



# Dragan Turkulov



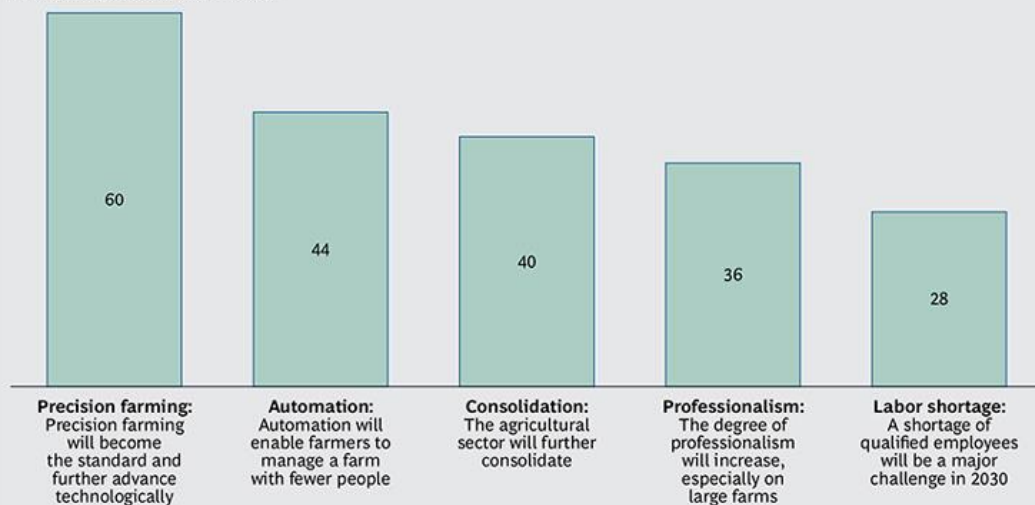
# APPLICATION FOR THE FRACTALS PROJECT

Activity	Month/Year
FRACTALS info day	November 2014
FRACTALS speed dating session	December 2014
Vojvodina Agrar – presenting the problem	December 2014
Considering the solution with experts from our partner company <b>DunavNET</b>	December 2014
Joint meetings with Vojvodina Agrar Finding solution	January 2015
Writing the proposal	February 2015
Application	February 2015
Starting with the project	June 2015

# PREDICTIONS

**EXHIBIT 3 | The Most Influential Trends Affecting Farming Practices and Structures Through 2030**

Farmers citing a trend as influential (%)

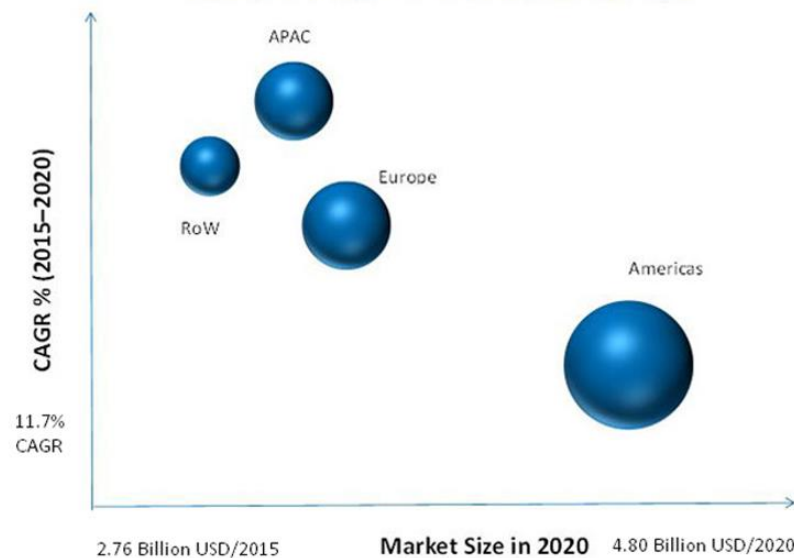


Source: BCG interviews with farmers in France, Germany, Poland, and the UK.

[www.bcgperspectives.com](http://www.bcgperspectives.com)



**Precision Farming Market Size (USD Billion), 2013–2020**

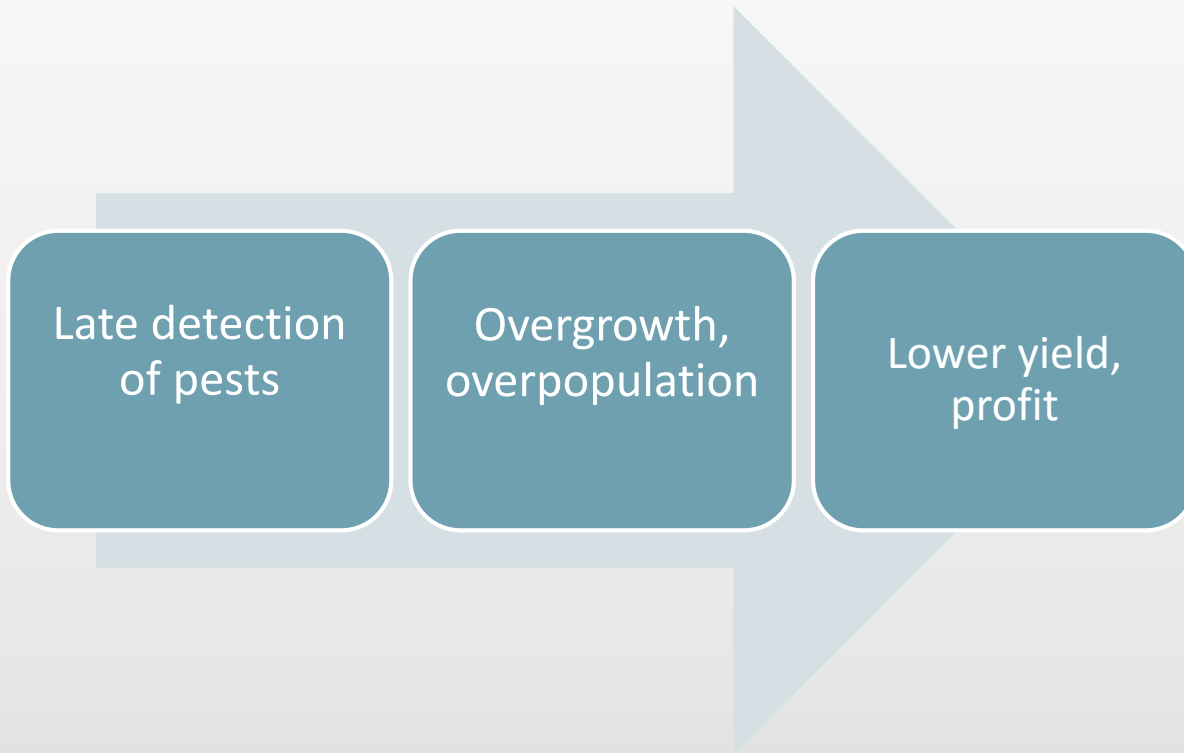


Source: MarketsandMarkets Analysis

[www.marketsandmarkets.com](http://www.marketsandmarkets.com)



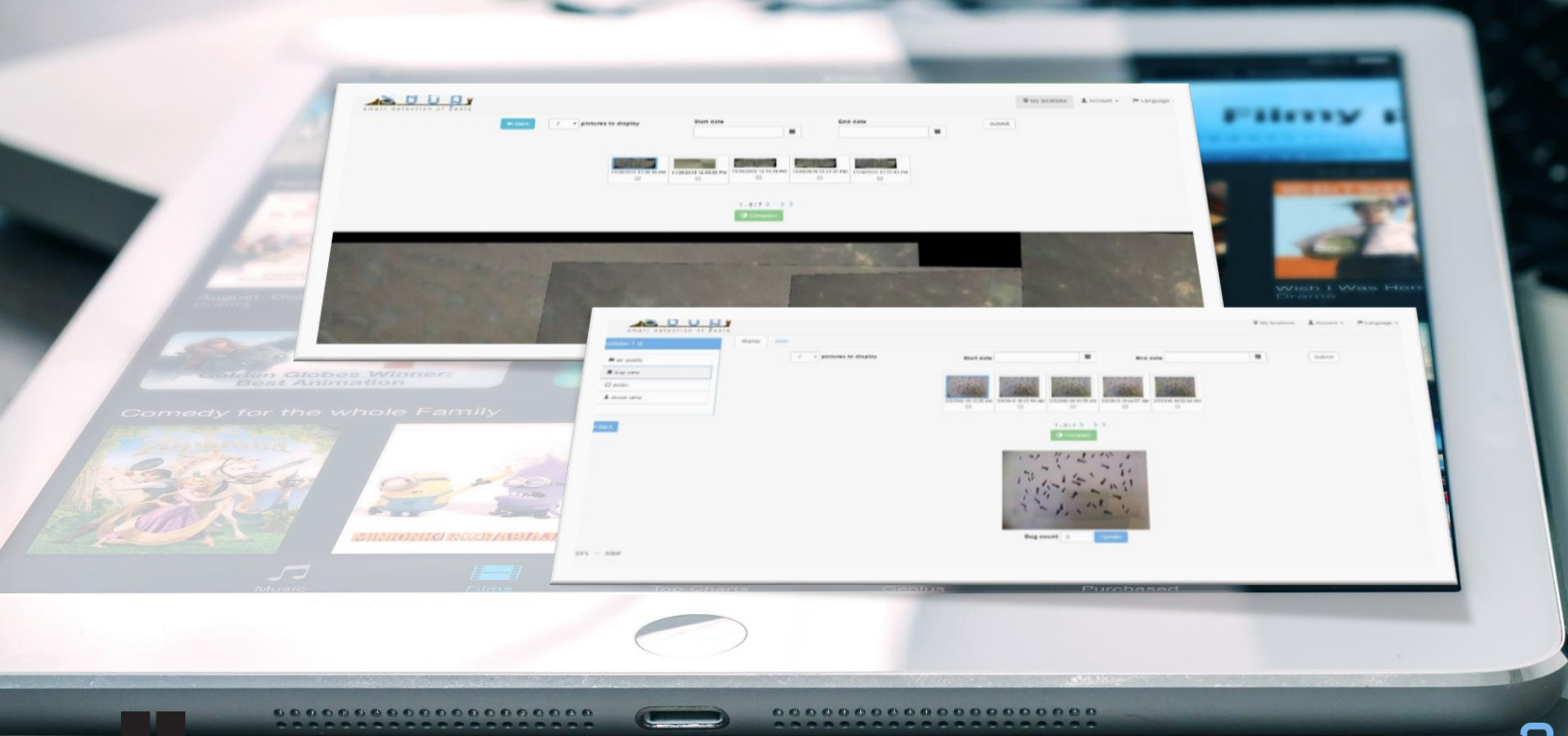
# THE PROBLEM IS...



# STEP 1 – deploy sensors



# STEP 2 – intelligent data analytics



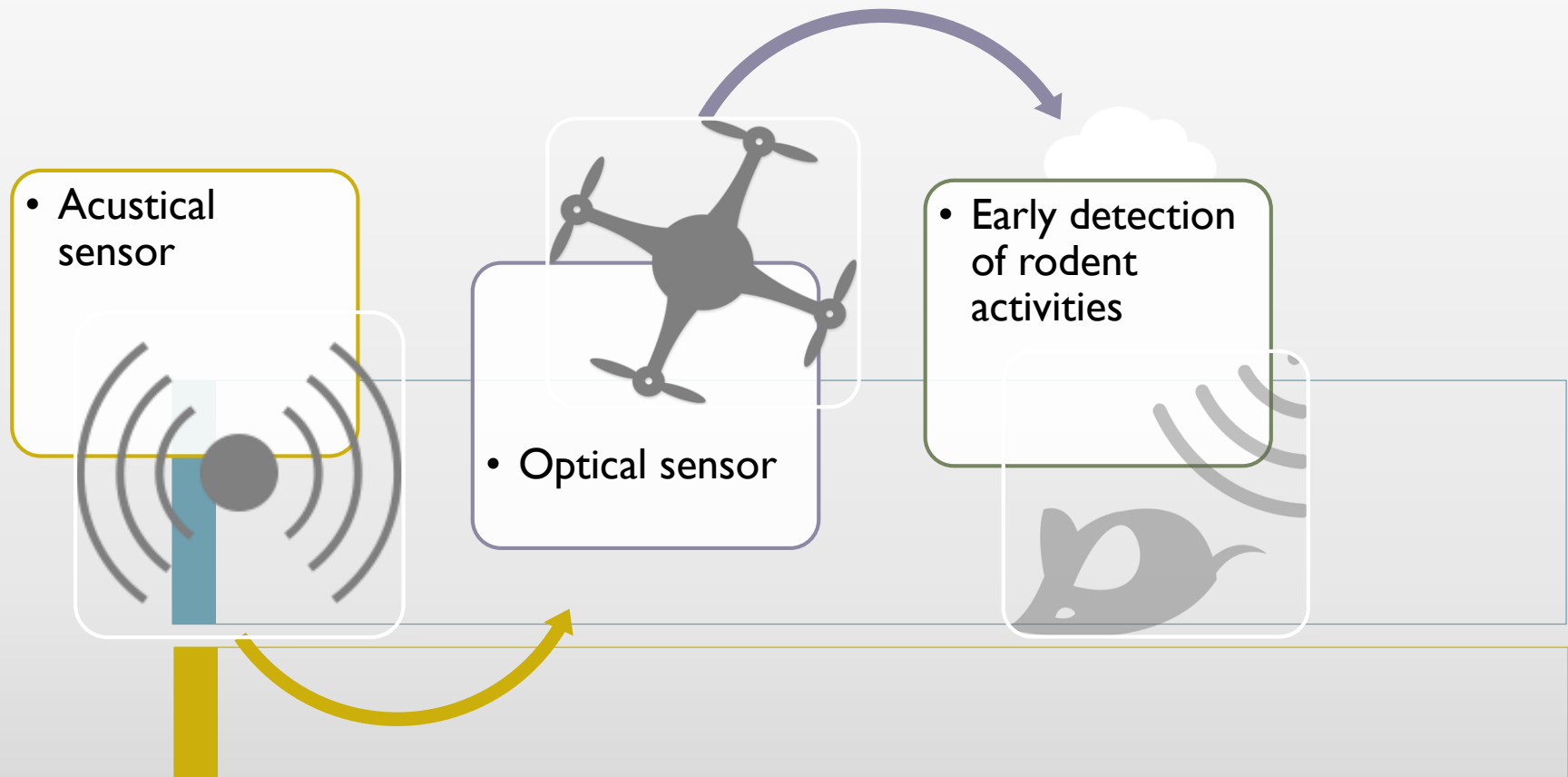
# STEP 3

## START WITH THE TREATMENT

# SERVICES

Audio

Drone View





# SERVICES

Drone View

The screenshot shows a web browser window displaying the AgroNET Drone View interface. The browser's address bar shows the URL `azure.agronet.solutions/Drone/Index`. The page features a navigation bar with the AgroNET logo, icons for Monitoring Devices, Drone, and Sound, and a PestNET dropdown menu. Below the navigation bar, there are search and filter controls, including a 'Field1' dropdown, 'From' and 'To' buttons, and a 'Search' button. A 'Choose images and compare' section with a 'Compare' button is also visible. The main content area is split into two panels. The left panel displays a large, high-resolution drone image of a green field with a distinct brown spot in the lower right quadrant. The right panel shows a vertical list of four smaller drone images, each with a timestamp: 4/7/2016 5:02:32 AM, 4/6/2016 12:29:32 PM, 3/29/2016 3:53:56 PM, and a partially visible fourth image. A large, light blue stylized leaf icon is positioned in the bottom left corner of the main content area.

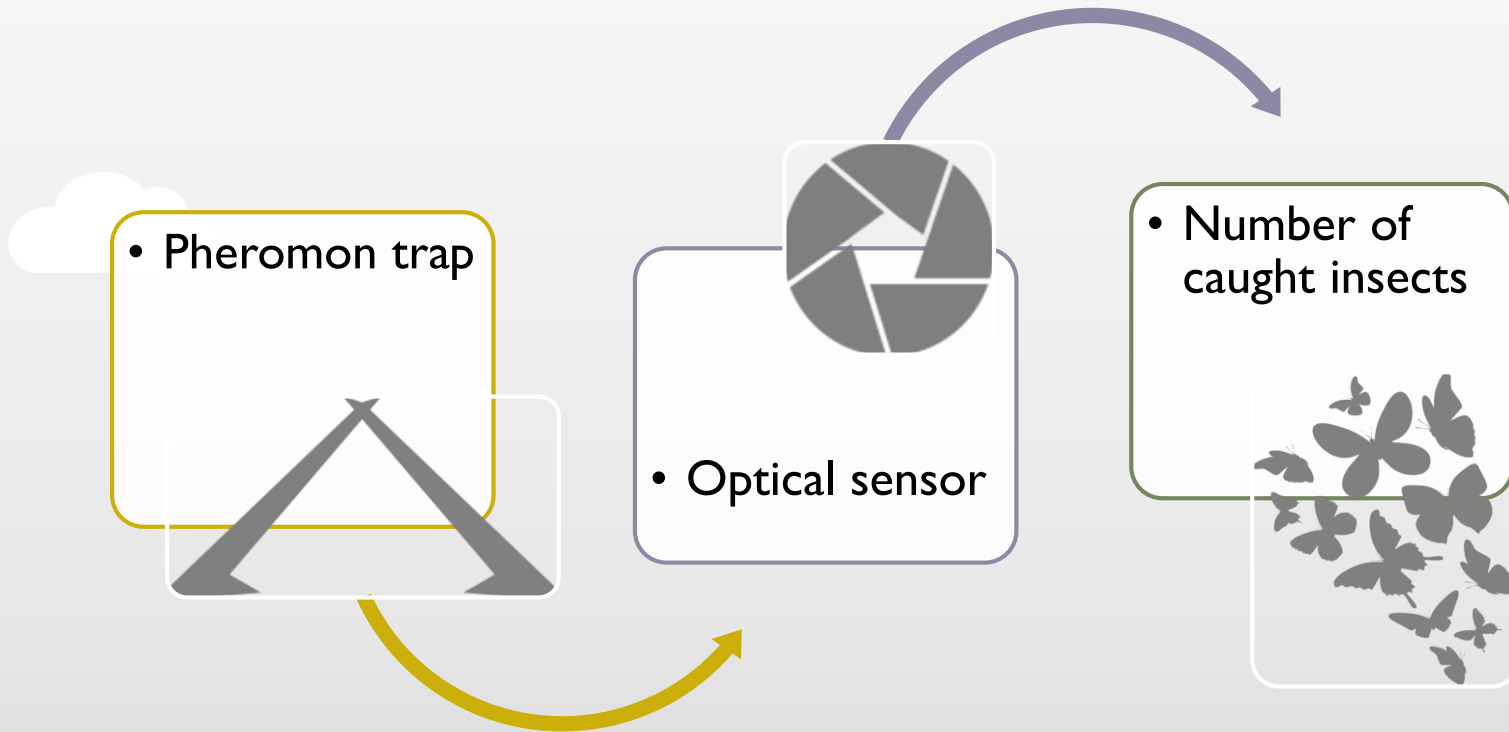
# SERVICES

Audio

The screenshot displays the AggroNET web application interface. The browser address bar shows the URL `azure.agronet.solutions/Sound/Index`. The navigation menu includes 'Monitoring Devices', 'Drone', and 'Sound'. The 'Sound' section is active, showing a search interface with a dropdown menu containing the ID '355255040959166' and buttons for 'From', 'To', and 'Search'. Below the search area, a large spectrogram visualization shows the audio data. To the right, a vertical list of four smaller spectrograms is displayed, each with a timestamp: '4/19/2016 12:55:15 PM', '4/19/2016 12:01:51 PM', '4/18/2016 1:27:47 PM', and an unlabeled one at the bottom. The interface also features the 'pesinet' logo, a language dropdown set to 'English', a 'demo' button, and a 'Log off' button. A search bar at the top right contains the text 'Choose images and compare' and a 'Compare' button.

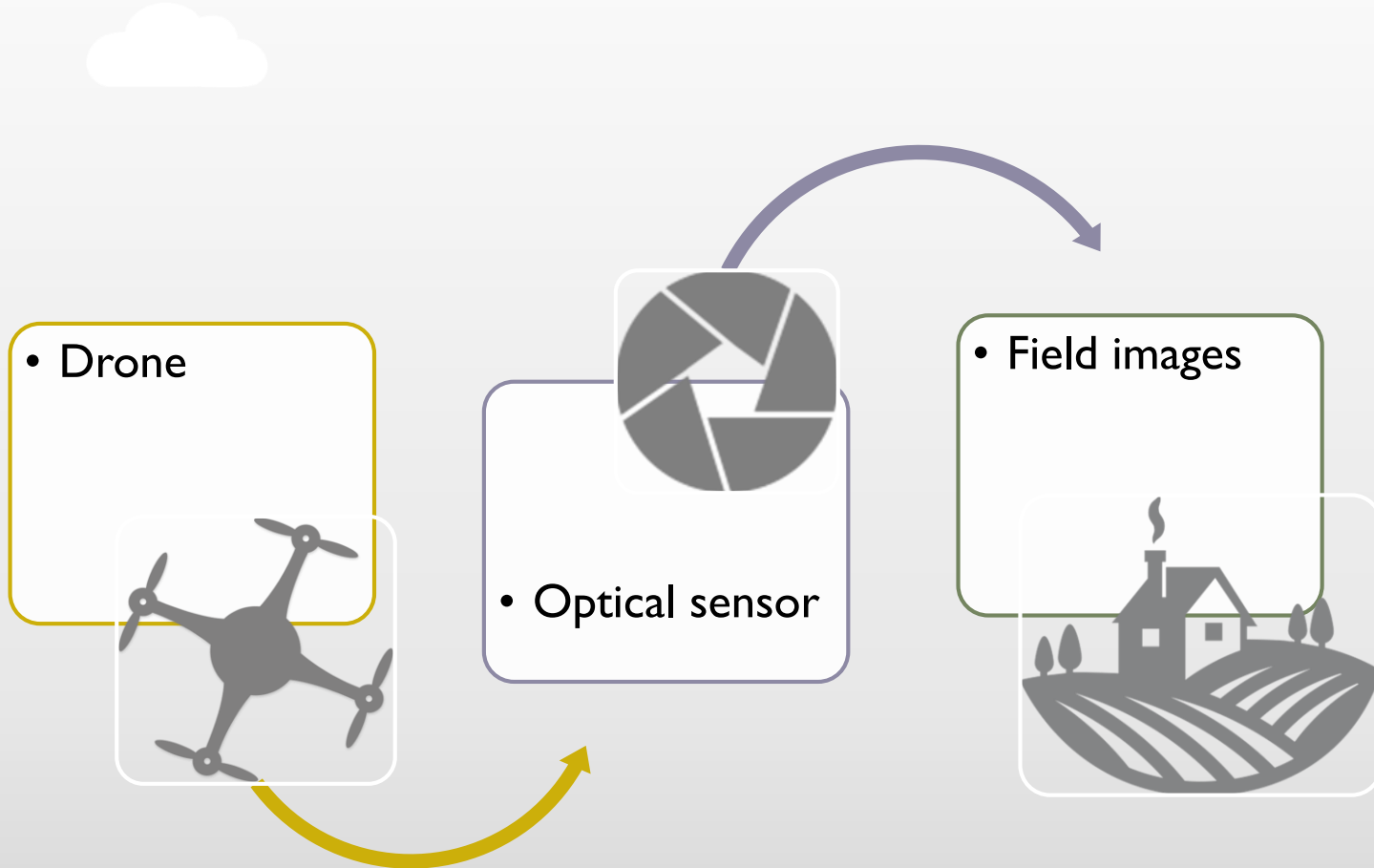
# SERVICES

Trap View



# SERVICES

✈ Drone View

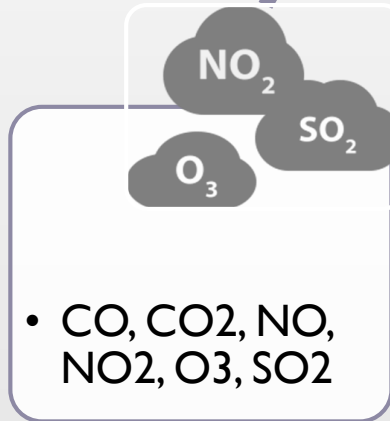


# SERVICES

 Air Quality



- Air temperature
- Air humidity
- Atmospheric pressure



•  $\text{NO}_2$

•  $\text{SO}_2$

•  $\text{O}_3$

- CO, CO<sub>2</sub>, NO, NO<sub>2</sub>, O<sub>3</sub>, SO<sub>2</sub>

- Right activities on the fields



# SERVICES



AgroNET | azure.agronet.solutions//Data/Index

Monitoring Devices | Monitoring Sites | ekoNET | English | demo | Log off

All cities | b8 27 eb 43 33 1b | Show Data | Save as CSV

Current | 1h | 24h | History

Reading time : 19.05.2016 11:16

Meteo:  Pressure  Humidity  Temperature

Time	Pressure [kpa]	Humidity [%]	Temperature [°C]	
b8 27 eb 43 33 1b	19.05.2016 11:16	1001.5	55.8	18.1

18.1 °C

Pressure: 1001.5 kpa | Humidity: 55.8%

Pollutants:  CO2  NO  NO2  O3  SO2  Noise  CO  PM1  PM2\_5  PM10

CO2 [ppm]	NO [µg/m3]	NO2 [µg/m3]	O3 [µg/m3]	SO2 [µg/m3]	Noise [dB]	CO [mg/m3]	PM1 [µg/m3]	PM2_5 [µg/m3]	PM10 [µg/m3]
b8 27 eb 43 33 1b	369.7	21.7	25.7	116.3	0.1	-	0.4	-	-

CO2: 369.7 ppm | NO: 21.7 µg/m3 | NO2: 25.7 µg/m3 | O3: 116.3 µg/m3 | SO2: 0.1 µg/m3 | Noise: - dB | CO: 0.4 mg/m3 | PM1: - µg/m3 | PM2\_5: - µg/m3 | PM10: - µg/m3

\* All data supplied are non-validated and for information only.

Level of pollution: Low | Medium | High

# CUSTOMERS

Agricultural companies and associations



# USERS

- Farmers with plant production on the open field  
Cooperative unions
- 20,000 potential paying customers in Vojvodina





ULTIMATE GOAL IS TO EXPAND GLOBALLY

# UNIQUE SPECIFICATIONS

- ▶ Monitoring fields and crops at every moment using application installed in mobile devices
- ▶ Using combined optical and acoustic detection of pests before their over multiplication
- ▶ SaaS model
- ▶ Investment in SDOP will be paid off by the reduction of pesticide and yield losses



## COMPETITORS

- ▶ High prices for renting the equipment and associated software licenses
- ▶ Utilizing static cameras pose a security threat due to simple removal and theft of such expensive equipment



# THE TEAM

- ▶ **Dr. Boris Pokrić** > 15 years in IT, PhD degree in the area of artificial intelligence and machine vision
- ▶ **Dragan Turkulov** > 15 years in designing, developing and maintaining advanced business systems.
- ▶ **Vladan Rankov** > 15 years of experience in image processing and artificial intelligence
- ▶ **Žužana Ilinčić**, agronomist
- ▶ **Milica Peričin**, sales and marketing

THANK YOU

QUESTIONS?

[www.sdop.rs](http://www.sdop.rs)