



Sustainability Report 2023



# INTRODUCTION

Our Sustainability Roadmap marks a new phase in our sustainability journey

## How to use this report

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# John Mills reflecting our progress last year



**Welcome to Xaar’s first ‘standalone’ Sustainability Report. Covering our progress on Environmental, Social and Governance (ESG) goals and ambitions during 2023, this document marks a new phase in our sustainability journey.**

The recurring theme in this Report is ‘transformation’. Within these pages we have captured views and experiences from around the business which demonstrate our ability to deliver a positive impact.

We are also transforming our customers’ businesses through more sustainable technologies as well making an impact on our people through training, development and nurturing young skills.

Over the last year, we have made great progress across all four pillars of our Sustainability Roadmap to 2023 - Environment, People, Innovation and Community.

Our colleagues have worked incredibly hard to deliver on the goals we set in 2020. Achievements to celebrate include our successful certification as a Great Place to Work and also a significant reduction in energy consumption thanks to the investment in our factory efficiency programme. I am delighted to report that this project was a finalist at the esteemed edie Sustainability Awards.

There have also been smaller initiatives, improvements and changes across the Group that have delivered a cumulative positive impact.

The work we are doing across all four pillars – as can be seen in the pages that follow – is starting to make a real difference to our customers, our employees, our partners, suppliers and communities.

ESG is now firmly embedded in our culture and our corporate DNA.

**John Mills**  
CEO, Xaar



# Our pillars

## ENVIRONMENT

Environmental best practice, our investment in sustainable manufacturing and improving operational efficiencies are, and have always been, key areas of business focus for Xaar. Our aspiration is to lead our industry when it comes to the environment and sustainability, in order to minimise the impact we and our products have on the world around us.

### Areas of focus

- + Net zero (Group Scope 1, 2 & 3) by 2030
- + Reduce consumption of water
- + Zero waste to landfill
- + Improve local biodiversity of our sites



## PEOPLE

Our business is one that puts its people first. We are passionate about developing and nurturing talent – at all levels – within Xaar. And, our over-arching commitment to be an employer of choice that puts its people, their potential and wellbeing at the heart of all we do, is one that connects with our colleagues right across the Group.

### Areas of focus

- + Continue safety first culture to achieve zero harm
- + Support our people to reach their full potential
- + Increase wellbeing focus



## INNOVATION

Continuous Innovation is vital if we are to achieve many of our goals across the four pillars that support our Sustainability Roadmap. This is why we believe it is crucial that we encourage more sustainable approaches to design, manufacture, technology and collaboration across the whole Product Lifecycle.

### Areas of focus

- + Sustainable product development
- + Adopt an approach of recycle, rework, repair & reuse
- + Collaborate further with suppliers, customers and partners to accelerate sustainability opportunities



## COMMUNITY

We are very proud that our Sustainability Roadmap celebrates our engagement within the communities in which we operate. Now, more than ever, we want to align our community outreach to our business values. To achieve this, we have an active programme of sponsorship for projects and initiatives that provide practical, lasting support of benefit to society.

### Areas of focus

- + Establish local charity partnerships to support
- + Increase volunteering and charity donation opportunities
- + Align our community outreach to our business values
- + Continue to support STEM subjects in local communities and schools



# OUR HIGHLIGHTS



## STEM

we are making an impact in our local communities through STEM fairs and career talks in our partner schools



# 45

jars of honey have been harvested as part of our Plan Bee project – this is great for biodiversity and our charity partner Break benefits from the money we make

# 2536

tonnes of carbon have been removed from our Scope 1 & 2 carbon emissions (since 2019) – which equates to 1,122 homes' energy use for one year



# 84

people attended our 'Seeing is Believing' R&D open day which was a showcase for innovation, transformation & sustainability

# 6

young people are building strong foundations for their future careers through our UK & Sweden Apprenticeship programmes



# 100%

Of our UK energy usage is from renewable resources



# £71,544

has been raised for our UK Charity partner Break thanks to the efforts and generosity of our employees, families, friends and supporters

# 5596

CPD hours have been delivered which demonstrates a strong appetite from our employees to invest time in their career development



# GPtW

Xaar, FFEI & Megnajet achieved official accreditation as a Great Place to Work Certified™ organisation

# 12

EV charging points now installed & operational at Xaar sites

# ENVIRONMENT

## Leading the way in environmental sustainability for the industrial inkjet technology sector

### Our progress

**16** people have enrolled in our Electric Vehicle Scheme

**100%** of waste was diverted from landfill at Xaar and FFEI

**39.5%** of waste was recycled at Xaar and FFEI

**99%** reduction in Scope 2 emissions

**100%** fully recyclable packaging for all Xaar products

# Our journey

**When we began our ESG journey in 2021 with the formation of our Sustainability Roadmap, we had a very clear picture about how we would deliver on our ambitions. Over the last three years, excellent progress has been made – and every day that passes, takes us a step closer to delivering on our decarbonisation and wider environmental goals.**

In 2023 we moved the responsibility for delivering our Roadmap to our Continuous Improvement Team (CI). This group is empowered to deliver positive change. It brings together operational experience, alongside enhanced ESG best practice. Their energetic response to delivering on our sustainability goals has resulted in improved tracking systems, new ideas and methods of communication as well as wider colleague engagement. Importantly, sustainability is no longer seen as a 'silo' - it is embedded into every element of decision-making across our operations.

Our internal re-organisation has delivered tremendous results and positive outcomes – including recognition as a finalist at the prestigious **edie Sustainability Awards** for the successful decarbonisation of our cleanrooms. We are excited to see how we can build on this as we get closer to 2030.



## Electric Vehicle scheme

Currently 16 employees have enrolled in our Electric Vehicle scheme. This helps reduce our Scope 3 employee commuting emissions (Cat 7).



# Driving efficiency

## Project background

Our Huntingdon cleanrooms account for 80% of our energy use on site, making them the clear centrepiece to achieving our 2030 net zero goal. Identified as our highest-energy consumer, we took a collaborative approach to understand where energy was being misused or wasted, and how this could be resolved.

Digital map of Xaar's cleanrooms

### Air-handling units

New units installed to improve our energy efficiency

### LED lighting

New LED system installed with lighting controls



### Cleanroom 3

Spare capacity – future-proofing our growth



## What we did

### Step 1

This major project was divided into two phases – with clear aims and objectives for each. The focus of Phase 1 was a significant energy saving against our 2022 baseline.

### Step 2

Working with our partner SIEMENS, we created a complex digital twin of our cleanrooms. This enabled us to test and check our modelling and decisions first.

### Step 3

Upgrades to building services included a new LED lighting system, lighting controls and new energy efficient air-handling units to maximise our savings.

## Results

**100%** Full mitigation of the increased cost of energy

**18%** increase in foot print, future-proofing our growth

## External recognition

We are thrilled that this project was a finalist at the edie Sustainability Awards 2024.



## What's next...

During Phase 2 we are targeting further reductions against the 2022 baseline. This phase focuses on cleanroom compressor efficiency, and the implementation shutdown routines on machines & tools. We are confident the second phase of our project will continue to deliver outstanding results.



# Water, waste and air



## Water

We regularly monitor and record water usage and promote responsible consumption. Our operations are considered as low water usage, and we do not have any operations in regions of high water stress. We are pleased with the progress we are making. For example, in our printhead business, we reduced our freshwater usage by 16% in 2023 compared with 2022 levels. Our next focus is to work towards Group level water data collection.

Xaar water usage	2023	2022	2021
Freshwater usage (m3)	5,184	6,180	5,000
Effluent and wastewater (m3)	1,741	4,649	4,542



## Waste

Recognising the importance of waste reduction, we are working to achieve zero waste to landfill across the Group. In 2023, 100% of the waste from Xaar and FFEI was diverted from landfill, of which 39.85% was recycled. One of our key ambitions for the future is to achieve zero waste to landfill across all our UK sites by the end of 2024.

Waste diverted*	46,816.2kg
Waste recycled*	18,657kg

\*These are the combined figures for Xaar and FFEI businesses



## Air

We regularly monitor the air quality, temperature and relative humidity levels within our Huntingdon cleanroom facility. All cleanroom air supplies are fitted with HVAC filters. We are conscious of the need for good indoor air quality and we are working hard to ensure adequate air circulation and routine maintenance of the systems.



*ESG is much more than a day-job to me. I've spent much of this year reviewing strategies, changing internal processes and bringing ESG to life which will encourage more colleagues to feel that they are part of our sustainability journey. Small changes have made a real difference. Now, ideas come from every corner of our team and each person knows their ideas are important, logged and will be considered for implementation. I am really excited to build on this in 2024, and see what further improvements we can make to Xaar's sustainability commitments.*



**Beth Connolly-Atkins**  
Continuous Improvement & ESG Lead, Xaar





# Group carbon footprint

Find out more about our Annual Results




## Tracking our Scopes

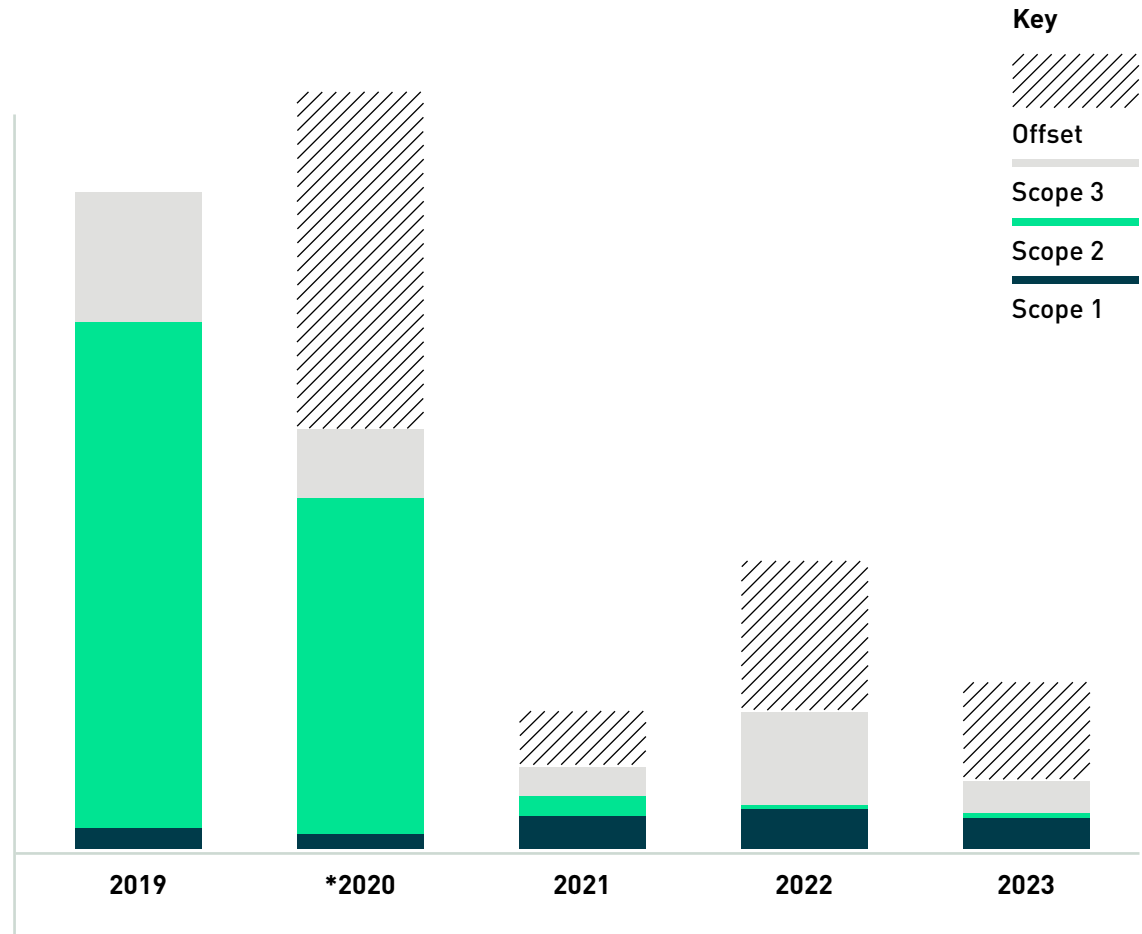
Xaar has set a goal of Net Zero by 2030 (Group Scopes 1,2 & 3). This year, our Continuous Improvement team led the way on carbon reduction. Thanks to additional EV fleet infrastructure, a move to green electricity supply contracts – and investments in energy efficiency, we have reduced our Scope 1 and 2 greenhouse gas emissions by 2,536 tCO<sub>2</sub>e against our 2019 baseline. This is equivalent to driving a diesel car for 9,454,784 miles which is the same as driving to the Moon and back to Earth 39 times.

Scope 3 CO<sub>2</sub> emissions currently represent calculated and estimated CO<sub>2</sub> emissions from travel and employee commuting. As the Group's Sustainability Roadmap progresses, we aim to collaborate with our supply chain via a materiality assesment. Our assesment and supply chain audits will be used to validate our upstream model data and reduce CO<sub>2</sub> emissions. Activities on downstream Scope 3 have not yet been initiated, but we aim to understand and report on these in the future and to drive reductions across our full Scope 3 CO<sub>2</sub> emissions.

# 99%

reduction in Scope 2 emissions against the baseline year achieved through the conversion of all UK energy to green contracts.

### Group Greenhouse Gas Emissions Scopes 1, 2 & 3.



\*The data for 2020 includes the offsets for 2019.



# Delivering on decarbonisation

**ROADMAP GOAL:** Xaar has set a goal of Net Zero by 2030 (Group Scopes 1,2 & 3)

Decarbonisation is a major area of focus for our team, and 2023 has been a year of intense activity. During 2023, we have worked hard on transformational projects – including a major upgrade to our UK cleanrooms in Huntingdon – that will impact our carbon footprint and future-proof us against energy market volatility.

Decarbonisation in numbers...

**500** tress planted in Kenya

**100%** of electricity is from renewable sources

**12** EV charging points installed across Xaar UK sites

## OFFSETTING

We are a global business – which means our need for travel has to be balanced with our commitment to reduce our Scope 3 emissions. We have made great progress - but we recognise that there is still more we need to do. Whilst we are doing this work, we are taking steps to offset our carbon.

Working with our partners Carbon Footprint, we are supporting offset schemes in Africa, Asia, South America and the UK. Many of these projects support biodiversity and the climate – and offer wider social impacts too. All of these projects are paired with Verified Carbon Standard (VCS) approved carbon credits to guarantee the carbon offsetting.



2020 - Heqing Solar Cooker Project in China



2022 - Energising India using Solar Energy Projects



2021 - Hebei Haixing 49.5 MW Wind Farm Project in China



2023 - Buenos Aires Renewable Energy Project in Brazil



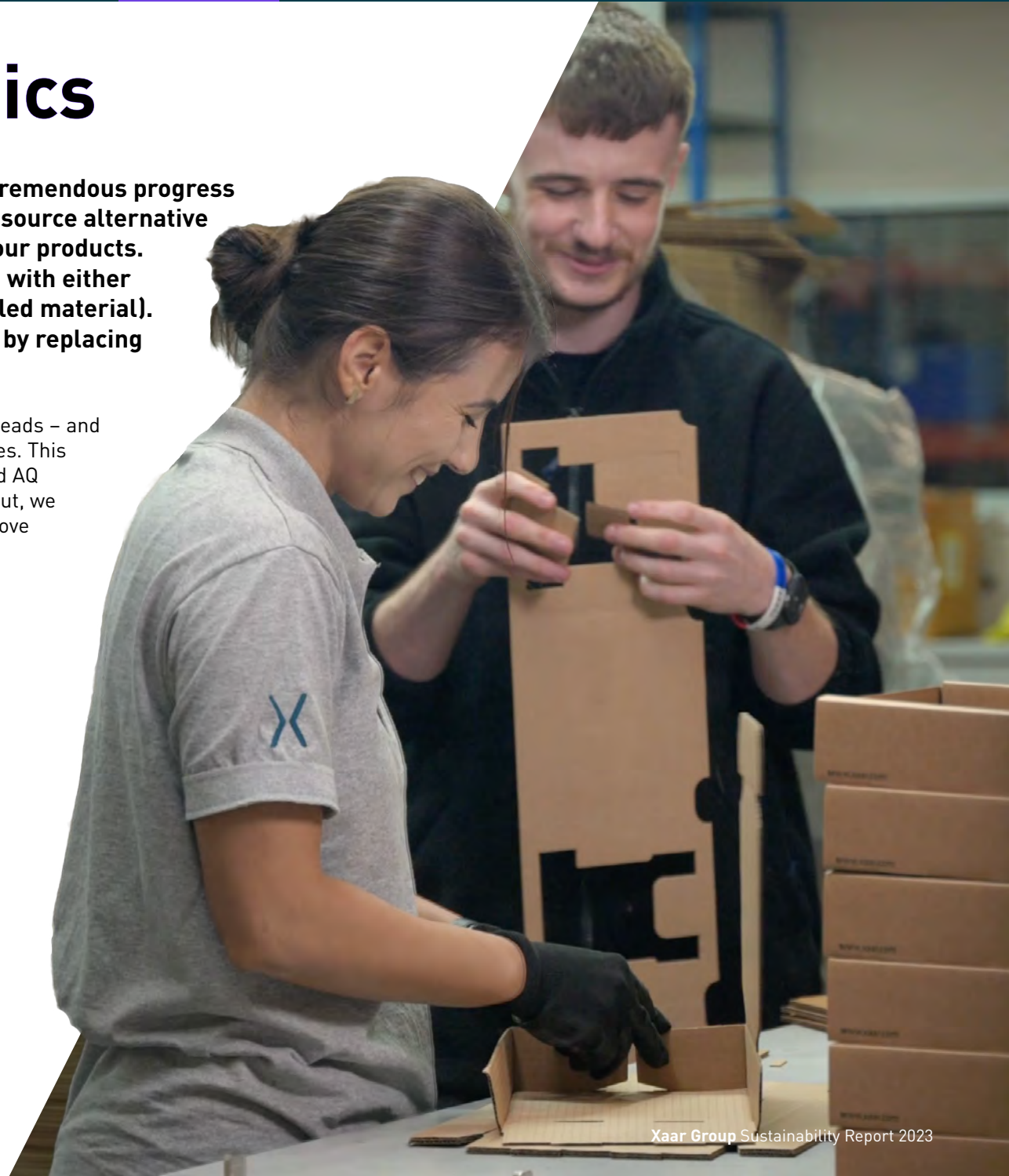
2023 - 500 trees planted in Kenya



# Packaging and plastics

**Packaging is a key area of focus and we have already made tremendous progress in this area. This is largely the result of work by our team to source alternative materials and environmentally friendly products to protect our products. This includes switching our product packaging to cardboard, with either cardboard or recyclable foam inserts (made from 30% recycled material). We have also eliminated the need for plastic packaging tape by replacing it with a water-activated paper tape.**

In 2023, we stopped the 'double-bagging' of 50X, 100X, 200X and AQ printheads – and we have also removed the need for an additional bag used for print samples. This has removed two plastic bags from the packaging of all our 100X, 200X and AQ printheads and one bag from our 50X printhead. This is great progress – but, we think we can go further – and we continue to look for further ways to improve the sustainability of the packaging of Xaar products.



## Biodiversity

Plan BEE has been a huge success! Bees were introduced to the Huntingdon site as part of our commitment to enhancing local biodiversity. We now have two hives and a group of staff volunteers are being trained to look after them.





We want to be an employer of choice by putting our people, their potential and wellbeing at the heart of all we do

### Our progress

**230** people attended talks and training sessions during Health & Safety week

**63%** increase in EPIICC awards

**7** individuals took part in a leadership development programme

**13** individuals took part in a management development programme

PEOPLE



# Who we are

We are very proud that 2023 has been a year of positive impacts across the People pillar of our Sustainability Roadmap. Much has been achieved – including accreditation to the Great Place to Work™ (GPtW) framework; investments in high-quality staff training and development programmes; and we’re making a real difference through early careers and apprenticeships.

## Our values

### We do everything with passion

We care about our technology, our products, our partners and each other

### We are innovative

We always look for new, better solutions

### We have integrity

We deliver on our promises

### We are creative

We push the boundaries of what’s possible

### We are collaborative

We work together as a team and with our clients

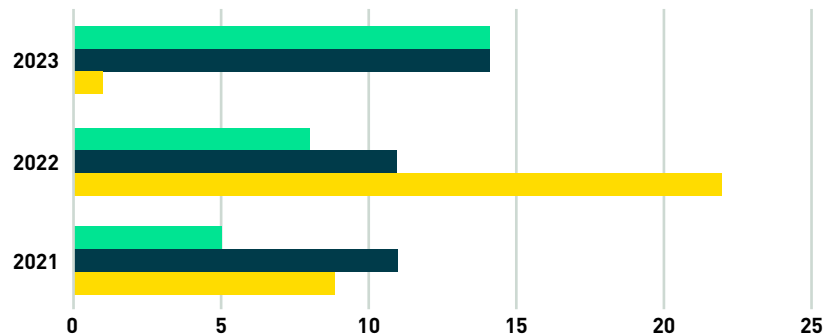




# Safety comes first

Achieving Zero Harm remains a key focus of our Sustainability Roadmap. This year, our Continuous Improvement Team led the way on Health & Safety with a whole host of engaging learning-focused activities. This included an 'escape room' during Health & Safety Week, presentations from external speakers and training sessions attended by 230 people. The feedback has been fantastic and staff engagement levels have been high – and we are already looking forward to Health & Safety week 2024.

Xaar's UK Health & Safety Numbers



**3992**  
days since our  
last RIDDOR

\*Reporting of Injuries, Diseases and Dangerous Occurrences Regulations

- Near Misses
- Incidents
- Accidents

In 2023, we changed our system for reporting H&S incidents and capturing details. This means year-on-year comparisons are not like-for-like

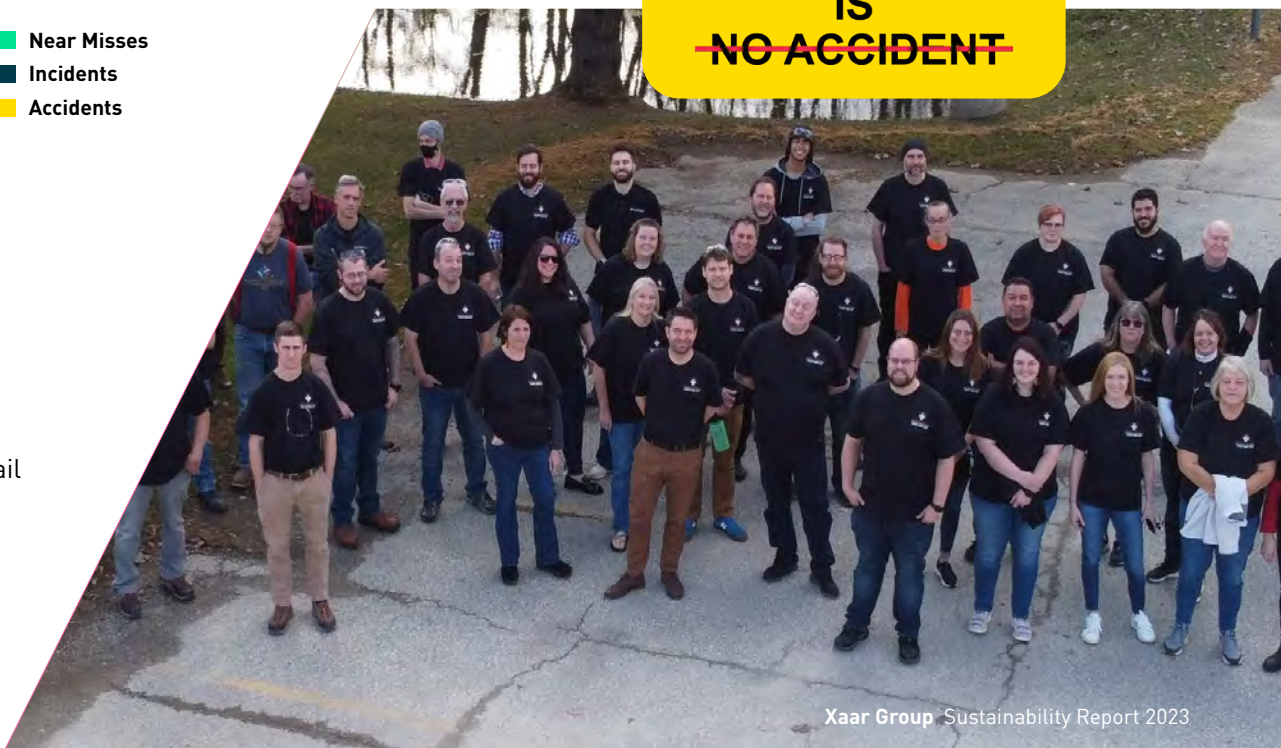


## New Safety Concern System

In 2023, we designed and launched our new Safety Concern Reporting System. This allows us to look at leading indicators and gather more detail from employees. Thanks to our new system, we have seen an increase in engagement in health and safety – which helps us ensure 'safe working' is embedded within our workplace culture.



**SAFETY IS  
NO ACCIDENT**



# Becoming an employer of choice



## Great Place to Work Certification

People are at the heart of any business, and Xaar is no exception. In our Sustainability Roadmap, we made a firm commitment to become an 'employer of choice'. To achieve this, we recognised that we needed to gain a better understanding of our workforce.

External validation of employee feedback is essential. We chose the highly-respected Great Place to Work™ (GpW) framework, the global authority on workplace culture, to help us ask the right questions and gather data.

We were absolutely delighted to confirm our official accreditation as a Great Place to Work Certified™ organisation in May 2023.

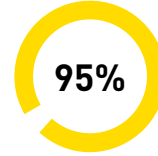
## What's next...

Certification was just the beginning. Following the GpW survey results, we established four focus groups with employees – including frontline managers, younger employees and representative group. This provided a forum to deep dive into their experiences and areas for improvement. Using this insight, we hope to continue to both retain and attract the very best people and become an 'employer of choice' across all our Group businesses.

We're proud to be Great Place to Work Certified™  
Key metrics from our Great Place to Work survey



Of our people say they are treated fairly regardless of their race or ethnic origin.



Of our people say they are treated fairly regardless of their sexual orientation.



Say Xaar is a physically safe place to work.



Report that you are made to feel welcome when you join Xaar.



Of our people say are treated fairly regardless of their gender.



“

*Organisations which put the employee experience at the heart of their business gain their employees' trust and, in turn, are truly able to build a great workplace culture that delivers outstanding business results.*

**Benedict Gautrey**

Managing Director of Great Place to Work® UK.



# Investing in our people

We are really proud of the work we are doing to drive positive impacts among our employees. Regardless of age, length of service or experience, we have a firm belief that training is valuable and helps to build confidence, competence and nurtures future talent, too.

## How we're developing skills & nurturing future talent

- 1 Gaining clarity on the aspirations of our workforce.**  
We have changed the format of our Individual Development Plans to make it easier for employees to tell us their career aspirations and development goals.
- 2 Building skills through Continuous Professional Development.**  
We continue to see a strong appetite for learning and opportunities to invest time in their career development. We are delighted that so many employees have achieved industry recognised qualifications in 2023.
- 3 We adapt our training to meet the changing needs of the business.**  
We continue our commitment to invest in the learning and development of our employees. We work hard to ensure we offer high-quality, timely learning opportunities that meet employee development goals and support the growth of our talent pipeline.



*In any business, it's the people who deliver the strategy, and we need to ensure our workforce has the skills, knowledge and experience to do that. And we need to do this in a way that works for them.*



**Helen Clifton**  
Learning & Development Manager, Xaar



# Nurturing future talent

**Haiden Williamson is on a four-year Engineering Apprenticeship in Mechatronics / Advanced Engineering. He will complete his course in 2026.**



## My Apprenticeship journey

I've really enjoyed my Xaar Apprenticeship journey so far. It's been fantastic working with people from all over the country and from a variety of backgrounds. I think apprenticeships give you a chance to tailor your skills to a specific environment and get straight into the workplace. The education is great as well as the hands-on experience. Although my Apprenticeship with Xaar is in a niche area, I know my skills can be transferred to a variety of fields and sectors.



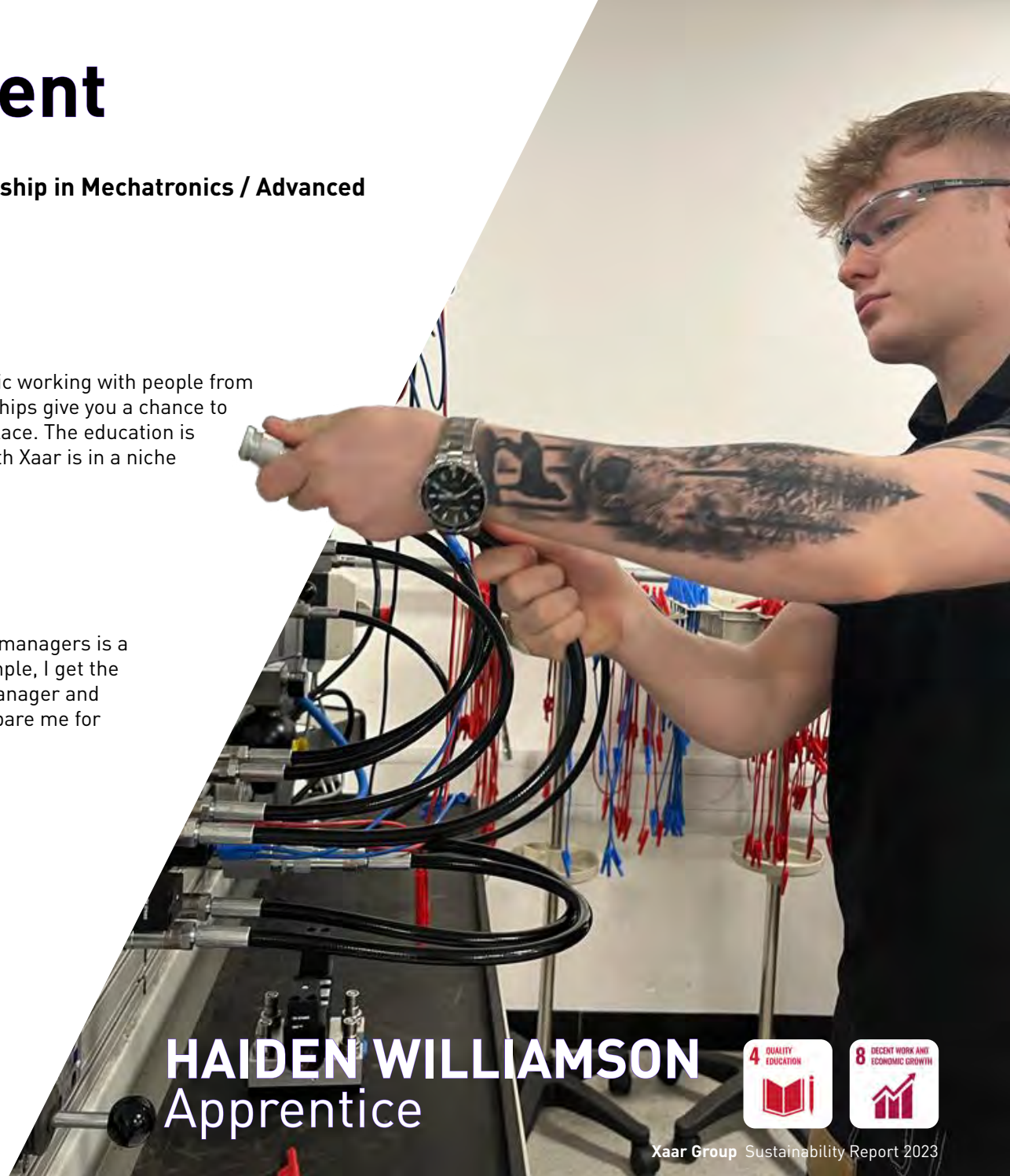
## Skills I'm learning

Every day, I learn something new and valuable. But learning to present to managers is a skill for life – and I'm getting plenty of experience of this at Xaar. For example, I get the opportunity to practise my skills in monthly review presentations to my manager and team leader. I really appreciate the help I've had from our HR team to prepare me for these meetings.



## Stand-out achievement

I'm so proud that my work is making a real impact on the business. For example, I investigated the commercial case for replacing the halogen tube lighting with LEDs in our Huntingdon cleanrooms. I was asked to present this project to our COO Graham Tweedale – and explain how this would save Xaar around £15K per year. Graham has now asked me to roll out this idea across the business. So, my next job is to prepare to present to various departments.



**Haiden Williamson**  
Apprentice





# Personal development

**Alex Sandford is a Shipping Coordinator, based at our Huntingdon site. He completed a Level 3 Business Administration Apprenticeship with Cambridge Regional College in 2023 while working in Xaar's Logistics Team.**



## What I've learnt at Xaar

I learnt so much! Organisational skills, project management, communication, public speaking/presenting prioritisation within a schedule – and I have gained more self-confidence too. The positive team spirit and personable culture has really built my confidence. This has accelerated my career pathway, and it also has a positive impact on my social interactions outside of work.



## What is it like to work at Xaar?

I recommend Xaar to any young professionals or students who are looking for a place to start their careers. I think Xaar's culture is very supportive – this experience has enabled me to develop skills that will stay with me for life.



## What's next for me?

I am really eager to build my career at Xaar and I look forward to developing my leadership and management skills. Having already completed two 'Dangerous Goods' courses, it's encouraging to know that personal development is taken seriously at Xaar and is made accessible to every employee. I know I can build on my skills and continue my journey at Xaar.



**ALEX SANDFORD**  
Shipping Coordinator



# Bridging academia and industry

**Jing Shi is a Research Associate from Queen Mary University of London. Her area of specialism is the drying of inkjet droplets and droplets formation during inkjet printing of complex fluids, and multiphase flows.**

Jing spent the last two years working with Xaar’s R&D team as part of a Knowledge Transfer Partnership (KTP) programme which is co-funded by Innovate UK and Xaar. At Xaar, her work has focused on characterising the complex rheology and jetting of model dispersion inks, comparing them to those without particles. Jing’s research project has been well received and was delivered on time. It has now been published in the Physics of Fluids scientific journal.

“Working with Xaar has been a brilliant opportunity to gain deeper industry knowledge and utilise my work to progress against real industry challenges. I felt very welcomed by the Xaar community right from the outset – everyone I have worked with has been incredibly supportive.

“The whole experience has been very rewarding. It has enabled me to gain hands-on experience which really builds on the knowledge I acquired through my time in academia. This project has brought innovative ideas to a real-world context and it has given me an insight in real industry challenges.

“The KTP benefitted my career in so many ways. Xaar’s investment in my personal development has enriched my skillset – particularly my soft-skills. For example, I was able to attend training on management and assertiveness as well as presentation skills and a technical workshop on inkjet printing. The value here is that I can carry these skills with me, wherever my future lies.”



**Dr Jing Shi**  
Research Associate





# Delivering on wellbeing

**Prioritising wellbeing is a business imperative, and it has been a key part of our journey towards becoming an ‘Employer of Choice.’ We also recognise that if companies want to attract and retain talent, they need to operate differently.**

During 2023, we made significant investments in time, resources and external frameworks to support wellbeing. The work we have done supplements our existing Wellbeing Strategy – and takes us to the next level.

New for 2023, has been the introduction of the **Xaar Knowledge Hub**. Through the Hub, our employees have easy access to information on financial wellbeing, mental health and physical health. via a confidential 24/7 helpline, support guides and informative videos. This facility supplements the valuable work of our Mental Health First Aiders.



**“**  
*The Great Place to Work employee survey results gave us a firm foundation, upon which we can build our People Strategy. It enables us to delve into what people really want and put in place the wellbeing measures they’ll connect with. We want to choose the things that really matter and do them well.*



**Sue LaVerne**  
Chief People Officer, Xaar Group





# INNOVATION

## Encouraging more sustainable approaches to design, manufacture, technology and collaboration across the whole Product Lifecycle

### Our progress

**84** people attended the "Seeing is Believing" open day

The Aquinox printhead is eco-friendly due to its water-based fluids, meaning fewer chemicals in waste water

Ultra High Viscosity technology has improved print quality at higher speeds with less ink and energy required

Our innovative products are enabling our customers to deliver a solution that has less impact on the environment



# Our innovation journey

## 2023 marks the start of a whole new chapter in our innovation journey

Since the launch of our Sustainability Roadmap in 2021, we have measured much of our Innovation pillar progress on Innovation from an internal operations perspective. As a result, we have made great strides by adopting more innovative approaches to sourcing materials – as well as our use of natural resources and energy.

This year is different. In 2023 we moved our 'North Star' to focus on the many ways that our technologies deliver transformational sustainability impacts to our customers and partners.



*We have moved the dial in terms of how novel ink formulations can be used to deliver real shifts in process efficiency.*

Led by our R&D Team, the result is that we have never been better positioned to measure and communicate our external impact on our value-chain.

## Our sustainable product philosophy

We're defining the next generation of print technology with a portfolio of products that is inherently more sustainable and designed to make a positive impact.

- 1 Performance is never compromised in the pursuit of sustainability.
- 2 Continuous improvement ensures we evolve our existing products to deliver sustainable outcomes.
- 3 Sustainability is inherent across our portfolio – quite simply, our products have a longer life-cycle than competitor alternatives.





# Evidencing our sustainable impact

Transparency and openness are values we share with our customers. They are also the principal drivers behind our decision to commission an independent research study into the end user benefits of jetting high viscosity water-based ink.

Led by Dr Chris Phillips and Professor Davide Deganello, senior academics from the Welsh Centre for Printing and Coating at Swansea University, this study provides third-party verification of our ability to deliver a wide range of impacts – including sustainability outcomes – to our customers.

## Independent evidence

Using the Xaar Aquinox printhead and cyan water-based inks from Nazdar (a world-leading manufacturer of inks and chemicals) the research team has provided third-party verification of the end user benefits to printing high viscosity fluids – a process which is enabled by Xaar’s Ultra High Viscosity Technology.



*“The Swansea University team’s research gives us solid, independent evidence of our ability to deliver sustainability outcomes for our customers and partners. This sends a powerful message to any business that is trying to minimise its environmental footprint – we welcome the opportunity to make that happen.”*



**Karl Forbes**  
Group R&D Director, Xaar Group







# Sustainability without compromise

The Swansea University team provided evidence of Xaar Aquinox's sustainability impacts: it enables customer to use less ink; meaning transport costs and process energy costs are also reduced.



## Less water = enhanced colour

The team found that a water-based ink with a much higher viscosity than typically possible delivered much higher colour density on the substrate. The lower amount of water in the higher viscosity inks meant less absorption into the substrate, delivering more vibrant colour, without the need for more pigment.



## Less ink = less energy

With less ink on the substrate, it seems obvious that less energy is needed for the drying stage. We are delighted to have this quantified and validated by the Swansea team. It sends a powerful message to any customers looking for new ways to cut carbon and reduce energy consumption.

## What's next...

The full results of Swansea University's research will be made available to our customers. This project will continue to investigate the process, functionality, cost and sustainability benefits, jetting high viscosity, high particle loaded fluids can deliver.





# 'Seeing is Believing'

We invited visitors to our Cambridge R&D facility to see first-hand how our latest technologies are redefining the boundaries of inkjet printing.

Under the theme of 'Seeing is Believing', the first ever Xaar Open Day was designed to help customers and partners understand what is now possible using fluids with higher viscosities and higher particle loading, all enabled by Xaar's Ultra High Viscosity Technology.

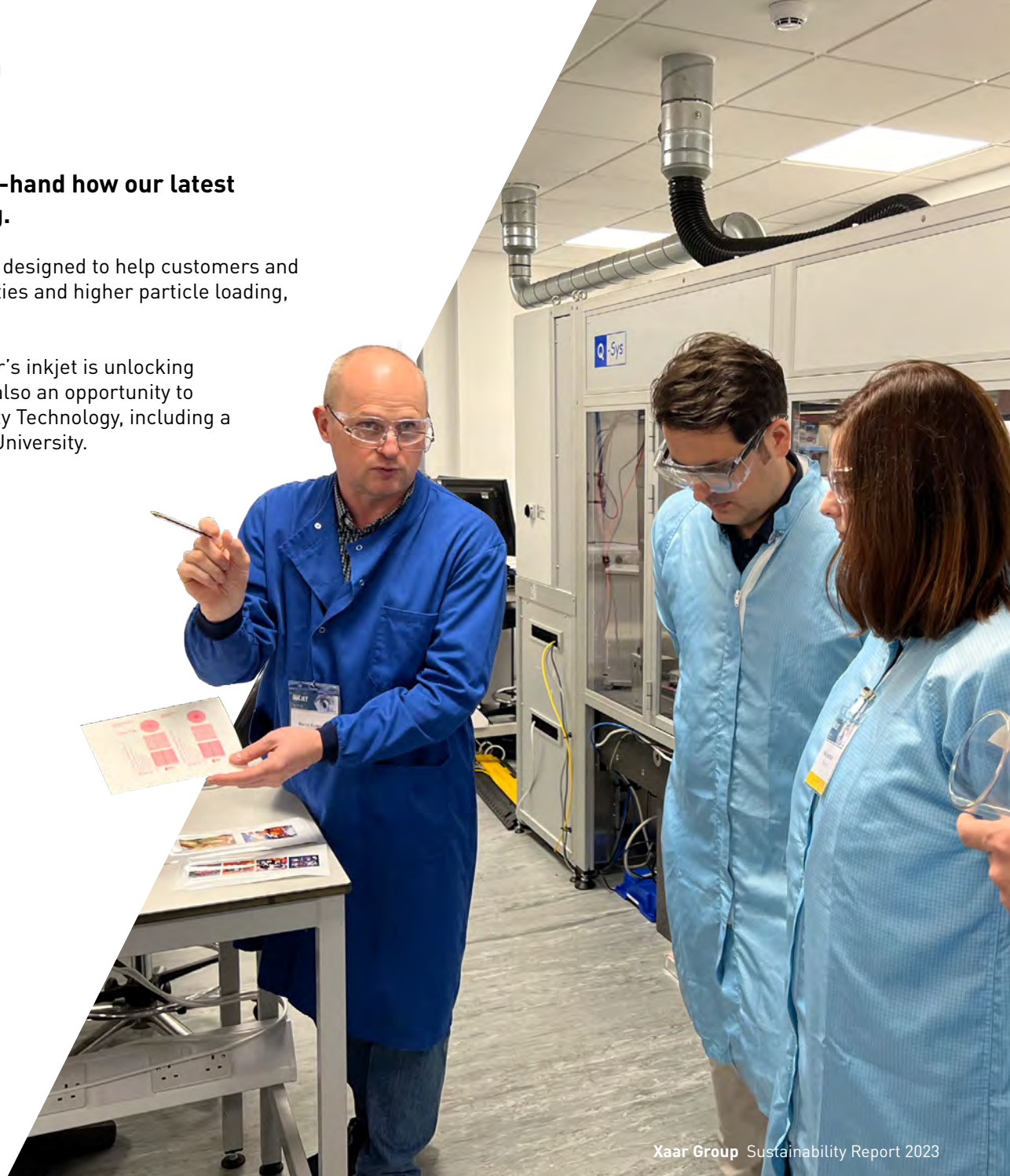
The day included talks and live print demonstrations showcasing how Xaar's inkjet is unlocking opportunities in new, and existing, sectors and applications. The day was also an opportunity to explain the environmental sustainability impacts of our Ultra High Viscosity Technology, including a presentation from the Welsh Centre for Printing and Coating at Swansea University.

Ultra High Viscosity  
TECHNOLOGY



FuturePrintTV captured much of the day on video including interviews with many of our guests.

[Click to view the video.](#)



# Aquinox: A 'game-changer' print technology with sustainability impacts

**Powered by our ImagineX platform, the Xaar Aquinox is an exemplar of our commitment to designing innovative technologies that deliver sustainable outcomes – without compromise to performance.**

The Aquinox unlocks inkjet opportunities for the use of aqueous inks. It enables printers to fully embrace water-based digital inkjet printing, through the reliable, creative, and sustainable jetting of both dye-based and pigmented aqueous fluids, all driven by our new aQ Power Technology.

## **60% energy & water savings**

Reduced energy consumption and water usage (both in production and drying times), and especially in textile printing, can equate to as much as a 60 per cent saving in energy and water over similar analogue printing processes. And with Xaar's Ultra High Viscosity Technology, these savings are increased even further.

## **Reduced ink wastage**

Xaar's TF Technology ink recirculation gives improved open time and latency, reducing maintenance and unnecessarily wasted ink, saving energy and resources.

## **Long service-life**

The Aquinox is designed to be inherently robust. Our careful choice of materials and the development of aQ Power Technology means we have extended the product's lifespan. For our customers, this helps to minimise waste and lowers total cost of ownership as well as the environmental impact.





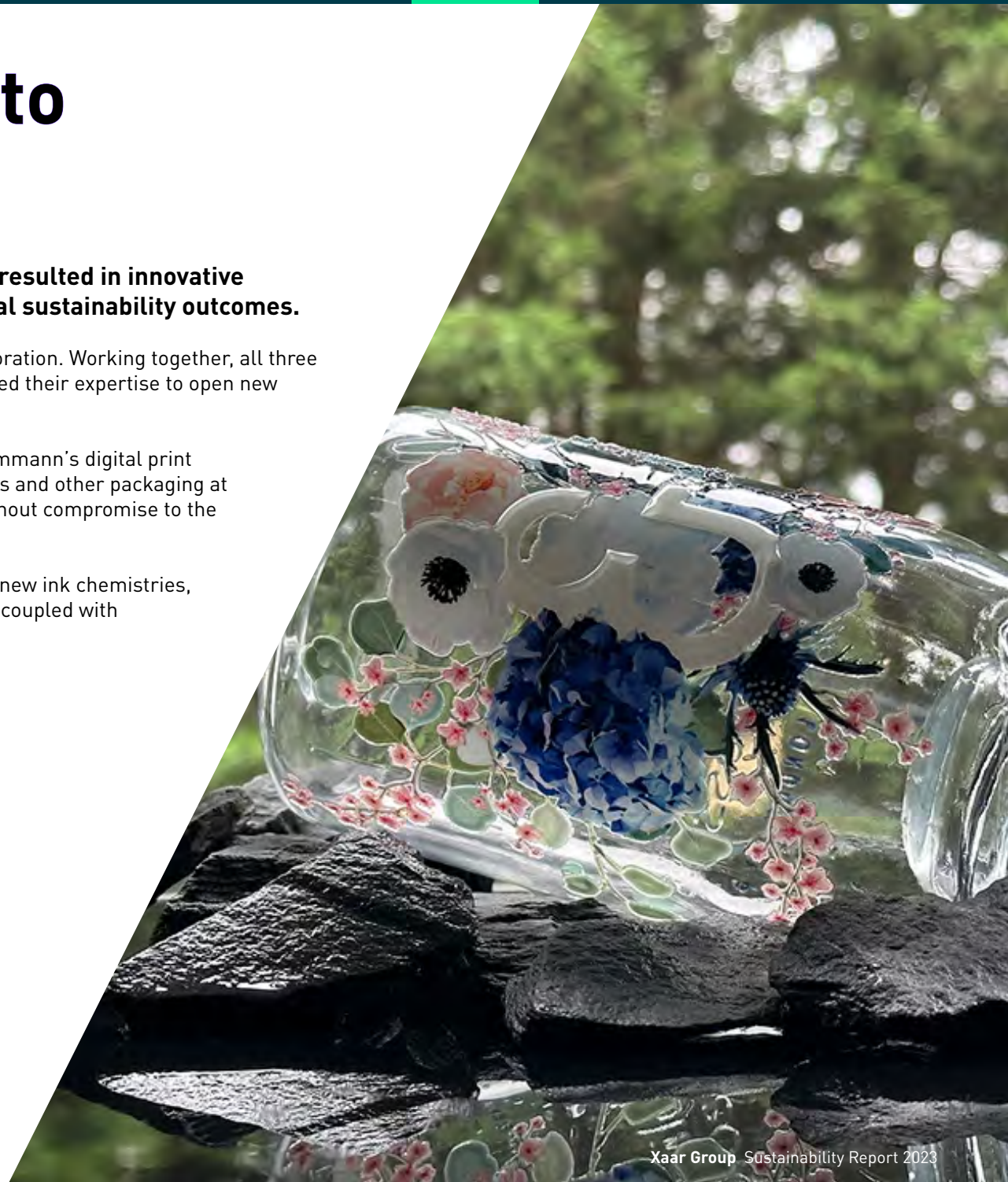
# Collaboration leads to transformation

**A collaboration between Xaar and two other businesses has resulted in innovative approaches for decorative printing – alongside environmental sustainability outcomes.**

This project is the perfect example of our approach to supply-chain collaboration. Working together, all three partners – printhead manufacturer, ink supplier and machine builder – used their expertise to open new possibilities that traditional analogue printing methods cannot deliver.

By combining Xaar’s printheads, Marabu’s Ultra High Viscosity ink and Kammann’s digital print innovation, it has been possible to create embossed effects on glass bottles and other packaging at a laydown build height up of to 3mm. Crucially, all of this was achieved without compromise to the intricate details of the embossing and sharp contour edges.

We have no doubt that this project is just the start, and the combination of new ink chemistries, machine know-how and our printheads will deliver fundamental change – coupled with sustainability benefits – to many industries over the next few years.



KOENIG & BAUER



# Customer impacts: Reducing CO<sup>2</sup> emissions for vehicle manufacturers

## Challenge

Currently around 40 percent of paint is lost when spray painting a car, not only wasting valuable materials but also significant amounts of energy. The possibility of inkjet printing offers vehicle manufacturers significant potential savings in terms of paint use, waste levels and lost time.

## Industry need

The reliability of Xaar technology, alongside our ability to jet very high viscosity fluids, enables digitisation of the car painting industry. Unsurprisingly, this has stimulated significant interest from car manufacturers not only for reducing these costs and waste but also for the manufacturing flexibility that a digital inkjet solution offers.

## Solution

We have been working with leading global coatings company, Axalta, to develop Axalta NextJet™, a next generation, sustainable digital paint technology for the transportation industry.

## Result

In August 2023, we announced our partnership with the launch of Axalta NextJet™. This innovative technology enables design flexibility for two-tone vehicles and allows customers to create patterns, details, and images in a sustainable way. It also eliminates masking and reduces labour – thereby increasing productivity and efficiency rates.



30%

Axalta has already reported that this can contribute to an astonishing reduction in CO<sup>2</sup> emissions and significant cost savings for two-tone vehicle manufacturers.





# COMMUNITY

## We want to actively engage with our communities to provide practical, lasting support that benefits society

### Our progress

**21** students attended the Xaar STEM morning for a robotic duck project

**14** students enrolled in Xaar hosted STEM afternoon clubs

**22** charity champions volunteer to support our Charity partner Break

**2** industry placements completed

Xaar supports the Cambridge Standing Tall trail volunteer programme

# Our community

**We are incredibly proud of the progress we have made to support our Community goals and ambitions during 2023. This year, we focused our efforts on making a positive social impact and working alongside organisations that deliver targeted support where it is needed most.**

A key of activity has been our continued support of Science, Technology, Engineering and Mathematics (STEM) subjects within our local communities. These initiatives and activities are making a tangible and positive impact to young lives.

Alongside our STEM outreach, our commitment to our charity partnership remains strong. This year, our Charity Champions and colleagues have worked very hard to raise funds for our UK charity partner, Break. Thanks to their collective efforts we have raised £35,772, with Xaar match funding what we have raised, our total is £71,544 since the beginning of our partnership.



Joining forces with educational charity the Smallpeice Trust our UK team funded and hosted a workshop for 50 students from St Peter’s Secondary school in Cambridgeshire. The students were given an opportunity to build fully functional speakers which they were able to take home and enjoy using. Showing the value of STEM outreach, 87% of the students provided feedback that they enjoyed the day, and 85% felt they had gained new skills.



*Thanks for giving me the opportunity to express myself in engineering and to discover what I’m capable of.* Feedback from a Year 10, female student



# Supporting STEM

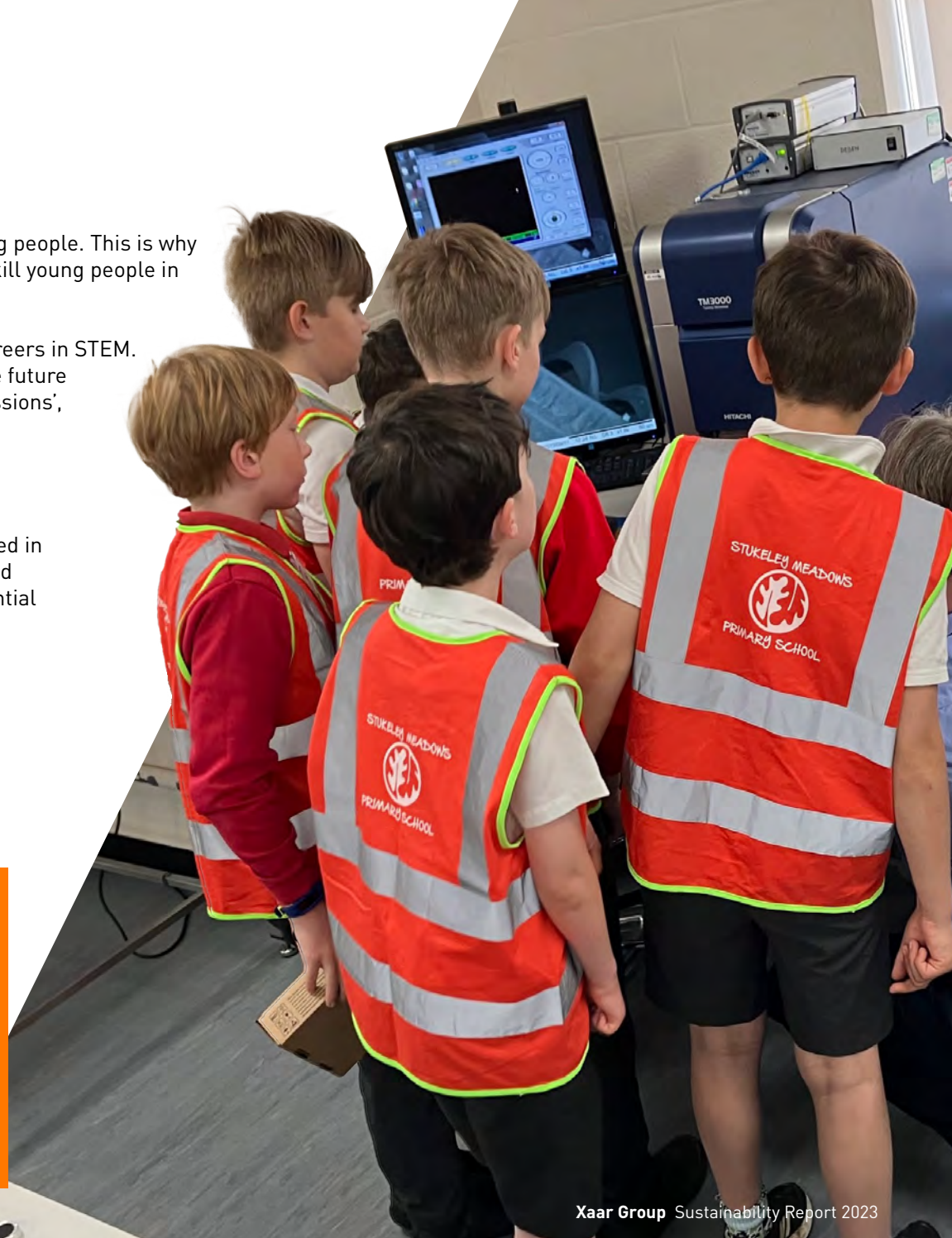
## How we're making a difference

Career pathways in STEM subjects offer rewarding, high-value opportunities for young people. This is why we made a commitment in our Sustainability Roadmap to support initiatives that upskill young people in areas such as science and engineering.

During 2023, we invested time and resources to inspire future generations to seek careers in STEM. Our work in this area is group-wide; each of our businesses is working hard to inspire future generations through a wide range of activities. This includes hosting 'STEM taster sessions', careers fairs, after-school clubs, Xaar experience days, and careers talks.

## Inspiring the next generation

We welcomed 13 students to our Huntingdon site from local primary school Stukeley Meadows' Imagineering after-school club. The children toured our site and participated in activities designed to inspire their interest in technology-focused careers. This allowed them to experience the world through the lens of a microscope and discover the potential of 3D printing.



*This visit has been a great way for us to build on the work we do in school. Seeing science and engineering in real life applications that are leading inkjet technology's use around the world is inspiring and will help us develop our students' science and engineering skills even further. The team from Xaar provided a deep and inspiring insight into the diverse world of engineering within their business – and our visit also ensured everyone had a lot of fun!*

**James Singletery,**  
Headteacher, Stukeley Meadows School, Cambridgeshire



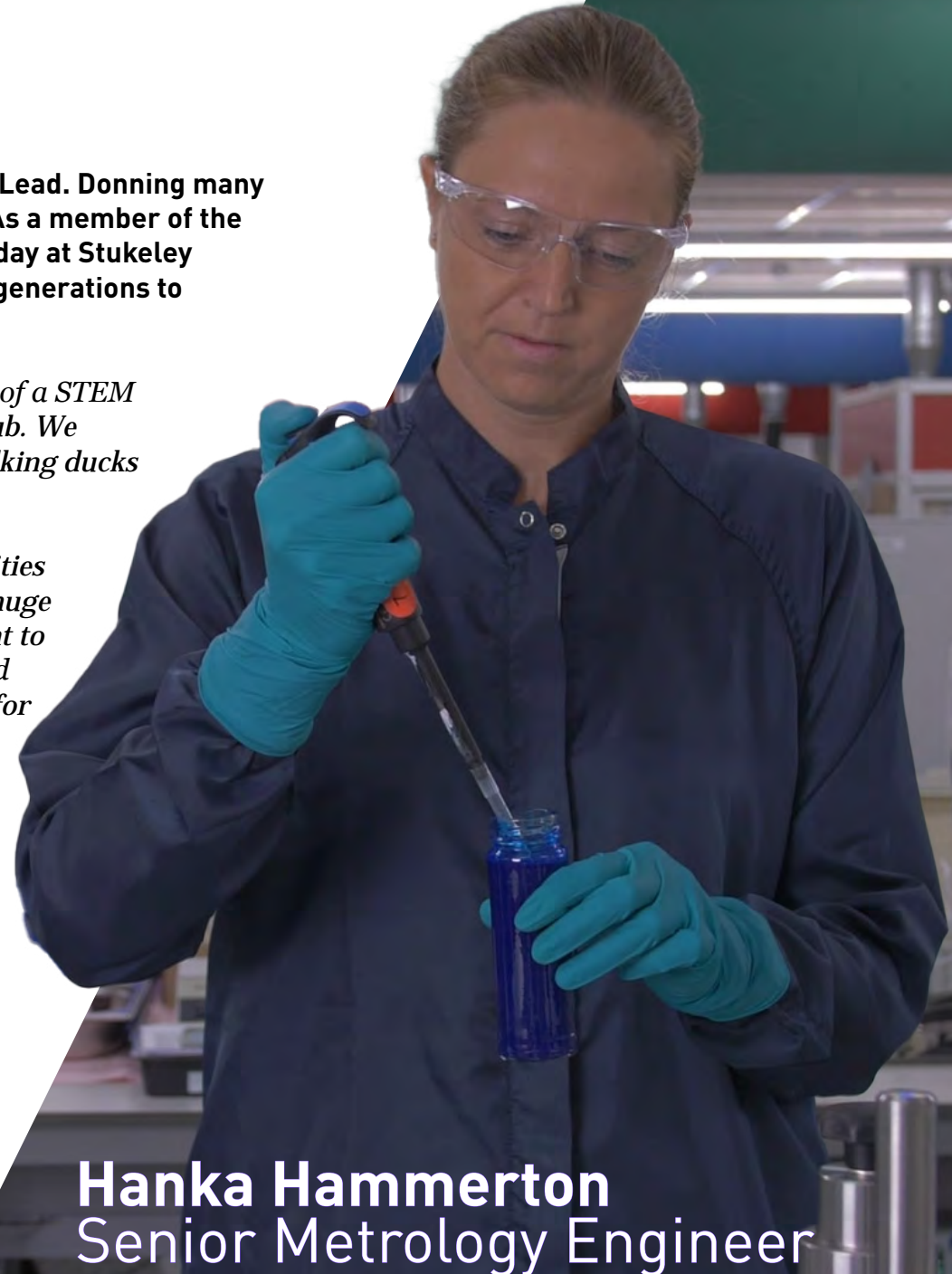


# Making an impact

Hanka Hammerton is our Senior Metrology Engineer/ Engineering Lead. Donning many caps, Hanka also holds the role of one of our STEM Ambassadors. As a member of the small team which runs the popular after-school club each Wednesday at Stukeley Meadows School, Hanka inspires our local communities' youngest generations to explore the opportunities found within a STEM career.

*“Seeing first-hand how the kids become inspired by the possibilities of a STEM skillset, is the most rewarding aspect of running the after-school club. We organise projects for the kids, everything from building robotic walking ducks to electronic games.*”

*I think it's so important to show younger generations the opportunities available to them, especially for the younger girls. We have seen a huge spike in the number of girls coming to the club; it is really important to me to have the opportunity to represent how a future in STEM could look for them. Having the space to embody a potential career path for girls is great, I can really show them what's possible.”*



**Hanka Hammerton**  
Senior Metrology Engineer



## Xaar - Stepping up

Seven employees from Xaar committed to walking one million steps in just three months to raise money for our UK charity partner, Break. The team smashed their target, with a grand total of 7,638,660 steps. This raised a remarkable £1,318 which was match funded by Xaar – increasing their total contribution to £2,636.



# Real-world experiences

In the UK, we were delighted to offer work experience placements at Xaar and FFEI for 11 students from various secondary schools in the Huntingdon and St Albans areas. The feedback from students and teachers has been fantastic – and we aim to repeat this in 2024.



*70.5% of young people 'strongly agree' that work experience helps you to make decisions and choices about your future.\**

We also offer regular careers talks and attend career fairs at local schools. Each event or initiative is designed to spark an interest – and show students what STEM means in the real world of work.

We actively encourage our colleagues to make a difference to young lives. This commitment is evidenced by our rewarding relationship with Stukeley Meadows School. For the last 15 years, every Wednesday afternoon a dedicated team from Xaar runs a STEM club for 14 children in Year 6.

These popular sessions are one of the many initiatives driven by our people-centric ethos, inspiring future generations of engineers from a diverse range of backgrounds.



*76.1% of young people 'strongly agree' that work experience helps you to BUILD experience that can help you get a job.\**

\*Source: Youth Voice Census - 2023. 4,276 young people completed the Youth Voice Census: <https://www.youthemployment.org.uk/dev/wp-content/themes/yeuk/files/youth-voice-census-2023-report.pdf>



Our STEM outreach will help us to inspire, nurture and develop skills for future generations of engineers and innovators...





# Supporting our charity partners

Our Group-wide Volunteering Policy allows a matched period for time taken by an employee to volunteer with a recognised charity up to 2.5 days a year. This policy has led to some incredible – and impactful – initiatives. For example, one of our UK-based colleagues returned to Kenya to continue his work helping local schools.

Our Charity Champions worked hard to help us achieve our ambitions. This passionate and committed group includes colleagues from across Xaar Group. Their aim is to raise funds for our charity partner.

Our three-year charity partnership with Break has been very rewarding. This East Anglia based organisation provides a brighter future to local children and young people on the edge of care, in care and leaving care. Xaar has committed to match-fund up to £20,000 of our fundraising activities in the UK. In the last twelve months, the UK business has raised **£35,772**, which will be match-funded by the company. This means a grand total of **£71,544** has been donated since the beginning of our partnership.



## Leap of faith

Eight of our UK team members took the plunge when they skydived from a plane 13,000 feet above the Cambridgeshire countryside. These brave folks raised £3,713 for our charity partner Break.





# GOVERNANCE

“We strongly believe that corporate responsibility is integral to business success.”



**Graham Tweedale**  
COO, Xaar Group

# How we drive sustainability at Xaar

To deliver on our sustainability and ESG ambitions, it is vital that we work towards clear milestones and goals.

We have established a clear and effective ESG governance structure which has full accountability through to our Board.

Within this structure, our ESG Committee is formed of representatives from across our business. This Group meets quarterly and is responsible for reviewing our sustainability progress and ESG ambitions as we work towards our milestones and goals.



## STANDARDS & COMPLIANCE

Our manufacturing sites meet stringent environmental and quality standards.

### Quality Management Standard: ISO9001

Our Huntingdon, Waterbeach and FFEI operations have ISO9001 in place.

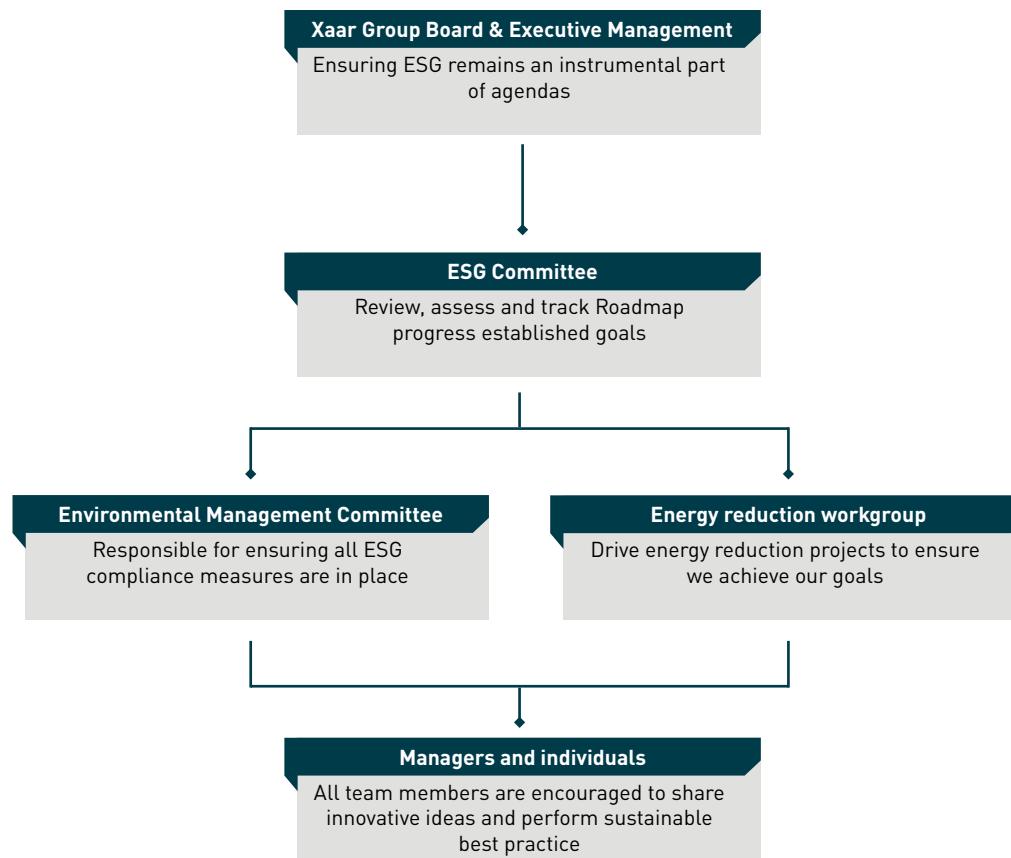
### Environmental Management: ISO14001

Our Huntingdon, Waterbeach and FFEI operations have ISO14001 in place.

### Energy Saving Opportunity Scheme (ESOS)

All of UK operations are fully compliant with the ESOS scheme.

## Our governance structure





# Looking forward

## ENVIRONMENT

**Achieve zero waste to landfill for all UK sites.** We aim to achieve this goal by the end of 2024.

**Reduce UK energy consumption.** We are targeting further reductions against our 2022 baseline.

**Offset of all Scope 3 travel emissions.** We will also continue to identify new ways to minimise this impact.

**Undertake a detailed materiality assessment.** This will help us steer future ESG decisions and investments.

**Finalise our Supplier Sustainability Policy.** This will help us to have greater transparency of our supply chain.

## PEOPLE

**Great Place to Work Survey (GPtW) Survey roll-out.**

This insight will help us shape a schedule of activities for 2024 and raise awareness of wellbeing topics.

**Investing in our Mental Health First Aiders (MHFA).** We will continue to equip our MHFA team with the right skills and up-to-date knowledge and encourage them to take refresher training.

**Inspiring EPIICC Leaders management development programme.** Our goal is to ensure our aspiring people managers are supported at this critical early stage of their management career.

## INNOVATION

**Develop a life cycle analysis scorecard for Xaar printheads.**

Our goal is to generate an industry standard benchmark. This will give us full insight into the carbon impact of our products and help us to target high carbon areas.

**Reduce scrap in our operations and design.** We continue to look for new ways to reduce our scrap in operations through process improvements and product design reviews.

**Design for reuse and recycle.** We will undertake a review of current printheads, consumables, solvents, ink-rework and recycling opportunities.

## COMMUNITY

**Increase awareness of the work of UK Charity Partner Break.** Through our Charity Champions network, we will continue to support fundraising in 2024.

**Build on our commitment to volunteering.** Within our current volunteering programme, we will encourage participation and further promote the use of it.

**Inspiring STEM careers in our local communities.** We will continue to deliver an inspirational programme of outreach activities and initiatives.

