



# CELTIC-NEXT Event

10<sup>th</sup> December 2019, via WebEx



**Pitch of the Project Proposal**

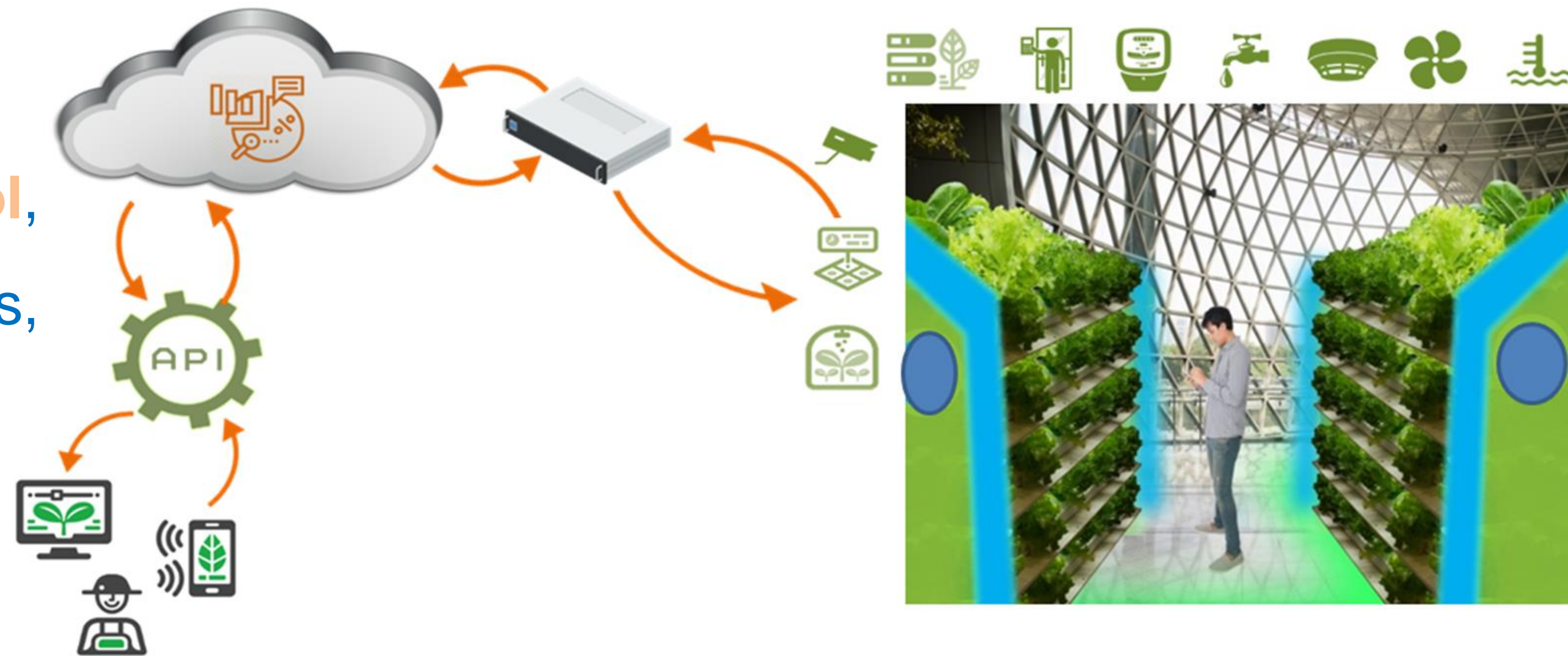
## **Sustainable Smart Automated Farming**

# KAREL

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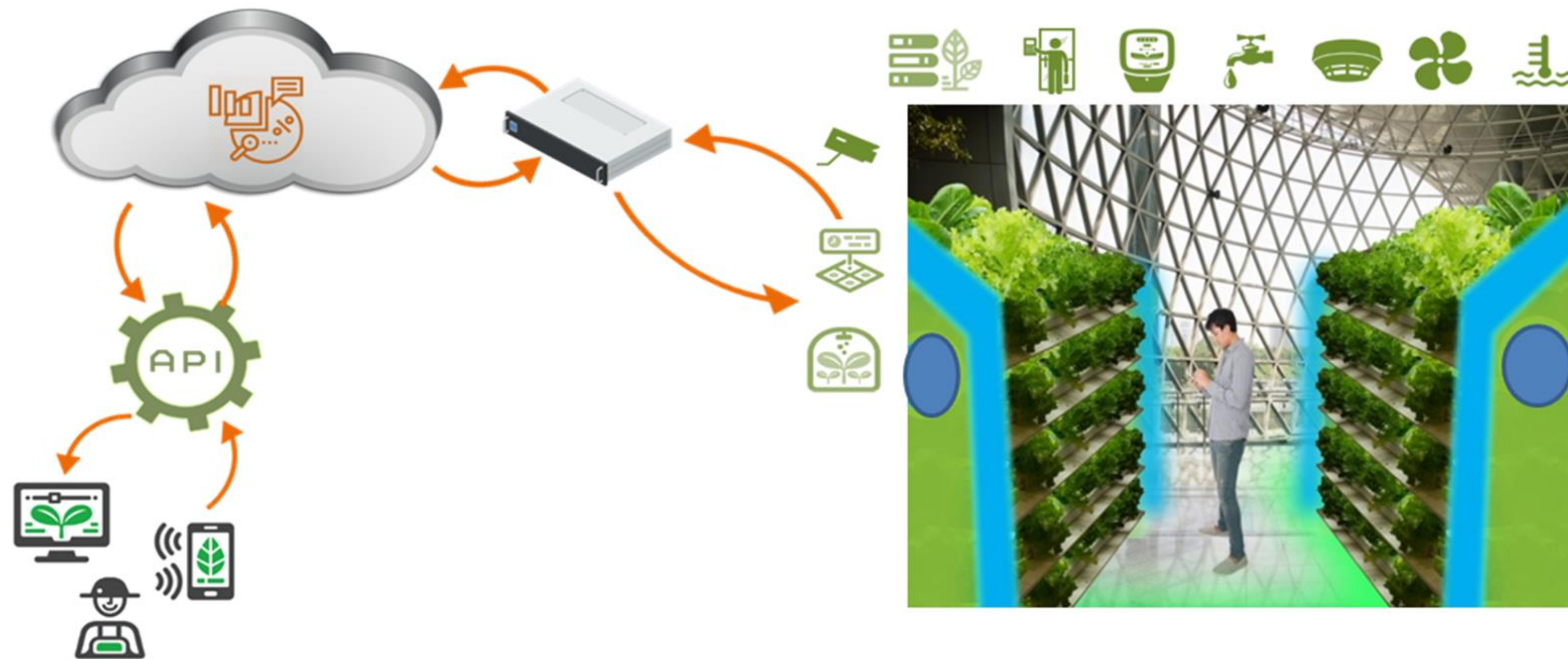
# Teaser

- **ViFARM**, automated **indoor farming** with **AI**
- Innovation:
  - sensor-based **climate control**,
  - infrared **cameras** and sensors,
  - fine measurements of **temperature, humidity**
  - **plant growth**,
  - gravity-fed drip **irrigation**..
- **Photonics**, wavelength, intensity, angle control.



# Teaser

- Smart cities
- Agriculture
- Collaborations will result in innovative smart city products



# Organisation Profile



- Karel's core business is to design and manufacture telecommunication, IoT, 5G solutions and their peripherals
- 2400 employees, 170 R&D
- 10 million boards/year
  - Local market leader in telecommunication solutions
  - 15 million users in 30 countries
  - 3rd largest PBX / IP PBX manufacturer in Europe
  - 2nd largest PBX / IP PBX brand in MEA region
  - 1st brand in TDM port shipments in MEA region

# Proposal Introduction



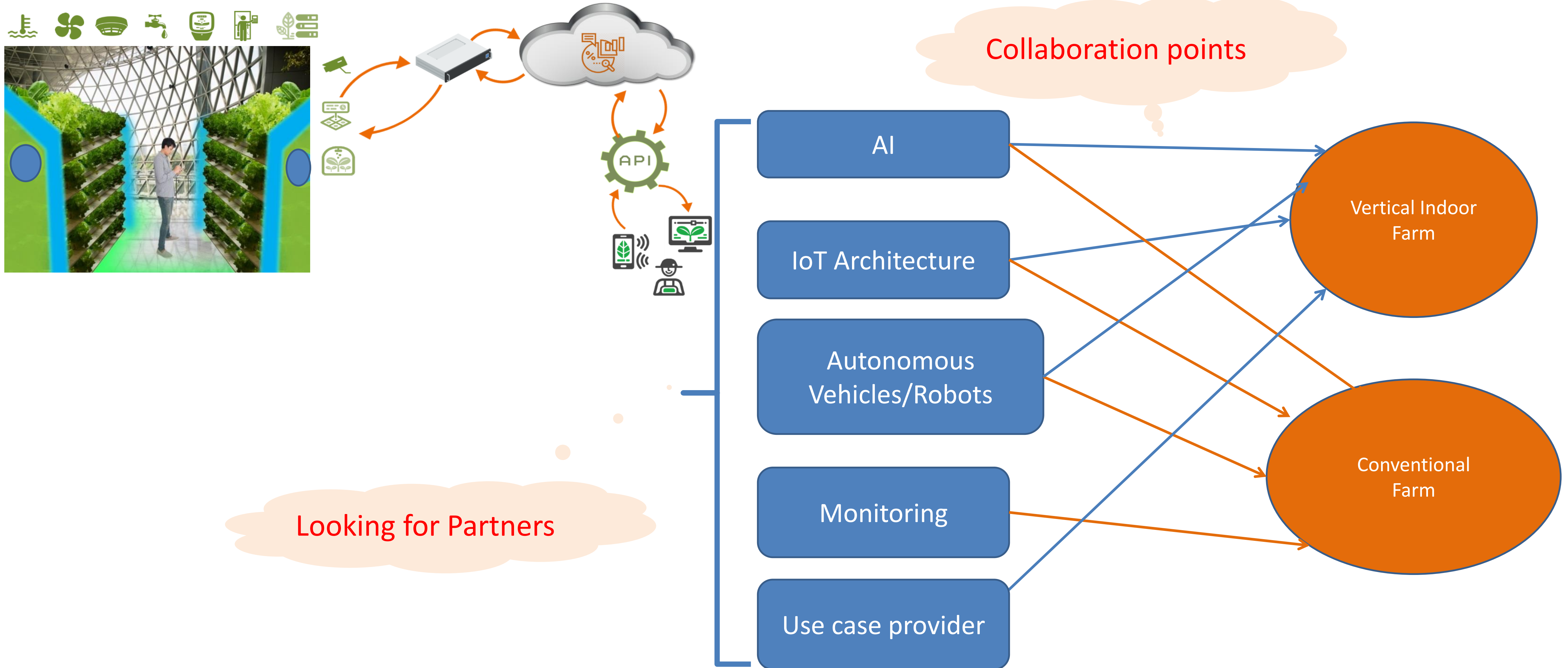
- **Vertical Indoor** and **Conventional** Farms
- Analyze **plant growth**
  - LED intensity and spectrum
- **Autonomous vehicles** for farmers
  - conventional-**tractors**/indoor **robotics**
- **Computer vision** for farmer areas
  - Conventional-**Drones**/Indoor-cameras
- **IoT framework** and visualization platform
- Plant types - **KPI** definitions
- Planting **scenarios**

# Proposal Introduction



- Framework for **cloud-based** management,
  - sensor devices
  - cameras
  - government and private subsystems (grocery stores and big market chains)
  - Automated Demand and Response (**ADR**)

# Proposal Introduction



# Proposal Introduction



CELTIC-NEXT  
Next Generation Telecommunications

- **Outcome:**
  - Monitor **light, water** and **additives**
  - Monitor **growth** of the plant from seed stage till **maturation**
- Sample installations.
  - **tomato plant** in closed area
  - **vineyard**
- Algorithms
- Data visualization, monitoring the system
- The light usage analysis (the flux and angle of light)
- Project duration: **28 months** with **7 work packages**



# Partners



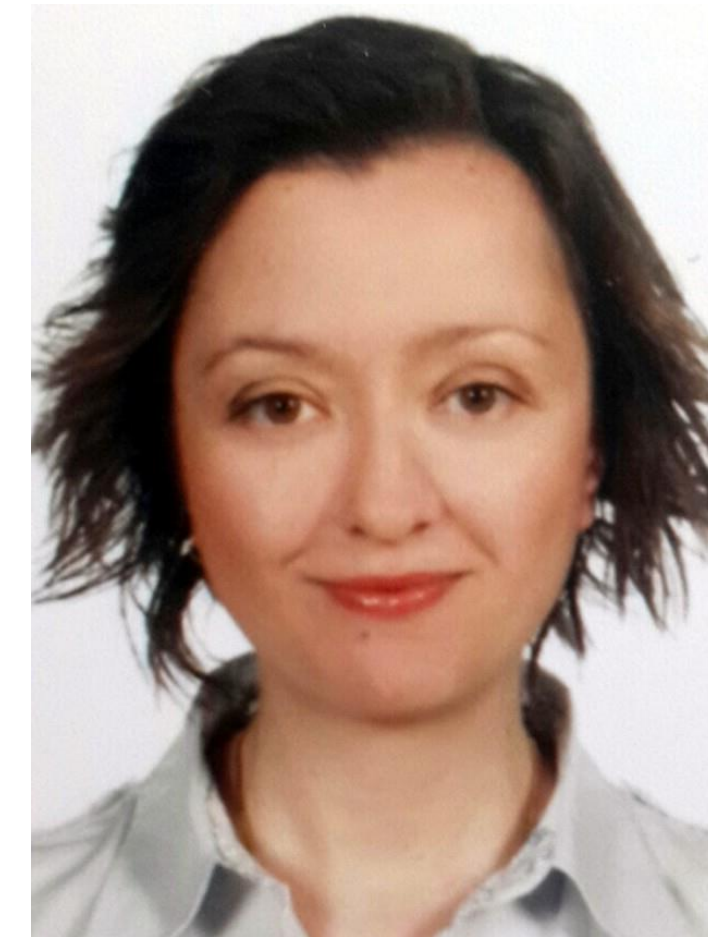
- Partners in the project will produce
  - **sensor** equipment,
  - **computer vision**
  - **artificial** intelligence
  - **energy efficiency**, energy **harvesting**
  - researches on effect of **light**
- Formerly contacted with partners from **Turkey**, **Spain**, **Finland**, **Portugal** and **Romania**

# Contact Info



**For more information and for interest to participate please contact:**

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**Presentation available via:**

