AUTOMEDI

Circularity, Anywhere, Everywhere

Lancaster University: Automedi Plastic Recycling Project

Lancaster University

Contents

Universities operate a lot like cities. Plastics continue to pose a unique challenge to mother nature. Already significant routine plastic waste footprints are coupled with significant transportation and disposal emissions, though a complex supply chains that rarely result in products made directly from that waste.

Universities also operate almost identical public procurement operations to cities and must meet many of the same requirements. This makes universities, already centres of learning and innovation, ideal test-bed for promising technological solutions they can even add to.

Circular economies provide a unique opportunity to resolve both emissions and waste problems. Careful engineering and deployment can provide circular products cheaper than either conventional buying or waste processing alone and amplifies the social good.

Lancaster university has become a cherished partner of Automedi and the Reallyrecycle.com brand. The university has provided an excellent pipeline of new talent while also creating a cohesive relationship that builds on the world-class work of Automedi to demonstrate what cities can get.

Ethar Alali

Ethar Alali

CEO & Founder

PERENNIAL PLASTIC PROBLEMS

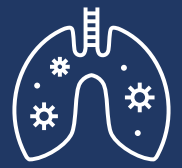
340 million tonnes
new plastic rubbish

10 trillion
total freight tonne-miles

8.26 billion
Transport (t CO2e)

37.1 billion
Manufacturing (t CO2e)

$30 trillion
wasted economic potential



$1.6 trillion
trade-related respiratory disease

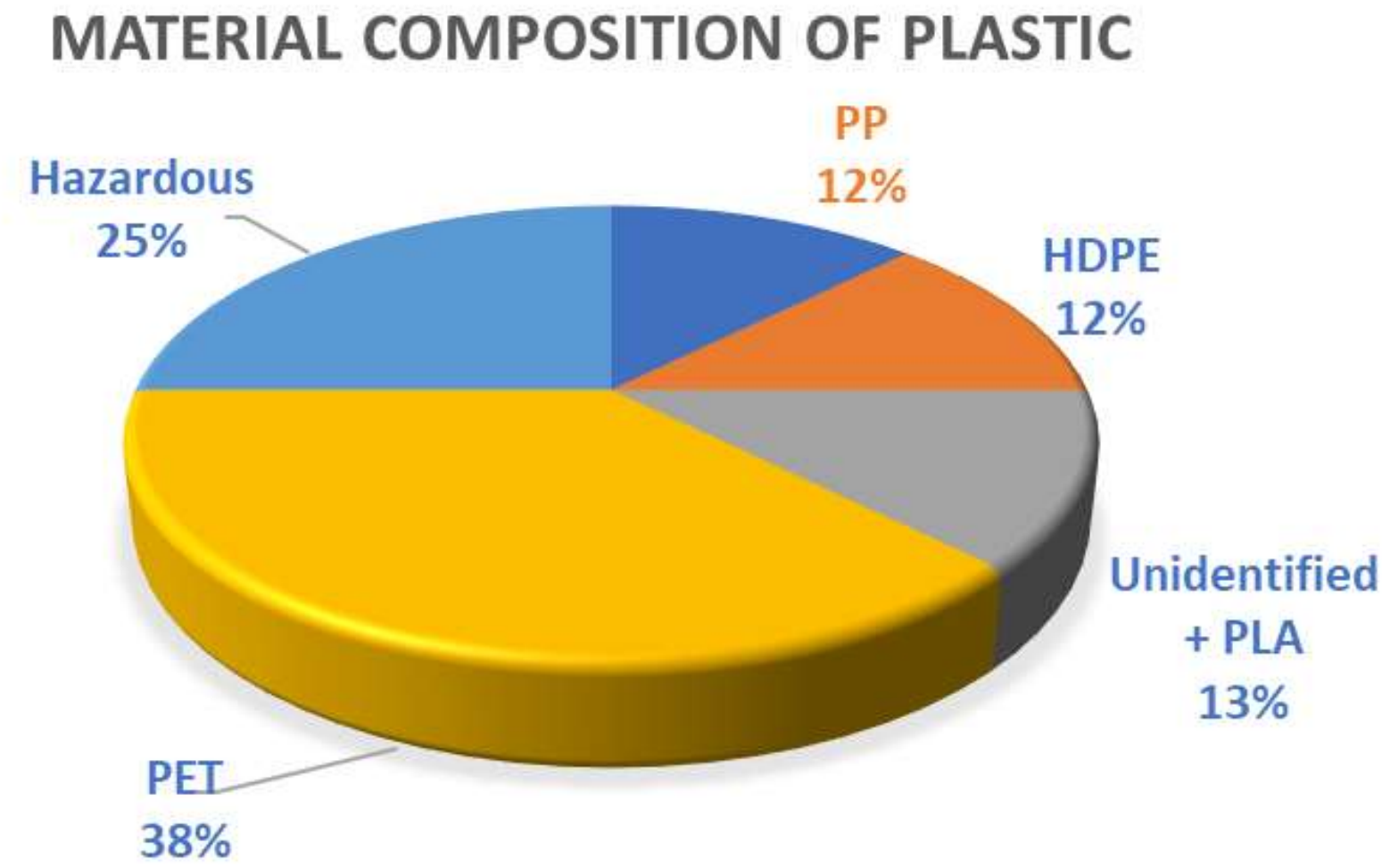
1.185 million
t CO2e
EU Inhaler emissions

AUTOMEDI

COMPOSITION ANALYSIS: CONTEXT

Approx 48 Tonnes of waste generated on LU campus is recycled waste out of total waste generation 2300 tonnes a year.

PLASTIC COMPOSIT|ION: LANCASTER UNIVERSOTY SAMPLES



LANCASTER UNIVERSITY: PLASTIC VARIETY

Single-use plastic items: includes plastic bottles, disposable cutlery, food containers, plastic bags, and packaging materials.

Lab materials: Labs generate plastic waste such as pipettes, test tubes, petri dishes, plastic beakers, and sample containers.

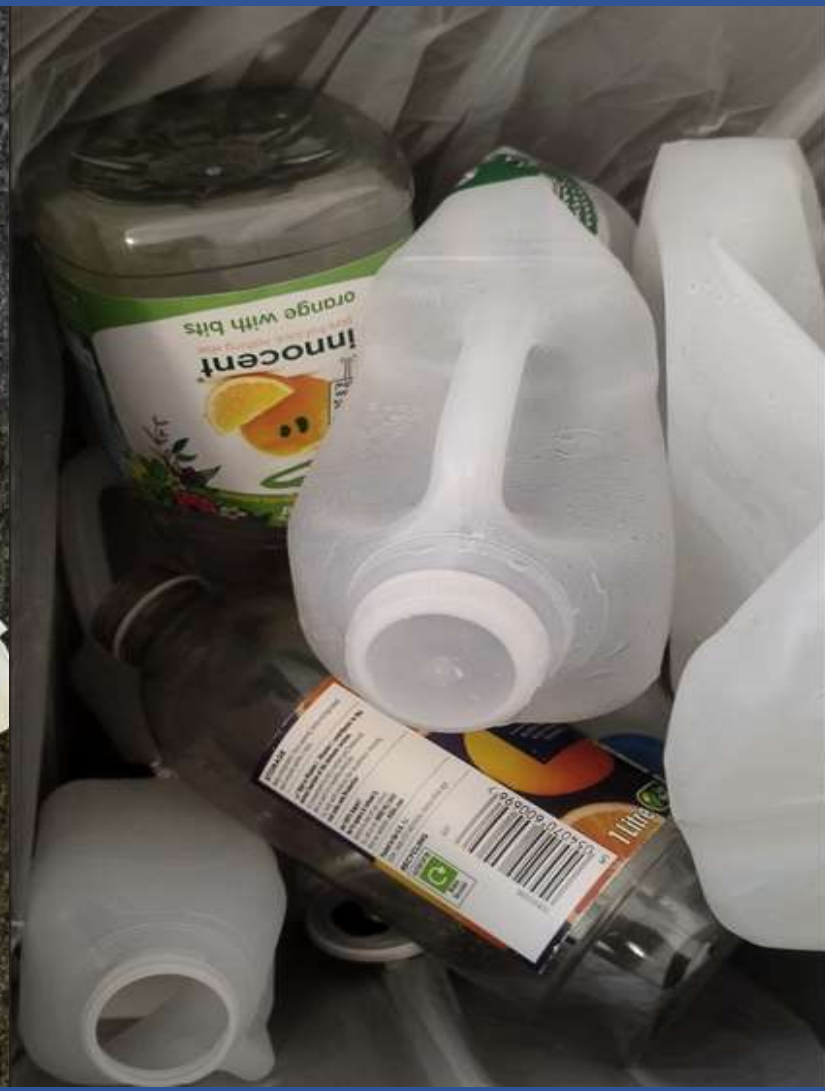
Office supplies: like pens, markers, folders, binders, and plastic packaging for stationery.

Food service waste: Plastic containers, cups, lids, straws, and utensils used in campus cafeterias.

Event-related waste: Plastic cups, plates, and packaging materials used during campus events.

Personal care products: like shampoo, shower gel, hand wash, and lotion bottles.

SAMPLE COMPOSITION: LANCASTER UNIVERSITY CAMPUS



Competitor Universities & Plastic Recycling Projects

Cambridge
To recycle 95% of waste produced on University Campus and eliminate Plastic waste.

Edinburgh
Striving to be disposable plastic-free by 2030

Oxford Developing sustainable solutions for plastic waste reduction and circular economy practices.

Manchester

Collaboration with industry and stakeholders to develop practical solutions for plastic waste management

London
Supporting research, innovation, and industry engagement in plastic waste reduction and recycling

Pathway

Collection & Segregation

Plastic Waste collected & sorted by type

1

Waste Analysis

Balance the composition of the waste

2

Shredding and Grinding

Shred and granulate to consistent size

3

Filament Production

These granules are fed into an extruder, to melt into filament form

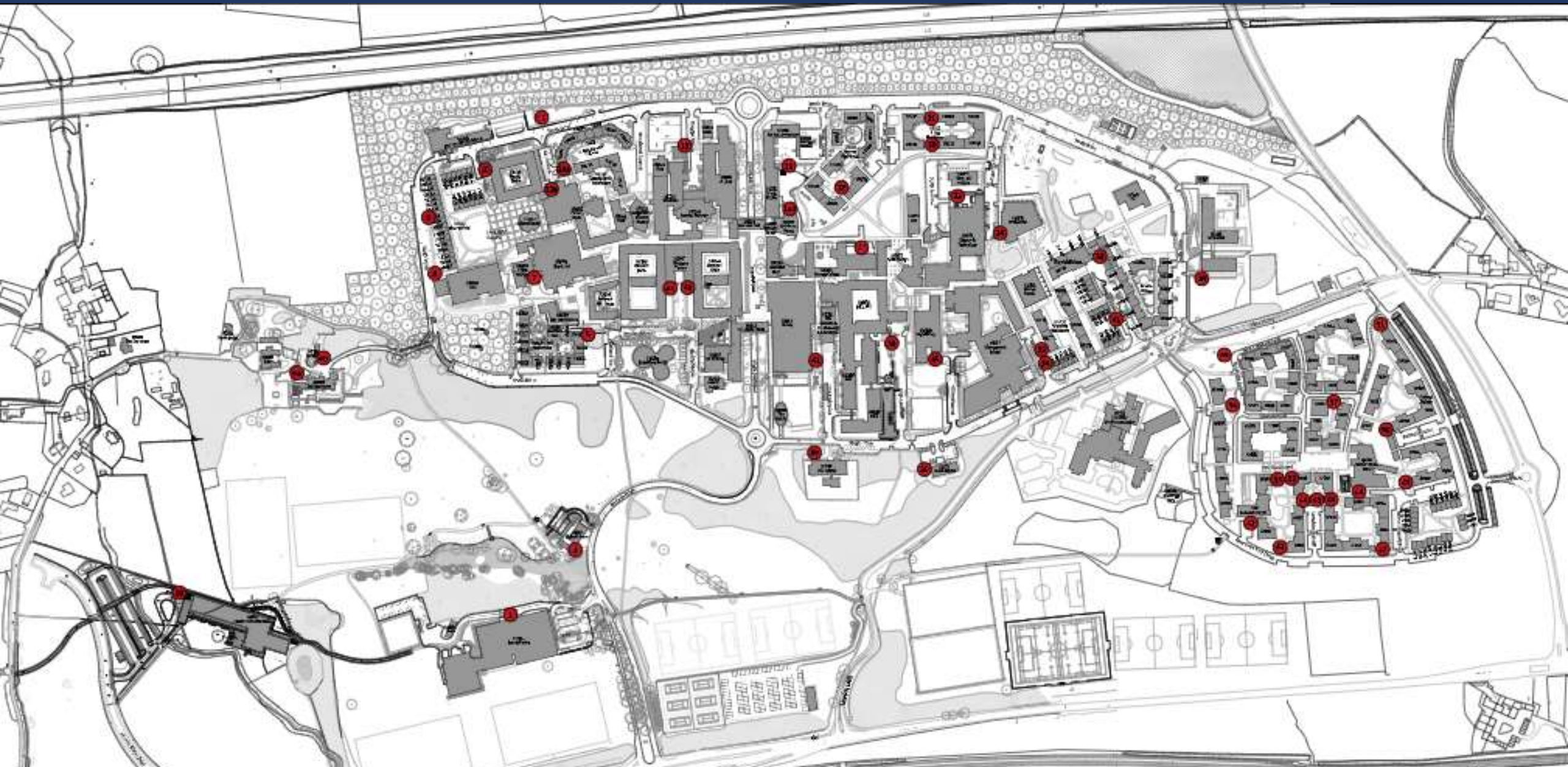
4

Product Printing

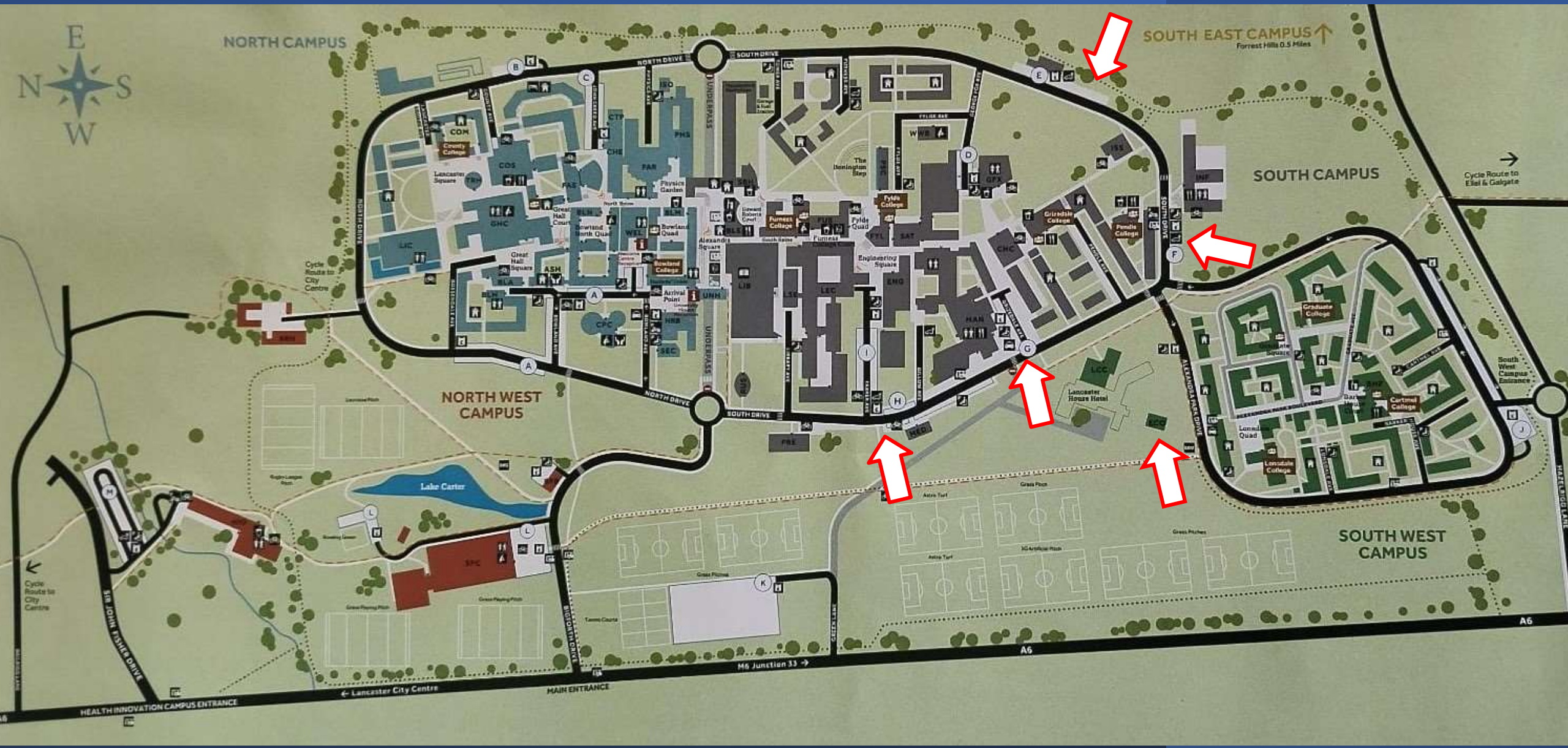
Recycled filament is utilized in 3D printer to print products to campus demand

5

LOCATION OF PLASTIC COLLECTION BINS ON CAMPUS



LOCATION TO HOST THIS PROJECT ON LANCASTER UNIVERSITY CAMPUS



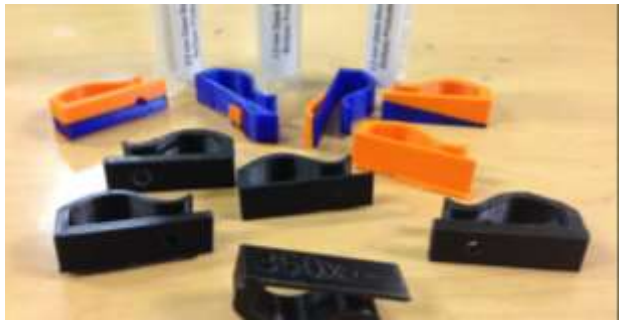
How the container will look on LU premises.

Products Useful On Lancaster University Campus

Different departments have specific product requirements:

- **Eco Hub**: Small tools and plastic pots of varying sizes for plant cultivation.
- **Maintenance:** Curtain hooks and tap connectors.
- **Gift Shop**: Souvenirs, Lancaster Shields, and card holders.
- **Biomedical Lab:** Gift samples of micro-organisms, such as parasite designs or amoebas.
- **Engineering:** Filaments for their 3D Printers

3D Printed Samples



DEPARTMENTAL COLLABORATE

- Department of Engineering
- Eco Hub & Green Lancaster
- Department of Contemporary Arts and Design
- Architecture Department
- Biomedical Department
- Creative Studios
- Lancaster Infirmary

Appendix 1

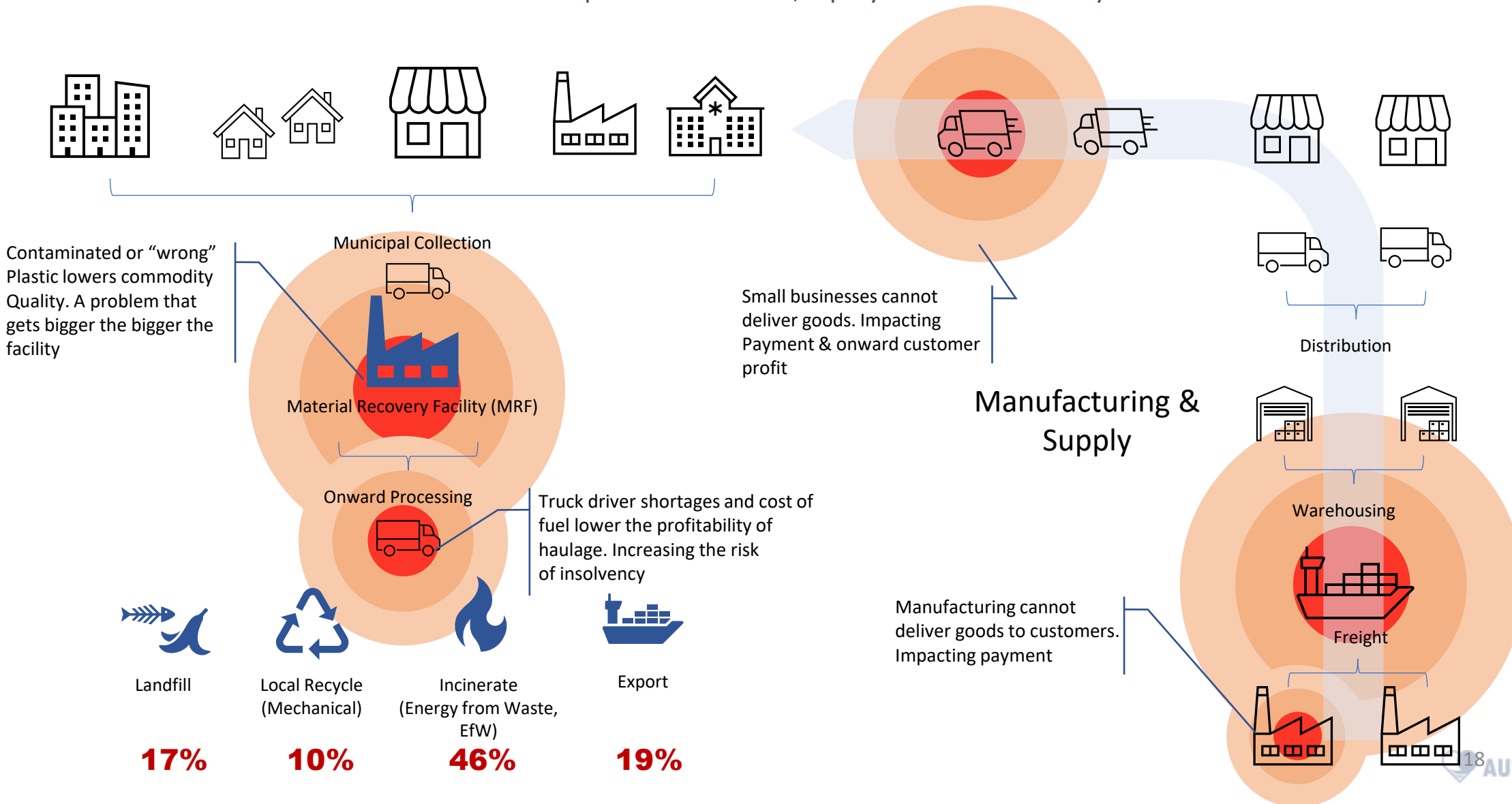
Who We Are, What We Do and Why

Automedi wants to make circular manufacturing accessible by everyone, everywhere. Turning plastic trash into profit with purpose.

AUTOMEDI

Waste + Manufacturing + Supply = Combined Problems

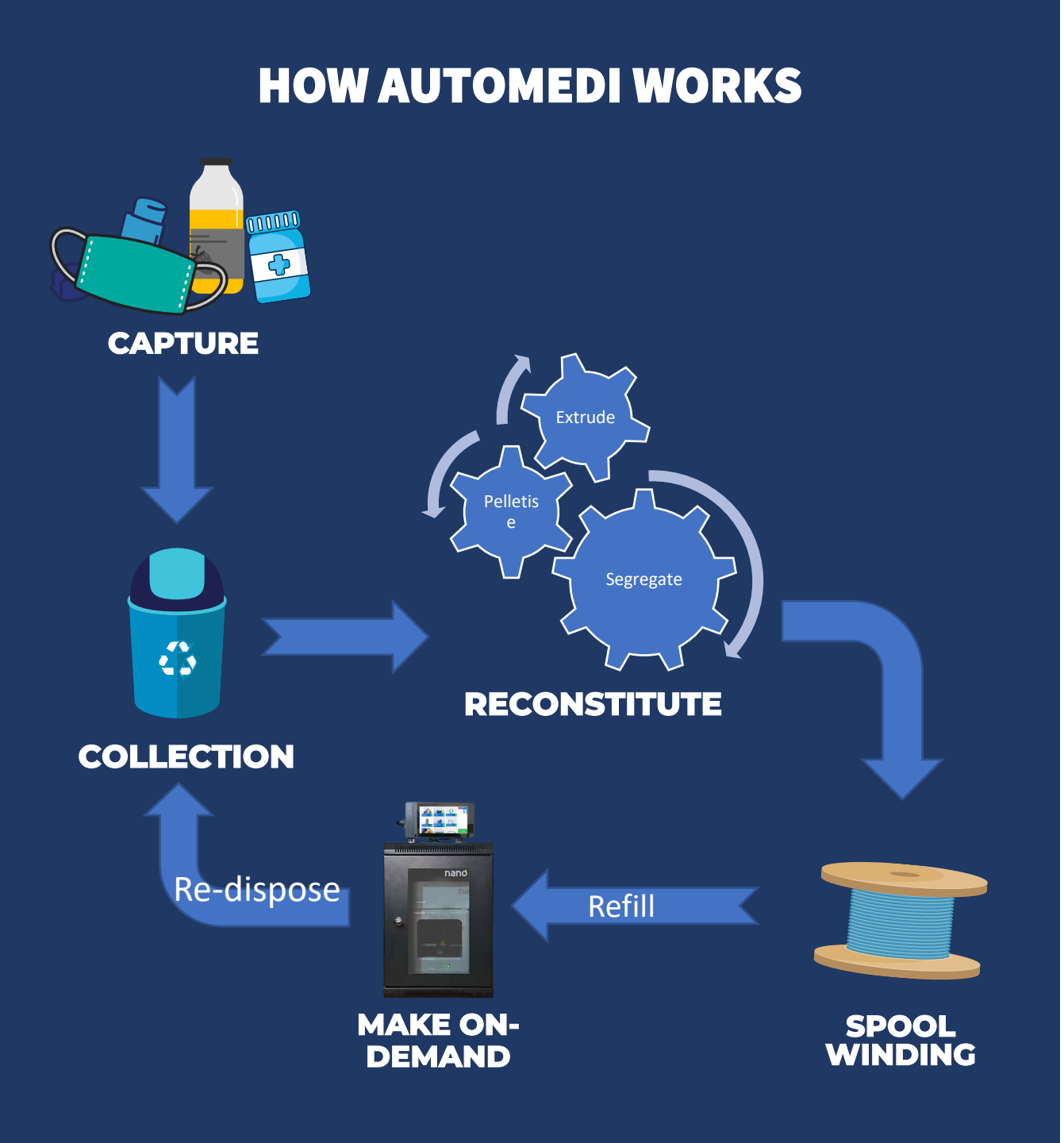
Municipalities must reduce consumption of natural resources, shorten supply chains AND minimise what is not reclaimed to deliver sustainable development. Resilience, Equity and Climate Safety



Today, Automedi is unifying cradle-to-cradle manufacturing

Imagine turning a disposable face mask into a coat hook, two hairbands and a cable tie in minutes, or fishing plastic bottles out of the sea and turning them into the parts to fix your boat.

Automedi is the all-in-one circular platform that remanufactures plastic pollution into products, without the need for waste disposal, logistics or freight.



Plastic waste into product, Just-in-Time

No minimum order quantities, no over-consumption of resources, no virgin petroplastics.

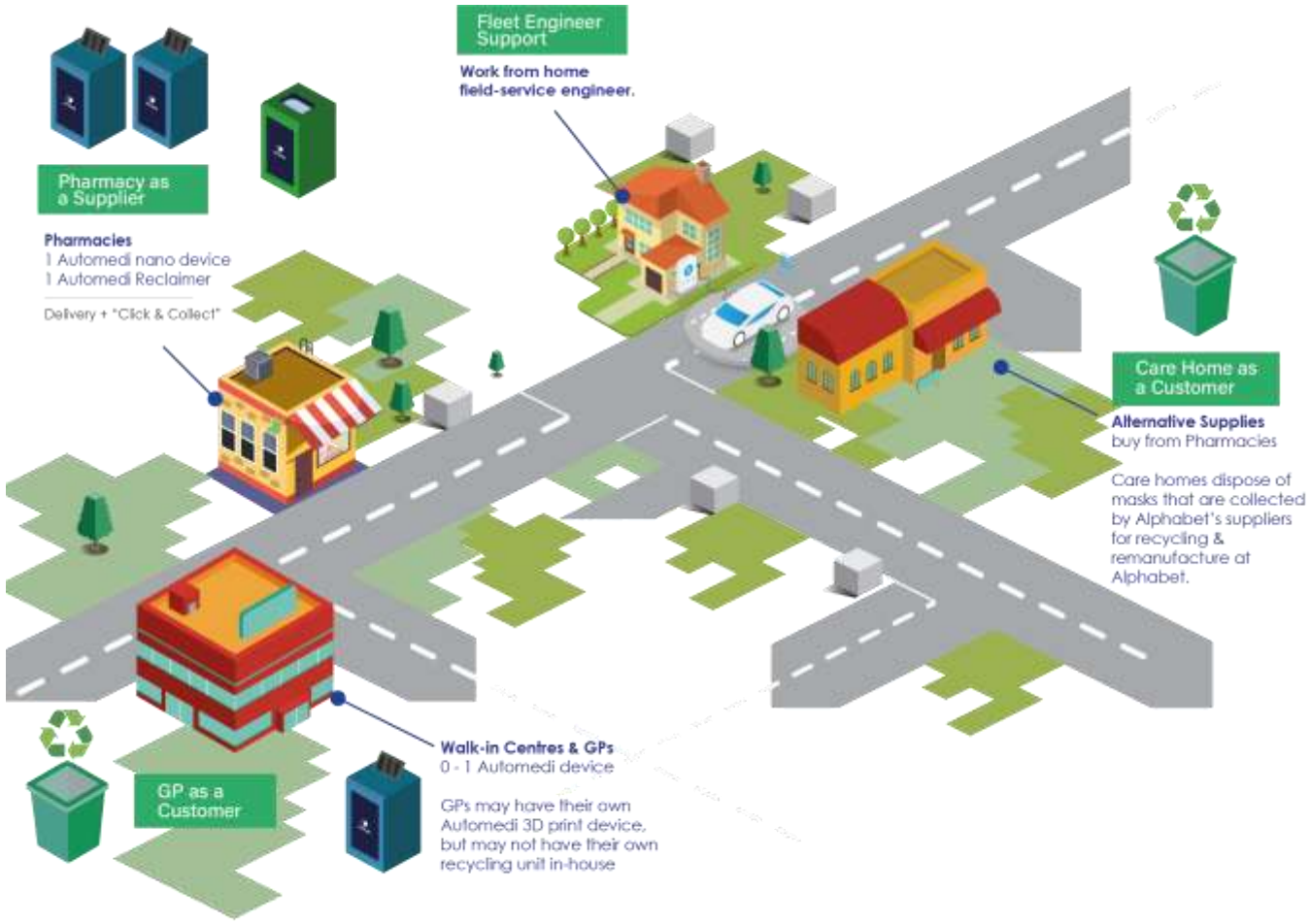
Automedi's optimising both **consumption** and **production** for cradle-to-cradle demand from end-consumers & can buy in currency other than cash.

Factory = Community

Your investment democratises the supply chain for jobs, skills, products, and support for billions of people across the globe excluded from basic infrastructure, health and care supplies.

To do that, needs new infrastructure that enables hyper-distributed circularity. Infrastructure we have built from scratch.

Levelling up can only happen when we all go together. Automedi makes that happen clean.



Tomorrow, the Internet of sustainable manufacturing

Circularity-as-a-Service (CaaS) for large manufacturing business across economies.

- Reporting net zero obligations
- Secondary outreach manufacturing market
- Dominate competition in “Right to Repair”
- Close the door to counterfeiters

THE ART OF BALANCE

94

Trees Planted
(per cluster, per year)

2

Territorial Studies

4.75kg

Net Carbon Saving per kg

26.14miles/kg

Equivalent Saved

4 COMPLETED

Trials

£2,300

Average Monthly
Revenue

4

Awards

4

Portfolio Offsets

How we make [you] money: B2B2C Business

Waste collection subscriptions

100 commercial customers per cluster, per month

Reclaimer Subscriptions

District Reclaimer subscriptions to Clinical Commissioning Groups & Local Authorities

Sales & Direct to Consumer

Products sold via website and zero-waste stores, including ancillary productions

Recycled Plastic Feedstock

Provide manufacturers with a supply of mechanically recycled plastic content

Additional Subscriptions

Extra manufacturing outreach subscriptions to increase local circularity

Licensing & Franchise Networks

District Reclaimer subscriptions to Clinical Commissioning Groups & Local Authorities

Agent & Certification programme

Cross-sell to franchise and licensees to maintain franchise rights

Alternative Virgin Material

Supply monomer gas & Naphtha alternative for plastic production as a crude oil substitute

FAST, COST EFFECTIVE SUPPLIES

3D print non-medical products when you need them!

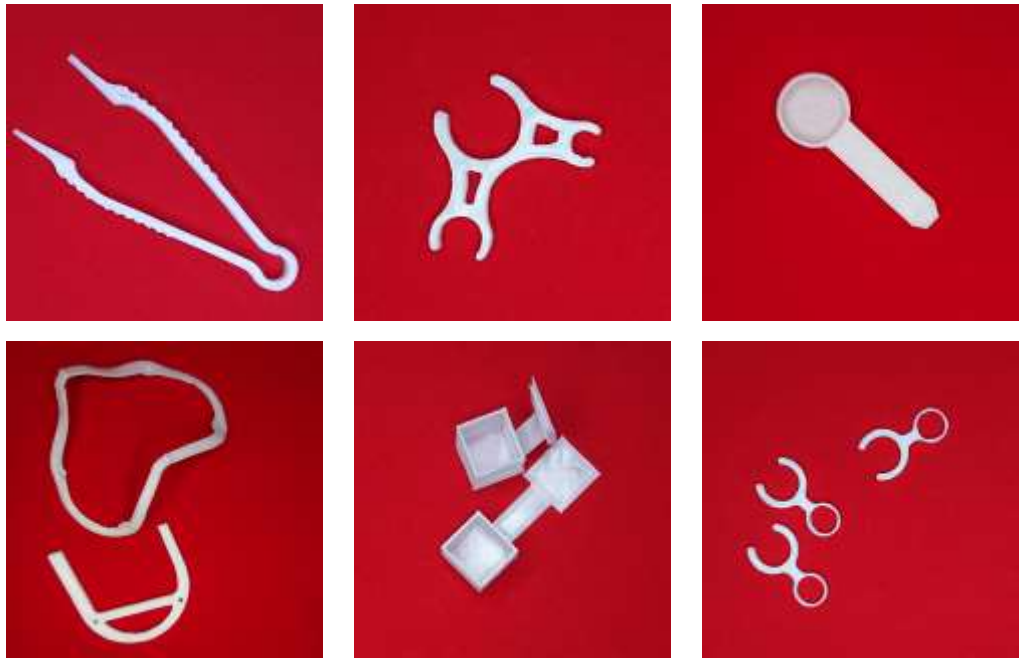
Products in as little as

7 minutes

"Automedi helped strengthen working relationships with other healthcare professionals, making Alphabet Pharmacy a hub of primary care"

★★★★★

Alpa Ghelani,
Superintendent Pharmacist & Owner,
Alphabet Pharmacy



Classical Buy
Cost: £3.18
(inc delivery & VAT)
Embodied CO_2: 61g
Disposal CO_2: 17g

via Automedi
Cost: £0.14
(delivery not required)
Embodied CO_2: 3g
Disposal CO_2: 2g

HOW DOES IT COMPARE?

BENEFITS

- Subscription
- **80%** lower costs
- **£70-£3,000/tonne** disposal saving
- **92%** Lifecycle **CO_2**.

BONUS

Bioplastic recycling!

1” Polypropylene Socket Fixture

Conventional

Cost: £7.20 (inc VAT)
Embedded CO2: 113g
Disposal: 30g CO2

Automedi

Cost: £0.20
Embedded CO2: 3g
Disposal: 10g CO2

Facilities & Electrical

Mask Comfort (e.g. ear savers)

Catering Storage & Clips

Washers & Seals

AUTOMEDI

Co-Branding

Community Awareness

- "Scan-to-collect"
- Great marketing & PR
- All instructions on the bins
- Local support number

Our bins provide all the information you need right out of the box. Simply scan and tap to tells us when a new bin is needed!

Subscribing to 10 or more bins in an area and you unlock cobranding! Putting your name and corporate identity on the bins. Ideal for memorable press-releases and signposting.

Full circularity subscribers taking a manufacturing appliance, automatically join our affiliate network. Becoming eligible for referral fees.

Transparent Tracking

No Exporting or Incineration

- Local processing
- Low distance travel
- No incineration
- No landfill

We pride ourselves in processing plastics very close to collection. Turning it into products for care and community without sending waste far away.

All suitable plastics are tracked through our smart tracking service. Giving you confidence we're doing what we say we are. Our dashboard shows you an easy to use Carbon report showing emission savings in Carbon Dioxide Equivalent (CO_2e) in real time! Ideal to support your own sustainability efforts.

Bulk subscribers purchasing more than 15 subscriptions in any outer postcode area (e.g. LE1) receive a co-branded dashboard.

YOUR REVENUE STRUCTURE

You now have the ability to generate greater revenue from waste plastics. Which will optimise three main product outputs. Grind, Filament and Product. Surplus grind and filament is sold on the open market after product and filament is created every month, in order of profitability, when funds transfer to our clients.

Grind

Grind is the first step in recycling plastics. Whether used to create filament's, pellets all sold on, grind is the process of reducing plastic waste into chunks of plastic around 5 mm by 5 mm square.

Filament

Filament is the next stage of the process it is usable in both 3D printing and 3D pens either in spools or packets of 1 foot lengths

Product is the most valuable output. Optimised both for plastic consumption and price come on this affords the clients a higher-price revenue stream.

Appendix 2

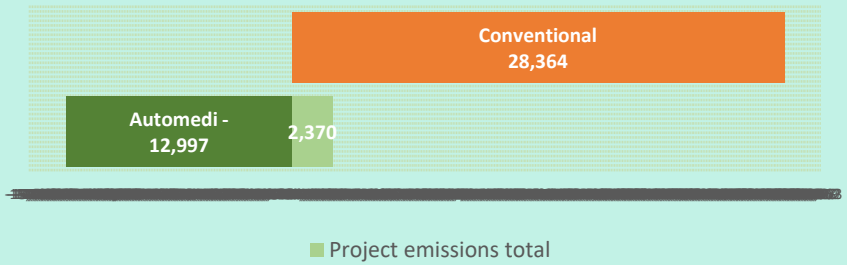
THE FINANCIAL CASE

CLIMATE-ECONOMIC REVENUE

£72,260

Gross Revenue

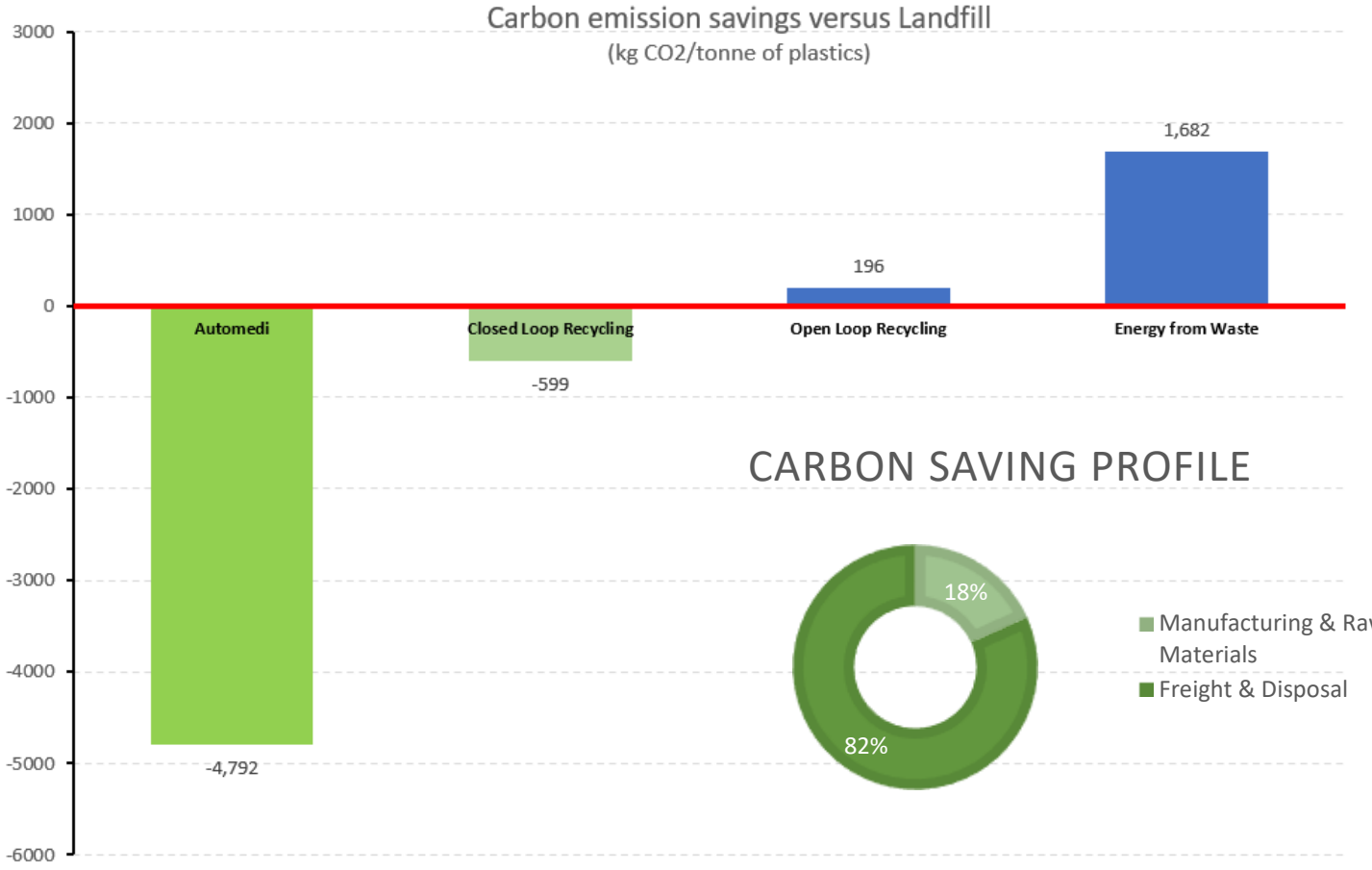
(typical per tonne)



Comparing conventional supply chain v circular plus one replacement cycle

Emissions Comparison

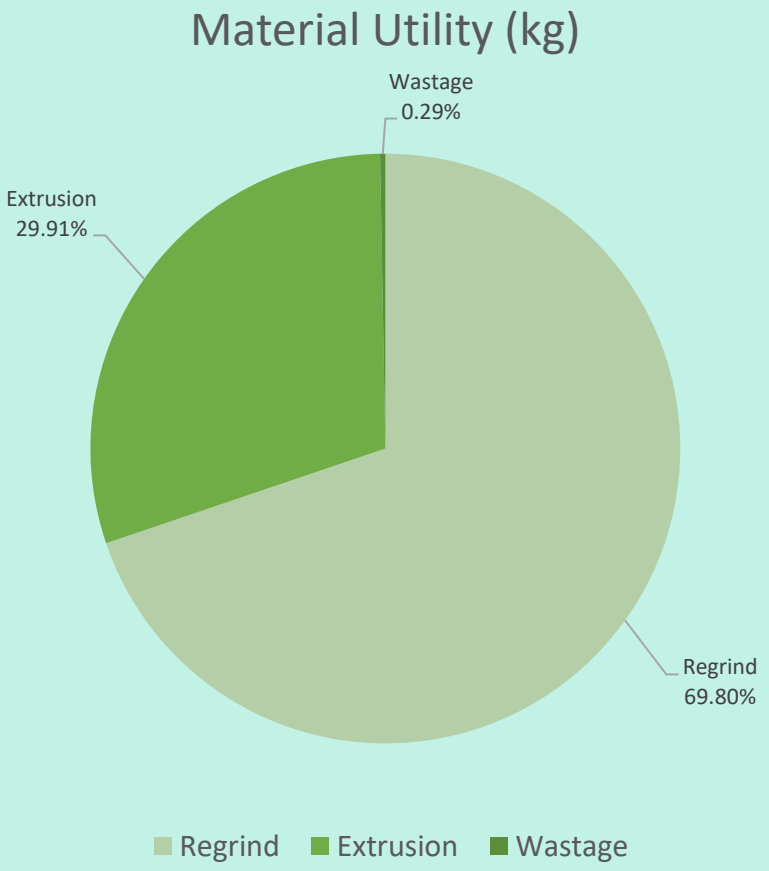
AUTOMEDI CLOSED LOOP RECYCLING

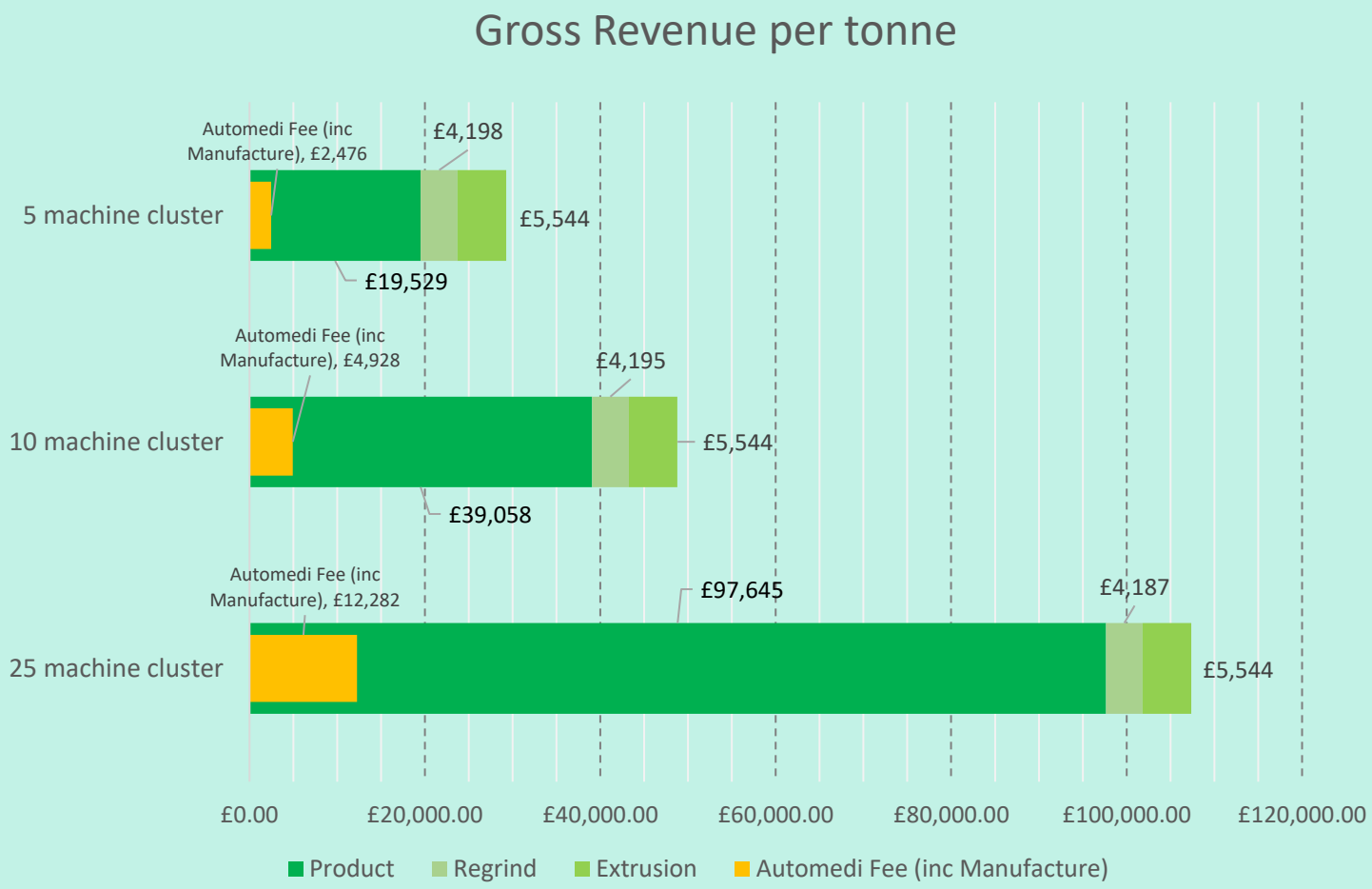


CARBON SAVING PROFILE

Source data: WRAP Carbon Waste and Resource Metric (Carbon WaRM)

ECONOMIC UTILITY STRUCTURE





FEE STRUCTURE

Your waste remains yours on the enterprise plan. The following are processing fees only. You have the choice to sell this yourself, or we sell it for a 5% product fee for brokering the waste. Meaning you get the greatest value from the plastic waste you have.

Waste-to-Grind

£1,500

per tonne-month

(includes 4 nano machines pro rata)

Turning waste into grind, which is always used to create filament, but can also be sold on the open market by Automedi on your behalf.

Extra Machines (optional)

£295

per machine, per month

Our clients can choose extra machines to bolster their machine fleet. Each one is simply a fixed fee per month.

Product Fee

5%

RRP

When products are to be sold by Automedi on a client's behalf, we take 5% of the generated revenue. So waste can be sold as the filament, grind or product

FREQUENTLY ASKED QUESTIONS

What is a tonne-month?

A tonnes-month is the amount of waste you provision to be processed in a month. Our enterprise scheme takes any amount from a quarter of a tonne, upwards and our fees are scaled pro-rate.

Who takes products through safety testing?

This depends on the manufacturer and product. Where products require CE or UKCA marks, Our experienced team can support you to get products through conformity assessments.

Does the pilot qualify for R&D tax credits?

Yes! For new sectors, or sectors delivering new innovation, this meets the criteria of an innovation project. Meaning it qualifies for R&D tax credits.

How are products branded?

We do not normally brand end products. Though we can brand filament or grind. It depends on whether we own the waste or not.

How fast can you scale?

We are currently able to deliver 35 Automedi 3D print machines a week. Each cluster hub can be set up in 2 to 3 weeks.

How do you move the waste to your sites?

Depends on volume. A quarter of tonne, we move, while our trusted skip partners deliver waste to us which then federates out to local cluster hubs.

Are you fully insured?

Yes! Both mandatory and recommended insurance have been obtained.

What if we need to scale manufacturing?

Easy! Simply choose to provision new capacity. New capacity can be spun down after use.

What is the filament used for?

Our filament is used for 3D printing, 3D pens, washing and if necessary, strimmer lines. We do not generally recommend strimmer wire because all strimmer wire, new or recycled, leaves plastic in the environment.

Are machines internet connected?

Each remote machine is securely connected via both VPN and SSL. Ensuring secure, independent, durable communication.

AUTOMEDI

Awards & Accelerators

NTA National Technology Awards 2021 WINNER Manufacturing and Supply Chain Technology

MADE IN THE NORTH WEST Insider 10 YEARS SHORTLISTED 2022

UK DIGITAL GROWTH AWARDS 2021 FINALIST

Accelerators

DIGICIRC

Health Innovation Manchester

Yorkshire & Humber AHSN

Grant Funding

UKRI Innovate UK

DIGICIRC

Testimonials

★★★★★

Extremely innovative and sustainable product with an important need that could save the NHS a huge amount of money and become greener.

NIA Accelerator, Evaluation Panel
NHSX, United Kingdom

★★★★★

We selected Automedi's product due to the potential it has in supporting the NHS and their net zero ambitions.

Victoria Vaines, programme manager
Yorkshire and Humber Academic Health Science Network, United Kingdom

★★★★★

Really helpful company, and I love that things are recycled and 3D printed in small batches as required, cutting out so much waste. Excellent service, I definitely recommend.

Hazel Mayow
Customer Buyer

★★★★★

Automedi helped strengthen working relationships with other healthcare professionals, making Alphabet Pharmacy a hub of primary care.

Superintendent Pharmacist + Owner
Alphabet Pharmacy, Manchester, United Kingdom

★★★★★

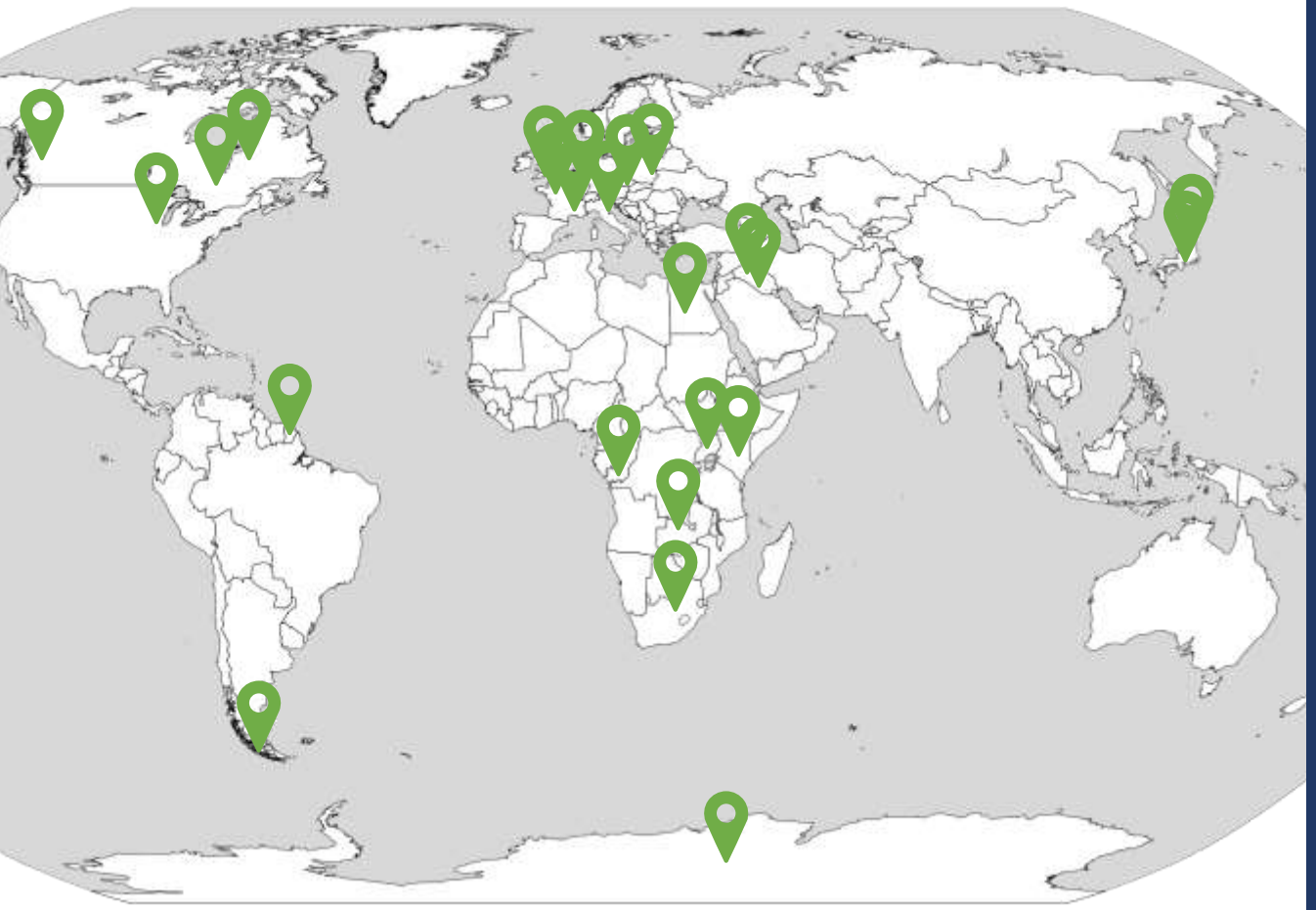
Scaling up through local pharmacies is a great idea. They already have the local footprint and can respond rapidly to local demand.

NIA Accelerator, Evaluation Panel
NHSX, United Kingdom

★★★★★

We think its a really great product that could work well in the NHS!

Nicole Fletcher
NHS England & NHS Improvement



Our Global Ambition, Starts & Multiplies

Seeking international ambitions to develop commercial networks of international customers to open opportunity to scale everywhere

US and EU expansion is just around the corner. Additional capital allows us to robustly capture those markets and leapfrog to other jurisdictions and other sectors.

Be Social:

WeAreAutomedi

AutomediU

Automedi

AUTOMEDI

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