



# Digital Circularity

# Intelligence

AI-Powered User-Friendly Software for Industrial Waste  
Valorisation

Presented by  
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Date

**18 December 2025**

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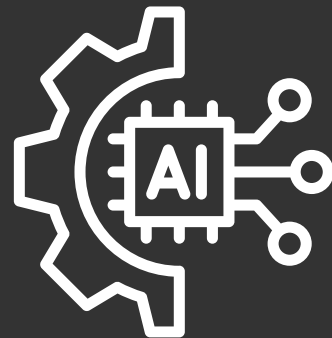
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# Who We Are



## Maintenance Control BV

Maintenance Control BV (MC), owner of the APT, helps organisations develop, standardise, implement, optimise, and secure maintenance.



## APT: Business Automation for All

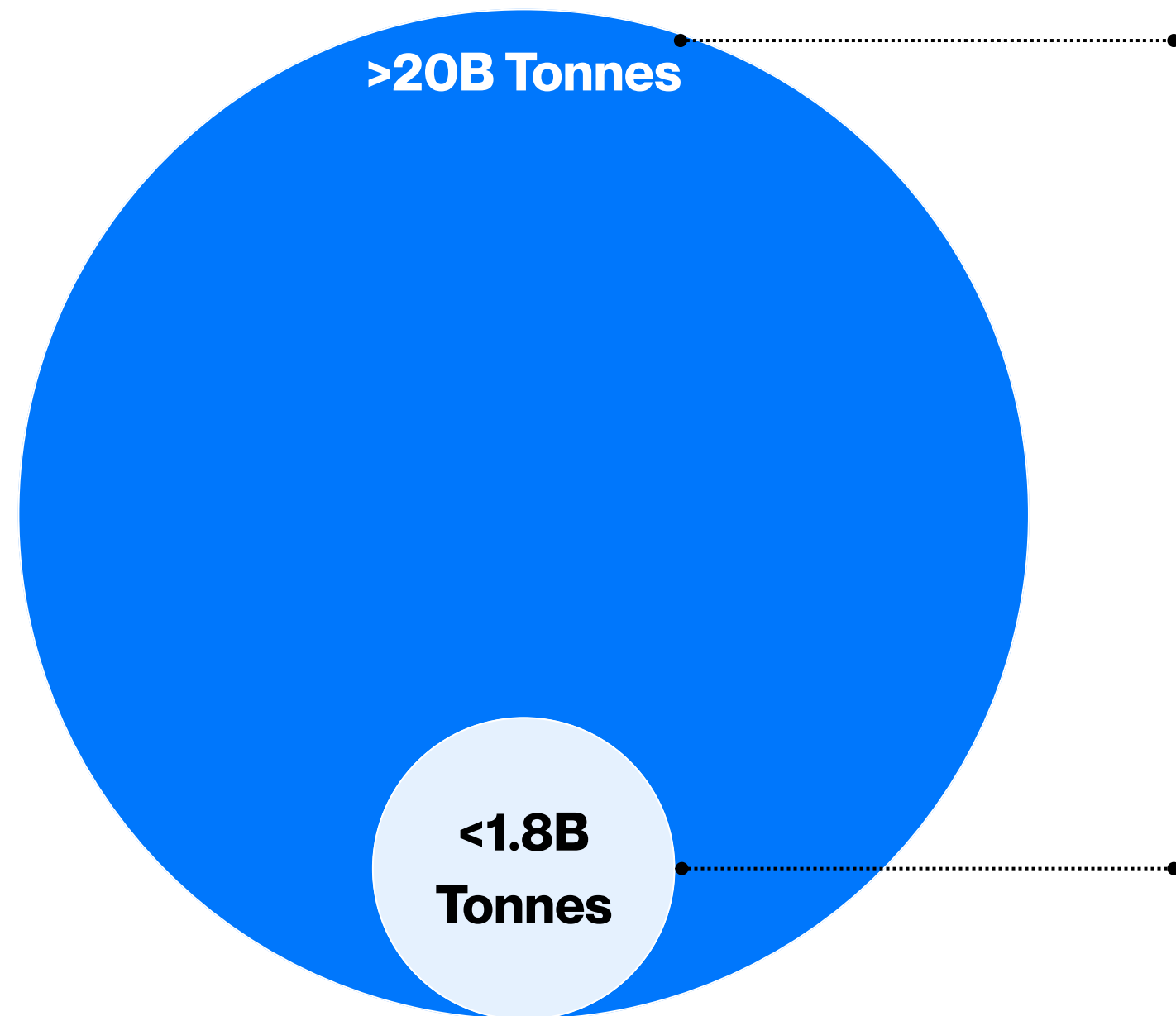
APT works on business automation and artificial intelligence for supply chain optimisation and industrial circularity.

# 75%

## Less Administrative Friction

APT core removes all manual actions across procurement to sales cycles, providing a 75% efficiency boost, a 300% increase in outreach, going from application to invoice in minutes.

# Circular Opportunity



## Global Waste Generated per Annum

Almost 3 tonnes of total waste per capita per year [1].

€25T

## Market Opportunity

The Circular Economy could generate \$25 trillion of economic output by 2050 [3,4].

## Global Circularity Rate

Global Circularity Metric is 8.6% which measures the fraction of materials that are returned into the economy as secondary feedstock [2].

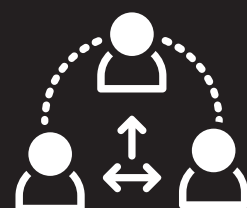
# Waste Blackbox

Waste streams are turbulent: lack real supply chains, contents are unknown, valuations are volatile, businesses are antiquated, and deals are unpredictable.



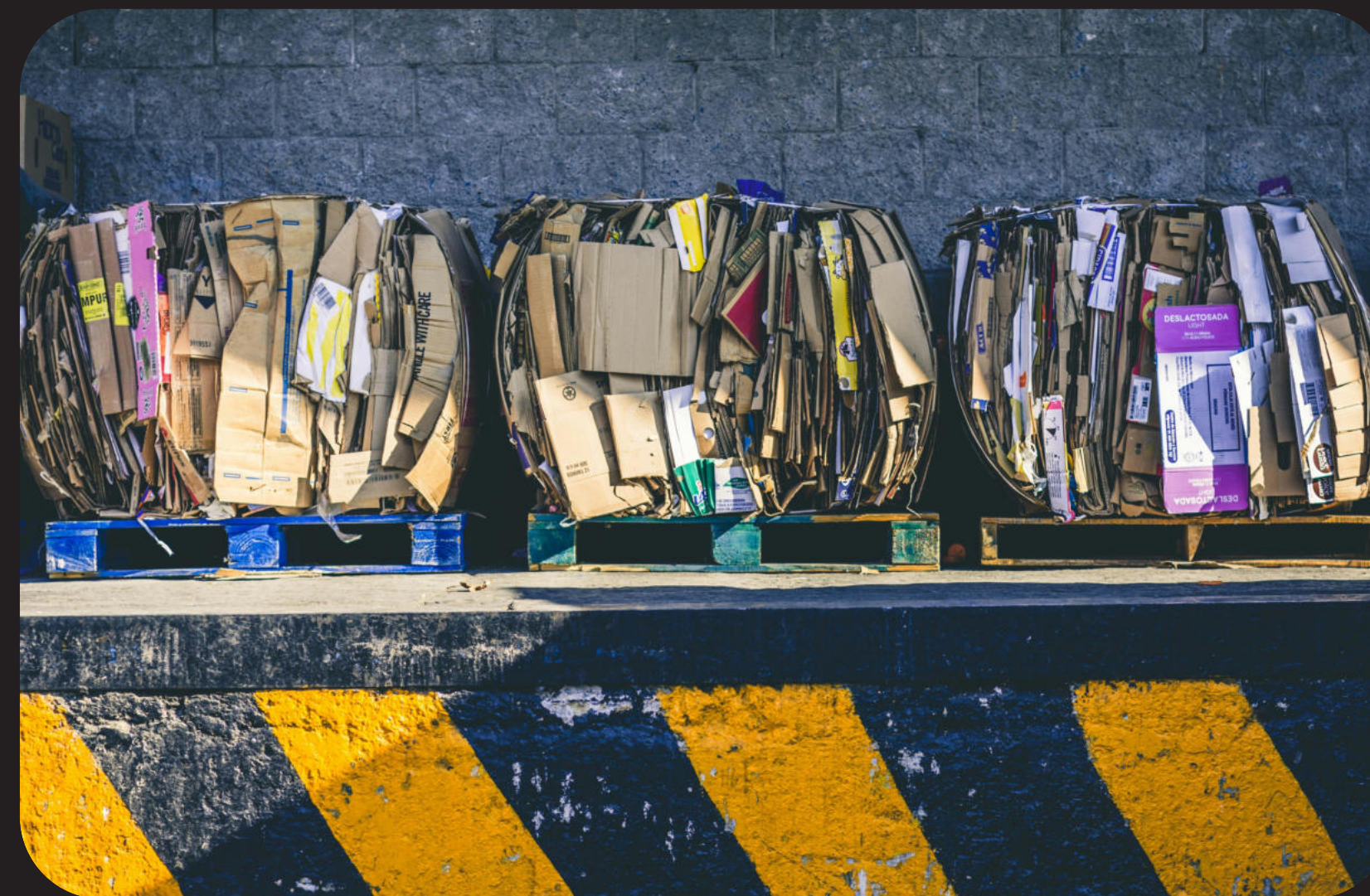
## Information Asymmetry

Material identification and sorting are slow and expensive. The lack of fast, practical on-site waste assessment methods leads to misclassification.



## Inefficient Trading

Without verified data, materials pass through unnecessary layers of traders. Each transfer adds cost, dilutes quality, and erodes traceability.

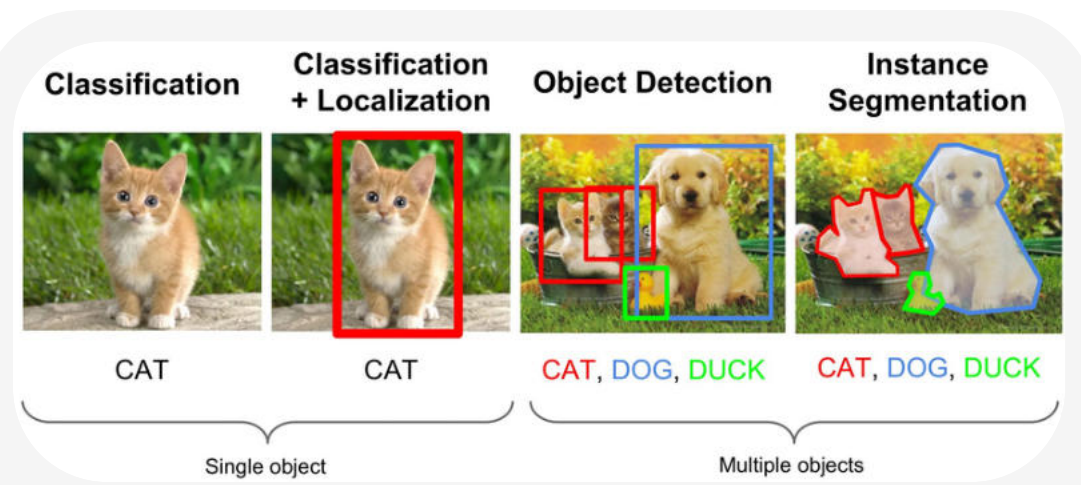


**700%**  
**Value Loss in**  
**Circularity**

Scrap materials are eventually sold at up to 700% below their intrinsic value, ending up with premature downcycling or incineration, along with an increasing carbon footprint and risk of spill.

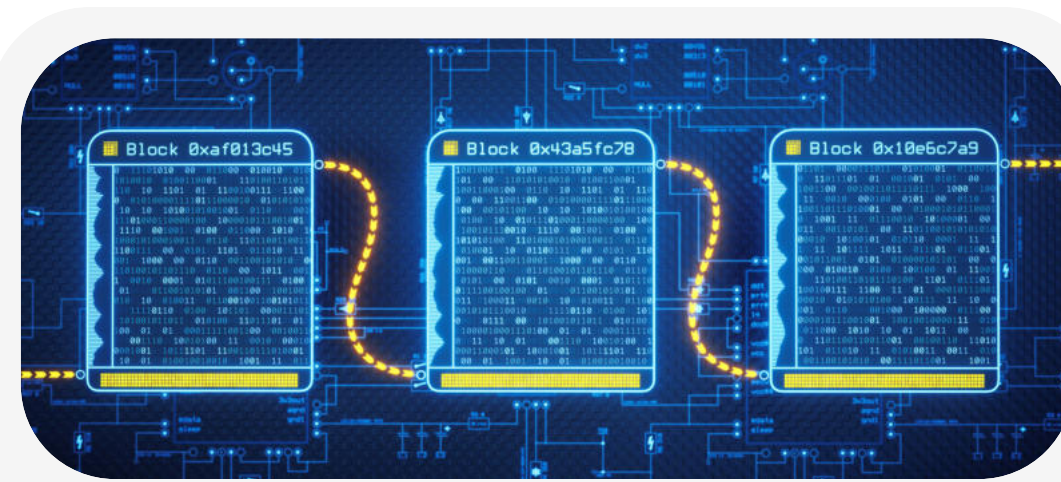
# Our Solution

## Quantify, Regulate, Optimise



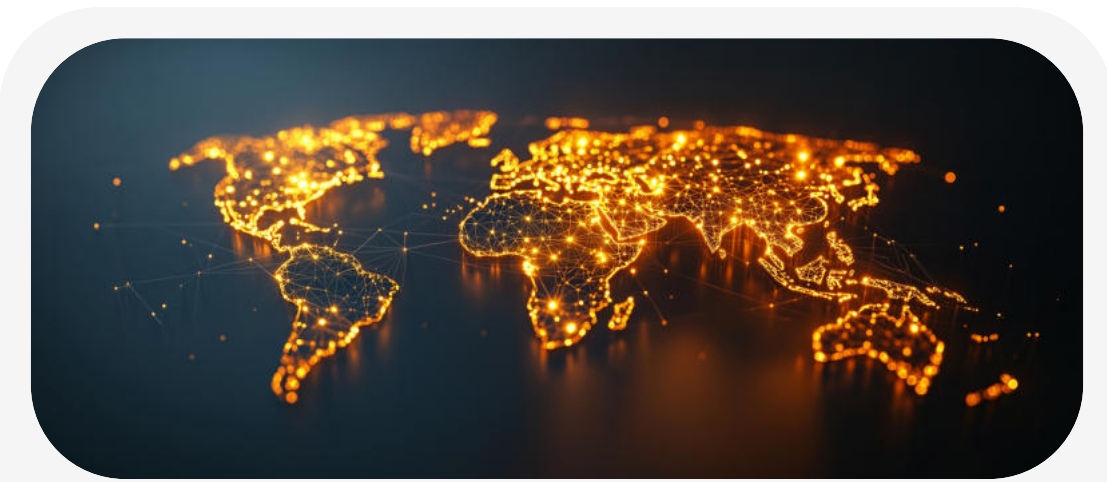
### Visual Profiling

Instant material identification and contaminant detection using standard smartphones and state-of-the-art AI.



### Digital Material Passport

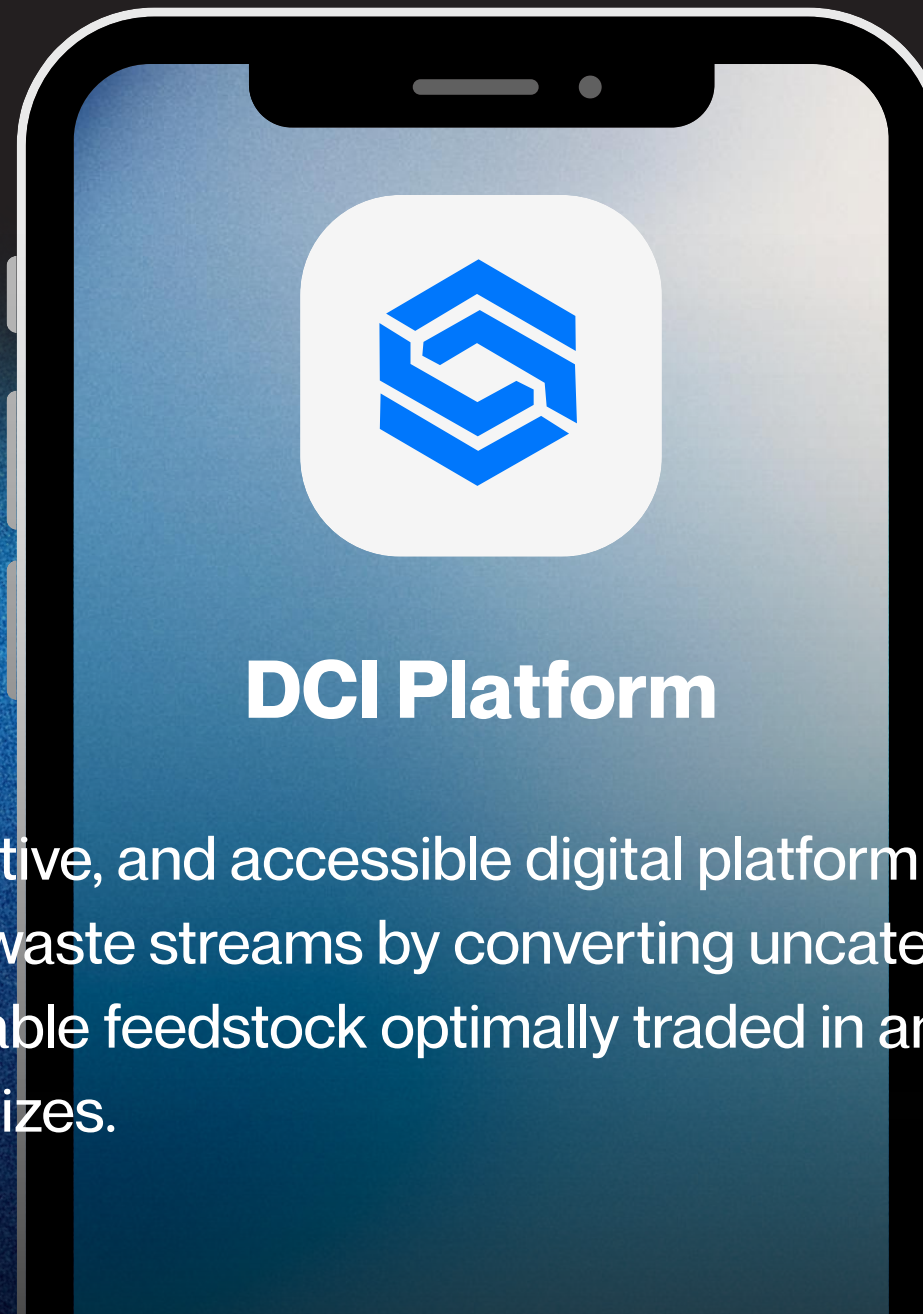
Tamper-proof blockchain ledger (DMP) tracks origin, composition, and regulatory status from source to processor.



### Supply Chain Optimisation

Algorithmic matching of the processing partners and automating Source-to-Pay transactions to maximise profit, efficiency, and environmental benefits.

# Introducing the Digital Circularity Intelligence

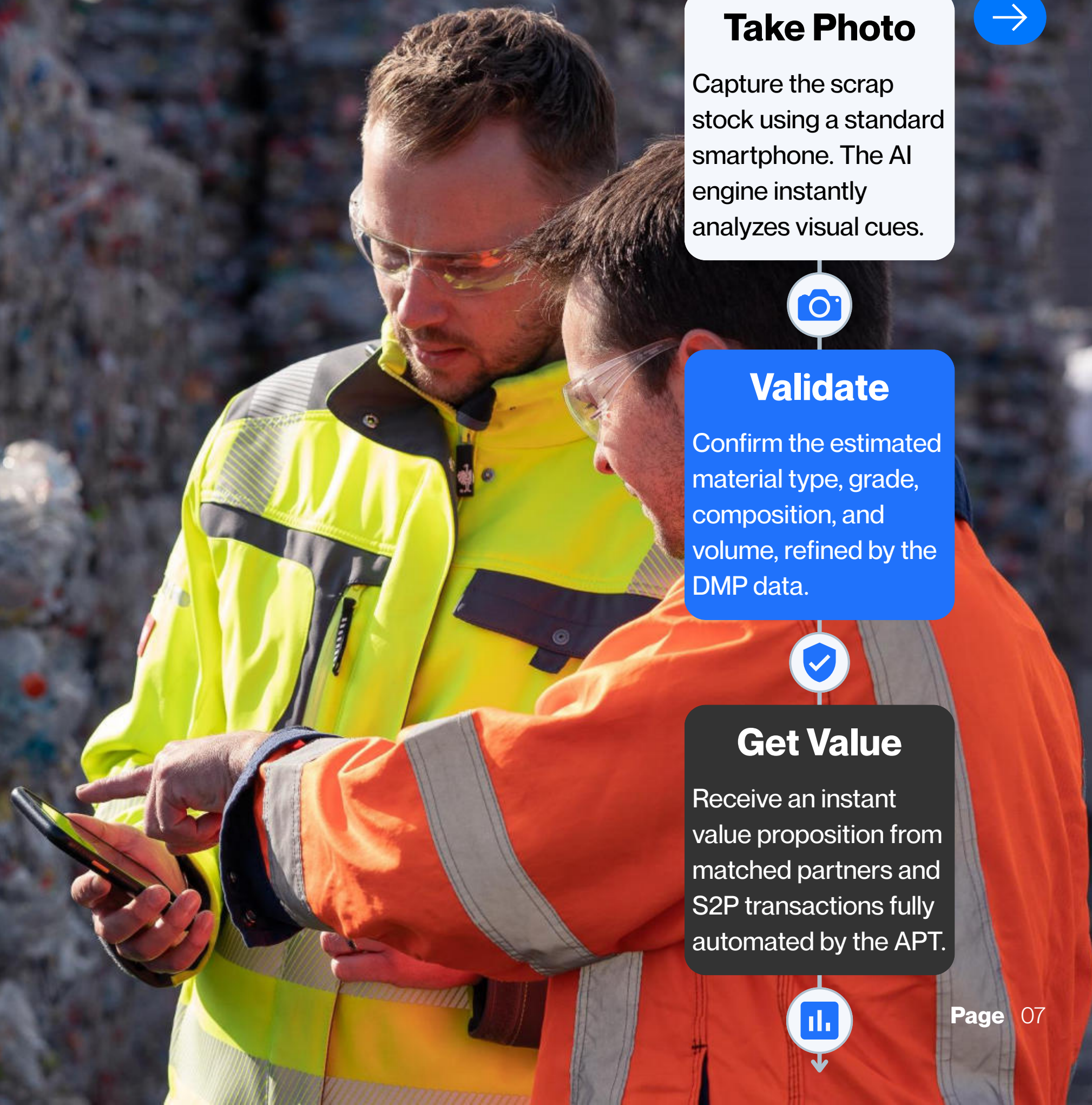


A democratised, intuitive, and accessible digital platform designed to unlock the intrinsic value of waste streams by converting uncategorized scrap into profitable, fully traceable feedstock optimally traded in an exchange medium for companies of all sizes.

# From Waste to Value in One Tap

The 'One-Tap' UI/UX is designed for shopfloor and field deployment, making complex analysis accessible to non-experts and non-specialised personnel.

LLM Assistants provide natural language guidance and instant technical clarification. Inclusive and personalised explanations are adjusted to the user's level of expertise.



## Take Photo

Capture the scrap stock using a standard smartphone. The AI engine instantly analyzes visual cues.



## Validate

Confirm the estimated material type, grade, composition, and volume, refined by the DMP data.



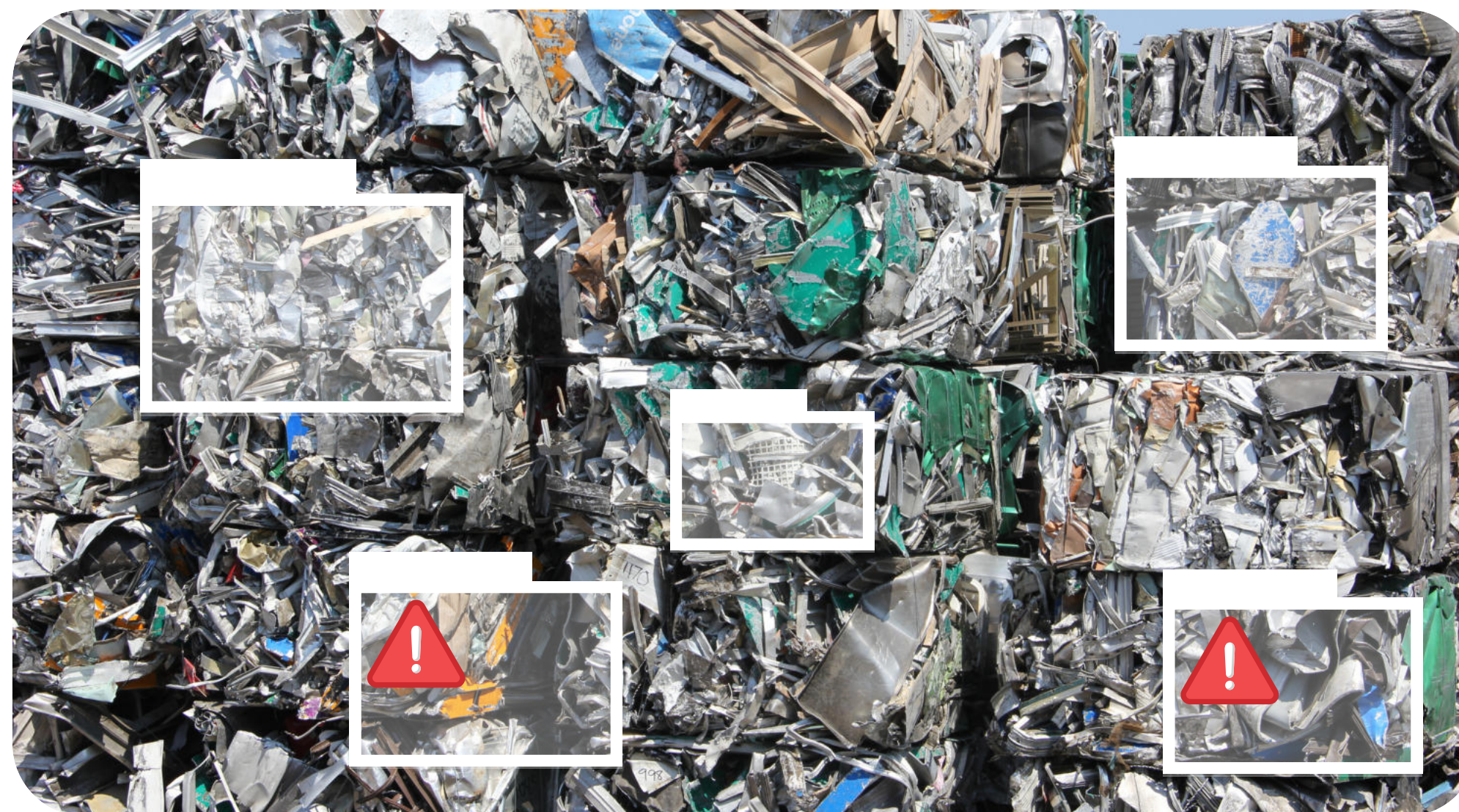
## Get Value

Receive an instant value proposition from matched partners and S2P transactions fully automated by the APT.



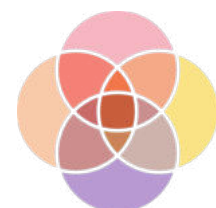
# Visual AI Engine

Multi-modal Deep Learning based on Vision Transformers and Convolutional Neural Networks interprets subtle visual cues from standard RGB images.



## Surface Analysis

Detecting fine details like gloss, micro-wear patterns, reflection anisotropy, and surface texture to distinguish types and grades of materials.



## Segmentation

Semantic segmentation models precisely measure particle size distribution, pile volume, scrap shape, map and quantify foreign matter.



## Safety

The system warns about hazardous objects such as batteries, medical waste, gas containers, or other suspicious items.

# Universal Waste Stream Scope

**Steel, 316L, 48% Oxide, Laser**



**PET+PP+PE, Package, Clean**



**Paper, 82%, 9% Wet, 52% Torn**



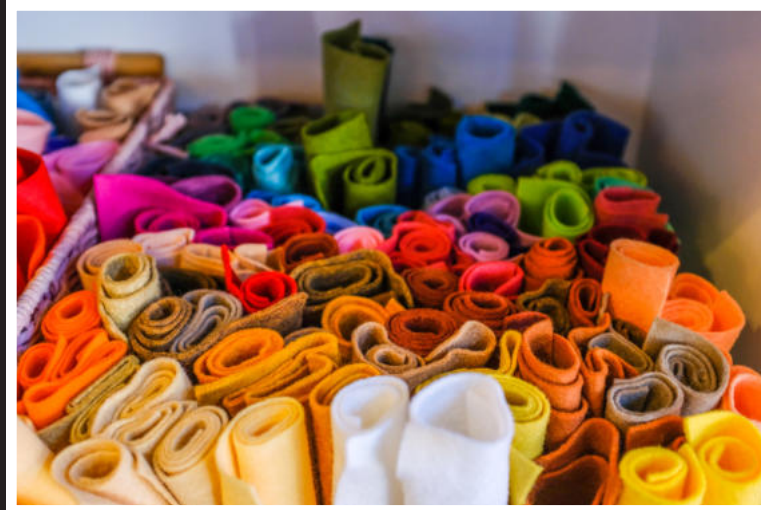
**Rubber, Truck, 35% NR, 25% SBR**



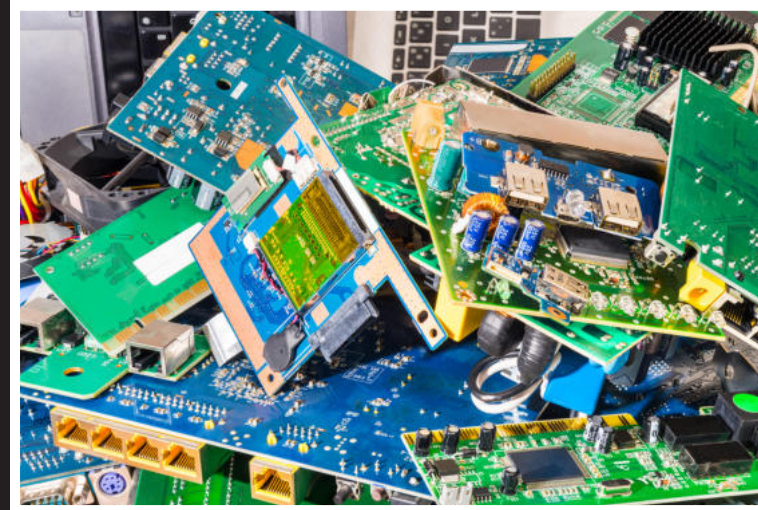
**Glass, USP TIII, Mixed Colour**



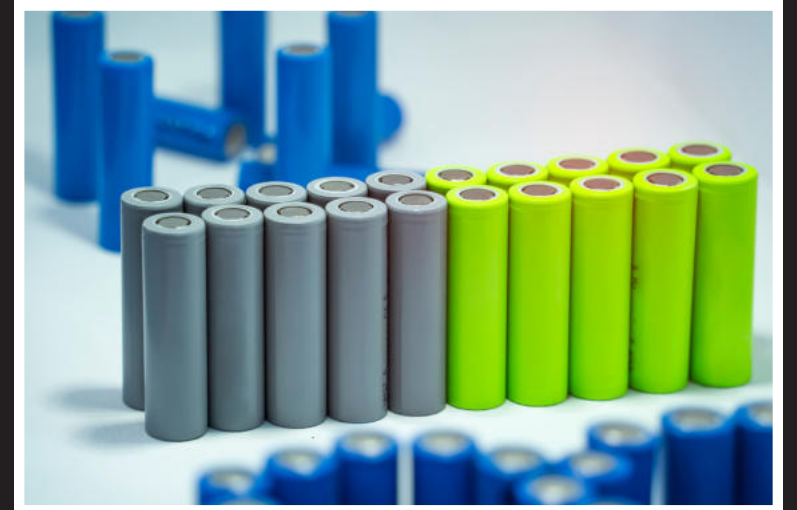
**Fabric, Woven, 50/50 Cot/PET**



**PCB, 210 g/T Gold, 30% Metal**



**LIB, 18650, Damaged < 13%**



# Supply Chain Optimisation



Multi-objective optimisation algorithms match materials with the most profitable and sustainable processors by ingesting the DMP, real-time market and logistics information.



## APT Core

APT orchestrates software modules, powers fully automated sales/procurement cycles and documentation handling, and ERP interactions.



## Matching Module

A built-in matching module aggregates member traders and processors, and connects to external supplier databases to expand outreach.



## Smart Logistics

The algorithm optimises transport scheduling, minimises empty-load kilometres, and reduces overall logistics costs and environmental footprint.

# Digital Material Passport

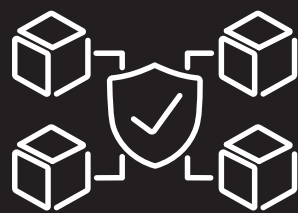


Digital Material Passport (DMP) creates a secure, immutable, serialised record (Material ID) for every batch of waste.



## Consolidated Data

DMP captures commercial paperwork (e.g., quotations, invoices, purchase orders, datasheets, SDSs), origin, composition, quality certificates, and environmental footprint data.



## Traceability

DMP is a tamper-proof, blockchain-secured ledger that tracks the material from source to final processor.



## Compliance

DMP automates environmental impact assessments (LCA, Mass Balance) and ESG reporting.

# Transforming Waste into Liquid Assets

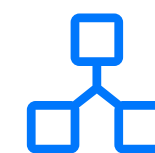
Our vision is to transform the opaque waste brokerage market into a transparent, data-driven ecosystem, a Digital Circularity Exchange.

By retaining waste within Europe and transforming it into secondary raw materials, we strengthen industrial resilience, reduce dependency on external resources, and advance the EU's circular economy goals.



## Stable & Valuable Trading

Waste becomes a precious, standardised feedstock exchanged in stable supply chains.



## Direct Connection

Links generators directly to the best processors, removing unnecessary intermediaries.



## Unparalleled Traceability

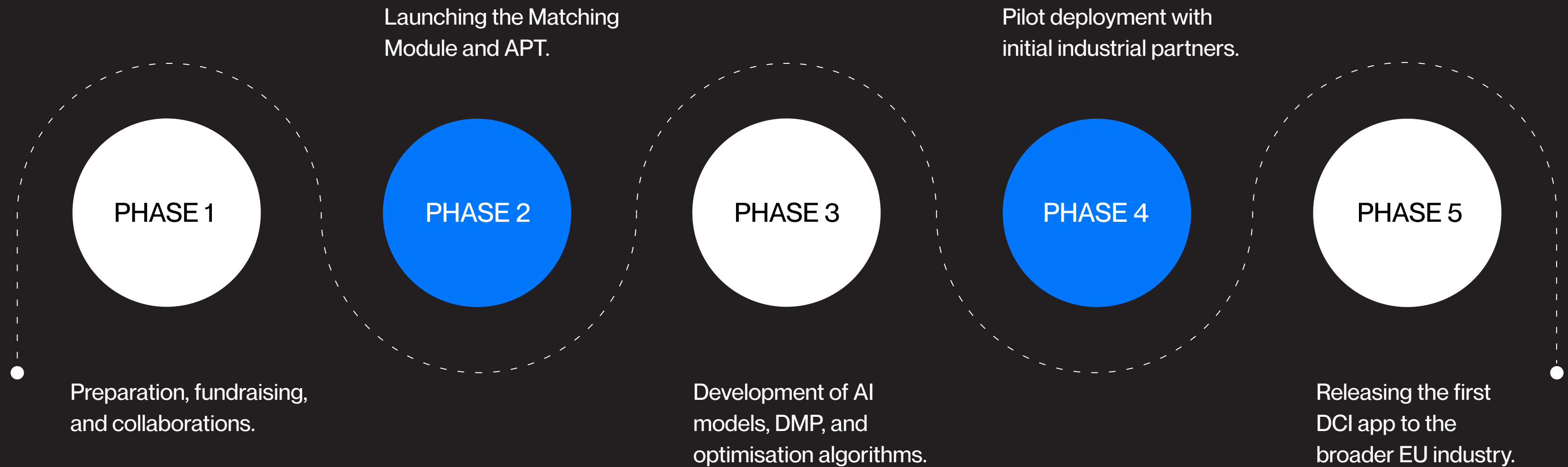
Verified product data and full visibility for all participants on a regulated, safe exchange platform.

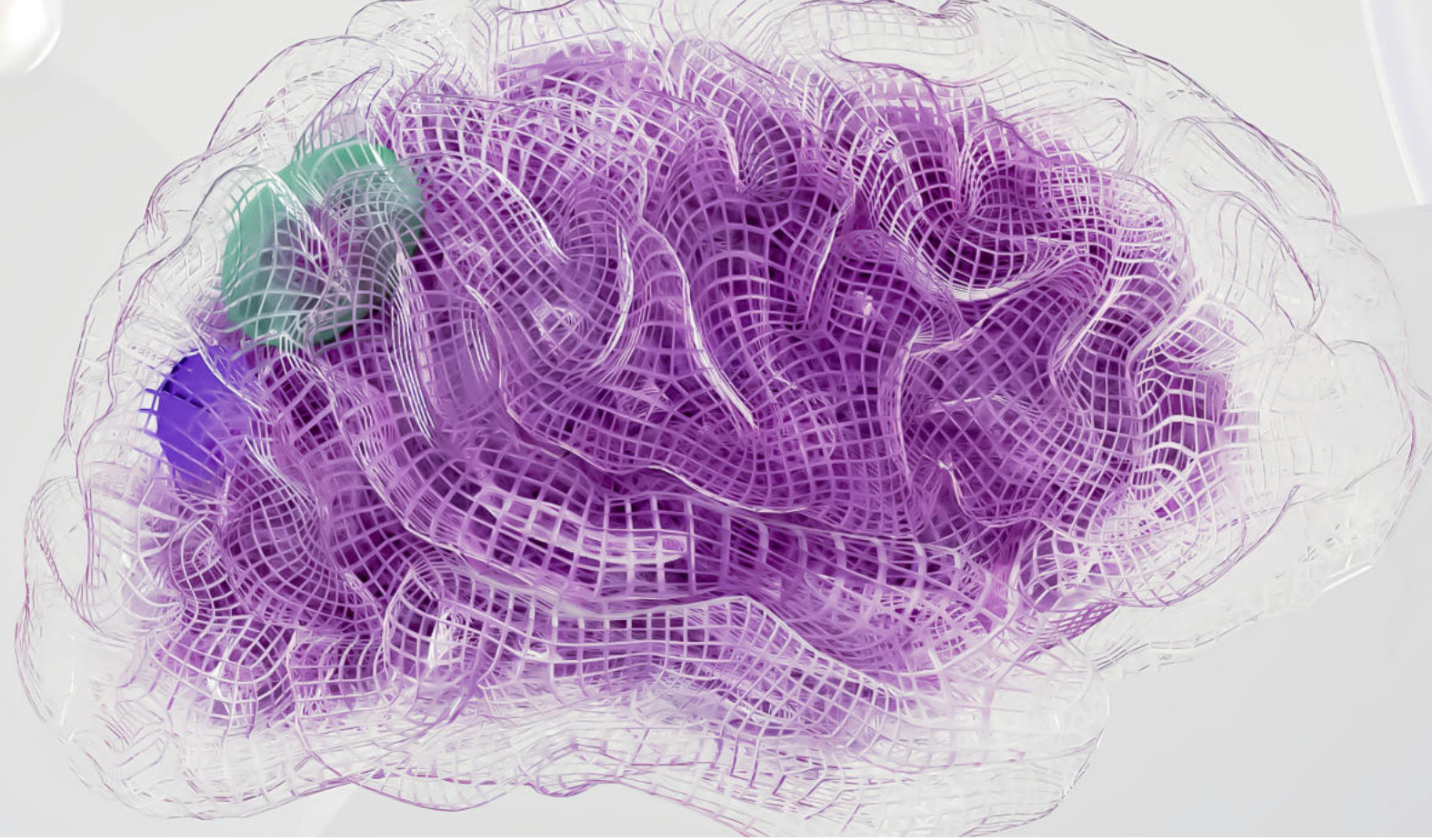


## Sustainable Growth

Significant increase in circularity rates, reduction in CO<sub>2</sub> emissions and resource loss, complying with European Green Deal objectives.

# Product Development Roadmap





[CONTACT US](#)

# Let's Bring Intelligence to Circularity Together

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# References & Notes

[1] <https://journals.sagepub.com/doi/10.1177/0734242X221074116>

[2] <https://www.circularity-gap.world/2022>

[3] <https://www.unep.org/resources/global-waste-management-outlook-2024>

[4] <https://newsroom.accenture.com/news/2015/the-circular-economy-could-unlock-4-5-trillion-of-economic-growth-finds-new-book-by-accenture>