



THERMIX

Your Space Solution to Thermal Efficiency



PROBLEM

- The building stock of the European Union was predominantly constructed before the 1960s, when **energy regulations for buildings were limited**.
- Older buildings have **poor thermal efficiency and high energy dispersion**, contributing significantly to CO₂ emissions [1].
- In the 1990s, **heat losses through roofs accounted for approximately 25%** of the total, compared to 35% for walls, 15% for foundations, 15% due to air leaks, and 10% from windows [2].
- In Italy, 80% of total greenhouse gas emissions stem from the energy sector, with **25% attributable to the residential sector** [3].
- The European Union has set a goal to achieve **carbon neutral buildings by 2050** [4].

Current thermographic solutions are costly and time-consuming!



Copyright © Thermix Space. All rights reserved.

[1] Buildings Performance Institute Europe (BPIE), Europe's buildings under the microscope.

[2] Ali El Saied, Etienne Wurtz et al., Slab-on-grade thermal bridges: A thermal behavior and solution review.

[3] Le emissioni nazionali di gas serra Settore energia - anno 2021, Dipartimento per la valutazione, i controlli e la sostenibilità ambientale, ISPRA.

[4] Directive (EU) 2024/1275 of the European Parliament and of the Council.

VALUE PROPOSITION

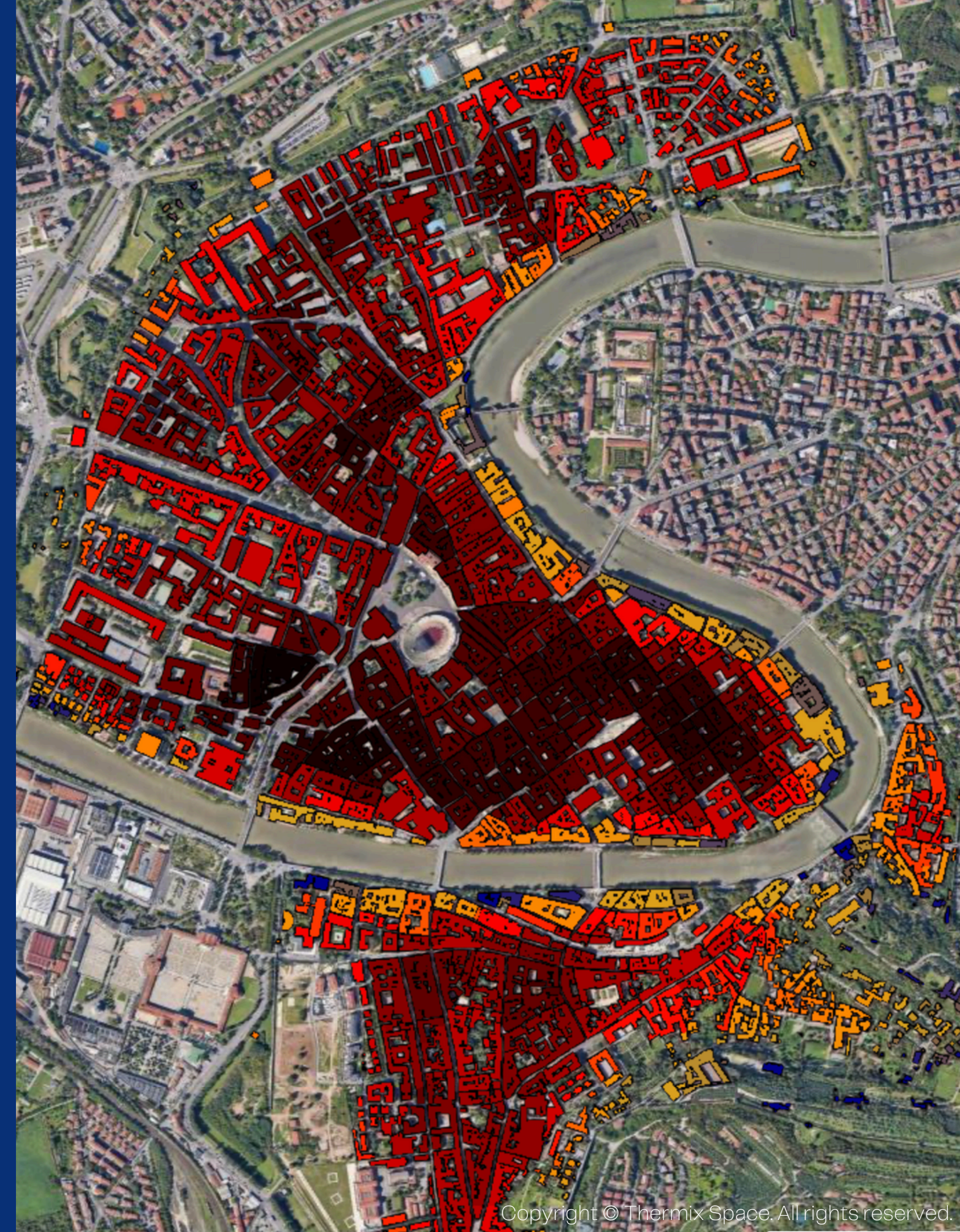
To provide customized roof data to **enhance building energy efficiency** through various **aerospace providers**, utilizing commercially available data enhanced by **Artificial Intelligence**.

SOLUTION

- Data interpolation via **AI** from multiple aerospace providers.
- Energy efficiency analysis using **multispectral imaging**.
- **Tailored** recommendations for clients to support energy transition, **CO₂ emission reduction**, and energy class improvement.



THE GLOBAL GOALS



WORKFLOW



REGIONE DEL VENETO



AGENDA
DIGITALE
DEL VENETO



Step 1: Data acquisition

Step 2: Detection and
segmentation of buildings

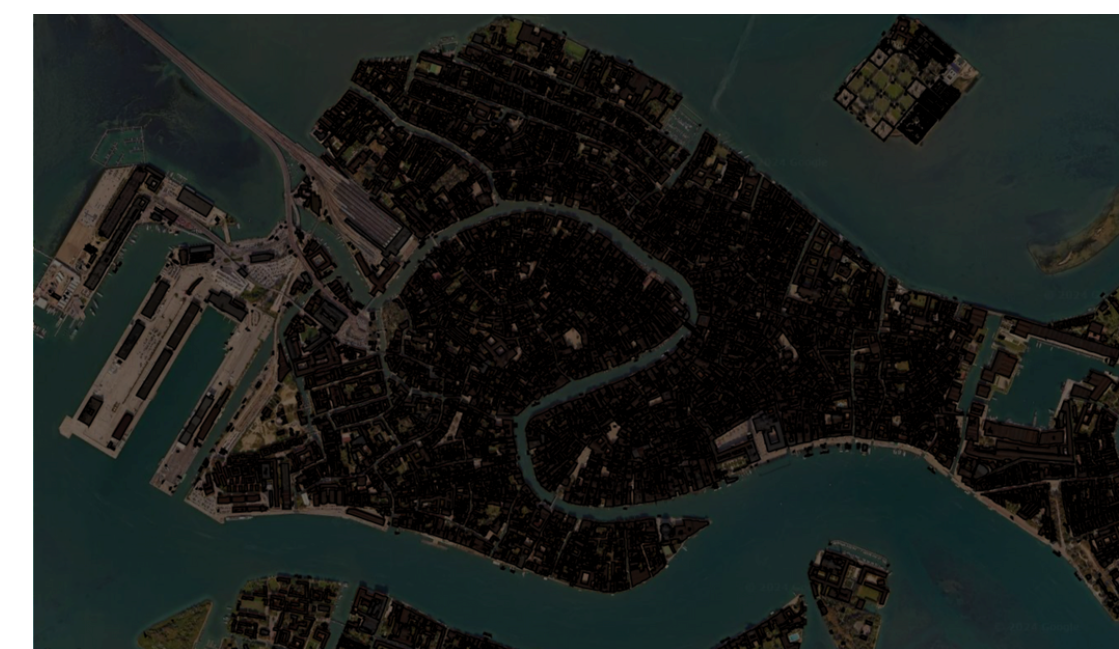
Step 3: Thermal data
allocation on roofs

Step 4: AI-powered super-
resolution process

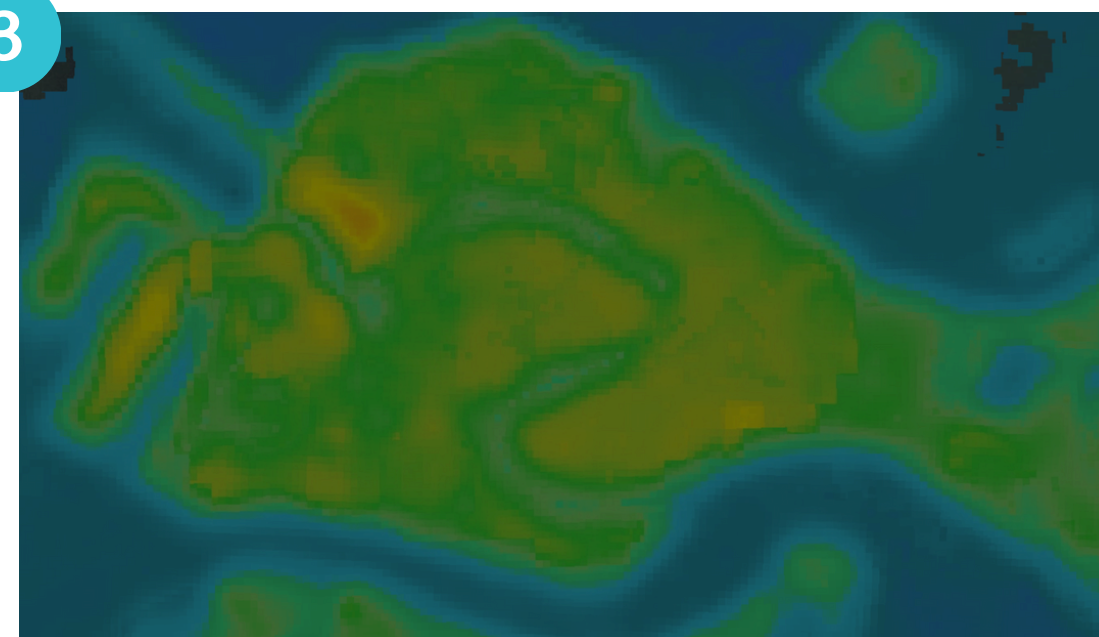
1



2



3



4



veneto stars

Copyright © Thermix Space. All rights reserved.



WORKFLOW



REGIONE DEL VENETO



AGENDA
DIGITALE
DEL VENETO



Step 1 : Data acquisition

Step 2 : Detection and
segmentation of buildings

Step 3 : Thermal data
allocation on roofs

Step 4 : AI-powered super-
resolution process

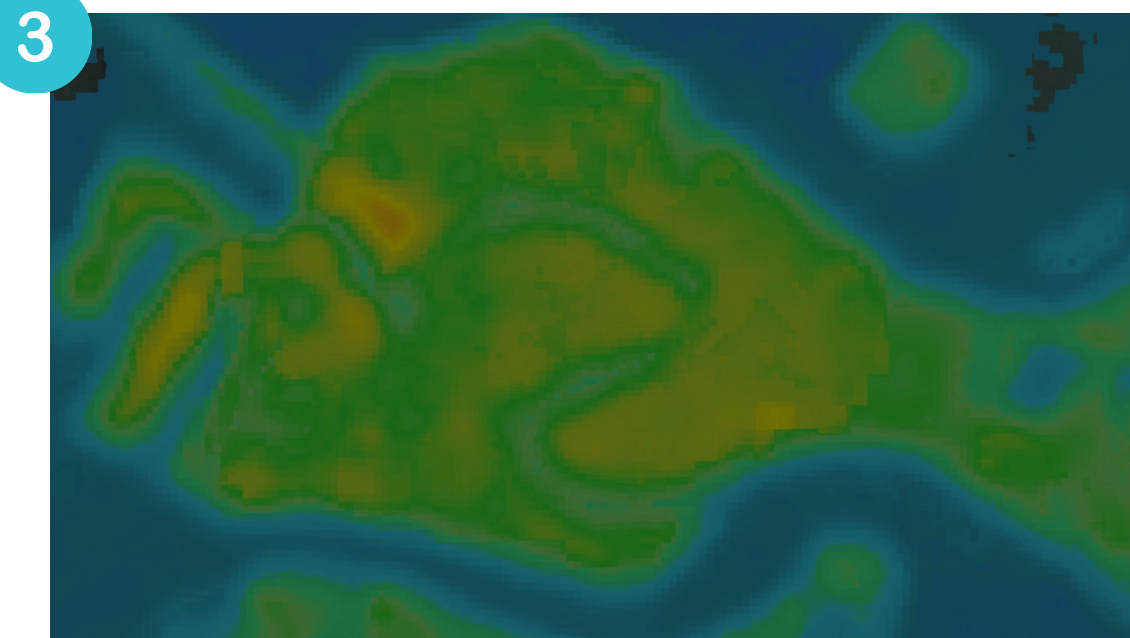
1



2



3



4



veneto stars

Copyright © Thermix Space. All rights reserved.



WORKFLOW



REGIONE DEL VENETO



AGENDA
DIGITALE
DEL VENETO

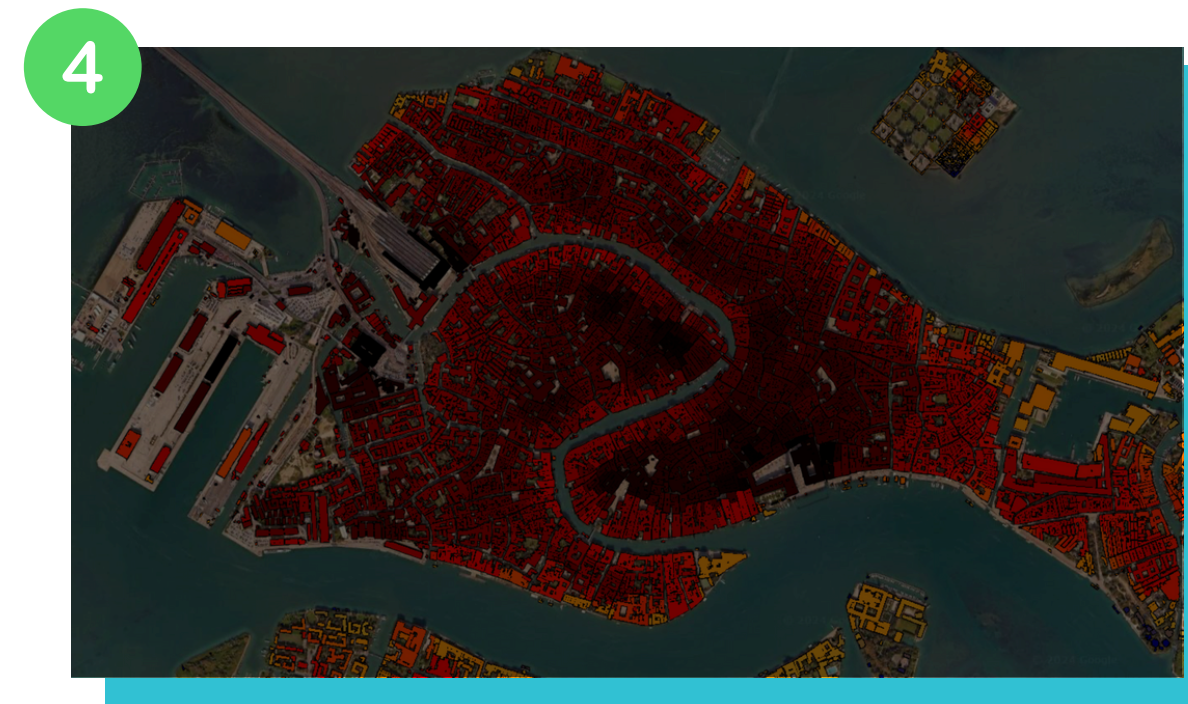
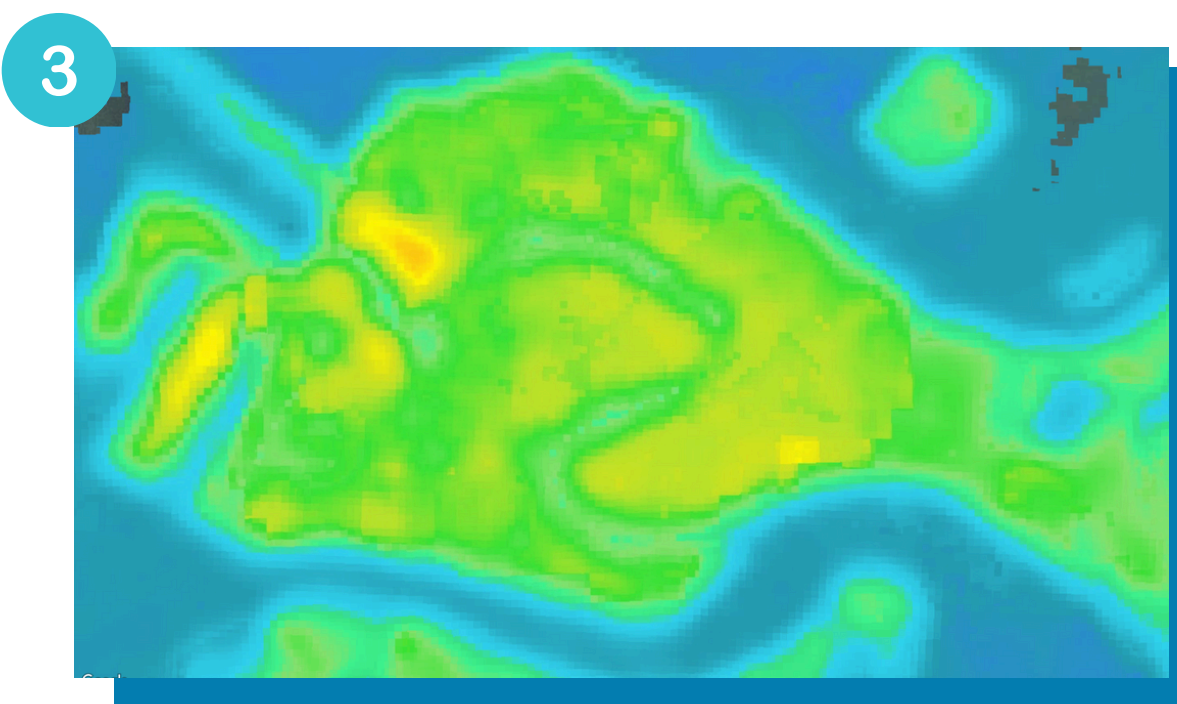
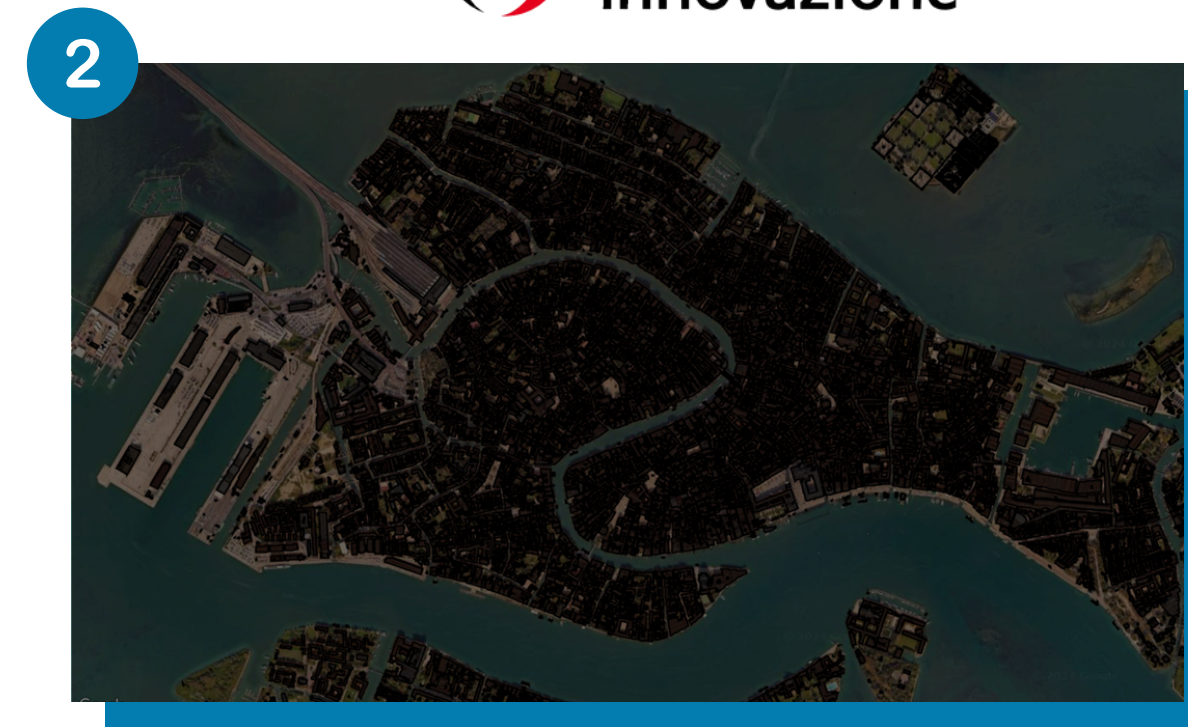
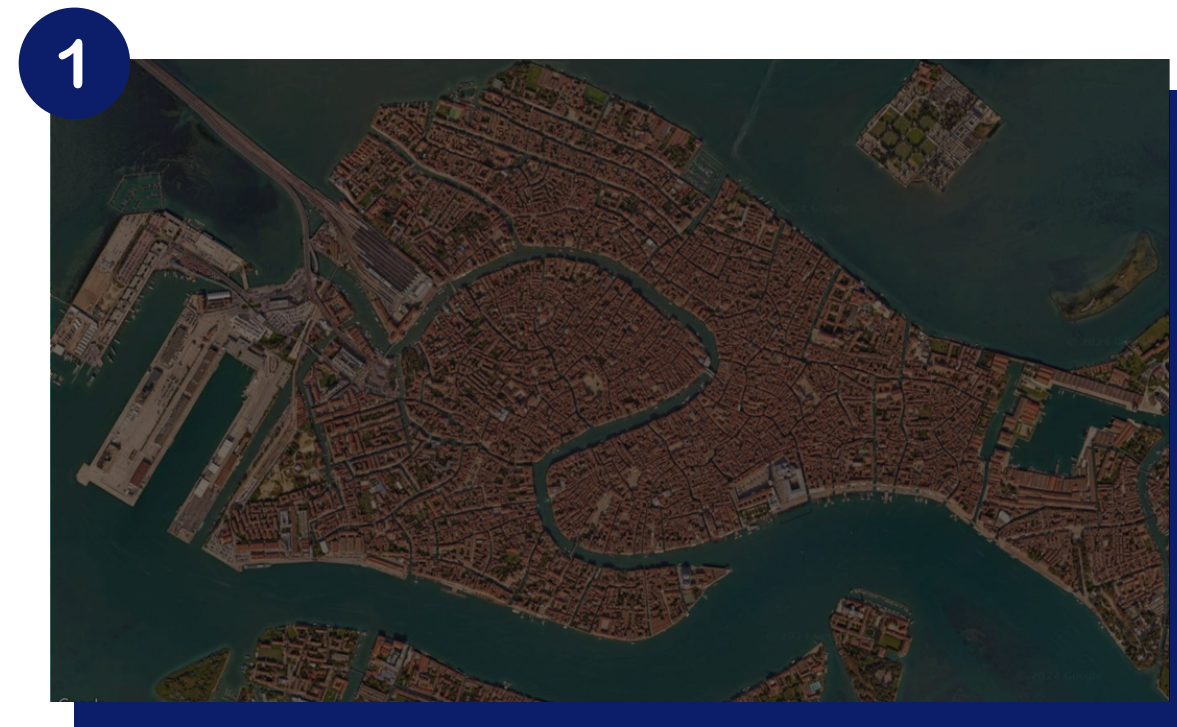


Step 1: Data acquisition

Step 2: Detection and
segmentation of buildings

Step 3: Thermal data
allocation on roofs

Step 4: AI-powered super-
resolution process



veneto stars

Copyright © Thermix Space. All rights reserved.



WORKFLOW



REGIONE DEL VENETO



AGENDA
DIGITALE
DEL VENETO



Step 1 : Data acquisition

Step 2 : Detection and
segmentation of buildings

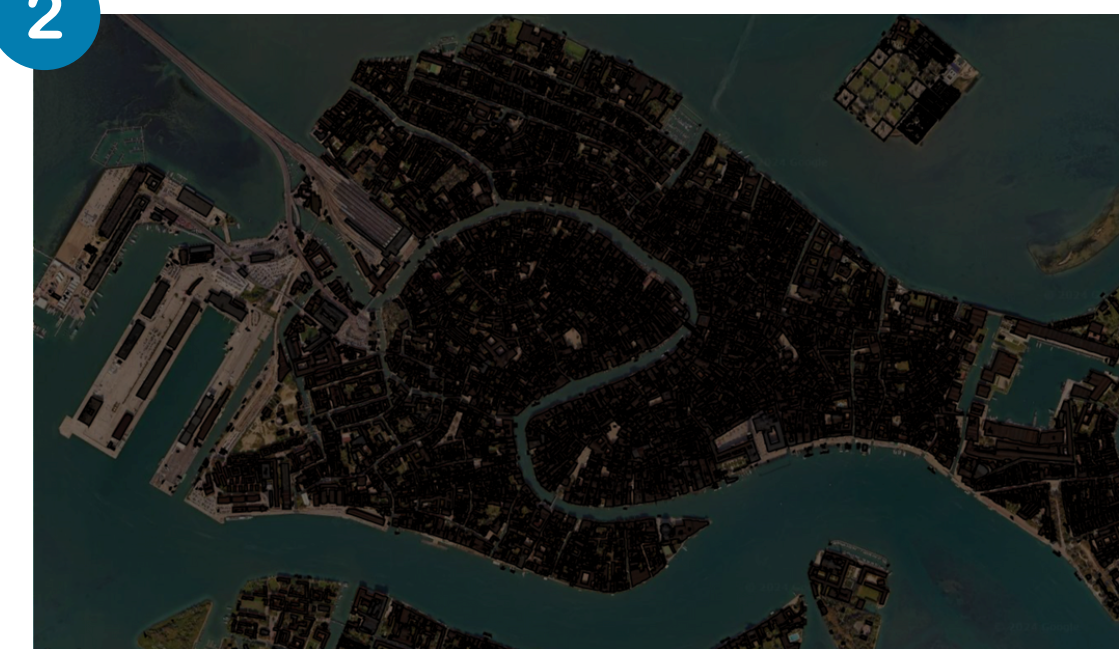
Step 3 : Thermal data
allocation on roofs

Step 4 : AI-powered super-
resolution process

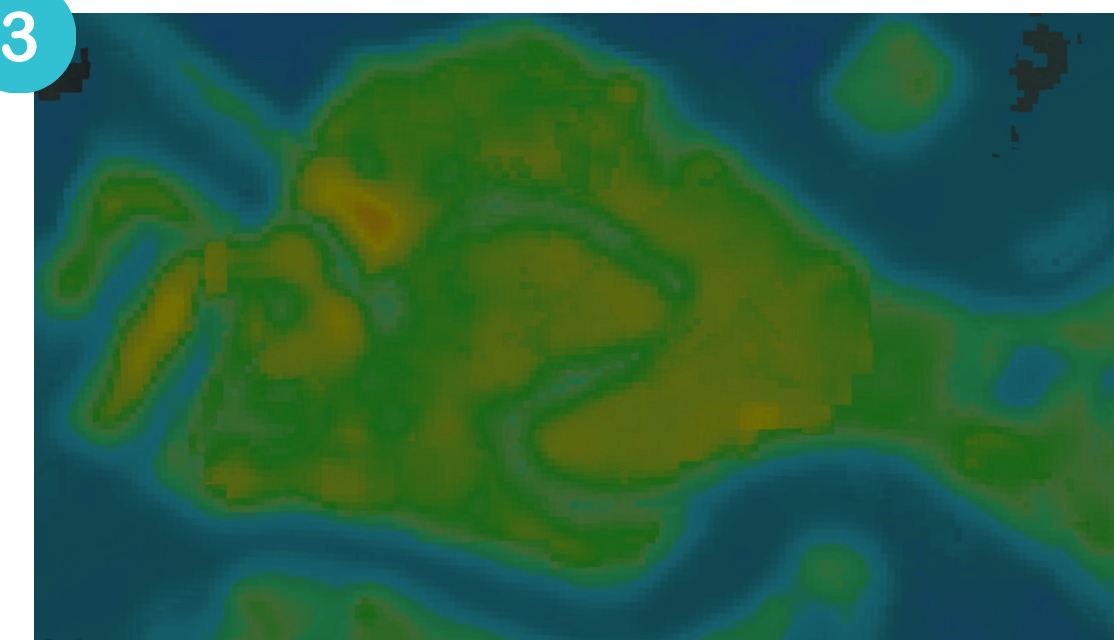
1



2



3



4



veneto stars

Copyright © Thermix Space. All rights reserved.



HeatLens



REGIONE DEL VENETO



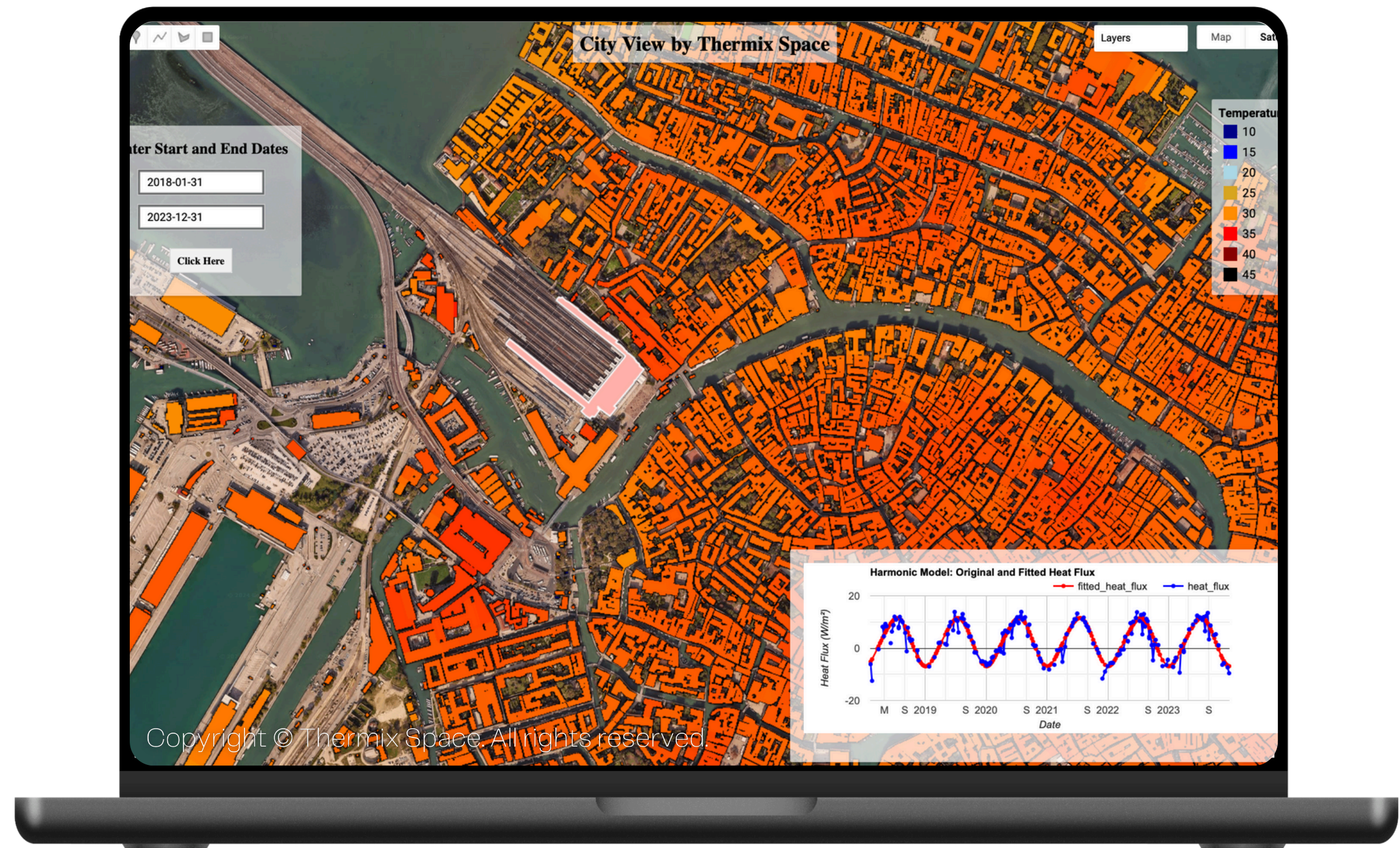
AGENDA
DIGITALE
DEL VENETO



Powered by



Google Earth Engine



veneto stars

OUR JOURNEY IN VENETO

SPACE MEETINGS



REGIONE DEL VENETO



AGENDA
DIGITALE
DEL VENETO



OUR JOURNEY IN VENETO

SPACE MEETINGS



OUR JOURNEY IN VENETO

H-FARM



REGIONE DEL VENETO

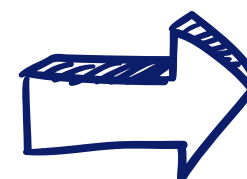
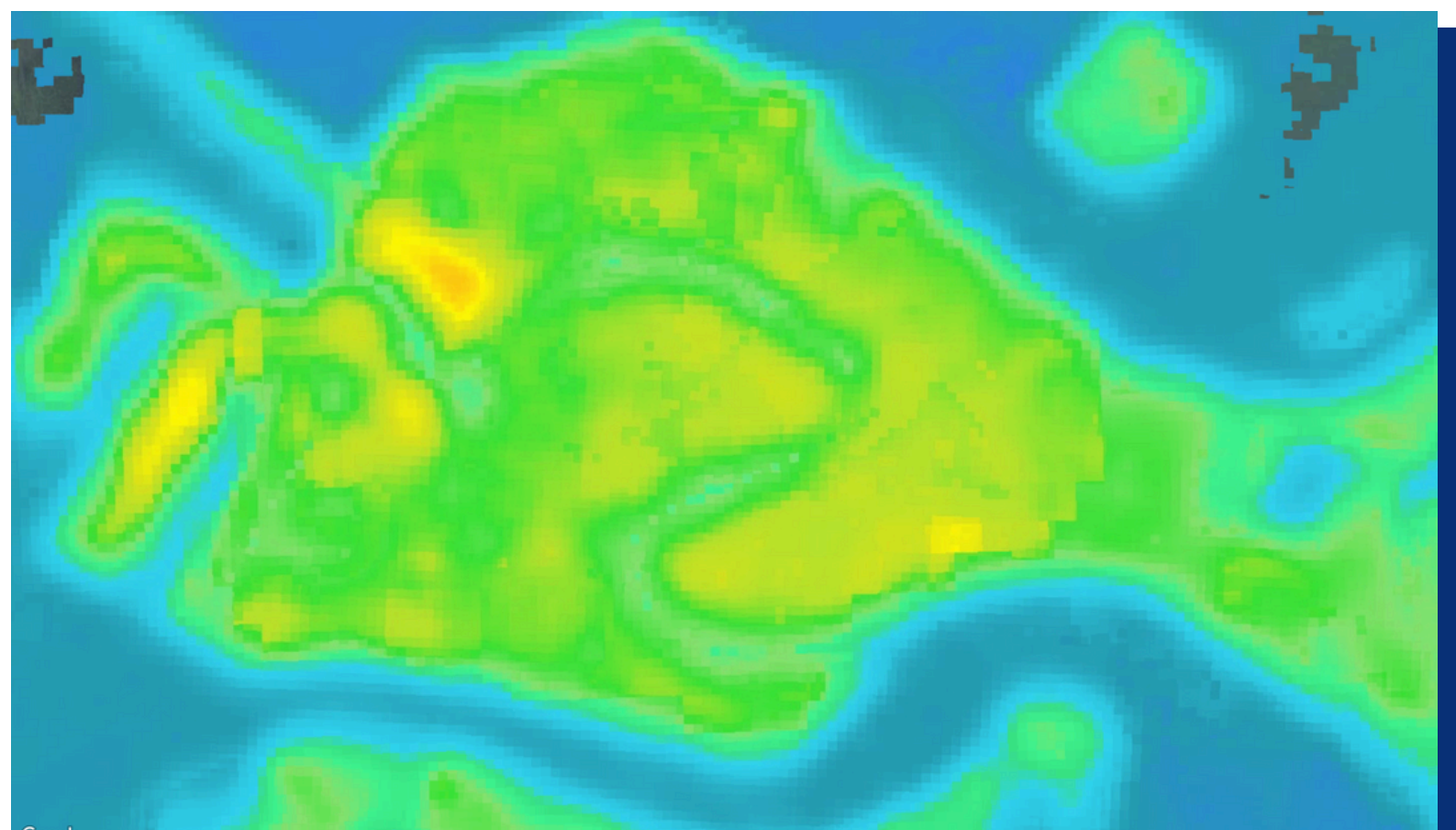


AGENDA
DIGITALE
DEL VENETO



TECHNOLOGICAL PROGRESS

Over the course of these 5 days here in H-Farm, the training and the insights offered by **Marco, Nicomino** during the **Technology training** allowed us to make important progress on our idea. For instance, we have learned to use to our advantage platforms like **QGIS** and **Google Earth Engine**. Also we discovered new data sources like the “**Carta Tecnica Regionale**” and the “**Geoportale Cartografico Catastale**” which allowed us to greatly boost our method.



OUR JOURNEY IN VENETO

H-FARM



REGIONE DEL VENETO



AGENDA
DIGITALE
DEL VENETO



OUR JOURNEY IN VENETO

H-FARM



REGIONE DEL VENETO



AGENDA
DIGITALE
DEL VENETO



ZERO

L'Acceleratore Cleantech
della Rete Nazionale CDP

Iniziativa di



Main Partner



Insieme a



Partner



Supportato da



Rete Nazionale Acceleratori



REGIONE DEL VENETO



AGENDA
DIGITALE
DEL VENETO



Thank You for Everything !



GET IN TOUCH!



Thermix Space



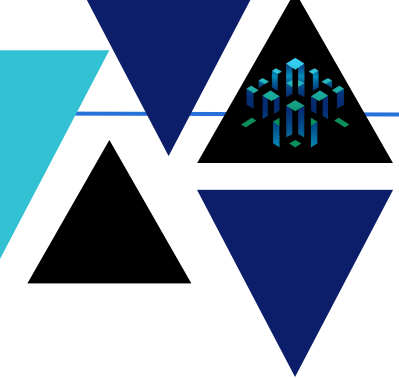
www.thermixspace.com



info@thermixspace.com



veneto stars



OUR TEAM



REGIONE DEL VENETO



AGENDA
DIGITALE
DEL VENETO



Alessandro Tampelloni

Chief Executive Officer

M.Sc. in Space and
Astronautical Engineering



Edoardo La Cava

Chief Operating Officer

M.Sc. in Space and
Astronautical Engineering



Elia Nascinguerra

Chief Technology Officer

M.Sc. in Space and
Astronautical Engineering



Leonardo Fiorenza

Chief Financial Officer

M.Sc. in Space and
Astronautical Engineering



Ludovico Gelsomino

Head of EO Data Science

M.Sc. in Data Science



Serena Romano

Head of Sustainability

Ph.D. in Environmental
Engineering



Stefano Foderaro

Head of R&D

M.Sc. in Space and
Astronautical Engineering



Lorenzo Muro

Software Engineer

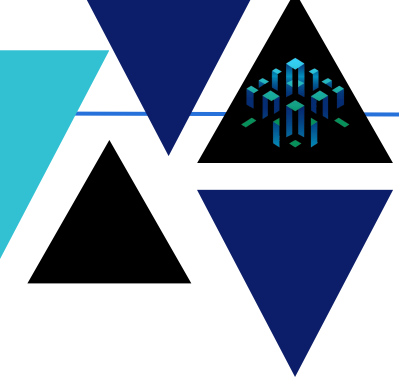
M.Sc. in Computer Science



WORKFLOW

Step 5 : Thermal efficiency estimation, personalized recommendation generation, and report delivery.





REFERENCE MARKET

TAM

Global consulting market:

Estimated at **USD 354.01 billion in 2024**, it is projected to reach USD 447.72 billion by 2029, exhibiting a compound annual growth rate (**CAGR**) of **4.81%**.

Source: Mordor Intelligence (Consulting Service Market Size & Share Analysis – Growth Trends & Forecasts (2024 – 2029))

SAM

Global energy consulting market:

Amounting to **USD 16.9 billion in 2022**, it is expected to reach USD 27.4 billion by 2031, exhibiting a compound annual growth rate (**CAGR**) of **5.46%**.

Source: Business Research Insights (Energy Consulting Market Size, Share, Growth, and Industry Analysis by Type (Reducing Energy Costs, Managing Risks and Others) By Application (Large Enterprises, SMEs and Others) Regional Forecast To 2031)

SOM

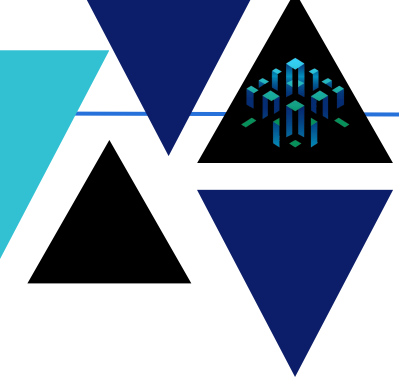
Italian energy consulting market:

Starting from the SAM, it can be estimated that the European market share represents approximately 30% of the global market, which amounts to around USD 5.1 billion. Based on this estimate, Italy could account for about 10%, yielding approximately **USD 510 million**. Additionally, it is assumed that the **CAGR** will remain consistent with the global figure, thus approximating around **6%**.

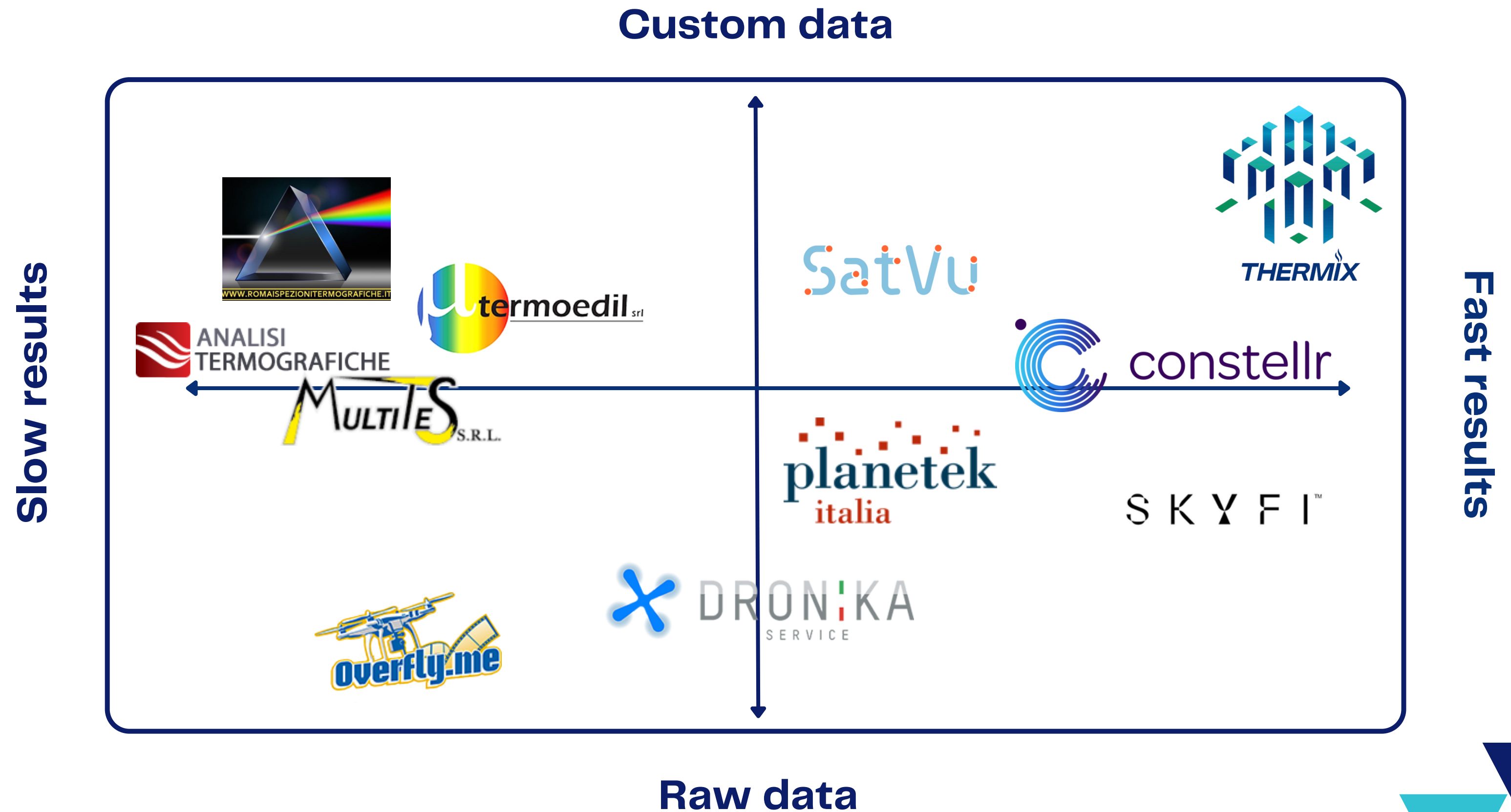
TAM
\$354.01 mlrd

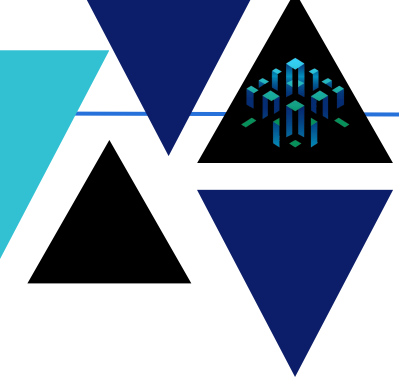
SAM
\$16.9 mlrd

SOM
\$510 mln

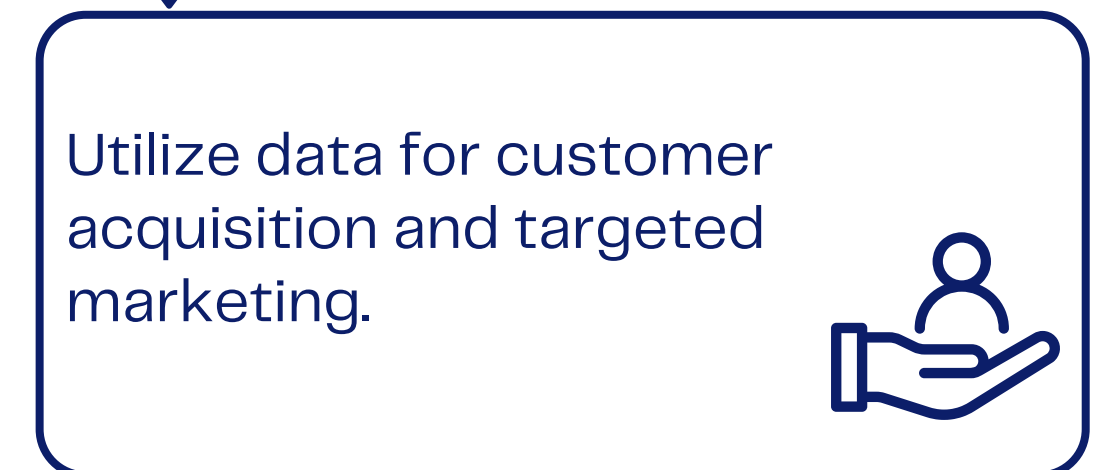
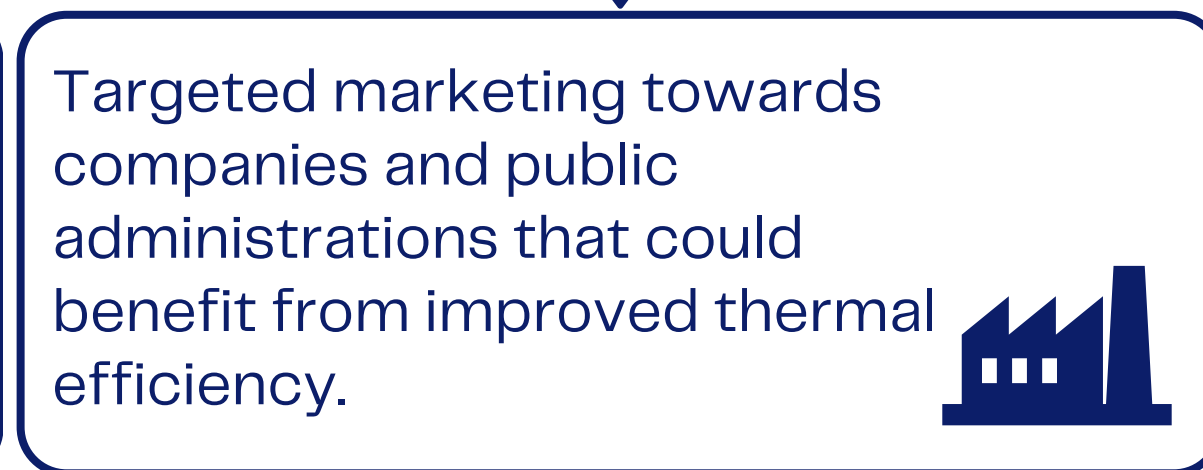
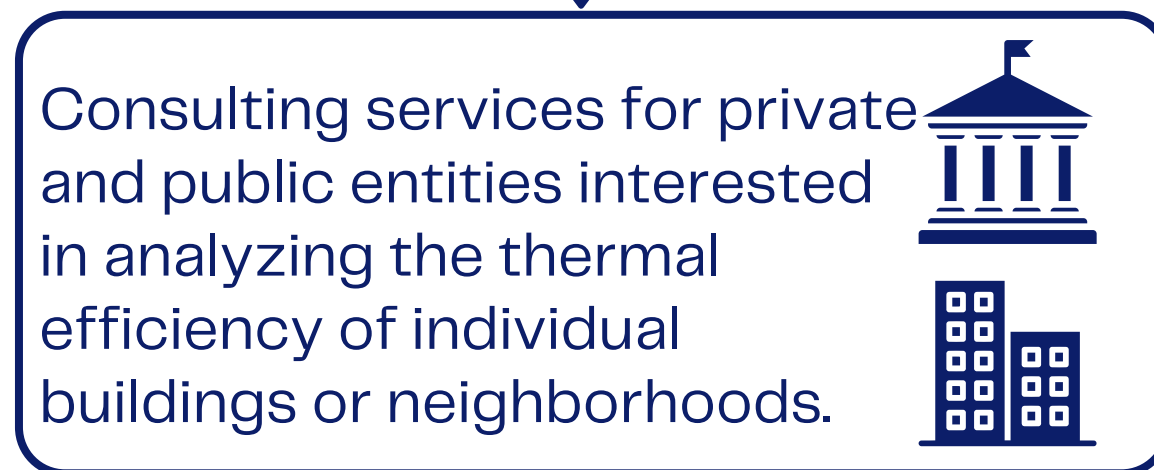


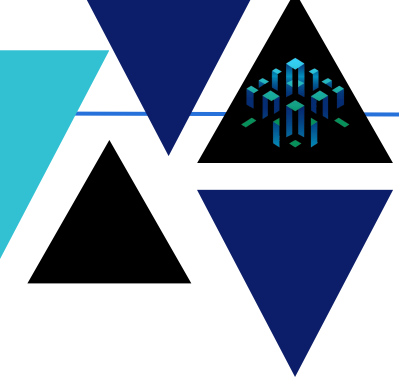
MARKET POSITIONING





B2B BUSINESS MODEL





BUSINESS ROADMAP



Start!

Q1 FY 2024

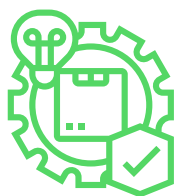
Market Opportunity
Identification and Competitor
Analysis



Preliminary Customer Discovery

Q2 FY 2024

Identification of target market
and customer needs



MVP, Business Plan

Q3 FY 2024

Creation of an MVP to present our
vision to clients and investors.
Drafting of the Business Plan.



Financing & TRL5

Q4 FY 2024

Acquisition of funding and
achieving TRL 5 with validation in a
controlled environment.



Experimental Validation (TRL8) Patent, Customer Discovery

Q2 FY 2025

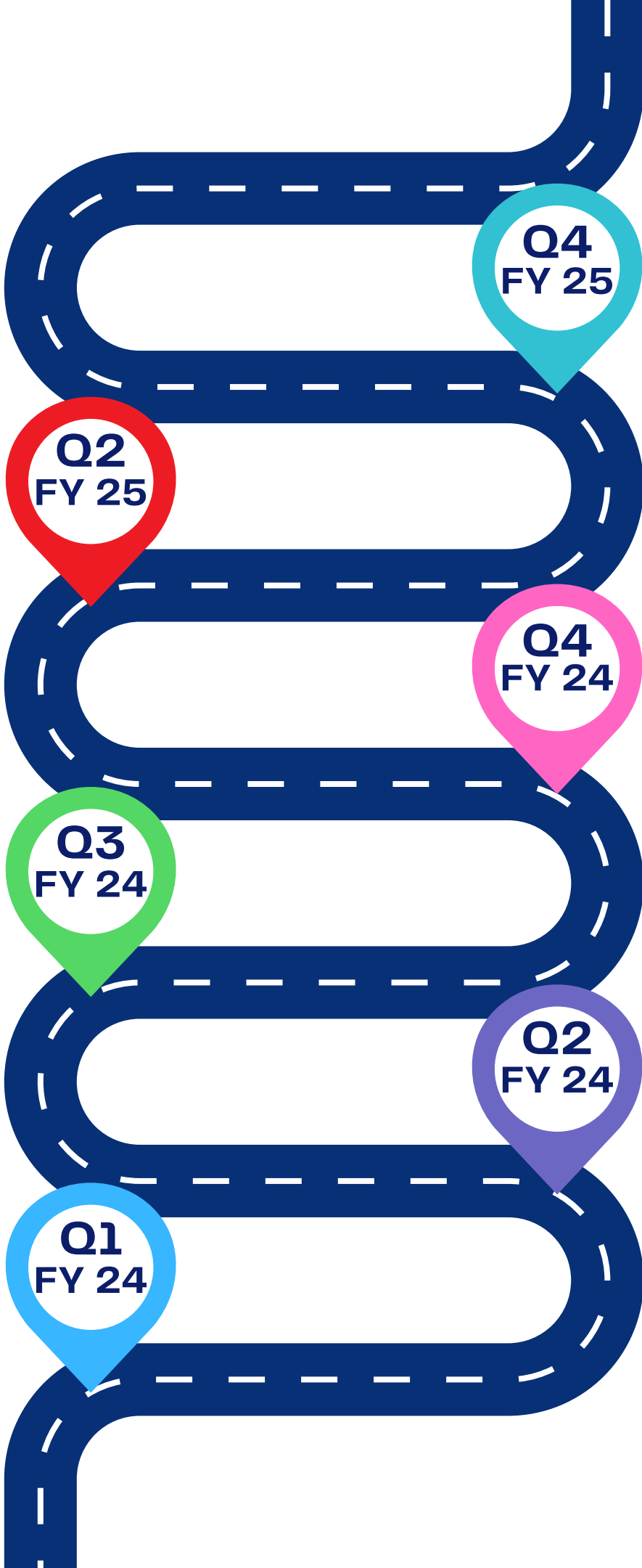
Experimental validation in a real
environment and subsequent
software patent.

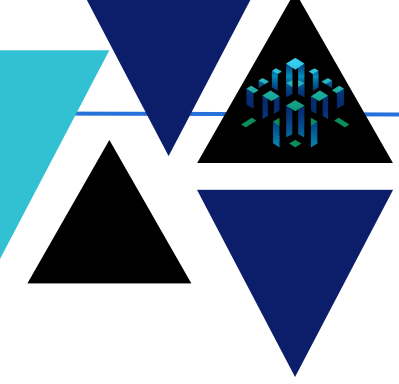


Partnership & Market Entry

Q4 FY 2025

Market entry and establishment of
strategic collaborations.





INVESTMENTS

Minimum first round of investments

€100,000

€60,000

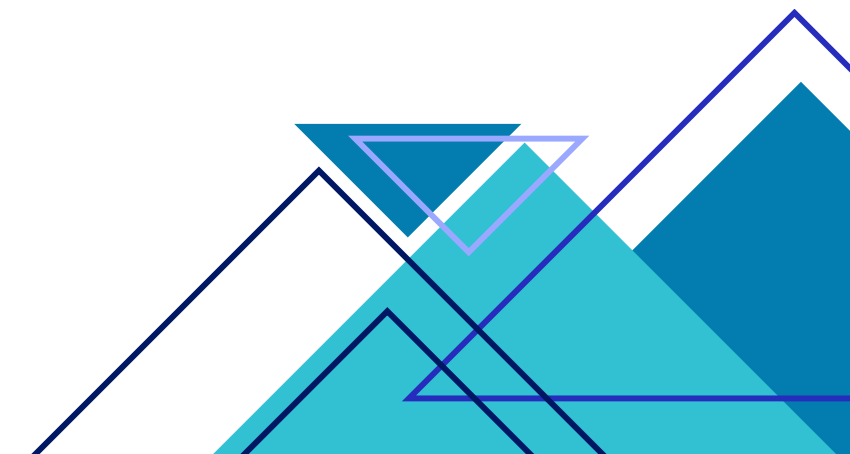
Capital contribution

- Purchase of satellite imagery
- AI training
- Software
- Server rental

€40,000

Operating contribution

- Marketing
- Consulting services
- Salaries of first employees





SHORT-TERM DEVELOPMENTS



Heat loss
through walls



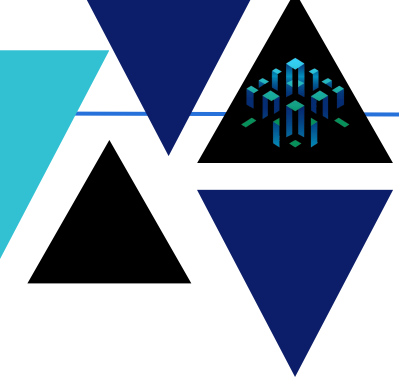
Photovoltaic systems



Deformations of
bridges and
infrastructure



Partner with **aerial
imagery** providers



CUSTOMER DISCOVERY STRATEGY

1

Design the questionnaire to understand customer pain points, needs, and motivations, and test it on a small group before using it widely.



2

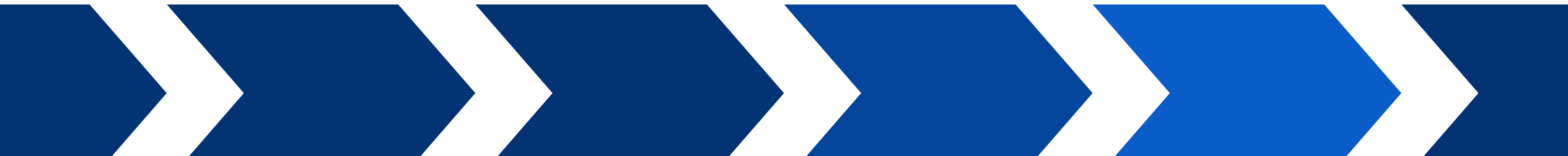
Build a list of potential customers that fit our target audience and gather contact details to reach out using tools such as Hunter.io, Clearbit, or LinkedIn Sales Navigator

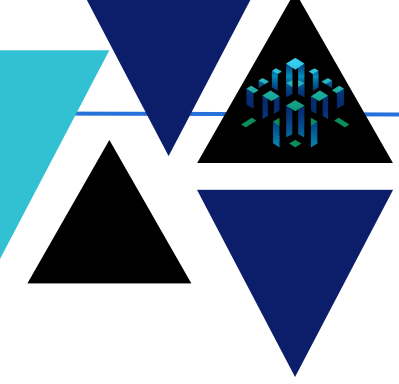
3

Reach out to potential customers and invite them for an interview, survey, or pilot test. Craft personalized emails and highlight the value of their feedback.

4

Analyze the data to refine the customer profile by identifying key themes, recurring problems, or unmet needs that align with our solution. Analyze the data both quantitatively and qualitatively.





TECHNOLOGY ROADMAP



Phase 1: From TRL 3 to TRL 5

Validation in a Relevant Environment

- Define target performance and develop a comparison model.
- Select a suitable flat-roof building and negotiate access.
- Install sensors for real-time performance monitoring.
- Conduct tests, identify discrepancies, and iterate the prototype.

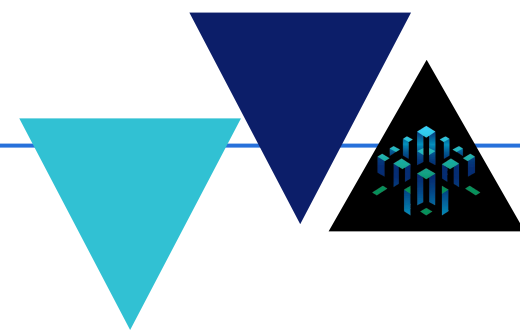
Phase 2: From TRL 5 to TRL 7

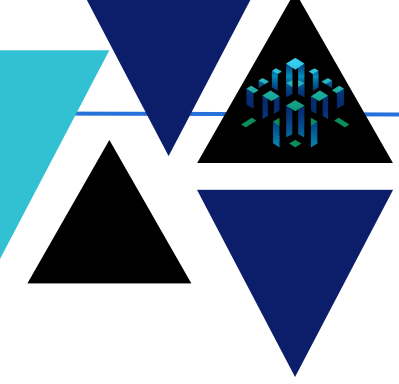
Validation in a Real Environment

Develop an advanced prototype with previous improvements.
Test in real-world conditions with industrial/public partners.
Optimize simulations with collected data and finalize analysis.

Phase 3: Patent Decision

TRL 5: Patent early to secure innovation.
TRL 7: Patent later for full product protection.





SUSTAINABLE DEVELOPMENT GOALS

7 AFFORDABLE AND
CLEAN ENERGY



11 SUSTAINABLE CITIES
AND COMMUNITIES



13 CLIMATE
ACTION



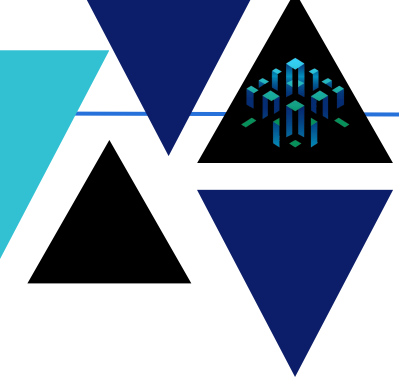
15 LIFE
ON LAND



THE GLOBAL GOALS



THE GLOBAL GOALS



AWARDS



Best Earth-Observation Related Startup

Latitudo40

Special Award

Scuola di Ingegneria Aerospaziale,
Università degli Studi di Roma “La Sapienza”

VeneToStars 2024 Challenge Winners



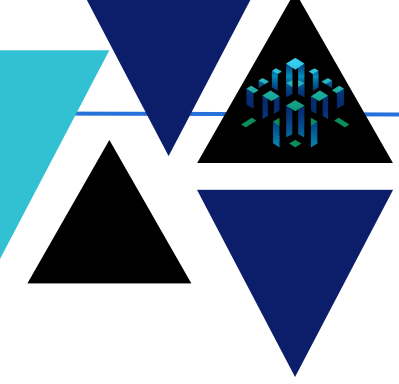
3rd Place Overall: Student Category

Green & Blue Special Mention

Peekaboo Special Award

Zest Special Award

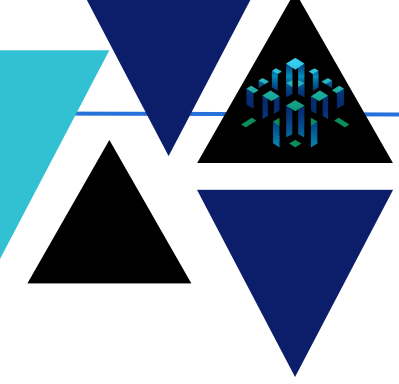
Regione Lazio/Lazio Innova Special Award



HEAT LOSS TROUGH LATERAL WALLS

- **Comprehensive Data:**
Capturing wall and roof heat loss provides a complete view of building inefficiencies, reducing underestimation, and improves energy efficiency assessments.
- **Better Model Calibration:**
Combined roof-wall data improves AI predictions of heat transfer dynamics.
- **Regional Relevance:**
Walls are critical in certain climates and building types (high-rise, older constructions).





ORGANIZATIONAL CHART

