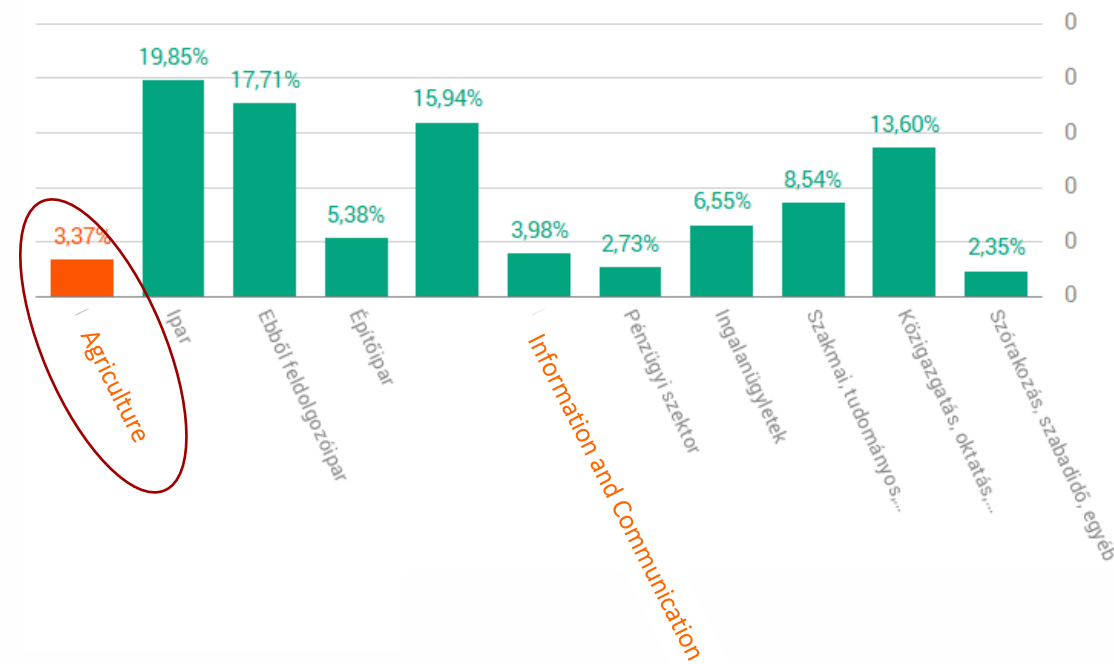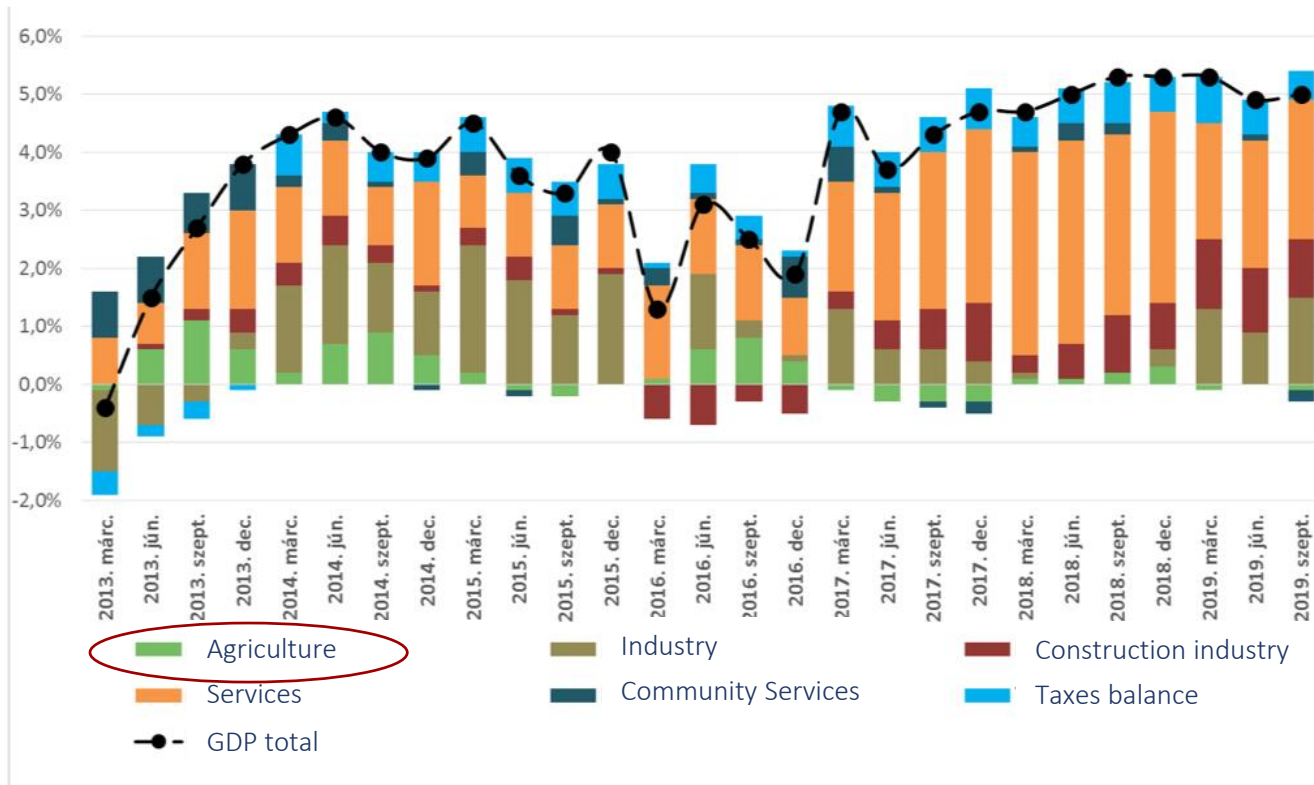# Digitalization potential
for mid-sized agro-businesses
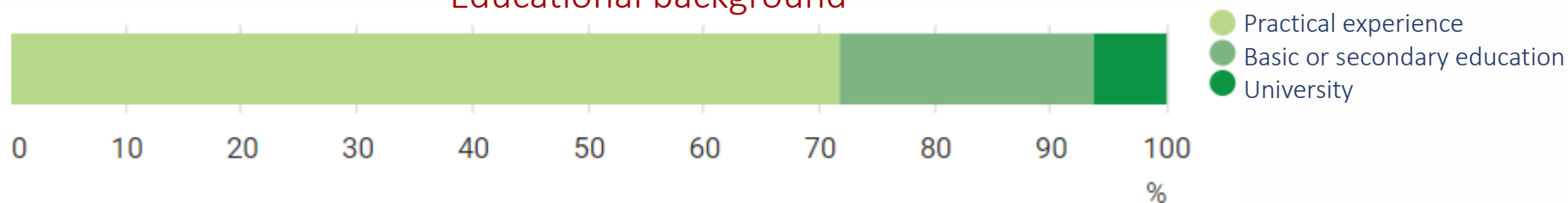
Pannon Business Network - Hungary

GDP Evolution and breakdown - Hungary

PANNON BUSINESS NETWORK
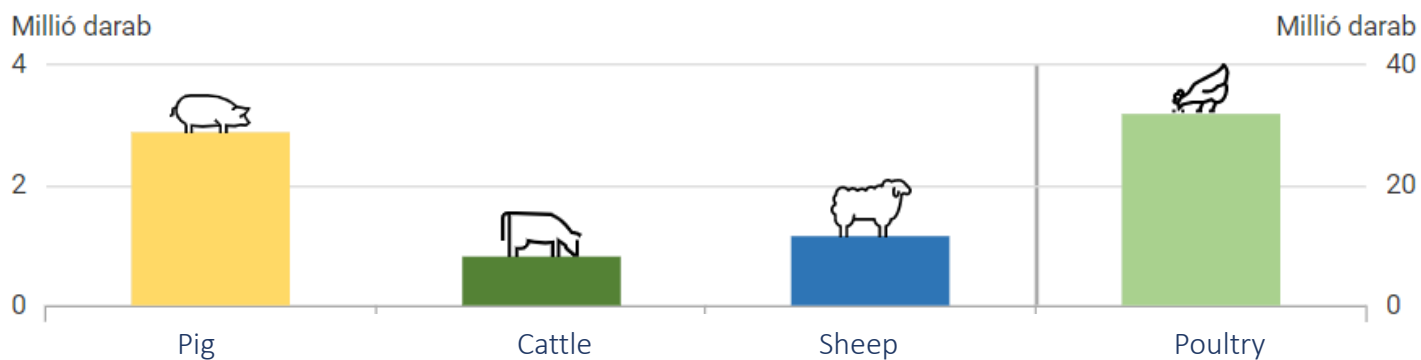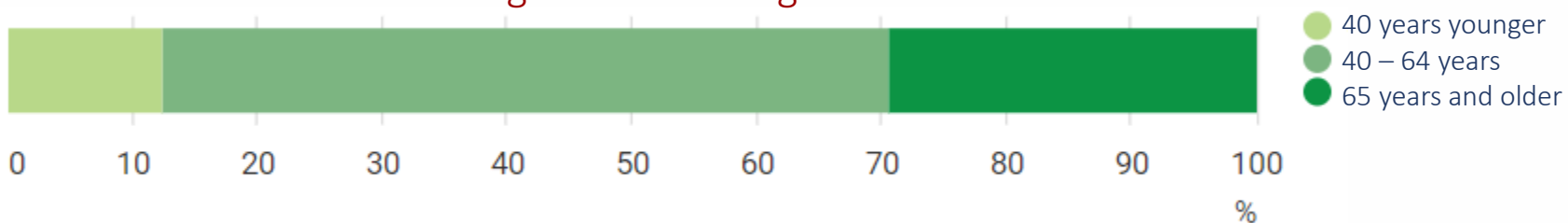advanced management

Customer Profile - Hungary

Ownership

- Own land
- Other form
- Rented

Educational background

- Practical experience
- Basic or secondary education
- University

Age of the management

- 40 years younger
- 40 – 64 years
- 65 years and older

Millió darab | Millió darab

Pig | Cattle | Sheep | Poultry
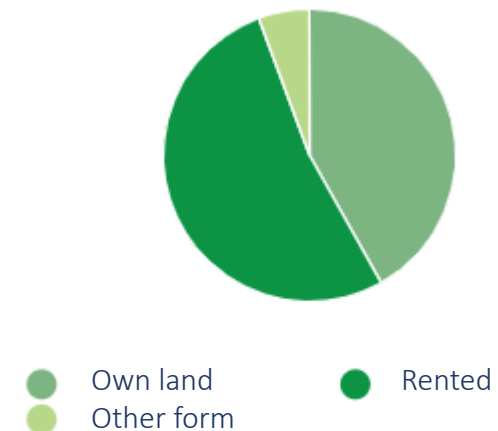
Output of the agricultural industry, EU-28, 2018
(% of total output)

Other animal products 0.7 %
Agricultural services 4.8 %
Secondary activities 3.8 %
Vegetables and horticultural plants 13.0 %
Other animals 2.2 %
Eggs 2.3 %
Poultry 5.2 %
Others 8.6 %
Cereals 11.0 %
Cattle 7.7 %
Total output EUR 434.3 bn
Crops 51.8 %
Fruits 6.8 %
Animals 39.6 %
Wine 6.2 %
Pigs 8.3 %
Forage plants 5.2 %
Milk 13.2 %
Others 0.7 %
Olive oil 1.1 %
Potatoes 2.9 %
Industrial plants 4.7 %

Note: values at basic prices.
Source: Eurostat (online data code: aact_eaa01)

eurostat

Customer Profile – Hungary vs. Western Hungary
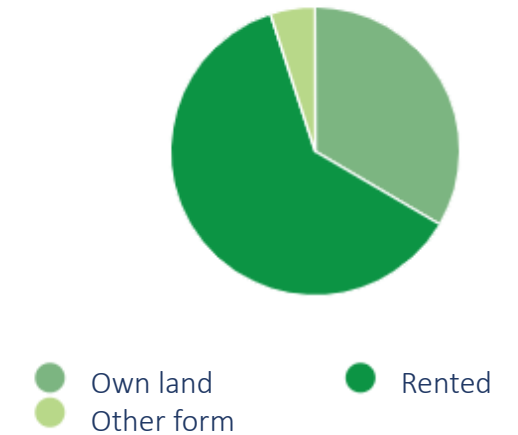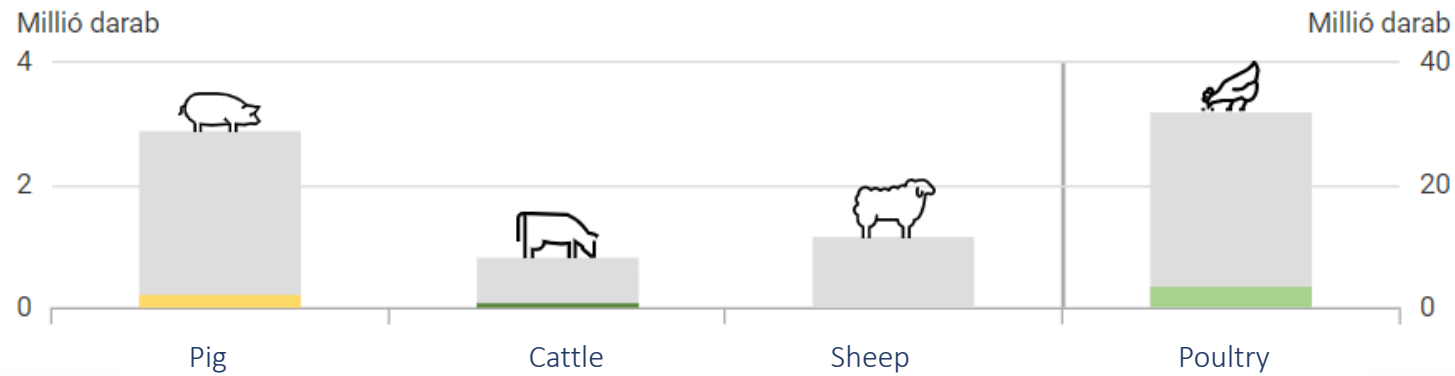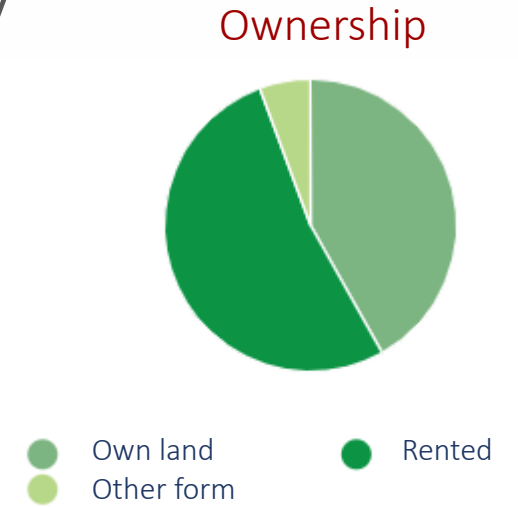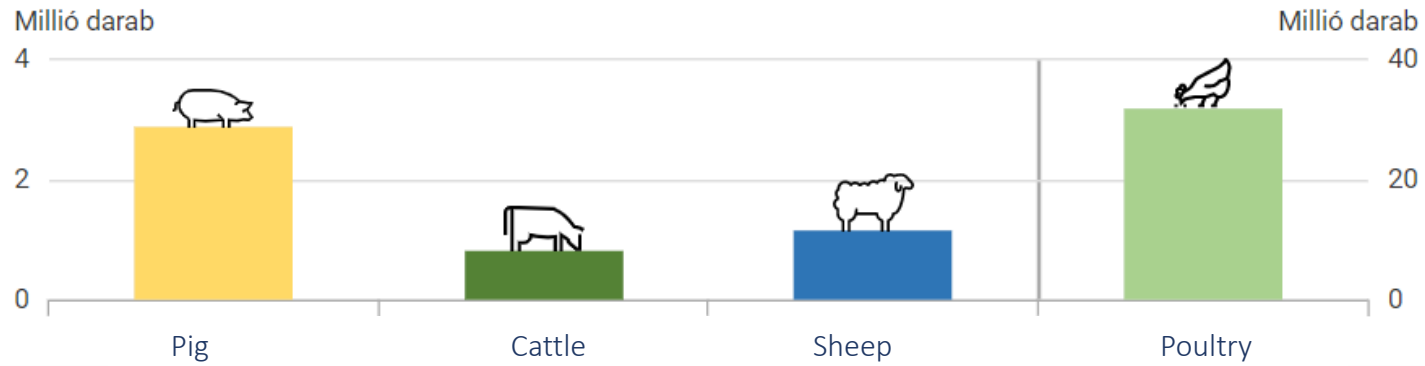
Agricultural context

Average size of land per business

Region	Average size
Central	18
South East	16
North East	16
Great Plain	15
South West	20
Central West	22
North West	21
Average	17

Net salary of full-time employees - 2019

Finance	442
ICT	415
Energy	401
Science	338
Public admin.	294
Mining	288
Processing ind.	261
Art	244
Logistics	229
Water treatm.	228
Retail	228
Education	223
Real estate	208
Administration	204
Other services	203
Agriculture	195
Catering	191
	164
	159
TOTAL	245
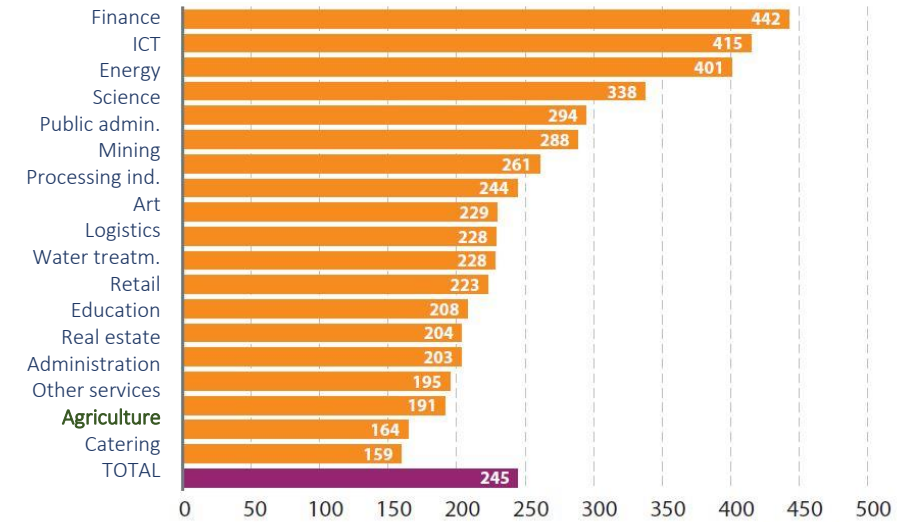
Breakdown of employment – .000 people

	1992	1996	2000	2004	2008
Services	2134.6	2112.6	2296.7	2415.0	2458.6
Industry	1431.0	1190.1	1304.0	1280.5	1246.7
Agriculture	460.1	302.4	255.5	204.9	174.1

■ Agriculture   ■ Industry   ■ Services

PANNON BUSINESS NETWORK
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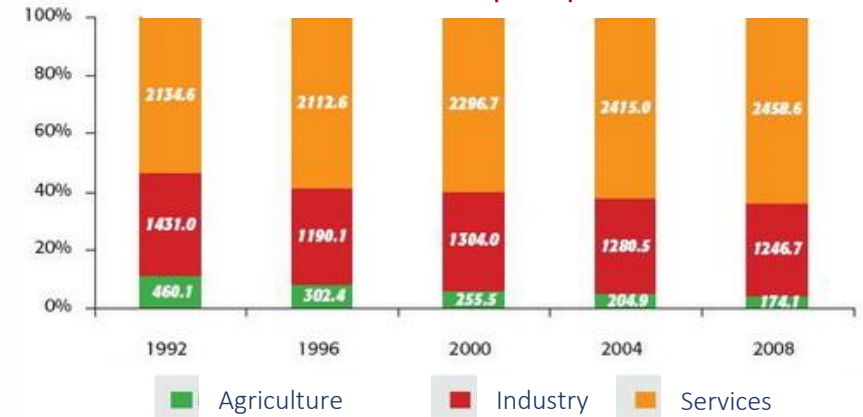
Dilemma of agricultural business digitization

Medium-sized sector missing location
Low intellectual absorption capacity
Fragmented market
Vehicle suppliers own data extensively

PBN in numbers

Western Hungary location
2006 Year of foundation as RTD organization
25 full time staff members
450+ international partners
70+ international R&D and partnership projects

200+ businesses' international study tour in 2019
200 participants at international AI conference
10 modular digitalisation curricula development
Artificial Intelligence Working Group Coordination of Danube Region
150 manufacturing companies complex development in 2019
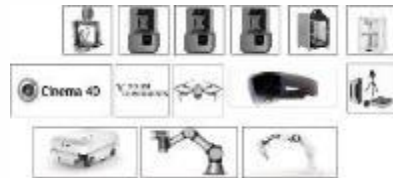4 mio € and 74 staff average client size

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PBN focus areas

Advanced management
from benchmarking analysis to AI

- Audits, analysis of companies for 300+ SMEs

- Policy recommendations

- New business models, transnational WGs

Advanced technologies
from data analytics to additive manufacturing

- Digital Innovation Hub with broad portfolio

- 50 SMEs, mid-caps trained and applied R&D annually

- International knowledge axis memberships

ROBOTICS

DATA SCIENCE/AI

AR/VR

Collaborative robotics
Mobile robotics
Drone
Industrial robotics

Control platform
Database
Sensors

Hololens1-2
Cinema4D
CGI

Drone – autonomous flight on pre-programmed route

Drone – live stream of QR codes and real-time data processing

Visualisation – real-time data collection, data display directly from sensors

AR Display – HL1-2 data display, product prototype

CoBots – simultaneous, coordinated work of various robots

CoBots – camera-based solution from organized material pool

Dataplatform – development of standard platform for device operation

3DAnimation – tailor-made developments, model building

CoBots – customized 3DPrinted grippers

Industrial Robot – industrial with collaborative functions

ML/AI algorithms – segmentation, classification on data sets

Mobile AR – leaflets, business cards

Robot ROS – program applications

Mobile robot – complex application with integration

Gamification – first game app being developed

3Dprinting – fire resistant coating, plastic recycle   **3Dscanning** - reverse engineering   **Prototype development** – idea-animation- prototype

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Client Description

10.000 hectares land for agriculture

Crop growing

60.000 tons own logistic warehousing

Export dominance to Western Europe

Own Research Institute with innovation prize

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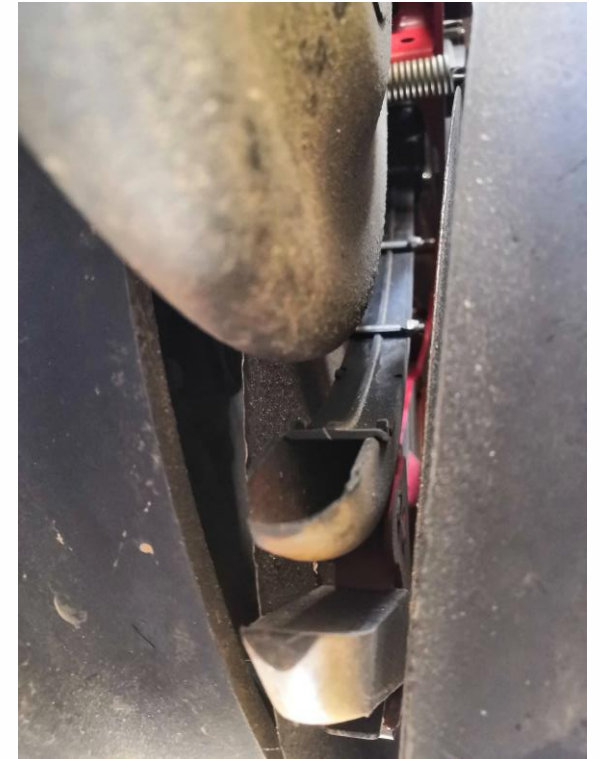
Services offered and provided to the Client

Reverse engineering and 3Dprinting for damaged parts

Challenge is the squeeze of profitability (customer + supplier sides)
Prices are dominated by large customers
Technology is growing in complexity

Damaged elements need customized, flexible replacement

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PANNON BUSINESS NETWORK
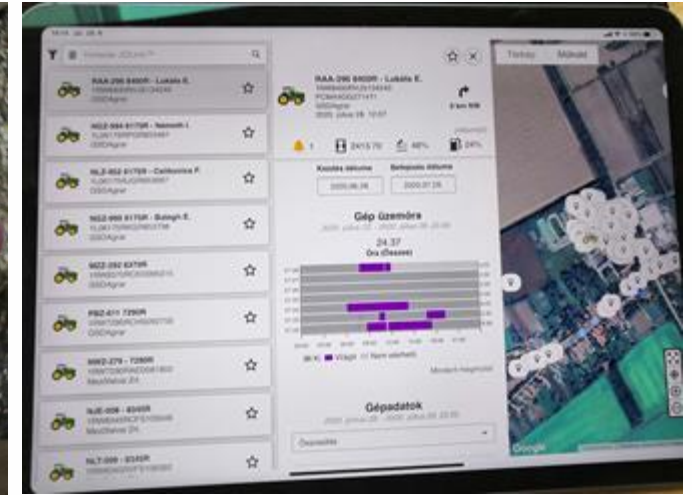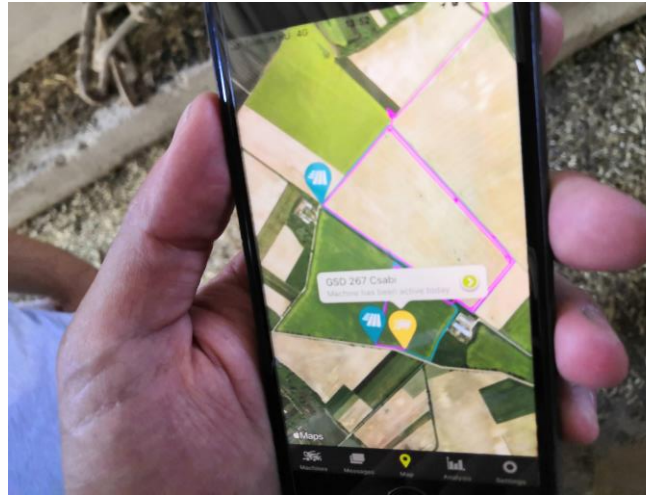advanced management

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Services offered and provided to the Client

Costs are strictly planned
Operation monitored intelligently

Different systems not integrated
Visualization is not available

Controlling functionalities
Anomalies detection
Predictive functionalities

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Thank you for your attention.

Danube S3 Cluster Team

Zsófia Kocsis
Balázs Barta