Company Overview

Future Intelligence

Theocharis Moysiadis,
Business Architect

March 2023

www.f-in.eu

Offers **IoT** sensor & actuator **controllers** and **turnkey** solutions for the **Digital Transformation** of **Infrastructure and Agrifood domains**

www.f-in.eu

Company Details

- Founded by 3 Telecom/IS Engineers in **2009**
- Based on **pure organic growth**
- Presence in **3 countries**
- Founding member of **2 Digital Hubs and**

  1 Competence Centers
- **5 complete products Series & 1 production line**
- **31** people
- 36 average age
- 42+ completed RnD projects
- **2500+** deployed and managed sensors/devices

FINoT SENSE

QUHOMA
POWERED BY FIWARE
FUTURE INTELLIGENCE

FINoT PLATFORM

Hellenic FIWARE iHub

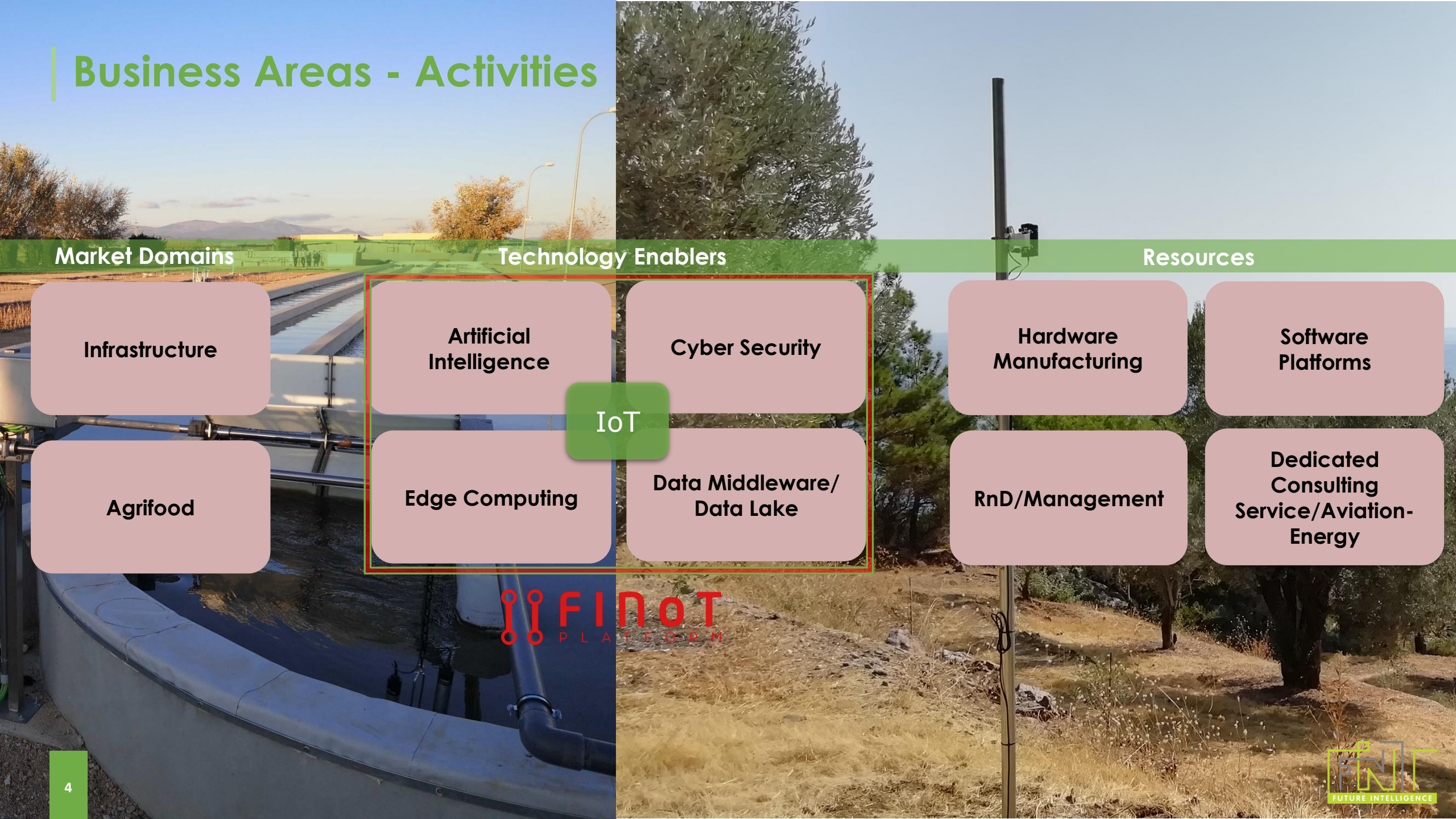
ahedd.
Digital Innovation Hub

TUV AUSTRIA HELLAS
EN ISO 9001:2015
No. : 0116100061716

ATHENS • LONDON • LIMASSOL • IOANNINA • HERAKLION

FUTURE INTELLIGENCE

Business Areas - Activities



Market Domains

- Infrastructure
- Agrifood

Technology Enablers

- Artificial Intelligence
- Cyber Security
- IoT
- Edge Computing
- Data Middleware/ Data Lake

Resources

- Hardware Manufacturing
- Software Platforms
- RnD/Management
- Dedicated Consulting Service/Aviation-Energy

FINOT PLATFORM

FUTURE INTELLIGENCE

INFR

Partners - Customers

TERNA ENERGY
GEK TERNA GROUP

MYTILINEOS

ΘΕΜΕΛΗ ΑΕ
ΘΕΜΟΣ | ΘΕΡΜΗΣ | THEMELI CONSTRUCTI | ΚΑΛΑΜΙ

ΔΕΝΤΑ
ΤΕΧΝΙΚΗ
ΟΜΙΛΟΣ ΕΤΑΙΡΕΙΩΝ

kIEFER

acciona

AIRBUS

software AG

intrakat

JASPER
Energy Renewable

EGNATIA ODOS S.A.

PORT
AUTHORITY
ALEXANDROUPOLIS

St.
LUKE'S
HOSPITAL

HILL
Hill International

DF
GROUP

HELLENIC MEDITERRANEAN UNIVERSITY

UNIVERSITY OF THE AEGEAN

National Technical
University of Athens

CERTH
CENTRE FOR
RESEARCH &
TECHNOLOGY-HELLAS

ΔΗΜΟΚΡΙΤΟΣ
National Centre for Scientific
Research "Demokritos"

ITE
ΙΔΡΥΜΑ ΤΕΧΝΟΛΟΓΙΑΣ ΚΑΙ ΕΡΕΥΝΑΣ

FUTURE INTELLIGENCE

AGRI

Partners - Customers

GS1 Germany

ΣΕΒΤ

ΓΕΩΠΟΝΙΚΟ ΠΑΝΕΠΙΣΤΗΜΙΟ ΑΘΗΝΩΝ
AGRICULTURAL UNIVERSITY OF ATHENS

GS1 Association Greece

PLEDGER
Digital Skills and Jobs Coalition

ΑΜΕΡΙΚΑΝΙΚΗ ΓΕΩΡΓΙΚΗ ΣΧΟΛΗ
Θεσσαλονίκης

ΚΥΠΡΙΑΚΗ ΔΗΜΟΚΡΑΤΙΑ
Ινστιτούτο Γεωργικών Ερευνών
Υπουργείο Γεωργίας, Αγροτικής Ανάπτυξης και Περιβάλλοντος

ΑΡΙΣΤΟΤΕΛΕΙΟ ΠΑΝΕΠΙΣΤΗΜΙΟ ΘΕΣΣΑΛΟΝΙΚΗΣ

ΔΟΕΠΕΛ
Εθνική Διεπαγγελματική Οργάνωση Επιτραπέζιας Ελιάς

Elia
olive quality center

GREEK BIO-ECONOMY FORUM

ΜΠΕΝΑΚΕΙΟ ΦΥΤΟΠΑΘΟΛΟΓΙΚΟ ΙΝΣΤΙΤΟΥΤΟ

ΠΕΜΕΤΕ

αγροτεχνική
26320 24056
Κεφαλόβρυσο Μεσολογγίου

ΑΓΡΟΣΤΗΡΙΞΗ

ΑΓΡΟΤΙΚΟΣ ΣΥΝΕΤΑΙΡΙΣΜΟΣ ΤΥΜΠΑΚΙΟΥ

Απόστολος Μπίλλης
ΘΕΡΜΟΚΗΠΙΑ

vatsiko

TAYGETOS HERBS

FUTURE INTELLIGENCE

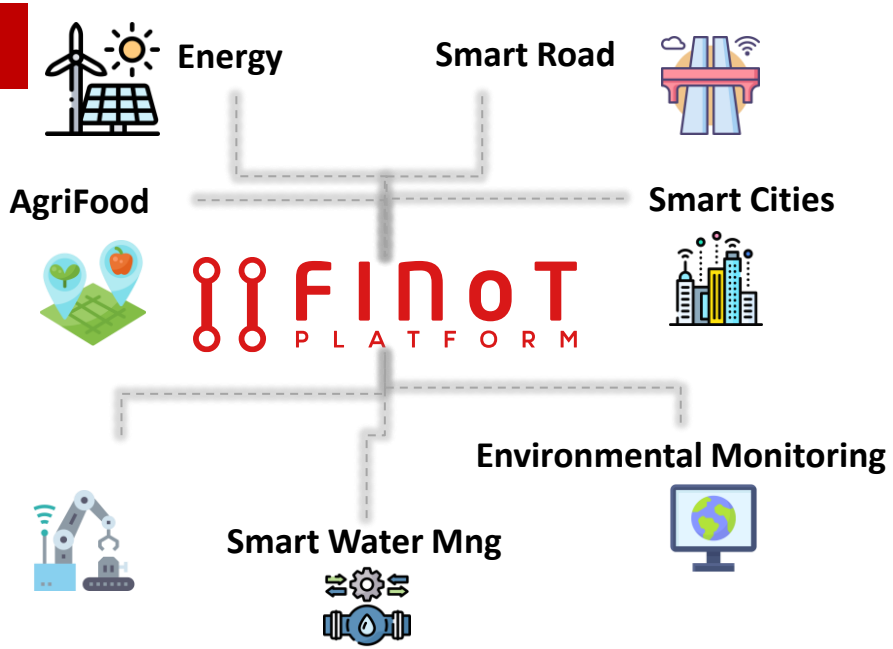
Deployments

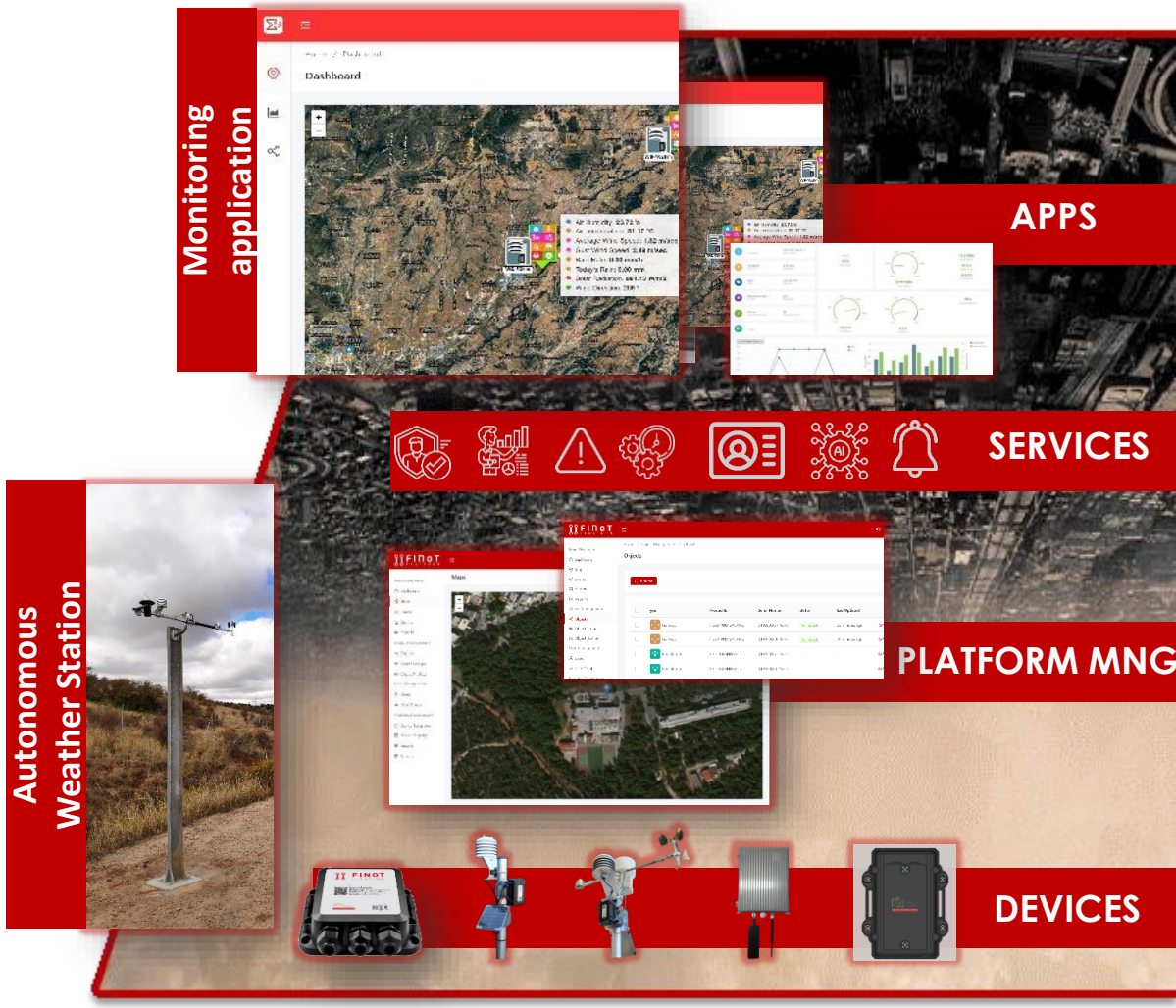
FINoT Platform

FINoT® Platform is an end-2-end IoT and Data Ecosystem

for remotely located devices Interconnection and Intelligent data management, supporting various data sources and application types

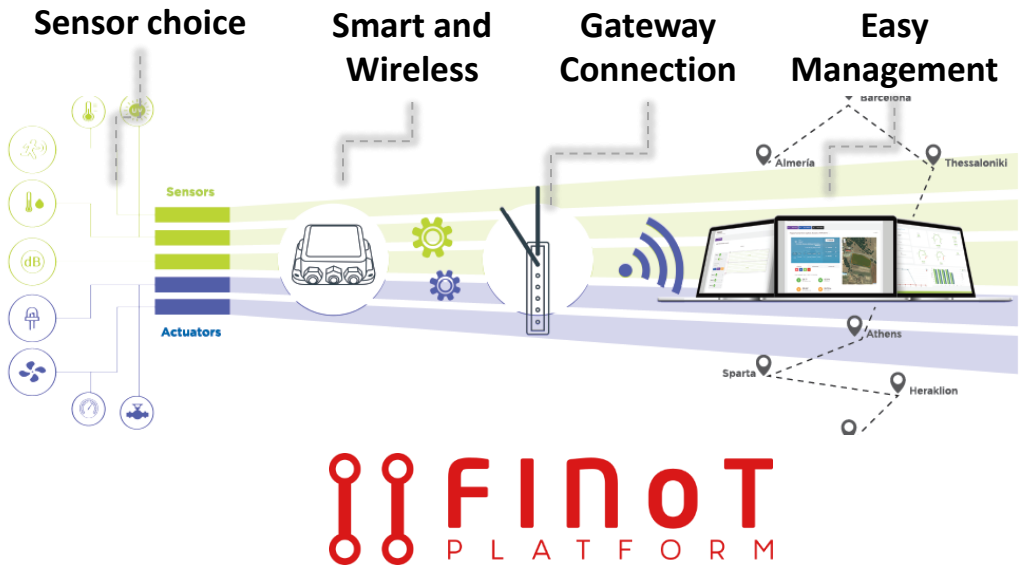
Applications





FINoT Platform

FINoT ® Platform is fully compatible **with FIWARE** providing great **interoperability** features



Benefits:

Easy Integration of 3rd party devices, applications, features,
Adaptable (new services, new components),
Expandable,
Ease of New Applications Creation,
Highly Interoperable, Customisation.

FIWARE

Hellenic FIWARE iHub

FIWARE Open Source technology is used for developing **Smart Solutions, Digital Twins and Data Spaces** in several domains of **digital transformation** *fiware.org*

Hellenic FIWARE iHub is an official FIWARE **Dissemination, Training, Validation and Market Center** for interoperable, open-source based digital twins across EU *fiwareihub.gr*

FUTURE INTELLIGENCE

Lighthouse solution

QUHOMA: A smart farming solution

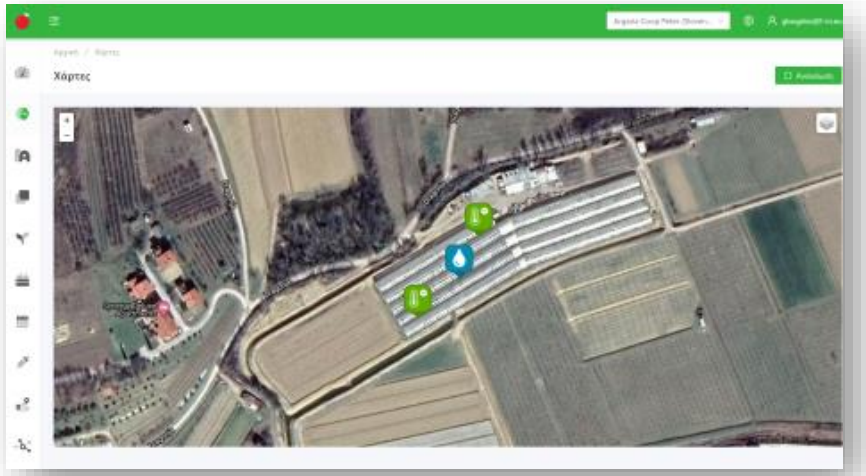
QUHOMA POWERED BY FIWARE
FUTURE INTELLIGENCE

QUHOMA is the only **commercial open-source** (FIWARE) and **native IoT digital agriculture** solution built in Greece

- Air and Soil Condition sensors
- Special designed monitoring software
- User-friendly Graphic representation of data
- Digital farm calendar
- Data Services and Analytics
- Remote control of Irrigation
- Easy data extraction
- Interoperability with other on field systems

FIWARE

Hellenic FIWARE iHub



FUTURE INTELLIGENCE

PRODUCT

| FINoT® Weather Stations

Weather Stations

Short description:

FINoT Weather Station offers a complete solution for monitoring and acquiring real-time agroenvironmental/ weather data.

Implemented based on WMO recommended measurement practices, it enables an accurate weather overview using high-quality sensors that can withstand the most challenging conditions.

It stands out for its small size, flexibility and autonomous operation without the need for a separate power supply.

Fully customizable (various versions available).

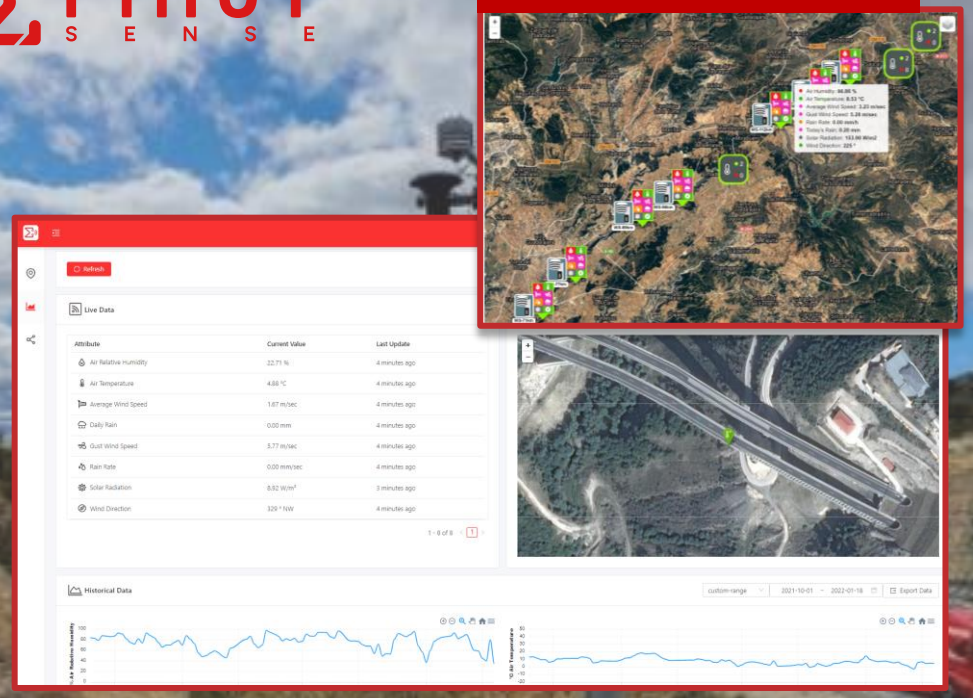
Easy integration of air pollutant measuring sensors. Integrates with other devices/apps.

1. **Relevant humidity**
2. **Air Temperature**
3. **Solar Radiation**
4. **Rain gauge**
5. **Wind Speed and Direction**

Hybrid communication: NB-IoT, 6LoWPAN

FINoT SENSE

Motorways Monitoring



Cloud software for data storage, simple web and mobile interface

Markets:

Cities, Regions, Green Ports, Hospitals/Schools, Marinas, RES parks

Advantages:

Industrial Design, low-cost, close to zero maintenance/deployment cost, modern data analysis, data interoperability

Indicative projects

MOUNTAIN BERRIES PITSILIA

KTIMATSELEPOS

TAYGETOS HERBS

AGRO MARATHON

FRUTAS φυσικός χυμός

EGNATIA ODOS S.A.

UNIVERSITY OF THE AEGEAN

acciona

FINT FUTURE INTELLIGENCE

PRODUCT

| FINoT® Custom Stations

CO FRESH

Custom Stations

Short description:

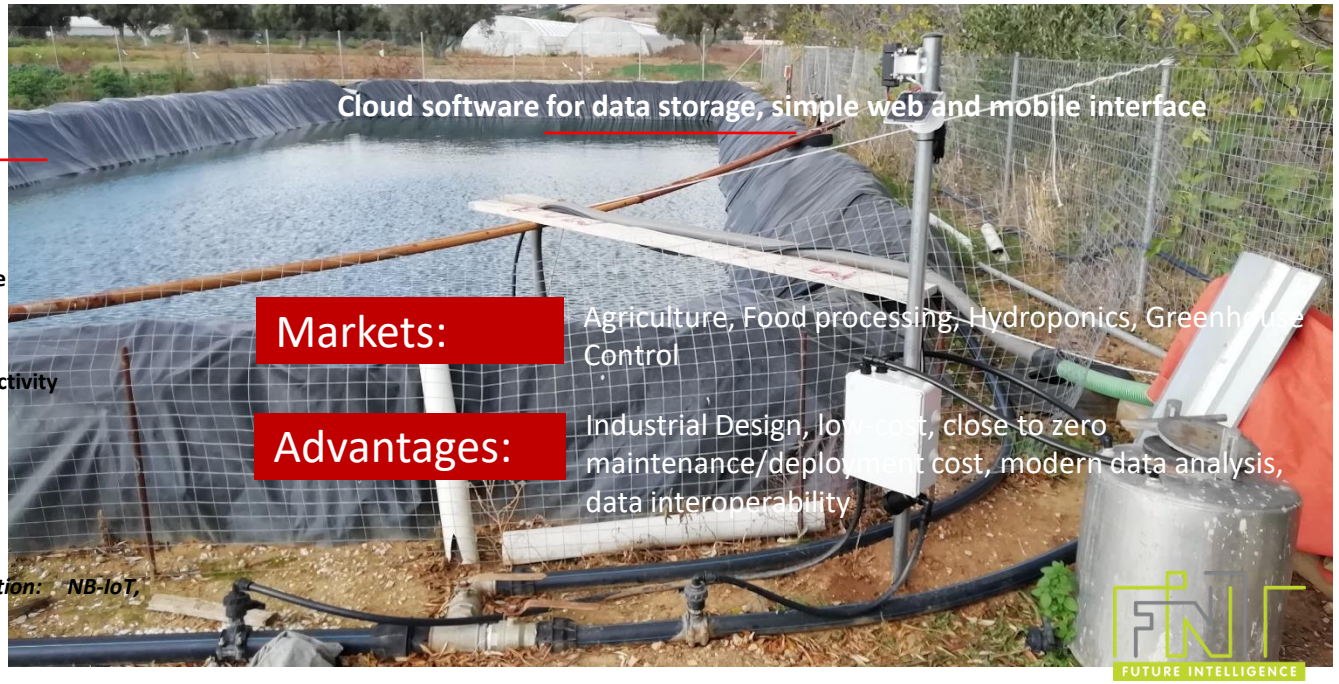
FINoT Microclimate Stations, FINoT Liquid Monitoring station, FINoT Soil Monitoring Station and FINoT dedicated controllers (e.g. Clima, Lighting) are powerful industrial-like IoT devices that interface with various sensors and actuators offering real-time conditions' monitoring.

Due to the private cloud implementation, data feed multiple stakeholders respecting different actors' responsibilities and operators' needs.

Flexibility in user needs, expandability and scalability and ease of access are our unique selling points. Moreover, test-before-invest schemes are in place along with various co-design methodologies.

1. **Soil moisture**
2. **Soil temperature**
3. **CO2**
4. **Electrical Conductivity**
5. **pH**
6. **.....**

Hybrid communication: NB-IoT, 6LoWPAN



Indicative projects

STAMNA OLIVES
QUALITY HAS A NAME

VARDAKIS FARM
Est. 1983

ΑΔΕΛΦΟΙ ΚΑΝΔΑΟΥΡΙΔΗ
ΑΓΡΟΣ

PRODUCT

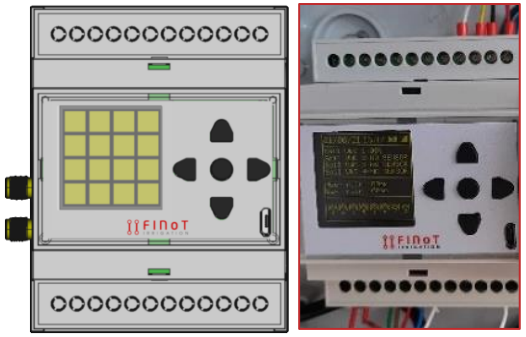
| FINoT® Irrigation

Irrigation Controller

<u>Short description:</u>

FINoT irrigation offers a complete solution for the remote management of drip irrigation systems in green spaces in rural areas.

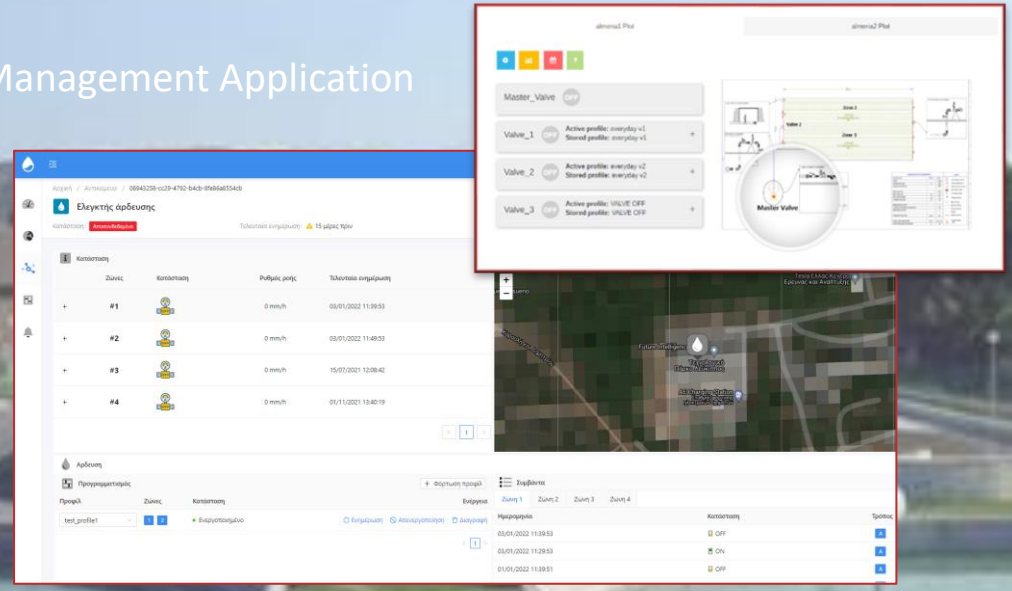
It provides 3 different levels of intelligent irrigation water management through remote commands, programming, semi-automatic irrigation and fully automatic (with the inclusion of a local weather station).



1. **8 Zones**
2. **Soil moisture**
3. **Flow meter**
4. **Rain gauge**

Hybrid communication: NB-IoT, 6LoWPAN

Management Application



Cloud software for data storage, simple web and mobile interface

Markets: Green Spaces, Hotels, Vertical Gardens, Campuses

Advantages: No maintenance cost, Resource Efficiency (Labour, Water Energy, etc)

Projects

aqualia

Agricultural Research Institute

DEMOKRITOS

FINoT® Edge Industrial IoT

Short description:

A powerful gateway device that gets PLC/ SCADA system data and transmits them over the Internet. From there, all heterogeneous data from the various production systems are aggregated by a Cloud-based Monitoring and Evaluation platform.

Data are then associated with attributes and contextualized with values set by user-inserted thresholds (e.g. alarms or notifications).

IIoT Edge Gateway

1. **Various communication interfaces**
2. **VPN connectivity**
3. **Supports open industrial protocols**
4. **Various systems' online monitoring**
5. **Security and privacy**

Projects

aqualia gorenjegroup PODIUM live HWH

Markets: Small Water Treatment Plants, Production lines

Advantages: Low cost, No maintenance cost, ubiquitous data access

FUTURE INTELLIGENCE

Research- Our Approach

Research Projects

Future Intelligence's European and National funded R&D (excluding Commercial R&D) vision is structured as follows:

Main principal → Product oriented approach

CURRENT (Almost updated)

EU Frameworks Core Consortium Members (Horizon Europe, H2020, PRIMA, LIFE)

INFR RECLAIM

INFR 5DAEROSAFE

INFR SPHINX

INFR TERMINET

AGRI INText

AGRI CO-FRESH

INFR OPTIMAI

INFR PANOPTiS

INFR SHAPES – Smart and Healthy Ageing Promoting Empowering Systems

INFR P.R.I.N.C.E.

AGRI MEDITOMATO

EU Frameworks Core Consortium Members (OPEN CALLS)

INFR European Factory Platform

AGRI i4Trust

AGRI SMART AGRI HUBS

AGRI DIH-WORLD

National Research Programs – United Kingdom (Innovate UK)

INFR WATCH

National Research Programs - Greece (NSRF)

AGRI smart product

AGRI SOLARGAS

AGRI DRIP

INFR ΕΠΟΠΤΗΣ

FUTURE INTELLIGENCE

Research Domains

- Smart Agriculture / Food
- Utilities / Infrastructure
- Smart Circular Economy
- Smart Manufacturing
- Climate Change

DIH-WORLD

SMART AGRI HUBS South East Europe

SMART AGRI HUBS

CO-FRESH

MEDITOMATO

IOF 2020 CYSLOP

PANTHEON

RESPONDENT

i4Trust Data Spaces for effective and trusted data sharing

SOLARGAS

INCOVER project

INText

RECLAIM

i4bydesign Κέντρο Ικανοτήτων

Agile 4.0 Cluster

DEMOKRITOS

ΕΛΛΗΝΙΚΗ ΔΗΜΟΚΡΑΤΙΑ Υπουργείο Πολιτισμού και Αθλητισμού

HeRIStags project

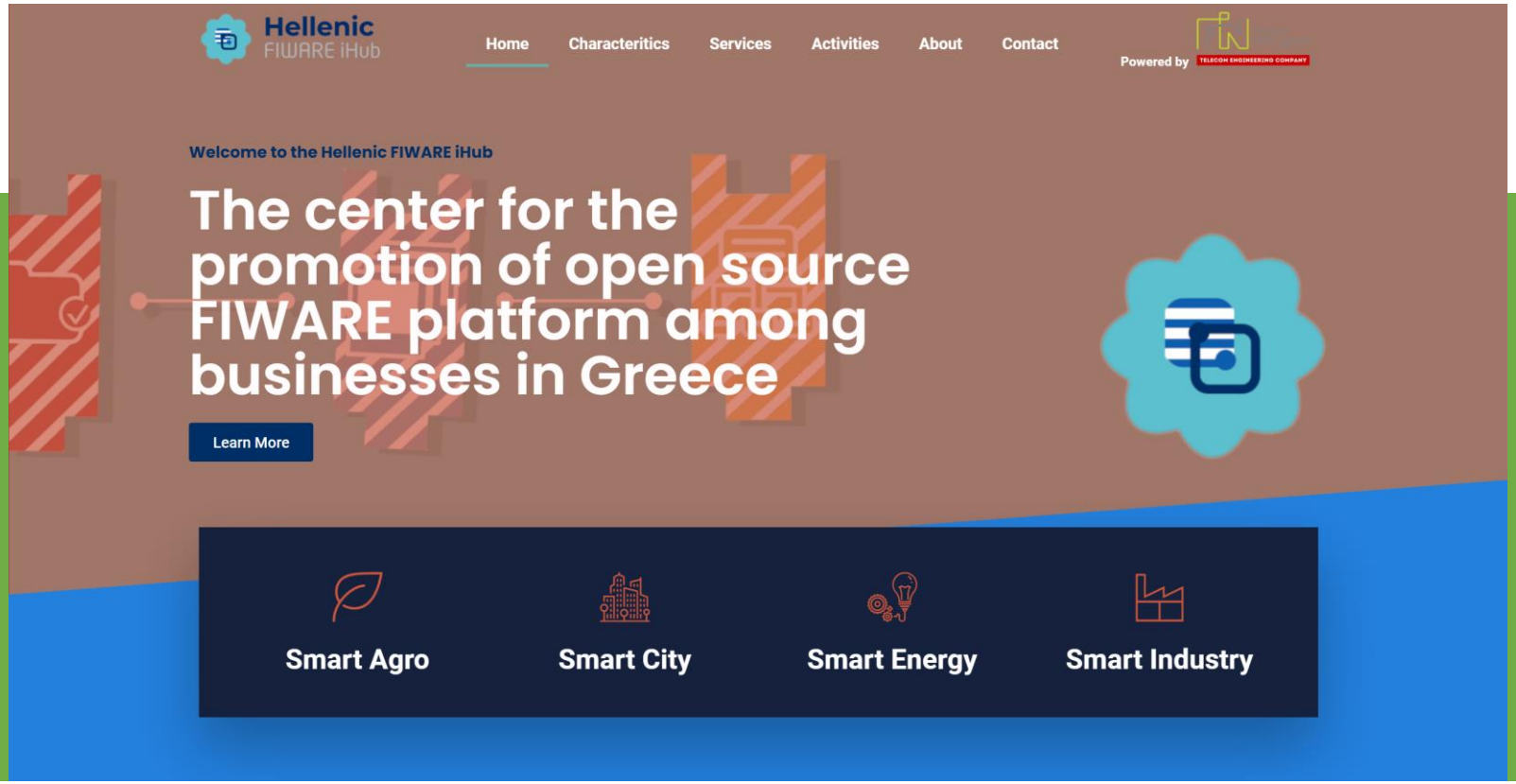
DRIC DEFKALION

FUTURE INTELLIGENCE

Digital Innovation Hubs – bring/test solutions to market

Hellenic
FIWARE iHub

The **center** for the **promotion** of open source **FIWARE** platform among businesses and public authorities in Greece



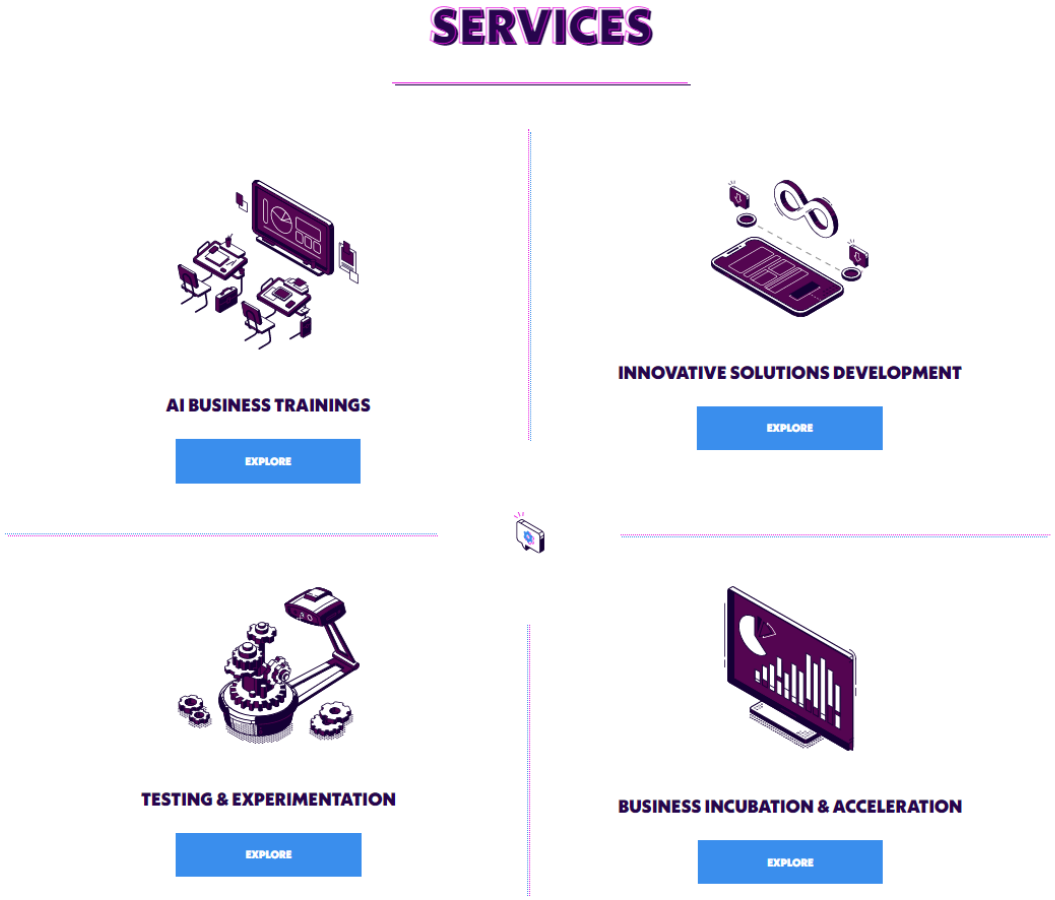
FUTURE INTELLIGENCE

Digital Innovation Hubs – bring/test solutions to market

ahedd Digital Innovation Hub

ahedd fosters the **development of an ecosystem matching the business needs of SMEs and organisations to commercial-ready solutions**.

ahedd is registered in the European Commission DIH catalogue and is also a BDVA/DAIRO gold-labelled i-space.



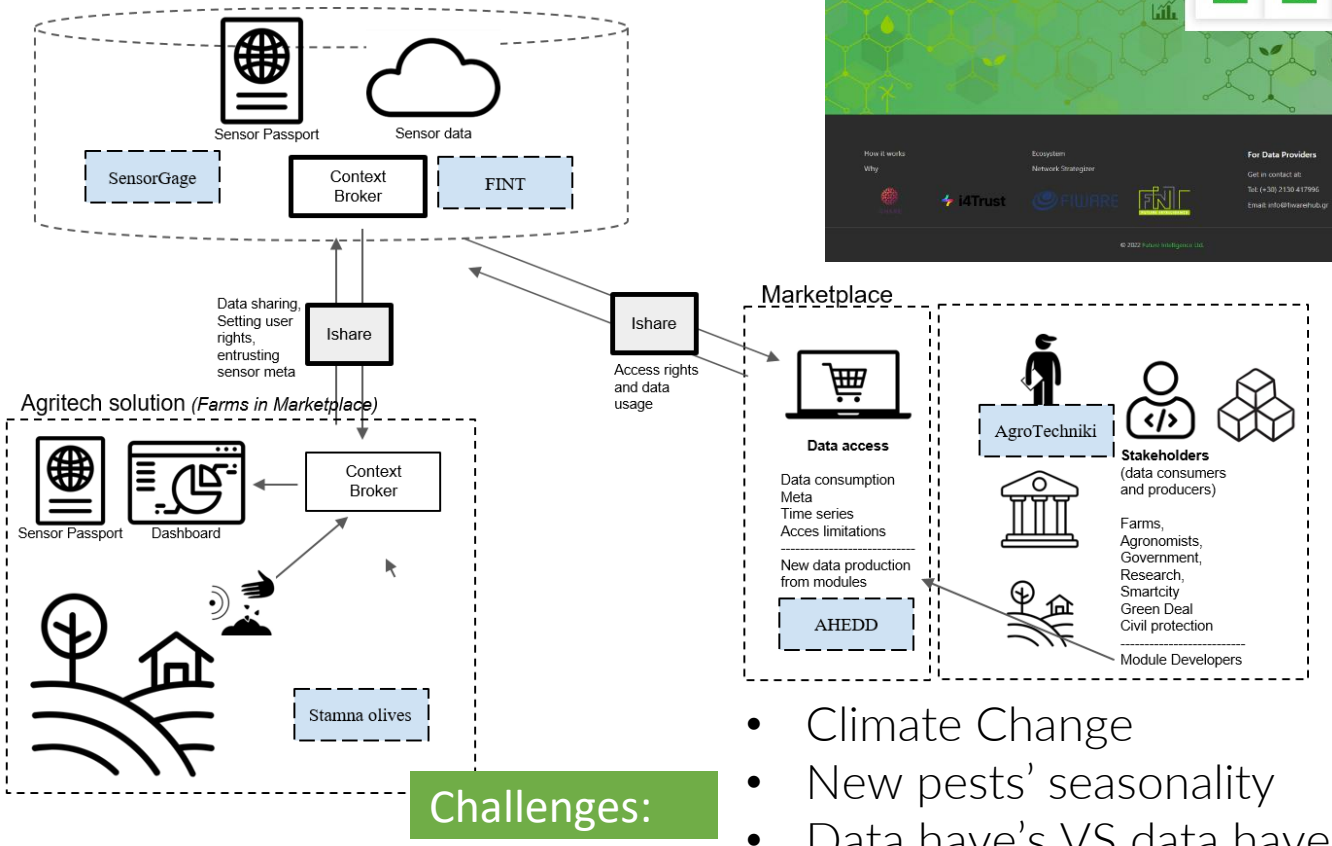
FUTURE INTELLIGENCE

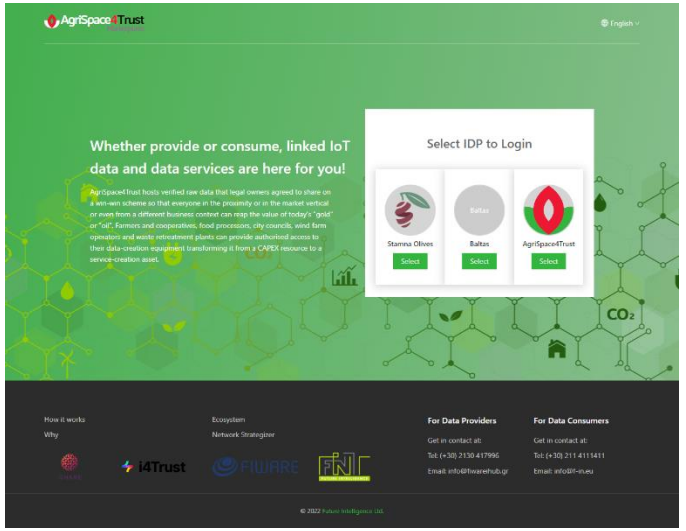
DIH in Data Spaces – AgriSpace4Trust

i4Trust

AgriSpace4Trust creates **data hubs** - supported by i4Trust data space- that (re)use local weather stations or agro-environmental sensors and opens them to a wider community of local users.

Tools:
- Orion LD
- NGSi -LD
- iSHARE
- FIWARE data models
- Marketplace





Challenges:

- Climate Change
- New pests' seasonality
- Data have's VS data have nots
- GDPR waivers (ethics) and Data platforms
- Data interpretations, services
- Rural cross-domain data exhaustion

FUTURE INTELLIGENCE

National Clusters

Agile4.0 Cluster

The Agile4.0 Cluster is, which brings together 14 leading partners in the field of **Industry** from all over Greece.

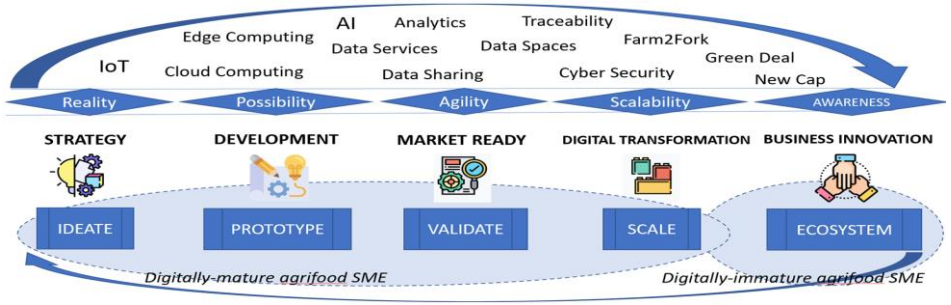
The Competence Center I4byDesign, with a clear focus on Industry 4.0 technologies, **provides strategic and operational support to Greek manufacturing companies, aiming at the digital and technological transformation of their industrial processes**.

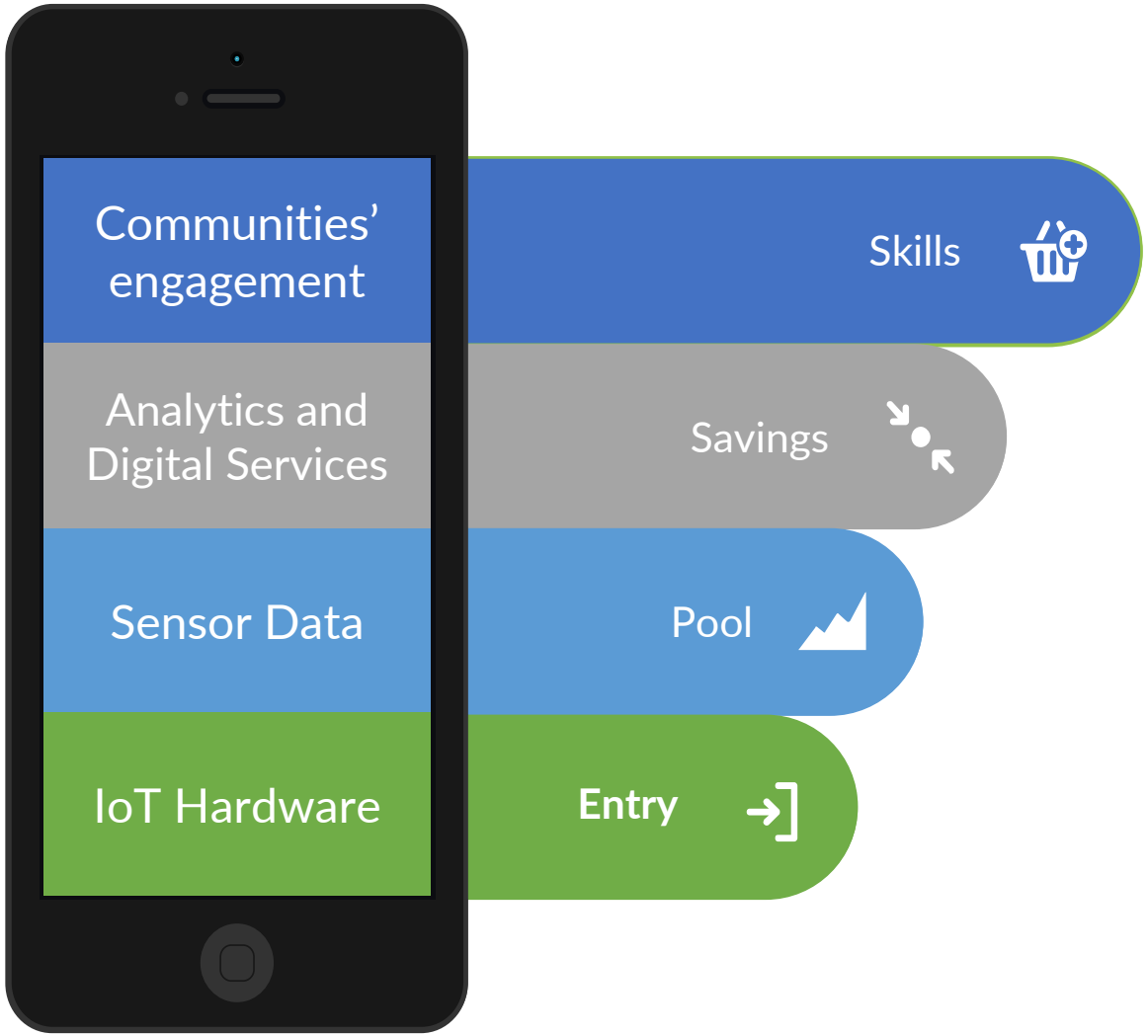
DRIC DEFKALION

The "**National Cluster of Interoperable and holistic civil protection systems**", acronym "**COPROTECT**", is a coordinated effort of technology companies in Greece to consolidate and upgrade products, systems and services related to **vulnerability assessment, early warning and crisis management** on natural disasters, environmental crises and emergency civil protection needs in nationally prioritized thematic area of **Environment & Sustainable Development -Climate change**.

FUTURE INTELLIGENCE

RnD activities for tangible, pragmatic market offerings





- Monetization & Exploitation
- Key Partners
- Key Activities
- Value Offering

CO-FRESH Innovation 1 – Le Terre di Zoe

CO-FRESH Innovation 1

Smart Irrigation experiment

- Future Intelligence (FINT) and Le Terre di ZOE (LTZ) will work for improving the application of water to the clementine groves by using sensors, automation and Internet of Things (IoT) technologies

- Methodology- Design of the Experiment

CO-FRESH Innovation 1

Goals to be achieved

- reduction of the Amount of water used for irrigation
- Reduced labor Time to apply an irrigation cycle
- Less Electricity needs during irrigation (pump's operation)
- keep the same Yield amount and yield quality

CO-FRESH Innovation 1

Main technology/tool to be used

- IoT devices, sensors, gateways, software application
- with the use of field data the irrigation applications can be largely improved (more than 10%)
- From TRL 7/8 → TRL9
- Data and information need to be collected before hand, during the experiment and after its completion

CO-FRESH Innovation 1

Schedule

PHASES and TASKS	2023											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dec
Phase 1: Pre-demonstration test phase												
Task 1.1 "Field Survey, system specifications' and requirements' analysis". Leader: FINT; Participants: ZOE, CNTA, WP4 participants												
Subtask 1.1.1 "definition of innovation team and responsibilites, exchange of material to assess current situation"												
Subtask 1.1.2 "field visit and survey"												
Subtask 1.1.3 "experiment methodology material and fulfillment process"												
Task 1.2 "Design of the smart irriagtion system". Leader: FINT; Participants:												
Subtask 1.1.1 "Define the number of hardware components, design and develop them"												
Subtask 1.1.2 "Design and develop the software parts and User Interface"												
...												
Phase 2: Demonstration Phase												
Task 2.1 "deployment of the IoT smart irrigation system". Leader: FINT; Participants: ZOE												
Task 2.2 "Operation and support". Leader: FINT; Participants: ZOE, WP4 participants												
...												
Task 2.X "data collection for WP4". Leader: ; Participants: *(compulsory task)*												
Phase 3: Innovation's assessment												
Task 3.1 "compilation of data collected so far, addition of others, conclusions' draw" and area for improvement. Leader: FINT; Participants: ZOE												

CO-FRESH Innovation 1

Completed Tasks

- Task 1.1 "Field Survey, system specifications' and requirements' analysis“
  - ✓ 1.1.1 "definition of innovation team and responsibilities, exchange of material to assess current situation“
  - ✓ Subtask 1.1.2 "field visit and survey“
  - ✓ Subtask 1.1.3 "experiment methodology material and fulfillment process"

Future Intelligence
Smart Agri System Proposal for COFRESH LE TERRE DI ZOÈ Pilot

Infrastructure / Devices / Topology

Farmer Name	Crop type	Planting date (or season kick-off for permanent	Soil type (sandy, clay etc.)	Area that covers the irrigation system	Irrigation system application rate (lt/hr)
Gerace Maria Caterina	Clementine Citrus	permanent		2ha	
Gerace Maria Caterina	Avocado	permanent		1ha	
Gerace Maria Caterina	Oranges	permanent		6ha	
Gerace Maria Caterina	Kiwi	permanent		3,46ha	
Gerace Maria Caterina	Pomegranate	permanent		1ha	
Gerace Maria Caterina	Lemon	permanent		1ha	

CO-FRESH Innovation 1

Completed Tasks

- Task 1.2 "Design of the smart irrigation system“
  - ✓ 1.2.1 Subtask "Define the number of hardware components, design and develop them“

On-going Tasks

- ✓ Subtask 1.2.2 "Design and develop the software parts and User Interface“
- Task 2.1 "deployment of the IoT smart irrigation system“

CO-FRESH Innovation 1

On-going Tasks

- Task 2.2 "Operation and support“
- Task 2.3 "data collection for WP4"
- Task 3.1 "compilation of data collected so far, addition of others, conclusions' draw" and area for improvement

CO-FRESH Innovation 2 - FLORETTE

CO-FRESH Innovation 2

Digitization of services for the use of fertilisers according to online measurements (N, P, K) and soil needs (pH)

- Future Intelligence (FINT) and FLORETTE will work on a prototype that consists of Internet of Things (IoT) technologies and innovative sensors that enable farmers to monitor in real-time and remotely the Nitrogen (N), phosphorus (P) and Potassium (K) conditions of their land. To add, an online pH sensor will be deployed

- Methodology- Design of the Experiment

CO-FRESH Innovation 2

Goals to be achieved

- Assess the credibility of such measurements/ sensors
- Change how fertilisation management occurs
- Reduce fertilisers for the benefit of environment and farmers' spendings

CO-FRESH Innovation 2

Main technology/tool to be used

- IoT NPK sensor
- IoT soil pH sensor
- IoT soil electrical conductivity, temperature and moisture
- From TRL 7 → TRL 8/9

CO-FRESH Innovation 2

Schedule

PHASES and TASKS	2023											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dec
Phase 1: Pre-demonstration test phase												
Task 1.1 "Field Survey, system specifications' and requirements' analysis". Leader: FINT; Participants: FLORETTE, CNTA, WP4 participants												
Subtask 1.1.1 "definition of innovation team and responsibilites, exchange of material to assess current situation"												
Subtask 1.1.2 "field visit and survey"												
Subtask 1.1.3 "experiment methodology material and fulfillment process"												
Task 1.2 "Design online measurement NPK system". Leader: FINT; Participants:												
Subtask 1.1.1 "Define the number of hardware components, design and develop them"												
Subtask 1.1.2 "Design and develop the software parts and User Interface"												
...												
Phase 2: Demonstration Phase												
Task 2.1 "deployment of the IoT NPK and pH system". Leader: FINT; Participants: FLORETTE												
Task 2.2 "Operation and support". Leader: FINT; Participants: FLORETTE, CNTA, WP4 participants												
Subtask 2.2.1 Conventional soil sampling phase (CNTA)												
2.2.2 NPK sensors, soil samples and online fertilisation decision support systems (FLORETTE)												
...												
Task 2.X "data collection for WP4". Leader: WP4 ; Participants: FINT, CNTA *(compulsory task)*												
Phase 3: Innovation's assessment												
Task 3.1 "compilation of data collected so far, addition of others, exploration of sellable services, conclusions' draw" and area for improvement. Leader: FINT; Participants: FLORETTE												

CO-FRESH Innovation 2

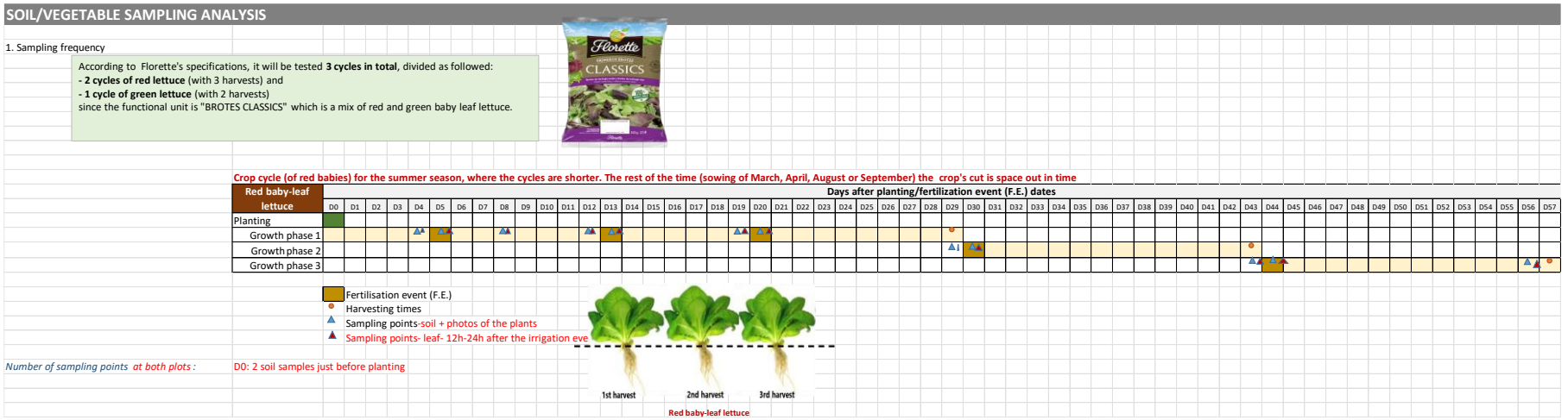
Completed Tasks

- Task 1.1 "Field Survey, system specifications' and requirements' analysis“

  - ✓ 1.1.1 "definition of innovation team and responsibilities, exchange of material to assess current situation“

  - ✓ Subtask 1.1.2 "field visit and survey“

  - ✓ Subtask 1.1.3 "experiment methodology material and fulfillment process"



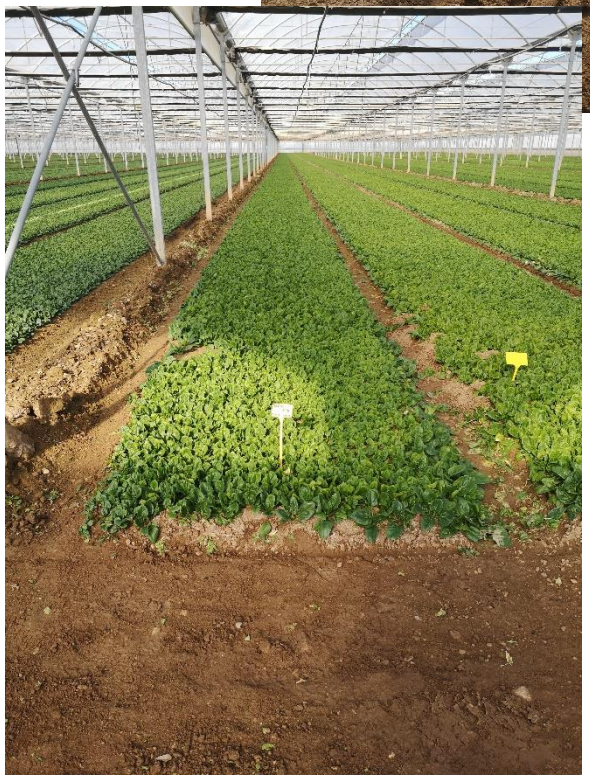
CO-FRESH Innovation 2

Completed Tasks

- Task 1.2 "Design online measurement NPK system“
  - ✓ 1.2.1 Subtask "Define the number of hardware components, design and develop them“

On-going Tasks

- Subtask 1.2.2 "Design and develop the software parts and User Interface"



CO-FRESH Innovation 1

On-going Tasks

- Task 2.1 "Deployment of the IoT NPK and pH system"
- Task 2.2 "Operation and support“
  - ✓ Subtask 2.2.1 Conventional soil sampling phase
  - ✓ Subtask 2.2.2 NPK sensors, soil samples and online fertilisation decision support systems
- Task 2.3 "data collection for WP4"
- Task 3.1 "compilation of data collected so far, addition of others, conclusions' draw" and area for improvement

Future Intelligence

LET'S COLLABORATE ☺

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March 2023

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