



enigma

Nanoscale technology against global counterfeiting
ensuring product traceability

Our aim

Enigma provides smart solutions with traceability and anticounterfeiting purposes

Advantages

- High innovative technology never seen before
- High degree of customization
- Promotes circular economy

Areas of application

- **Agri-food**
- Electronics
- ID documents /private badges
- Aerospace
- Pharmaceutical packaging



Problem

Food fraud

Fruit and vegetable
counterfeiting

*2.3 billion € lost
in the EU every year*



15 billion
labels/year on
apples in EU

Ban on plastic stickers by 2028

*Regulation (EU) 2025/40 of
the European Parliament*



Accidental ingestion of plastic stickers

*9 to 22 millions accidental
bites per day*



Solution

Smart and Sustainable label

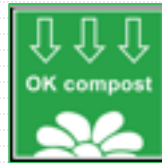


**PATENT
PENDING**

**Traceable &
secure**



- **Compostable**
- **100% plant-based**
- **Edible**

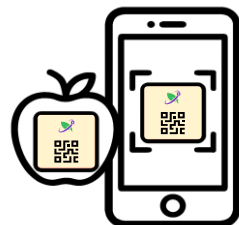


fully customizable



**Upcycling
agrifood waste**

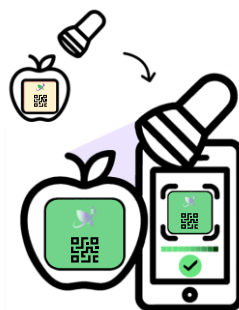
Label functionalities



LEVEL 1: TRACEABILITY B2C

Univocal QR code

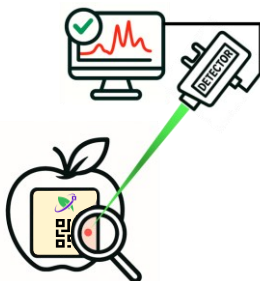
To gain information on the product.



LEVEL 2: AUTHENTICITY B2C

Fluorescence under UV light

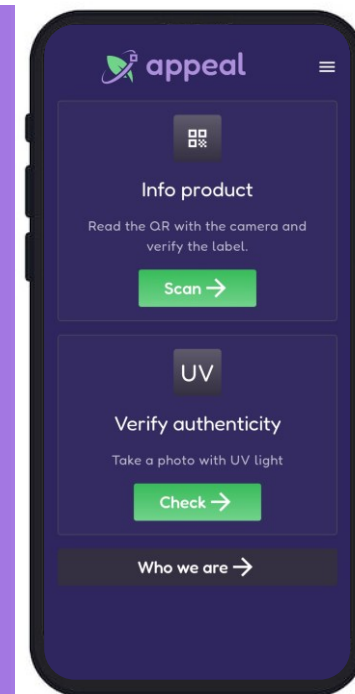
To check the genuineness of the product.



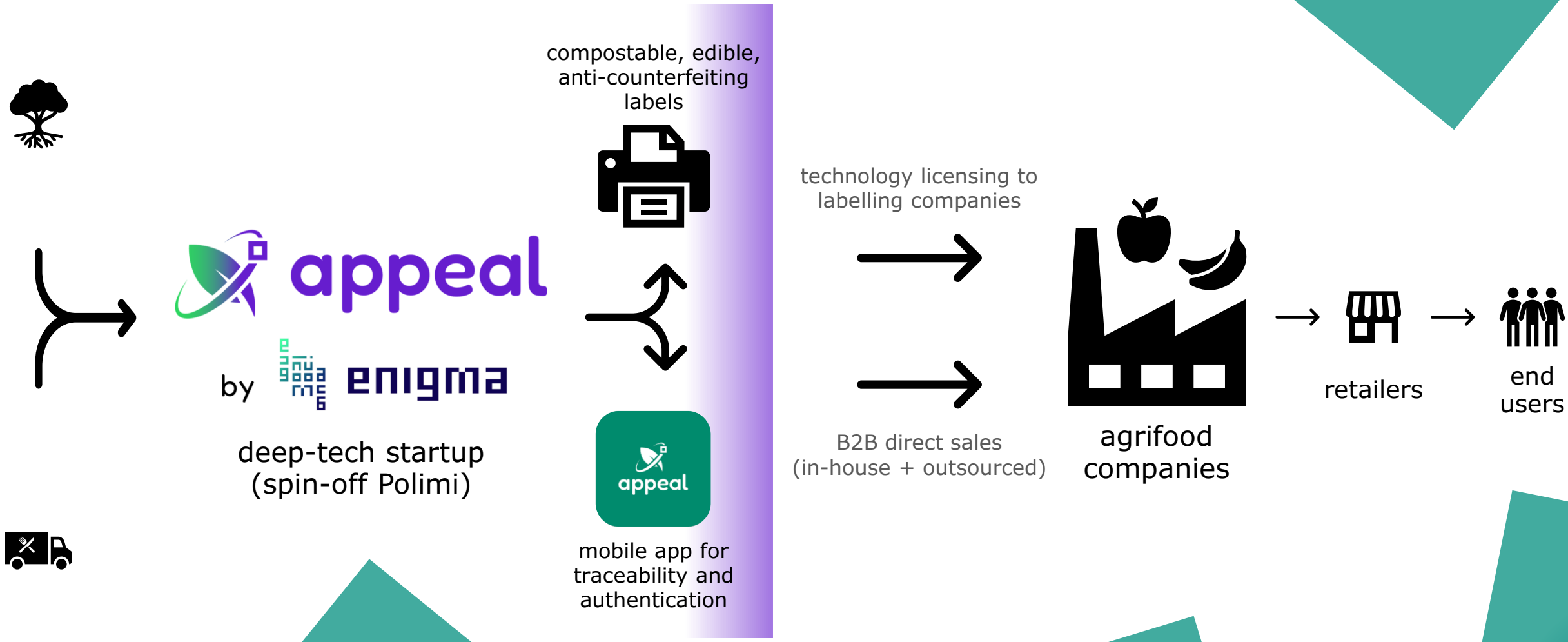
LEVEL 3 (*on demand*): AUTHENTICITY B2B

Molecular marker

For forensic lab-scale validation.



Business model



Development Roadmap

2025

- First PoC
- Patent filing
- Beta version of mobile app

End 2026

- Agreement with Consorzio Melinda
- Pilot
- Release of mobile app

June 2026

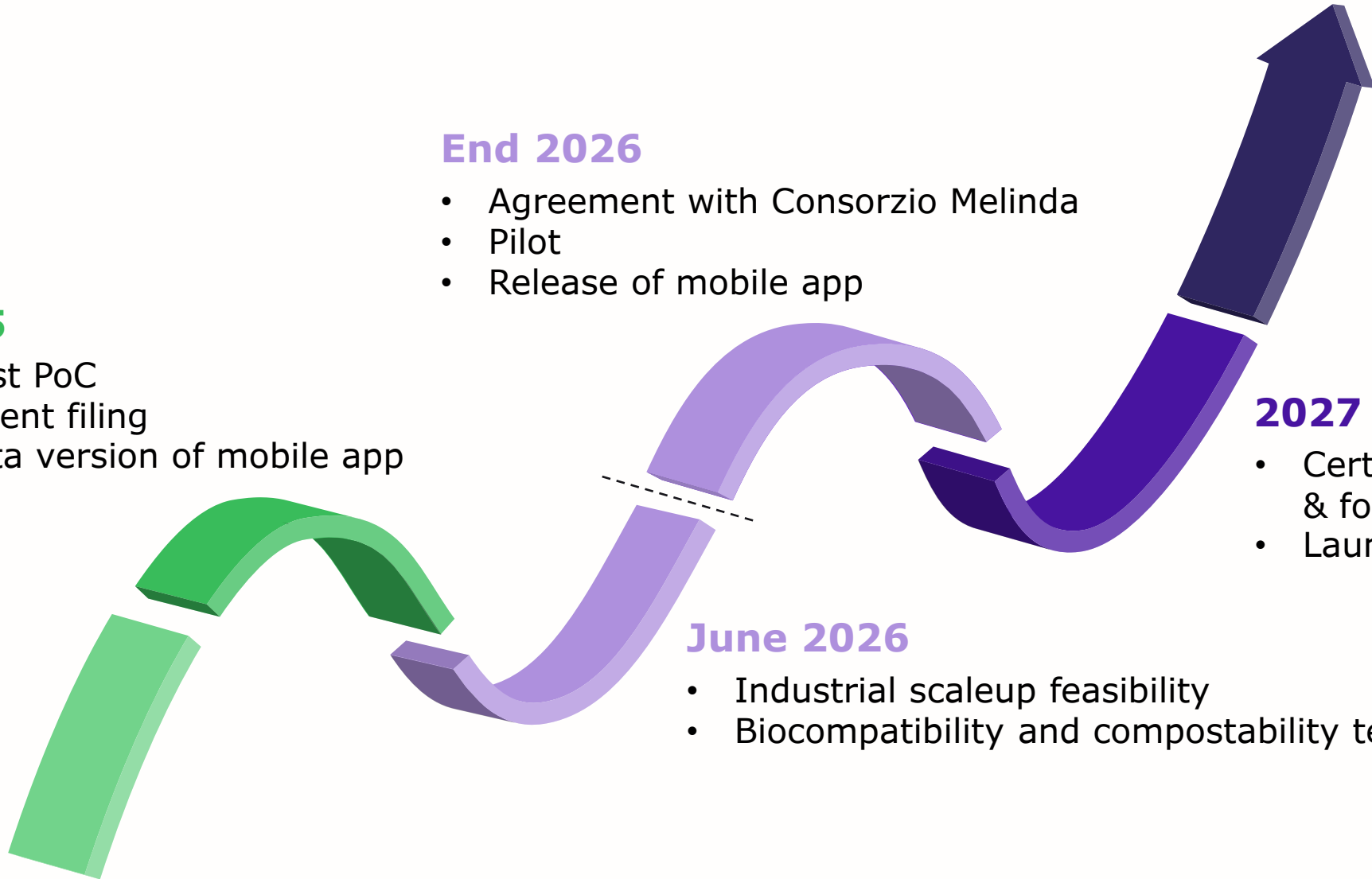
- Industrial scaleup feasibility
- Biocompatibility and compostability tests completed

2027

- Certifications for compostability & food-compliance
- Launch in the Italian market

2028

Expansion into the EU market



Team

CEO

Alessandro Vidale

Nanomaterial Engineer
7 years experience @
PoliMi Nanolab



CTO

Sonia Peggiani

PhD in Nanotechnologies
6 years of PostDoc @
PoliMi Nanolab



Business strategy

Stefano Gay

PhD in Chemistry
12 years experience as
innovation manager



Software developer

Samuele Scozzai

BsC in Machine
Learning, Big Data, and
Internet of Things



Polimi Team

- 1 full professor
- 1 PhD
- 1 technician
- 1 researcher

Strategy & management



Day One

Business Strategy
Product Management
User Centred Design support

<https://www.day-one.biz/>



by  **enigma**

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