



N A B U

# *Smart Irrigation for Smart Agriculture*



# The problem - background

By 2050, feeding a planet of 9 billion people will require an estimated **50% increase in agricultural production** and a **15% increase in water withdrawals**.

*(Worldbank data)*

Over **70% of the fresh water** is used in **agriculture**.

*(Worldbank data)*

Many of the Developing Countries are food importers. At current growth pace the Zero-Hunger 2030 goal will be missed.

*(FAO data)*

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## What are the opportunities and the problems to be addressed?

1. Know when and how to irrigate
2. Variable Rate of Irrigation (Agriculture)
3. Monitor and manage irrigation systems from remote
4. Save inputs (water, energy, labour)
5. Monitor crops in the fields and greenhouses
6. Easy-to-use user interface



# The solution by Nabu



Satellite  
imagery



Irrigation  
controllers



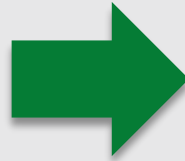
Weather  
stations



Sensors



Weather  
forecast



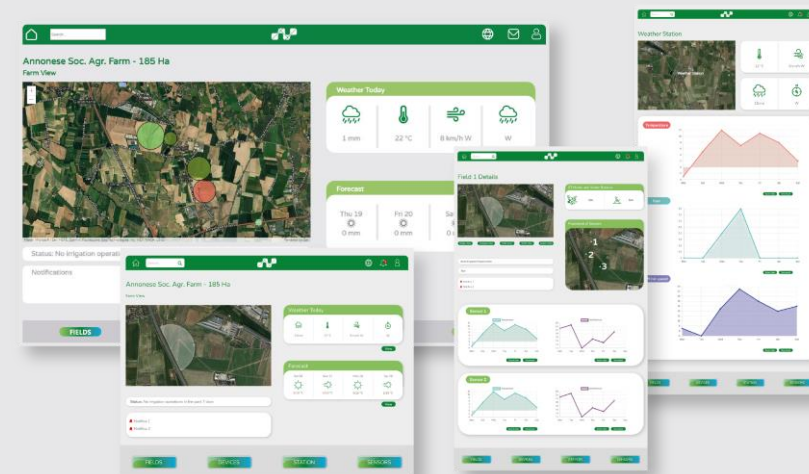
Know when and how much your crops need to be irrigated

Monitor your crops in the fields and in greenhouses

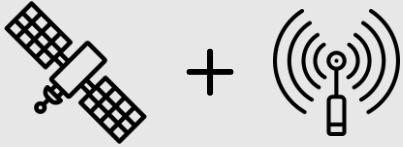
Improve irrigation performances combining sensors and satellite imagery.

Monitor and manage remotely any type of irrigation system: **pumping stations, filters, drip irrigation, center pivots**

Get powerful tools for **predictive maintenance** and avoid breakages during the season

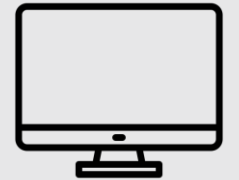


# Why is Nabu a game changer?



The combined use of data from **field sensors** and **satellites** allows for a **more accurate** estimation of the functioning of the irrigation system, **saving water, energy, and labor while increasing production**. Thanks to Nabu's models, it is also possible to **reduce the number of sensors** to be installed in the field.

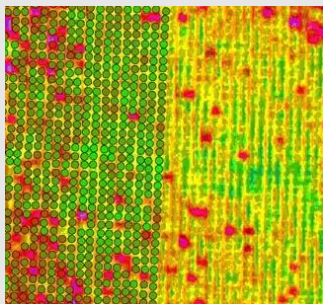
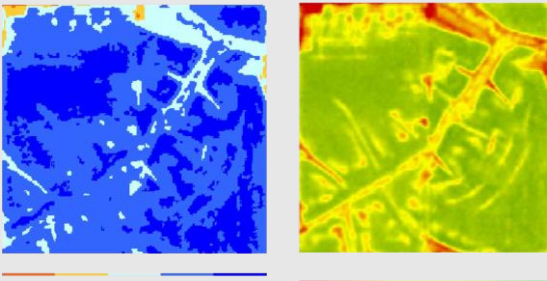
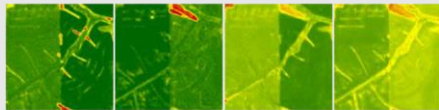
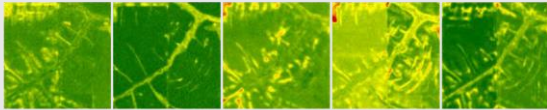
Users will be able to use a **single platform** for all the main functions (satellite imagery, sensors, irrigation system actuators, weather stations) related to the operation of irrigation systems. Currently, they are forced to use 2 to 4 different software programs.



To simplify the use of the platform and the reading of satellite data, **Nabu generates a map** from different satellite indices. This way, the user can consult a single image per field, where they can **view the status of the crops** and **receive suggestions** on how to solve problems in the field. With each new map generated, the system will send a **notification** to the user only in case of anomalies, **saving** the user **time** dedicated to manual field analysis.



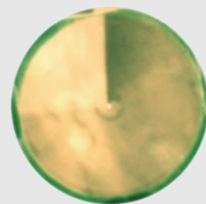
# A new way to use remote sensing tech in agriculture



Over-irrigated areas



Clogged sprinklers



Irrigation system working



Under-irrigated areas

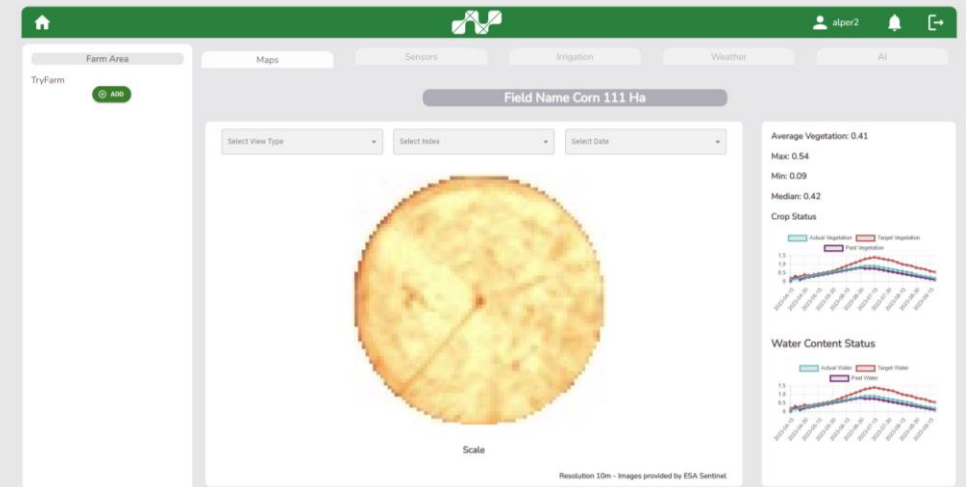
NABU generates a map by combining different satellite indices according to the crop and the phenological stage

Thanks to historical satellite data, NABU can create maps and models with preferred behaviors per each field

With high-resolution images, trees can be monitored individually in orchards and vineyards

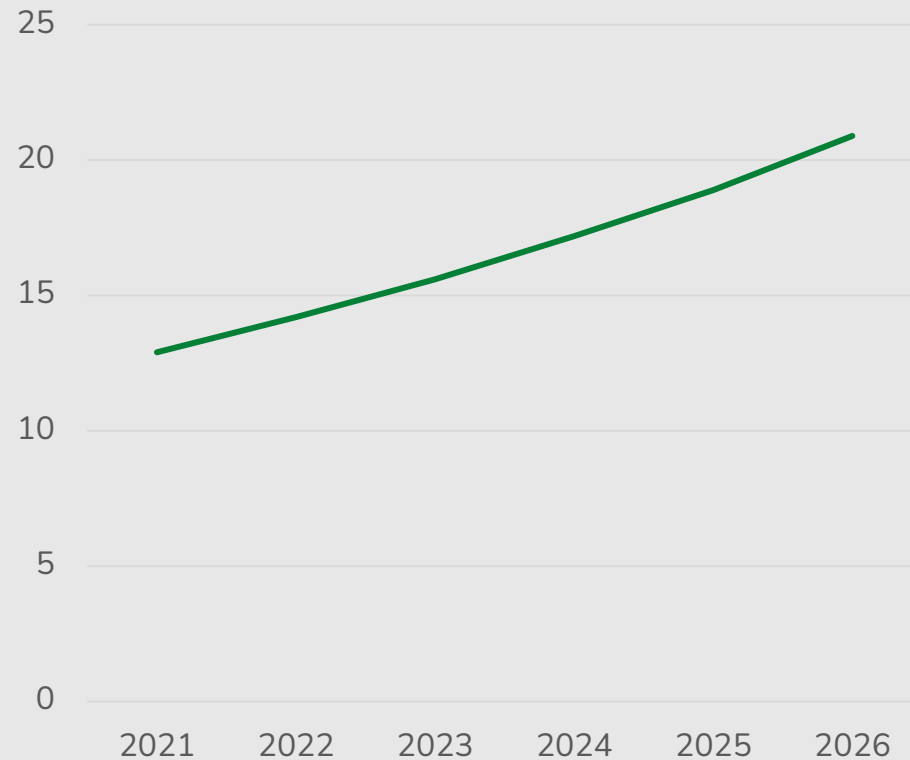
Standard resolution – images every 5/6 days – 10 m

High resolution - images every day - 3.5 m



## Large addressable market predicted to grow at a ~10% CAGR and gaining momentum

Market size (in B €)



### Introduction of the new CAP 2023-2027 accelerating digital adoption

- New EU CAP regulation requires that all paying agencies adopt digital and satellite monitoring solutions;
- Adoption rate of digital and satellite solutions expected to grow from 23% in 2017 to 90-100% by 2027.

### Regulation's increasingly important role in accelerating tech adoption in the private sector

- Agriculture is heavily regulated and monitored by Governments, with the most advanced use-cases in agriculture monitoring being for Governments;
- Government-sponsored programs are the main driver of adoption in sustainability practices;
- Increased regulation (e.g. fertiliser use, emissions) requires technology and creates opportunity.

### Transition to more sustainable food systems, with AgTech as a key enabler

- Consumers are demanding sustainable food and investors are funding sustainability initiatives;
- Growing demand for farm-to-fork traceability systems and quality monitoring.

### Continued business model evolution towards integrated solutions

- Challenges for adoption relate to high costs, willingness to pay and ROI;
- AgTech players are moving towards innovative business models to solve financial pain points.

### High openness to innovation carried by macroeconomic tailwinds

- One third of farms globally are currently using or are willing to adopt new technology;
- Focus on farm management software and precision agriculture hardware to reduce costs and improve productivity;
- Increased strain on farmers and supply chains due to climate change.

# Competitors

Many startups provide farmers with smart farming and smart irrigation solutions, however none of them has an holistic approach. A complete list of competitors is available [at this link](#).

Company	Satellite data	Sensor data	Drip irrigation controller	Center Pivot controller	Pump controller	IoT infrastructure
NABU	High res. ✓	✓	✓	✓	✓	Proprietary ✓

## Italy

Company	Satellite data	Sensor data	Drip irrigation controller	Center Pivot controller	Pump controller	IoT infrastructure
XFarm	Low res. ✓	✓	✓	✗	✗	3 <sup>d</sup> party ✗
Agricolus	Low res. ✓	✗	✗	✗	✗	✗
Netsens	✗	✓	✓	✗	✗	Proprietary ✓
Irreo	High res. ✓	✗	✓	✗	✗	✗
Talpalabs	✗	✓	✓	✗	✗	Lora only ✗

## World

Company	Satellite data	Sensor data	Drip irrigation controller	Center Pivot controller	Pump controller	IoT infrastructure
Prospera	High res. ✓	✓	✗	✓	✗	Proprietary ✓
Fieldnet	High res. ✓	✓	✗	✓	✗	Proprietary ✓
CropX	High res. ✓	✓	✗	✗	✗	Proprietary ✓



# Revenue model and customers

Hardware	Software	
<p>Sale of devices on the first year of usage. Examples:</p> <p><i>Drip irrigation controller: 200 € to 300 €</i></p> <p><i>Center Pivot controller: 1.500 € to 1.800 €</i></p> <p><i>Weather Station: 1.000 € to 3.000 €</i></p> <p><i>Field end node: 300 € to 800 €</i></p>	<p><b>Devices</b></p> <p>Year fee per connected device</p> <p><i>Price range: 50 € to 250 €</i></p>	<p><b>Satellite imagery and Nabu algorithms</b></p> <p>Year fee per Ha</p> <p><i>Price range: 5 € to 25 €</i></p>

## Partnerships

Nabu won't sell its products and services directly to final customers but through local irrigation dealers.

## Customers

Potential customers for Nabu are medium scale farmers, aware of data analysis importance.

## 1. Management



### Carlo Audone

CEO and Co-Founder at Nabu srl  
CEO at Idrotek Group srl (50 years' experience in water management solutions)

[LinkedIn profile link](#)



### Andrea Magnano

CEO and Co-founder at Nabu srl  
CEO and Co-founder at Dunia srl  
CEO and Founder at GimmyShop  
Partner at G. Magnano (50 years' experience in agriculture irrigation)

*International projects: Farm Block Development (Zambia, 2016), Lake Module Project (Uganda, 2017), Tomato PRO (Costa Rica, 2018), Partenariat Anader (Ivory Coast, 2019), Soulara Bat AG (Morocco, 2020), CERN Gateway (Switzerland, 2021-2024), Canal Sugar (Egypt, 2022-2025), Bahia Sugar Agroindustrial (Brazil, 2022-2026).*

[LinkedIn profile link](#)



### Fabio Capecelatro

Advisor  
25-year experience in developing sales channels for global IT companies in EMEA.

[LinkedIn profile link](#)

## 2. Technical Advisor



### Marco Bonvino

25 years' experience in IoT  
(External advisor)

## 3. Incubated at I3P – ESA BIC since January 2023



# Technology Readiness Level



## Satellite imagery

Automated download and data processing: paying customers



## Irrigation controllers

Pumping stations in ATmega environment: paying customers  
Drip irrigation in STM32 environment: prototype  
Center Pivot in STM32: prototype



## Weather station

Weather station end node with modbus protocol in ATmega environment: paying customers  
Weather station end node with modbus protocol in STM32 environment: prototype



## Sensors

End node for field sensors in ATmega environment: paying customers  
End node for field sensors in STM32 environment: prototype



## app.nabu.ag

DSS services: paying customers  
Automated irrigation processes: product idea

# Projects and Use cases



**Bahia State Agroindustrial  
Project by Al Khaleej Sugar**  
2022 – 2023, Brazil  
250,000 Ha



**القناة للسكر**  
**CANAL SUGAR**

**Canal Sugar**  
2022 – 2023, Egypt  
80,000 Ha



**CERN Science Gateway**  
2021 – 2023, Switzerland  
434-tree park designed by  
RPBW





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**Thank you!**

**Nabu s.r.l.**

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