



Revolution-ZERO

More effective, more economic, more sustainable.

Our mission is to displace single use medical textiles with reusable alternatives that are more **effective**, **economic** and **sustainable**.

Inefficient Resource Utilisation

Certified
B
Corporation



It's a Big Problem

- If healthcare was a country it would be the fifth largest emitter of carbon
- Medical textiles contribute the equivalent entire CO₂e emissions of either Sweden or Norway*
- The UK outputs more than 53,000 tonnes of regulated medical textile waste a year**



Derived from:

* Kellera et al., 2021. 33 Swiss Hospital LCA study

** [https://www.gov.uk/government/statistics/search "PPE"](https://www.gov.uk/government/statistics/search%20PPE); Operating theatre system audits and extrapolation; NHS England data

Establishing what we do



Net Zero Processes



Engineered efficiency



Renewable energy

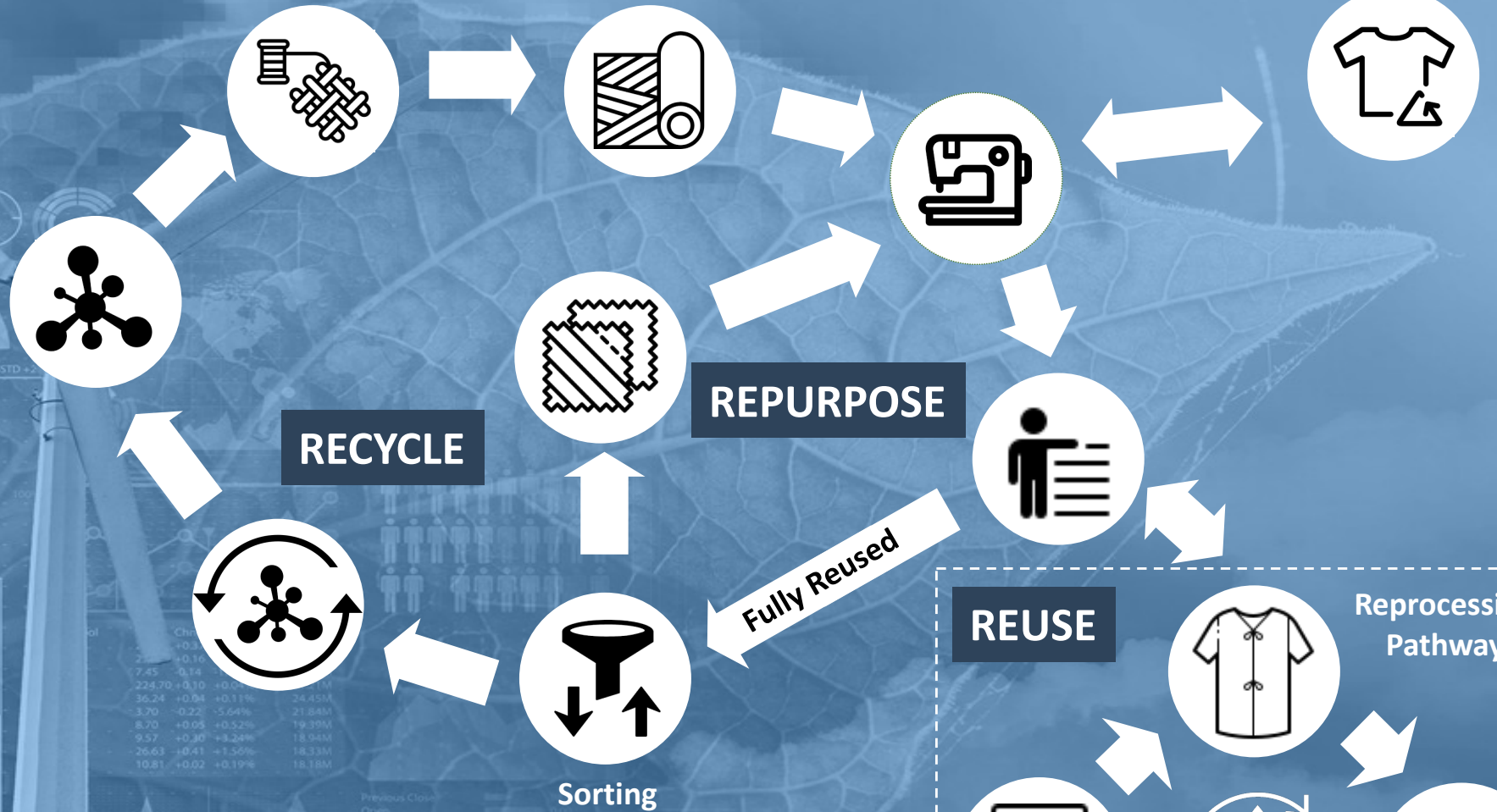


Chemicals



Local

- Manufacture
- Reprocessing
- Recycling



Integrated Evaluation tracking:
Assets
Process
Compliance
Carbon
Waste
Water



Revolution-ZERO: What we do



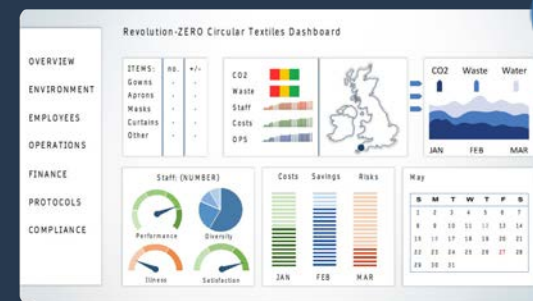
Next Generation Reusables



Advanced Processing



Healthcare Compliance



"In my opinion it is the **best** example of a **circular economy system** design built from scratch. Everything has been thought through **and every challenge and barrier** that you can imagine has been **overcome**."

Professor Peter Hopkinson, director of the National Circular Economy Hub at Exeter University

Impact

NHS
England **£1.5M**

Sales: 29 organisations

Repeat Sales: 5 Trusts

Supply Contract: Cornwall



International and Cross Sector



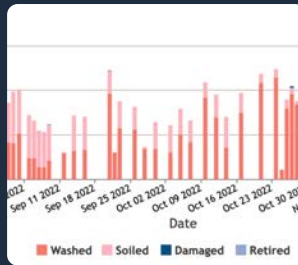


NHS Cornwall Hospitals Trust

Pioneering: Masks



Recurrent Revenue: SaaS Monitoring



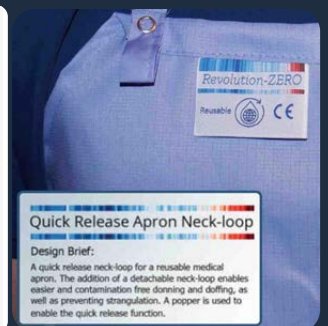
Out Performing: Reusable Textiles



Commercial Demonstrator: NHS Net Zero contract



Partnerships: Co-Design with NHS Surgical Teams





NHS Cornwall Hospitals Trust – modelling for scale up

Cornwall – remote, small-medium

14 Elective Operating Theatres

- Replacing £535K product + £100K waste cost



King's College NHS Trust

- **44 Operating Theatres**
- **950,000 items per year**
- **137 tonnes of waste**
- **986,000 kgCO₂e**



Decarbonising Surgical Theatres – SBRI Healthcare



£

£50 million in **direct costs**

>£33 million in indirect savings



CO₂

At least

100,000 tonnes of
CO₂e equivalents



25,000 tonnes
of **waste**



£

**Local Return on
Investment**

Low temperature decontamination – SBRI Healthcare



190,000 tonnes of CO₂e equivalents*



£90 million in direct costs

>£50 million in indirect savings



Local Return on Investment



***3-4.5M tonnes of CO₂e equivalents additional losses IDed**

Phase 1 Delivered

Test Infrastructure

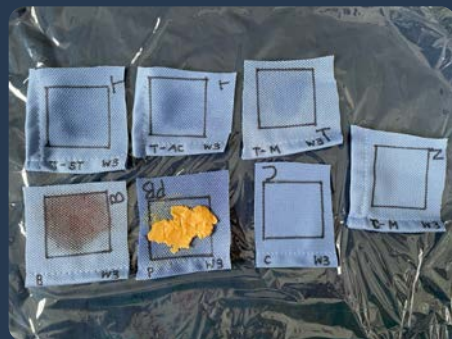


Washing



Drying

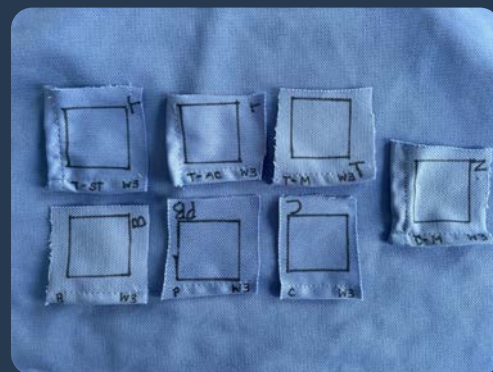
Test Process



Pre-Wash



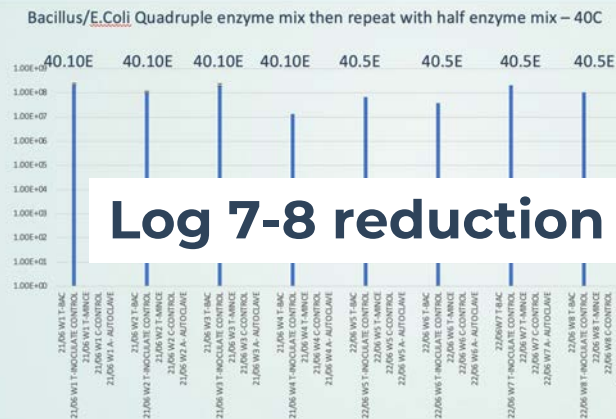
During Wash



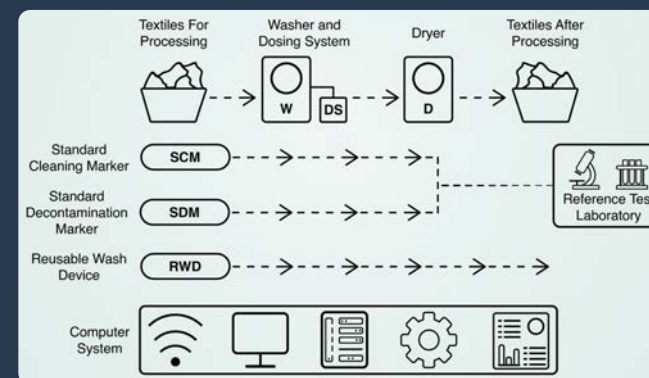
Post Wash

Microbial Validation

Test results – 21-22.6.23



Process Validation





Preserving Resources saves Carbon, Waste and Money

CO₂ **250,000 tonnes** of
CO₂e equivalents

23,000 tonnes
of waste

> 80% improvement
over **competitors**

Up to 40%
direct cost savings





A whole systems approach



Traceability, transparency and accountability

Recruiting the best of the best

Supply chain security

Assurance

A fully circular approach

Environmental impact

Digitisation

Innovation





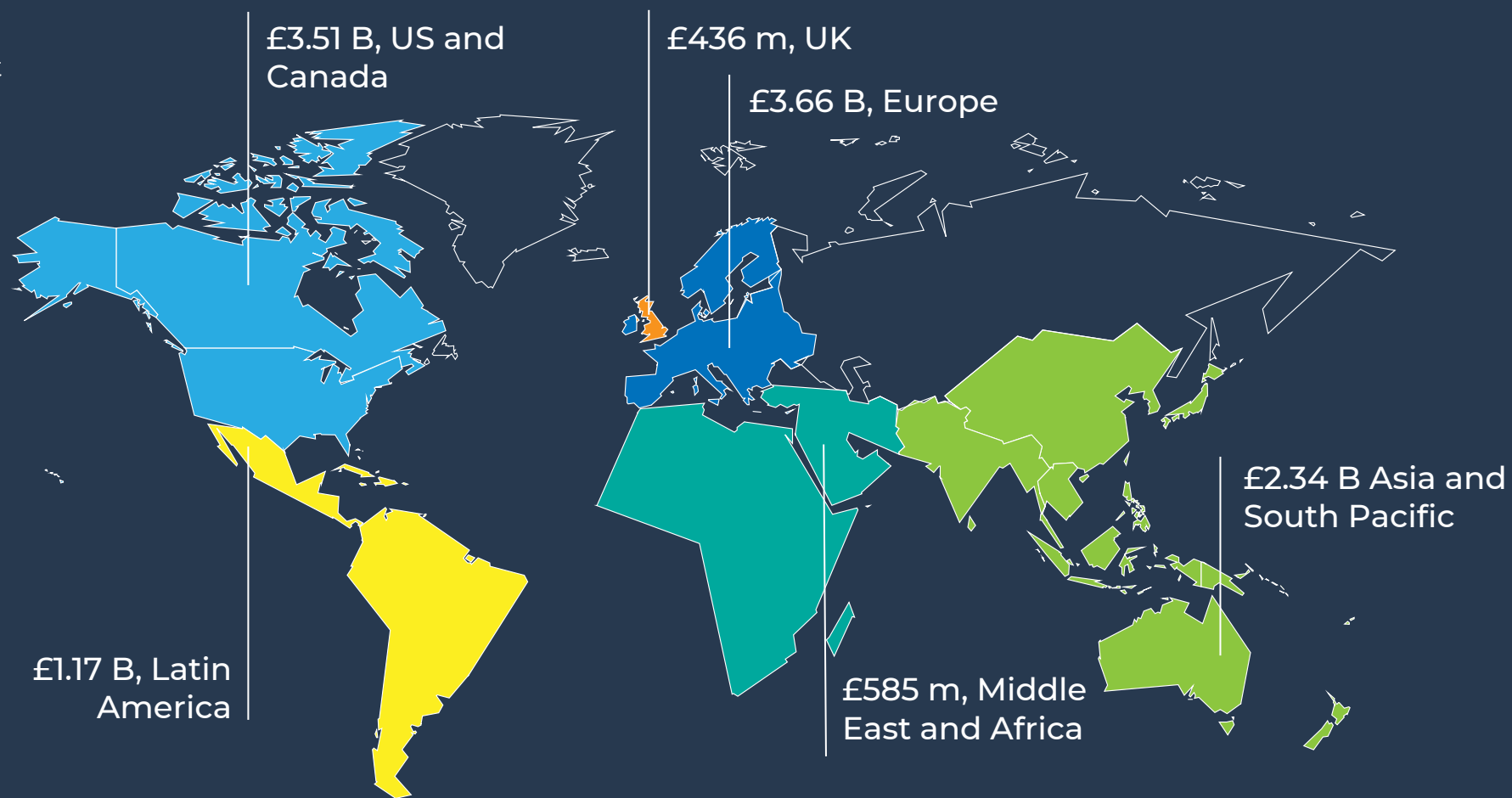
Market Opportunity

Annual Addressable Market

Regulated Medical Textiles
£11.7 bn



Global Medical Textile
£23.6 bn



Derived from:

[https://www.gov.uk/government/statistics/search "PPE"](https://www.gov.uk/government/statistics/search%20PPE); Operating theatre system audits and extrapolation; NHS England data; <https://www.grandviewresearch.com/industry-analysis/medical-textiles-market>

Some of the Team



Dr Tom Dawson



CEO/Founder

Clinician and Medical Technologies



Experienced Founder, Inventor and Medical Technologist

Aida Yousefi



CCO

Healthcare Growth
CEO/CCO/COO/Clinician



Scale up Executive Healthcare Leader with revenues of £100m and 1500 people

Steve Cliffe



Chair

Growth CEO/CCO



High growth Technologies Executive leading £200m funding and international expansion

Emma Burlow



CSO

Commercial Circular Economics



Internationally recognised Sustainability and Circular Economy expert

Zoe Saunders



Delivery & Transformation

Healthcare Implementation



Implementation of transformation projects across multiple organisations

Joe Killen



CEO Europe

Social and Health Care Executive/CEO



Health and Social Care Executive/Founder with established high growth record

James Kraft



Board and Advisor

Healthcare Technology Scale-up



Highly entrepreneurial Founder/CEO with proven scale-up track record

Eoin Flavin



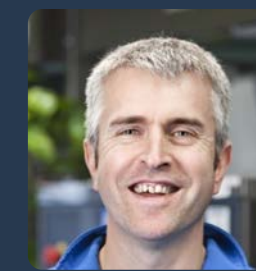
Assurance Lead

Advisor Assurance and controls



Author BS EN 14065, Contributor to ISO 9001, 31000, 56000 and EN 13795 standards.

Richard Smith



Operational Excellence

Commercial Net Zero focused decontamination



Proven track record in process and resource¹⁶ optimisation in Net Zero laundry environment

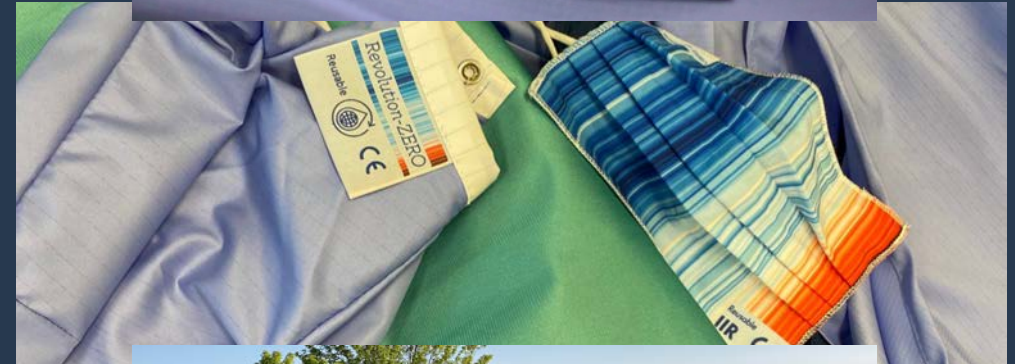


Revolution-ZERO

More effective, more economic, more sustainable.



- Timing: Demand is here and now
- Team: Unique team and demonstrable capability
- Traction: Speed to scale and spread is critical
- Technology: Efficiency and added value



“Absolutely amazing team, well done to all involved. Now for scale and spread.” 9 August 2023

Clare Nash, Head of Clinical Products Management at the Black Country Alliance (a partnership between The Dudley Group NHS Foundation Trust, Sandwell and West Birmingham Hospitals NHS Trust and Walsall Healthcare NHS Trust)



Key messages

- Love – Purpose, Connections, Decisions
- Engineer – System, Financial Models, Interrogate, Validate
- Collaborate – Community, Communicate
- Build – Team, Capability, Brand, Defensibility
- Learn – Actions, Feedback, Rapid Iteration, Evaluation



Appendix

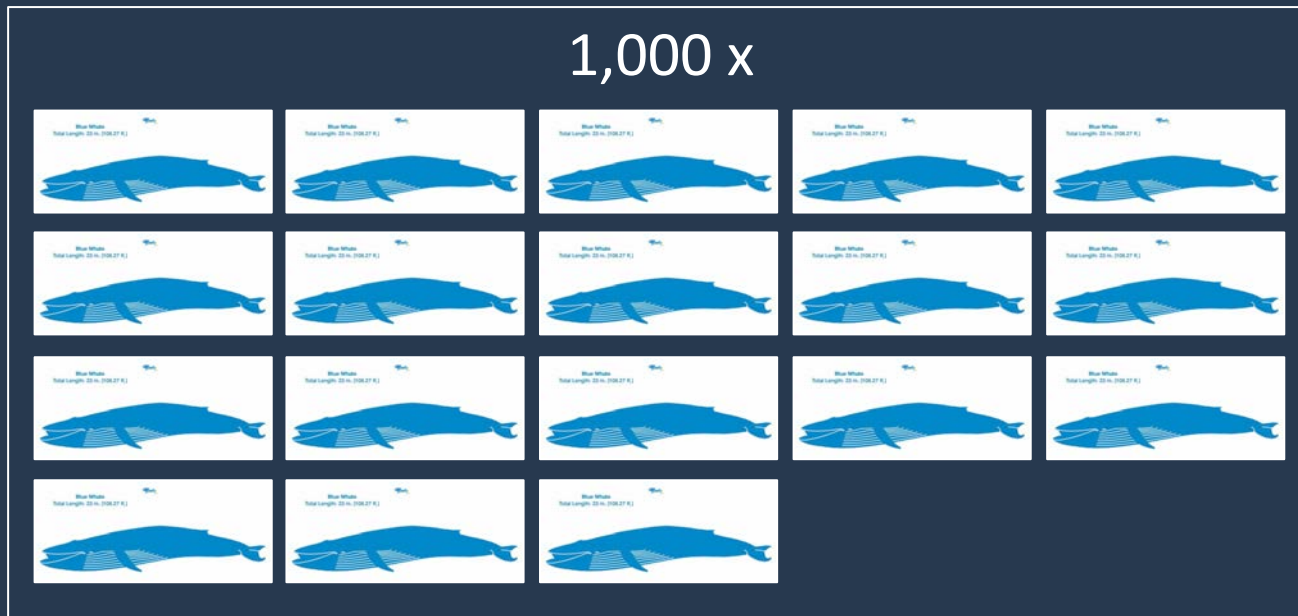




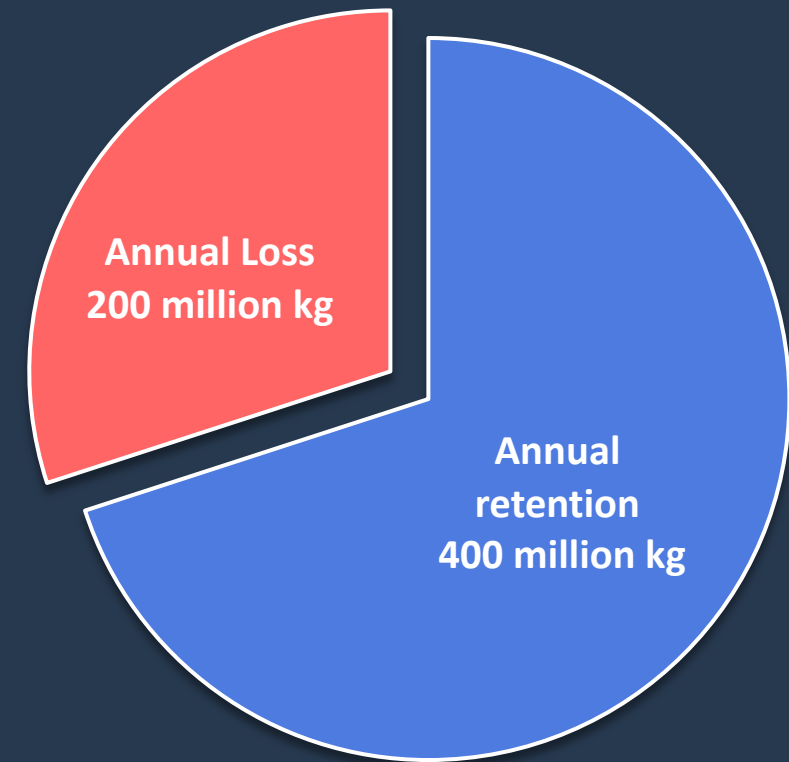
There's also a textile reuse problem

600 million kilograms of linen and clothing are utilised by the NHS every year. A high proportion of this is processed in-house or by subcontract laundries. The loss rate for items both in the NHS and in Europe is around 2.5% per month or 30% per year.

200 million kg of wasted textiles by the UK NHS is equivalent to the weight of more than **18,000 blue whales**



UK NHS 600,000,000 KG
Linen and Clothing Processed

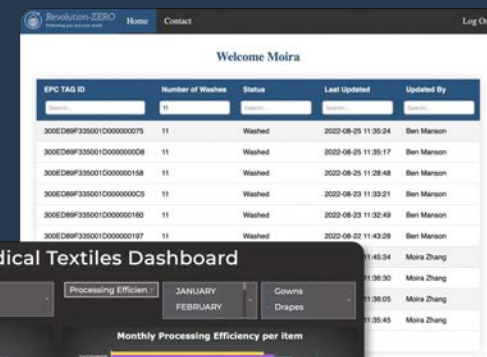




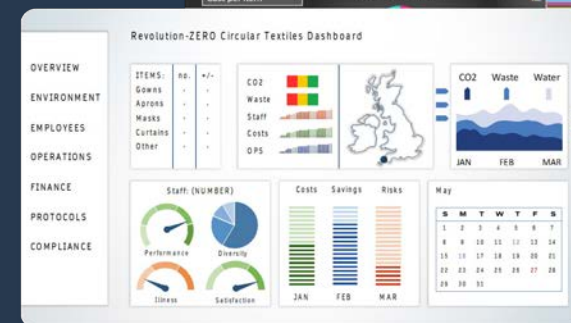
Digital Infrastructure and Technologies - SaaS

Our proprietary technology:

- The only solution that allows for certified regulatory compliance across organisations and territories
- End to end asset track and trace for stock control
- Measures real-time environmental and economic impact of processes
- IP protected process compliance validation



EPC TAG ID	Number of Washes	Status	Last Updated	Updated By
300EDMF33501/000000075	11	Washed	2022-08-25 11:35:24	Ben Manson
300EDMF33501/000000008	11	Washed	2022-08-25 11:35:17	Ben Manson
300EDMF33501/000000158	11	Washed	2022-08-25 11:28:48	Ben Manson
300EDMF33501/000000005	11	Washed	2022-08-23 11:33:21	Ben Manson
300EDMF33501/000000160	11	Washed	2022-08-23 11:32:49	Ben Manson
300EDMF33501/000000197	11	Washed	2022-08-22 11:43:28	Ben Manson
			2022-08-22 11:45:34	Maira Zhang
			2022-08-22 11:36:30	Maira Zhang
			2022-08-22 11:36:05	Maira Zhang
			2022-08-22 11:35:45	Maira Zhang





Healthcare Problem/Drivers

Supply Chain

Critical supplies for critical services

Geopolitical Instability



Environment

Carbon Targets

Waste Targets



Regulations

Duty of Care

Duty to the Environment

Medical Device Regulations



Health and Social Care Act 2022 and ISO13485 requirements

Costs

Product, Storage, Logistics, Waste

Of failed service delivery





Regulatory Drivers

- CE/UKCA Mark
- ISO-13485
- EN14065/HTM01-04
- ISO-13795/ISO-14683

Although the UK MDR and MHRA require an organisation to have an accredited QMS in place to meet medical device compliance, it is not specified or mandated that this be ISO 13485. However, if you intend to place your medical device in other markets, having a QMS that other countries will recognise makes sense.

ISO 13485 certificates issued under the UKAS accreditation do not need to be transferred to an EU-27 conformity assessment body.



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- Technology-enabled solutions
- Co-designed medical textiles
- Rapidly scalable modular processing
- Net Zero focus

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Stakeholders



Supply Chain



Partners

