**
- Blight
- Irrigation Advice
- Crop growth models
    - Grass, Potato, etc.

**Right location / quantity**
- VRA* Planting
- VRA NBS
- VRA Haulmkilling

**Scenario studies**
- BodemCoolstof
- NDICEA

**Risk analysis**
- IMAP
- Key Performance Indicators

***VRA = Variable Rate Application**

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# **Risk analysis** - Key Performance Indicators

- Biodiversiteitsmonitor Akkerbouw KPI (BMA-KPI of BOA):
- 7 BMA-KPI's using FMIS data
  - Via Dacom / Agrovision software
  - Via manual tool on FM
- 2 BMA-KPI's using open data

- KPI's at 3 levels:
  - Farm
  - Crop
  - Field

- (Yield data (volumes))
- Nitrogen surplus
- Phosphate surplus
- Effective OM supply
- Crop protection use and impact
- Crop diversity (edge density)
- Percentage rest crops

- CropRotationIndex
- SoilCover-%

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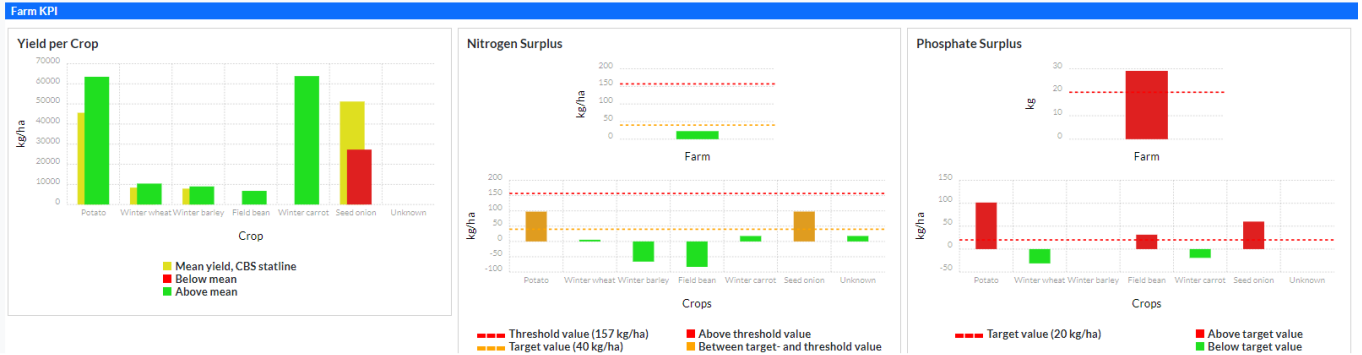
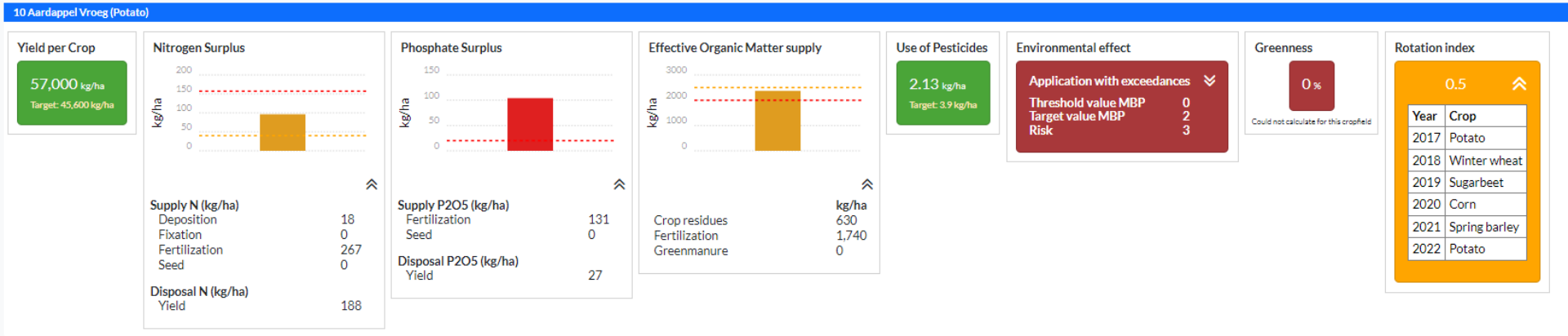
# BMA-KPI results BvdT 2022

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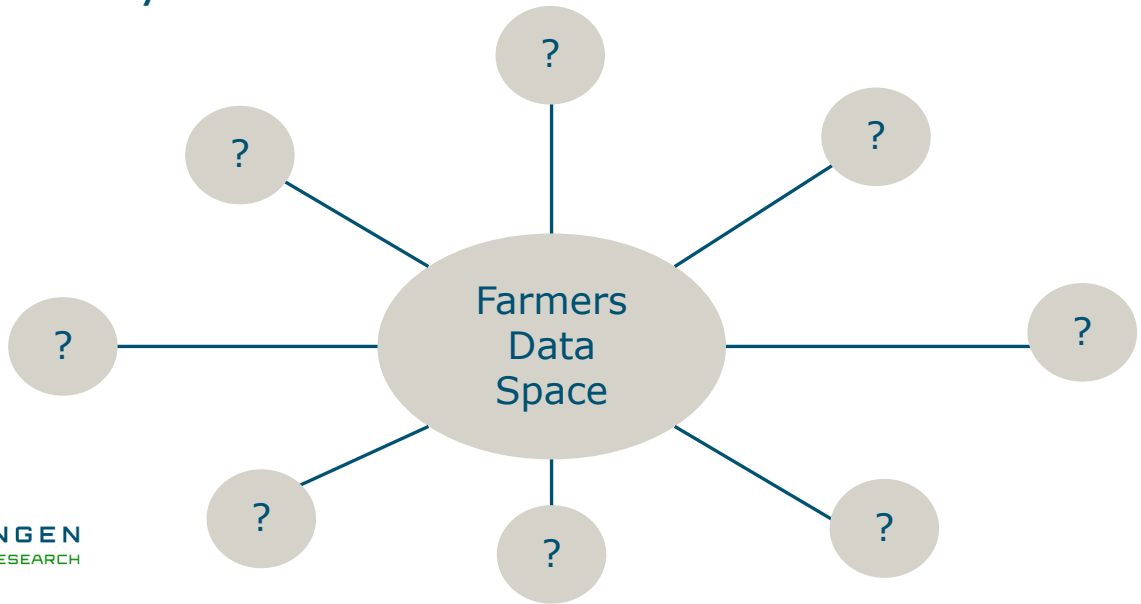
# Discussion

- Which information should the farmer have at minimum?
  Write on a yellow type of information/data source/…
- What functions should a Farmers Data Space offer to farmers?
  Write it on a yellow



# Thank you!

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