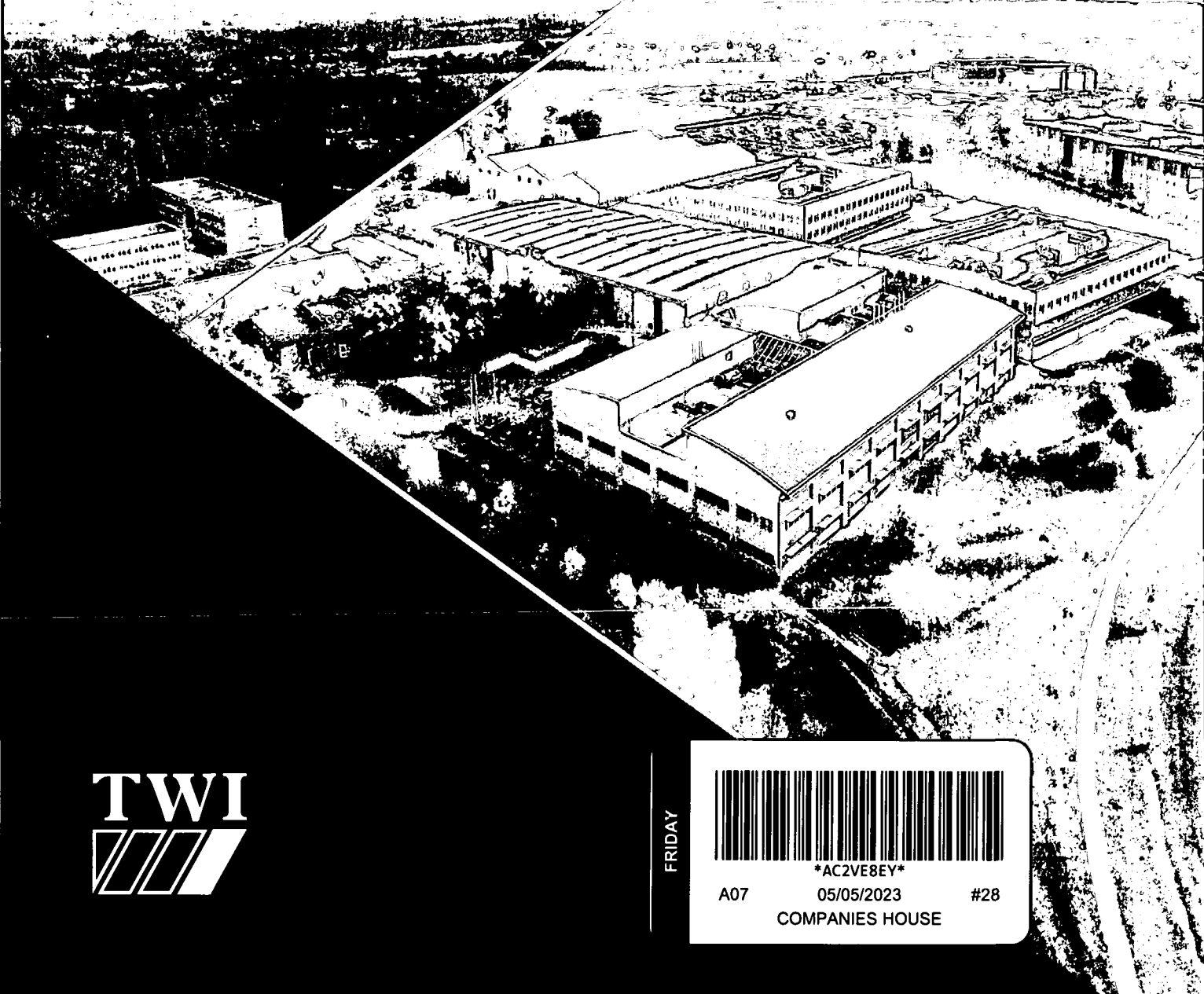
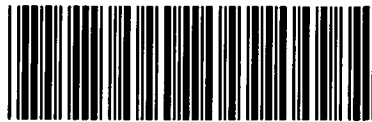


# 2021 ANNUAL REPORT AND FINANCIAL STATEMENTS

**TWI LIMITED**  
**REGISTERED COMPANY**  
**NO. 03859442**



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05/05/2023

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COMPANIES HOUSE

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# COMPANY INFORMATION

## DIRECTORS

Aamir Khalid  
John Hill (appointed 18 April 2022)  
Leonie Stewart (appointed 16 July 2021)  
Paul Woollin  
Shahid Aslam  
Shervin Maleki  
Tat-Hean Gan

## INDEPENDENT AUDITORS

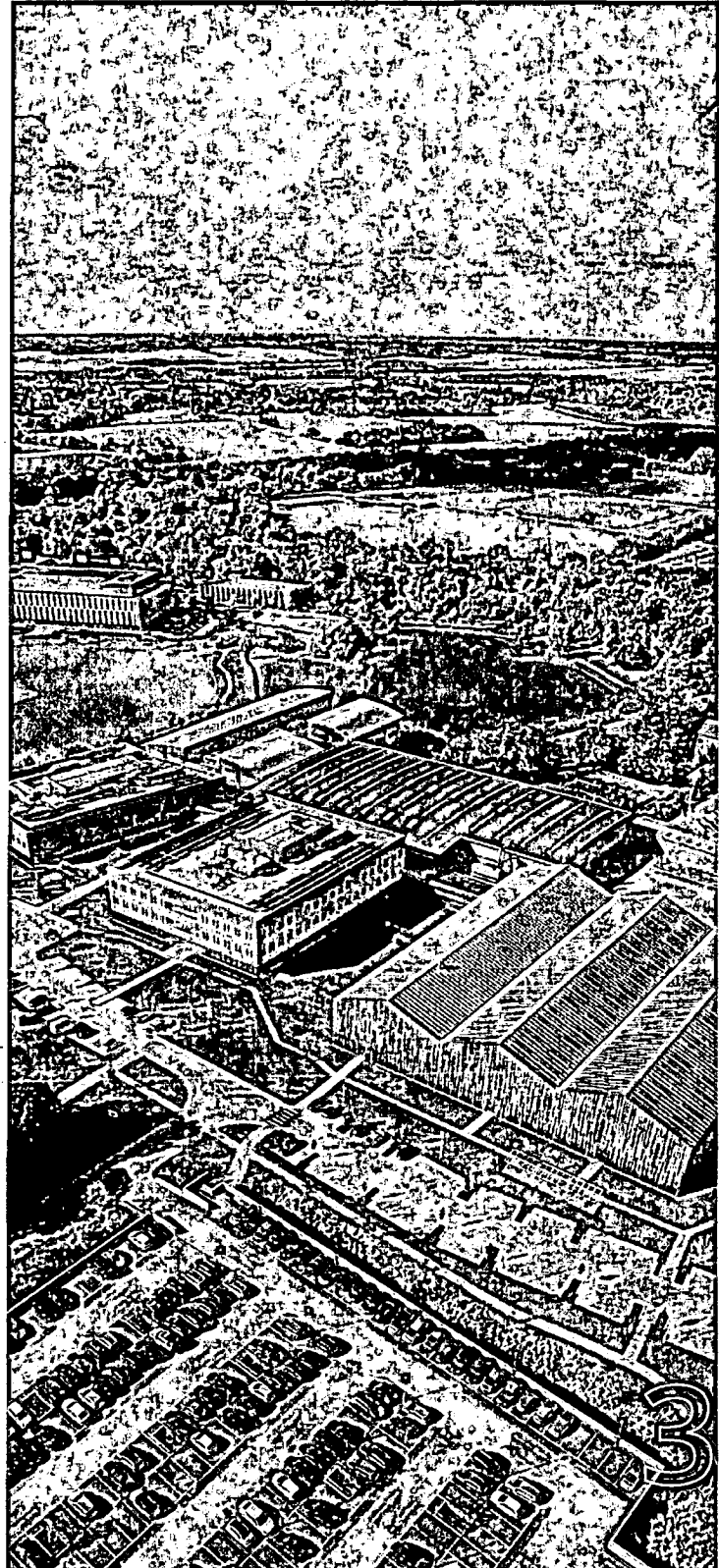
Grant Thornton UK LLP  
Chartered Accountants & Statutory Auditor  
101 Cambridge Science Park  
Milton Road  
Cambridge CB4 0FY

## REGISTERED OFFICE

TWI Limited  
Bevan Braithwaite Building  
Granta Park  
Great Abington  
Cambridge CB21 6AL

## BANKERS

Barclays Bank PLC  
Market Place  
Saffron Walden



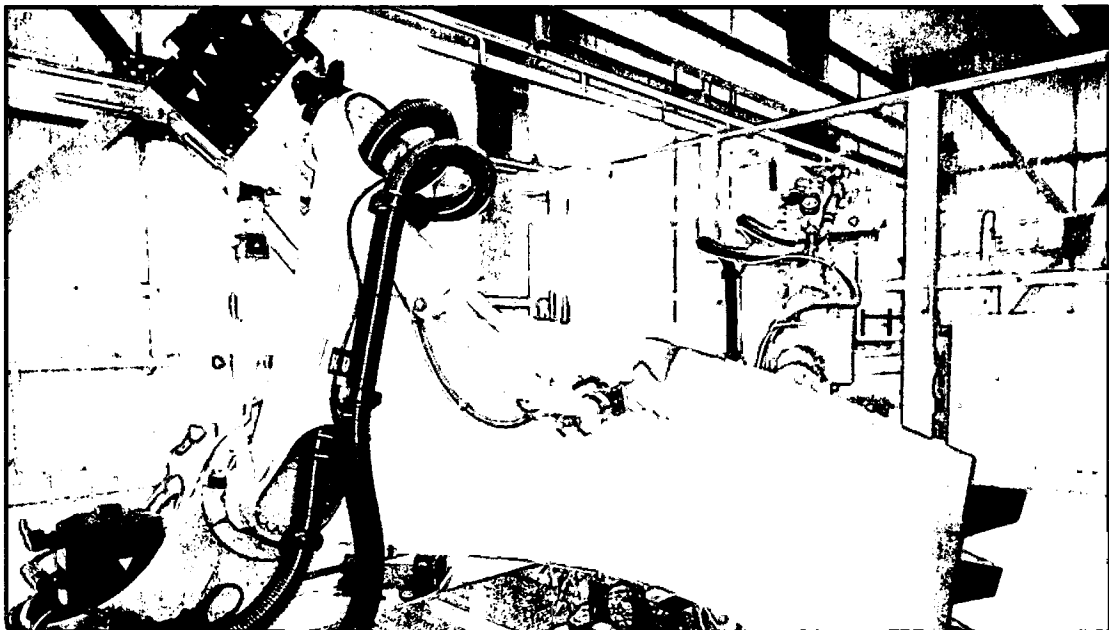
# INTRODUCING TWI LIMITED

TWI Limited is one of the world's foremost independent research and technology organisations, with expertise in solving problems in manufacturing, fabrication and whole-life integrity management technologies. The company has a first-class reputation for service through its teams of internationally respected consultants, scientists, engineers and support staff. Supported by a successful international training and examinations network, TWI Limited also takes technical and practical know-how to regions, which are looking to develop local expertise.

TWI Limited has been serving the needs of The Welding Institute's Professional and Industrial Members for over 75 years, and this still leads the direction of our work today. The constantly shifting needs of industry over the years has meant that TWI Limited has remained dynamic in this support, with companies being invited

to work alongside our experts on-site and universities working in collaboration with TWI Limited within the structure of our innovation centres. Our experts not only support innovation driven by universities and the needs of industry, but also create underpinning technology and research to develop products that can be brought to market by subsidiary companies.

TWI Limited actively supports the development of the next generation of trained and competent employees through our training and certification programmes. The advancement of the next generation of global engineering experts is coupled with the development of our own staff through sponsored Master's programmes, apprenticeships, the National Structural Integrity Research Centre and our diversity and inclusion initiatives.



As the UK government seeks to address future challenges through the development of areas such as artificial intelligence, big data, clean growth and the future of mobility, so our work aligns with this strategy to provide solutions for the future of industry and society in general. This innovation and expertise works alongside the needs of our Members on a regional, national and international level.

Our responsibilities do not end with industry and academia. TWI Limited's corporate and social responsibility work uses educational outreach programmes to promote science, technology, engineering and maths (STEM) in

schools, colleges and at university. We have a demonstrable commitment to caring for the environment. By meeting the needs of industry with a view to the environment and changes in the global population year on year, TWI Limited remains at the forefront of providing innovative solutions to tomorrow's problems.

TWI Limited operates management systems which are independently certified by Lloyds Register Quality Assurance to BS EN ISO 9001, for Quality Management Systems, as well as for Health and Safety (BS ISO 45001) and Environment (BS EN ISO 14001).

***TWI Limited is a world leader in joining, materials and structural integrity.***

# KEY STATISTICS

6

4,049	0.1576116750
5,931	0.2443476110
61,639	0.3152233500
4,942	0.7355211510
3,823	0.2359534520
2,250	0.3294521820
	0.1098173940
	0.1582377070
	0.90553524
	8931

88,930

210

# KEY STATISTICS

## PROJECT DELIVERY

Successfully delivering projects in a fast moving dynamic environment is challenging. TWI Limited has been delivering technically demanding projects to our Members that provide value and competitive advantage for many years. We have a team of dedicated project management professionals that follow established project management principles to ensure delivery meets expectation. Across the organisation we strive to continuously improve

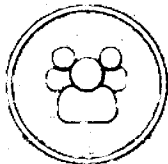
our project management processes as the business grows into new markets and the demands of these manifest in new requirements for the teams to meet. We see, from our Members, an increasing need for improved delivery and communication that TWI Limited is ready to meet. We look forward to working with our Members on many more exciting and beneficial projects.



**1745**

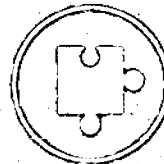
ACTIVE PROJECTS

## ONGOING PROJECTS PER ANNUM



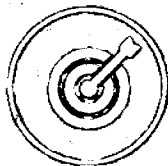
**626**

SINGLE CLIENT



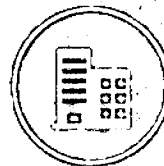
**94**

COLLABORATIVE



**75**

CORE RESEARCH



**12**

JOINT INDUSTRY

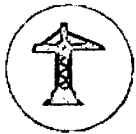
# SECTORS WE SERVE



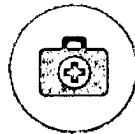
**AEROSPACE  
AND SPACE**



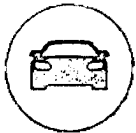
**DEFENCE**



**FUTURE  
INFRASTRUCTURE**



**MEDICAL**



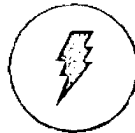
**AUTOMOTIVE AND  
ELECTRIFICATION**



**RAIL**



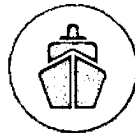
**ELECTRONICS  
AND SENSORS**



**POWER**



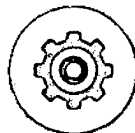
**NEW ENERGY**



**MARINE**



**HYDROGEN  
ECONOMY**



**OFF HIGHWAY**



# TWI LIMITED INTERNATIONAL PRESENCE



**533**

INDUSTRIAL MEMBERS

**4000**

PROFESSIONAL MEMBERS

## CORPORATE IMPACT

**11000**

CERTIFICATES ISSUED

**128**

PHD AND MSC COMPLETED

**500+**

WELDING SOFTWARE LICENCES

**3000+**

STUDENTS REACHED VIA EDUCATION OUTREACH

**45+**

TECHNOLOGY CONFERENCES AND SEMINARS

**18000+**

PEOPLE TRAINED

**600**

LIBRARY ENQUIRIES



# SPOTLIGHT ON OUR PEOPLE

# OUR PEOPLE



## HUAN WU - PROJECT LEADER

Huan joined TWI in 2018 after completing her PhD in Mathematics and Statistics at the University of Warwick. She is currently a Senior Project Leader in Numerical

Modelling and Optimisation (NMO). Huan's main area of expertise is in mathematical modelling and numerical optimisation. She leads and supports R&D projects in finite element analysis, additive manufacturing, solid mechanics, welding and joining processes modelling, fracture and fatigue analysis, multi-physics and multi-scale modelling and data analysis. She is a member of The Institute of Mathematics and Its Applications (MIMA) and a certified NAFEMS Professional Simulation Engineer (PSE).

### Q. Favourite thing about your current job?

The variety of challenges that I face every day. The areas I work on cover almost all industrial sectors. Coming from a mathematics background it is very refreshing and exciting to see the most cutting edge technology and applications, and to solve real-world problems.

### Q. The career highlight you are most proud of?

A water hammer project I worked on, regarding the rapid condensation and consequently the

damages in water and steam pipes. It's not the price of the project but the technical challenge that I am proud of. It was a very complex model involving rapid moment, heat transfer and phase-transition, which I created from scratch without any modelling software. It was a very challenging and rewarding experience and the project team managed to deliver satisfactory results.

### Q. Favourite way to spend a day off?

I'm based in Middlesbrough, so love walks and hikes in the national parks and the seaside around here. I've started hiking Munros in Scotland when time permits.

### Q. If you could do it all over again, would you pursue the same career?

Yes, it's a balance of research and real-world problem solving that I enjoy the most.



**KANDARP AMIN - PROJECT LEADER**

Kandarp joined TWI in 2018 after working in the aerospace sector. He is currently working as a Senior Project Leader in Thermal Processing Technologies (TPT). Kandarp is currently leading projects

investigating brazing of ceramics to metals, use of robotics in brazing and joining methods for creating electrical joints that include applications such as electric vehicle battery assembly. Kandarp is also completing a part time MSc in Engineering Leadership and Management through the National Structural Integrity Research Centre (NSIRC) and Aston University.

**Q. Favourite thing about your current job?**

No two days are the same! I have thoroughly enjoyed working on a large variety of challenging projects that have varied in the sectors they serve.

**Q. Career highlight you're most proud of?**

There have been many projects in my 4 years to date at TWI where I have felt that my colleagues and I have contributed to many significant engineering projects. The highlight, due to my background as an aerospace engineer, is developing a solution that is currently being prepared for its first space flight.

**Q. Most prized possession?**

I've grown up playing and watching cricket and so my most prized possession is a signed cricket bat from Sachin Tendulkar from when I met him in London.

**Q. Favourite way to spend a day off?**

Exploring new places and going for long walks that preferably finish at an ice cream shop.



**CATHERINE LEAHY - APPRENTICE CORROSION TECHNICIAN**

Catherine Leahy is an Apprentice Corrosion Technician at TWI. An engineering degree enabled her to combine her love of physics, maths and chemistry. She loves

being able to work and study at the same time and finds that a research company such as TWI ensures that she does something different every day.

**Q. Favourite thing about your current job?**

Working primarily on renewable energy projects at TWI gives me great job satisfaction. I like to know that I'm contributing (even in a tiny way) to a greener future. I also really enjoy the wide variety of tasks I complete on a day to day basis – no two days are the same!

**Q. The career highlight you're most proud of?**

In 2019, I was named as one of the top 50 Women in Engineering by the Women's Engineering Society.

**Q. Career advice would you give to your younger self?**

Full-time university isn't the right option for everyone, do your research. There are endless opportunities out there, not every young person has to follow the same path.

**Q. What causes are you passionate about?**

I'm very passionate about promoting STEM professions to young people, specifically young girls. A 2022 study by Engineering UK reported that women make up only 16.5% of all engineers. Whilst this number is on the rise year by year, I'm very keen to help further increase the female percentage through outreach activities. I believe that breaking gender stereotypes around careers must start in the formative school years.



**DOROTHEE  
PANGGABEAN  
- SENIOR  
PROJECT  
LEADER**

Dorothee joined TWI in 2010. She studied Mechanical Engineering at the Bordeaux University in France and joined TWI Limited following an internship. She

is currently a Senior Project Leader in non destructive testing (NDT). Dorothee's main areas of expertise lie in eddy current testing (both conventional and array), ACFM and X-ray CT. She carries out inspection onsite depending on the application and participates in diverse collaborative projects. She is a Member of The Welding Institute Younger Members Committee, which involves lending a hand during welding with chocolate workshops or other events. Dorothee explains working in NDT is nothing short of meeting interesting people in different settings.

**Q. How would your 10-year-old self react to what you do now?**

Unexpectedly surprised, as the reality is very different to what was imagined at that age.

**Q. What energizes you about your career?**

Problem solving with interesting people and colleagues on a daily basis provides energy.

**Q. What career advice would you give to your younger self?**

Communication is key! Being assertive always helps.

**Q. Favourite way to spend a day off?**

Chilling out at home, hiking, foraging in the woods, discovering new recipes.

**Q. If you could do it all over again, would you pursue the same career?**

Tough question as I have met very interesting and important people in the course of my career. However, the idea of a career as a professional chocolate tester is very tempting!



**MATTHEW  
HASLETT -  
TEAM LEADER**

Matthew joined TWI in 2012. He read Mechanical Engineering (MEng) at the University of Cambridge and has prior work experience in nuclear engineering, the Royal Navy and

the M.O.D. He is currently the Team Leader for Environmental Testing in the Fatigue and Fracture Integrity Management (FIM) section, a Chartered Engineer (IMechE) and a Fellow of The Welding Institute. Matthew's main areas of expertise lie in fracture toughness testing (in air and environment), general mechanical testing and engineering critical assessment. In addition, he lectures on a number of TWI training courses and mentors colleagues working towards Chartership. He is currently studying for an Executive MBA, and is a previous Chair of The Welding Institute Younger Members' Committee, with a particular interest in education outreach. Talking about education outreach, Matthew says, "The importance cannot be underestimated. The STEM professions are crying out for good quality scientists and engineers and it is vital that children are shown, at an early age, the fantastic opportunities that are out there for them in their future careers".

**Q. Favourite thing about your current job?**

The variety is what keeps me engaged. Every day really is different, as we work with such a diverse range of member companies across all sectors. I enjoy the challenge of juggling multiple, differing requests and requirements, and serving our members.

**Q. What originally got you interested in your current field of work?**

My interest came from two places: my dad, who was a mechanical engineer in the nuclear industry for most of his career, and an after-

school engineering club at secondary school. Both helped me really understand what engineering was about, meaning I could make an informed decision to pursue it as a career. The experience I gained from the club at school is one of the big reasons why I continue to champion education outreach, to ensure that children and young people today can also discover engineering.

**Q. Favourite way to spend a day off?**

I enjoy being outdoors, which stems from growing up in the Lake District, so walks with the dog and refereeing football matches (and still playing the odd game myself!) are near the top of the list of things to do with my leisure time. The weather doesn't often put me off, again influenced by growing up in the north of England!

**BERNADETTE CRASTER –  
TECHNOLOGY  
FELLOW**



"I joined TWI in 2012 as a Materials Specialist in Polymers and am now a Technology Fellow on Polymeric Materials and Ageing through Permeation Processes in the Materials and Structural Integrity group. I work with

Member companies and colleagues to ensure that TWI is prepared to provide relevant technical support now and in the years to come. I have contributed towards a facility that allows TWI to do scientific study that underpins the introduction of non-metallic materials at various scale into traditional oil and gas and now new energy areas. Specifically the novel permeation methodologies and corresponding data interpretation I have worked on, give the client a better understanding of how a material is ageing in environments with a reduced cost to them. I plan to consolidate the topic of permeation for TWI so, in 10 years' time, the activity we have created remains as a lasting legacy."

**MIHALIS KAZILAS - BUSINESS  
GROUP MANAGER**



Mihalis joined TWI in 2012. He is a chemical engineer with a specialisation in materials science (process monitoring of aerospace composites production). He has participated in academic and commercial projects and held responsibilities in experimental design/

work, data analysis and extensive reporting. Non-metallics is one of the strategic growth areas of TWI, including joining technologies and phenomena that occur at the interface of composites and polymers (permeation, coatings, adhesion).

Over the years, TWI has successfully developed new innovative techniques along with a wealth of expertise in processes and operations that use nonmetallic assets. In addition to the innovative and advisory work carried out by the Polymer and Composites Technologies Team, TWI is instrumental on a number of committees to develop, produce and revise standards related to polymers and composites in engineering.

**Q. Favourite thing about your current job?**

Being able to enable (de-risk, speed up, chase) the technology teams and sections to deliver value to Members.

**Q. What energizes you about your career?**

Ambition.

**Q. Hobbies?**

Board games collecting and playing. I was heavily into MMORPG (Lineage, Warcraft) with real-life friends. One day we all gathered and played a board game called Puerto Rico...and I got hooked!

**Q. The one thing that can instantly make your day better?**

A positive message from my wife or my son.

## DAN LORD - INTELLECTUAL PROPERTY MANAGER

Dan joined TWI in March 2003 as an IP Officer, based in Sheffield. He is currently hybrid working between home, TWI Yorkshire and TWI Cambridge. Dan is responsible for the management of TWI's IP portfolio (identification, protection and licensing), project activities (proposal support, contract negotiation and delivery of IP related project tasks), internal



training and provision of advice across the business in relation to IP matters. He holds a MSc in Forensic Engineering and Science (Cranfield) and a BSc (Hons) in Metallurgy (UMIST). He is an associate member of the IOM3, Member of the Welding Institute and a Chartered Engineer.

### Favourite thing about your job:

The ever changing and evolving technology I am exposed to and learning with stimulating colleagues to successfully do my job.

### How would your 10-year-old self react to what you do now:

He would be shocked that I wasn't blowing things up or digging up dinosaur bones, but he would definitely be interested in all of the cool science and engineering I see, the places I visit and the people I work with.

### The one thing that can instantly make your day better?

Successfully finishing a job in collaboration with colleagues and clients that makes everybody involved feel like they have achieved something worthwhile. It doesn't happen every day, but when it does, I sit back and grin.

## COLIN RIBTON - TECHNOLOGY FELLOW



Colin has been with TWI since 1985 and specialises in the design and customisation of electron beam systems for welding, melting, X-ray generation and other processes. He also

works on magnetic design, high voltage design and control and monitoring systems. Colin is a Chartered Engineer, Chartered Physicist, a Fellow of the Institute of Physics and holds a joint honours degree in Pure and Applied Physics and a PhD from Brunel University.

Widely published, Colin is the inventor and co-inventor on several granted patents, including the RF excited plasma gun and the array probe device for measuring electron beam intensity. He project leads TWI's activities on government funded collaborative projects looking at higher productivity additive manufacture (3D printing) using electron beams for the aerospace industry.



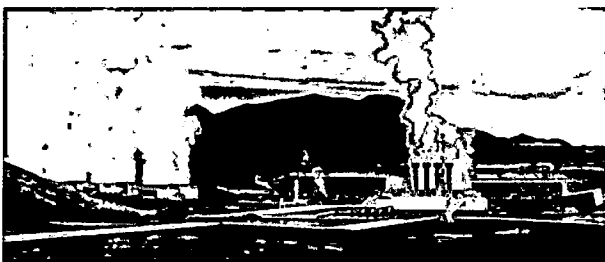
# SPOTLIGHT ON OUR PROJECTS

# OUR PROJECTS

TWI Limited continues to work on numerous projects to address the challenges of our Industrial Members in 2021, including:

- Development of composite hydrogen storage vessels with a polymeric liner;
- Developing novel and cost-effective coatings for high-energy industrial processing applications;
- Creating remote robotic offshore wind turbine and marine inspection solutions;
- Developing innovative manufacturing processes and in-line monitoring techniques for photovoltaic module production;
- A novel precision laser welding system optimised for use on large aerospace and automotive structures.

## SOME OF THE RESEARCH PROJECTS WORKED ON IN 2021



### GEOTHERMAL ENERGY

TWI has been working on a range of projects related to geothermal energy, including: S4CE (Science for Clean Energy) - implementing innovative technologies to monitor, manage

and mitigate environmental risks;

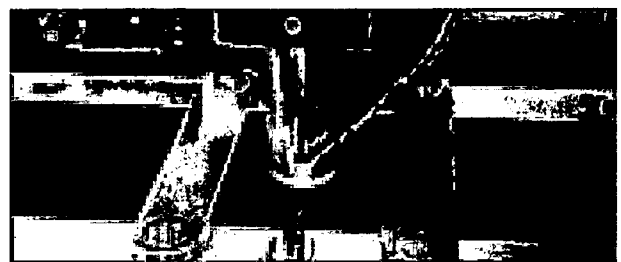
**Geo-Coat** - high performance erosion and corrosion-resistant coatings;

**GeoSmart** - storing heat energy to cost-effectively respond to network demands;

**GeoDrill** - developing holistic drilling technologies that have the potential to reduce the cost of drilling to large depths and at high temperatures;

**GEOPRO** - developing a verified set of robust, user friendly, flexible and accessible tools to optimise sustainable geothermal reservoir management, power and heat production and reinjection strategies;

**GeoHex** - developing heat exchanger (HX) materials, addressing both the improvements in the anti-scaling and anti-corrosion properties as well as the heat transfer performance of the HX material.



### PINWELD

TWI has been working alongside Industrial Member company Pinweld, to help develop their innovative welding system. The discreet welding technique delivers welds with good fusion and fine joints without the use of adhesives, solvents or consumables.

Currently able to achieve joints with strengths above 70% of the parent material, the Pinweld system is undergoing further development and optimisation with assistance from TWI. Future plans include the development of robot mounting for the system, allowing it to be used on larger sized work pieces and to create more complex, continuous joints.

The new, innovative system is already demonstrating how it can solve welding problems for a range of industries including automotive, medical, aerospace, plastic pipes and more.



### WRAPSENSE

WrapSense is an InnovateUK collaborative project between Direct-C, TrackWise and TWI, aiming to research, develop and validate novel technologies for hydrocarbon leakage detection.

The technology is based on a novel, highly sensitive nano-composite coating material capable of detecting even the slightest concentration of liquid hydrocarbons coming into direct contact with it. This makes it a highly effective technology for detecting leakages in oil and gas and aerospace applications.



### CLEANSKY 2

TWI is working alongside project leader Meggitt Aerospace Limited on an EU-CleanSky 2 funded project to improve air/oil heat exchanger technology using additive layer manufacturing.

The 'Compact - Additive Layer Manufactured Air Oil Heat Exchanger (C-ALM AOHE)' project has received funding under the European Union Horizon 2020 research and innovation

programme JTI-CS2-2018-CFP08-LPA-01 whose remit is to mature and validate disruptive technologies for next generation large passenger aircraft through large scale integrated demonstration, for advanced engine and aircraft configuration.



### ISOPREP

TWI's Novel Polymer Technologies (NPT) section are taking a focused approach to tackling plastic waste accumulation through activities within our plastic recycling technology theme, working on a number of innovative, game changing projects on the lifecycle management of plastics.

Although advanced sorting methods have reduced material contamination by efficiently separating different polymer materials, colorants and additives compounded in the polymer cannot be removed by a mechanical recycling process. This, inadvertently, limits the application range of the recycled material due to the variety of the colour and chemical additives present in them. TWI is leading a consortium of nine industrial/academic partners in the development of a novel combinational recycling technology to Technology Readiness Level 7.



### OLED SOLAR

TWI has been working as one of 16 organisations on the EC-funded OLEDSOLAR project, which has been developing innovative manufacturing processes and in-line monitoring techniques for detecting defects in solar panels. The aim is to use the new monitoring techniques in the OLED and thin film photovoltaic industries (CIGS and OPV), to improve the quality and yield of the fabricated devices as well as improving processing efficiency and sustainability.



### IFROG

The Innovate UK-funded iFROG Project has delivered a mobile amphibious robotic inspection platform for offshore wind, oil and gas, aerospace and rail applications.

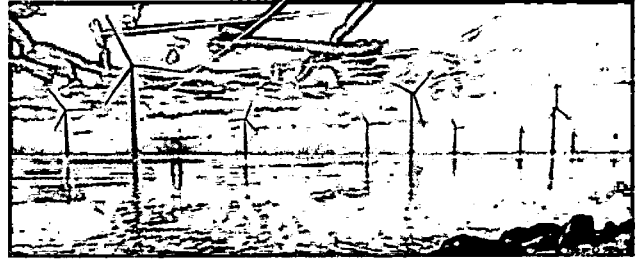
iFROG uses magnetic adhesion to attach to offshore wind structures and is able to perform up to 60 metres below the surface of the waves. The system is able to check for problems like corrosion, loss of weld integrity and biofouling as well as being able to provide condition reports and allow for optimised maintenance strategies.



### PROTECT

TWI is part of a consortium that has secured funding from Innovate UK for the PROTECT project, which has the vision to manufacture a multi-material crash-box that enables tailored behaviour / performance during low speed automotive vehicle accidents.

PROTECT is developing, testing and designing an innovative new crash-box with better impact energy absorption capabilities; enabling minimal damage and enhanced safety to road users, vehicles and occupants in low-speed collisions.



### MAREWIND

The MAREWIND Project aims to deliver solutions for the development of durable materials and recyclable solutions for offshore wind to help meet European Union climate targets. This includes enhanced durability and corrosion protection systems as well as anti-fouling solutions, erosion protection, and predictive modelling and monitoring to extend asset lifecycles along with improvements to recyclability.

The project, which includes input from organisations from seven different nations, create new job opportunities as the consortium completes nine work packages covering the whole value chain of the offshore wind sector.



### ALBATROSS

The 'ALBATROSS' project ('Advanced Light-weight BATteRy systems Optimized for fast charging, Safety, and Second-life applications') aims to enhance the electric vehicle (EV) market with a new generation of battery systems to help maximise the take-up of these vehicles. TWI is part of a pan-European EU consortium of 21 world-leading organisations from 10 countries in this project. Led by project coordinator, Yesilova, the consortium includes parts of the global Fiat-Chrysler, Ford and Mercedes-Benz groups, along with European SMEs.



# SPOTLIGHT ON OUR GLOBAL IMPACT

# OUR GLOBAL IMPACT

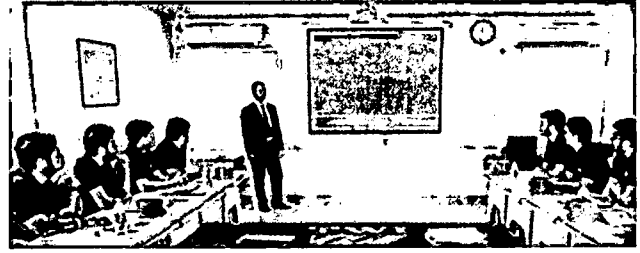


## TWI LIMITED AND LLOYDS REGISTER FOUNDATION - MAKING THE WORLD A SAFER PLACE

The South East Asia Skills Enhancement Programme (SEASEP) was launched by TWI Limited and the Lloyd's Register Foundation in 2018. During 2020 and 2021 we continued to support vocational skills and safety of more than 4000 workers from under-represented communities with accredited safety related training in South East Asia and India via the production of distance learning during the Covid period. This provided free of charge study programmes which helped support SEASEP scholars until such time as they could be brought back into a classroom environment. SEASEP Phase 1 was completed in early 2022 after an extension due to Covid. All workers joining the training programme were given a bursary funded by the Lloyd's Register Foundation and TWI Limited.

SEASEP not only increased skill levels in the workforce, but it has been very successful in empowering a whole new generation of talented women engineers to enter traditionally male careers such as welding inspection and non-destructive testing.

Tackling in-country skills shortages and reducing occupational fatalities by bringing engineering-related skills and education to disadvantaged and under-represented groups were the objectives of this programme.

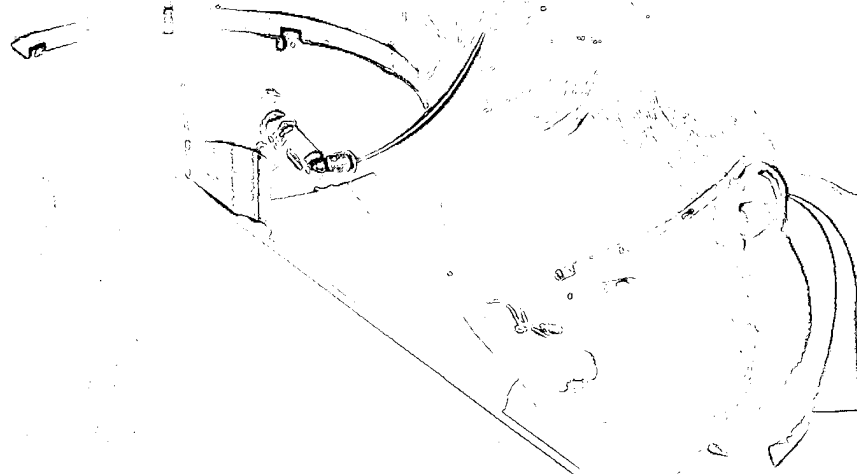


## IMPROVING THE OPPORTUNITIES AND LIVELIHOODS FOR GLOBAL COMMUNITIES

SEASEP is shown to be a comprehensive programme that has the capacity to benefit different stakeholders and learners with different levels of skills and needs (as stated in an independent evaluation of SEASEP Phase 1 in 2021). The Phase 1 results suggest that if SEASEP is expanded to other countries in the region similar impacts will emerge.

SEASEP is also able to appeal to a wide variety of learners with different needs and existing skillsets. The programme has been able to attract and provide training to those with both existing knowledge as well as those without an engineering background. Importantly, the results demonstrated how SEASEP supports employment in regional companies and, in Phase 2, similar impacts would be achieved, especially if the programme continues to be implemented with a regional focus.

The successes of SEASEP Phase 1 have now led to the approval of SEASEP Phase 2, which will enable continued development of SEASEP and its objectives in India, Indonesia, Thailand and the Philippines and help train a further 6000 students. TWI Limited will therefore continue to work with all stakeholders during SEASEP Phase 2 to ensure the success and sustainability of SEASEP and help make the world a safer place for future generations through education and skills enhancement.



# STRATEGIC REPORT

# STRATEGIC OBJECTIVES

The vision we set in 2020 was progressively developed and built upon over the course of 2021. Throughout the year we relentlessly focused on our efforts to push the boundaries of technology through collaboration and innovation, so that we could better position TWI to successfully provide the expertise necessary to meet the challenges of tomorrow, across our Member base.

Recognising our role as a world leader in joining, materials and structural integrity, we develop our people, capabilities and networks to provide stakeholders with independent and authoritative support, innovation and expertise. To achieve this we set a five-year strategy on:

1. Improving our focus and performance on Health, Safety, Environment and Diversity & Inclusion.
2. The stable and reliable generation of cash from profits needed to invest in the company's future sustainability.
3. Building closer relationships with our key Members, and adding greater value to their operations, either individually through single client projects or collectively through the very popular and effective, joint industry projects.
4. Targeting specific TWI generated knowledge and technologies for exploitation
5. Targeting high growth markets through our overseas subsidiaries around training in India, South East Asia, the Middle East and Central Asia, as well as consultancy in China, Japan and USA.
6. Exploiting TWI's property portfolio to provide

underlying stability for the wider business.

The metrics used to judge our success in these endeavours are set over five years, with annual milestones around these strategic areas:

- Health Safety and Environment
- Diversity and Inclusion
- Technology Leadership
- Customer Satisfaction
- Governance
- Financial: Turnover, Profit, Cash Generation, Group Value
- Performance of Property Portfolio

## HEALTH, SAFETY AND ENVIRONMENT

Delivering a zero harm culture change plan that would include:

- An organisational structure to remove conflicts between operations and HSE
- An evaluation framework involving a trial HSE scorecard and RACI matrix
- Greater and more frequent employee engagement across the group
- Implementing HSE appraisal objectives for greater involvement in improvements
- Better hazard identification and assessment with new risk assessment tools
- More training with a skills audit and root cause training
- Improved operational controls around investigation, change management, contractor management and lifting

## DIVERSITY AND INCLUSION

Having formulated our Diversity & Inclusion strategy in 2020, work in 2021 has focussed on promoting an inclusive culture at TWI, including:

- A 'Living the Values' Programme with each of the 6 TWI values being evaluated by staff in succession over the course of 2021. This was achieved through surveys and Zoom meetings with breakout sessions, during which staff were asked to answer 6 questions:
  - What does the value mean to them
  - What does the value mean at corporate level
  - What currently works well
  - What could we do better
  - What policies and procedures support the value
  - What criteria could be used to measure the value in the appraisals
- Pay and award benchmarking with Mercers to ensure equitable pay
- Progression framework for all staff to reduce the gender pay gap

## INCOME

- Focusing on Industrial Members that place single client projects (SCP) and recruiting new Members based on our 'Future Sectors'.
- Growth of membership in Asia
- Building more and better key account relationships, rebuilding the connections within Member companies and creating internal champions in Member companies.

## PROFESSIONAL MEMBERS AND STRATEGY

- Improving communications with Professional Members and building the value of membership to them.
- Building closer alignment with Industrial Members (e.g. via Institute ambassadors)
- Developing overseas networks and opportunities (e.g. China, SEA)



# TARGET MARKETS



**TRANSITION TO NET ZERO**



**ENERGY (RENEWABLES, H2 AND NEW NUCLEAR)**



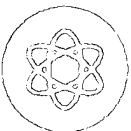
**TRANSPORT (ELECTRIC VEHICLES, SPACE)**



**DEFENCE**



**CIRCULAR ECONOMY INCLUDING DECOMMISSIONING**



**DIGITAL ECONOMY  
INCLUDING MODELLING AND SIMULATION**

# SECTION 172 STATEMENT

# SECTION 172 STATEMENT

The Companies (Miscellaneous Reporting) Regulations 2018 require qualifying companies to publish a statement explaining how the directors have had regard to the matters set out in section 172(1)(a) to (f) of the Companies Act 2006 in performing their duties under section 172. In accordance with section 172, the Directors confirm that they have acted in the way that they consider, in good faith, would be most likely to promote the success of the Company for the benefit of its shareholders as a whole. The paragraphs below identify key stakeholders and provide examples of how the Directors have had regard to the matters set out in section 172(1)(a) to (f) of the Act.

## **S172(1)(a) - The likely long term consequences of decisions**

The Directors regularly consider the long term consequences of the Board's decisions and actions. As an example, during 2021 the directors of TWI Limited engaged with Council (acting as members of the parent company, The Welding Institute) to facilitate a voluntary pension contribution by its parent, The Welding Institute as a participating employer to the Defined Benefit Scheme amounting to £16.8m.

This contribution was proposed in order to reduce the overall deficit, to make the Group more tax efficient, and to allow the business a period of time in which it would not be required to effect cash contributions (thus allowing the company a period of time where deficit reduction payments would not be required).

## **S172(1)(b) - The interests of the Company's employees**

The interests of TWI Limited's employees have been key to decisions made by the Directors, and were paramount throughout the Covid-19 pandemic – with focus on how to continue working effectively while prioritising staff safety and wellbeing. Accordingly, company-wide protocols and initiatives initially put in place in 2020 have been maintained and are regularly reviewed and updated to protect and support employees. The implementation of our diversity and inclusion strategy continues to be a key

component, as detailed in our Directors Report under Board Decision Making.

## **S172(1)(c)- The need to foster business relationships with suppliers, customers and others**

The Directors have regard to the need to foster good relationships with customers through, for example, the implementation of key account management, the development and improvement of service offerings, and the on going review and strengthening of the Company's Quality Assurance procedures. The Directors take into account the need for good business relationships with suppliers when reviewing key and critical supplier lists, and supplier payment terms

## **S172(1)(d) - The impact of the Company's operations on the community and the environment**

The Directors are conscious of the importance of investing in and caring for the physical environments and communities in which TWI Limited operates. These initiatives are detailed in our Directors Report under Environmental, Social and Governance.

## **S172(1)(e) - The desirability of maintaining a reputation for high standards of business conduct**

The Directors are committed to high standards of business conduct throughout the Company and take into account the desirability of maintaining its reputation for the same in their decision making. To support this the company has initiated a policy review and consultation process to provide our stakeholders on clear guidelines for our operations.

## **S172(1)(f) - The need to act fairly as between shareholders**

Due to the governance nature of TWI Limited, the Directors ensure that there are regular, formal meetings with the various committees and representatives of its key shareholder (and parent company) – The Welding Institute, this is detailed in our Director's Report under Corporate Governance.



# BUSINESS REVIEW

# BUSINESS REVIEW



**'2021 was a year of stabilisation and recovery following the challenges of the Covid-19 pandemic. Having adapted our working practices, we continued to deliver value for**

**our Members, while creating the financial stability to reinvest in our global facilities, equipment and staff.'**

**Aamir Khalid - Chief Executive**

I am extremely proud of how our staff across the globe have continued to support our Members and each other as we have adapted to a new way of working. I am pleased to note that key areas of our business that had struggled during the pandemic, such as our training business, have shown strong signs of recovery through 2021. As well as focusing on the needs of our customers, we have expanded our diversity and inclusion programme, engaging directly with staff to offer support and training.

In addition, TWI Limited underwent a rigorous internal security audit to ensure our offerings and practices are robust and reliable, adding a World-class level of security to the impartiality and expertise on offer to our valued defence customers. We strive to build upon our superb reputation in this sector. I am also pleased to confirm that we helped secure the future growth of TWI Limited through the land deal and exploitation of our investment and operational assets in Cambridge. This helped realise record-breaking profits, enabling us to look forward to 2022 with increased investment initiatives into our facilities, equipment and people.

Being able to improve our facilities across the UK and globally will only serve to benefit our Members, while continued investment in equipment will help us remain at the cutting edge of technology, for the benefit of industry.

I recognise that none of this is possible without the dedicated and diligent work of our staff, from our technical experts and project leaders to the laboratory staff who work tirelessly to deliver on the requirements of our Members. For this reason, I am pleased that we can look to reward our staff for their hard work, over the past two years in particular, through our newly launched 'share in success.'

We continued our work as a professional engineering institute by fully funding 368 postgraduate students in welding and associated technologies in the past 8 years. We provided supervisors and laboratories for their studies and research at our own cost. We have also partially funded 4,635 industrial training courses for students in India and Indonesia with 100% bursaries for women in those countries in 2020 and 2021. This has been done from our own funds and funds from Lloyds Register Foundation.

TWI Limited carried out £14m of research and development activities for its industrial and professional members which was funded by its parent company, The Welding Institute.

We are in a strong position, looking forward to building upon the foundation paved this year, and fulfilling our 5-year strategy to 'stabilise, focus, grow,' with enhanced governance, diversity and inclusion, systems and financial reporting structures. We are at a very exciting point in the wonderful history of this organisation and I am immensely proud to be leading TWI through another successful year.

**'I want to thank all of our people, including Members of Council, Boards and Committees and those who have supported us in our work over the past 12 months. We have emerged from Covid-19 as a stronger, more resilient business - ready to look forward to the future with investment across the board.'**

# OUR PURPOSE

**Pushing the boundaries of technology through collaboration and innovation to provide our Members with the expertise necessary to meet the challenges of tomorrow.**

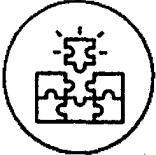
# VALUES



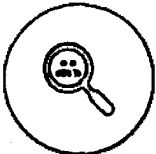
**TEAM WORK**



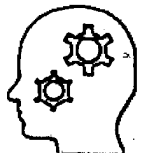
**INNOVATION AND EXPERTISE**



**TAKING RESPONSIBILITY**



**CUSTOMER FOCUS**



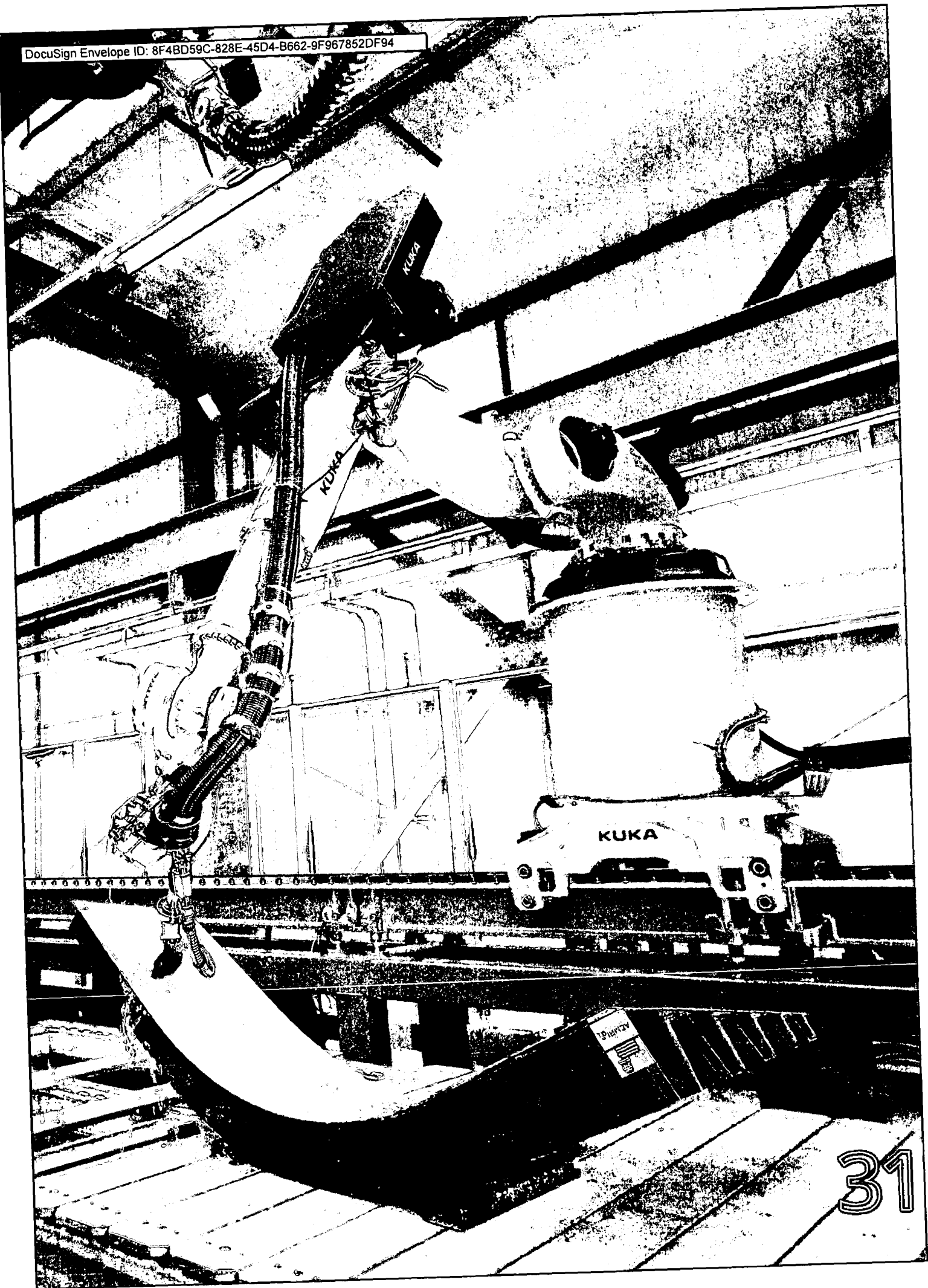
**ADAPTABILITY**



**INCLUSION**

# OUR MISSION

**TWI Limited is a world leader in joining, materials and structural integrity. We develop our people, capabilities and networks to provide Members and stakeholders with independent and authoritative support, innovation and expertise.**





# CLIENT SATISFACTION

# CLIENT SATISFACTION

We help our Members to better design, create, operate and decommission their products. We put ourselves in our Members' shoes to identify their specific issues and challenges. We then figure out innovative ways to help solve these. In order to remain competitive, we have actively monitored client satisfaction rates for the past 10 years and collate data quarterly through the use of client satisfaction surveys.

The average rate of triple excellent project responses was 52% in 2021. The following three KPI's are measured, indicating the percentage of 'good' and 'excellent' scores:

- (1) Technical Quality: 93%
- (2) Delivery Timescales: 81%
- (3) Staff Support: 94%.

## SELECTION OF THE 533 INDUSTRIAL MEMBERS WE WORK FOR



# FINANCIAL RESULTS

# FINANCIAL RESULTS

The results of the company are set out on page 69 and show revenue of £60.6m (2020: £63.8m). This includes £14.0m of research income under subcontract from The Welding Institute (which holds Scientific Research Association status) (2020: £10.5m). The profit before tax increased to £34.4m (2020: £9m) and includes £9.2m of gains in fair value revaluation of investment property (2020 £0.0m) and £16.8m of contribution from The Welding Institute towards the Defined Benefit pension scheme (2020: £nil).

The net profit after tax and movements in other comprehensive income, increased to £76.8m (2020: 13.8m). The following are a summary of the key movements in the statement of other comprehensive income, which are not disclosed as movements in our before tax profits. The 2021 total comprehensive income reflects the increase (after deferred taxation) in the value of operational property (held at fair value) of £25.3m (2020: £7.8m); and the reduction in the Defined Benefit Pension Scheme deficit of £19.3m (2020 increase £3.9m). The Balance Sheet strengthened with a total reserves position of £106.5m (2020 £29.7m), uplifted by profits of £32.1m (2020 £10.7m), operational property revaluation £43.8m (2020 £8.3m), direct benefit pension scheme revaluation £19.3m (2020 loss £3.9m) and deferred tax of -£18.4m (2020: £0.5m).

During the period, the company identified items which resulted in the amendment of the prior year results; these include the revision to accounting treatment of certain government grants, the review and accounting for onerous

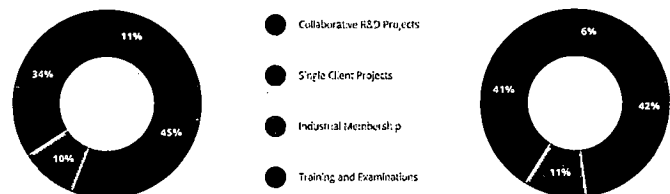
contracts and the recognition of depreciation on long-leasehold properties utilised by the company. Further details are included in note 27.

## PROFIT AND LOSS RESULTS

### TURNOVER

The nature of TWI Limited operations are summarised under "Introducing TWI" on page 4. The company saw a decrease in turnover from £63.8m in 2020 to £60.6m in 2021. This was primarily due to a revaluation of projects during 2021 where provisions were booked for projects that expect to consume additional resource to complete, in excess of original pricing. The turnover includes £14.0m of subcontracted Research activity (23% of total revenue) from The Welding Institute (2020: £10.5 m; 17%), which holds Scientific Research Association status and is accordingly entitled to certain government incentives. During 2021 TWI Limited worked on 1,745 projects (2020: 1,888).

### TWI LIMITED TURNOVER BY TYPE



The majority of external turnover is from Single Client Projects, which are the most profitable of the

income streams. Collaborative projects include internal funding from The Welding Institute, and represents industrial research supported by government funding from the European Commission and UKRI. Industrial Membership subscriptions and the training income streams were greatly impacted by the pandemic in 2020, a number of courses were transitioned to online delivery and revenue continued to recover in 2021.

### OTHER OPERATING INCOME

The company qualifies for Research and Development tax credits, which amounted to £1.8m (2020: £1.9 m). Details of other Government Grants are provided in note 6 and amounted to £1.0m in 2021 (2020 £6.2m; Job Retention and Regional Growth funding completed during 2020).

The business increased its sublet of operational property during 2021 leading to a continuing increase in rental income of £1.5m (2020: £1m). This income is expected to continue to grow in 2022 and beyond. Operational property which is sublet to external tenants is now categorised as Investment Property in the financial statements, fair value gains on investment property are recorded under other income.

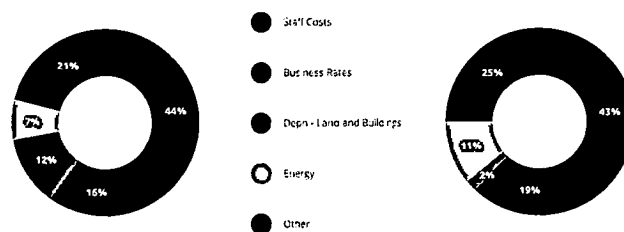
### COST OF SALES AND ADMINISTRATION EXPENSES

Direct costs include a credit of past service costs arising from the voluntary pension contribution made by the Institute of £16.8m, which was assigned to The Welding Institute (see note 34). Excluding this item, direct costs decreased by £10.4m from £47.6m in 2020 to £37.2m in 2021 due to decreased staffing costs. Cost saving measures taken during the pandemic in 2020 continued to yield savings into 2021. Total average staff numbers decreased to 566 in 2021 (2020: 628).

Administration expenses increased by £4.1m (2021: £17.8m 2020: £13.4m). The business saw a 31% increase in business rates (2021: 2.8m, 2020: 2.1m) levied by South Cambridgeshire Council. Energy costs declined 8% (2021: £1.1m, 2020: 1.3m), this is expected to significantly increase in 2023 following the expiration of a 5 year fixed service contract in August 2022. The business focussed on Governance and Compliance in 2021 and as a result saw a large increase in legal and audit advisory fees (2021: £1.1m, 2020: £0.5m). For the

2021 reporting period, the external auditors were changed to Grant Thornton UK LLP. PricewaterhouseCoopers were engaged as internal auditors in 2021.

### TWI LIMITED – ADMINISTRATION EXPENSES BY TYPE



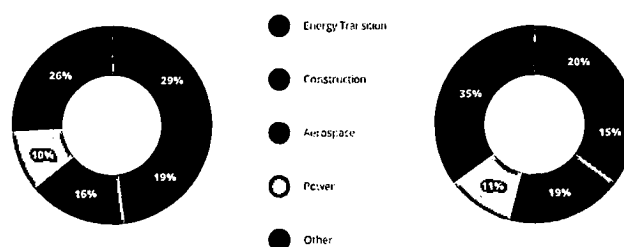
### BALANCE SHEET

TWI Limited total assets less total liabilities increased to £106.6m (2019: £28.8m). This increase was driven by the property and Direct Benefit Pension scheme revaluations. TWI Limited started the year with a positive cash position of £5.7m and closed with a positive cash position of £10.6m.

### ORDERBOOK

At Dec-21 TWI Limited had 6.8 months of labour orders in hand (2020: 6.7 months). Single client projects (SCP) made up 87% of the labour orders, 13% on Collaborative projects (2020: 68% SCP and 32% Collaborative). The predominant sector that our orders come from are Energy Transition (Power, Oil and Gas) at 29% (2020: 20%) followed by Construction at 19% (2020: 15%) then Aerospace 16% (2020: 19%).

### TWI LIMITED – ORDER INTAKE BY SECTOR



### FINANCING AND CASH

TWI Limited cash position increased to £10.9m (2020: -£8.5m). Cash flow from operating activities was £24.9m (2020: -£4.3m), from investing activities was -£5.1m (2020: -£3.2m) and from financing activities -£0.4m (2020: -£5.9m). TWI Limited closed its overdraft facility with Barclays Plc in 2021, using the increased liquidity

within the TWI group from the sale of land to extinguish this. TWI Limited held no bank loans as at the 31 December 2021 (2020: £nil).

## BALANCE SHEET

TWI Limited balance sheet value grew significantly in 2021; total assets less total liabilities increased to £106.5m (2020: £29.7m). This £80m increase was largely uplifted by an increase in leasehold property and the Direct Benefit Pension scheme revaluations. TWI Limited owns a leasehold interest in its operational property at Granta Park, Cambridge which forms part of a modern research campus. The freehold is held by its parent company, The Welding Institute, who receive a peppercorn rental under a 125 year lease which expires in 2146. The Defined Benefit pension scheme is recognised within TWI Limited balance sheet, however it has participating employers in the form of The Institute, a voluntary contribution amounting to £16.8m and changes in market conditions resulted in an overall reduction in the deficit to the scheme as at financial year-end.

The balance sheet shows a net current assets position of £50k (2020 £1.2m). Notable movements in the balance sheet related to the following; an increased VAT liability of £20.1m related to the sale of the Zone 2 land by a fellow group company, Granta Park Estates Limited. This amount was settled in January 2022; Increased loans payable to The Welding Institute of £11.2m, which will be settled through a sub-contract of research and development work to TWI Limited under its Scientific Research Association status; Other operational movements such as deferred income, European Council Partner Payments and the repayment of the overdraft facility during the period. Further details of these movements are included in the notes to the financial statements.

TWI Limited finished 2021 in a stronger balance sheet position, which will provide a solid foundation for the existing operations and the potential to pursue growth opportunities should they arise. As a result, TWI Limited is well positioned for the year ahead.

## DEFINED BENEFIT PENSION PLAN

The Employer (TWI Limited) meets the costs of administration and investment management of The Welding Institute Defined Benefit Pension scheme. The FRS 102 deficit decreased from £43.3 m in 2020 to £4.4m in 2021. This was

driven by changes in market rates and a cash injection from The Welding Institute of £16.8m due to increased liquidity in the group companies due to the sale of land.

On 1 January 2000, all The Welding Institute employees were transferred to TWI Limited and the Pension Trustees agreed that the full deficit and related pension costs for the scheme be borne by TWI Limited; this has been reflected in the audited financial statements for both entities. The Welding Institute retains its designation as a participating employer of the scheme, which had allowed it to make a voluntary contribution in the year as agreed with the Trustees. A guarantee remains in place between The Welding Institute as parent and TWI Limited, which would realise should TWI Limited be in an position where it is not financially able to meet its overall commitments. The likelihood of this is considered to be low, as TWI Limited continue to have strong operational prospects and is able to continue as a going-concern for the foreseeable future.

In 2021 it was identified that The Welding Institute would realise a significant gift-aid payment as a result of the sale of land in Granta Park Estates Limited, its wholly owned subsidiary. Granta Park Estates made a gift-aid payment from the proceeds to the parent. Due to the significance of the transaction the Pension Trustees elected to engage with The Welding Institute, as a participating employer, to obtain a voluntary pension contribution payment under the existing rules of the Pension Deed. In order to do this, the trustees engaged specialist advice in the form of an actuarial calculation to determine what would be an appropriate amount. Based on the advice received from both the Actuary (Mercers) and Specialist Tax Advisors (PricewaterhouseCoopers), the Pension Trustees requested a voluntary contribution of £16.8m. The Welding Institute then made a payment contribution to the scheme for this amount. This is reflected as a credit in the past service costs in the Income Statement of TWI Limited.

The last triennial valuation was for the period ended 31 December 2019. The recovery plan (as agreed with the Trustees and Pension Regulator) remains unchanged however, following the injection of £16.8m from The Welding Institute in 2021, no further cash payments under the current contribution schedule are required until 2025. TWI Limited closed the defined benefit pension scheme to future accruals in Sep 2020.

# PRINCIPAL RISKS AND UNCERTAINTIES

# PRINCIPAL RISKS AND UNCERTAINTIES

Risk Management is key to achieving the strategic objectives of the company. In 2021, TWI management continued to develop a comprehensive risk management framework and reporting mechanism.

TWI's management continually reviews its risk management structure to ensure that the risks are managed within an acceptable risk appetite. TWI Limited has a Low Appetite for contextual risks. Our organization operations and activities have a balanced geographic and thematic spread to set overall risk levels at low. There are certain projects funded by different government bodies and institutes, where TWI

operates in challenging contexts; but the risk bar for TWI remains low due to its operational approach and policies and procedure.

Risk is inherent in the challenging contexts in which we operate, so we aim to find an acceptable balance between the costs of managing the risks, and the likely costs and impacts if the risks materialize, as well as the costs of not acting. TWI Limited calculates an overall rating of an identified risk by assessing the likelihood and impact.

The executive board review the risk register on monthly basis and Council review the risk register as part of the quarterly agenda. The major risks TWI is currently facing are summarised below:

RISK	NATURE OF RISK	MANAGEMENT OF RISK
Governance Risk	<ul style="list-style-type: none"> <li>▪ Expansion of business and failure to adhere to statutory requirements of in its key markets.</li> <li>▪ Sudden change in regulatory requirements i.e. sanctions, export control and trade laws.</li> <li>▪ Risk of delay or failure in submission of and/or accuracy of statutory reports to appropriate authorities.</li> </ul>	<p>To mitigate those governance related risks, TWI Limited is proactively reviewing its governance framework, company policies and procedures to ensure compliance with international and local legislation, where applicable.</p> <p>A policy framework to standardise the creation, adoption and implementation of policies across the organisation is being developed. This includes a review of existing policies, gap analysis, creation and implementation of new policies.</p>

RISK	NATURE OF RISK	MANAGEMENT OF RISK
Operational Risk	<ul style="list-style-type: none"> <li>▪ Disruptions in supply chains.</li> <li>▪ A shortage of supply in the employment market.</li> <li>▪ High turnover of technical and professional staff.</li> <li>▪ Disruption due to breakdown or dysfunctional equipment, machines and tools.</li> </ul>	<p>To mitigate these risks, TWI has policies and procedures to ensure business continuity without disruption. TWI staff who have responsibility for operational activities regularly review these risks to maintain the supply chain by engaging alternative suppliers, service providers and third parties. Training and succession planning are part of our risk mitigation framework.</p>
Financial Risks	<p>The volatility of the current economic environment, political unrest and the complexity of the regulatory environment create uncertainties and put pressure on activity levels, profitability and cash flow.</p>	<p>TWI Limited has financial and accounting systems that are designed to ensure accuracy and transparency. The Finance department creates detailed monthly financial reports showing performance against budget and forecast for Executive Board, and reports regularly to Council, Finance and General Purposes Committee, and Audit Committee who provide oversight of TWI Limited operations. This allows informed decisions and mitigating actions to be taken where appropriate. The Finance department carry out gap analysis, and also develop and implement new policies to strengthen existing controls. Grant Thornton UK LLP were appointed as new external auditors for the 2021 reporting period.</p>

RISK	NATURE OF RISK	MANAGEMENT OF RISK
Fraud - Bribery and Corruption	<ul style="list-style-type: none"> <li>▪ Risk of fraud and misrepresentation by customers, suppliers and third parties.</li> <li>▪ Risk of bribery and corruption while dealing with government officials, third parties, suppliers and service providers.</li> </ul>	<p>TWI Limited has a policy of zero tolerance towards fraud, bribery, corruption, misrepresentation and misconduct. The business has comprehensive policies in place that form part of employee contracts. Third party whistle blowing channels are established where employees, clients, Members and other third parties can report incidents of misconduct and noncompliance.</p>
Health - Safety - Environment	<p>TWI Limited's work can be hazardous and requires appropriate controls.</p>	<p>TWI Limited is an accredited organization for ISO 9001, 14001 and 45001 standards to mitigate risks of health and safety, handling and storage of hazardous material and monitor of high-risk operational activities to prevent incidents.</p> <p>Monthly health and safety incident reports are presented to the directors and appropriate actions taken. All employees undergo training in Health and Safety on joining TWI.</p>
People and Culture Risks	<p>TWI Limited's success is built on the quality of its people and their work. People risk is the risk that ensues if TWI fails to provide a supportive and collegiate culture.</p>	<p>The risk is mitigated through:</p> <ul style="list-style-type: none"> <li>▪ effective recruitment</li> <li>▪ effective succession management</li> <li>▪ effective management and development programmes</li> <li>▪ effective leadership</li> <li>▪ promoting diversity and inclusion throughout the business</li> <li>▪ wellbeing policies and processes</li> <li>▪ appropriate remuneration and benefits</li> </ul>

RISK	NATURE OF RISK	MANAGEMENT OF RISK
Information Management, IT and Security Risk	Data and information systems are at threat from unauthorised access, inappropriate use, disclosure, disruption to operations, modification, or accidental and/or deliberate destruction.	TWI Limited's Chief Security Officer has implemented a security framework that includes enhanced information security policies. This framework provides greater information security assurance to TWI Limited technology users and those third parties for whom we carry out sensitive work. TWI Limited has developed a set of policies and procedures along with robust mandatory training to create awareness for its management, staff and related parties. TWI Limited systems are accredited under Cyber Essentials Plus, this is tested and renewed annually.
Global Operations Risk	Consistent corporate governance management, policies and procedures required to ensure global harmonisation around legislation regulation and culture.	<p>Directors take responsibility for risk management within their respective operating segments. The management team of each is delegated to the appropriate managers who support the directors in management of operational risk.</p> <p>In our global operations, the local operations managers take responsibility for risk management within their respective operating entities.</p> <p>Actioned through consultation and engagement and regular review of the company risk register.</p>
Reputational Risk	Reputational risk is the risk of failure to meet customer, supplier and employee expectations as a result of any event, behaviour, action or inaction, either by TWI Limited itself, our employees or those with whom we are associated, that may cause stakeholders to form a negative view of TWI Limited.	Our policies ensure reputational risk matters are managed in a consistent manner and align with TWI Limited strategic priorities. Our legal and governance team the control and oversight standards to effectively manage reputational risk and are supported by procedures across our global businesses and functions.

In addition to the principal risks and uncertainties above, TWI Limited faces other risks that include but are not limited to: increased competition; failure to retain, or loss of, customer contracts; customer concentration; technology leadership; counterparty risk; risk of adverse valuation of operational and investment properties; changes in legislation or regulations relating to trading, taxation or accounting practice.

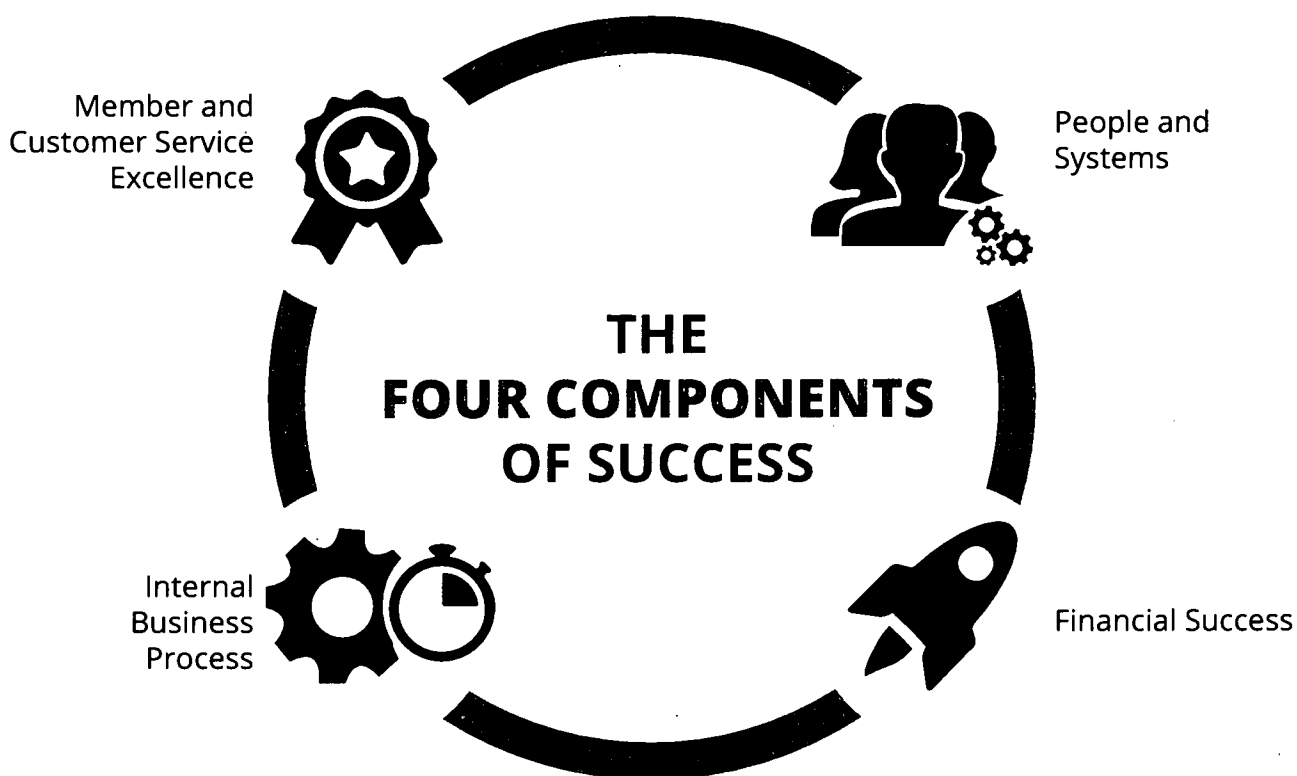


A high-contrast, black and white illustration of a hand holding a pen, poised to sign a document. The document contains some faint, illegible text and a series of vertical bars. A large, solid black arrow points from the left side of the page towards the right, partially overlapping the document and the hand. The overall style is graphic and minimalist.

# KEY PERFORMANCE INDICATORS

# KEY PERFORMANCE INDICATORS

OUR KEY PERFORMANCE INDICATORS (KPIs) ARE SELECTED TO MONITOR BOTH FINANCIAL PERFORMANCE AND THE PROJECTS THAT WE UNDERTAKE, REFLECTING THE OVERALL STRENGTH OF THE COMPANY.



These indicators provide a detailed focus on the key elements of the business and measure progress against the company's strategic objectives. The KPIs and performance targets are reviewed and updated annually.

# ENVIRONMENTAL, SOCIAL, GOVERNANCE

# ENVIRONMENTAL, SOCIAL, GOVERNANCE

## ENVIRONMENTAL

The most carbon intensive areas of TWI Limited UK operations are the consumption of electricity, and business travel. TWI Limited is committed to understanding and reducing its environmental impacts year on year.

Annually TWI Limited reports on its greenhouse gas emissions and participates in the Energy Savings Opportunity Scheme (ESOS) from which a number of recommendations for improving energy efficiency have been implemented across its facilities. The Executive Board supports the company's goals and initiatives with regard to reducing adverse impacts on the environment. In 2021 we have considered the company's approach to climate change and begun implementing additional measures that contribute to the reduction of our impact on the environment.

TWI Limited supports a number of different environmental sectors and is working with large companies and SMEs to help drive technological improvements and innovation in these areas. Growth areas for TWI Limited include pioneering research in geothermal resources to improve the efficiency of geothermal heat and power systems, supporting the automotive and aerospace industries through various e-mobility solutions and its continued provision of technical support for the renewables sector including research into concentrating solar power (CSP). TWI Limited will continue to take an active role in managing its own environmental impact as well as influencing the wider industry through our expertise and the advice that we provide to our customers.

## EMISSIONS AND CARBON ENERGY

This is the second year of mandatory reporting under SECR. The Welding Institute have however reported energy and emissions now for several years and 2019 has been chosen as a base year. Between 2019 and 2021, the current gross emissions have decreased by 1,843.89 tonnes of CO<sub>2</sub>e, which accounts for a 37% decrease. Some of the larger changes between 2020 and 2021 are air travel, which reduced in 2021 and refrigeration gases, which increased in 2021.

## QUANTIFICATION AND REPORTING METHODOLOGY

HM Government Environmental Reporting Guidelines, including streamlined energy and carbon reporting guidance (March 2021) has been used for the collation of data sources and reporting of emissions. UK Government GHG conversion factors for company reporting has been used for the reporting of emissions, using the 2021 version. Fugitive emissions from refrigerants adopts the screening method in annex C of the guidance. The financial boundary of the business has been used to determine the reporting boundary. Measurements include mandatory scope 1, 2 and 3 emissions. Negligible estimates have been made with the collation of data. Optional scope 3 emissions have also been included in the reporting.

## TARGET SETTING AND RESPONSIBILITIES

The target is to reduce gross scope 1, 2 and 3 emissions in tonnes of CO<sub>2</sub>e per £100,000 turnover and per FTE used by 2% per year against the chosen base year of 2019. The performance against target will be reviewed periodically.

## INTENSITY MEASUREMENT

The reporting metrics chosen are gross scope 1, 2, and 3 emissions in tonnes of per £100,000 turnover and full time equivalent (FTE) members of staff, as these best reflect business activities. The intensity measurement will be reported each year, with comparison made against previous years' performance.

The emissions per £100,000 reduced by over 38% between 2019 and 2021 and the emissions per FTE reduced by 30% compared with 2019.

## CARBON OFFSETTING

No carbon offsetting is applicable to the 2021 period.

## ENERGY EFFICIENCY ACTIONS

TWI is committed to improving its environmental impact and announced in its 5-year strategy in 2021, the goals of reducing its carbon footprint by 25% by 2025 and being carbon neutral by 2035.

The consumption of electricity remains the most carbon intensive area.

Several measures to reduce this were agreed to in the last quarter of 2021. These measures include:

- Switching to a green energy tariff when contracts end in 2022.
- Increasing use of renewable energy through growth of self-generated electricity in solar PV cells.
- Sourcing greener energy from responsible providers through power purchase agreements.
- Gaining certification to ISO 50001:2018, Energy Management Systems standard by 2024.

The energy saving opportunities that COVID-19 provided have continued, and a 'hybrid working policy' is being trialled for staff to have the flexibility to work from home. This will help to reduce the impact of commuting.

TWI has reviewed its utilisation of its property inventory and downsized the number of offices and facilities. The Aberdeen office and the Baglan building in Wales have closed operations have been redirected to our Port Talbot property, and space at Cambridge is being leased to tenants. This decrease in office and laboratory space will help to reduce gas and electricity usage.

Staff have adjusted to the use of video conferencing technologies, which reduces the need for travel between the regional offices. When staff do travel, they are required to use their own vehicles as the pool car fleet has been removed. Investment is planned in sustainable travel such as the cycle to work scheme and assistance in the procurement of electric vehicles through subsidies. Other basic energy saving measures, including switching off lights and equipment when not in use or at the end of day, have continued. These measures have now been included in the new starter training package to ensure all staff are made aware of how they can contribute to reducing energy usage throughout



## 2021 CARBON REPORTING STATISTICS

<b>SCOPE 1 CO2E (TONNES)</b>	<b>2021</b>	<b>2020</b>	<b>2019</b>
Natural gas consumption	688.65	670.82	800.48
Company cars (essential car users)	9.4	7.36	21.38
Pool cars	28.02	45.93	109.18
LPG	0.79	0.64	0.63
Refrigeration and air condition equipment	184.42	73.85	48.65
Site maintenance - red diesel	1.22	2.76	1.3
<b>Total Scope 1</b>	<b>912.51</b>	<b>801.35</b>	<b>981.62</b>
<b>SCOPE 2 CO2E (TONNES)</b>	<b>2021</b>	<b>2020</b>	<b>2019</b>
Electricity	1,939.31	2,271.52	2,583.90
<b>Total Scope 2</b>	<b>1,939.31</b>	<b>2,271.52</b>	<b>2,583.90</b>
<b>SCOPE 3 CO2E (TONNES)</b>	<b>2021</b>	<b>2020</b>	<b>2019</b>
Electricity T & D losses	171.62	195.35	219.37
Hire vehicles for business use	39.73	43.99	97.68
Taxi and chauffeur	1.33	6.39	19.71
Personal lease cars - business use	0.81	3.16	9.49
Employee owned cars - business use	N/A	N/A	N/A
Domestic and international flights	38.16	240.63	1024.72
Rail travel	1.2	5.83	29.79
Potable water	1.27	3.86	4.65
Waste water	0.05	0.09	0.07
Waste	28.08	18.14	6.96
<b>Total Scope 3 CO2e (tonnes)</b>	<b>282.25</b>	<b>517.44</b>	<b>1412.44</b>
<b>TOTAL CO2E SCOPE 1, 2, 3 GROSS EMISSIONS (TONNES)</b>	<b>3,134.07</b>	<b>3,590.32</b>	<b>4,977.96</b>
Intensity Metric Measure (£100,000 turnover)	676	639	659
Intensity Metric Measure (FTE)	533	568	590
Intensity Metric (gross emissions) tCO2e/£100,000 turnover	4.63	5.62	8.44
Intensity Metric (gross emissions) tCO2e/FTE	5.88	6.32	7.55
Energy Consumption (exclusions)	2021	2020	2019
KWh (as above)	14,113,908	15,025,581	19,927,491
Intensity Metric (net emissions)	2021	2020	2019
Scope 1, 2, 3 emissions (gross) tCO2e	3,134.07	3,590.32	4,975.73
Carbon Offsets	0	0	2467.45
Scope 1, 2, 3 emissions (net) tCO2e	3,134.07	3,590.32	2,508.28
Intensity Metric (net emissions) tCO2e/£m turnover	4.63	5.62	3.81
Intensity Metric (net emissions) tCO2e/FTE	5.88	6.32	4.25

## SOCIAL RESPONSIBILITY

Social aspects are a fundamental part of TWI Limited principles, and underpin our activities across all jurisdictions where we operate. Our approach forms the basis of our decisions by focussing on business ethics and compliance, people and culture and community involvement.

We aim to foster openness, sustainability, and respect. We value everyone and strive to work as one team. We invest significantly in our people and their working environment by creating and maintaining a safe and healthy working environment and ensuring their ongoing professional and personal development.

We strive to create workplaces in which there is mutual trust and respect and where every person feels responsible for the performance and reputation of our group. We respect one another and each other's individual rights and customs. We work towards achieving a diverse workforce, recruiting, employing and promoting people only on the basis of objective criteria and the qualifications and abilities needed for the job to be performed.

We encourage our people to give something back to their local communities, whether it is time, effort or a financial contribution. It's

important that we play our part to build a better world for current and future generations.

TWI Limited has supported a number of charities during 2021 and provided donations to: Addenbrookes Hospital, Alzheimer's Challenge, Crisis, Arthur Rank Hospice, Calais Jungle Refugee care packages as well as supporting a local rugby team and sponsoring staff partaking in Movember.

Our support is delivered through initiatives that support local communities and those in need. We welcome initiatives from all sources but especially those from our own people.

On a discretionary basis, the Company operates a scheme to match charitable donations raised by employees up to a specified limit. Charitable donations related to this programme were similar to the prior year. In addition, the Group made donations to local foodbanks and health-related charities local to its sites specifically to support local communities facing hardship. As a result, total charitable contributions made in 2021 were approximately £24,000 (2020: £33,000). No political donations were made during the period (2021: £nil).



## CORPORATE GOVERNANCE

Corporate governance is important in delivering our long-term success and TWI Limited works towards the UK Corporate Governance Code as it seeks to improve transparency, accountability and promote the values of the business as a whole. Representation from The Welding Institute Industrial and Professional Members enables the organisation to set and deliver the strategic aims of the business.

For TWI Limited, corporate governance also involves matters such as commitment to corporate and social responsibility, minimising

impact on the environment, and sustainable procurement. These factors need to be balanced with effective leadership and accountability to maintain confidence while pushing a continued improvement in standards, decision-making and policy.

An important aspect of our day-to-day activities, it has been shown that companies who are well governed also perform better commercially.

TWI Limited is governed by the following Boards and Committees, which met regularly throughout 2021:

<b>Executive Board</b>	Aamir Khalid, Chair (12 meetings)
<b>Council</b>	Ruth Boumphrey, Chair (2 meetings) Humbert Mozzi, Chair (3 meetings)
<b>Health Safety and Environment Committee</b>	Norman Cooper, Chair (1 meeting) Laura Hughes, Chair (3 meetings)
<b>Audit Committee</b>	David Wrathmall, Chair (7 meetings)
<b>Research Board</b>	Simon Webster, Chair (1 meeting)
<b>Finance and General Purposes Committee</b>	Ruth Boumphrey, Chair (2 meetings) Humbert Mozzi, Chair (4 meetings)
<b>Professional Board</b>	Stephen Webster, Chair (1 meeting) Claire Kimpton, Vice-Chair (1 meeting)
<b>Remuneration Committee</b>	Ruth Boumphrey, Chair (2 meetings) Humbert Mozzi, Chair (2 meetings)
<b>Nominations Committee</b>	Humbert Mozzi, Chair (1 meeting)

The review of the business and its future development in this Strategic Report has been prepared solely to provide additional information to TWI Limited's shareholder to assess the business strategies and the potential for these strategies to succeed. It should not be relied on by any other party for any other purpose. The review contains forward looking statements which are made by the Directors in good faith based on information available to them up to the time of the approval of these reports and should be treated with caution due to inherent uncertainties associated with such statements.



# BOARD DECISION MAKING

# BOARD DECISION MAKING

The directors recognise their duty to act in good faith, and in a manner which would most likely promote the success of the company for the benefit of its Members as a whole. When making decisions, the directors consider the interests of all key stakeholder groups and seek to arrive at decisions which do not adversely impact those groups as a whole.

## EMPLOYEE ENGAGEMENT

As one of the world's leading independent research and technology organisations, we are committed to attracting, motivating and retaining the best talent from around the world. Our goal is to develop the next generation of experts to address future industry challenges. We are committed to creating a culture that recognises and respects the differences between people while valuing the contribution everyone makes to TWI. The diversity of our staff and students makes a positive and important contribution to our continuing success.

Our Diversity and Inclusion Statement underpins our D&I Strategy and forms our long-term mission. We recognise that a diverse

and inclusive workforce provides a wealth of talent that will assist us in achieving our goal of developing the next generation of experts to address future industry challenges. Our employees need to reflect the society we seek to serve, they provide the diversity and inclusion required to find innovative solutions for our Members and customers, and create a workforce that feels engaged and empowered to achieve to the best of their ability. Our D&I Strategy provides the direction to shape an inclusive culture at TWI and play a crucial role in shaping the world around us.

We operate in a business where the safety and wellbeing of all our stakeholders is pivotal in our business decisions. That is why we have a dedicated department to oversee the health and safety of all our staff and the projects that are undertaken. However we know that the safety of our staff is not just the physical wellbeing, but also incorporates mental wellbeing, with this in mind we have trained a team of mental health first aiders to support our staff, we have an on-site Occupational Health Advisor, a well-being committee and an employee assist programme.





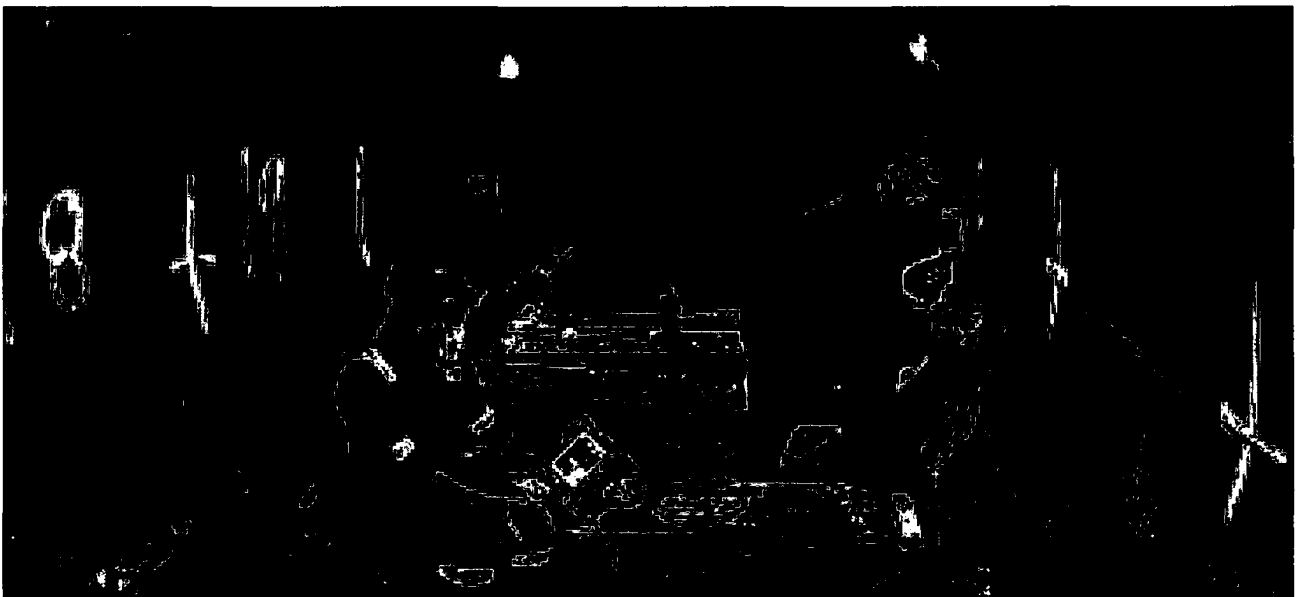
TWI SPONSORS THE TIPPER GROUP, A STAFF LED DIVERSITY AND INCLUSION COMMITTEE, WHICH HOLDS EVENTS AND NETWORKING OPPORTUNITIES TO RAISE AWARENESS OF DIVERSITY AND INCLUSION WITHIN OUR GLOBAL COMPANY AND WITHIN OUR INDUSTRIAL PARTNERS' NETWORK.

Attracting and retaining women with careers in engineering is a key driver in our 5 year strategy. We have a committed to closing the gender pay gap from 23% to less than 10% and to have a third of female representation in leadership roles by 2026. In 2019 we launched of our Women in Leadership programme to encourage more women into management positions and this has led to the implementation of a mentor programme in 2023.

TWI provides regular appraisal, training and subsidised education to staff. We promote transparency and communication across all levels of the business, through weekly news briefings, monthly employee engagement newsletters, frequent business updates from the CEO, monthly executive briefings, and our comprehensive online resource.

More recently communications have been stepped up to ensure staff do not feel isolated during home working due to the Covid pandemic. We have an active staff consultation committee to ensure that all staff are given a voice. The business consults regularly with the committee to ensure any staff feedback is considered and factored into decision making.

The Chief Executive actively promotes our people strategy and speaks openly at forums to support inclusion and is committed to putting diversity and inclusion (D&I) at the heart of our people practices. We believe that the work our staff do at TWI plays a crucial role in shaping the world around us, interacting with our Members to find sustainable solutions to the biggest engineering challenges our world faces.



## CUSTOMER ENGAGEMENT

TWI Limited focusses on delivering excellent service and meeting or exceeding expectations is at the heart of everything we do. Each month we review our performance using Client Satisfaction Surveys. We continuously engage with the Institute's members throughout the project lifecycle, using enhanced CRM tools to monitor all communications, and are backed by an extensive commercial team which oversees the work ensuring work is delivered on time and within budget.

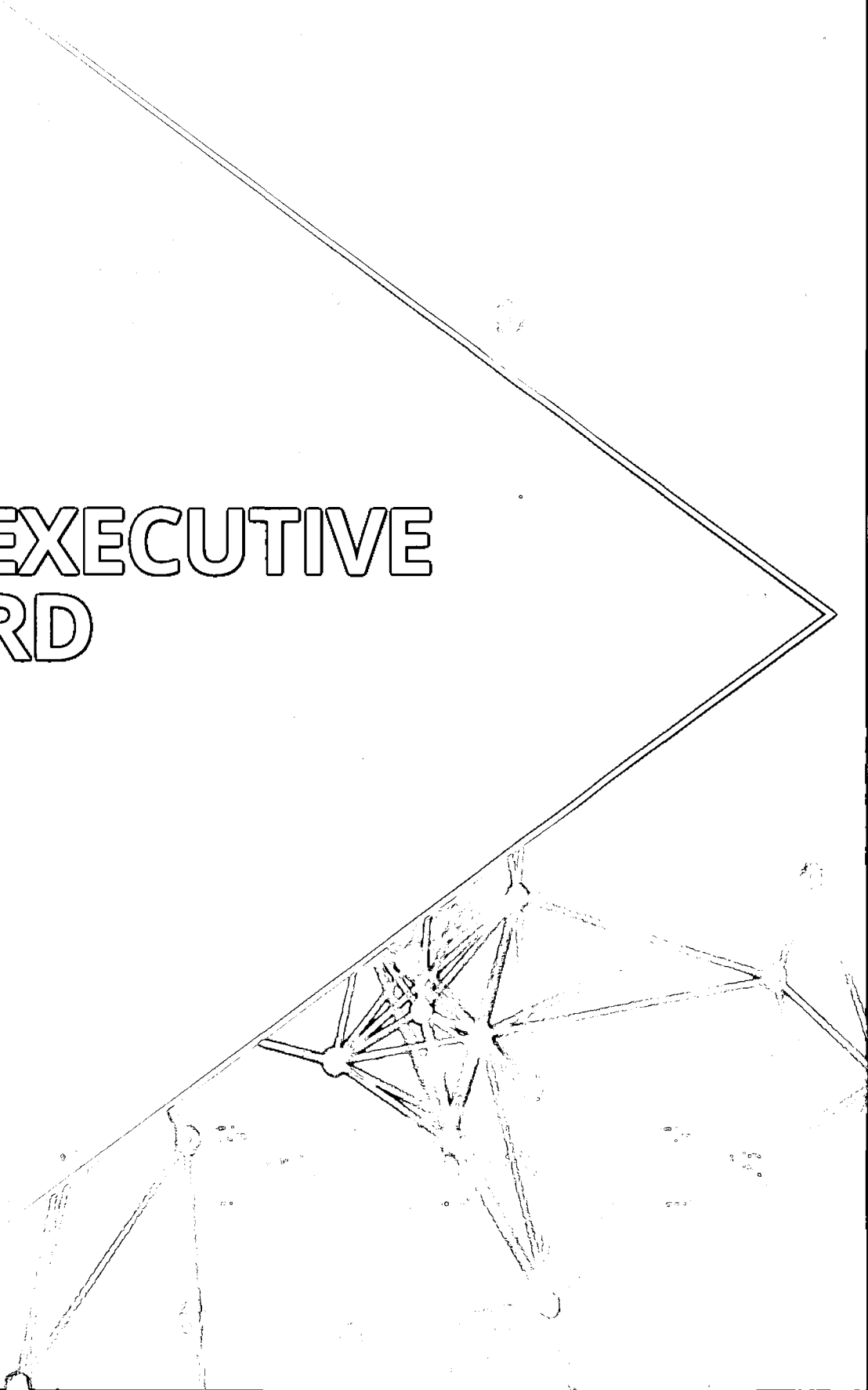
Members' experiences do not fall just to our project and commercial teams, colleagues across the entire business are involved in creating exceptional service. Our goal is to solve the challenges of Members, so we align strategically with their needs and invest heavily in technical resources, equipment and capacity. This positioning is reflected in our 5-year strategy, which is driven by the future needs of Members - it is important we engage and understand the factors that influence their industries.

## SUPPLIER ENGAGEMENT

Given the range of projects we work on, the ability to source materials and resources efficiently is imperative. We have a specialist purchasing department, which secures our supply chain to ensure it can continue to meet the demands of the business. We actively engage and have long established relationships with our suppliers. We acknowledge that our business contributes to the local and wider community; we have an indirect corporate responsibility to this economic supply chain. Our diversity and inclusion initiative is being driven across the business; in instances where we are tendering for new services / suppliers, we embed an element of this to the selection process. We want to deal with suppliers who are aligned to our values.



# THE EXECUTIVE BOARD



# THE EXECUTIVE BOARD

The Executive Board provides input and recommendations to assist the Chief Executive in the day to day management of the business and its operations. It meets twice weekly, and meets formally one full day per month. The Executive Board assists the Chief Executive in:

- Developing the group strategy and budgets for approval by FGP Committee;
- Executing the strategy once agreed by the Council; and
- Providing assurance to Council in relation to overall performance and risk management.



**AAMIR KHALID**

**CHIEF EXECUTIVE**

Aamir became the Chief Executive of TWI Limited in February 2019 and has worked at TWI Limited for the past 20 years. He obtained an applied physics degree from University College London, a Masters and PhD in NDT from Brunel and Cranfield Universities and later an MBA from London South Bank University. He spent several years in industry before joining TWI as NDT Section Manager, specialising in applying robotics to non-destructive testing. From here, he progressed to lead the company's non-destructive testing technology group in 2004 and became TWI Technology Director in 2010.



**JOHN HILL**

**DIRECTOR OF TECHNOLOGY**

John joined TWI in 2022, having spent the first decade of his forty-year career in manufacturing. He is a Chartered Production Engineer, specialising in polymers, composites and adhesives. John moved into manufacturing research, training and consulting at PERA, where he spent 28 years. He rose to CEO and finally Chair, representing the UK RTO sector on the board of EARTO and becoming a Fellow of the Institute of Directors. In 2016, he moved into Whitehall to better influence the government's industrial strategy and spent time as a Director in the Department for Business, Energy and Industrial Strategy (BIS) and the Department for International Trade (DIT). He has worked with the Mayoral Combined Authority, and helped turn around a former Local Enterprise Partnership (LEP); transforming it from the poorest performing UK LEP to the highest, where 20,000 jobs were created and a new university in Peterborough established.



**LEONIE STEWART**

**DIRECTOR OF FINANCE**

Leonie joined TWI in 2019 as Business Transformation Project Manager, where she helped to implement a programme of change to prepare the business for future growth. She has spent 25 years working in finance and operations, half of this time at Global FD and CFO level. She has worked in the USA, Middle East, Europe and Asia Pacific regions, predominantly with high growth companies in the financial markets and IT sectors. Leonie is a contributor and guest lecturer on the 'Entrepreneurship for Physicists' course at Imperial College, London.



**PAUL WOOLLIN**

**DIRECTOR OF RESEARCH**

Paul joined the materials department at TWI in 1992, earlier graduating and gaining a doctorate from the University of Cambridge. He specialises in the metallurgy, weldability and weld properties of stainless steels and nickel alloys. In 2000, he became Head of the Materials Department and was appointed Director of Research in 2010.

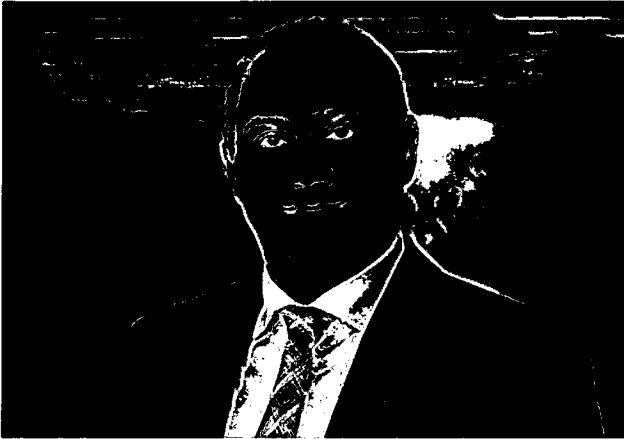


**SHAHID ASLAM**

**DIRECTOR OF LEGAL AFFAIRS AND GOVERNANCE**

Shahid joined TWI as the Director of Legal Affairs and Operations in February 2020, having over 30 years' experience in the legal profession.

He has an LLB (Hons) degree from University College London, Solicitors Finals from the College of Law and a Masters level qualification in media law from UCL. Shahid is a qualified civil and commercial mediator and a fully qualified solicitor of the Supreme Court of England and Wales and a Commissioner for Oaths. Shahid has also served as a local councillor for the Borough of Gravesham as well as having been the Secretary of Gravesend and Dartford Muslim Association (2002-2003) a registered charity, during which time he took a leading role in developing strong community relations and updating the governance structure.



**SHERVIN MALEKI**

**DIRECTOR OF GLOBAL DEVELOPMENT**

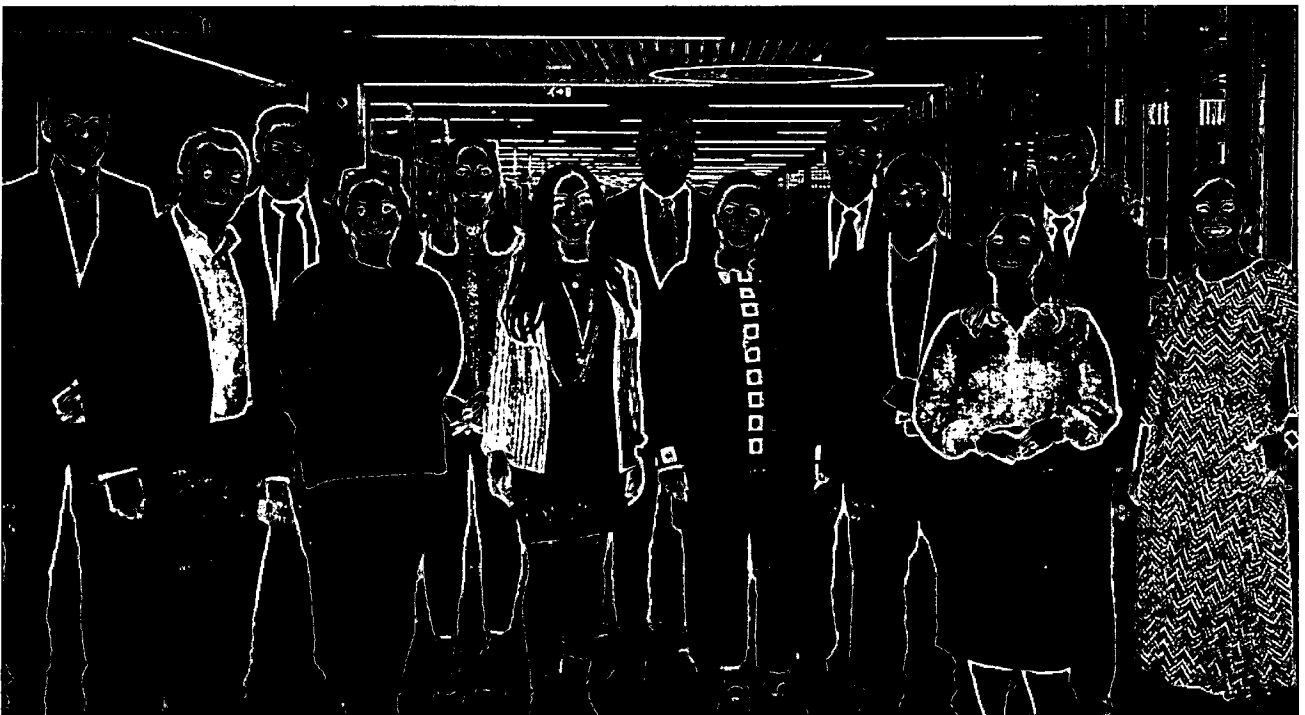
Shervin joined TWI in 2006 and worked for seven years as the Associate Director in Global Training and Technical Services, as well as the Group Manager in asset and fracture integrity management. With expertise in risk and reliability engineering, risk assessment, risk-based inspection, and fitness-for-service, Shervin was appointed to the position of Global Development Director in 2019.



**TAT-HEAN GAN**

**DIRECTOR OF INNOVATION AND SKILLS**

Tat-Hean joined TWI in 2006 after graduating with a first-class honours degree in electrical and electronics engineering from the University of Nottingham before pursuing an MSc in advanced mechanical engineering, his PhD in engineering from Warwick University and his executive MBA degree from the University of Birmingham. Tat-Hean's areas of expertise include non-destructive testing, signal processing and imaging techniques, structural and condition monitoring, technology transfer and exploitation, business and technology development, IP and patents, project management, collaborative programmes, public funding, international business and recruitment for engineering services.





# DIRECTORS REPORT

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# DIRECTORS REPORT

The directors present their report and the financial statements for the year ended 31 December 2021.

Accompanying the Report of the Directors is the Strategic Report and related Section 172 disclosures which include the details of risk management.

## REVIEW OF THE BUSINESS AND ITS FUTURE DEVELOPMENT

A review of the business and its future development is set out in the Strategic report, incorporating the statement of the Chief Executive and Financial Report.

## RESULTS AND DIVIDENDS

The results of the Company are set out in detail on page 52.

Due to the operating performance of the Company and utilisation of existing tax assets, no distribution under the Deed of Covenant is proposed for the year ended 31 December 2021.

## CAPITAL STRUCTURE

Details of the Company's issued share capital, together with details of the movements therein are set out in Note 24 to the Financial Statements.

## RESEARCH AND DEVELOPMENT

TWI Limited provides research and development

consultancy to its members, and has an inherent and continuing commitment to high levels of research and development, primarily on behalf of its members but also, on its own behalf as detailed in the Spotlight on our projects on pages 14-16.

## STATEMENT ON ENGAGEMENT WITH EMPLOYEES

Employees have been provided with information on matters of concern to them through the Company's intranet; revised policies and updates from the People and Culture Team; and formal and informal meetings and other communications with line managers and Senior Managers. Employees have various forms of engagement with Leadership, including platforms such as the webinars, staff engagement committee. Additional information is included in the Strategic Report

## STATEMENT ON ENGAGEMENT WITH CUSTOMERS, SUPPLIERS AND OTHERS

Engagement with customers, suppliers and other stakeholder in the business is an important factor in ensuring the successful implementation of the Company's strategy. For information on how the Directors have had regard to the need to foster these business relationships, see the Section 172 statement.

## OVERSEAS BRANCHES AND OPERATIONS

The company operates on an international level and this is undertaken through its subsidiaries and branches located outside of the United Kingdom. Details of our international operations are disclosed in the note 34.

## DIRECTORS INDEMNITIES

The Directors have the benefit of an indemnity provision contained in the Articles. The Directors have also been granted a qualifying third party indemnity provision which was in force throughout the financial year and remains in force. In addition, throughout the year the Company purchased and maintained Directors' and Officers' liability insurance in respect of itself and for its Directors and Officers.

## DIRECTORS

The directors who served during the year were:

The Welding Institute	A company limited by guarantee, held 100 percent of the company's share capital throughout the year Resigned 19 January 2021
Aamir Khalid	
Leonie Stewart	Appointed 16 July 2021
Mike Russell	
Paul Woollin	
Rebecca Archer	Appointed 19 April 2021 Resigned 15 June 2021
Shahid Aslam	
Shervin Maleki	
Steve Shi	Resigned 1 June 2021
Tat-Hean Gan	
Zafar Hasnain	Resigned 1 January 2021

Subsequent to the year end, John Hill was appointed on 18 April 2022; Mike Russell resigned on 21 October 2022.

## POST BALANCE SHEET EVENTS

There are no post balance sheet events to disclose.

## DIRECTORS' RESPONSIBILITIES STATEMENT

The directors are responsible for preparing the Strategic Report, the Directors' Report and the financial statements in accordance with applicable law and regulations.

Company law requires the directors to prepare financial statements for each financial year. Under that law the directors have elected to prepare the financial statements in accordance with applicable law and United Kingdom Accounting Standards (United Kingdom Generally Accepted Accounting Practice), including Financial Reporting Standard 102 The Financial Reporting Standard applicable in the UK and Republic of

Ireland'. Under company law the directors must not approve the financial statements unless they are satisfied that they give a true and fair view of the state of affairs of the company and of the profit or loss of the company for that period.

In preparing these financial statements, the directors are required to:

- Select suitable accounting policies for the company's financial statements and then apply them consistently;
- Make judgements and accounting estimates that are reasonable and prudent;
- State whether applicable UK accounting standards have been followed, subject to any material departures disclosed and explained in the financial statements;
- Prepare the financial statements on the going concern basis unless it is inappropriate to presume that the company will continue in business.

The directors are responsible for keeping adequate accounting records that are sufficient to show and explain the company's transactions and disclose with reasonable accuracy at any time the financial position of the company and to enable them to ensure that the financial statements comply with the Companies Act 2006. They are also responsible for safeguarding the assets of the company and hence for taking reasonable steps for the prevention and detection of fraud and other irregularities.

The directors are responsible for the maintenance and integrity of the corporate and financial information included on the company's website. Legislation in the United Kingdom governing the preparation and dissemination of financial statements may differ from legislation in other jurisdictions.

## GOING CONCERN STATEMENT

The directors have reviewed the company's expenditure requirements and expected cash flows with regard to the financial strategy. Having reviewed the forecast model for 2023 and considering the substantial cash injection from the sale of land in Q3 2021, the directors have formed a judgement that, at the time of approving the financial statements, there is a reasonable expectation that TWI Limited

has adequate resources, and is expected to continue in operational existence for a period of at least 12 months from the date of issue of the financial statements. The directors have also prepared stress testing on our forecast model and have considered the impact of the cost-of-living crisis on our expenditure base and full cash return of EU Partner funds in 2023, and the model indicates that the Company will still have sufficient access to working capital to meet all its obligations within 2023. These obligations include providing appropriate support to fellow subsidiaries as required. Accordingly, they have adopted the going concern basis in preparing the report and accounts.

## AUDITOR

Grant Thornton UK LLP were appointed as Group auditor on 29 September 2021 and were re-appointed at the Council Meeting of 15 March 2023. Grant Thornton UK LLP are willing to continue in office and resolution to reappoint them was confirmed at the Council Meeting of 15 March 2023.

## DISCLOSURE OF INFORMATION TO AUDITORS

Each of the persons who are directors at the time when this Directors' Report is approved has confirmed that:

- So far as the director is aware, there is no relevant audit information of which the company's auditors are unaware, and
- The director has taken all the steps that ought to have been taken as a director in order to be aware of any relevant audit information and to establish that the company's auditors are aware of that information.

This report was approved by the board and signed on its behalf by:

*Aamir Khalid*

Aamir Khalid, Chief Executive

Date: 03 May 2023



# INDEPENDENT AUDITORS REPORT

# INDEPENDENT AUDITORS REPORT

## OPINION

We have audited the financial statements of TWI Limited (the 'company') for the year ended 31 December 2021, which comprise the Statement of Comprehensive Income, the Balance Sheet, the Statement of Changes in Equity, the Statement of Cash flows and notes to the financial statements, including a summary of significant accounting policies. The financial reporting framework that has been applied in their preparation is applicable law and United Kingdom Accounting Standards, including Financial Reporting Standard 102 The Financial Reporting Standard applicable in the UK and Republic of Ireland (United Kingdom Generally Accepted Accounting Practice).

In our opinion, the financial statements:

- give a true and fair view of the state of the company's affairs as at 31 December 2021 and of its profit for the year then ended;
- have been properly prepared in accordance with United Kingdom Generally Accepted Accounting Practice; and
- have been prepared in accordance with the requirements of the Companies Act 2006.

## BASIS FOR OPINION

We conducted our audit in accordance with International Standards on Auditing (UK) (ISAs (UK)) and applicable law. Our responsibilities under those standards are further described in the 'Auditor's responsibilities for the audit of the financial statements' section of our report. We

are independent of the company in accordance with the ethical requirements that are relevant to our audit of the financial statements in the UK, including the FRC's Ethical Standard, and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

## CONCLUSIONS RELATING TO GOING CONCERN

We are responsible for concluding on the appropriateness of the directors' use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the company's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify the auditor's opinion. Our conclusions are based on the audit evidence obtained up to the date of our report. However, future events or conditions may cause the company to cease to continue as a going concern.

In our evaluation of the directors' conclusions, we considered the inherent risks associated with the company's business model including effects arising from macro-economic uncertainties such as Brexit and Covid-19, we assessed and challenged the reasonableness of estimates

made by the directors and the related disclosures and analysed how those risks might affect the company's financial resources or ability to continue operations over the going concern period.

In auditing the financial statements, we have concluded that the directors' use of the going concern basis of accounting in the preparation of the financial statements is appropriate.

Based on the work we have performed, we have not identified any material uncertainties relating to events or conditions that, individually or collectively, may cast significant doubt on the company's ability to continue as a going concern for a period of at least twelve months from when the financial statements are authorised for issue.

Our responsibilities and the responsibilities of the directors with respect to going concern are described in the relevant sections of this report.

## **OTHER INFORMATION**

The other information comprises the information included in the annual report, other than the financial statements and our auditor's report thereon. The directors are responsible for the other information contained within the annual report. Our opinion on the financial statements does not cover the other information and, except to the extent otherwise explicitly stated in our report, we do not express any form of assurance conclusion thereon.

Our responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the financial statements or our knowledge obtained in the audit or otherwise appears to be materially misstated. If we identify such material inconsistencies or apparent material misstatements, we are required to determine whether there is a material misstatement in the financial statements themselves. If, based on the work we have performed, we conclude that there is a material misstatement of this other information, we are required to report that fact.

We have nothing to report in this regard.

## **OPINIONS ON OTHER MATTERS PRESCRIBED BY THE COMPANIES ACT 2006**

In our opinion, based on the work undertaken in the course of the audit:

- the information given in the strategic report and the directors' report for the financial year for which the financial statements are prepared is consistent with the financial statements; and
- the strategic report and the directors' report have been prepared in accordance with applicable legal requirements.

Matter on which we are required to report under the Companies Act 2006

In the light of the knowledge and understanding of the company and its environment obtained in the course of the audit, we have not identified material misstatements in the strategic report or the directors' report.

## **MATTERS ON WHICH WE ARE REQUIRED TO REPORT BY EXCEPTION**

We have nothing to report in respect of the following matters in relation to which the Companies Act 2006 requires us to report to you if, in our opinion:

- adequate accounting records have not been kept, or returns adequate for our audit have not been received from branches not visited by us; or
- the financial statements are not in agreement with the accounting records and returns; or
- certain disclosures of directors' remuneration specified by law are not made; or
- we have not received all the information and explanations we require for our audit.

## RESPONSIBILITIES OF DIRECTORS

As explained more fully in the directors' responsibilities statement set out on page 62, the directors are responsible for the preparation of the financial statements and for being satisfied that they give a true and fair view, and for such internal control as the directors determine is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, the directors are responsible for assessing the company's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless the directors either intend to liquidate the company or to cease operations, or have no realistic alternative but to do so.

## AUDITOR'S RESPONSIBILITIES FOR THE AUDIT OF THE FINANCIAL STATEMENTS

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with ISAs (UK) will always detect a material misstatement when it exists.

Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

Irregularities, including fraud, are instances of non-compliance with laws and regulations. The extent to which our procedures are capable of detecting irregularities, including fraud, is detailed below:

- We obtained an understanding of the legal

and regulatory frameworks applicable to the group and the industry in which it operates. We determined that the following laws and regulations were most significant; UK GAAP (FRS102), Companies Act 2006 and the relevant tax compliance regulations in the jurisdictions in which the company operates. In addition, we concluded that there are certain significant laws and regulations that may have an effect on the determination of the amounts and disclosures in the financial statements, including laws and regulations relating to employment matters, health and safety, data security and protection and consumer Credit Licensing.

- We obtained an understanding of how the group is complying with those legal and regulatory frameworks by making inquiries of management. We corroborated our inquiries through our review of board minutes and examination of the company's correspondence with appropriate regulators.
- We enquired of management, whether they were aware of any instances of non-compliance with laws and regulations or whether they had any knowledge of actual, suspected or alleged fraud. Management has not noted any matters of non-compliance with laws and regulations or fraud that were communicated with the audit team. We corroborated this through our review of board minutes and professional fees incurred during the year.
- These audit procedures were designed to provide reasonable assurance that the financial statements were free from fraud or error. The risk of not detecting a material misstatement due to fraud is higher than the risk of not detecting one resulting from error and detecting irregularities that result from fraud is inherently more difficult than detecting those that result from error, as fraud may involve collusion, deliberate concealment, forgery or intentional misrepresentations. Also, the further removed non-compliance with laws and regulations is from events and transactions reflected in the financial statements, the less likely we would become

- aware of it;
- The engagement partner's assessment of the appropriateness of the collective competence and capabilities of the engagement team included consideration of the engagement team's:
    - understanding of, and practical experience with audit engagements of a similar nature and complexity through appropriate training and participation.
    - Knowledge of the industry in which the client operates; and
    - understanding of the legal and regulatory requirements specific to the entity including the provisions of the applicable legislation, the regulators rules and related guidance, including guidance issued by relevant authorities that interpret those rules, the applicable statutory provisions.
  - It is the engagement partner's assessment that the engagement team collectively had the appropriate competence and capabilities to identify or recognise non-compliance with laws and regulations.
  - We assessed the susceptibility of the group's financial statements to material misstatements, including how fraud might occur. Audit procedures performed by the audit engagement team included:
    - identifying and assessing the design effectiveness of controls management has in place to prevent and detect fraud;
    - challenging assumptions and judgements made by management in making its significant accounting estimates;
    - identifying and testing journal entries, in particular any large or unusual journal entries recorded in the general ledger and other adjustments made in preparation of the financial statements; and
    - assessing the extent of compliance with certain significant laws and regulations that may have an effect on the determination of the accounts and disclosures in the financial statements.

- We communicated relevant laws and regulations and potential fraud risks to all engagement team members and remained alert to any indications of fraud or non-compliance with laws and regulations throughout the audit; and
- We completed audit procedures to conclude on the compliance of disclosures in the financial statements with applicable financial reporting requirements.

A further description of our responsibilities for the audit of the financial statements is located on the Financial Reporting Council's website at: [www.frc.org.uk/auditorsresponsibilities](http://www.frc.org.uk/auditorsresponsibilities). This description forms part of our auditor's report.

## USE OF OUR REPORT

This report is made solely to the company's members, as a body, in accordance with Chapter 3 of Part 16 of the Companies Act 2006. Our audit work has been undertaken so that we might state to the company's members those matters we are required to state to them in an auditor's report and for no other purpose. To the fullest extent permitted by law, we do not accept or assume responsibility to anyone other than the company and the company's members as a body, for our audit work, for this report, or for the opinions we have formed.

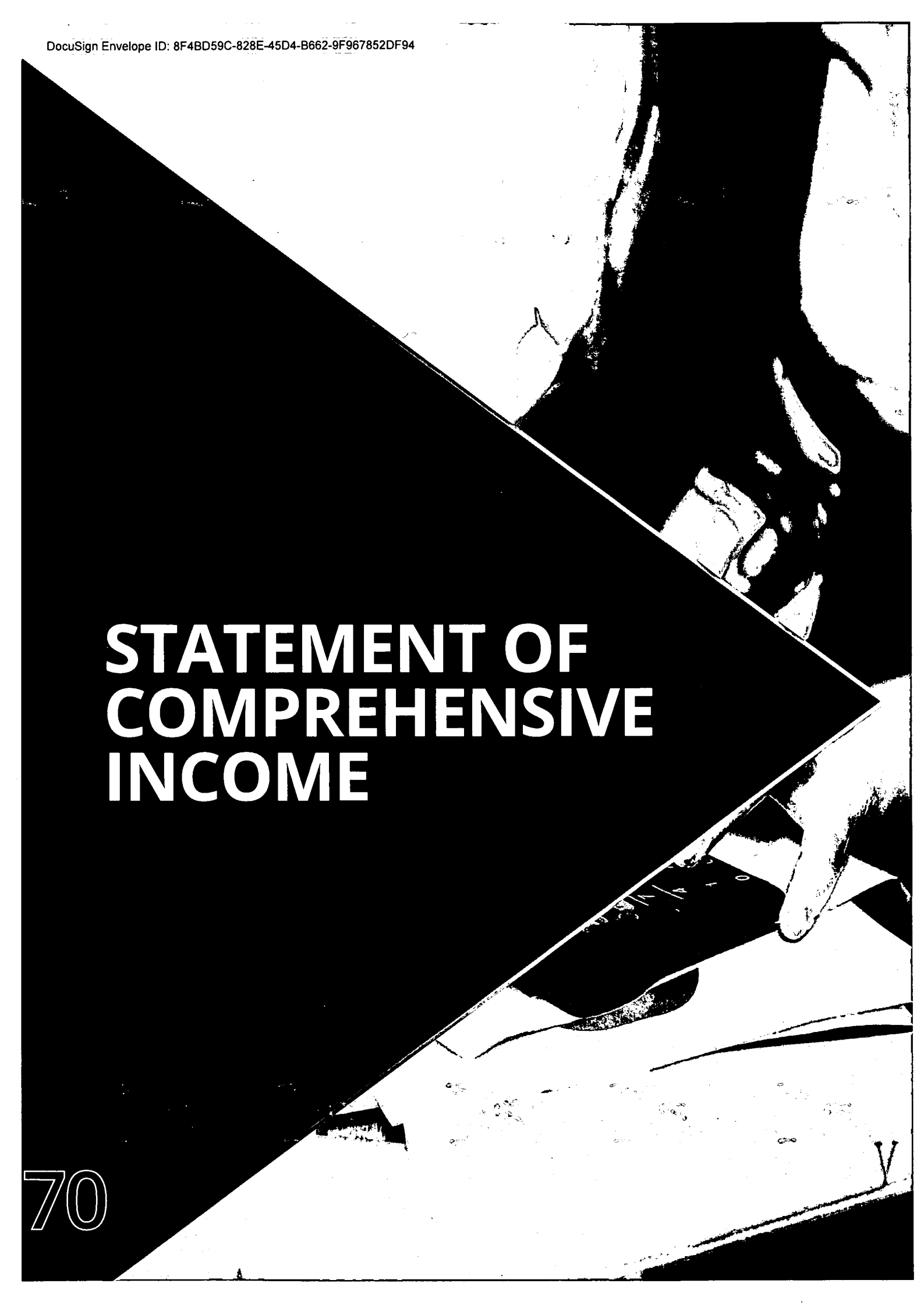
*Grant Thornton UK LLP*

Paul Brown

Senior Statutory Auditor  
for and on behalf of Grant Thornton UK LLP  
Statutory Auditor, Chartered Accountants  
Cambridge

3/5/2023





# STATEMENT OF COMPREHENSIVE INCOME

REGISTERED NUMBER: 03859442  
 STATEMENT OF COMPREHENSIVE INCOME  
 FOR THE YEAR ENDED 31 DECEMBER 2021

		(As restated)	
		2021	2020
	Note	£000	£000
Turnover	5	60,579	63,830
Cost of sales	13	(20,427)	(47,671)
<b>GROSS PROFIT</b>		<b>40,152</b>	16,159
Administrative expenses		(17,751)	(13,364)
Exceptional administrative expenses	13	(164)	(290)
Other operating income	6	13,466	9,995
Other operating charges		135	(5)
<b>OPERATING PROFIT</b>	7	<b>35,838</b>	12,495
Interest payable and similar expenses	11	(952)	(995)
Other finance costs	12	(497)	(824)
<b>PROFIT BEFORE TAX</b>		<b>34,389</b>	10,676
Tax on profit	14	(2,271)	122
<b>PROFIT FOR THE FINANCIAL YEAR</b>		<b>32,118</b>	10,798
<b>OTHER COMPREHENSIVE INCOME FOR THE YEAR</b>			
Unrealised surplus on revaluation of tangible fixed assets		43,820	6,633
Deferred tax on revaluation of tangible fixed assets		(13,632)	(481)
Actuarial gains/(losses) on defined benefit pension scheme		19,359	(3,915)
Movement of deferred tax relating to pension surplus		(4,840)	743
<b>TOTAL OTHER COMPREHENSIVE INCOME FOR THE YEAR</b>		<b>44,707</b>	2,980
<b>TOTAL COMPREHENSIVE INCOME FOR THE YEAR</b>		<b>76,825</b>	13,778

There were no recognised gains and losses for 2021 or 2020 other than those included in the statement of comprehensive income.

The notes on pages 78 to 102 form part of these financial statements.



# BALANCE SHEET

REGISTERED NUMBER: 03859442  
BALANCE SHEET  
AS AT 31 DECEMBER 2021

		(As restated)	
		2021	2020
	Note	£000	£000
<b>FIXED ASSETS</b>			
Tangible assets	15	140,266	94,615
Investment property	16	17,700	8,535
Total Fixed Assets		157,966	103,150
<b>CURRENT ASSETS</b>			
Debtors: amounts falling due after more than one year	17	3,717	8,241
Debtors: amounts falling due within one year	17	46,895	39,156
Cash at bank and in hand	18	10,914	5,775
Total Current Assets		61,526	53,172
Creditors: amounts falling due within one year	19	(61,473)	(51,914)
<b>NET CURRENT ASSETS</b>		<b>53</b>	1,258
<b>TOTAL ASSETS LESS CURRENT LIABILITIES</b>		<b>158,019</b>	104,408
Creditors: amounts falling due after more than one year	20	(23,985)	(22,388)
<b>PROVISIONS FOR LIABILITIES</b>			
Deferred tax	23	(21,849)	(7,791)
Onerous Provision	21	(1,168)	(1,128)
Pension liability	30	(4,468)	(43,377)
<b>NET ASSETS</b>		<b>106,549</b>	29,724
<b>CAPITAL AND RESERVES</b>			
Share premium account	25	10,307	10,307
Revaluation reserve	25	65,129	34,941
Profit and loss account	25	31,113	(15,524)
<b>TOTAL CAPITAL AND RESERVES</b>		<b>106,549</b>	29,724

The financial statements were approved and authorised for issue by the board and were signed on its behalf on 03 May 2023.

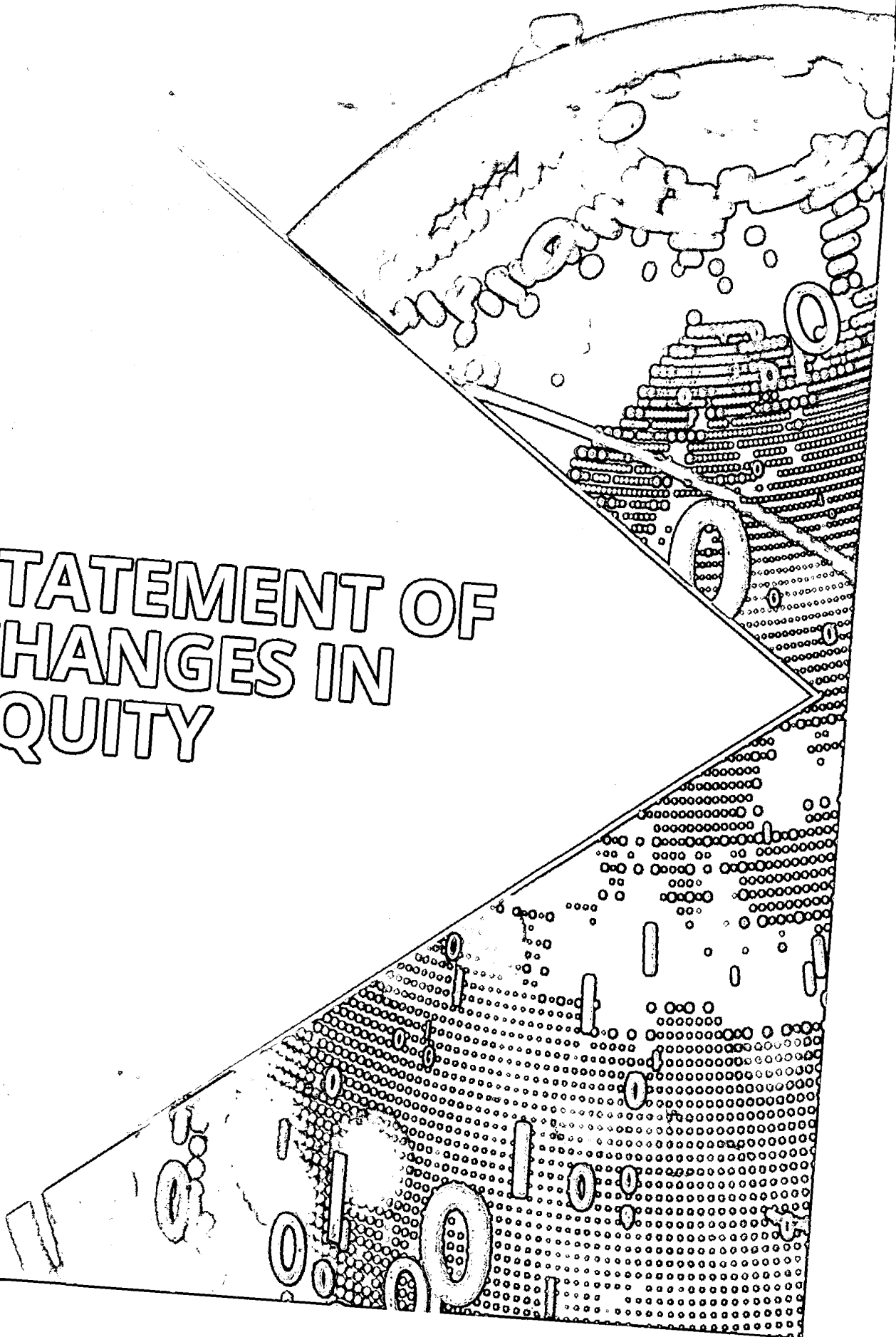
**Aamir Khalid**

*Aamir Khalid*

Director

The notes on pages 78 to 102 form part of these financial statements.

# STATEMENT OF CHANGES IN EQUITY



**STATEMENT OF CHANGES IN EQUITY  
FOR THE YEAR ENDED 31 DECEMBER 2021**

	Share premium account	Revaluation reserve	Profit and loss account	Total equity
	£000	£000	£000	£000
At 1 January 2021 (as previously stated)	10,307	31,567	(10,299)	31,575
Prior year adjustment	-	3,374	(5,225)	(1,851)
At 1 January 2021 (as restated)	10,307	34,941	(15,524)	29,724
<b>COMPREHENSIVE INCOME FOR THE YEAR</b>				
Profit for the year	-	-	32,118	32,118
Actuarial gains on pension scheme (net of deferred tax)	-	-	14,519	14,519
Surplus on revaluation of freehold property	-	43,820	-	43,820
Deferred tax on revaluation	-	(13,632)	-	(13,632)
<b>TOTAL COMPREHENSIVE INCOME FOR THE YEAR</b>	-	30,118	46,637	76,825
<b>AT 31 DECEMBER 2021</b>	10,307	65,129	31,113	106,549

**STATEMENT OF CHANGES IN EQUITY  
FOR THE YEAR ENDED 31 DECEMBER 2020**

	Share premium account	Revaluation reserve	Profit and loss account	Total equity
	£000	£000	£000	£000
At 1 January 2020	10,307	27,113	(20,282)	17,138
Prior year adjustment	-	1,676	(2,868)	(1,192)
At 1 January 2020 (as restated)	10,307	28,789	(23,150)	15,946
<b>COMPREHENSIVE INCOME FOR THE YEAR</b>				
Profit for the year	-	-	10,798	10,798
Actuarial losses on pension scheme (net of deferred tax)	-	-	(3,172)	(3,172)
Surplus on revaluation of freehold property	-	6,633	-	6,633
Deferred tax on revaluation	-	(481)	-	(481)
<b>TOTAL COMPREHENSIVE INCOME FOR THE YEAR</b>	-	6,152	7,626	13,778
<b>AT 31 DECEMBER 2020 (AS RESTATED)</b>	10,307	34,941	(15,524)	29,724

The notes on pages 78 to 102 form part of these financial statements.

# STATEMENT OF CASHFLOWS



**STATEMENT OF CASH FLOWS  
FOR THE YEAR ENDED 31 DECEMBER 2021**

	2021	(As restated) 2020
	£000	£000
<b>CASH FLOWS FROM OPERATING ACTIVITIES</b>		
Profit for the financial year	32,118	10,798
<b>ADJUSTMENTS FOR:</b>		
Depreciation of tangible assets	3,540	3,602
Loss on disposal of tangible assets	-	(14)
Interest payable and similar expenses	952	995
Taxation charge / (credit)	2,271	(122)
Decrease/(increase) in debtors	2,129	564
(Increase) in amounts owed by group undertakings	(12,935)	(11,501)
Increase/(decrease) in creditors	21,884	(9,362)
(Increase) in amounts owed to group undertakings	3,604	705
Increase/(Decrease) in provisions	40	1,128
Net interest on defined benefit liability	497	824
Past service cost	(16,830)	2,328
Contributions to defined benefit plan	(3,217)	(4,268)
Net fair value (gains) recognised in P&L	(9,165)	-
<b>NET CASH GENERATED FROM OPERATING ACTIVITIES</b>	<b>24,887</b>	<b>4,324</b>
<b>CASH FLOWS FROM INVESTING ACTIVITIES</b>		
Purchase of tangible fixed assets	(5,258)	(3,270)
Sale of tangible fixed assets	45	100
Other non-cash movements	62	
<b>NET CASH FROM INVESTING ACTIVITIES</b>	<b>(5,151)</b>	<b>(3,170)</b>
<b>CASH FLOWS FROM FINANCING ACTIVITIES</b>		
Repayment of loans	-	(5,590)
Repayment of finance leases	(327)	(345)
<b>NET CASH USED IN FINANCING ACTIVITIES</b>	<b>(327)</b>	<b>(5,935)</b>
<b>NET INCREASE/(DECREASE) IN CASH AND CASH EQUIVALENTS</b>	<b>19,409</b>	<b>(13,429)</b>
Cash and cash equivalents at beginning of year	(8,495)	4,933
<b>CASH AND CASH EQUIVALENTS AT THE END OF YEAR</b>	<b>10,914</b>	<b>(8,495)</b>
<b>CASH AND CASH EQUIVALENTS AT THE END OF YEAR COMPRISE:</b>		
Cash at bank and in hand	10,914	5,775
Bank overdrafts	-	(14,270)
<b>TOTAL CASH AND CASH EQUIVALENTS AT THE END OF YEAR</b>	<b>10,914</b>	<b>(8,495)</b>



# NOTES TO THE FINANCIAL STATEMENTS

# NOTES TO THE FINANCIAL STATEMENTS

## 1. GENERAL INFORMATION

TWI Limited is a private limited company incorporated in the UK. The registered office is Bevan Braithwaite Building, Granta Park, Great Abington, Cambridge, CB21 6AL.

The principal activity of TWI Limited is independent research and technology, with expertise in solving problems in manufacturing, fabrication and whole-life integrity management technologies.

The company is exempt from producing consolidated accounts as it is included in the group accounts of a larger group the Welding Institute. The directors consider that The Welding Institute, a company limited by guarantee registered in England and Wales, is the company's ultimate holding company. Copies of the group financial statements of The Welding Institute may be obtained from the Institute's registered office at Granta Park, Great Abington, Cambridge, CB21 CAL.

## 2. ACCOUNTING POLICIES

### 2.1 BASIS OF PREPARATION OF FINANCIAL STATEMENTS

The financial statements have been prepared under the historical cost convention except for the modification to a fair value basis for certain financial instruments and freehold property as specified in the following accounting policies. The financial statements have been prepared in accordance with Financial Reporting Standard 102, the Financial Reporting Standard applicable in the UK and the Republic of Ireland (FRS102) and the Companies Act 2006.

The company's financial statements are presented in Sterling and all values are rounded

to the nearest pound (£'000) thousands except when otherwise stated.

The preparation of financial statements in compliance with FRS 102 requires the use of certain critical accounting estimates. It also requires management to exercise judgement in applying the company's accounting policies (see note 4).

The following principal accounting policies have been applied:

### 2.2 GOING CONCERN

In the review of the going concern for the company, the directors prepared a financial model which reviewed the financial performance on stress-test basis meaning consideration was given to create a model specifically assessing the impact of significant operational and financial impacts to the Company. These factors are identified as follows; Loss of revenues similar to during 2020 and during the COVID-19 pandemic, the energy crisis currently being experienced in the United Kingdom and the direct business impact thereof; Increased inflation costs due to the energy crisis and the related impact that has on company expenditure.

The forecasts and models indicate that the company has sufficient access and available cash to ensure operation for a period in excess of 12 months. The Directors have therefore concluded that the going concern assumption is appropriate for the preparation of the financial statements.

### 2.3 TURNOVER

Turnover is the delivery and the provision of services. This can take the form of provision of skilled labour in support of research and development consultancy; the training and

upliftment of persons in accredited courses; provision of key technical advice; provision of cutting edge laboratory space; and subscription fees for membership of The Welding Institute. The company recognises income at the fair value of the consideration received or receivable when the significant risks and rewards have been transferred, the amount of income can be measured reliably and it is probable that future economic benefits will flow to the company. It is measured as the fair value of the consideration received or receivable, excluding discounts, rebates, value added tax and other sales taxes. The following criteria must also be met before revenue is recognised:

#### **INCOME RECOGNITION RESEARCH AND DEVELOPMENT CONSULTANCY**

Turnover from the provision of research and development consultancy is recognised in the accounting period in which the services are rendered. The majority of contracts are fixed-price, where turnover is recognised based on the proportion of deliverables provided, with consideration to the overall cost to deliver the project to the client with an adjustment if the project is forecast to overrun. Estimates of turnover or extent of progress toward completion are revised if circumstances change. Any resulting increases or decreases in estimated turnovers are reflected in the profit or loss statement in the period in which the circumstances that give rise to the revision become known by management. Estimated

total hours are calculated for each project and progress to completion is based on detailed timesheets submitted.

Where the estimated costs to deliver a project exceed the amount of turnover the company will receive for the deliverables of the project, the company recognizes an onerous contract provision when these circumstances are identified. This is recognized through the profit and loss statement at the date that the circumstances are identified by the company. An annual review of all such projects is reviewed and the provision is accordingly adjusted as required.

#### **TRAINING AND UPLIFTMENT SERVICES**

Turnover from training and upliftment services is recognised when the course is delivered to the candidate. Where the course is yet to be delivered, any amounts received are deferred and recognised as a liability on the balance sheet.

#### **PROVISION OF CUTTING EDGE LABORATORY SPACES**

Turnover from the provision of laboratory space is recognised over the rental period. Any amounts received in advance are recognised on a straight line basis.

The aggregate costs of lease incentives are recognized as a reduction to the income recognized over the lease term on a straight-line basis.

#### **SUBSCRIPTION INCOME**

Subscription income for membership services is recognised on a straight-line basis over the period of membership.

In the case of both time and materials and fixed-price contracts, the customer pays for the value of services provided based on an invoicing and payment schedule. If the services rendered by the company at the reporting date exceed the payments received to date, a contract asset is recognised (within trade receivables if the sales invoice has been raised or amounts recoverable on contracts if the services rendered have not been invoiced). If the payments exceed the services rendered, a contract liability is recognised. Consideration is payable when invoiced based on contractual payment terms.

#### **2.4 GOVERNMENT GRANTS**

Grants are accounted under the accruals model in accordance with FRS 102.

Grants relating to expenditure on tangible fixed assets are credited to profit or loss at the same rate as the depreciation on the assets to which the grant relates. The deferred element of grants is included in creditors as deferred income.

Grants that are aligned to our research and development consultancy services are recognised as income in the same period as the related expenditure.

Where the grant is drawn down based on expense submissions provided by the company and subject to approval by the funding body, amounts received are recognised as capital or income at the point of approval as this is the point at which the amount of income can be measured reliably and it is probable that future economic benefits will flow to the Company. These amounts include costs incurred and a mark-up in line with the contract.

The deferred element of grants is included in

creditors as deferred income.

## 2.5 FINANCE COSTS

Finance costs are charged to profit or loss over the term of the debt using the effective interest method so that the amount charged is at a constant rate on the carrying amount. Issue costs are initially recognised as a reduction in the proceeds of the associated capital instrument

## 2.6 BORROWING COSTS

All borrowing costs are recognised in profit or loss in the year in which they are incurred.

## 2.7 PENSIONS

### DEFINED CONTRIBUTION PENSION PLAN

The company operates a defined contribution plan for its employees. A defined contribution plan is a pension plan under which the company pays fixed contributions into a separate entity. Once the contributions have been paid the company has no further payment obligations.

The contributions are recognised as an expense in profit or loss when they fall due. Amounts not paid are shown in accruals as a liability in the Balance Sheet. The assets of the plan are held separately from the company in independently administered funds.

### DEFINED BENEFIT PENSION PLAN

The company operates a defined benefit plan for certain employees. A defined benefit plan defines the pension benefit that the employee will receive on retirement, usually dependent upon several factors including but not limited to age, length of service and remuneration. A defined benefit plan is a pension plan that is not a defined contribution plan.

The liability recognised in the Balance Sheet in respect of the defined benefit plan is the present value of the defined benefit obligation at the end of the balance sheet date less the fair value of plan assets at the balance sheet date out of which the obligations are to be settled. The defined benefit obligation is calculated using the projected unit credit method. Annually the company engages independent actuaries to calculate the obligation. The present value is determined by discounting the estimated future payments using market yields on high quality corporate bonds that are denominated in sterling and that have terms approximating to the estimated period of the future payments.

The fair value of plan assets is measured in accordance with the FRS 102 fair value hierarchy and in accordance with the company's policy for similarly held assets. This includes the use of appropriate valuation techniques.

Actuarial gains and losses arising from experience adjustments and changes in actuarial assumptions are charged or credited to other comprehensive income. These amounts together with the return on plan assets, less amounts included in net interest, are disclosed as 'Remeasurement of net defined benefit liability'.

The cost of the defined benefit plan, recognised in profit or loss as employee costs, except where included in the cost of an asset, comprises:

- the increase in net pension benefit liability arising from employee service during the period; and
- the cost of plan introductions, benefit changes, curtailments and settlements.

The net interest cost is calculated by applying the discount rate to the net balance of the defined benefit obligation and the fair value of plan assets. This cost is recognised in profit or loss as a 'finance expense'.

## HOLIDAY PAY ACCRUAL

A liability is recognised to the extent of any unused holiday pay entitlement which has accrued at the balance sheet date and carried forward to future periods. This is measured at the undiscounted salary cost of the future holiday entitlement so accrued at the balance sheet date.

## 2.8. CASH AND CASH EQUIVALENTS

Cash and cash equivalents comprise cash at bank and in hand and on demand deposits, together with short term, liquid investments that are readily convertible to a known amount of cash and that are subject to a minimal risk of changes in value.

## 2.9. LEASES

### LEASED ASSETS: LESSEE

Where assets are financed by leasing agreements that give rights approximating to ownership (finance leases), the assets are treated as if they had been purchased outright. The amount capitalised is the present value of the minimum

lease payments payable over the term of the lease. The corresponding leasing commitments are shown as amounts payable to the lessor. Depreciation on the relevant assets is charged to profit or loss over the shorter of estimated useful economic life and the term of the lease.

Finance lease payments are analysed between capital and interest components so that the interest element of the payment is charged to profit or loss over the term of the lease and is calculated so that it represents a constant proportion of the balance of capital repayments outstanding. The capital part reduces the amounts payable to the lessor.

All other leases are treated as operating leases. Their annual rentals are charged to profit or loss on a straight-line basis over the term of the lease.

## 2.10 CURRENT AND DEFERRED TAXATION

The tax expense for the year comprises current and deferred tax. Tax is recognised in profit or loss except that a charge attributable to an item of income and expense recognised as other comprehensive income or to an item recognised directly in equity is also recognised in other comprehensive income or directly in equity respectively. The current income tax charge is calculated on the basis of tax rates and laws that have been enacted or substantively enacted by the balance sheet date in the countries where the company operates and generates income.

Deferred tax balances are recognised in respect of all timing differences that have originated but not reversed by the Balance Sheet date, except that the recognition of deferred tax assets is limited to the extent that it is probable that they will be recovered against the reversal of deferred tax liabilities or other future taxable profits.

Deferred tax balances are not recognised in respect of permanent differences. Deferred tax is determined using Deferred tax is determined using rates and laws that have been enacted or substantively enacted by the Balance Sheet date.

## 2.11 EXCEPTIONAL ITEMS

Exceptional items are transactions that fall within the ordinary activities of the company but are presented separately due to their size or incidence.

## 2.12 RESEARCH AND DEVELOPMENT

Research and development expenditure is

expensed in the year in which it is incurred. Any tax credit receivable under the large company Research and Development tax scheme is included as operating income.

## 2.13 TANGIBLE ASSETS AND DEPRECIATION

Tangible fixed assets under the cost model are stated at historical cost less accumulated depreciation and any accumulated impairment losses. Historical cost includes expenditure that is directly attributable to bringing the asset to the location and condition necessary for it to be capable of operating in the manner intended by management.

At each reporting date the company assesses whether there is any indication of impairment. If such indication exists, the recoverable amount of the asset is determined which is the higher of its fair value less costs to sell and its value in use. An impairment loss is recognised where the carrying amount exceeds the recoverable amount.

The company adds to the carrying amount of an item of fixed assets the cost of replacing part of such an item when that cost is incurred, if the replacement part is expected to provide incremental future benefits to the company.

The carrying amount of the replaced part is derecognised. Repairs and maintenance are charged to profit or loss during the period in which they are incurred.

Long-term leasehold properties are held under a 125-year lease from the parent company, The Welding Institute, with a peppercorn rent payable.

These are carried at fair value at the date of the revaluation less subsequent accumulated impairment losses and depreciation. Revaluations are undertaken annually. Fair values are determined from market-based evidence normally undertaken by professionally qualified valuers. Depreciation is charged so as to allocate the cost of assets less their residual value over their estimated useful lives, using the straight-line method.

Depreciation is provided on the following basis:

Long-term leasehold property	2% per annum
Short-term leasehold property	Over the period of the lease
Plant & Machinery	10% or 20% per annum
Fixtures, Fittings and Computer Equipment	10% or 20% per annum

The assets' residual values, useful lives and depreciation methods are reviewed, and adjusted prospectively if appropriate, or if there is an indication of a significant change since the last reporting date. Gains and losses on disposals are determined by comparing the proceeds with the carrying amount and are recognised in profit or loss.

#### **2.14 REVALUATION OF TANGIBLE FIXED ASSETS**

Individual leasehold properties are carried at fair value at the date of the revaluation less any subsequent accumulated depreciation and subsequent accumulated impairment losses.

Revaluations are undertaken with sufficient regularity to ensure the carrying amount does not differ materially from that which would be determined using fair value at the balance sheet date.

Fair values are determined from market based evidence normally undertaken by professionally qualified valuers. Revaluation gains and losses are recognised in other comprehensive income unless losses exceed the previously recognised gains or reflect a clear consumption of economic benefits, in which case the excess losses are recognised in profit or loss.

#### **2.15 INVESTMENT PROPERTY**

Investment property is carried at fair value determined annually by external valuers and derived from the current market rents and investment property yields for comparable real estate, adjusted if necessary for any difference in the nature, location or condition of the specific asset. No depreciation is provided. Changes in fair value are recognised in profit or loss.

#### **2.16 PROVISIONS FOR LIABILITIES**

Provisions are made where an event has taken place that gives the company a legal or constructive obligation that probably requires settlement by a transfer of economic benefit, and a reliable estimate can be made of the amount of the obligation. Provisions are charged as an expense to profit or loss in the year that the company becomes aware of the obligation, and are measured at the best estimate at the balance sheet date of the expenditure required to settle the obligation, taking into account relevant risks and uncertainties. When payments are eventually made, they are charged to the provision carried in the Balance Sheet.

#### **2.17 FINANCIAL INSTRUMENTS**

The Company has chosen to adopt Sections 11 and 12 of FRS 102 in respect of financial instruments. Financial assets and financial instruments include Debtors, Cash and Cash Equivalents and Creditors and are recognised when the Company becomes a party to the contractual provisions of the instrument. All financial assets and liabilities are initially measured at transaction price (including transaction costs), except for those financial assets classified as at fair value through profit or loss, which are initially measured at fair value (normally the transaction price excluding transaction costs), unless the arrangement constitutes a financing transaction. If an arrangement constitutes a financing transaction, the financial asset or financial liability is measured at the present value of the future payments discounted at a market rate of interest for a similar debt instrument.

Financial assets which qualify as basic financial instruments as laid out in FRS 102 paragraph 11.8, including trade and other receivables and cash and bank balances, are subsequently valued at amortised cost and assessed for impairment at the end of each reporting period. Any other financial assets, including investments, are subsequently valued at fair value. Financial liabilities and equity instruments are classified according to the substance of the contractual arrangements entered into. Financial assets and liabilities are only offset in the Balance Sheet when there exists a legally enforceable right to set off the recognised amounts and the Company intends either to settle on a net basis, or to realise the asset and settle the liability simultaneously.

Financial assets are de-recognised only when (a) the contractual rights to the cash flows from the financial asset expire or are settled, (b) the company transfers substantially all of the risks and rewards of ownership or control of the financial asset, or (c) the company, despite having retained some, but not all, significant risks and rewards of ownership, has transferred control of the asset to another party. Substantially all of the risks and rewards of ownership of the financial asset, or (c) the company, despite having retained some, but not all, significant risks and rewards of ownership, has transferred control of the asset to another party. Financial liabilities are derecognised only when the obligation specified in the contract is discharged, cancelled or expires.

## 2.18 PROVISIONS

A provision is recognised if, as a result of a past event, the Company has a present legal or constructive obligation that can be estimated reliably, and it is probable that an outflow of economic benefits will be required to settle the obligation.

Where the estimated costs to deliver a project exceed the amount of turnover the company will receive for the deliverables of the project, the company recognizes an onerous contract provision when these circumstances are identified. This is recognized through the profit and loss statement at the date that the circumstances are identified by the company. An annual review of all such projects is reviewed and the provision is accordingly adjusted as required.

## 3.0 REDUCED DISCLOSURES

The company is a qualifying entity for the purposes of FRS 102, being a member of the group where the parent of that group prepares publicly available consolidated financial statements, including this company, which are intended to give a true and fair view of assets, liabilities, financial position and profit or loss of the group. The company has therefore taken advantage of exemptions from the following disclosure requirements:

- Section 11 'Basic Financial Instruments' and Section 12 'Other Financial Instrument Issues': Interest income/expense and net gains/losses for financial instruments not measured at fair value; basis of determining fair values; details of collateral, loan defaults or breaches, details of hedges, hedging fair value changes recognised in profit or loss and in other comprehensive income.

The financial statements of the company are consolidated in the financial statements of The Welding Institute. These consolidated financial statements are available from its registered office, Bevan Braithwaite Granta Park, Great Abington, Cambridge, CB21 6AL.

#### 4. JUDGEMENTS IN APPLYING ACCOUNTING POLICIES AND KEY SOURCES OF ESTIMATION UNCERTAINTY

The preparation of the financial statements requires the application of certain estimates and judgements. The material areas of either estimation or judgement are set out below. Estimates and judgements are continually evaluated and are based on historical experience and other factors, including expectations of future events that are believed to be reasonable under the circumstances. Key sources of estimation and uncertainty made in applying the company's accounting policies:

<b>LIABILITIES ON DEFINED BENEFIT PENSION SCHEME</b>	
The actuaries provide a summary of the actuarial assumptions proposed based on FRS 102 requirements and these are reviewed and, where appropriate, challenged by management.	Key estimates are the rate of future salary increases, the discount rate applied, the rate of inflation and the determination of past service costs and associated obligation.  A key management judgement relates to the accounting treatment applied to the voluntary pension contribution paid by The Welding Institute during the year and how the impacts of this are presented in the Company's financial statements.
<b>INVESTMENT PROPERTY</b>	
Fair values are prepared by recognised external valuers and reviewed and challenged by management.	Key estimates include discount rates and other future market conditions.
<b>CONTRACT INCOME</b>	
Income on certain projects is recognised on a percentage completion basis.	Key estimates are the estimated stage of completion and the identification of any potential project overruns.
<b>PROVISIONS FOR TRADE AND GROUP DEBTS</b>	
Provisions are made for any amounts considered to be irrecoverable.	Factors considered are failure to meet payment terms and known market conditions.
<b>DEFERRED TAX</b>	
Deferred tax assets and liabilities are calculated based on expected timings and tax rates of reversals of timing differences.	Key estimates are the ability to meet the conditions for the reversal of the timing differences, the timing of the reversal and the tax rates at the time of reversal.
<b>ONEROUS CONTRACTS</b>	
A provision for onerous contracts are recognized where the estimated costs to completion will exceed the expected turnover received from the client on a fixed-priced project.	Key estimates and judgments are made on the costs and efforts in order to meet the deliverables as per the agreed customer contract. Considerations such as technological challenges and testing failures are considered.

## 5. TURNOVER

An analysis of turnover by class of business is as follows:

TURNOVER BY CLASS OF BUSINESS	(As restated)	
	2021	2020
	£000	£000
Membership subscriptions	6,415	7,191
Contracts	46,459	49,340
Training, examination, certification and other	7,705	7,299
<b>TOTAL TURNOVER</b>	<b>60,579</b>	<b>63,830</b>

An analysis of turnover by country of destination is as follows:

TURNOVER BY COUNTRY OF DESTINATION	(As restated)	
	2021	2020
	£000	£000
United Kingdom	42,651	46,209
Rest of Europe	8,247	6,925
Rest of the world	9,681	10,696
<b>TOTAL TURNOVER</b>	<b>60,579</b>	<b>63,830</b>

Refer to note 27 for changes in the comparative figures.

## 6. OTHER OPERATING INCOME

OTHER OPERATING INCOME	(As restated)	
	2021	2020
	£000	£000
Research & development expenditure credit	1,823	1,942
Net rents receivable	1,458	1,050
Government grants released	134	4,889
Other operating Income	886	732
Job Retention Scheme	-	1,382
Revaluation of Investment Property	9,165	-
<b>TOTAL OTHER OPERATING INCOME</b>	<b>13,466</b>	<b>9,995</b>

Income recognised as part of Government Grants, included the income related to the regional growth fund, funding received from this fund was all recognised in 2020. Income recognised from an initiative with the Welsh Government, (AMERI) is recognised as follows; 2021 £886,000 (2020: £732,000). Job retention scheme represent amounts receivable under the Coronavirus Job Retention Scheme (CJRS) of £Nil (2020: £1,382,000) to cover salaries of furloughed staff.

The company revalued long leasehold investment by an external valuer resulting in a surplus of £9,165,000 at year end.

## 7. OPERATING PROFIT

The operating profit is stated after charging:

	(As restated)	
	2021	2020
	£000	£000
Research & development charged as an expense	13,536	15,230
Exchange Differences	(135)	5
Other operating Lease Rentals	787	485
Depreciation	3,540	3,602
Profit and loss of disposal of tangible assets	-	(14)

## 8. AUDITORS REMUNERATION

	(As restated)	
	2021	2020
	£000	£000
The auditing of accounts of associates of the company pursuant to legislation	54	58
Fees payable to the company's auditor and its associates in respect of:		
Audit of other group companies annual accounts	71	22
Other audit services	27	96
Other services relating to taxation	-	41
All other services	-	9
<b>TOTAL AUDITORS REMUNERATION</b>	<b>152</b>	<b>226</b>

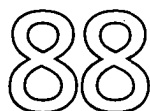
## 9. EMPLOYEES

Staff costs, including directors' remuneration, were as follows:

	(As restated)	
	2021	2020
	£000	£000
Wages and salaries	23,075	24,551
Social security costs	2,450	2,273
Cost of defined benefit scheme	-	1,869
Cost of defined contribution scheme	2,861	2,909
<b>TOTAL STAFF COSTS</b>	<b>28,386</b>	<b>31,602</b>

The average monthly number of employees, including the directors, during the year was as follows:

	(As restated)	
	2021	2020
	No. Employees	No. Employees
Average number of employees	566	579



## 10. DIRECTORS' AND KEY MANAGEMENT REMUNERATION

	2021	(As restated) 2020
	£000	£000
Directors' emoluments	1,954	1,621

During the year retirement benefits were accruing to 0 directors (2020: 5) in respect of defined benefit pension schemes. The highest paid director received remuneration of £299,800 (2020: £282,000).

The value of the company's contributions paid to a defined contribution pension scheme in respect of the highest paid director amounted to £67,800 (2020: £97,000).

During the year retirement benefits were accruing to 8 (2020: 5) members of the Executive Team as part of the defined contribution plan pension scheme.

## 11. INTEREST PAYABLE AND SIMILAR CHARGES

	2021	(As restated) 2020
	£000	£000
Bank interest payable	198	299
Loans from group undertakings	646	578
Finance leases	108	118
<b>TOTAL INTEREST PAYABLE AND SIMILAR CHARGES</b>	<b>952</b>	<b>995</b>

## 12. OTHER FINANCE COSTS

	2021	(As restated) 2020
	£000	£000
Net interest on net defined benefit obligation (note 30)	497	824

### 13. EXCEPTIONAL ITEMS

	2021	(As restated) 2020
	£000	£000
Impairment of Intercompany Debt	164	290
Credit to past service costs	16,862	-

#### IMPAIRMENT OF INTERCOMPANY DEBT

One-off impairment costs of £0.2million (2020: £0.3 million) due to a more prudent approach towards providing for intercompany debt were recognized during the financial period.

#### CREDIT TO PAST SERVICE COSTS

During the financial period a voluntary contribution of £16.8m was made by The Welding Institute, the parent of TWI Limited, who is a participating employer as part of the Defined Benefit Pension Scheme. The contribution was made as a one-off transaction in 2021 and has resulted in a profit and loss gain due to the reduction of the obligation by TWI Limited to the Defined Benefit Pension Fund. The parent was in a position to make this payment due to windfall profits in the sale of Land by a fellow subsidiary, Granta Park Estates Limited. The contribution and the amount paid was agreed with the trustees of the Pension Scheme. Further disclosures are included as part of Note 30.

### 14. TAXATION

	2021	(As restated) 2020
	£000	£000
<b>CORPORATION TAX</b>		
Current tax on profits for the year	(890)	25
<b>TOTAL CURRENT TAX</b>	(890)	25
<b>DEFERRED TAX</b>		
Origination and reversal of timing differences	8,088	216
Adjustments in respect of prior periods	(2,904)	-
Effect increased/decreased tax rate on opening balance	(2,023)	(363)
<b>TOTAL DEFERRED TAX</b>	3,161	(147)
<b>TAXATION ON PROFIT/(LOSS) ON ORDINARY ACTIVITIES</b>	2,271	(122)

## TAXATION - CONTINUED

### FACTORS AFFECTING TAX CHARGE FOR THE YEAR

The tax assessed for the year is lower than (2020: lower than) the standard rate of corporation tax in the UK of 19% (2020: 19%). The differences are explained below:

	2021	(As restated) 2020
	£000	£000
Profit on ordinary activities before tax	34,389	9,000
Profit on ordinary activities multiplied by standard rate of corporation tax in the UK of 19% (2020: 19%)	6,534	1,710
<b>EFFECTS OF:</b>		
Fixed asset differences	198	689
Expenses not deductible for tax purposes	56	(8)
Income not taxable for tax purposes	(2,184)	(929)
Other permanent differences	-	231
Other tax adjustments, reliefs and transfers	2	744
Chargeable gains/(losses)	3,227	-
Payment/(receipt) for s171A transfers	(3,227)	-
Foreign tax credits	-	25
Adjustments to tax charge in respect of previous periods	(25)	-
Deferred tax relating to other comprehensive income	(2,904)	262
Remeasurement of deferred tax for changes in tax rates	763	(486)
Movement in deferred tax not recognised	(169)	(872)
<b>TOTAL TAX CHARGE FOR THE YEAR</b>	<b>2,271</b>	<b>(122)</b>

### FACTORS THAT MAY AFFECT FUTURE TAX CHARGES

In the Finance Bill 2021, the UK Government announced that from 1 April 2023, the Corporation Tax rate would increase to 25%. This new law was substantively enacted on 24 May 2021. Deferred tax has been calculated at a rate of 25%.

## 15. TANGIBLE FIXED ASSETS

	Long Leasehold Property	Short-term Leasehold Property	Plant and Machinery	Fixtures, Fittings and Computers	Total
	£000	£000	£000	£000	£000
<b>COST OR VALUATION</b>					
At 1 January 2021 (as previously stated)	<b>81,342</b>	<b>5,945</b>	<b>34,435</b>	<b>4,100</b>	<b>125,822</b>
Prior Year Adjustment	3,374	-	-	-	3,374
At 1 January 2021 (as restated)	<b>84,716</b>	<b>5,945</b>	<b>34,435</b>	<b>4,100</b>	<b>129,196</b>
Additions	1,709	52	3,123	374	5,258
Disposals	-	(90)	(311)	-	(401)
Transfers between classes	(175)	339	(115)	-	49
Revaluations	43,610	210	-	-	43,820
At 31 December 2021	<b>129,860</b>	<b>6,456</b>	<b>37,132</b>	<b>4,474</b>	<b>177,922</b>
<b>DEPRECIATION</b>					
At 1 January 2021 (as previously stated)	-	<b>953</b>	<b>26,804</b>	<b>3,450</b>	<b>31,207</b>
Prior Year Adjustment	3,374	-	-	-	3,374
At 1 January 2021 (as previously stated)	<b>3,374</b>	<b>953</b>	<b>26,804</b>	<b>3,450</b>	<b>34,581</b>
Charge for the year on owned assets	1,603	418	1,268	251	3,540
Disposals	-	(64)	(292)	-	(356)
Transfers between classes	-	(15)	(94)	-	(109)
At 31 December 2021	<b>4,977</b>	<b>1,292</b>	<b>27,686</b>	<b>3,701</b>	<b>37,656</b>
<b>NET BOOK VALUE</b>					
At 31 December 2021	<b>124,883</b>	<b>5,164</b>	<b>9,446</b>	<b>773</b>	<b>140,266</b>
At 31 December 2020 (as restated)	81,342	4,992	7,631	650	94,615

During the period it was identified that an error in the accounting treatment of Depreciation in relation to owner occupied properties had resulted in the company not correctly recognising depreciation on properties which it occupies as part of its operations. Further detail of this is disclosed in Note 27.

## 16. INVESTMENT PROPERTY

### LONG-LEASEHOLD INVESTMENT PROPERTY

	2021	2020
	£000	£000
<b>VALUATION</b>		
At beginning of year	8,535	-
Transfer between classes	-	8,535
Surplus on revaluation	9,165	-
<b>AT END OF YEAR</b>	<b>17,700</b>	<b>8,535</b>

The 2021 valuations were made by a qualified external party, on an open market value for existing use basis.

## 17. DEBTORS

	2021	(As restated) 2020
	£000	£000
<b>DUE AFTER MORE THAN ONE YEAR</b>		
Deferred tax asset	3,717	8,241

	2021	(As restated) 2020
	£000	£000
<b>DUE WITHIN ONE YEAR</b>		
Trade debtors	6,284	6,618
Amounts owed by group undertakings	23,471	10,536
Other debtors	2,807	880
Prepayments and accrued income	3,040	2,396
Amounts recoverable on long-term contracts	8,048	10,330
Tax recoverable	3,245	5,346
Deferred taxation	-	3,050
<b>TOTAL DEBTORS DUE WITHIN ONE YEAR</b>	<b>46,895</b>	<b>39,156</b>

An impairment loss of £304,000 (2020: £220,000) was recognised against trade debtors. A provision for impairment losses on amounts owed by group undertakings of £3,187,000 (2020: £3,187,000).

## 18. CASH AND CASH EQUIVALENTS

	2021	2020
	£000	£000
Cash at bank and in hand	10,914	5,775
Less: bank overdrafts	-	(14,270)
<b>TOTAL CASH AND CASH EQUIVALENTS</b>	<b>10,914</b>	<b>(8,495)</b>

During the period the company settled all its bank overdraft obligations with Barclays plc. This was as a result of loans received from group companies.

## 19. CREDITORS: AMOUNTS FALLING DUE WITHIN ONE YEAR

	2021	(As restated) 2020
	£000	£000
Bank overdrafts	-	14,270
Payments received on account	16,423	16,694
Trade creditors	3,664	10,262
Amounts owed to group undertakings	7,786	2,779
Other taxation and social security	21,699	1,344
Obligations under finance lease	356	356
Other creditors	310	724
Accruals and deferred income	11,235	5,465
<b>TOTAL CREDITORS FALLING DUE WITHIN ONE YEAR</b>	<b>61,473</b>	<b>51,914</b>

Details on the terms for amounts owed to group undertakings are included in note 20.

### SECURED LOANS

Bank overdraft were secured by a mortgage over part of the company's property and by a floating charge over other assets. The loans incurred interest at between 0.95% and 2.5% above LIBOR. During the period the company settled all its external loan obligations.

## 20. CREDITORS: AMOUNTS FALLING DUE AFTER MORE THAN ONE YEAR

	2021	(As restated) 2020
	£000	£000
Payments received on account	2,385	1,249
Net obligations under finance leases	2,915	3,241
Amounts owed to group undertakings	11,245	12,628
Accruals and deferred income	7,440	5,270
<b>TOTAL CREDITORS FALLING DUE AFTER MORE THAN ONE YEAR</b>	<b>23,985</b>	<b>22,388</b>

During the year the company refinanced its loans with its parent company The Welding Institute, and settled outstanding amounts due to fellow subsidiary Granta Park Estates Limited.

The loan with the parent company, The Welding Institute on which repayments will be made in 2022. The loan attracts interest at a rate of 3.015% per annum.

## 21. PROVISIONS

ONEROUS PROVISION	2021	(As restated) 2020
	£000	£000
At 1 January	1,128	-
Additions	40	1,128
At 31 December	1,168	1,128

Where the estimated costs to deliver a project exceed the amount of turnover the company will receive for the deliverables of the project, the company recognizes an onerous contract provision when these circumstances are identified. Onerous contracts are reviewed on an annual basis.

## 22. FINANCE LEASES

Minimum lease payments under hire purchase fall due as follows:

	2021	2020
	£000	£000
Within one year	356	356
Between 1-5 years	1,729	1,535
Over 5 years	1,186	1,706
<b>TOTAL FINANCE LEASES</b>	<b>3,271</b>	<b>3,597</b>

## 23. DEFERRED TAXATION

	2021	2020
	£000	£000
At beginning of year	3,500	3,091
Charged to profit or loss	(3,160)	(147)
Charged to other comprehensive income	(18,472)	(261)
<b>AT END OF YEAR</b>	<b>(18,132)</b>	<b>3,500</b>

The deferred tax balance is made up as follows:

	2021	2020
Capital gains	(20,495)	(4,572)
Accelerated capital allowances	(1,354)	(1,747)
Other short term timing differences	1,263	6,769
Losses and other deductions	2,454	3,050
	<b>(18,132)</b>	<b>3,500</b>
<b>COMPRISING:</b>		
Asset - due after one year	3,717	8,241
Asset - due within one year	-	3,050
Liability	(21,849)	(7,791)
	<b>(18,132)</b>	<b>3,500</b>

## 24. SHARE CAPITAL

	2021	2020
	£	£
<b>ALLOTTED, CALLED UP AND FULLY PAID</b>		
Ordinary shares of £1.00 each	2	2

There is a single class of ordinary shares. There are no restrictions on dividends and the repayment of capital.

## 25. RESERVES

### SHARE PREMIUM ACCOUNT

This reserve records the amount above the nominal value received for shares sold, less transaction costs.

### REVALUATION RESERVE

This reserve represents the cumulative gain, net of deferred tax, on long leasehold properties.

### PROFIT AND LOSS ACCOUNT

This reserve includes all current and prior period retained profits and losses.

## 26. ANALYSIS OF NET DEBT

	At 1 January 2021	Cash flows	At 31 December 2021
	£000	£000	£000
Cash at bank and in hand	5,775	5,139	10,914
Bank overdrafts	(14,270)	14,270	-
Finance leases	(3,597)	326	(3,271)
<b>TOTAL</b>	<b>(12,092)</b>	19,735	<b>7,643</b>

## 27. PRIOR YEAR ADJUSTMENT

	Ref	Prior Year Final	Debit	Credit	Prior Year Restated
		£000	£000	£000	£000
<b>BALANCE SHEET</b>					
Tangible fixed assets	3	94,615	3,374	(3,374)	<b>94,615</b>
Debtors: amounts falling due within one year	2	38,946	272	(63)	<b>39,156</b>
Creditors: amounts falling due within one year	1&2	(51,244)	1,128	(1,928)	<b>(51,914)</b>
Creditors: amounts falling due after one year	4	(22,125)	-	(263)	<b>(22,388)</b>
Provisions	1	-	-	(1,128)	<b>(1,128)</b>
Revaluation reserve	3	32,163	-	2,778	<b>34,941</b>
Profit and loss account	1,2,&3	(10,299)	(8,493)	3,268	<b>(15,524)</b>
<b>INCOME STATEMENT</b>					
Revenue	2,5	60,786	(103)	3,147	<b>63,830</b>
Cost of sales	5	(43,236)	(4,538)	103	<b>(47,671)</b>
Administrative expenses	3	(11,666)	(1,697)	-	<b>(13,364)</b>
Other operating income	2	9,263	(512)	1,244	<b>9,995</b>
Profit for the year		13,155	(6,851)	4,494	<b>10,798</b>

1. Onerous Contracts: Arose from the incorrect application of the accounting policy requirement to reassess project delivery costs, resulting in identification of loss making projects. This has resulted in the recognition of a provision in 2020.
2. Government Grants: Based on a review of the recognition of government grants awarded, it was identified that the accounting treatment was inconsistent with the accounting policy. This has now been corrected in the current figures.
3. Fixed Assets Depreciation: The Company had not recognised depreciation on its long-term lease properties. To account for Depreciation for 2019 to 2020 on properties that are subject to annual revaluation.
4. Group Debtor: The company had not recognised a Group relationship transaction as at the financial year-end. This has now been corrected in the current year, and related comparatives.
5. Reclassification of Cost of Sales: The company was inconsistent with its treatment of the sub-contracting work performed for its Parent Company, having disclosed a component of its revenue as a reduction of cost. This has now been restated in the comparative and corrected in the current year to ensure consistent treatment.

## 28. CAPITAL COMMITMENTS

	2021	2020
	£000	£000
Contracted for but not provided in these financial statements	-	49

## 29. PENSION COMMITMENTS - DEFINED CONTRIBUTION PENSION SCHEME

The company operates a defined contribution pension scheme in the UK. The assets of the scheme are held separately from those of the company in independently administered funds. The pension cost charge represents contributions payable by the company to the funds and amounted to £2,861,000 (2020: £2,909,000). Contributions totalling £277,673 (2020: £285,000) were payable to the funds at the balance sheet date and are included in other creditors.

There were 510 active members of the Defined Contribution Pension Scheme as at the end of 2021 (2020: 535).

## 30. PENSION COMMITMENTS

The company operates a Defined Benefit Pension Scheme.

This is a separate trustee administered fund holding the pension scheme assets to meet long term pension liabilities. The triennial valuation was carried out at 31 December 2019 by Mercer Limited independent of the scheme's sponsoring employer. The major assumptions used by the actuary are shown below.

The most recent completed triennial actuarial valuation as at 31 December 2019 showed a deficit of £56,935,000. The company has agreed with the trustees that it will aim to eliminate the deficit over a period of 8 years 9 months from 1 April 2021 by the payment of monthly contributions of £296,667 increasing at a rate of 4% pa. In addition, the company will meet the cost of levies to the Pension Protection Fund. The scheme closed to accruals on 11 September 2020.

There were nil active members of the Defined Benefit Pension Scheme at the end of 2021 (2020: Nil). During the period The Welding Institute made a voluntary pension contribution payment of £16.8m to the defined benefit scheme. As a participating employer it was authorized by the pension trustees to effect the contribution in relation to the scheme. This contribution represents a reduction in the past service costs for TWI Limited, and as such is reflected as a reduction of cost of sales in the period.

## PENSION COMMITMENTS – CONTINUED

Reconciliation of present value of plan liabilities:

RECONCILIATION OF PRESENT VALUE OF PLAN LIABILITIES	2021	2020
	£000	£000
At the beginning of the year	43,377	41,726
Current service cost	-	1,180
Interest income	497	824
Contributions	(20,079)	(4,268)
Gain/loss on settlement or curtailment	(19,327)	3,915
<b>AT THE END OF THE YEAR</b>	<b>4,468</b>	<b>43,377</b>
ANALYSIS OF ACTUARIAL GAIN/(LOSS) RECOGNISED IN OTHER COMPREHENSIVE INCOME	2021	2020
	£000	£000
Return on plan assets (excluding amounts included in net interest costs)	16,358	13,126
Experience gains and losses arising on the plan liabilities	711	295
Effects of changes in the demographic and financial assumptions underlying the present value of the plan liabilities - Gain/(loss)	(4,421)	(17,336)
<b>TOTAL</b>	<b>12,648</b>	<b>(3,915)</b>

Composition of plan assets:

PLAN ASSETS	2021	2020
	£000	£000
Other assets	50,237	20,407
Equities	108,346	88,964
Bonds	13,211	14,844
Diversified Growth Funds	-	18,481
Cash	8,047	6,421
<b>TOTAL PLAN ASSETS</b>	<b>179,841</b>	<b>149,117</b>
PENSION SCHEME LIABILITY	2021	2020
	£000	£000
Fair value of plan assets	179,841	149,117
Present value of plan liabilities	(184,309)	(192,494)
<b>NET PENSION SCHEME LIABILITY</b>	<b>(4,468)</b>	<b>(43,377)</b>

## PENSION COMMITMENTS – CONTINUED

The amounts recognised in profit or loss are as follows:

	2021	2020
	£000	£000
Reduction in past service costs	(16,862)	
Current service cost	-	1,140
Interest on obligation	497	824
Expenses	32	40
<b>TOTAL</b>	<b>(16,333)</b>	<b>2,004</b>

Reconciliation of opening and closing balances of the defined benefit obligation were as follows:

CHANGES IN DEFINED BENEFIT OBLIGATION	2021	2020
	£000	£000
Opening defined benefit obligation	194,625	176,688
Current service cost	-	1,140
Interest cost	2,670	3,573
Actuarial gains and (losses)	(5,132)	19,172
Contributions by scheme participants	-	287
Benefits paid	(7,854)	(6,235)
<b>CLOSING DEFINED BENEFIT OBLIGATION</b>	<b>184,309</b>	<b>194,625</b>

Reconciliation of opening and closing balances of fair value of the plans assets were as follows:

CHANGE IN FAIR VALUE OF PLAN ASSETS	2021	2020
	£000	£000
At the beginning of the year	149,117	134,962
Interest income	2,173	2,749
Return on plan assets in excess of interest income	16,358	13,126
Contributions by the company	20,079	4,268
Contributions by scheme participants	-	287
Benefits paid	(7,854)	(6,235)
Administrative expenses	(32)	(40)
<b>TOTAL</b>	<b>179,841</b>	<b>149,117</b>

## PENSION COMMITMENTS – CONTINUED

Principal actuarial assumptions at the balance sheet date (expressed as weighted averages):

	2021	2020
	%	%
Discount rate Inflation (RPI)	1.8	1.4
Inflation (CPI) Salary growth	3.4	3.0
Allowance for revaluation of deferred pensions of CPI or 5% p.a. if less	2.9	2.5
Allowance for pension in payment increases of RPU or 5% p.a. if less, minimum 3% p.a.	2.5	3.2
Mortality rates		
For a male aged 65 now	21.8	21.6
At 65 for a male aged 45 now	23.1	23.5
For a female aged 65 now	23.7	22.6
At 65 for a female member aged 45 now	25.3	24.7

As agreed with the trustees, the company will not be liable to pay any deficit reduction contributions in 2022. Repayments are expected to recommence in 2024 based on an updated triennial review.

### 31. COMMITMENTS UNDER OPERATING LEASES

At 31 December 2021 the company had future minimum lease payments due under non-cancellable operating leases for each of the following periods:

LAND AND BUILDINGS	2021	2020
	£000	£000
Not later than 1 year	212	403
Later than 1 year and not later than 5 years	713	1,257
Later than 5 years	268	446
<b>TOTAL OPERATING LEASES - LAND AND BUILDINGS</b>	<b>1,193</b>	<b>2,106</b>

During 2022, the company purchased its Property in Port Talbot for an amount of £2.1m completing the acquisition in February 2022.

<b>OTHER</b>	<b>2021</b>	<b>2020</b>
	<b>£000</b>	<b>£000</b>
Not later than 1 year	<b>41</b>	63
Later than 1 year and not later than 5 years	<b>14</b>	11
<b>TOTAL OPERATING LEASES - OTHER</b>	<b>55</b>	74

<b>RENTS RECEIVABLE UNDER NON-CANCELLABLE OPERATING LEASES</b>	<b>2021</b>	<b>2020</b>
	<b>£000</b>	<b>£000</b>
Due within 1 year	<b>755</b>	366
Later than 1 year and not later than 5 years	<b>2,634</b>	1,226
<b>TOTAL OPERATING LEASES - LAND AND BUILDINGS</b>	<b>3,389</b>	1,592

At 31 December 2021 the company had future minimum lease payments receivable under non-cancellable operating leases for each of the above periods.

### 32. RELATED PARTY TRANSACTIONS

The parent company prepares consolidated group accounts and, accordingly, the company has taken advantage of the exemptions contained within FRS 102 paragraph 33.1A not to disclose transactions with wholly owned group undertakings.

No member of the directors or key management had any related party transactions during the period.

### 33. ULTIMATE PARENT UNDERTAKING AND CONTROLLING PARTY

The sole shareholder is The Welding Institute. The company is considered a wholly owned subsidiary of The Welding Institute for accounting purposes and its assets and liabilities have been consolidated with those of The Welding Institute as required by section 9 of FRS 102. The ultimate parent company and controlling entity is The Welding Institute, which is the parent company of the smallest and largest group to consolidate these financial statements. Copies of the financial statements of The Welding Institute are available at its registered office, Bevan Braithwaite Building, Granta Park, Great Abington, Cambridge, CB21 6AL.

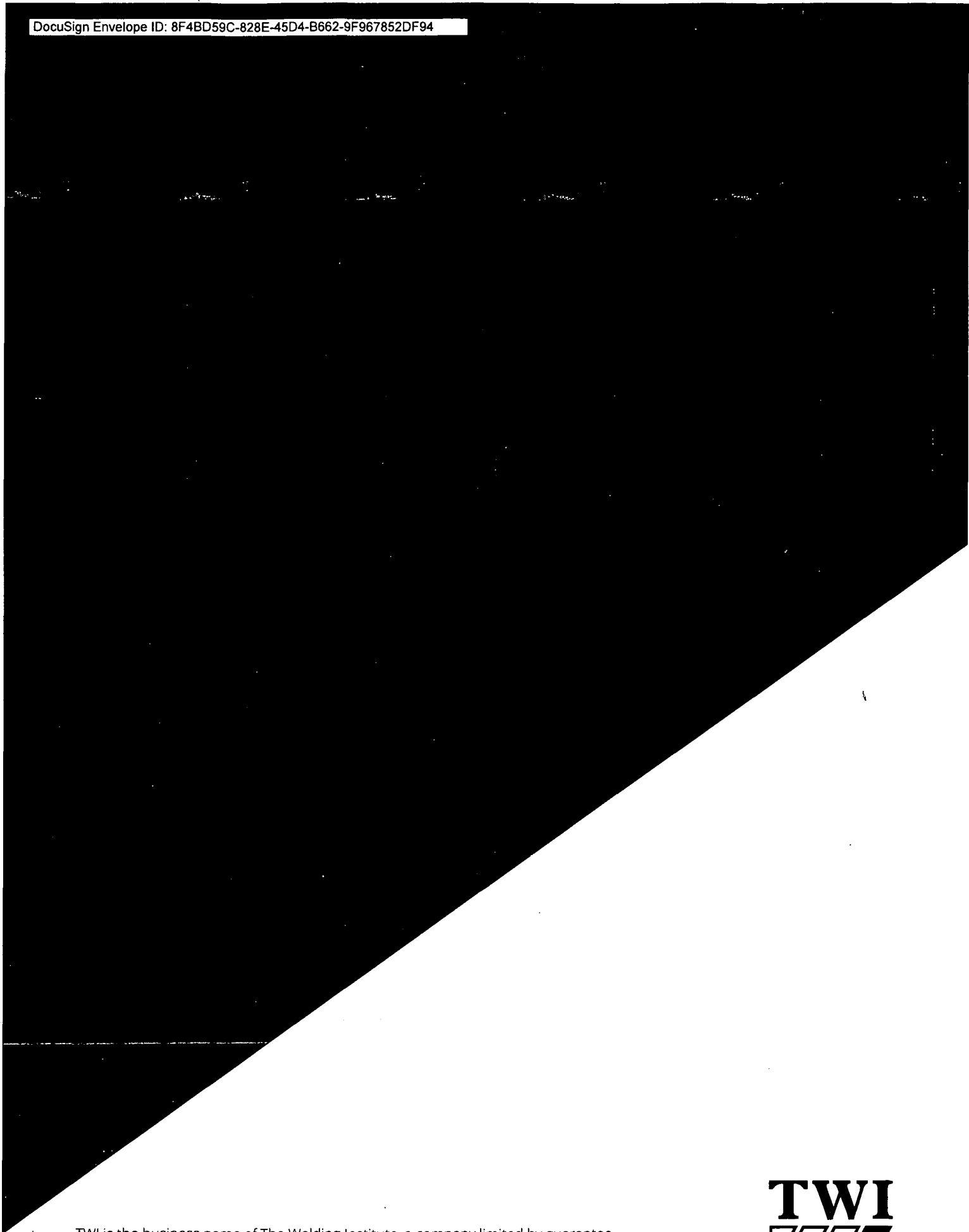
### 34. INVESTMENTS AND SUBSIDIARY COMPANIES

NAME	Location	Class of shares	Holding
TWI Training and Consultancy Limited	Canada	N/A	100%
TWI (India) Pvt. Limited	India	Ordinary	100%
TWI Middle East FZ-LLC	UAE	Ordinary	100%
TWI Technology Engineering (Private) Ltd	Pakistan	Ordinary	100%
TWI Turkey Muhendislik Tic. Ltd.sti	Turkey	Ordinary	50%
TWI Gulf WLL	Bahrain	Ordinary	100%
TWI Kazakhstan LLP	Kazakhstan	Ordinary	100%
Fullagar Technologies Limited	England	Ordinary	100%
TWI Hellas	Greece	Ordinary	100%

Cost of investments were expensed in the period that they arose. The initial costs of the investments are not material.

#### DETAILS OF REGISTERED OFFICES

NAME	Registered office
TWI Training and Consultancy Limited	Office #36 & 44, 4620 Manilla Road S.E., Calgary, Alberta, T2G 4B7, Canada
TWI (India) Pvt. Limited	Old No.85, New No.60, Ellaiamman colony, Vellala Teynampet, Chennai-600086, India
TWI Middle East FZ-LLC	Dubai Knowledge Park, Block 13 Office F104A, P.O. Box 502931 Dubai, UAE
TWI Technology Engineering (Private) Ltd	Office No. 706/707 A-B, 7TH Floor, DHA Haly Tower, Sector R, Phase 2, DHA Lahore, Punjab, Pakistan
TWI Turkey Muhendislik Tic. Ltd.sti	Tatlı Su Mahallesi, Şenol Güneş Bulvarı, Mira Tower, No:2/A, Kat:7, Daire:25, Ümraniye / Istanbul, Postcode:34770; Turkey
TWI Gulf WLL	13th Flr., Unit 1302, Al Wahda City Commercial Tower, Hazza Bin Zayed Street, PO Box 39237, Abu Dhabi, UAE
TWI Kazakhstan LLP	Business Centre "Atyrau Plaza"; 7-th floor, Office No.707; Satpayev street 17B; P.O 060000, Atyrau city, Kazakhstan
Fullagar Technologies Limited	Bevan Braithwaite Building, Granta Park, Great Abington, Cambridge, CB21 6AL, UK
TWI Hellas	Leof. Kifisias 280, GR-152 32 Chalandri, Greece



TWI is the business name of The Welding Institute, a company limited by guarantee.  
The Welding Institute - Registered number 405555 England.  
TWI Limited - Registered number 3859442 England.

