OUR VISION:

TO CREATE A SAFE AND SUSTAINABLE WORLD

RICARDO PLC

ANNUAL REPORT & ACCOUNTS 2021/22

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Every day at Ricardo our global team of consultants, environmental specialists, engineers and scientists enable our customers to solve the most complex and dynamic challenges to help achieve a safe and sustainable world.

We do this by offering exceptional levels of expertise in delivering innovative, cross-sector and sustainable outcomes that support energy transition in a context of scarce resources; that support our customers in meeting their environmental responsibilities; and that enable safe and smart mobility.

Across everything we do and in every assignment we undertake, we are purpose-led in our approach and remain committed to the ethos of our founder Sir Harry Ricardo, who was one of the most innovative engineers of his time. Back in 1915 he set out on a mission to 'maximise efficiency and eliminate waste'. We continue that mission today.

It's what makes us Ricardo.

OUR BUSINESS AT A GLANCE

WHO WE ARE

We are a global strategic, environmental and engineering consultancy with in-house production capability.

Ricardo plc is a global strategic, environmental and engineering consulting company at the intersection of the mobility, energy and environmental agendas, solving the most complex issues to help achieve a safe and sustainable world. We have a diversified portfolio that addresses the common challenges of clean and decarbonised transport, energy needs and environmental impact. We are renowned for our best-in-class expertise.

With more than 100 years of experience, Ricardo is relied upon by our customers worldwide to deliver engineering, scientific and consulting capabilities supported by niche manufacturing. We now operate in 27 countries across the world and employ around 3,000 colleagues.

Our work extends across a range of market sectors – including governments and NGOs, energy and resources, automotive, rail and mass transit, general industry, maritime, aerospace and defence. We are proud to possess a customer list that includes leading transport operators, manufacturers, energy companies, financial institutions, government agencies and non-governmental organisations.

HOW WE OPERATE

We operate through our five operating segments.

ENERGY AND ENVIRONMENT	RAIL	AUTOMOTIVE AND INDUSTRIAL	DEFENSE	PERFORMANCE PRODUCTS
Partner of choice for solving complex environmental challenges through industry-leading analysis, advice and data	Experts in supporting complex rail systems through the delivery of independent assurance and consultancy services	Trusted specialists in clean, efficient, integrated propulsion and energy solutions	Trusted experts in delivering wide-ranging engineering programmes to drive efficiencies while optimising safety	Engineering specialists in transmission design and niche-volume manufacturing
18%	**20%**	**31%**	**12%**	**19%**
REVENUE FROM CONTINUING OPERATIONS	REVENUE FROM CONTINUING OPERATIONS	REVENUE FROM CONTINUING OPERATIONS	REVENUE FROM CONTINUING OPERATIONS	REVENUE FROM CONTINUING OPERATIONS

SERVING KEY MARKETS

We create value through a clear market focus and our long-term customer relationships.

We shape the markets in which we operate through the delivery of solutions that are built on sustainable technological innovation. Our capabilities span the value chain – from policy, strategy and the initial concept phase right up to the delivery of customer programmes.

GOVERNMENTS AND NGOs	Built on our heritage of 60 years, we work closely with international donors and governments, offering a range of cross disciplinary environmental services to public sector organisations to develop and implement environmental policy, processes and strategies.
ENERGY AND RESOURCES	Ricardo supports customers in decarbonising their use of energy. The transition from using fossil fuels to generate electricity, the provision of low-carbon heat and the decarbonisation of transport affect all areas of our energy systems.
AUTOMOTIVE	Customers put their trust in our consulting, design, engineering and niche-manufacturing capability in key segments including: passenger, light and heavy-duty commercial and off-highway vehicles; motorcycles and motorsports.
RAIL AND MASS TRANSIT	We are experts in key technical railway disciplines with the proven skills required to deliver sustainable rail and mass-transit projects. With our various locations across the world, we are able to serve the global rail and mass-transit market.
GENERAL INDUSTRY	With significant focus placed on the transition to decarbonised economies to meet climate change targets, we support organisations in addressing bottlenecks and optimising productivity - advancing organisational maturity and competency in delivering programmes and projects that increase the efficiency and effectiveness of stakeholder engagement.
MARITIME, AEROSPACE AND DEFENCE	Working in partnership with our customers, we support their efforts to decarbonise and innovate through our wide-ranging consulting, design and engineering programmes across the civil and commercial marine, aerospace and defence industries.

OUR RANKINGS AND AWARDS

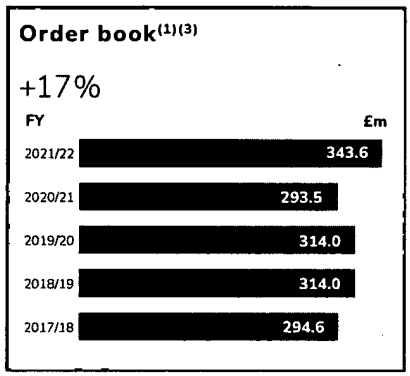
We are proud to be globally recognised for the great work we achieve every day.

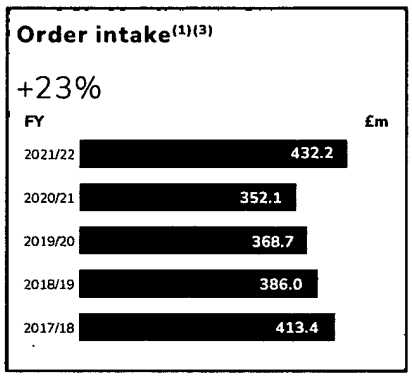
External accolades and recognition provide the testimonials that demonstrate the transformative value we deliver to our customers. We are incredibly proud to be recognised for our work by such notable organisations across the world.

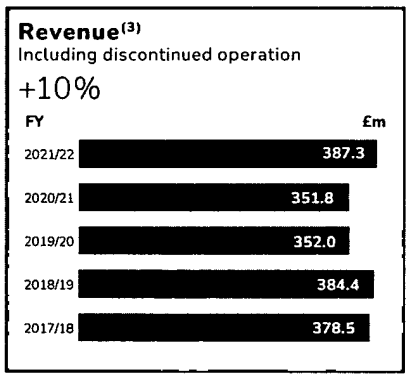
- Forbes America's Best Management Consulting 2021 and 2022
- Bronze award for the *Financial Times* Sustainability Consultancy of the Year 2022
- European Women in Construction and Engineering Awards 2022 – Best Woman Electrical & Mechanical Engineer
- Toyota Motor North America 2022 Annual Supplier Business Meeting - Excellent Supplier Performance Award

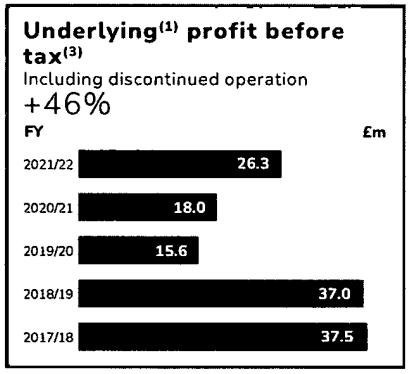
KEY FINANCIAL HIGHLIGHTS

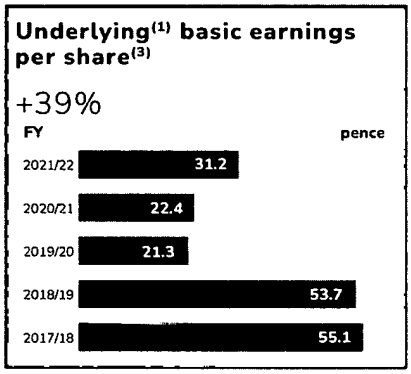
Total including the results of the discontinued operation[3]

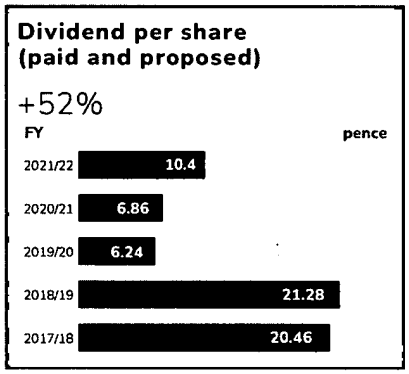


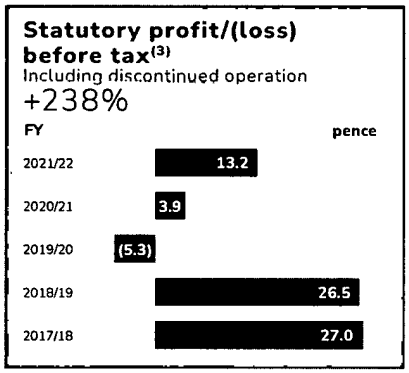


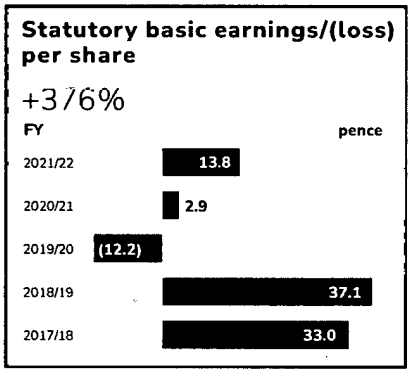


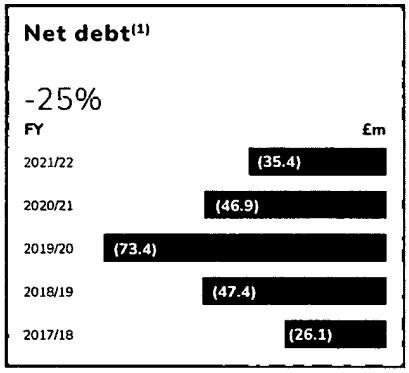


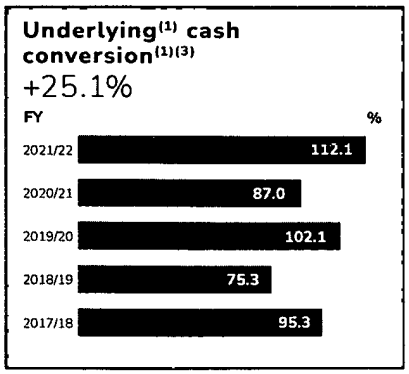


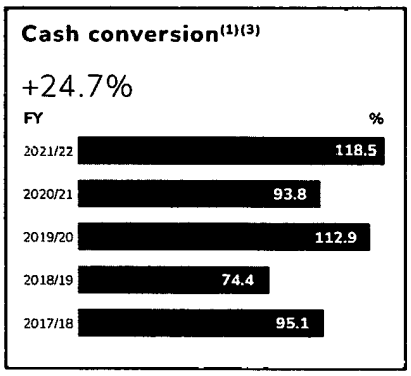


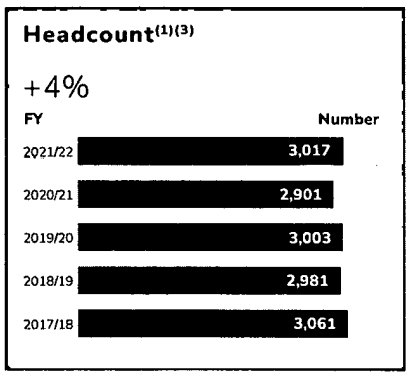












(1) Please see the glossary on page 227 for a definition of the above terms. These alternative performance measures are described further, and where appropriate reconciled to GAAP measures in Note 2 to the Group financial statements.
(2) Comparative Alternative Performance Measures (APMs) prior to FY 2019/20 have not been updated to reflect the adoption of IFRS 16.
(3) Including the results of Ricardo Software, which was classified as a discontinued operation at 30 June 2022.

CHAIR'S STATEMENT

"During the year, Ricardo has demonstrated continuing business momentum and improvement. I am deeply grateful to our colleagues across the Group for their hard work and continued support - this has ensured that we have delivered in the year and will allow us to look forward to the exciting opportunities ahead."

Results

The Board is pleased that Ricardo has achieved a solid financial performance in line with its expectations.

For the year ended 30 June 2022, including the results of Ricardo Software, which was sold on 1 August 2022 and classified as a discontinued operation at 30 June 2022, the Group delivered revenue of £387.3m, together with underlying profit before tax of £26.3m and underlying basic earnings per share of 31.2 pence. On a reported basis, the Group delivered a profit before tax of £13.2m and the basic earnings per share was 13.8 pence.

As ever, we remain committed to paying a dividend to our shareholders. The Board has recommended a final dividend of 7.49 pence per share. This, together with the interim dividend of 2.91 pence per share, which was paid on 8 April 2022, results in a total dividend of 10.40 pence per share for the year.

Strategy

During the year, we have sharpened Ricardo's strategy to focus on becoming a leading environmental and energy transition consultancy over the next five years. Alongside this, we have redefined our vision, purpose and values. Our vision is 'To create a safe and sustainable world'.

Our vision and our renewed values - 'Create together', 'Be innovative', 'Aim high' and 'Be mindful' - reflect how we work together and with our customers.

Further details of our sharpened strategy can be found on pages 16 to 17.

SIR TERRY MORGAN CBE
CHAIR

On 21 March 2022, the Group acquired Australian consultancy Inside Infrastructure Pty Ltd (Inside Infrastructure), which specialises in water and sustainable resource management, further expanding the Group's international environmental consulting capabilities.

In line with the strategy, on 1 August 2022, following the year end, the Group sold its software business.

Our people, culture and diversity

Our talented teams spanning the globe continue to be the backbone to our business. I would particularly like to welcome the employees from Inside Infrastructure to Ricardo and thank them for their contribution to our business. Prominent achievements during the year have included Ricardo's inventory team winning an award for the delivery of the Greenhouse Gas Conversion Factors for Company Reporting by the Office for Statistics Regulation and the Royal Statistical Society. In its fifth annual rating, the Financial Times has again identified Ricardo Energy and Environment as a leader in its listing of the UK's Leading Management Consultants 2022. In the 2021 Adur & Worthing Business Awards the Ricardo team was recognised for its COVID-19 response. In February 2022 Ricardo won two UK Government-backed innovation competitions to support the UK's transition to zero emission vehicles by developing a dedicated electric motor for battery electric light commercial vehicles. Finally Ricardo received an Excellent Supplier Performance Award from Toyota Motor North America.

We are honoured to be recognised for the great work that our teams deliver every day.

As a Board, we understand the importance of building engagement and a good corporate culture. We regularly monitor the company culture and seek opportunities throughout the year to engage with colleagues across the Group. Malin Persson, our workforce engagement sponsor, continues to engage with representative subsets of our employees to seek their feedback and reviews outcomes of our employee surveys to ensure improvement actions progress.

To encourage more diversity across the Group, the Board

continues to focus on improving gender balance within senior management. We have established an active Diversity, Equity and Inclusion (DEI) forum that meets regularly and is committed to building engagement and inclusion across the business.

Sustainability and Environmental, Social and Governance (ESG)

Ricardo continues to make progress on its sustainability commitments to achieving net zero by 2030.

In December 2021, we were delighted to receive the approval of our Science Based Targets (SBTi) confirming our commitment and know-how to support customers to deliver their net zero strategies.

During the year, Malin Persson was appointed as non-executive director for oversight of Ricardo's Sustainability strategy. More details of our Sustainability and ESG strategy can be found at pages 36 to 55.

Group Chief Executive Officer

On 30 September 2021, Dave Shemmans stepped down from his role as Ricardo's Chief Executive Officer. I would like to thank Dave for his contributions over the years and wish him every success in the future.

Graham Ritchie joined the Group on 1 October 2021. Graham has a proven track record in leading large divisions within listed companies and I am excited by Graham's vision for the Group. Since joining, Graham has undertaken an extensive review of the business and implemented cultural and operational changes.

> NEEDLESS TO SAY, OUR EXCEPTIONAL PEOPLE ARE CRUCIAL IN ENSURING THE TIMELY EXECUTION OF THE STRATEGY

The Board

The Board led the refresh of Ricardo's strategy, as set out in the Capital Markets Day event in May 2022. In February 2022, I signalled my intention to step down from the Board. After almost nine years as a non-executive director, including the last eight years as Chair, I will be retiring from the Board at the end of the Annual General Meeting in November 2022. Mark Clare will join the Board of Ricardo plc as a non-executive director and Deputy Chair on 1 November 2022 and it is intended that he will succeed me as Chair with effect from the close of the Annual General Meeting in November. Mark has many years of Board-level experience at the top of UK industry and is currently the non-executive Chair of Grainger plc.

Looking ahead

With over 100 years of science and technology-based innovation, our operating segments share the same DNA characteristics of being purpose-led - being motivated to continuously improve and solve the most complex challenges. With the implementation of Ricardo's sharpened strategy, this purpose-led approach will enable the business realise its ambition.

Needless to say, our exceptional people are crucial in ensuring the timely execution of the strategy. On behalf of the Board, I would like to say a huge thank you to our teams across the globe for their unfailing commitment to the business.

I would also like to take this opportunity to express my thanks to my fellow directors, executive colleagues and to all at Ricardo for what has been a very rewarding nine years with the Group. I am delighted to be handing over to such a well-respected and experienced successor as Mark Clare. He brings a wealth of plc boardroom experience to Ricardo and having worked across a number of different industry sectors is ideally positioned to help Ricardo on the next stage of its journey.

Sir Terry Morgan CBE
Chair

CHIEF EXECUTIVE'S REVIEW

"We continue to see strong business momentum in our priority markets, underpinned by environmental and energy transition trends."
"Ricardo has an exciting future with real opportunity to create even more value for all our stakeholders."

Since joining the company as CEO in October 2021, I have completed detailed reviews of each of our operating segments. Through this process, I have been enormously impressed with the Group's foundation, which is deeply rooted in science and innovation and motivated by purpose. We have good customer and sector diversification and are experts in our chosen fields, solving the most complex problems each and every day.

Against this background, in May, I was delighted to announce our sharpened strategy, which outlined the cultural and operational changes that are required to enable Ricardo to be a leading environmental and energy transition consultancy.

By leveraging our shared DNA, establishing a clear focus on prioritising high-growth and high-margin solutions and by being rigorous and disciplined in our execution, we can shape our future business over the coming years and deliver sustainable and profitable growth, creating value for our shareholders, our colleagues and our customers.

Gaining good momentum

We operate in 27 countries and employ around 3,000 colleagues around the world, providing strategic, environmental and engineering consultancy solutions with in-house niche-volume production capability.

Ricardo is uniquely positioned at the intersection of the mobility, energy and environmental agendas. Where our expertise comes together, we have our greatest differentiator from our competitors as we harness our expertise to adapt and mitigate the impact of climate change.

With good progress being made across each of our five operating segments, FY 2021/22 has been one of continuing business momentum and constant improvement for the Group. Furthermore, this has been achieved despite the uncertainties and challenging economic environments that the world is now experiencing.

Our teams across the group have performed tirelessly throughout FY 2021/22 and I would like to express my gratitude to all our colleagues for their continued dedication and hard work.

GRAHAM RITCHIE
CHIEF EXECUTIVE OFFICER

A robust performance across all operating segments

During FY 2021/22, we have been focused on building stronger positions in our chosen markets. By doing so, we have delivered a solid financial performance that is in line with trading expectations. Overall, we closed the year with good order intake in our priority markets and delivered growth in order intake across all our operating segments.

A key driver for growth in our **Energy and Environment** (EE) operating segment has been its sustainability solutions, covering ESG-related services, net zero and decarbonisation, and its environmental and transport policy work for the European Commission and the UK Government. Over the course of the year, we have consistently secured major contracts with leading businesses in the private sector which are setting out their sustainability strategies. This, combined with further expansion in our government programmes, air-quality consulting and water advisory services, has supported us in delivering a strong performance, with revenue and underlying operating profit continuing to grow in FY 2021/22. During the year EE strengthened its international footprint with the acquisition of Inside Infrastructure, which further enhances the Group's environmental capabilities and strengthens the overall position within Australia.

The **Automotive and Industrial (A&I)** operating segment is gaining momentum, with a strong rebound in order

intake, revenue and profitability in FY 2021/22. A rapid shift to decarbonised and sustainable transport technology along with demand for bridge solutions – which fill the technology gap between internal combustion engines and battery electric vehicles – are supporting increased requirements in our engineering and consulting services. During the year, we have consolidated our regions into one global unit and structured our product portfolio around emerging technologies (focused on software and electrification systems) and established mobility solutions (focused on internal combustion engines and hybrid systems). The mix shift to emerging technologies is expected to bring the most value in terms of high growth, high margin and high returns.

Defense's strong customer partnership with the US Army has supported its robust performance, with revenue growth year-on-year. This was driven by orders of USD 34m (£27)m for Antilock Brake System/Electronic Stability Control (ABS/ESC) retrofit kits, to improve the operational safety of the US Army's High-Mobility Multipurpose Wheeled Vehicle (HMMWV), as well as increased engineering services.

Performance Products (PP) delivered a solid performance with increased order intake, revenue and operating profit compared to the previous year, reflecting the timing of engine orders from McLaren and the recent contract win for the multi-year Porsche 992 Cup transmission programme.

Rail has made significant progress in its market expansion into North American territories. In December, its Certification team became the first organisation to be accredited as a railway independent safety assessor by the Standards Council of Canada, which soon led to securing our first major Canadian rail contract. For FY 2021/22, Rail's order intake increased but due to challenging market conditions, with lower ridership levels, together with several long-term projects nearing completion, its overall revenues declined.

Creating value through our sharpened strategy

We have already started to put our sharpened strategy into action and outlined our clear ambition.

Global megatrends across clean energy and utility infrastructure, environmental services and safe and sustainable mobility connect our current capabilities to our potential. These megatrends underpin our strategy. To achieve our ambition, our efforts are centred on three key areas.

First, we are focused on leveraging our proud heritage and shared DNA across the organisation to ensure that we are united in our vision and purpose. In this way we can deliver value that is greater than the sum of the parts.

We have looked ahead, to redefine our vision, purpose and values for the next generation within Ricardo. We believe in our vision: 'To create a safe and sustainable world'. We do this by enabling our customers to solve the most complex and dynamic challenges. Our values – 'Create together', 'Be innovative', 'Aim high' and 'Be mindful' – are equally true to our rich heritage and shared DNA and reflect how we work with each other and with our customers.

Second, we have a clear focus on prioritising high growth, high margin solutions and low capital intensity solutions, thereby delivering sustainable long-term profitable growth for the Group. Within this framework, our offer will be prioritised around our **environmental and energy transition** portfolio, composing our, Rail and A&I emerging technology businesses, and our **established mobility solutions**, composing our Defense, PP and A&I established mobility businesses. We expect that emerging mobility solutions will accelerate to deliver more than 75% of our profit, as we transform to achieve our ambition over the next five years.

We are looking to deepen our customer relationships by creating repeatable and integrated solutions that demonstrate our capabilities across the value chain

We are looking to deepen our customer relationships by creating repeatable and integrated solutions that demonstrate our capabilities across the value chain – from policy and strategy to the delivery and implementation of customer programmes. What is more, we want to enhance our customers' experience through increased digitalisation and by developing digital offerings that are at the forefront of technological development, thus creating even more value for our customers. A great example of this is our RapidAir® product, a high-resolution air quality modelling tool that allows transport planners and policymakers to understand the contribution of pollution sources to air quality and quickly evaluate the impact of different mitigating scenarios. It is the fastest high-resolution, urban air quality modelling system on the market.

Furthermore, our organic growth strategy is complemented by disciplined mergers and acquisitions, in which we are increasingly focusing our investments in highly attractive environmentally and digitally led areas. Inside Infrastructure is a great example of this and a welcome addition to Ricardo, allowing the Group to accelerate its portfolio transformation by adding new services in our clean energy and resources sector. The Inside Infrastructure acquisition has also allowed us to enter a new market – mining and heavy industry – where we are seeing increased activity in supporting the sector's environmental agendas.

Third, greater attention is being placed on being rigorous and disciplined in our execution. This will be delivered through a shared operating model, which will be the basis of gaining business efficiencies and which will provide central governance, common services and shared best practice across the business units.

Investing in our people

Ricardo's success lies with its people. As a business, we have around 3,000 colleagues working across the globe, delivering complex solutions that are creating a safe and sustainable world. Our people plan is developed around enabling meaningful and fulfilling work for all our colleagues. By doing this, we are able to attract, retain, develop and inspire the very best people around the world. As we accelerate our transformation, our people will remain vital to our success and it is precisely for this reason that they remain our top priority. Over the course of FY 2022/23, we are focused on creating an improved total reward framework as well as building a learning organisation, in which we share knowledge and collaborate and engage across the business.

Sustainability is firmly built into our DNA

At Ricardo, we deliver commercial solutions that support our customers in achieving their sustainable strategies. We are also firmly committed to lead by example on our own ESG commitments and in each aspect – of environmental, social and governance – we are making progress.

To start with our environmental plans, our key focus is on reducing greenhouse gas emissions and delivering Group activities that will support us in our energy transition. In this respect, I was pleased to announce last December the approval of our Science Based Targets under the Science Based Target Initiative (SBTi) – a firm endorsement to our customers of our commitment and know-how in applying those same insights to support them in delivering their net zero strategies.

Our social agenda is focused on our people and the social value we contribute within our communities, customers and the wider supply chain. We now have an active DEI forum that meets monthly and is committed to building engagement and inclusion across the Group.

Sustainability excellence will be achieved through our improved governance, where we have established Board oversight through regular review processes and improved sustainable practices in all our operations – ensuring that all aspects of our business contribute to our net zero journey.

Outlook

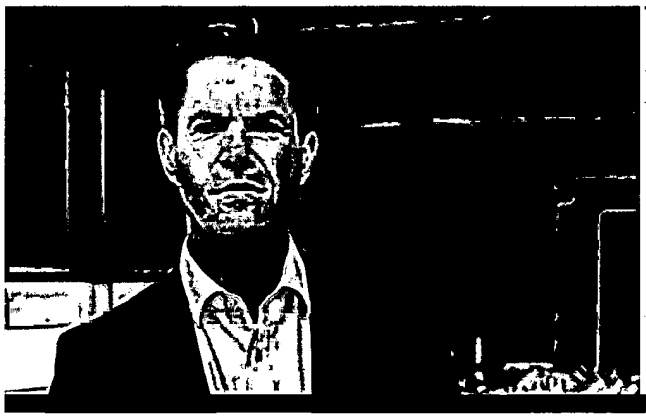
We continue to see strong momentum in our priority markets, underpinned by environmental and energy transition trends. The macroeconomic outlook around the world is challenging. Nevertheless, as we enter FY 2022/23 with a strong order book, a number of high-value contracts and actions already taken to improve our global operating model and cost base in A&I, I am confident that we are well prepared to deliver our expectations despite the uncertainty in the short-term. In addition, we are well positioned to deliver sustainable growth through the shift in our service portfolio, aligned to the megatrends, in the longer term.

Graham Ritchie
Chief Executive Officer

EXECUTIVE COMMITTEE

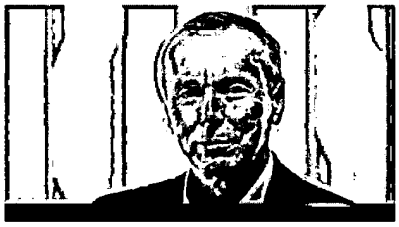
HOW WE WORK

The Group Executive Committee reports to the CEO and consists of the heads of our key operating segments and group support functions. The Group Executive Committee is responsible for delivering our vision and our strategy and ensuring that we execute consistently across the different parts of the business.



Graham Ritchie
Chief Executive Officer

Graham Ritchie joined Ricardo as Chief Executive Officer in October 2021. He was previously Executive Vice President at Intertek, responsible for its operations in Europe, including Russia and Central Asia. Prior to that, he held various senior financial and operational roles in large global corporates. Graham qualified as a Chartered Accountant with PricewaterhouseCoopers.



Ian Gibson
Chief Financial Officer

Ian joined Ricardo on 13 May 2013 and was appointed Chief Financial Officer with effect from 1 July 2013. Ian is a chartered accountant, previously with Deloitte, and is a member of the Institute of Chartered Accountants in England and Wales.

Mike Bell
Chief Strategy & Digital Officer

Mike joined Ricardo in 2019 and was appointed Chief Strategy and Digital Officer in April 2022. Mike brings over 25 years' consulting, product, corporate strategy and transformation experience to the Group Executive Committee.

Iain Carmichael
Managing Director Rail

Iain joined Ricardo in 2002 and was appointed Managing Director for the Rail operating segment in May 2022. Iain is a qualified engineer and has over 25 years' experience in rail and safety assurance. Prior to joining Ricardo, Iain was responsible for leading Lloyds Register's Asia Rail business, headquartered in Hong Kong.

EXECUTIVE COMMITTEE

Tim Curtis
Managing Director Energy & Environment

Tim joined Ricardo as Director of Energy Consultancy then became Operations Director prior to his appointment as Managing Director for the Energy and Environment operating segment. Tim has led Ricardo's Energy and Environment business through a period of rapid growth and has integrated a number of operations into its global operation.

Chet Gryczan
Managing Director Defense

Chet joined Ricardo in 2011 and was appointed President, Ricardo Defense in 2016. Chet is a highly experienced management professional with over 25 years of experience in the defence and automotive sectors at both private and publicly listed companies.

Chris Hopper
Managing Director Software

Chris joined Ricardo in 2010 and was appointed Managing Director for Software in 2021. Chris leaves the Group following the disposal of Ricardo Software on 1 August 2022.

Marques McCammon
Managing Director Global Automotive and Industrial

Marques joined Ricardo in 2019 and was appointed as Global Managing Director for Automotive and Industrial in 2021. Marques brings 27 years of experience in product development, R&D, sales and marketing, and executive management in the mobility sector with OEMs and high-tech companies.

Mary Moore
Group People, Team and Organisation Director

Mary was appointed in 2021 to lead the people-experience strategy to create a purpose-led organisation capable of delivering our strategy and vision. Mary is an experienced HR practitioner, with a background in FMCG and consumer-facing businesses with global remits.

Natasha Perfect
Group Marketing & Communications Director

Natasha was appointed as Group Director of Communications and Marketing in 2021. Before joining Ricardo, Natasha spent over 15 years working for large corporates, acting as a trusted strategic adviser in corporate, investor and marketing communications.

Patricia Ryan
Group General Counsel and Company Secretary

Patricia joined Ricardo in 2002 and was appointed Group General Counsel in 2005 and Company Secretary in 2008. Patricia is responsible for legal support worldwide and provides company secretary support to the plc Board. Patricia holds an honours degree in law from the University of Westminster.

Martin Starkey
Managing Director Performance Products

Martin joined Ricardo in 2015 and was appointed Managing Director for Performance Products in 2019. Martin is a materials engineer by education and has over 25 years' experience delivering complex, engineering-led manufacturing projects in the automotive, aerospace, defence and motorsports markets.

Clive Wotton
Group Director, Sustainability, Quality and Risk

Clive joined Ricardo in 1985 and was appointed as Group Director, Sustainability, Quality and Risk in April 2022. Clive has held numerous roles within the business with a wealth of experience in engineering, product delivery, systems implementation and programme management.

OUR BUSINESS MODEL

ALIGNED APPROACH

We create value for our all our stakeholders by being focused on delivering profitable and sustainable growth, being disciplined in our execution and driving a performance culture.

We do this by actively prioritising high growth, high margin, low capital intensity solutions to ensure that we deliver sustainable and profitable growth. We are disciplined in our execution through our shared operating model, ensuring that we apply best practice and deliver improved efficiencies and consistent performance across the Group. Digital is increasingly central to how we deliver across our businesses and we maximise our digital technologies to improve customer experience, operational excellence and deliver new digital offerings that create long-term value for our customers.

Everything we do is underpinned by our deep heritage and strong DNA that, combined with our vision and values, actively guide our behaviours and are reflected in how we work together internally and how we treat our customers. These are more than just words to us. Putting our values into action is what binds us together and makes Ricardo not only a great place to work but a company with which our customers want to do business.

OUR VALUES

Ricardo's shared values actively guide our behaviours and reflect how we work together.

CREATE TOGETHER

We achieve success for our business and for our customers by collaborating, connecting and always learning.

- Be collaborative
- Embrace diverse teams
- Share knowledge

BE INNOVATIVE

We seek to foster debate, embrace possibilities and nurture the new ideas that will enable our customers to solve complex challenges.

- Be customer focused
- Act on evidence
- Push boundaries

AIM HIGH

We are rigorous and tenacious in our passion to find outcomes that best meet the long-term needs of our customers.

- Plan for success
- Be pioneers of change
- Act with agility

BE MINDFUL

We pride ourselves on our integrity and commitment to care – for each other, our customers, our communities and the environment.

- Be respectful
- Show that we care
- Take ownership

RICARDO'S BUSINESS MODEL

OUR CAPABILITIES

We deliver engineering consulting services and solutions from the policy, strategy and initial concept phase right up to the delivery of customer programmes.

Our diversified business model solves common challenges of clean decarbonised mobility, intersecting with energy needs and environmental impact, through each step of the value chain.

1 Qualifying and evaluating the most pressing energy and environmental challenges

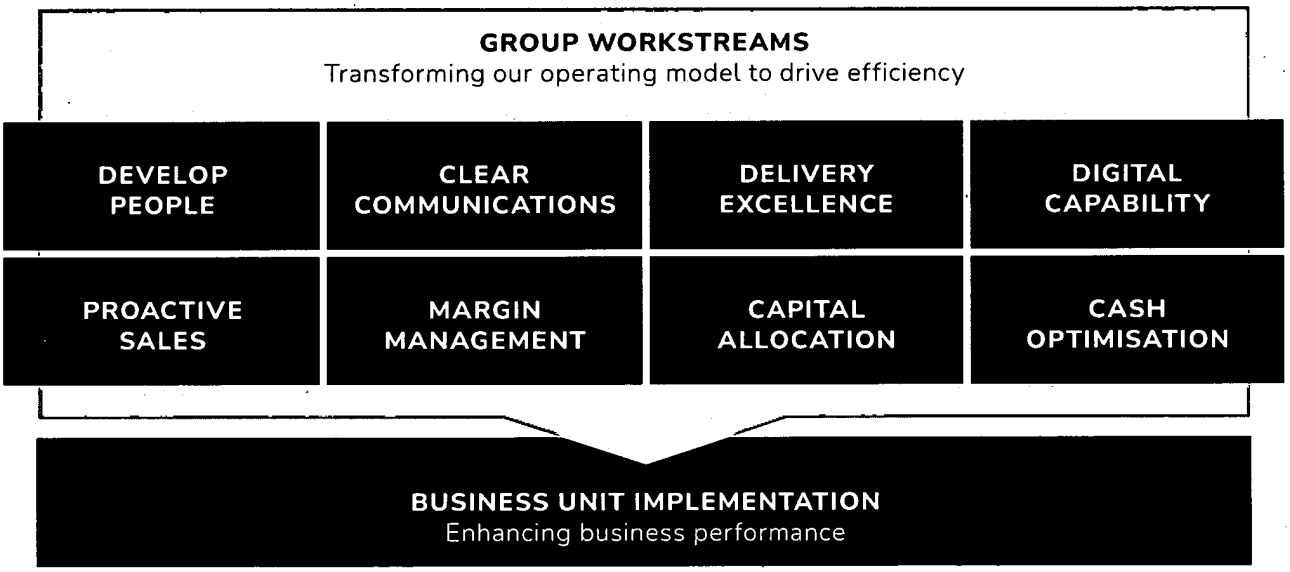
2 Addressing the challenges and supporting the potential options for action

3 Supporting implementation of technological and operational solutions across the value chain

OUR OPERATING MODEL

Our shared operating model supports us in applying standard ways of work across the business.

We drive operational efficiencies and consistent performance through our eight workstreams to create continuous improvement and value in the way we execute our activities.



OUR STRATEGY

ALIGNED TO KEY LONG-TERM MEGATRENDS

Our strategy is driven by our purpose and underpinned by the global megatrends that help inform how we maximise impact.

Ricardo is uniquely positioned at the intersection of the mobility, energy and environmental agendas. This is our greatest differentiator from our competitors, as we harness our expertise to adapt and mitigate the impact of climate change.

Monitoring the megatrends that are affecting our stakeholders underpins our growth strategy. Our operating segments are all aligned to key long-term megatrends, which form the basis of our five-year strategic direction.

ENVIRONMENTAL SERVICES

The climate crisis continues to drive additional opportunities in the areas of evidence, policy and sustainability. Ricardo is well positioned to create value through its strong presence in all aspects of the environmental consultancy market, but we are seeing the fastest growth in our environmental, social and governance (ESG) and sustainability solutions. Sustainability is firmly built into our DNA and our customers choose us because we are leading by example, from the solutions we deliver to the actions we take in our own ESG commitments.

ENERGY TRANSITION SERVICES

Energy transition requires high-calibre skills to decarbonise energy systems and assets while increasing resilience. Ricardo is uniquely placed to support our customers in developing a pathway from fossil-based energy generation to a low-carbon future. We also serve the water sector, in which we are globally recognised for our expertise in planning and overseeing complex and sensitive water and environmental projects to solve water scarcity – a growing challenge globally, exacerbated by climate change and urbanisation.

SUSTAINABLE AND SAFE MOBILITY

Zero-emission propulsion is driving transformational change in all forms of transport. We are well positioned to support the rail sector in delivering safe and sustainable solutions through our focus on systems engineering, operations, maintenance and assurance. Our differentiation in independent assurance comes from our breadth of expertise and international coverage, together with our digital compliance platforms that allow assessors to collaborate. Across the transportation and mobility sectors, we offer technological expertise in engineering services around electrification and software – one of our key differentiators is we can help original equipment manufacturers (OEMs) bridge the transition from internal combustion engines to technologies with zero tailpipe emissions.

CREATING VALUE THROUGH FOCUSED PRIORITIES

Our strategy is focused on three key priorities: creating value through portfolio prioritisation, market expansion, and M&A acceleration.

Portfolio prioritisation

We are prioritising our portfolio to support closely the megatrends relating to sustainable and safe mobility, energy transition, rapid urbanisation and corporate decarbonisation. We are shifting from services to solutions, optimising our service mix by creating repeatable solutions with increased digitalisation.

Market expansion

We drive competitive advantage by expanding our global scale and reach in our chosen market positions while leveraging our customer relationships and creating a deeper customer intimacy to offer solutions that truly meet their needs.

Mergers & Acquisitions (M&A) acceleration

We create value through complementary M&A, in which we are increasingly focusing our investments in highly attractive environmentally and digitally led areas. This approach allows us to reposition ourselves for long-term growth, where we can build leading positions in the markets in which we operate.

FOCUSED OBJECTIVES TO DELIVER GROWTH

We deliver our strategy through clear objectives aligned across the operating segments to deliver profitable and sustainable growth.

1 **Enabling meaningful and fulfilling work**
By being purpose-led and enabling meaningful and fulfilling work, Ricardo is able to attract and retain the very best talent.

2 **Being a trusted partner to our customers**
Exploring opportunities to ensure that we are closer to our customers' needs, driving customer engagement and creating value through our expertise and capabilities.

3 **Achieving high growth in our chosen markets**
Increasing the market-share growth of our operating segments in our chosen markets through effective portfolio prioritisation, innovation and increased digitalisation that is focused on improving customer experience and developing new digital offerings.

4 **Delivering operational excellence and efficiency**
We continue to deliver operational rigour – improving our operational processes and efficiencies to ensure that our customers' expectations are consistently met.

5 **Optimising cash to invest for growth**
We actively optimise cash conversion and return on capital employed that enables progressive dividends and further investment for future profitable growth.

CASE STUDY

CORPORATE DECARBONISATION

A TRUSTED PARTNER TO OUR CUSTOMERS THROUGHOUT THEIR SUSTAINABILITY JOURNEY

CASE STUDY

Ricardo is working with the Institute of the Motor Industry (IMI) as a strategic sustainability partner. This includes helping the organisation understand how climate change may impact its operations and markets and how to lessen its impact on the environment by reducing energy demand, water use, pollution and waste across its manufacturing sites globally.

Through Ricardo's support around relevant environmental, social and governance (ESG) and sustainability issues and reporting, IMI now has a clear roadmap to net zero with targets for emissions from its own operations (Scope 1 and 2). A more detailed assessment of emissions along its upstream and downstream supply chain is taking place to inform the setting of Scope 3 targets.

Ricardo is also continuing analysis of climate risks and opportunities. Using the Task Force on Climate-Related Financial Disclosures (TCFD) framework, Ricardo is assessing IMI's product portfolios to evaluate sustainability at different stages of the product lifecycle (materials and design, production and consumer use), helping the organisation to reduce emissions along the supply chain through use of its products.

KEY PERFORMANCE INDICATORS

We use a range of performance metrics to provide a consistent measure of our underlying performance. These are regularly monitored by the Board to ensure that our performance indicators are aligned with our strategic priorities.

1. ENABLING MEANINGFUL AND FULFILLING WORK

Key performance indicators	Comments	Principal risk
Employee and knowledge retention Voluntary employee turnover % per annum 2021/22 16 2020/21 11 2019/20 11	The level of voluntary attrition has increased as the labour market recovers and colleagues consider post-COVID-19 career choices. There is strong competition around the world for our experienced consultants, engineers and scientists. Further details of our approach to our people are given on pages 27 to 33.	People COVID-19

2. BEING A TRUSTED PARTNER TO OUR CUSTOMERS

Key performance indicators	Comments	Principal risk
Diversified end markets Number of segments exceeding 10% of revenue 2021/22 5 2020/21 5 2019/20 4	All five of our operating segments exceeded 10% of revenue, demonstrating that the Group is well diversified across all segments. Performance by segment is discussed on pages 73 to 89.	Customers and markets Climate change Technology Supply chain
Customer dependency Number of customers exceeding 5% of revenue 2021/22 2 2020/21 3 2019/20 1	Only two customers accounted for more than 5% of the Group's revenue in FY 2021/22. Revenue for the largest customer was 11% and the other customer was 6%. While we retain a small number of key relationships, we continue to have a diverse customer base across segments and geographies.	Customers and markets Supply chain COVID-19

3. ACHIEVING HIGH GROWTH IN OUR CHOSEN MARKETS

Key performance indicators	Comments	Principal risk
Order book £m 2021/22 343.6 2020/21 293.5 2019/20 314.0	We closed the year with a total order book of £343.6m, 17% above the prior year. The order book from continuing operations was £340.0m. The Group's order intake including the discontinued operation, increased by 23% to £432.2m in the year (order intake from continuing operations increased by 24% to £425.3m). Order intake increased across all continuing operating segments. Further details of the performance of each of the segments are provided on pages 73 to 89.	Customers and markets COVID-19 Climate change

Revenue Including discontinued operation £m 2021/22 387.3 2020/21 351.8 2019/20 352.0	Total revenue, including the discontinued operation, increased by 10% year-on-year. Revenue from continuing operations was £380.2m, an 11% increase on the prior year. A&I, EE, Defense and PP delivered increased revenues compared to the prior year. Rail revenue reduced. Further details are provided in the Financial Review on pages 66 to 72 and in the Operating Segments Review on pages 73 to 89.	Contracts Customers and markets COVID-19

4. DELIVERING OPERATIONAL EXCELLENCE AND EFFICIENCY

Key performance indicators	Comments	Principal risk
Underlying operating profit margin Including discontinued operation % 2021/22 7.8 2020/21 6.5 2019/20 5.7	The Group's underlying operating profit margin was 7.8% in FY 2021/22, or 7.4% excluding the results of the discontinued operation. The increase compared to FY 2020/21 reflects improved profitability in A&I. Margins in PP and Rail have been stable year-on-year. Margins in Defense and EE reduced due to higher supplier costs and additional operating expenses to deliver revenue growth, respectively. Further details are described in the Financial Review described on pages 66 to 72.	Contracts Customers and markets Supply chain COVID-19
Environment tCO_2e per employee for Scope 1[1] and Scope 2[1] emissions 2021/22 2.2 2020/21 2.1 2019/20 3.1	Scope 1 emissions vary year on year because of the mix of project work. Our Scope 2 emissions are reducing overall as a result of the sale of the Detroit test business at the end of FY 2019/20 and also due to lower office occupancy resulting from COVID-19 enforced home-based working which continued at a reduced level in FY 2021/22. Further details of our carbon footprint and progress towards net zero are described in our ESG section on pages 36 to 55.	Climate change Laws and regulations

5. INVESTING FOR GROWTH

Key performance indicators	Comments	Principal risk
Research and development spend £m 2021/22 13.3 2020/21 10.2 2019/20 12.5	R&D spend was higher in the current year as the Group undertook a number of grant funded R&D programmes focused on the development of new tools and technologies in the emerging technologies space. Further details of our R&D projects are given on pages 22 to 26.	Technology Customers and markets Climate change
Net debt £m 2021/22 (35.4) 2020/21 (46.9) 2019/20 (73.4)	The Group reduced its net debt by £11.5m, driven by increased profitability and a strong working capital performance. Excluding acquisition-related and reorganisation costs, the Group generated over £25m of cash in the year. Contributions of £3.0m were paid into the defined benefit pension scheme.	Contracts Financing Defined benefit pension scheme

INNOVATION

"Our innovation and research and development activities are aligned to the megatrends of climate change, energy transition and sustainable and safe mobility. We continue to bring innovation to our customers with a focus on: zero tailpipe emissions and safety in mobility; transport energy systems; and digital solutions leveraging data science. We are increasingly bringing together teams across Ricardo to collaborate and solve complex challenges to create a safe and sustainable world."

Our investment in research and development (R&D) coupled with our innovation projects allow us to differentiate from our competition and deliver unique value propositions for our customers. We are increasingly leveraging digital technologies to develop solutions. Data science, including machine learning, is a key enabler for many of our innovations. A number of our R&D projects are supported by UK Government funding (UK Research Innovate, UK Department of Transport).

The transition to zero-emissions mobility means we need to consider the infrastructure and power requirements to meet the demand as we migrate from fossil fuels.

Energy transition: intelligent decision support for electrification fleet charging

Ricardo's BusChaRM tool is a unique, charger route model that allows bus operators, technology suppliers and transport planners simultaneously to assess zero-emissions vehicle and infrastructure requirements across all technologies, reliably evaluating cost-effective deployment of opportunity charging across a bus network. It provides an intelligent decision support tool to assess the infrastructure needs for any zero-emission bus technology, through analysis of relevant bus route and operational data. The results, which can be repeated and reconfigured for different scenarios, can help bus companies to identify the best technology for their operations, suited to existing infrastructure and vehicle type(s). In parallel, the model also allows decision makers to test the expected carbon dioxide reductions for every investment option, balancing environmental and financial considerations. Regardless of the technology specified, BusChaRM can identify the lowest cost option for optimal operation. For instance, it can indicate the ideal combination of battery size (relevant to bus type) and chargepoint locations that will result in the lowest total operational cost for the network. The capability of BusChaRM to determine the optimal cost-effective solution according to route topography and vehicle type makes it unique within the transport sector.

MIKE BELL
CHIEF STRATEGY & DIGITAL OFFICER

Energy transition: airport power consumption planning

As aircraft make the transition to zero-emission fuels, it is crucial for airport infrastructure to keep pace with the changing demands of hydrogen-powered and battery electric aircraft. Airports have a unique and complex electrical architecture comprising a multitude of complex subsystems, making it difficult to know how to plan upgrades for charging infrastructure.

Ricardo has been developing tools to help manage this transition by providing a better understanding of the relationship between flights and electricity use in airports. We have installed specialist electrical monitoring equipment throughout a sample of UK airports in order to capture electrical usage data, which was then analysed by our sustainability and data science teams. The

The transition to a zero-emission mobility future is continuing at pace. We have R&D projects focusing on both electrification as well as hydrogen within both a fuel cell and an engine.

changing electrical demands were related to data on flight arrivals/departures to show how power consumption varies in different parts of the airport throughout the day. This will help decision makers plan for changes in airport design as we transition towards zero-emission air travel.

Along with mobility, heating is one the largest sources of greenhouse gas emissions. We have worked on a unique design for a combined heat and power system.

Energy transition: community-scale combined heat and power

Ricardo and Bluebox Energy developed a successful concept design for a community-scale greenhouse gas removal system, BIOCCUS (BIOchar cogeneration with Carbon Capture, Utilisation and Storage), funded by the UK Department for Business, Energy & Industrial Strategy.

The technology works by taking sustainably sourced waste wood from domestic timber production and then processing it in three ways: producing biochar (a product similar to charcoal); generating heat and power; and capturing, using and storing carbon dioxide from the exhaust. The technology captures up to 90% of the carbon dioxide in the wood. It also produces commercially marketable carbon products: the biochar can be used by farmers to enrich soil and add to animal feed to reduce ruminant emissions; and the industrial-grade carbon dioxide can either be used in low-carbon concrete or in the food and drinks industry to replace carbon dioxide derived from fertiliser production which relies on natural gas. A full-size system will remove 16,000 tonnes of carbon dioxide per year from the atmosphere.

We believe this technology can help with energy security and support rural industries as they transition from fossil fuels to clean energy solutions. The next phase will be to design, install and operate an innovative negative carbon combined heat and power demonstrator plant in the UK.

Safe mobility: ultrasonic sensing of cracks in rail tracks

Safety is a key part of our vision and, for the rail sector, a critical foundation. As we develop greater capability in the operations and maintenance sector, this innovation is a key differentiator.

Cracks in rail tracks are a critical challenge for railway operations. As the running surface hardens from the repeated passage of traffic, cracks will always begin to form. It is imperative that they are quickly detected and repaired before they cause the track to become unsafe and result in significant disruption and costly repair work.

Current detection methods typically require dedicated inspection wagons that use ultrasonic bulk-wave sensing, an

> WE BELIEVE THIS TECHNOLOGY CAN HELP WITH ENERGY SECURITY AND SUPPORT RURAL INDUSTRIES

approach that is infrequent and has limited ability to measure the depth of the crack. Train-based Rapid Ultrasonic Scanning of Track (TRUST) was developed in conjunction with Sonemat, a spin-out from the University of Warwick. The system requires no direct physical contact with the railhead, which means it can be carried by regular in-service traffic. Working with development partners and Innovate UK, the technology was successfully trialled on the Severn Valley Railway.

Though the technology is globally applicable, it could prove particularly beneficial for networks with sparsely populated regions that are expensive to monitor via measurements trains, such as the USA, Canada and Australia.

CASE STUDY

RAPIDAIR® – AIR-QUALITY MODELLING

The United Nations has identified air pollution as the most important environmental health risk responsible for one in nine deaths globally.

RapidAir® is a high-resolution air quality modelling tool that allows transport planners and policy makers to understand the contribution of pollution sources on air quality. It is the fastest, high resolution, urban air quality modelling system on the market.

Our customers – who include air quality specialists, policy makers and transport planners – can quickly evaluate the impact of different mitigation scenarios, generating reliable outputs in which they can have confidence. This allows them to make informed and trusted policy decisions that will reduce traffic emissions, improving the air we breathe and, as a result, improving public health.

RapidAir® was integral to our support for the City of Bradford Metropolitan District Council in the development of a package of mitigation measures that secured £43 million in UK Government funding and then delivering them as part of its Clean Air Zone commitment.

The service is scalable to cover any geography or location and can therefore become a key differentiator in our solutions for rapid urbanisation.

Zero-emission mobility: high voltage electric drive unit for heavy duty applications

The High Voltage for E-Powertrain for Heavy Duty freight (HiVe4HD) project, an InnovateUK-funded collaboration between Ricardo and the University of Bath, showed the potential benefits of increasing powertrain voltage to 1.5 kilovolts (kV) for on-highway heavy duty applications. The digital project developed cloud-based simulation and analysis tools to generate and assess optimised electric drive unit configurations, based on an internal database of nearly 1,000 800 volt (V) and 1.5 kV electric motor designs to evaluate the potential commercial benefits. A 10% component cost reduction was shown to be possible by increasing the voltage from 800 V to 1.5 kV, and wider efficiency benefits were identified through the analysis of vehicle-level design characteristics.

Zero-emission mobility: UK niche battery

feasibility study

Ricardo worked in collaboration with the UK Government's Automotive Transformation Fund to deliver a clear assessment of the UK's readiness to deliver niche volume traction batteries to its domestic original equipment manufacturers. Utilising Performance Products' unique knowledge of both low-volume supply chains and niche volume assembly for high-performance applications, we undertook a six month study to review market demand, product design, supply chain readiness, assembly processes and facility layouts. The outputs from the study highlighted the rapidly growing demand the UK is projecting, challenges in the short to medium term around domestic cell supply and the overall viable business case for niche manufacturing in this sector.

Ricardo assessed the commercial viability of a facility to assemble battery packs for manufacturers which produce fewer than 10,000 electrified vehicles per year.

Zero-emission mobility: hydrogen fuel cell bus repower

In collaboration with Stagecoach, a leading UK public transport company, and with part-funding from the UK's Tees Valley Hydrogen Transport Hub Competition, Ricardo has repowered a diesel bus with a bespoke hydrogen fuel cell propulsion system. Developed in only nine months, Ricardo's modular design enables transferability between different bus models. Ricardo's digital tools were used to determine the best balance of battery and fuel cell requirements, achieving the optimum relationship between performance and total cost of ownership. Ricardo's Vehicle Integrated Controls and Simulation software provides vehicle and propulsion system control, including the complex thermal solution with five separate cooling

Ricardo, in partnership with Stagecoach North East, repowered a diesel, double decker bus with a hydrogen fuel cell propulsion system, to deliver zero tailpipe emissions. We are now seeking to secure customers to invest in the production of a fleet of passenger vehicles.

loops to maximise efficiency.

At around half the price of a new fuel cell bus, repowering offers a novel approach to deliver zero tailpipe emissions while extending the asset life of existing buses more affordably. Supporting the circular economy, repowering avoids unnecessary landfill waste plus an additional 45 tonnes of carbon dioxide incurred through manufacture of a new bus. By nearly halving the upfront investment, repowering can increase the penetration of hydrogen fuel cell bus fleets; boost hydrogen demand; justify infrastructure investment and drive down hydrogen costs and, of course, improve air quality across our cities.

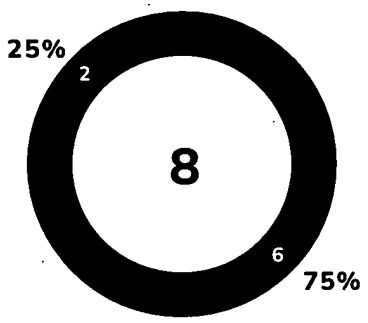
Zero-emission mobility: hydrogen-fuelled engines

There has been a surge in industry interest and investment in zero tailpipe emission hydrogen-fuelled engines for 'hard to decarbonise' applications where battery electrification and fuel cells do not meet product attributes. These are typically high energy consumers, operating in challenging environments such as off-highway, marine and rail, as well as in heavy long-haul transport and power generation.

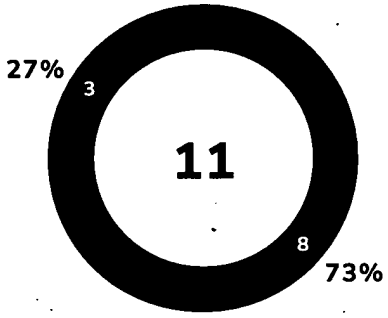
We are testing a Ricardo-designed direct injection hydrogen engine for trucks, off-highway and marine with the University of Brighton. We are researching deep into the detail of hydrogen combustion and its emissions (non-CO_2), efficiency and performance potential. We have developed a full multi-cylinder hydrogen engine based on an existing 13 litre natural gas engine as part of HIMET - Hydrogen Integration in a Maritime Energy Transition, a Department for Transport grant-supported Clean Maritime Demonstration Competition project. This engine is installed on the hydrogen engine test facility at Shoreham-by-Sea, generating full-system data for new simulation tools for further engine development. Validation of Ricardo Software simulation tools against this data is ongoing, including fundamental combustion modelling in VECTIS, thermodynamic analysis in WAVE and other critical analyses such as thermal-structural.

OUR PEOPLE

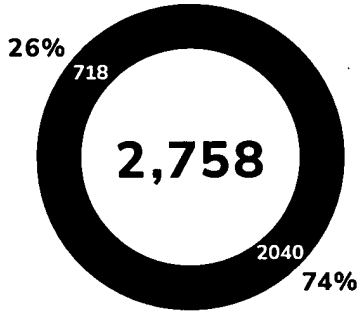
Board members[1]



Senior leadership[2]



All employees[3][4]



Male Female

(1) Excludes Company Secretary.

(2) Executive committee, including company secretary and excluding board members.

(3) Excludes contractors

(4) <1% Prefer not to say

Enabling meaningful and fulfilling work

Our differentiation is powered by our people who have a strong sense of purpose and pride in doing good work for our customers. We are small enough to give breadth of experience and the ability to be involved in the whole task but big enough to give global experiences. We actively value diversity to promote innovation and build connections with customers, suppliers and community.

Our people use their expertise in science and engineering to create practical, difference-making solutions. We work with leading experts in our fields of business, learn from them and with them and, above all, are able to perform meaningful and fulfilling work.

Our purpose has an obvious

OUR PEOPLE

CHENAI MADZORERA

POWER PLANNING & SOLUTIONS CONSULTANT, RICARDO SOUTH AFRICA

I'm originally from Zimbabwe and moved to South Africa to study electrical engineering at the University of Pretoria, focusing on energy efficiency and demand side management. In my postgraduate year I undertook research into the renewable energy management of smart buildings then began my career as an energy auditing and efficiency engineer. I've since gained more practical and theoretical experience in power systems and joined Ricardo as a consultant in June 2022.

My skills are in power system engineering studies and design, and developing sustainable energy initiatives including strategic energy sector plans for local municipalities. I like the fact that my work blends the theoretical and practical. I'm bringing ideas to life that will ultimately make a better world for us all to live in, particularly in terms of solutions that address the climate crisis. I hope to develop my advisory skills to complement my technical background – in this way I can make an impact and effect change more quickly.

I've received constant support and encouragement since joining Ricardo – the work I'm doing is different to my most recent experience but people interact very positively and take time to help. I also enjoy working in a company with women in leadership positions. I find this very motivating and a big plus for the future of our industry. One female leader I particularly admire is also technically strong. This is the combination of skills that inspires me as my own career develops.

line of sight to sustainability and the connection to a higher social purpose. This is increasingly appealing to talent who may be considering a move to build their experience by working with us.

The last year has seen us cope with adjusting to work and life with a COVID-19 backdrop. We have had to shift our management style and philosophy to an outcomes-based performance approach; we have adapted to this well and continue to learn from our experiences. We have set a principle that it's the work that determines how and from where we operate. This means that some of our people can continue with on-site working; for some, it's at customer sites; and for others, it can be in a hybrid fashion.

We are still learning what creates the conditions for our people to be at their best. What we know makes the biggest difference to our people are the following:

- Having a purpose to our everyday
- Working on interesting programmes that grow personal currency inside Ricardo and employability outside the business
- Relationships, friendships and connections at work that help people feel they belong
- Real empowerment and accountability so that our people are clear about what their team colleagues rely on them for.

Our people and organisation strategy is about creating a future-fit, purpose-led organisation capable of delivering our strategy and vision, with meaningful and career enhancing individual experiences. This year we have refreshed our three-year people strategy with four anchor components:

- Alignment – unified to our business plan
- Engagement – our people are connected and actively co-designing our future

Our London team members are renowned for the strength of their friendships and connections at work which are developed through regular social events throughout the year.

- Capable – we have the skills and experience we need today and to deliver for tomorrow
- Effective – our operating model helps us in the achievement of our business strategy

Creating one Ricardo DNA – our visions and values

Since the arrival of our new CEO, Graham Ritchie, our people agenda has been focused on achieving greater alignment in the organisation; having a clear and unified vision and mission; and bringing our plans for the future alive to become a leading strategy and engineering consultancy for environmental and energy transition solutions.

We have made a few refinements to our operating model, to bring more focus and strength to how we work.

First, we have made some investments in our executive leadership team: the Group Marketing and Communications Director is now a direct report to the CEO and the Strategy Director has an expanded remit to include digital solutions. We have brought all of our organisation in Automotive and Industrial together as one from the previous three geographical units and are now aligning it to support the emerging and established mobility markets.

We have appointed Clive Wotton as Director of Sustainability, Quality and Risk to lead sustainability across the Group. Clive has more than 25 years of operational experience at Ricardo and is therefore well placed to embed sustainability in our operations. To bring further strength to our own sustainability activity, we have appointed Caroline Haycock as a dedicated Group Head of Sustainability. We are pleased to report that in addition to Malin Persson being our non-executive sponsor of workforce engagement, she is also Board sponsor for our Sustainability Plan. These appointments enforce our commitment to our sustainability

OUR PEOPLE

ADRIAN SCHAFFER

PRESIDENT, EMERGING MOBILITY, AUTOMOTIVE AND INDUSTRIAL BUSINESS UNIT

I joined Ricardo in summer 2021 after 30 years of marketing and business development experience within the automotive sector, originally in north America and now worldwide. My career spans conventional powertrain and manufacturing to connectivity and electrification. As President, Emerging Mobility, within the Automotive and Industrial operating segment my role is to translate Ricardo's global expertise into the execution and sales of clean mobility solutions.

Joining Ricardo felt like the culmination of everything I have done throughout my career. My background and context fit right in with what we're doing today and where the industry needs to go. Great technology and insights, which Ricardo have in abundance, should sell themselves. Having strong relationships across the industry will enhance the solutions we bring to the table for our own business and for our customers.

Having earned a BA in Economics while on a basketball scholarship, I later completed my Executive MBA at Michigan State University when working for Motorola. Mine was not a typical collegiate career, but one where I amassed a broad range of experience and knowledge – from the intricacies of automotive software and electronics to real-world application of new technologies and the financial impact on a business and the industry. This sector demands on-schedule, expert execution where the timing and delivery of one programme can have a critical impact on the success of another.

I spend a lot of time understanding how products are designed, built and integrated so I can most effectively communicate their value. I also listen to the engineers themselves because their understanding of the market and emerging technologies adds enormously rich context and detail.

Having such all-star expertise behind me is one of the reasons why coming to Ricardo made so much sense. I'm thrilled to be leading our teams in an area that's important not only for our company but for the world we all live in.

OUR PEOPLE

KYNAN SERNÉ

MANUFACTURING APPRENTICE, RICARDO PERFORMANCE PRODUCTS

I came to the Shoreham Technical Centre for work experience when I was 14, organised through my school. Before this, my perspective on engineering was vague. However, by the end of the week I was sure this was the direction I wanted to take. I was inspired to return over a school holiday and then express my interest in an apprenticeship.

My dad has always been into cars and as a child I spent lots of time in the garage with him, learning the skills passed down from generations before me. At the time I didn't know what engineering was – it seemed daunting as school taught me it was about design and development. Now I know it's about solving problems and influencing the real world. The purely academic route didn't interest me as I wanted hands-on experience in a working environment, so an apprenticeship has been the perfect balance.

I work for four days at Ricardo and spend one at college. Ultimately this will lead to a Higher National Diploma in Advanced Mechanical Engineering/Production Engineering and then, in three years' time, to a degree. At college I was given a year to develop a project to showcase my mechanical engineering skills. I decided to convert a Honda GX200 engine from a carburettor to electronic fuel injection. Going through three prototypes and two iterations of the finished design made me realise how much back-and-forth is involved in any project to reach a solution that satisfies all criteria.

I was thrilled to be named Apprentice of The Year by the Ricardo Performance Products Board of Directors, based on positive feedback from one of our major clients. I'm trusted to represent the company well in external meetings and proud to do so because I know how much Ricardo continues to invest in me.

strategy and ESG performance with further focus on our future, internally and externally with all our stakeholders.

Second, we have established a community of senior leaders across the organisation to encourage greater collaboration between the Ricardo operating segments. This group comes together monthly to update on business delivery, learning and sharing best practice.

Third, we have set up eight teams aligned to our strategic objectives with the specific purpose of accelerating the design, development and execution of work packages in support of our strategy. The teams will seek to achieve more consistency, efficiency and collaboration across our operating segments where there is added value to be gained. The teams are adopting agile working methods to identify quick wins and make tangible improvements in how we operate in short periods of time.

We are integrating our communication activity and now have a monthly newsletter as well as a personalised message from our CEO to all our people once a month.

Over the last 18 months or so, our organisation shape has been changing. Our overall headcount has increased by 4% year-on-year. We have seen a reduction in headcount in our Automotive and Industrial operating segment balanced with investments in our Energy and Environment and Rail operating segments. Earlier this year we welcomed 25 colleagues from Inside Infrastructure into Ricardo. We have started bringing together our ways of working and operating models to align Inside Infrastructure's expertise with the complementary capabilities already in the Energy and Environment operating segment.

Through the divestment of our Software business, 86 of our colleagues have left the Group since the year end. We are pleased to report that they are now successfully integrated into the FOG, a division of Constellation Inc. It is important, as a purpose-led organisation, that we can report a smooth people experience was created in partnership with Constellation.

Celebrating difference and bringing people together at Ricardo

This year we are refining our approach to diversity, equity and inclusion (DEI), unifying all the various initiatives that have been in place in our different businesses. Our goal is to be a diverse,

equitable and inclusive employer. As an organisation, we know that reflecting different perspectives makes us all better by enabling us to be customer focused, collaborative, pioneers for change and mindful about the impact that our work and our enterprise can have on society.

We are proud of the diversity that exists within our organisation and recognise that we want to go further. Our corporate vision offers the potential to bring people together and we want our culture to do the same: to enrich the communities in which we operate by drawing on a variety of ethnicities, genders, orientations, backgrounds, skills and views.

We are committed to having the best talent. We encourage people from a diverse range of backgrounds, invest in education and training and empower everyone to reach their full potential, enabling us to solve our customers' most complex and dynamic challenges.

Our Board membership of 8 Directors includes 2 women so we are currently tracking at 25% female representation. Of our Executive Team of 11, there are 3 women, equating to circa 30% female representation. Our Senior Leadership Team, which is the next level down, comprises 53 colleagues of whom 36% are female. In Ricardo overall 26% of our people are women

Around 42% of our people work outside the UK, the vast majority of whom are locally employed in the 27 countries in which we operate. We have more than 62 different nationalities working for us globally so cross-cultural working is second nature to us.

Number of employees

We have an active DEI forum that meets monthly, chaired by one of our operating segments' managing directors (Marques McCammon), with a clear set of commitments across each of the business units. Our ethnic forum is another monthly group engagement programme to discuss topics as a global, multi-national company.

Among our annual initiatives is a week-long programme of events to recognise and celebrate diversity and raise awareness of inclusion and diversity topics. This year we have already celebrated International Women's Day, International Women in Engineering Day and Pride and we are supporting the celebration of key religious festivals.

Wellness also features on our calendar. As part of the Group's Wellbeing Plan, and taking inspiration from the national Mental Health Awareness Week, we ran Ricardo's Mental Wellness Week. This was open to all our people and included virtual events covering mental wellness, resilience, online yoga, exercise, healthy eating and the experience of being one of our mental first aiders. Some sessions received more than 300 participants. We are looking to continue this programme of themed weeks to raise awareness over the next 12 months and also carry forward the themes which brought most feedback to create an ongoing offer for our people.

We continue to take the health and safety, including the mental health, of our people very seriously. We have re-named our global approach to whistleblowing to 'Speak Up' to encourage easier access.

This sits in addition to, and on top of, local employment frameworks, some of which have a legal right to a grievance process. In jurisdictions that do not have this mechanism in place, this process is managed via an independent reporting service, Expolink, with global multi-lingual availability.

Every voice is heard at Ricardo

We have taken the same employee engagement approach as last year to give a continuous read out and trend line. We are pleased to report that our engagement remains stable. Following a similar approach to the Gallup 12 methodology, our results this year are again 3.9 out of 5. Given that so much of our attraction as an employer is about providing interesting and stimulating work, it is pleasing to see that our people rated us five percentage points higher than last year for the statement: 'This last year, I have had opportunities to learn and grow'. Our people recognise

OUR PEOPLE

CLAIRE RUGGIERO

UK CONSULTING BUSINESS MANAGER & HEAD OF STRATEGY AND SERVICE DEVELOPMENT, RICARDO RAIL

Ricardo's commitment to diversity, equity and inclusion (DEI) was one of the reasons I joined in 2020. It's important to me that the company I work for wants to create pathways for those from different backgrounds or with non-traditional life and career experiences.

I gained a Masters then a PhD in Chemical Engineering and my first jobs were in risk and safety within high-hazard industries such as oil, gas and petrochemicals. I transferred these skills into the defence and nuclear sectors then moved into the rail industry.

I am the UK Consulting Business Manager of teams that do work for rail industry customers, such as Government, standards bodies, original equipment manufacturers, operators and infrastructure owners. We support new-build projects, such as stations, trains and infrastructure, from beginning to end with safety and systems engineering.

We also work with customers to improve ongoing operations and maintenance from a safety and cost perspective. Increasingly we are working with rail customers on how they address the net-zero challenge and introduce clean propulsion.

Ricardo is helping to drive change in a number of ways. We launched a DEI Council to bring together colleagues representing all facets of diversity from every part of the business. I joined the Council because having a genuinely open environment, where people at all levels can challenge each other and find a safe space for difficult conversations, is vital to recruit and retain great people and create a collaborative working environment.

We also have a newly established women's affinity group who offer a support network and take challenges or improvement ideas to the DEI Council or senior management. Some of the important topics we've discussed are the shape of workplaces following the pandemic; the impact of work on women's mental and physical health and the work-life balance; and the challenges faced by women returning to work after a long period of absence.

that through delivering innovation and value-adding solutions for our customers, they can build their own learning experiences and thereby their employability.

This year we were able to segment our results so we could see gender, length of service and senior leadership group differences. Our Senior Leadership Team across the organisation (around 70 people) has the highest level of engagement and reported at 4.1. We also learned that women working in Ricardo are more engaged than men and that new hires (of whom we have gained 500 in the last two years) are the most engaged - this is particularly pleasing considering they joined us during COVID-19 lockdown experiences and virtual/hybrid working.

In addition to the all-employee annual engagement survey, Malin Persson conducted a series of 26 cross-sectional focus groups across every part of Ricardo. More than 160 people took part in these sessions representing all levels of the organisation, geographies and roles. They also included participants from our representative and listening forums and inclusion affinity groups. The sessions were very well received and added to the invaluable insight we gained from our other engagement approaches.

This year, Malin is supporting us in employee listening in our creation of one Ricardo DNA.

We are creating a purpose-led, high-performance organisation, capable of delivering our ambition of becoming a leader in strategy and engineering consultancy for environmental and energy transition. This year has been about alignment and refining our Ricardo DNA – adopting a holistic and integrated approach to how we are investing in our people, our culture, our work methods and our operating model. All of this is in line with our strategy so that the whole is greater than the sum of the parts.

CASE STUDY

RAPID URBANISATION

BREATHING CLEAN AIR

CASE STUDY

The World Health Organization estimates that seven million people die every year as a result of air pollution. In Britain, Ricardo air quality specialists have supported Britain's first zero-emissions zone in Oxford, have helped London in the assessment of its Ultra Low Emissions Zone and have been working with local authorities in Bradford, Southampton and Cardiff to complete feasibility studies on clean air zones.

In Ontario, Canada, as part of a drive to encourage more journeys to switch from private car to the rail network, a $C21 billion upgrade programme, 'GO Expansion', was launched to deliver a faster and more frequent service featuring modern electric-powered rolling stock. Ricardo Certification has been appointed as the Independent Safety Assessor for this forthcoming transformation of rail transit across the Greater Toronto and Hamilton area, which is expected to see a significant increase in services from 3,500 trains per week in 2019 to more than 10,000, with services operating at least every 15 minutes.

SUSTAINABILITY AND ENVIRONMENTAL, SOCIAL AND GOVERNANCE (ESG)

ESG at the core of our growth strategy

SUSTAINABILITY IS FIRMLY BUILT INTO OUR DNA AND WE ARE LEADING BY EXAMPLE

From the solutions we deliver to the actions we take in our own ESG commitments

ENVIRONMENTAL
Our key focus is on reducing the GHG emissions and group activities that will support us on our energy transition

SOCIAL
We focus on our people, the social value we contribute to our communities, customers and wider supply chain

GOVERNANCE
More aligned levels of governance to ensure that all aspects of the business contribute to our net zero journey

Across everything we do, in every assignment we undertake, we remain committed to the ethos of our founder. In 1915 Sir Harry Ricardo, one of the most innovative engineers of his time, set out on a mission to 'maximise efficiency and eliminate waste'. This remains as relevant today and with our vision 'to create a safe and sustainable world', sustainability is at the heart of our DNA, and what we want to stand for as a company.

We are firmly committed to lead by example on ESG for our own impacts, as we believe that if we can demonstrate leadership internally, we will be the most credible to provide support to our customers,.to solve their ESG complex challenges.

Our commitments and approach to a sustainable future have therefore increased this year across all aspects of ESG and are covered in more detail below.

Environmental stewardship and addressing climate change

Clear scientific consensus exists that the Earth's climate is changing and that greenhouse gas (GHG) emissions from human activities are the principal cause. For financial markets, climate change is accepted as a non-diversifiable, principal risk. At Ricardo, we understand that the implications of unchecked emissions and the consequent global warming will be severe. Climate change is pivotal to our ESG thinking and to the Group's strategy.

Ricardo already measures and discloses elements of its impact on the environment, by GHG emissions inventory reporting, and

OUR JOURNEY TO NET ZERO

We contribute to 8 of the UN Sustainable Development Goals and we operationalise the principles of the UN Global Compact. We have stated our commitment to achieving net zero by 2030 and have approved SBTi targets.

GHG emissions Science Based Targets Initiative (SBTi)

- Reduce Scope 1 & 2 emissions 46.2% by FY 2030/31. Target aligned to *1.5°C average global temperature rise.*
- Increase annual sourcing of renewable electricity from 74% in FY20 to 90% by FY 2025/26.
- Reduce absolute Scope 3 emissions 27.5% by FY 2030/31. Target aligned *to well below 2°C temperature rise.*

Sustainable procurement

- Environmental standards, supply chain labour, carbon reduction plans and waste reduction

Resources

- Reduction of water consumption by 10%
- Office footprint reductions

Materials

- Packaging weight reduction
- Use of recycled packaging

we have gone further this year to include Scope 3 for FY 2021/22 (see page 47).

Ricardo and the Environment

In addition to climate change and the management of GHG, we are also focused on the wider environmental impacts that cover use of natural and other resources, waste discharge, and the overall impact business operations have on the environment.

Opportunities to enable a safe and sustainable world

In developing our growth strategy and establishing key target markets we reviewed the key environmental and energy transition megatrends as highlighted on page 16. This identifies opportunities focusing on the power and energy sectors, leveraging our understanding of global regulatory frameworks, and providing solutions to support the shift to sustainable and safe mobility. In addition to the markets we serve, as identified in our strategy on page 5, we are also looking at developing disciplined operational execution that can accelerate the impact of our activities. These include:

- *Digitalisation of products and services:* our strategy includes a strong digitalisation focus. Not only will this drive technical innovation, but it will also enable Ricardo and its stakeholders to reduce overall emissions.
- *Decarbonising transportation:* projects focused on reducing the environmental impacts of transportation have been a cornerstone of the Ricardo business for decades. The development of mobility solutions with reduced life cycle greenhouse gas emissions is a critical feature of Ricardo's strategy.
- *Cross-business unit solutions:* Ricardo's operating segments operate in market sectors with increasing synergies. Joining up these capabilities to enable systems thinking, as well as comprehensive technical delivery across complex client programmes, is an essential part of our strategy.

Ricardo delivers many positive environmental outcomes because of the work we undertake. These include:

- Ricardo and customer-funded engineering projects to develop low-emission and high-efficiency technologies for incorporation into products around the world.
- In addition to new products and services, Ricardo is focused on faster, more efficient and less carbon intensive product design and development. A major part of this has been a reduction or elimination of prototype procurement and testing and moving partially or entirely to digital and virtual engineering.
- Lower carbon usage through the delivery of engineering projects that lead to more efficient consumer products being manufactured by our customers including electrification of energy storage and propulsion systems.
- Environmental consultancy, largely undertaken by Ricardo Energy and Environment, which includes: excellence in thought leadership around economic, societal and environmental interactions; extensive understanding of the climate change challenges facing organisations, including scarcity of natural resources, strategic sustainability and energy management; deep understanding of policy drivers, environmental strategy and economics, which provides insight and project delivery for business and industry; and modelling and data management to identify and realise value for organisations.
- Improvements in operating efficiency carried out by Ricardo Rail for rail operators and rolling stock manufacturers.

These products and services will have an impact on future levels of emissions, waste, energy usage, water consumption and noise across many of the markets we serve. The cumulative benefits of the projects we complete each year save many multiples of our operational carbon footprint over the service life of the products we engineer and the service we provide to our clients.

Delivering safe and sustainable customer solutions today

Ricardo is in a unique position of offering solutions to carbon reduction and technical expertise, as well as being at the crossroads of science, technology, regulation and implementation. Through our extensive product and project work, we have helped many clients across industry and Government, and earned accolades in the process. The following environmental activities are examples of work achievements through the year that underpin the Group's Sustainable Development Goals (SDGs) and alignment to our growth strategy.

Environmental services

- Ricardo has worked with the Department for Business, Energy & Industrial Strategy (BEIS) on projects for the Social Housing Decarbonisation Fund. An example in Alva, Clackmannanshire, involved 15 properties across a single site with energy performance

certificate improvement targets, including solar photovoltaic arrays, Tesla battery storage systems, external and internal wall insulation, new doors and double-glazed windows and underfloor insulation system. This work extended the structural lifespan of the buildings by 25 years. An expected 50 per cent reduction in gas and electricity bills will be verified by ongoing monitoring.

- Our Australian business Inside Infrastructure is working on a large-scale project, 'New Water, New Opportunities' for South Australia. The South Australian Government, in partnership with OZ Minerals, BHP and SA Water is considering an infrastructure investment to create a new sustainable water supply for the far north and the Upper Spencer Gulf of South Australia, unlocking opportunities for economic growth and delivering benefits to the environment and regional communities for future generations. Inside Infrastructure is the lead agency in this project, and partners have commenced the environmental and economic studies needed to make that decision. The River Murray and the Great Artesian Basin is a new and additional water supply which allows using water from the River Murray as efficiently as possible. This project will support ecological outcomes for the Murray Darling system and Great Artesian Basin for the benefit of future generations.

Sustainable and safe mobility

- A holistic hydrogen approach to heavy duty transport will examine the energy used by trains in Scotland, where the rail sector aims to remove diesel-fuelled trains by 2035.
- Ricardo has also been tasked with developing a new action plan to support UK rail industry decarbonisation efforts.
- We unveiled a design for an autonomous vehicle using advanced steel materials to demonstrate strength, light weight and safety for future sustainable urban mobility. Details of the programme for Steel E-motive can be found here: https://steelemotive.world/about/.
- Funding has been awarded by the Driving the Electric Revolution Challenge at UK Research and Innovation to the UK-ALUMOTOR consortium which Ricardo leads.

WICE awards

- One of our chief engineers, Dragica Kostic-Perovic, was Awarded the Best Woman Electrical & Mechanical Engineer at the European Women in Construction and Engineering Awards (WICE). The WICE awards recognise the most exemplary women working across construction and engineering and drive diversity across the industry. Women represent only 9% of UK engineering professionals.

Clean energy and resources

- Ricardo is leading a consortium that is designing a community-scale greenhouse gas removal system that produces biochar as one of its outputs.

Urbanisation

- Our Rail team in the US, together with colleagues from Netherlands and Korea, will be providing an independent safety assessment for skyTran: the next evolution of urban transportation propelled by magnetic levitation technology.
- The Rail team has won an International Safety Award from the British Safety Council. This was in recognition of Ricardo's commitment to keep its workers and workplaces healthy and safe during the 2021 calendar year.
- Ricardo has become the sustainability partner for an innovative addition to the global cycling calendar – the E-Bike Grand Prix. The series is designed to showcase emerging e-bike technology, raise awareness of climate change challenges, mobilise citizens around environmental issues and promote cleaner, greener, healthier cities. The evidence for widespread adoption of e-bikes is clear - if used to replace car travel, e-bikes could cut carbon dioxide emissions in England alone by up to 50%, equating to 30 million tonnes less CO_2 per year.

Corporate decarbonisation

- A study conducted by Ricardo on behalf of Kellogg's found that a reduction in net emissions of up to 60% is possible by focusing on a farm's most productive areas, with no impact on yield or financial performance.
- Ricardo is helping set out a net zero pathway for London's community healthcare organisation. Central London Community Healthcare NHS Trust has taken early action to mitigate the impact it is having on the environment by developing a roadmap to reduce its emissions in support of the NHS's net zero 2040 deadline.

Climate change and environmental revenue

Ricardo's revenue streams have been analysed to assess how strongly they are driven by climate change and the environment.

In addition to the climate

change/environmental impact, we also categorise the revenue relating to safety as this has societal benefits. For instance, Ricardo Rail's expertise and activities in functional safety have significant societal benefits. For each item of revenue, we have applied one of the following classifications:

- Revenue generated which is specifically intended to address climate change, such as net zero and greenhouse gas inventory work in EE and A&I projects driven by the decarbonisation of transport.
- Revenue generated which is driven by a significant environmental issue, such as improving the efficiency of existing power trains in A&I, natural resource management planning in EE.
- Revenue generated which has environmental benefit as one of its drivers, such as asset optimisation and efficiency work in Rail, and manufacture of efficient transmissions and engines in PP.
- Revenue generated which relates to safety in terms of both assurance and mobility improvements, such as the Antilock Braking System work in Defense and certification work in Rail.
- None of the above.

This analysis shows:

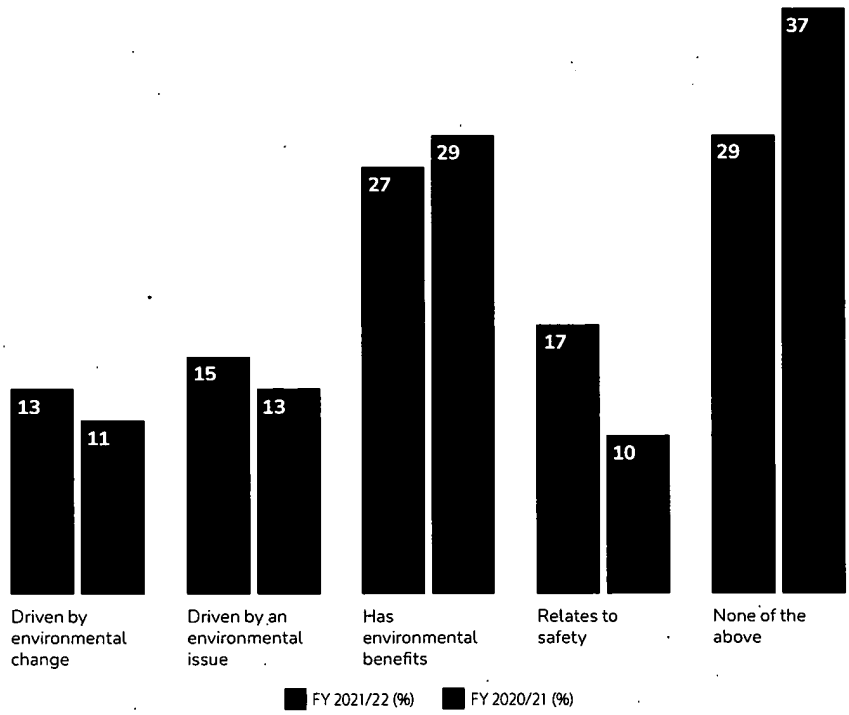
- 28% of our revenue including the discontinued operation, is strongly driven by climate change or the environment.
- 27% of our revenue is driven by climate change or the environment, to some degree.
- 17% of our revenue relates to the societal benefits associated with safety.
- With 72% of our revenues related to climate change and the social benefits of safety, our business activities are well aligned to our vision: to create a safe and sustainable world.

Our strategy is to focus on high revenue, high margin and low capital intensity services underpinned by the environmental and energy transition megatrends as shown on page 16. Part of this strategy is also to ensure disciplined execution across the group, and we have established eight workstreams to support this delivery, one of which is capital allocation. Within this capital allocation work stream we are prioritising investment in R&D and capital expenditure to support further growth in services with a strong connection to climate change. In 2022, 52% of our R&D spend, net of government grants, was on areas with a strong connection to climate change or the environment. The innovation section of the report on pages 22 to 26 shows examples of these projects.

In addition, we have a clear focus to use M&A as an accelerator to support our portfolio transition to environmental and energy transition solutions. A first example of this is the acquisition of Inside Infrastructure that establishes greater environmental capability in Australia.

As a result of the clear strategy to prioritise capital allocation and M&A to environmental and energy transition solutions, we expect the revenue strongly driven by climate change to increase over the coming few years.

Climate change and environmental revenue



Including discontinued operation.

Commitment to global best practice

Ricardo is committed to leading by example in all aspects of ESG. This includes compliance with global best practise of disclosure, internal policy and, most importantly, delivery of tangible actions to achieve its ambitious ESG goals.

United Nations Sustainable Development Goals (SDGs)

We recognise and support the UN SDGs. Of the 17 goals we maintain the 8 originally identified, which align to our core activities, our internal operations, stakeholders, and the communities within which we operate. Stakeholders we engage with include international governments, corporate businesses, local communities, industry sectors, our employees, clients and academics.

Reporting Standards – SBTi & GRI – Global Reporting Initiative

As reporting demands increase and evolve, it is important to apply stringent, appropriate standards which are globally recognised and provide, a consistent approach that can be aligned with other standards. Our sustainability framework is set against the Global Reporting Initiative and Sustainable Accounting Standards Board where we have aligned our ESG disclosures and identified areas for improvement and or opportunity. We recognise the collaborative work and development of International Sustainability Standards Board and European Financial Reporting Advisory Group.

Ricardo intends to meet the GRI disclosure requirements and reporting standards. While we comply to the majority of the management indicators, we are enhancing and embedding

Sustainable Development Goal	Core activities	The way we operate	Stakeholders
	• Decarbonised and clean transport solutions • Access to clean air • Secure, connected mobility solutions	• Provision of a safe working environment, well-being programmes and employee benefits	• Governments and local communities, employees and their families
	• Access to clean water • Drought and flooding mitigation solutions	• Monitoring water use on larger sites	• Clients, water sector, governments, local communities and employees
	• Net zero and carbon-neutral solutions • Decarbonised and clean transport solutions	• Reducing energy consumption and maximising renewable energy sourcing	• Clients, governments and local communities
	• Decarbonised and clean transport solutions • Net zero and carbon-neutral solutions • Urban rail solutions	• Working in partnerships with local communities around our larger sites to reduce collective energy use	• Clients, governments and local communities, employees and their families
	• Net zero and carbon-neutral solutions • Decarbonised and clean transport solutions	• Net zero plan and targets which will reduce energy and resource use	• Clients, businesses, governments and local communities
	• Decarbonised transport • Access to clean air • Net zero and carbon-neutral solutions	• Climate change risk management • Net zero plan and targets • Greenhouse gas reporting and reducing carbon footprint	• Clients, governments and local communities
	• Access to clean air and water	• Active management of waste streams on our sites	• Clients, businesses, governments and local communities
	• Access to clean air and water	• Active management of waste streams on our sites • Encouraging low-carbon travel to work	• Clients, businesses, governments and local communities

United Nations Sustainable Development Goals web site: https://www.un.org/sustainabledevelopment/

data collection and validation, moving positively forward on a journey to make this process business-as-usual. This is part of the oversight and in-flight monitoring that will come from operation of the Sustainability Committee. Data collection and enhancement is underway and we intend to provide a section on GRI compliance disclosures in the 2023 Annual Report.
We proactively engage with investor rating agencies such as, but not limited to: ISS, CDP, Sustainalytics, and FTSE Russell. For our Rail operating segment in the Netherlands they received a platinum award for 'Ecovadis' and A&I (UK) also received a silver award in 2022.

In October 2021 we formally committed to the Science Based Targets Initiative (SBTi). Our commitment is to reduce absolute Scope 1 and 2 GHG emissions 46.2% by FY2030/31 from a FY2019/20 base year. We have already delivered a 44% reduction in Scope 1 and 2 emissions and are therefore well advanced in this ambition. Ricardo also commits to increase annual sourcing of renewable electricity from 74% in FY2019/20 to 90% by FY2025/26. In FY 2021/22 we achieved 89% sourcing of renewable electricity.

Finally, Ricardo commits to reduce absolute Scope 3 GHG emissions 27.5% by FY 2030/31 from a FY 2019/20 base year. Scope 3 emissions have been measured and verified for the first time in FY 2021/22.

UN Global Compact

We are proud to have committed to the United Nations Global Compact, the world's largest corporate responsibility initiative, for companies committed to integrating 10 corporate responsibility principles in their business operations and strategies.

Taskforce on Climate-related Financial Disclosures

The Task Force on Climate-Related Financial Disclosures (TCFD) was initiated by the Financial Stability Board, to enable publicly listed companies to understand and disclose the impacts of climate change on their businesses. It recommends that businesses consider both the opportunities and the risks associated with climate change, with the aim to improve disclosure of information to all regulators, and all other stakeholders to have broader transparency to assess the risks and opportunities resulting from climate change. This aligns with our vision and purpose, and our on-going work to remain a prominent leader in best practice, in the sectors we operate in.

We comply with TCFD by providing the following information, which are our 'TCFD recommended disclosure themes' (see page 43).

The TCFD activities identified our material climate-related risks, which included the following:

- *Physical risks* to our facilities: the growing severity of climate change and variability causing physical disruption (for instance, flooding) to business.
- *Climate-liability risks:* risks associated with either increases in client litigation, a reduction in consulting budgets, or an increase in litigation against Ricardo itself. Ricardo's existing risk register includes an assessment of risks to our business from litigation.
- *Reputational risks:* as investors and stakeholders place more focus on climate change, a perceived lack of action could result in reduced investor support and reputational damage.
- *Changes in client requirements driven by climate change:* climate change could result in changing demand for certain products and services. Our strategy includes a strong decarbonisation focus with major focus on energy and environment as our CEO presented at the Capital Markets Day.
- *Changes in regulations relating to climate change:* as environmental and emissions regulations tighten, the risk of penalties for non-compliance increases. As a provider of services relating to changes in global emissions standards and environmental legislation, we are in a strong position to anticipate and respond to emerging regulatory risks. We action and mitigate these risks via our existing enterprise risk management processes. The changes in client requirements and regulations have been combined to become a principal risk, but also a series of opportunities for the business. Further information on our risk management and principal risks to the business is shown on pages 56 to 61. We also recognise the requirement for additional training for our Board, senior management, and relevant colleagues, with on-going management to ensure we remain on course to achieve our reduction targets and our SBTi commitments.

Our TCFD progress to date and overall aims of our programme are:

- To become a leader in strategy and engineering consulting for environmental and energy transition solutions
- To continue to explore fully our climate-related opportunities
- To ensure we are fully aware and mitigate risks associated with climate change
- To develop class-leading capabilities, enabling us to support our clients' own TCFD and energy transition journeys.

These complex undertakings are achieved using our Group's diverse skill sets – climate specialists, scenario-planning experts, and management consultants. Using external climate scenarios and impact assessments as inputs, we have developed four bespoke scenario narratives, describing a different hypothetical world around Ricardo in 2035:

- *Creative Scavengers:* the world is on a 4°C temperature rise trajectory up to 2100, resulting in significant acute and physical risks. This scenario assumes a lack of cohesive international policy intervention and sporadic technological progress.
- *Digitopolis:* the world is on a 2-3°C temperature rise trajectory up to 2100, with commensurate acute and chronic physical risks. This scenario assumes some international policy intervention, progress in energy efficiency and a reduction in travel enabled by digital technologies.
- *Technopolis:* per the trajectory of Digitopolis, this scenario assumes little international co-operation on policy interventions. Instead, major breakthroughs in renewable energy technologies enable some climate change mitigation.
- *Ecopolis:* the world is on a less than 2°C temperature

CREATIVE SCAVENGERS

DIGITOPOLIS

TECHNOPOLIS

ECOPOLIS

rise trajectory up to 2100. Chronic physical risks are being addressed, although extreme weather events remain inevitable. This scenario again assumes cohesive international policy interventions and significant deployment of a broad suite of effective renewable energy solutions.

TCFD recommended disclosure themes are described below.

Our work has resulted in a clear set of recommendations which we have aligned to the four official TCFD recommended disclosure themes.

TCFD Theme	Progress to date
Governance	• *Oversight:* Climate opportunities are reviewed at Board level on an annual basis as part of our strategy review and budget setting processes. • Climate-related risks are reviewed at Audit Committee meetings as part of our bi-annual risk review process. • *Management role:* The Board and the Executive Committee review climate change every quarter as part of a wide review of ESG matters. • *Sustainability* Committee formed in 2022 with Board oversight by Malin Persson. • *Document and disclose:* our process is disclosed above and includes scenarios, linkage to strategy, additional KPIs and disclosures.
Strategy	• *Strategy impact:* Our ESG agenda is aligned to our vision and purpose. • *Strategy identification:* Our strategy includes specific themes relating to climate change and its mitigation, environmental solutions, clean energy and resources, and sustainable and safe mobility. • *Strategy resilience:* Our strategy has been assessed against the four scenarios described above. These scenarios include a 4ºC temperature rise and a 1.5ºC below -2ºC scenario.
Risk management	• *Process for identification:* our activities have enabled us to assess and further integrate climate-related risks into our enterprise risk register. • *Process for management:* our climate change risks are managed in the same way as other enterprise risks, see page 59. • *Organisation:* our risks are owned by Executive Directors, business unit Managing Directors or Heads of Group functions.
Metrics and targets	• *Company metrics:* we are committed to disclosing additional climate change metrics with stakeholders. • We have analysed Ricardo's own revenue sources and characterised this revenue according to the extent to which each component aims to address an environmental or climate-change issue. In FY 2021/22, we added a metric on the connection between Research and Development (R&D) spend and climate change. The results of this analysis are shown on page 39. • Performance metrics in relation to climate related issues are not currently incorporated within remuneration policies. This will be considered in the future as part of the next formal review of the Executive Directors' remuneration policies overall (see page 130). • *Greenhouse gas emissions inventory:* our expanded inventory is externally verified and disclosed below. • *Climate-related targets:* we have set out our net zero targets, progress and overall status in the following table.

Net zero commitment by 2030

The specific progress and achievements towards our Carbon Reduction Plan are set out below and embedded in our business planning processes:

Net zero objective	Achievements in FY 2021/22	Overall status
Maximising use of renewable energy sourcing	Across the Group we are at 89%, having improved from 74% in FY 2019/20 and achieving 91% in FY 2020/21. In FY 2021/22, we saw a slight drop in the KPI from 91% in FY 2020/21 to 89% in FY 2021/22 due to relatively small changes in activity mix between sites. There was no planned reduction in percentage of green energy supplied to sites.	We have set an interim target of 90% for FY 2025/26 and are on track – progress on remaining sites requires renewable energy to be available in specific countries where we operate or agreement from specific property landlords where renewable energy is not currently used.
Reducing the size of our properties as more flexible office working is implemented	Following restructuring in our operations, we have reduced our property portfolio. We have downsized in the following leased locations: • Derby • Utrecht • Germany We no longer operate from these leased locations, having moved to home-based working • Munich • Gothenburg • Cambridge The number of team members with home-based contracts team members has increased from 162 in June 2021 to 279 in June 2022 (approximately 10% of our employees now have home-based contracts)	As part of our COVID-19 recovery planning and being an employer of choice, we are piloting flexible working for some of our office-based team members. We are also delivering space reduction in Troy and subletting some space to our former Software colleagues in Shoreham and Prague. Where possible office moves are linked to moving to fully renewable electricity tariffs. At our Shoreham Technical Centre we are planning to reduce the number of buildings in active use, focusing on the most energy efficient offices. Good overall progress being made.
Maximising 'digital-first' to optimise our travel needs	For the majority of this year, this has been the only way we could work with clients, suppliers and with colleagues.	We will see an increase in travel, but not to pre-COVID-19 levels. Good progress made.
Using high-speed trains in place of short-haul air travel where practical	We have identified routes where this is practical and have advised those that use them. This approach has been in active use in China during the year where internal travel has been possible.	We expect increased use as more high-speed rail systems are introduced and governments introduce policy on this subject, France being an early example. Improvement opportunities have been identified as travel resumes.
Using the most fuel efficient aircraft for long-haul travel	We have shared guidance with travellers, so we can implement as long-haul travel restarts.	We continue to expect COVID-19 and energy pricing to accelerate the decommissioning of the most inefficient aircraft which will assist with implementation – the market will drive achievement. On track to achieve.
Implementing energy efficiency improvements focusing on our high energy-use sites	Projects commenced in FY 2021/22 include reducing out of hours energy use on the larger sites, in depth studies and replacement of inefficient air compressors. Capital expenditure was approved to reclad a large storage building with better insulation and safer cladding New projects have been identified for investment in FY 2022/23. The focus is on our Shoreham and Midlands Technical Centres. These include more submetering to enhance understanding of electricity use and refrigerated test facility controls to deliver more efficient operations.	We will focus on energy reduction with good financial return to complement the maximisation of renewable energy procurement. We expect to increase pace due to energy cost pressures. The ESG forum will be the focus for driving and monitoring change On track to achieve.
Making use of verified offsetting schemes to offset residual emissions	Activity has been limited this year.	Our initial focus, at least until 2025, is on underlying emission reduction and use of renewables to reduce the amount we might need to offset to achieve our net zero goals.

CASE STUDY: ENVIRONMENTAL

CELEBRATING EARTH DAY

The internationally recognised event provided an opportunity for teams across the Ricardo Group to come together – in person and virtually – to share their expertise, knowledge, and passion for sustainability.

Through a series of virtual focus groups hosted throughout the day, individuals from all the business units and Ricardo plc discussed best practice, recommendations, and potential innovations around six key topics: Sustainable Development Goals, community work, charity, energy, waste and pollution and biodiversity.

The purpose of the focus groups was to encourage everyone from all global locations and all business units to meet colleagues they may not already know and to share the work that they are doing in their area relating to the six topics. All this with the goal of pooling collective knowledge to help build our future sustainability agenda.

As a global company with world-leading sustainability specialists, we also facilitated opportunities for employees to tap into the expertise of their renowned colleagues. Each day in the week leading up to Earth Day, we encouraged sustainability consultants to share blogs and top tips on five key topics: energy efficiency and transition, water conservation, waste reduction, plastics and packaging, and reducing food waste.

Managing our environmental footprint

We are committed to managing our environmental footprint and reducing it to a minimum, as well as ensuring that our services have a positive impact on society and the communities where we are based. The Board's commitment to this is embodied in our environmental policy (available internally and via our website) which covers:

- Relevant UN Sustainable Development Goals
- Delivering services that enable strategic improvements for our customers and the end-users of their products and services
- The desire to be responsible members of the local communities in which Ricardo operates

The impact of our operations, particularly testing and manufacturing, are the largest contributors to our operational carbon footprint and greenhouse gas (GHG) emissions (Scope 1 and 2). Our testing, for customer- and research-funded programmes, primarily uses fuel and electrical energy; in addition, there is energy required for heating some of our sites. Our manufacturing energy use is predominantly power for machine tools and assembly facilities and gas used in our heat treatment plant. Our Scope 2 use is mainly electricity.

We have measured all our Scope 3 emissions for the first time this year. The largest elements of Scope 3 are:

- Categories 1 and 2 – purchase of products and services. Revenue and capital are the largest contributor, which include production parts for Performance Products as the largest element.
- Category 11 – sold products where we estimate the lifetime emissions from the use of engines which we produce account for 9% of our Scope

3 emissions, on a GHG basis (weight apportioned). When the ratio is derived on a whole-vehicle basis (as required by SBTi) rather than a weight proportioned basis, the equivalent tCO_2e proportion is 41%. This growth in tCO_2e reflects Ricardo's progress in our ESG reporting with regards to increased transparency and rigor of the calculation of CO_2 equivalent emissions, using the GHG protocol methodology, for the manufacturing and assembly activities, which have not been calculated in prior years.

We comply with the Companies Act 2006 (Strategic and Directors' Report) Regulations 2013 on GHG emissions and have stated our comparative history in our strategic performance below. We comply with Streamlined Energy and Carbon Reporting via our disclosures below under the Greenhouse Gas Protocol and commenting on all elements of our net zero strategy. As this requires the inclusion of fuels used in engine and vehicle testing, year-on-year variability can be expected due to the mix in types of tests and engine size.

As part of our net zero strategy, we have focused energy saving on reducing our property portfolio.

Projects to reduce energy consumption and manage waste responsibly are actively encouraged and have become more important as unit fuel costs increase. Waste streams have also become more significant as the manufacturing activities of our Performance Products segment are significant.

We focus our operational carbon footprint improvements on underlying energy efficiency prior to the use of fuels for testing, which varies based on client requirements and trends in decarbonisation of transport. We continue to use tonnes of carbon dioxide equivalent (tCO_2e) per employee as an intensity measure.

As a responsible employer, we seek to protect and care for our people by providing a safe and healthy work environment and by minimising the environmental impact of our operations.

Many of Ricardo's customers require certification for their key suppliers in respect of the environmental management system standard, ISO 14001. Our certification directly covers 38 sites and 98% of our site-based employees. Our remaining colleagues and sites are managed via the ISO 14001 processes. The achievement of the standard is defined by appropriate policies, processes and procedures as part of the management system in each business unit. Many of these are closely linked to both quality and health and safety procedures.

Other environmental impacts arise from waste streams, which are monitored to identify potential improvement opportunities and to ensure legislative compliance. Higher-risk areas of our facilities, such as fuel storage and distribution systems, have containment and inspection regimes that meet local legislative requirements. We target zero pollution incidents and have had none this year.

The suite of ISO certifications and the supporting internal and external audit programmes are used to check policy effectiveness, share best practice, identify improvement opportunities and ensure compliance. Staff training in health and safety and environmental matters is a priority and is reviewed annually as part of normal appraisal processes. We have not had any enforcement action, fines or penalties this year.

Greenhouse gas emissions

In support of our ambition to achieve net zero by 2030, we are increasing the breadth of KPI reporting as shown below.

Base year FY 2019/20 and FY 2020/21 verified by LRQA
Category 8 is part of Category 1 and 2

	FY 2021/22	FY 2020/21	FY 2019/20 baseline
Emissions - tCO_2e			
Scope 1 – Gas (methane based) usage	**697**	777	
Scope 1 - Diesel usage	**674**	555	
Scope 1 – Gasoline usage	**367**	381	
Scope 1 – Other emissions	**964**	703	
Scope 1 - Total	**2,702**	2,416	4,343
Scope 2 – Location-based	**3,423**	3,791	4,981
Scope 2 – Market-based	**753**	774	2,016
Total – Location-based (Scopes 1 and 2)	**6,125**	6,207	9,324
Total – Market-based (Scopes 1 and 2)	**3,455**	3,190	6,359

	FY 2021/22	FY 2020/21	FY 2019/20 baseline
Scope 3 - Category 1 (including Category 8) – Purchased goods and services	**76,062**	No data	No data
Scope 3 - Category 2 – Capital goods	**4,405**	No data	No data
Scope 3 – Category 4 – Upstream transportation and distribution	**206**	No data	No data
Scope 3 – Category 5 - Waste	**142**	No data	No data
Scope 3 – Category 6 – Business travel (all modes)	**2,396**	No data	No data
Scope 3 - Category 7 – Employee commuting	**1,917**	No data	No data
Scope 3 - Category 9 – Downstream transportation and distribution	**88**	No data	No data
Scope 3 - Category 11 – Use of sold product (weight apportioned basis – GHG protocol))	**8,431**	No data	No data
Scope 3 – Category 11 - Use of sold product – (whole vehicle weight method – SBTi)	**59,500**	No data	No data
Scope 3 – Category 12 - End of life of sold products	**282**	No data	No data
Scope 3 – Category 13 – Downstream leased assets, location based	**46**	No data	No data
Scope 3 total – GHG basis	**93,975**	No data	No data
Scope 3 total – SBTi basis	**145,044**	No data	No data
Total – Location-based (Scopes 1,2,3) GHG Protocol basis	**100,100**	6,688	13,291
Total - Market-based (Scopes 1,2,3) GHG Protocol basis	**97,430**	3,671	10,326
Note - Scope 3 - Air travel baseline	**1,560**	N/A	6,015
Intensity Measures – GHG basis (tCO_2e per employee)			
Total – Location-based (Scopes 1 and 2)	**2.22**	2.14	3.05
Total – Market-based (Scopes 1 and 2)	**1.25**	1.10	2.08
Scope 3 GHG Protocol basis	**34.01**	No data	No data
Total – Location-based (Scopes 1,2,3)	**36.23**	No data	No data
Total - Market-based (Scopes 1,2,3)	**35.26**	No data	No data
Electricity consumption MWh			
Electricity consumed (all sources)	**15,369**	15,742	17.455
Renewable energy consumed	**13,601**	14,296	12.973
Percentage of renewable electricity used	**89%**	91%	74%
SECR (UK Streamlined Energy and Carbon Reporting)			
UK Scope 1 tCO_2e	**2,526**	2,175	2,496
UK Scope 2 - Location-based tCO_2e	**2,606**	2,971	3,065
UK Scope 2 - Market-based tCO_2e	**26**	47	166
UK Scope 1 + Scope 2 tCO_2e Location-based	**5,132**	5,146	5,562
UK Scope 1 + Scope 2 tCO_2e Market-based	**2,552**	2,223	2,662
Energy consumption (million kWh)	**21**	21	17
Intensity measures (tCO_2e per UK employee)			
Scope 1	**1.52**	1.35	1.50
Scope 2 Location based	**1.57**	1.84	1.84
Scope 2 Market based	**0.02**	0.03	0.10
Scope 1 + Scope 2 Location-based	**3.09**	3.19	3.34
Scope 1 + Scope 2 Market-based	**1.54**	1.38	1.60

Scope 1, 2 and Scope 3 - Categories 5, 6 and 13 have been verified to 'Reasonable Assurance'
Scope 3 - Categories 1, 2, 4,7, 8,9,11 and 12 have been verified to 'Limited Assurance'

- Scope 1, 2 and Scope 3 - Categories 5, 6 and 13 have been verified to 'Reasonable Assurance'.
- Scope 3 - Categories 1, 2, 4,7, 8,9,11 and 12 have been verified to 'Limited Assurance'.
- The operational control test is applied to determine if an emission is within Scope 1 or Scope 2.
- The inventory has been compiled according to the GHG Protocol and internal procedures with the exception that individual gases are not reported. Our GHG emissions for FY 2021/22 have been verified by LRQA in accordance with ISO 14064–3:2006, 'Specification with guidance for validation and verification of greenhouse-gas assertions'.
- The base year is FY 2019/20, as this as the first year where Scope 1 and Scope 2 data was verified. The Scope 3 base year is FY 2021/22. Some data includes estimates, which may be updated at a later time when more accurate data are available.
- Emission factors used for fuels and UK location-based electricity are based on UK BEIS/ DEFRA conversion factors for 2022. Electricity emissions factors used for location-based calculations are the most recent confirmed IEA factors for the country. Electricity emissions factors used for market-based calculations where renewable electricity is supplied are 0kgCO_2e/kWh. Location-based factors are applied elsewhere.
- For Scope 3 emissions factors for categories: 1, 2, 4, 5, 8, and 9 are based upon cost using Defra for UK and EU based entities, and Quantis for other entities. Scope 3, Category 7 is based on an annual employee commuting survey, which had an average return rate of 68% for site-based employees. DEFRA factors, Categories 11 and 12 are estimated based on volumes sold in PP, and ABS/ ESC kits in Defense. End of life is estimated on material type and weight using DEFRA for PP and Quantis for Defense. Category 11 is based on published WLTP emissions for each engine variant, and estimated vehicle use over 10 years.
- Air and rail travel emissions are calculated by Susterra using bespoke factors that take account of route, class of travel, airline and aircraft type. The remaining elements of Category 6 are calculated based on cost using the Defra and Quantis factors as above.
- Other Scope 1 emissions include refrigerants used to top up cooling and air conditioning plants, fire extinguishants such as FM200 and sulphur hexafluoride (SF6) associated with switchgear.
- SECR: Our UK operations are our biggest consumer of electricity, which is our only UK Scope 2 emission source, where we directly procure electricity from renewable sources for our largest sites.
- We have no Scope 3 emissions in Categories 3 (fuel and energy related activities), 14 (franchises) or 15 (investments). Category 8 emissions (upstream leased assets) are included within our Scope 1 reporting.
- Our triggers for base year recalculation would be an acquisition or disposal which changed head count by +/- 20% - this did not occur in the current or previous year. The sale of Ricardo Software was below the threshold.

Renewable electricity – percentage used per financial year	Electricity used per employee for the financial year
%	kWh
2021/22 89	2021/22 4923
2020/21 91	2020/21 5,412
2019/20 74	2019/20 5,721
2018/19 71	2018/19 8,154

Water usage

Water usage on large sites m³	FY 2021/22	FY 2020/21	FY 2019/20 baseline
Volume	**39,265**	41,276	55,506
Volume/ employee	**14.2**	14.2	18.2

- We measure water use on our sites with more than 50 team members – small sites are immaterial.
- We have delivered or commissioned a number of water efficiency projects which also reduce wastewater and hazardous liquid waste volumes: at our Midlands Technical Centre, we have reduced waste by 30% in our machine tool coolant process by adding a water softening process, and will implement a hazardous liquid waste reduction of 90% by installing a recycling process, in our Detroit Technical Campus we have changes in our landscaping arrangements to reduce watering, which is the largest site use of water. Water volumes are reducing as improvements are made in machine coolant processes and in the reduction of water for humidification during emissions test processes. Test facilities use recirculating process water to minimize consumption and only top-up amounts to replenish evaporation quantity is required.

Social – supporting our employees and communities

This element of ESG reflects the company's approach, aptitude and policies in the way it addresses human rights, labour standards, employee wellbeing, diversity and inclusion, workplace environments and health and safety. It incorporates the supply chain, modern slavery risk management and due diligence, sustainable procurement and supplier engagement.

Investing in our communities

It is our policy and objective to make a positive contribution to all regions and communities in which we operate. Many of the larger Ricardo offices support local community activity, especially where colleagues participate in community or charitable fundraising activities. The focus is on creating sustainable links to the community and on improving the image and understanding of the business and the engineering and scientific professions.

Our policy is published here: Engaging and supporting local communities (www.ricardo.com/policies/engaging-and-supporting-local-communities).

We also work with our local communities to provide business input on economic regeneration. We actively engage in local partnerships, particularly in the area around our Shoreham Technical Centre, where we are the largest private sector employer.

Further achievements in 2022

We are proud to have re-launched our STEM (Science, Technology, Engineering and Maths) programme in May following the pandemic. There is a national priority to encourage and engage with young people, in particular women, to study STEM subjects. As an employer with many of our colleagues with backgrounds in these subjects, we actively encourage and support people getting involved in initiatives to take up STEM subjects. Our colleagues can also apply to become an ambassador through our national STEM Learning body.

Donations

We often match staff donations to charitable activities, particularly where there is active staff participation in events. Financial contributions to charities in the financial year were £10,469 (FY 2020/21: £4,787). There was no dominant donation.

The effectiveness of these policies is informally measured by community feedback.

CASE STUDY: SOCIAL

SUPPORTING OUR COMMUNITIES

Ricardo employees have a history of supporting their local and global communities, whether through inspiring the next generation of STEM professionals or supporting those in urgent need.

In March 2022, soon after the invasion of Ukraine, the team in our Prague Technical Centre collected urgently needed medical supplies, equipment and children's toys. Bandages, sterile dressings, disposable gloves and infusion kits, toys and games, nappies/diapers, personal hygiene and cleansing materials, plus bottles and formula milk for babies were delivered to the Ukrainian border for distribution to those in need in Chernihiv, a city about 120 km north of the capital Kyiv.

Ukrainians who had escaped to safety in the Czech Republic were also alerted to current job vacancies for skilled roles with Ricardo in Prague.

Governance and management of ESG matters

The Board is committed to ensuring that the highest standards of governance are maintained throughout the Group. The key elements of our ESG agenda are reviewed on a regular basis. Wider aspects of corporate governance, including how we comply with the provisions of the UK Corporate Governance Code 2018, are described on pages 94 to 100. Our policies are reviewed on an annual basis or sooner if legislation dictates change. The key policies are in the public domain via our website and are referenced in this report. This gives our stakeholders increased transparency regarding our commitments. It reinforces the accountability and responsibility we all share, to ensure the highest standards are maintained across all Group activities.

In addition, this year we have introduced additional governance and oversight from the board down through the organisation.

We have introduced a Group Sustainability Committee, who will meet every quarter. The committee is made up of representatives from each Business Unit and the Executive Team. Each managing director attends with a second nominated team member. Executive representatives also join the meetings and, as we focus on specific topics, specialist experts attend. Training for the Board on specific technical detail is planned, to ensure full updates are provided and give assurance we are on track to meet our strategy commitments. Planned training topics include, but are not limited to climate risk, renewable energy, the evolving transportation market, fossil fuel alternatives, environmental impacts and our progressive journey to net zero.

Managing ESG related risks

To underline the importance of integrity in all relationships between employees and stakeholders, we have policies covering ethics, fraud prevention and our 'Speak Up' programme. These are communicated to all Group employees through our code of conduct, Group values, in annual employee refresher training and in induction training for all new staff. It is also available on the front page of our Intranet R-Live.

Our Group policies which support these key ESG topics are:

- Code of conduct
- Health and safety policy
- Human resources policy
- Human rights policy
- DEI (diversity, equity, and inclusion) policy
- Engaging and supporting local communities
- Environmental policy
- Supplier code of conduct
- Sustainable procurement policy

We recognise that effective management and clear objectives are imperative to address ESG material issues that are an integral part of day-to-day business and form part of our sustainability strategy, with a link to financial performance and long-term business model resilience. Doing the right thing is in our Ricardo DNA and what we believe in.

Our ESG actions are also increasingly built into our core daily activities to ensure the ESG agenda is embedded in our culture and operations. To support this we have appointed a Director of Sustainability, Quality and Risk, Clive Wotton, to lead sustainability across the group.

Clive has been with Ricardo for many years in multiple operational leadership roles, and therefore is well placed to build sustainability into everything we do. We have also recruited a dedicated head of sustainability, Caroline Haycock, to support Clive. Caroline has over 20 years working in CSR and sustainability.

With this combined operational and sustainability leadership expertise we can truly embed ESG into everything we do internally and supporting our customers externally. Some examples of these activities are shown below.

Operational

- Due diligence on clients and suppliers
- Environmental, health, safety risk management on our sites
- Sustainable management of our supply chain
- Training and education
- Care in contracting and continual risk reviews
- Care in segregation of duties and compound authorisations
- Internal and external training regarding conflict of interest, anti-bribery and other hazards that can evolve during long-term contract delivery
- Independent internal risk reviews and support from external audit partners

Client facing

- Policy, strategy and action planning capabilities to help governments, local public sector and corporate clients improve their air quality, thus helping their citizens to have access to clean air
- Environmental planning, asset management and operational improvement plans together with support for strategies around natural capital to provide access to clean water
- Policy and strategy support to governments on decarbonising the transport sector together with cross-sector engineering solutions to accelerate a move to zero tail-pipe emissions
- Comprehensive expertise in safety, assurance and certification
- Innovation to support global net zero and industry agendas

We support these core activities with customer innovation projects and research and development to enhance our capabilities, described on pages 22 to 26. We rely on the innovation and, the talent of highly skilled technical teams, and our investment in their development for the benefit of all our stakeholders. As we provide solutions to our clients in the fields of air quality, water quality, carbon inventory accounting and other services, we are in a unique position to be able to develop and test procedures and methods internally before effectively supporting externally. Ricardo is at the unique intersection of transport technologies, energy and fossil fuel and carbon-neutral fuel evolution. This, together with emissions reduction, management and product development, gives us unrivalled insight into measurement techniques, software, process development and technology evolution for providing net zero journeys for our clients across the world.

Anti-bribery and corruption

Under our ethics policy we do not permit bribery, anti-competitive or corrupt business practices in any dealings. Under our fraud prevention and ethics policies, which cover anti-corruption matters, we do not allow intentional acts by one or more individuals within the business to use deception, bribery or theft to gain unjust or illegal advantage. Our fraud and bribery risk assessment covers a wide range of fraud, corruption, conflict of interest, insider dealing, prevention of facilitation payments, prevention of research misconduct, ethics risks and controls. This is reviewed annually with the Audit Committee. Under our Speak Up policy (previously called Whistleblowing) we provide a procedure for any global team member to raise malpractice concerns anonymously in an appropriate manner, with full protection and safeguarding.

SUSTAINABILITY AND ENVIRONMENTAL, SOCIAL AND GOVERNANCE (ESG)

Our processes consider countries that we undertake business in and the relative levels of corruption therein. To this end, we have classified our revenue with reference to Transparency International's Corruption Perceptions Index (CPI). Of our total revenue, 0.79% was generated in countries with a CPI score of less than 40/100. Of this revenue, the majority is generated by our Energy and Environment business unit in their work with intergovernmental organisations such as the World Bank.

We have integrated a third-party specialist tool into our sustainable procurement processes to provide due diligence checks on new clients, new and existing suppliers and material suppliers. This allows us to identify potential risks and comply with anti-money laundering and anti-bribery and corruption. We have not been subject to any fines or enforcement action on these matters during the year. Ethics and Speak Up policies and reports continue to be reviewed annually by the Audit Committee.

The following table details a number of our key ESG topics and highlights our activities in the area.

	ESG Topic	Highlights
Our people	Healthy people, healthy business	• Focus on well-being and on-going COVID-19 precautions • Employee engagement – survey 2022 based on Gallup12 was 3.9 out of 5) • Employee commuter survey (part of Scope 3) • Employee forums to discuss mental health and menopause and lunchtime yoga
	Human rights	• New signatory to the United Nations Global Compact • Additional training on modern slavery • Training in sustainable procurement and supplier management • Updated Human Rights policy
	Diversity	• Increase in women senior leadership positions from 17% to 18% • DEI Forum coordinates across Group business units • Training and awareness sessions for LGBT+ and celebrating Pride through online workshops
	Health and safety	• Certification to ISO 45001 for 38 sites (98% of employees) • Zero fatalities, 1 reportable accident
Our customers'	Climate change and environmental projects	• 24% of revenue is strongly driven by climate change or the environment • 51% of our revenue is driven by climate change or the environment • 52% of our R&D spend net of government grants was on areas which are intended to provide services that strongly address climate change
Our suppliers	Sustainable Procurement	• Launched an updated supplier procurement programme • Requirement for suppliers to disclose their carbon reduction targets and other related topics, such as modern slavery risk mapping and due diligence • Introduced a new Supplier Code of Conduct
Company	Governance and management of ESG matters	• Compliance with the provisions of UK Corporate Governance Code 2018 • Board oversight of ESG topics • Director of Sustainability appointed • New Sustainability Committee formed – Malin Persson nominated Board member • Membership to ISS online ESG analytics tool
	Environmental stewardship and addressing climate change	• TCFD - further opportunities identified
	Managing our environmental footprint	• Certification to ISO 45001 for 38 sites (98% of employees) • Externally verified greenhouse gas emissions in accordance with ISO 4064-3:2006 • Strategy to be net zero by 2030. Ensure we track and implement per our 2021 commitment to SBTi to meet a 1.5°C future
	Managing ESG related risks	• TCFD activities identified a number of risks, and opportunities • Climate related risks are subject to bi-annual Board review
Society	Supporting governments and public sector bodies on climate change and net zero journeys	• In FY 2021/22 our Energy and Environment Business Unit have supported 52 governments around the world, including 39 national governments and 13 city governments
	Local communities	• Actively promoting science, technology, engineering, and maths (STEM) in schools, colleges, and universities

Health and safety

Ricardo is committed to compliance with local legislation, to a safe working environment and to a minimal level of reportable accidents. We support training in health and safety internal audits and inspections, and we are now certified to ISO 45001 in our technical centres and larger offices in the US, the UK, the Netherlands, Italy, the Czech Republic and China. Our certification directly covers 38 sites and 98% of our site-based employees. Our remaining colleagues and sites are managed via the ISO 45001 processes. Our health and safety policies are available through our intranet and to the public through our website. Risk assessment is an integral part of our processes, both on a project basis for specific hazard management and more generally in the way we manage risk on our sites and in travel.

Our health and safety, human resources and site management teams and occupational health providers have played a key part in our COVID-19 response. They have been actively supporting colleagues with concerns, delivering safe work environments and ensuring the business can operate with rapidly changing regulations across our sites around the world. Towards the end of the financial year this included supporting our Chinese colleagues with food parcels during lockdowns in April and May 2022.

We recognise the level of reportable accidents as a measure of performance in health and safety. The overall level is still low and shows the continued success of our health and safety policies. We continue to target reducing accidents to zero and learning from near misses as part of our commitment to continuous improvement and loss prevention. All accidents and non-injury incidents are investigated and reported to business unit management and employee consultation forums.

Reportable accidents

Year	Number
2021/22	1
2020/21	1
2019/20	1

(*) Based on current definitions of the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR)

Modern slavery

We continue to adhere to the requirements of the Modern Slavery Act 2015 and have published an updated statement for this financial year on our website. We recognise that this is a global issue and that we must ensure that all our colleagues and suppliers, in all countries, are trained and updated on an annual basis.

Our procurement policy requires our suppliers to adhere to national laws and provide us with their due diligence best practice, as part of our partnership to monitor and mitigate the risks of any form of modern slavery. This extends to our supplier's global supply chains as we extend our due diligence process to all locations where we operate and have an impact, directly or indirectly.

We are also responsible for reporting under Australian legislation due to the purchase of Inside Infrastructure, a consultancy based in Adelaide.

We have had no known incidents of exploitation during the year. We welcome and support new legislation as countries introduce further regulations and guidelines for the prevention of all forms of modern slavery. These include, but are not limited to:

- UK Modern Slavery Act 2015 Modern slavery - GOV.UK (www.gov.uk)
- Australia Commonwealth Modern Slavery Act 2018 - Guidance for reporting entities (homeaffairs.gov.au)
- Human Trafficking Legislation (americanbar.org)
- The California Transparency in Supply Chains Act, January 1, 2012.

Ricardo has three manufacturing sites, two in the UK in Shoreham and Leamington Spa, and one in Sterling Heights in the USA, all of which meet our Code, national health and safety legislation, and labour law. We acknowledge there are multiple risks including cleaning, catering and security services, in particular when labour agencies/contractors might be used as an external source of supply both within the UK and overseas. This relates to the offices we own and/or lease and also those of our suppliers. We keep informed through updates from non-governmental organisations such as Anti-Slavery, Unseen and Slave Free Alliance and reference to the Global Slavery Index. Training for all Ricardo colleagues and suppliers, including new employees who join the business, is essential, along with the ongoing process of continual monitoring.

Human rights

In January 2020 we published our human rights policy, clearly stating our commitments towards human rights, which was further updated in April and August 2022. We respect the United Nations (UN) Guiding Principles on Business and Human Rights, UN Guiding Principles Reporting Framework (ungpreporting.org) and UN Universal Declaration of Human Rights.

We committed to compliance with laws and regulations in the regions in which we operate, and we expect all our stakeholders and suppliers to act with respect and dignity in all aspects of human rights. Suppliers are asked to disclose their knowledge of and

adherence to related legislation as part of the supplier approval process.

Our human resources policy states that we respect and protect freedom of expression, freedom of association and prohibit harassment, bullying and discrimination. We promote diversity and clear lines of responsibility, and we are a living wage employer. We focus on our people taking ownership of their work-life balance to provide a flexible working environment.

In South Africa, we have a small team with no known incidents of labour standards breaches during the year. Ricardo South Africa (Pty) Ltd now has Level 4 B-BBEE status.

Sustainable procurement

We believe in long-lasting partnerships with our suppliers, which are built on trust, honesty, full transparency and being equally accountable and responsible for all activities in our global operations. In particular, the treatment of all individuals where we have a presence, directly or indirectly. Maintaining our working relationships with our suppliers is essential in supporting us to achieve our objectives and deliver quality performance and services. We published our procurement policy in January 2020 as part of our commitments to our sustainable future. In April 2022 we updated our policies and procurement processes which launched a new supplier approval and due diligence process for both new and existing suppliers.

Our public policies are:

- Sustainable Procurement Policy (ricardo.com)
- Human Rights (ricardo.com)
- Supplier code of conduct (ricardo.com)

Our internal policies and processes are:

- Sustainable procurement process
- Supplier evaluation questionnaire
- Modern slavery risk review procedure
- Sustainable procurement KPI's

As part of our drive to improve open dialogue and transparency we have published a new Supplier Code of Conduct. This is part of our supplier onboarding approval process, together with due diligence evaluation questionnaires, which are applicable to all existing suppliers, who will also be re-evaluated within agreed timescales.

The majority of our suppliers do not manufacture products, but provide a service. While the new supplier code of conduct focuses on the labour work-force in a manufacturing environment, it also applies to all businesses we work with who employ people across the globe. All individuals must always be treated with dignity and respect – this is a requirement to work with Ricardo. Any non-adherence is a breach of our terms of business. As part of the procurement process, we will be increasing our monitoring as part of the KPI measurements, but also importantly to ensure any corrective actions are remediated within reasonable, agreed timescales.

Our updated supplier evaluation process requires in-depth due diligence and formal sign-off before business can commence. Part of this process requires the supplier to complete an evaluation questionnaire. We ask for details related to all core sustainable activities and evidence must be provided. The topics include, but are not limited to, waste and pollution, climate risks, carbon reduction targets, energy saving and renewables, working conditions, transparency of their supply chains, modern slavery due diligence, the auditing of sites and accreditation to relevant standards.

As part of the supplier procurement launch, the business unit procurement teams have been trained in the new procedures, including additional training relating to modern slavery. Further training has also been conducted for other team members and will be on-going. These sessions have been led by our Group Head of Procurement and Group Head of Sustainability.

Qualification rates are scored and KPI's measured, which will continue with reporting in the next financial year. This process is also applied to existing suppliers, based on potential risk and commercial impacts.

Supplier engagement and key evaluation topics:

Sustainable Procurement	Human Rights and Labour Standards	Environment	Business Ethics and Governance
Supplier business ownership, management structure	Review of modern slavery due diligence, risk assessment review with supplier	Climate risks, reduction targets	Code of Conduct
Supplier engagement and dialogue	Health and safety, working conditions	Greenhouse has emissions and targets	Supplier code of conduct
Transparency of supply chains	No child labour	Waste and pollutants	Anti-bribery and corruption
Validating supplier evidence to compliance	No forced or bonded labour	Raw material sources and chain of custody	Policies
Remediation for issues required improvements	No forced overtime	Use of chemicals and safe disposal	Terms and conditions of conducting business
Performance measurement and KPI's	No discrimination or harassment	Adherence to environmental legislation	Training: Supplier procurement Risk assessments Modern slavery
	Fair wage and working hours		

Consolidation of suppliers shared across the Group business units is essential to ensure we work with the best quality suppliers. Any supplier who does not positively engage or improve may be disengaged from the business if they do not provide the remediation evidence to support non-compliant issues. We support suppliers who are open and transparent and will work with us on our sustainability journey to achieve the required standards.

Our policy states that key suppliers should be certified to ISO 9001, ISO 14001 and ISO 45001 standards, therefore they are encouraged to obtain these accreditations and are required to comply with Ricardo policies, including human rights. There are no significant supply contracts that are essential to the business of the whole Group, and we are not reliant upon any suppliers that would jeopardise the independence of the business.

Initiatives are managed by our Head of Global Procurement and savings are delivered by consolidating the supply base and reducing the total cost of doing business.

Sylwia Soria has a master of engineering degree in quality control, having graduated in management and production engineering. She is currently working as an import export controller for Ricardo Performance Products.

RISK MANAGEMENT AND INTERNAL CONTROL

The Board has overall accountability for ensuring that risk is effectively managed across the Group. We consider that effective risk management is critical to the achievement of Ricardo's strategic objectives and the long-term sustainable growth of our business. Such systems are designed to manage, rather than eliminate, the risk of failure to achieve Ricardo's objectives and can only provide reasonable assurance against material misstatement or loss.

Risks are reviewed by all business areas on a half-yearly basis and measured against a defined set of likelihood and impact criteria. Risks are measured both before and after the mitigating effect of the application of compensating controls. This is captured and reported consistently, enabling the risk information to be consolidated and ranked. The key risks are then summarised in the Group's risk profile and submitted to the Board for review and approval.

As part of the bi-annual risk management process, Directors and senior managers are required to certify that they have established effective controls to manage risk and to comply with legislation, as well as with the Group's policies and procedures.

Ricardo's internal control and monitoring procedures include:

- Clear and understood responsibilities by both line and financial management for the maintenance of good financial controls and the production of accurate and timely management and financial reporting information.
- Requirement for operating segment finance directors or financial controllers to confirm on a monthly basis that appropriate controls are in place and to identify any exceptions, with the outcome being reviewed by the Group Financial Controller and Group Risk Manager & Head of Internal Audit.
- Operating segment finance directors have line management responsibility to their managing directors but with an independent reporting line to the Chief Financial Officer.
- Control of key financial risks through clearly set authorisation levels and appropriate segregation of accounting duties.
- Control of key project risks through project delivery and review systems.
- Control of other key business risks through a number of processes and activities recorded in the Group's risk register.
- Detailed monthly forecasting and reporting of trading results, financial position and cash flow, with regular review by management of variances from budget and forecast.
- Review and reporting by the internal audit function of operating segment compliance with internal procedures and financial controls.
- Review and implementation of recommendations in reports on internal control by external auditors.

To ensure our risk process drives continuous improvement across the business, we monitor the ongoing status and progress of key action plans against each risk on a half-yearly basis. Risk is a key consideration in all strategic decisions made at Board level. In the June 2022 risk review cycle, we considered risks associated with our customers, markets, geopolitical risks, suppliers, employees, finances, Brexit, COVID-19 and climate change. We now report the last of these as an additional principal risk, but it is also an opportunity.

Progress on managing the impacts of COVID-19 was reported to the Board on a regular basis during the early part of the year. Our principal risks and the approach to their mitigation are discussed on pages 58 to 61.

RISK MANAGEMENT AND INTERNAL CONTROL

The Group has risk management processes in place for projects and other business risks. Contract risks are managed through a project management process which is closely linked to measurement of financial performance. The majority of active projects are reviewed on a monthly basis within operating segments. In addition, projects in the highest risk category are independently reviewed by the Group either on a quarterly basis or once significant milestones are deemed to have been achieved. Non-contract risks are owned by the Group functions and operating segment managing directors. These non-contract risks are analysed, regularly reviewed and recorded in the Group's risk register in liaison with the Group Risk Manager & Head of Internal Audit, who has an independent reporting line to the Chair of the Audit Committee. The Group's approach to risk management is to identify key risks early and to remove, control or minimise the impact of them before they occur.

Risk transfer is managed through insurances by the Group Risk Manager & Head of Internal Audit under the direction of the Chief Financial Officer. The insurance programme is reviewed annually by the Board to ensure that it continues to meet business needs as the risk profile changes.

Risk appetite is managed through a number of internal controls, authority limits and insurance excesses. The Group's risk appetite was reviewed during the year as part of the Board's review of risks and is stated as an internal policy document.

The Group's internal audit function provides assurances on operating segment systems of internal control, risk management and compliance with applicable legislation and regulations. This is complemented by internal audits required as part of maintaining certifications to international standards for management systems. The effectiveness of these risk management and internal audit processes is reviewed annually by the Audit Committee and is set out on pages 106 to 109.

Financial risks faced by the Group comprise capital risk, liquidity risk, credit risk and market risk (comprising interest rate risk and foreign exchange risk). The Group's objectives, policies and strategies in respect of these risks are set out in Note 28 to the Group financial statements.

The Company complies with the 2018 UK Corporate Governance Code by ensuring that:

- Risks are either classified as strategic or operational and as either internally or externally driven
- Risks are evaluated on a gross and net risk basis
- The Chief Executive Officer reviews the higher-rated risks on the Group's risk register with the Audit Committee twice each year, in the presence of the other executive directors and the Chair.

We also ensure that emergent risks are considered as part of the Board's existing half-yearly reviews of risk and annual review of strategy.

PRINCIPAL RISK AND UNCERTAINTIES

In common with all businesses, the Group faces risks and uncertainties on an ongoing basis. It is the effective management of these risks that places us in a strong position to be able to achieve our strategic objectives and to embrace opportunities as they arise.

The following table details the Group's principal risks, the mitigating activities in place to address them and the additional actions implemented to further reduce the net risk to the Group.

The mitigation of the principal risks is within the Group's risk appetite, which is reviewed annually by the Audit Committee. It is also recognised that the Group is exposed to a number of emergent risks that are currently deemed to be less material, together with additional risks and uncertainties beyond those listed that are at present not known to management and which may also have an adverse effect on the business.

PRINCIPAL RISK	IMPACT	MITIGATION
CUSTOMERS AND MARKETS		
INCREASED RISK The Group operates in a dynamic, diverse, and politically and economically volatile marketplace, which is exposed to legislative, geopolitical and macro-economic pressures, including increasing interest rates and inflation in input costs and wages, leading to increasing concern over economic growth. Against this, there is pressure to decarbonise our infrastructure and transport systems, improve air quality, reduce greenhouse gas emissions and improve public transport to address climate change.	Changes in the market could cause changes or uncertainty in the product plans of major customers, infrastructure investment by governments or government policy, leading to delays in the placement of new orders or insourcing of activity, the redirection, deferral or curtailment of existing contracts, slippage in payments or variations in demand for resources, types of work and availability of project funding. Unpredictability in the timing of the receipt of orders and the utilisation of our resources to generate revenue and profit may give some volatility in our ability to forecast future performance. Geopolitical risk is one of many factors.	These risks are mitigated by the diversification of the Group, so as to reduce exposure to any one specific customer, territory or segment. Challenges currently being faced by our automotive-related businesses across the globe can be mitigated by other segments. Our strategy focuses on both our environmental and energy transition portfolio, which includes emerging automotive technologies, and established mobility solutions, which enables us to be agile as markets change and new demands are met. Management has a rigorous and vigilant performance review process which is led by the executive to monitor current and forecast performance . In the event of a sudden downturn or change in geopolitical risk in a segment or the wider economy, contingency plans are quickly deployed to minimise the impact on short-term performance and to preserve cash and maintain margins while protecting the long-term needs of the Group's stakeholders. The impact of insolvency risk is mitigated by robust working capital management and the use of credit insurance where this is economically available.
COVID-19 (PANDEMIC DISEASE)		
DECREASED RISK The Group operates in many countries and is subject to their public health controls including the control of diseases that can be classified as pandemics. The consequences of this can be significant disruption to our people and their health, to our operations and ability to travel and to those of customers and suppliers. This situation has existed in various levels and locations through the early parts of the financial year and more recently it continued in some Asian locations.	COVID-19 was the first pandemic to impact the business. The effects included: lockdowns for many weeks in most territories where clients, suppliers and Ricardo operate; working from home or limited staff activity; delays in supplies; significant limitations on commuting and business travel; and new and rapidly changing government requirements. These have had a reduced impact on order intake and revenue compared to FY 2020/21.	This risk was mitigated by a series of actions managed via our crisis management plan which was activated in early February 2020, integrating mitigations from our pandemic disease planning and specific customer and market risks. This command structure was supported by a team of senior Group staff reporting to the CEO and was in place until April 2022 when it became a reactive central activity. We operated our manufacturing and testing activities as near to normal as possible with additional health and safety controls to protect our staff. These controls and responses were reviewed regularly as guidance from governments changed. For our office-based staff, we responded to a variety of lockdown requirements around the world and continued to maximise the IT remote working capabilities deployed in spring 2020. Our operating model has become less dependent on fixed office locations. We have become more agile in the way our office-based staff work and we will need less space in some locations over time, executing an employee-focused 'Healthy People, Healthy Business' approach. We are still very much an office- and site-based business. Our customer and supplier-facing teams have successfully adopted 'digital first' as we sell and deliver. We have started reducing our office capacity to make the business more resilient and efficient. We have increased monitoring of long-term impacts in our supply chain to anticipate potential issues early.

PRINCIPAL RISK AND UNCERTAINTIES

PRINCIPAL RISK	IMPACT	MITIGATION
CLIMATE CHANGE INCREASED RISK Climate change is both a series of risks and opportunities to the business, which we describe in pages 36 to 55 of our Sustainability and ESG section. Our clients' needs will change to meet the demand of society and we have to play our part in reducing the environmental impact of our operations and react to extreme weather events.	If we do not have the right services, capability and products to meet those client needs, we: • Will be unable to meet our strategic objectives • May have assets which are impaired due to the rate of climate change in certain markets • May not deliver our net zero objectives Our Shoreham and Prague sites are exposed to flood risk as sea levels rise. Other offices can be exposed to extreme weather events which could reduce operating efficiency and workforce availability.	We were early adopters of TCFD and are well versed in exploring both the risks and opportunities climate change brings. A core element of our revenue (55%) is generated by projects which are driven by environmental issues or have environmental benefits. We have a net zero strategy described on page 44 underpinned by Science Based Targets which we have now adopted. Our Shoreham site has a flood defence wall which is resilient to 1:200 events allowing for a 1.5°C temperature rise. Our Prague Technical Centre is in an area which is protected by the city's flood defences. As a result of the agility learned from the COVID-19 experiences, we have improved resilience via the ability of most office-based staff to work remotely. We review the values of our assets for climate change-related impairment on an annual basis. This is an element of wider impairment reviews described in Notes 1(m)-1(o) to the Group financial statements.
CONTRACTS NO CHANGE TO RISK The Group's revenue arises from a broad risk of contract types for engineering, technical, environmental and strategic consultancy services, product supply (niche manufacturing of parts and components), together with accreditation and independent assurance services, with an increasingly broad range of projects, technologies, customers and geographies. There is a risk that the obligation to complete the agreed scope of these contracts may be carried out over a longer timescale or in a less cost-efficient manner than initially estimated, reducing profit margins. In product supply contracts, there is a risk of product liability, recall or warranty claims and dependency on specialist suppliers. Contracts denominated in foreign currencies can be subject to exchange rate risk.	Failure to perform on contracts within estimated cost and delivery timescales could impact profitability. Faulty products, or the infringement of the rights of others, could potentially subject the business to increased costs, a claim from a customer, reputational damage or reduced opportunity for repeat business. Failure of production processes or product validation could lead to warranty or recall claims. Failure or poor performance of a supplier could disrupt delivery to customers and increase operating costs. Unhedged adverse foreign exchange rate movements on contracts could also affect profitability.	Project leadership and management are the Group's core competencies. Led by the Group Director, Sustainability, Quality, and Risk, the Group remains focused on the continuous improvement of these functions. Risks are proactively managed by clearly defined lead qualification, bidding, contracting and project management processes, whereby projects are initially categorised according to their risk level and their performance is continually assessed throughout the life of the project, which in turn dictates the level of approval or review required. Internal procedures are in place to ensure that the technical content of our output is of high quality and meets customer requirements without infringing the rights of others and is delivered within time and cost estimates. Sustainable procurement processes are in place to assess most suppliers and selections are often made with the involvement of the customer. In product supply contracts, there are rigorous quality assurance processes in place to reduce the risk of product liability, warranty and recall claims. Significant contracts in foreign currencies are hedged to protect against volatility in exchange rates.

PRINCIPAL RISK AND UNCERTAINTIES

PRINCIPAL RISK	IMPACT	MITIGATION
PEOPLE		
INCREASED RISK Ricardo is a diverse business that is knowledge-driven and people-led, with a focus on attracting and retaining the best talent. Recruiting, developing and retaining knowledge and diverse talent in the right locations is becoming increasingly challenging, given competition of talent in key growth areas of the business and the increasing cost of living, which is placing upward pressure on wages.	The failure to recruit, develop or retain the very best talent would restrict growth and the execution of our strategy in response to the megatrends, and would have an impact on delivery and customer relationships.	The Group is focused on enabling meaningful and fulfilling work as part of Ricardo being a purpose-led business. We aim to ensure that we actively develop and manage staff to encourage the Ricardo DNA in an environment where everybody belongs; we foster professional development and we provide appropriate remuneration and flexibility in working conditions. We are sharing best practice in talent acquisition across business units so we can maximise recruitment and retention efficiency. Our IT infrastructure enables us to share work and mitigates mobility issues. Our people as stakeholders are discussed further on pages 27 to 33.
TECHNOLOGY		
NO CHANGE TO RISK The business is enabled through the development of new technology to meet the needs of market sectors, customers and regulators on varying timescales.	If the Group invests in technologies that later prove to be unsuitable, it could lose marketplace advantage and revenue could reduce. If there are disruptions in the implementation of new regulations, which in turn accelerate or delay customer programmes dependent on new technology, the time taken to deliver returns from our research and development (R&D) programmes may also increase.	Our R&D programmes are developed through a mixture of customer consultation, long-range forecasting, thought leadership and deep technology roadmap development. Many of our programmes are collaboratively developed and delivered with customers, partners, governments and suppliers, which creates strong links to the market and ensures the output is relevant and credible. We are increasingly leveraging digital and data science technologies as enablers for our innovations. The programmes are approved and delivered within the operating segments. Staff and facilities are shared across multiple geographies to deliver innovative solutions and services to the market and capitalise on our internally developed intellectual property and know-how. Capitalised development costs are subject to regular review to assess project progress, returns and any risk of impairment. Further details of a selection of our current R&D programmes are given on pages 22 to 26.
SUPPLY CHAIN		
INCREASED RISK The Group is dependent on suppliers for its production activities in its Performance Products and Defense segments as well as other suppliers to enable other operations. Our clients who depend on production supply chains to generate their revenue and ability to give work to Ricardo can be subject to sector-related supply chain capacity constraints, raw material shortages, and increasing input prices (driven by various geopolitical factors). Suppliers who do not meet the requirements of our new Supplier Code of Conduct could be a risk to the business.	Our production operating segments could be subject to interruptions or reduced output if our suppliers cannot deliver to time or quality or the client has supply chain issues and reduces demand on Ricardo. In addition, as we do not deliver a complete product, other suppliers to our customers may cause supply chain interruptions which lead our customers to halt production. The latter could impact Ricardo. Sector-wide supply chain disruption will reduce the market size of funding availability for product development work, particularly in Automotive and Industrial. Ricardo's margins would be impacted if increasing supply chain costs are not managed appropriately.	The choice of our production suppliers is often undertaken with the original equipment manufacturer client so that risk assessments are shared. Final selection is normally a client decision. Supplier quality assurance needs are agreed with clients and operate within our processes and ISO 9001 certifications. We have increased our production supply chain monitoring and expediting capability and capacity. The segment-wide risks are managed as any other customers and markets risks described above. We have implemented a sustainable procurement process to increase supply chain transparency and a Supplier Code of Conduct to state clearly our supplier expectations. This has been communicated to all active suppliers.

PRINCIPAL RISK AND UNCERTAINTIES

PRINCIPAL RISK	IMPACT	MITIGATION
LAWS AND REGULATIONS		
INCREASED RISK The Group's operations are subject to an increasingly wide range of evolving domestic and international laws and regulations, including restrictions, standards and tax legislation and a dynamic sanctions landscape.	Failure to comply with, or failure to adapt to changes in, laws and regulations including restrictions, standards, export controls and tax legislation could expose the Group to increased compliance costs, fines, penalties or reputational damage, or result in trading restrictions which could have a materially adverse impact on the business or impede the Group's ability to recover certain available tax-related credits.	To mitigate these risks, the Group has a number of defined policies and operating procedures in place and takes professional advice, where considered necessary, to ensure that the Group acts upon current and anticipated changes in legislation. Our Code of Conduct, which is published on www.ricardo.com, ensures that employees and others act with the highest ethical standards and within local legal and regulatory requirements. The Group's internal audit programme includes within its remit the review of compliance with applicable legislation and regulations and awareness of key Group policies and procedures. These are updated as regulations change and as a result of our continuous drive to adopt best practice. We aim to anticipate the impact of working in new countries and new sectors, particularly within our Rail business, which operates in a growing list of territories and cultures, each with its own regulations, standards and laws with which we need to comply. Unsettled tax credits claimed within a financial year are recognised to an appropriate level at which management is highly confident of full recovery, and in a manner that is consistent with both current legislation and professional advice.
DEFINED BENEFIT PENSION SCHEME		
DECREASED RISK The Group has a UK defined benefit pension scheme ('the RGPF') which is currently in a funding surplus (the scheme is in surplus on an IAS 19 accounting basis). The scheme's assets and liabilities continue to be subject to volatility due to various geopolitical factors, supply chain shortages and global inflationary pressures.	Any decline in the value of the pension fund assets, increase in life expectancy, long periods of high inflation or decreases in interest rates would reduce the surplus. If the scheme were to move into deficit this could require additional funding contributions in excess of those currently expected.	The Group closed the pension fund to future accrual in February 2010. The last approved triennial valuation of the RGPF, with an effective date of 5 April 2020, was signed on 30 November 2021. Based on the funding plan agreed, monthly contributions to the RGPF reduced from £385,000 (£4.6 million per annum equivalent) to £150,000 (£1.8 million per annum equivalent) in November 2021, continuing at this level until 31 October 2023. Further details of the Group's defined benefit pension scheme can be found in Note 34 to the Group financial statements.
FINANCING		
DECREASED RISK The Group is in a net debt position, having drawn on available facilities primarily to fund acquisitions and for general corporate purposes.	There is a risk of the Group being unable to secure sufficient financing at reasonable cost in order to carry out its strategic objectives.	This risk is mitigated by robust cash and working capital management, regular process improvement initiatives, monitoring actual cash flows to budgets and forecasts, maintaining good relationships with the Group's bankers and ensuring that sufficient borrowing facilities are in place at all times to support the Group's funding requirements to deliver on its growth strategy, with additional headroom available to meet possible downside scenarios. As at 30 June 2022, the Group had committed bank facilities of £200 million which provides more than sufficient headroom in its funding needs and covenants. The Group completed a refinancing of its facilities on 2 August 2022. Having assessed the Group's funding needs, and to continue to protect against downside scenarios while supporting the Group's growth strategy, we have reduced the committed bank facilities to £150 million. Further details of the Group's borrowing facilities and other financial risks can be found in Note 25 and Note 28 to the Group financial statements, respectively.
INFORMATION SECURITY		
INCREASED RISK Ricardo has valuable information assets comprising systems, hardware and data.	The loss, theft, or inability to access information assets could result in reputational damage, loss of competitive advantage, business disruption and financial penalties.	Ricardo has implemented an Information Security Management System (ISMS) which is certified to ISO 27001 Information Security Management. We have adopted a layered defence in depth approach, with dedicated information security resources who continuously monitor controls and adapt them in response to emerging threats. Penetration tests are conducted regularly by both internal and external resources to augment our control regime. Information security risks are reviewed each quarter by the Group IT Director. The performance, progress and continued maturing of our information security controls are monitored bi-annually by the Audit Committee.

VIABILITY STATEMENT

The Directors have assessed the prospects of the Group in accordance with provision 31 of the 2018 UK Corporate Governance Code.

The context supporting the assessment

The Group's prospects are underpinned by its business model and strategy, which can be found on pages 14 to 17. The Group continues to follow a balanced approach to its strategy, which is subject to ongoing monitoring and development as described herein. In FY 2021/22, the Group delivered revenue of £387.3m and underlying operating profit of £30.1m, excluding the results of Ricardo Software, classified as a discontinued operation, growth of 10% and 33% on the prior year, respectively. On a continuing basis, the Group delivered revenue of £380.2m and underlying operating profit of £28.0m, growth of 11% and 37% on the prior year. FY 2021/22 Adjusted EBITDA, defined as earnings before interest, tax, depreciation, impairment and amortisation, excluding the impact of IFRS 16 Leases, adjusted for any one-off, non-recurring, exceptional costs and acquisitions or disposals, was £44.0m, or £38.8m from continuing operations.

The Group enters the new financial year with an order book from continuing operations of £340.0m, growth of 17% on the prior year, of which c.70% is expected to be workable within the next 12 months. The year-end order book comprises the value of all unworked purchase orders and contracts received from customers.

At 30 June 2022, the Group held total banking facilities of £216.8m, comprising the £200m Revolving Credit Facility (RCF) and overdrafts of £16.8m. After the year-end, the Group completed a refinancing of its facilities, entering into a new £150m RCF, which provides the Group with committed funding through to July 2026. The facility offers a £50m accordion together with an option to extend to June 2027. Net debt at 30 June 2022 was £35.4m, comprising cash and cash equivalents of £50.5m and borrowings, including hire purchase liabilities, but excluding IFRS 16 lease liabilities, of £85.9m. Adjusted Leverage, defined as net debt over Adjusted EBITDA, was 0.8x, providing significant headroom of 2.2x against the covenant limit of 3.0x. Interest cover, defined as Adjusted EBITDA over net finance costs, excluding pension and IFRS 16 interest, was 13.7x, compared to the covenant limit of 4.0x. There are no changes to debt covenants under the new facility.

The strategy of the Group is to deliver long-term and sustainable growth in environmental and energy transition services. The Group's businesses focus is on the development of longer-term, multi-year contracts and relationships, underpinned by global long-term megatrends. The Board has considered the risk appetite and profile of the Group in this context and has determined that this remains appropriate for the Group as a whole.

Assessing the prospects of the Group

The Group's prospects are assessed primarily through its five-year business planning process, introduced in FY 2021/22 (formally the detailed business planning process covered a three-year period), led by the Chief Executive Officer.

The five-year planning process is a forward-looking process which is undertaken by Group management and the Group's constituent operating segments in the second half of the financial year. The planning process includes an assessment of changes in the market and competitive environment, together with macroeconomic, political, societal and technological changes. The detailed operating segment business plans are consolidated to form a Group-wide budget and five-year plan.

The Group-wide and individual operating segment plans are reviewed and approved by the Board. Part of the Board's role is to review the performance of the Group in the last financial year and to consider whether the plan presented is appropriate. The first year of the business plan forms the Group's annual operating budget. This is subject to a re-forecast on a monthly basis.

Assessment of viability

The five-year business plan reflects the best estimate of the prospects of the Group. The plan has been stress-tested, to consider the impact of known risks, including the pace of technological change in the automotive sector, driven by climate change, which continues to shift rapidly away from the traditional internal combustion engine towards more renewable propulsion methods, on the Group's results, operations and financial position in a severe but plausible downside scenario. The scenario includes lower gross margins and higher costs across the operating segments to account for global inflationary pressures and the removal of new or 'blue sky' revenue streams, together with:

- A 10% reduction in Automotive & Industrial revenue from established mobility solutions each year, together with a lower growth rate in emerging solution revenues
- Reduced revenue growth rates in Energy & Environment
- A decline in Rail revenue and EBITDA in FY 2022/23
- Delays in the ramp-up of production volumes in Performance Products and Defense on key programmes with no revenue from new revenue streams in later years
- An increase of 10 working capital days for each operating segment in FY 2022/23 and FY 2023/24 and further increases in later years.

The scenario was separately adjusted to exclude the results of Ricardo Software and to build in the proceeds from the disposal of the business, which was completed on 1 August 2022.

The scenario incorporates the appropriate reversal of discretionary bonus payments and setting appropriate levels of dividends based on the sensitised results of the operating segments. The scenario results in a reduction of c.10% in the Group's Adjusted EBITDA from continuing operations in FY 2022/23, with a further c.15% reduction in FY 2023/24 on the sensitised FY 2022/23 Adjusted EBITDA.

The impact of this scenario on the Group's business plan has been quantified and presented to the Board as part of the approval process. The scenario, which is based on aspects of the Group's principal risks and uncertainties, including customers and markets, contracts, and financing, as set out on pages 58 to 61, and takes into consideration the risks identified as part of our TCFD work, as set out on pages 41 to 43, represents severe but plausible circumstances that the Group could experience.

The results showed that the Group would be able to continue operating well within its debt covenants and liquidity headroom under the downside scenario. If full bonus costs were included, headroom under the Group's banking covenants and liquidity is reduced, but no covenants are breached.

The Group also performed reverse stress-testing on its financial plan using these scenarios to identify the point at which its banking covenants would be breached. Based on this reverse stress testing, a further c.45% reduction in sensitised Adjusted EBITDA compared to the downside scenario would be required in FY 2022/23 (c.40% in later years) before covenants are breached. In the event of such scenarios materialising, more severe cost actions would be taken to ensure covenant compliance.

The Directors have assessed the prospects of the Group over the five-year plan period to 30 June 2027, consistent with the five-year planning process, and confirm that their assessment of the principal risks and uncertainties facing the Group was robust.

Based on their assessment of prospects and viability, the Directors confirm that they have a reasonable expectation that the Group will be able to continue in operation and meet its liabilities as they fall due over the five-year period ending 30 June 2027.

Going concern

Given the viability statement provided above, the Directors consider it appropriate to prepare the financial statements on a going concern basis, as explained in Note 1(a) to the Group financial statements.

CASE STUDY

ENERGY TRANSITION

ENABLING A CARBON-NEGATIVE FUTURE

CASE STUDY

In partnership with Bluebox Energy and Woodtek Engineering, Ricardo has received £3 million from the UK Government to design, install and operate a combined heat and power demonstrator plant with a negative carbon footprint. This will showcase climate-repairing technology.

The project uses Ricardo's 20-year experience in bioenergy and carbon dioxide capture and utilisation technologies, combining skillsets from the Energy and Environment (EE) and Automotive and Industrial (A&I) operating segments.

Using sustainably sourced forestry waste, the plant will demonstrate the effectiveness of community-scale greenhouse gas removal and provide up to 300 local homes and businesses with renewable heat and electricity. It will also demonstrate a realistic carbon negative technology than can offset hard-to-decarbonise sectors and deliver national energy security.

Commercially marketable by-products from the system include industrial-quality carbon dioxide and biochar (similar to charcoal), which can be used by anaerobic digester operators, in wastewater treatment sites, by farmers to improve soil fertility and as a supplement to animal feed to suppress methane emissions by livestock.

The demonstrator plant is planned to be operational by mid-2023 and, if successful, can generate significant profitable revenue growth in clean energy and resources.

FINANCIAL REVIEW

"The Group has delivered a set of results in line with the Board's expectations, with good growth in revenue and profitability, driven by a rebound in our Automotive and Industrial segment and continuing growth in Energy and Environment. Our cash performance has been strong, with working capital and net debt both reducing year-on-year.

"The successful acquisition of Inside Infrastructure, which expands the Group's environmental services activities in Australia, has added £0.9m to the Group's revenue and £0.1m to operating profit in the year.

"In line with our strategy, we completed the sale of Ricardo Software after the year-end, further reducing net debt and providing funds for future investment."

Group results

This year, the Group delivered total revenue of £387.3m and underlying profit before tax of £26.3m, an increase of 10% and 46% on the prior year, respectively. Revenue and underlying profit before tax from continuing operations, which excludes the results of Ricardo Software, held for sale as at 30 June 2022 (see Note 3 to the Group financial statements), were £380.2m and £24.2m, increases of 11% and 54% on the prior year. Reported profit before tax from continuing operations, after deducting specific adjusting items, was £12.4m (FY 2020/21: £2.0m).

On a constant currency basis, revenue from continuing operations increased by £36.7m (11%) compared to FY 2020/21. Similarly, on a constant currency basis, underlying operating profit and profit before tax from continuing operations increased by £7.6m (37%) and £8.5m (54%), respectively.

The results were in line with the Board's expectations and reflect good year-on-year growth across a number of our segments, particularly Automotive and Industrial (A&I), which has continued its positive trajectory as it repositions itself as a global business in a rapidly changing market, and Energy and Environment (EE), which continues to see high demand for its decarbonisation services.

On 21 March 2022, we successfully acquired Inside Infrastructure Pty Ltd (Inside Infrastructure), which specialises in water and sustainable resource management within Australia. Inside Infrastructure added £0.9m of revenue and £0.1m of operating profit and profit before tax to the Group's results in FY 2021/22 (see Note 14 to the Group financial statements).

Net debt was £35.4m at 30 June 2022, compared to £46.9m at 30 June 2021. This improvement reflects a strong working capital performance. Excluding restructuring costs and acquisition-related payments, working capital reduced by £8.2m and the Group generated more than £25m of cash in the year (see net debt below).

Order intake from continuing operations up 24% (constant currency: 23%) on FY 2020/21 with closing order book of £340.0m

Order intake from continuing operations of £425.3m represents a 24% increase on the prior year order intake of £344.1m (constant currency: 23%), with growth across all segments. Order intake includes £1.6m from Inside Infrastructure. There were significant increases in year-on-year order intake in A&I (38%, constant currency: 37%), driven by increasing demand for electrification, power electronics

IAN GIBSON
CHIEF FINANCIAL OFFICER

Headline trading performance

		Underlying[1]		Reported	
	Revenue	Operating profit	Profit before tax	Operating profit/(loss)	Profit/(loss) before tax
	£m	£m	£m	£m	£m
2022					
Total	**387.3**	**30.1**	**26.3**	**17.0**	**13.2**
Less: discontinued operation	(7.1)	(2.1)	(2.1)	(0.8)	(0.8)
Continuing operations	**380.2**	**28.0**	**24.2**	**16.2**	**12.4**
Less: performance of acquisitions	(0.9)	(0.1)	(0.1)	(0.1)	(0.1)
Continuing operations - organic	**379.3**	**27.9**	**24.1**	**16.1**	**12.3**
2021					
Total	351.8	22.7	18.0	8.6	3.9
Less: discontinued operation	(8.1)	(2.3)	(2.3)	(1.9)	(1.9)
Continuing operations	343.7	20.4	15.7	6.7	2.0
Continuing operations at current period exchange rates	343.5	20.4	15.7	6.8	2.1
Growth – total (%)	**10**	**33**	**46**	**98**	**238**
Growth – continuing operations[2] (%)	**11**	**37**	**54**	**142**	**520**
Growth – continuing organic[3] (%)	**10**	**37**	**54**	**140**	**515**
Constant currency growth[4] - continuing operations (%)	**11**	**37**	**54**	**138**	**490**

(1) Underlying measures exclude the impact on statutory measures of specific adjusting items as set out in Note 2 and Note 7 to the Group financial statements. Underlying measures are considered to provide a more useful indication of underlying performance and trends over time.
(2) Growth from continuing operations excludes the results of Ricardo Software, which was sold on 1 August 2022.
(3) Organic growth excludes the performance of current year acquisitions (Inside Infrastructure, see Note 14 to the Group financial statements) from the results of FY 2021/22.
(4) The Group generates revenues and profits in various territories and currencies because of its international footprint. Those results are translated on consolidation at the foreign exchange rates prevailing at the time. Constant currency growth/decline is calculated by translating the result for the current year using foreign currency exchange rates applicable to the prior year. This provides an indication of the growth/decline of the business, excluding the impact of foreign exchange (see Note 2 to the Group financial statements).

and software services, together with clean sheet engine design for marine applications, and Performance Products (PP) (31%, excluding Ricardo Software, constant currency: 31%), which was successful in securing a multi-year order to continue to supply transmissions for a single make racing series. EE order intake continued its consistent year-on-year growth trajectory, with a 16% increase (constant currency: 16%), with the key driver of growth being the Sustainability practice. Defense order intake increased by 12% (constant currency: 10%), which secured USD 34m (£27m) of orders for the Anti-lock braking system/electronic stability control (ABS/ESC) retrofit programme and Rail order intake grew by 14% (constant currency: 16%), driven by a number of project extensions and new wins in North America, which is a key growth market for Ricardo.

Revenue from continuing operations up 11% (constant currency: 11%) on FY 2020/21

FY 2021/22 revenue from continuing operations was £380.2m, compared to £343.7m in the prior year (£343.5m on a constant currency basis). Revenue includes £0.9m from Inside Infrastructure. Revenue increased across all operating segments with the exception of Rail.

EE revenue grew by 18% (constant currency: 18%), with strong demand from international governments to support climate commitments and from private sector clients for sustainability and net zero support. A&I revenue grew by 19% (constant currency: 18%) as a result of the growth in order intake. Defense revenue increased by 19% (constant currency: 18%), driven by increased ABS/ESC volumes and engineering services work. PP revenue increased by 5% (constant currency: 5%) due to growth in transmission volumes. Rail revenue declined by 4% (constant currency: 3%) due to the wind down of a number of projects and delays in starting new work.

Operating segment summary

	2022		2021		2021 at constant currency	
	Underlying operating profit	**Underlying operating profit margin %**	Underlying operating profit	Underlying operating profit margin %	Underlying operating profit	Underlying operating profit margin %
EE	**9.1**	**13.5**	8.5	14.9	8.5	14.9
Rail	**7.7**	**10.4**	8.0	10.3	7.9	10.3
A&I	**3.7**	**3.1**	(3.6)	(3.6)	(3.6)	(3.5)
Defense	**5.9**	**13.1**	5.4	14.2	5.5	14.4
PP	**7.2**	**9.8**	6.7	9.6	6.7	9.6
Operating segments – continuing operations	**33.6**	**8.8**	25.0	7.3	25.0	7.3
Plc costs	**(5.6)**	**-**	(4.6)	-	(4.6)	-
Total - continuing operations	**28.0**	**7.4**	20.4	5.9	20.4	5.9
Discontinued operation	**2.1**	**29.6**	2.3	28.4	2.3	28.0
Total	**30.1**	**7.8**	22.7	6.5	22.7	6.5

The segmental results are discussed in more detail on pages 73 to 89.

Underlying operating profit from continuing operations of £28.0m, up 37% (constant currency: 37%) with reported operating profit from continuing operations of £16.2m (FY 2020/21: £6.7m)

Underlying operating profit from continuing operations, which excludes specific adjusting items, increased by 37% (constant currency: 37%) to £28.0m (FY 2020/21: £20.4m, £20.4m on a constant currency basis). FY 2021/22 underlying operating profit includes £0.1m from Inside Infrastructure. Underlying operating profit margin from continuing operations increased to 7.4% from 5.9% (constant currency: 5.9%) in the prior year.

The combination of revenue growth and the implementation of the global operating model resulted in A&I significantly improving its underlying operating profit from a loss of £3.6m in FY 2020/21 (constant currency: loss of £3.6m) to a profit of £3.7m in FY 2021/22. A&I's underlying operating profit margin improved from negative 3.6% (constant currency: 3.5%) to positive 3.1%. On a reported basis, including costs from reorganisation activities, A&I's operating loss decreased from £9.2m in FY 2020/21 to £1.5m in FY 2021/22.

Underlying operating profit improved in EE and Defense, but margins were lower than the prior year due to increased operating costs in EE, to support the growth of the business, and the mix of work in Defense, with higher ABS/ESC material costs. PP underlying operating profit grew year-on-year and margins were in line with prior year. Rail underlying operating profit reduced as a result of the reduction in revenue.

Reported operating profit from continuing operations was £16.2m, growth of 142% (constant currency: 138%) on FY 2020/21. Within continuing operations, the Group recognised costs of £11.8m in respect of specific adjusting items relating to the amortisation of acquired intangible assets, external project costs, restructuring actions in A&I and Rail, the recognition of costs in relation to the implementation of a new cloud-based ERP system in PP, and a gain on the settlement of a quasi-equity investment in one of the Group's subsidiaries. A further £1.3m of external costs in relation to the disposal of Ricardo Software, held for sale at 30 June 2022, have been recognised as specific adjusting items within the discontinued operation. Specific adjusting items relating to earn outs for previously completed acquisitions and restructuring actions in A&I were also recognised in the prior year. Specific adjusting items are discussed in more detail below.

Underlying profit before tax from continuing operations of £24.2m, up 54% (constant currency: 54%) on FY 2020/21, with a reported profit before tax from continuing operations of £12.4m (FY 2020/21: profit of £2.0m)

The increase in underlying profit before tax from continuing operations, from £15.7m (constant currency: £15.7m) to £24.2m, was primarily driven by the improvement in the underlying operating profit.

As noted above, the FY 2021/22 reported profit before tax from continuing operations includes £11.8m of costs relating to specific adjusting items (FY 2020/21: £13.7m), discussed in more detail below.

Net debt down 25% to £35.4m (FY 2020/21: £46.9m)

Closing net debt was £35.4m (FY 2020/21: £46.9m). The Group had a net cash inflow for the period of £11.5m. During the year, the Group acquired the share capital of Inside Infrastructure for an initial up-front consideration of AUD 10.4m (£5.6m), including AUD 0.9m (£0.5m) for net cash and normal working capital. AUD 1.0m (£0.6m) of cash was acquired. The Group also paid acquisition-related earn out and retention costs of £4.9m, other acquisition and disposal-related fees of £1.2m, costs for the exit of the former CEO (£0.8m), and reorganisation costs of £2.4m. Excluding these specific adjusting items, the Group generated more than £25m of cash, which was achieved through a combination of the improved profitability and a continuing strong focus on working capital management. The composition of net debt is defined in Note 25 to the Group financial statements.

Sale of Ricardo Software

In line with our strategy, on 1 August 2022 the Group completed the sale of Ricardo Software, which was previously reported within the PP reportable operating segment. The maximum cash consideration receivable is USD 20.5 million (£16.7m), of which USD 17.5m (£14.3m) was received on completion and up to a further USD 3.0 million (£2.4m) is receivable based on Ricardo Software achieving certain revenue targets in the twelve-month period post-completion. The sale further reduces our net debt and provides funds for future investment. In FY 2021/22, Ricardo Software generated revenue of £9.4m, of which £2.3m was from sales to the rest of the Ricardo Group, and contributed £2.1m to the Group's underlying operating profit (FY 2020/21: revenue of £10.3m, of which £2.2m was from sales to Ricardo Group, and underlying operating profit of £2.3m). FY 2021/22 underlying operating profit excludes £0.3m of amortisation which was not charged as Ricardo Software was held for sale in June 2022.

Basis of preparation

These consolidated financial statements of the Ricardo plc Group (Group) have been prepared in accordance with have been prepared in accordance with UK-adopted international accounting standards. The Group's principal accounting policies are detailed in Note 1 to the Group financial statements. Those accounting policies that have been identified as being particularly sensitive to complex or subjective judgements or estimates are disclosed in Note 1(d) to the Group financial statements.

Reported results represent the Group's overall performance in accordance with IFRS. The Group also uses a number of alternative performance measures (APMs) in addition to those reported under IFRS. Ricardo provides guidance to the investor community based on underlying results.

The underlying results and other APMs may be considered in addition to, but not as a substitute for or superior to, information presented in accordance with IFRS. Explanations of how they are calculated and how they are reconciled to an IFRS statutory measure are provided in Note 2 to the financial statements.

Underlying results include the benefits of the results of acquisitions and major restructuring programmes but exclude significant costs (such as the amortisation of acquired intangibles, acquisition-related expenditure, reorganisation costs and other specific adjusting items). Ricardo believes that the underlying results, when considered together with the reported results, provide investors, analysts and other stakeholders with helpful complementary information to better understand the financial performance and position of the Group.

Specific adjusting items

As set out in more detail in Note 2 and 7 to the Group financial statements, the Group's underlying profit before tax from continuing operations for the year excludes £11.8m of costs incurred during the period that have been charged to the income statement as specific adjusting items (FY 2020/21: £13.7m). Including the discontinued operation, total specific adjusting items recognised in the year were £13.1m before tax (FY 2020/21: £14.1m).

Amortisation of acquired intangible assets was £4.5m in the year, compared to £5.0m in FY 2020/21, with the reduction reflecting the end of the amortisation of intangible assets acquired as part of the purchase of AEA Ltd in 2012. A charge of £0.1m has been incurred in FY 2021/22 in respect of intangibles acquired following the acquisition of Inside Infrastructure.

Acquisition-related costs of £0.8m were incurred in the year (FY 2020/21: £1.7m). These related to external fees paid in respect of the Inside Infrastructure acquisition, associated integration costs, a retention bonus for the former shareholders of Ricardo Energy Environment and Planning (REEP), acquired in FY 2019/20, and external fees on other strategic projects. The prior period included £1.6m in relation to earn-out and deferred compensation payments for REEP and Ricardo Rail Australia (RRA), acquired in FY 2018/19, together with £0.1m of external fees in relation to a strategic project.

Purchases and disposals: A charge of £0.3m (USD 0.4m) was incurred in FY 2021/22 in respect of the reduction in the fair value of contingent consideration from the sale of the Group's test operations in Detroit in June 2020. This was a result of a reduction in the volume of traditional engine test work than expected at the time of the sale. A similar charge of £0.5m was recognised in FY 2020/21. The prior year also include a charge of £1.5m in respect of the reduction in the fair value of the Detroit Technology Campus (DTC) as the impact of COVID-19 on the local property market reduced demand for office space and reduced prices.

£1.3m of costs were recognised in the year in respect of external fees incurred in the disposal of Ricardo Software (FY 2020/21: £0.4m). These costs have been recognised within the discontinued operation and have been classified as specific adjusting items as they are incremental costs which are directly attributable to the sale of the business.

Other reorganisation costs: During the second half of the year, the Group commenced a major restructuring programme to combine the three regional A&I businesses in EMEA, US, and China, into one globally operated business, re-aligned around two key pillars: emerging technologies, focused on electrified propulsion, vehicle integration and software and digital services; and established mobility, focusing on high efficiency internal combustion engines (ICE) and emissions compliance. This programme has resulted in £5.3m of reorganisation costs in FY 2021/22, relating to:

- headcount reductions (£2.3m), predominantly in senior management and administrative positions;
- property downsizings and exits (£0.9m), in respect of a reduction in the footprint in Europe;
- the impairment of intangible assets (£2.0m) in relation to technologies and services that the business will not focus on going forwards; and
- external advisory and legal fees (£0.1m) to support the programme.

The cash cost of the actions in the year was £0.5m. This programme will continue into the next financial year, where the Group expects to incur a similar level of income statement expense. The total cash cost of the programme is estimated to be in the region of £4.5m.

FY 2021/22 reorganisation costs include a credit of £0.4m in respect of unutilised provisions from the prior year. In FY 2020/21, £3.4m of reorganisation costs were incurred in the A&I business in EMEA, as a result of the challenging trading conditions and COVID-19, which combined to depress short-term workable orders and delay projects. This led to in headcount reductions (£2.5m, of which £2.1m was utilised in FY 2021/22) and the exit from sites in Cambridge (£0.7m) and Germany (£0.1m), as well as the write off of some equipment in the Santa Clara Technical Centre, which was exited in June 2020 (£0.1m). The cash cost of the FY 2020/21 actions in FY 2021/22 was £1.6m.

£1.0m of reorganisation costs were incurred in Rail in FY 2021/22 as a result of a significant review of its operational structure, aimed at creating a more flexible and agile business. Costs incurred related to the exit of a number of senior positions in the organisation. The review will continue into FY 2022/23. The cash cost of these actions in FY 2021/22 was £0.3m.

ERP system implementation costs: Due to the result of guidance being issued following a recent IFRS Interpretations Committee (IFRIC) decision, £0.5m of external costs incurred and capitalised in FY 2020/21 (in line with prevailing practice at the time), together with £0.1m incurred in FY 2021/22, in relation to the implementation of a new cloud-based ERP system within

Reconciliation of underlying profit before tax to reported profit before tax

£m	FY 2021/22	FY 2020/21
Underlying profit before tax from continuing operations	**24.2**	15.7
Amortisation of acquired intangibles	**(4.5)**	(5.0)
Acquisition-related expenditure	**(0.8)**	(1.7)
Reorganisation costs:		
• A&I US – Test business change in fair value of contingent consideration	**(0.3)**	(0.5)
• A&I US - DTC purchase and impairment	**-**	(1.5)
Asset purchases and disposals	**(0.3)**	(2.0)
• A&I - reorganisation costs	**(4.9)**	(3.4)
• Rail - reorganisation costs	**(1.0)**	-
Other reorganisation costs	**(5.9)**	(3.4)
ERP implementation costs	**(0.6)**	-
FX revaluation	**0.3**	-
CEO exit costs	-	(1.5)
GMP equalisation	-	(0.1)
Total specific adjusting items from continuing operations	**(11.8)**	(13.7)
Reported profit before tax from continuing operations	**12.4**	2.0
SAI recorded in discontinued operation		
Ricardo Software external fees	**(1.3)**	(0.4)

the PP operating segment have been expensed in the year. They have been classified as a specific adjusting item as they are not reflective of the underlying performance of the business in the period.

Revaluation gain:
An intercompany loan from Ricardo plc to Ricardo Investments Ltd, representing a quasi-equity investment in one of the Group's subsidiaries, was repaid. The loan was previously classed as not repayable in the foreseeable future under IAS 21 with any revaluation of the foreign currency loan recognised in the statement of Other Comprehensive Income. Following the repayment of the loan, a gain of £0.3m was reclassified from equity to the income statement, as required under IAS 21, and was reported as a specific adjusting item.

CEO exit costs: In January 2021, the Board, together with Dave Shemmans, agreed that Dave would leave his role as Group Chief Executive after leading the business for sixteen years. Costs of £1.5m were accrued within specific adjusting items in the prior year, reflecting the terms of his settlement agreement, associated legal fees and the costs of a search process to appoint his successor.

GMP equalisation: In order to equalise male and female members' benefits for the effect of Guaranteed Minimum Pensions (GMP) for historical transfers out of the pension scheme, a charge of £0.1m in FY 2020/21 was incurred.

Research and Development (R&D) and capital investment

The Group continues to invest in R&D and spent £13.3m (FY 2020/21: £10.2m) before government grant income of £2.5m (FY 2020/21: £1.2m). Development costs capitalised in this period were £7.3m (FY 2020/21: £8.5m), reflecting targeted investment in hydrogen, clean ICE and power electronics technology, together with technology, tools and processes in EE.

Capital expenditure on property, plant and equipment, excluding right-of-use assets, was £4.7m (net of government grants), reflecting investment in our business operations, including hydrogen and electrical test capability at the Shoreham Technical Centre (STC). £4.3m of capital expenditure on property, plant and equipment was incurred in FY 2020/21.

Net finance costs

Finance income was £0.6m (FY 2020/21: £0.8m) and finance costs were £4.4m (FY 2020/21: £5.5m) for the year, giving net finance costs of £3.8m (FY 2020/21: £4.7m). The reduction in costs reflects a reduction in the bank loan balance, as well as a reduction in the applicable interest rates as a result of improved leverage.

Taxation

The total tax charge for the year, including the results of the discontinued operation, was £4.6m (FY 2020/21: £2.2m) and the total effective tax rate was 34.8% (FY 2020/21: 56.1%). The underlying effective tax rate for the year was 26.2% (FY 2020/21: 26.9%). The total tax charge from continuing operations was £4.2m (FY 2020/21: £1.8m), with a total effective tax rate of 33.9% (FY 2020/21: 90%). The underlying effective tax rate for continuing operations was 26.9% (FY 2020/21: 28.0%).

Deferred tax assets of £9.0m (FY 2020/21: £8.3m) include £4.3m (USD 5.7m) (FY 2020/21: £4.9m, USD 6.5m) of R&D tax credits and £0.2m of tax losses (FY 2020/21: £1.4m), both in the US. The Group also has deferred

tax assets of £1.7m in relation to tax losses in other territories. The Directors have considered the recoverability of these assets and are satisfied that it is probable that sufficient taxable profits will be generated in the foreseeable future, against which the recognised assets can be utilised.

Deferred tax liabilities of £12.7m (FY 2020/21: £8.2m) include £3.8m in respect of the defined benefit pension scheme, has been in surplus throughout the year.

Earnings per share

Basic earnings per share was 13.8p (FY 2020/21: 2.9p). The Directors consider that underlying earnings per share provides a more useful indication of underlying performance and trends over time than reported earnings per share. Underlying basic earnings per share for the year was 31.2p (FY 2020/21: 22.4p). The calculation of basic earnings per share, with a reconciliation to an underlying basic earnings per share, which excludes the impact (net of tax) of specific adjusting items, is disclosed in Note 8 to the Group financial statements.

Dividend

The Group paid its interim dividend of 2.91p per share (£1.8m) on 8 April 2022 (HY 2020/21: 1.75p, £1.1m). The Board has declared a final dividend of 7.49p per share (£4.7m) (FY 2020/21: 5.11p, £3.2m), which will be paid on 25 November 2022 to holders of ordinary shares on the Company's register of members on 4 November 2022.

This reflects the Board's desire to increase the return to shareholders as the Group continues to recover from the impact of COVID-19, whilst retaining sufficient funds in the business for investment.

Goodwill

At 30 June 2022, the Group had total goodwill of £90.6m (FY 2020/21: £84.7m). The acquisition of Inside Infrastructure added goodwill of £3.8m to the Ricardo Energy and Environment cash generating unit (CGU) as synergies from the acquisition are expected to benefit EE operating segment.

The carrying value of goodwill is fully supported by the value-in-use calculations for all other operating segments. There are no concerns over the recoverability of the Group's goodwill balances.

Net debt and banking facilities

Net debt at 30 June 2022 comprised cash and cash equivalents of £50.5m (of which £1.1m was included in the disposal group held for sale), borrowing and overdrafts, including hire purchase liabilities and net of capitalised debt issuance costs of £85.9m. Total facilities before borrowings are £216.8m. This provided total cash and liquidity of £181.4m as at 30 June 2022.

After the year-end, on 2 August 2022, the Group completed a refinance of its banking facilities, entering into a new £150m Revolving Credit Facility (RCF) which provides the Group with committed funding for the next four years through to July 2026 and is available for general corporate purposes as well as acquisitions and strategic investments. The RCF has an option for a £50m accordion and to extend the commitment for a further year through to July 2027. This multi-currency facility has a variable interest rate which ranges from 1.65% to 2.45% above SONIA which is dependent upon the Group's adjusted leverage.

The Group's Adjusted Leverage ratio (defined as net debt divided by EBITDA for the twelve months to 30 June 2022, excluding the impact of specific adjusting items and IFRS 16, and adjusted for the impact of acquisitions and disposals in the year), was 0.8x. The Adjusted Leverage covenant was 3.0x as at 30 June 2022.

The Interest Cover ratio (defined as EBITDA for the last twelve months to 30 June 2022, as defined above, divided by net finance costs, excluding pension and IFRS 16 interest), was 13.7x. The Interest Cover covenant is 4.0x.

There is significant headroom against both covenants. Further details are provided in Note 25 to the Group financial statements.

Foreign exchange

On consolidation, revenue and costs are translated at the average exchange rates for the year. The Group is exposed to movements in the Pound Sterling exchange rate, principally from work carried out with customers that transact in Euros, US Dollars, Australian Dollars and Chinese Renminbi. Movements in the year-on-year average exchange rates have had a minimal impact on the Group's revenue, operating profit or profit before tax.

Pensions

The Group's defined benefit pension scheme operates within the UK. The fair value of the scheme's assets at the end of the year was £127.1m (FY 2020/21: £156.1m). Although asset values reduced in the year, liabilities also reduced as a result of changes in actuarial assumptions. The scheme pre-tax surplus, measured in accordance with IAS 19, increased from £6.8m at 30 June 2021 to £15.2m at 30 June 2022. Ricardo paid £3.0m of cash contributions into the scheme during the year (FY 2020/21: £4.6m). From November 2021, following completion of the 2020 triennial valuation negotiations with the scheme Trustees, the level of deficit funding contributions reduced from £4.6m per annum to £1.8m per annum through to November 2023.

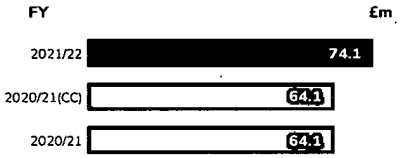
OPERATING SEGMENT REVIEW
ENERGY AND ENVIRONMENT (EE)

Partner of choice for solving complex environmental challenges through industry-leading analysis, advice and data.

FINANCIAL AND OPERATIONAL HIGHLIGHTS

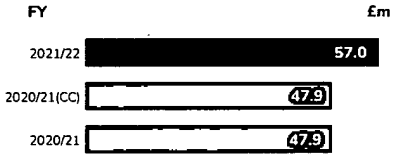
Order intake

+16%



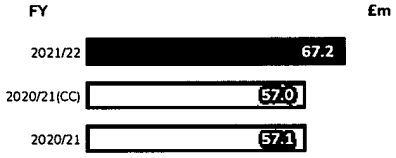
Order book

+19%



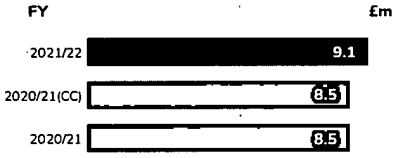
Revenue

+18%



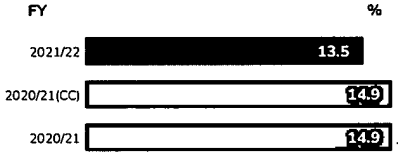
Underlying operating profit

+7%



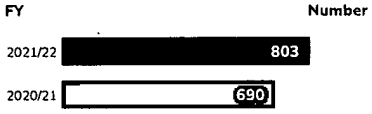
Underlying operating profit margin

-1.4pp



Headcount

+16%



Energy and Environment (EE) works with customers across a wide variety of sectors and geographies to help address their major environmental challenges, which are ever closer related to their strategic imperatives. We have a broad range of environmental skills, covering everything from air quality and climate through to waste, water and chemicals, plus a strong energy and carbon capability to support the energy transition. Added to these skills, we have excellent data, digital and economics capabilities to assist our customers in evaluating data, turning complex information into meaningful policy advice and then support implementation of projects.

Customers

Historically we have been an adviser and service provider to governments. While this is still the case, we have significantly extended our work to support private and public corporates, which now account for over 45% of our current projects. Furthermore, we are continuing to diversify internationally, with 40% of our project work now outside the UK.

Principal operating regions

We have continued to diversify our customer base over the last year both organically and through acquisition. With the acquisition of Inside Infrastructure in Australia, we have broadened our skills in the water market, and also for both the extractives and utilities sectors. Organically we have grown significantly in Spain, where we have a developing centre of consultancy excellent in Madrid, and in the Middle East, where our work is expanding exponentially, specifically for water and air-quality consulting services.

Growth drivers

- Increasing focus on sustainability in the corporate sector driven by the ESG agenda
- Amplified interest in climate and carbon following COP26
- Innovation in electricity and heat as well as in key technology areas such as hydrogen

DID YOU KNOW?

We now have people based in 13 countries, in addition to the UK.

Every year, several our colleagues are seconded to our customers to provide in-depth support for key projects. For example, our climate consultant Maya Rubin was seconded to the UK government to provide support on the UK's review of the IPCC Sixth Assessment Report (the latest update in the global assessment of climate-change mitigation progress and pledges).

Competitive strengths

- Expert team of scientists, engineers, economists, and data specialists
- Longstanding UK heritage as a trusted supplier to UK government, which resonates with global customers
- Growing consultancy centres outside the UK, bringing specific dedicated skills for individual markets local markets
- Mainstreaming of digital and data-science capabilities across consultancy projects

Performance

EE delivered a strong performance in FY 2021/22, underpinned by the strength of our sustainability portfolio and the geographic expansion into key territories. Order intake for the year was £74.1m, growth of 16% on the prior year on a constant currency basis. Revenue and underlying operating profit grew by 18% and 7%, respectively, on a constant currency basis, as a result of strong demand across multiple services, segments and geographies. Underlying operating profit margin was 13.5%, a reduction of 1.4 percentage points on the previous year on a constant currency basis, as a result of a combination of the mix of work performed in the year and additional operating expenses to deliver the growth in the revenue and profit.

We have seen a strong drive from the public and private corporate sector to set sustainability strategies and undertake net-zero pathway investigations, leading to demand in such services as Lifecycle Assessment (LCA) and ESG-related reporting support in areas such as the Taskforce for Finance-related Climate Disclosures (TCFD). EE's success in securing several new and significant contracts for sustainability services is supported by a more defined sector-orientated approach. From our initial customer engagement right through to the customer delivery, we are creating value for our customers at each step of the process.

Alongside our clear strength in sustainability services, EE has also significantly expanded our work on government programmes in the UK, particularly in providing roll-out projects of technology incubator programmes.

Developments in air quality have been driven by increased market demand as Governments around the world tackle challenges of air pollution. EE can bring its decades of experience to support these projects.

We have also seen an increase in water consultancy services, supporting a number of programmes and studies that seek to mitigate the risk of climate-driven water deficits. An example of the type of work that we are carrying out in this sector includes a collaborative project with United Utilities, Severn Trent Water and Thames Water to consider the feasibility of a River Severn to River Thames Transfer (STT) scheme which, if progressed, would create cross-regional water supply connectivity by designing a resilient, sustainable water resource for future generations.

Growth in our Environmental Policy team is primarily the result of the high demand for policy analysis from governments, as well as key corporate players across the chemicals industry in helping them navigate their way through the business impacts of the European Commission's new Chemicals Strategy for Sustainability, a key element of the EU Green Deal. Other elements of the EU Green Deal relating to air quality, industrial emissions and the circular economy have also led to increased demand from the European Commission and its agencies for our Environmental Policy team's services in policy development and analysis.

CASE STUDY

RICARDO APPOINTED BY EUROPEAN COMMISSION TO DEVELOP RENEWABLE ENERGY PROGRAMMES FOR RURAL COMMUNITIES

Ricardo experts are leading a two-year programme, on behalf of the European Commission, to enable the development and sharing of best practices for rural energy communities across Europe. Focusing on people and citizen-driven initiatives is seen as a key priority of the European energy policy, as it will support the transition to cleaner and more efficient energy system. Through the work of our experts, Ricardo will support the European objective of ensuring a just and fair energy transition in Europe, where no one is left behind.

Outlook

Our business is closely aligned with major regulatory/environmental trends and where major investments and asset developments are evident.

Sustainability will remain a core focus for growth, with demand forecast across a broad range of sectors, specifically for private and public corporate listed companies in sectors of high energy use that have complex supply chains (such as chemical, automotive, component, food and drink production).

We also expect consistent growth and returns within our highest performing key segments, namely water and environmental policy. Carbon trading is gaining prominence and Ricardo is well placed to support its future expansion – we recently secured a major project to review carbon trading in Indonesia and anticipate similar projects in multiple locations.

Furthermore, we anticipate further opportunities resulting from urbanisation (and the links between climate and air quality and the need for clean and green infrastructure) the energy transition (driving new fuels, technologies, and innovation solutions) and the requirement for smarter and cleaner mobility solutions.

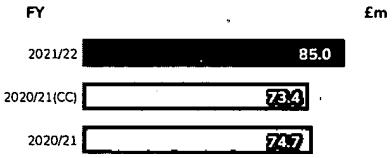
RAIL

Experts in supporting complex rail systems through the delivery of independent assurance and consultancy services.

FINANCIAL AND OPERATIONAL HIGHLIGHTS

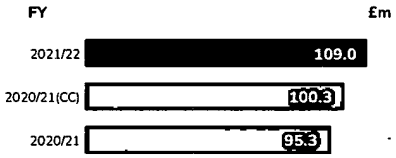
Order intake

+16%



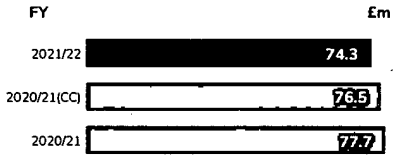
Order book

+9%



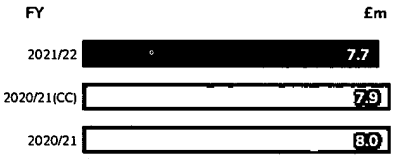
Revenue

-3%



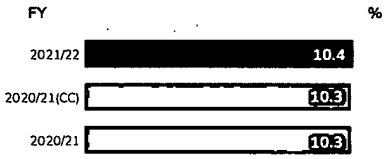
Underlying operating profit

-3%



Underlying operating profit margin

+0.1pp



Headcount

-4%

Rail provides expert independent assurance and engineering consultancy services to help our customers navigate the industry's operational, commercial and regulatory demands. We apply our expertise to deliver innovative solutions that address sustainability and safety in rail transportation. With capabilities in all technical disciplines – from rolling stock, signalling and telecommunications to energy efficiency, safety and operational planning – we support customer portfolios that range from the world's largest rail administrations to niche component suppliers. Alongside our consultancy segment, we operate a separate independent entity – Ricardo Certification – which performs accredited assurance services. Both businesses draw upon a near 600-strong team of dedicated rail engineers, technicians, auditors and support teams, with experience across the globe.

Customers

We work with passenger and freight operators, infrastructure managers and equipment manufacturers, as well as with government bodies and regulatory authorities across the world to ensure that railways deliver the highest possible value to their customers and wider communities.

Principal operating regions

The Rail operating segment is highly distributed operating across 15 countries, spanning Asia, Australasia, Europe, the Middle East and North America. Organically, we have been successful in further developing our North American footprint, specifically in Canada with significant contract wins to support the country's future transit programmes.

Growth drivers

- Expansion of mass transit systems to reduce urban CO_2 emissions, improve air quality, stimulate economic growth, and promote social inclusion
- Greater appetite from governments and industry stakeholders for the rail sector to exploit cleaner energy sources and adopt more sustainable practices
- Increasing demand for digital technologies to maximise capacity and deliver efficiencies
- Complex and evolving regulatory landscape that underpins quality and safety

Competitive strengths

- Recognised capabilities in systems engineering and independent assurance

- Renowned expertise of industry standards and regulations
- Local project teams ensure strong command of domestic practices and processes.
- Diverse service portfolio applicable across all regional markets

Performance

Order intake increased by 16% year-on-year, on a constant currency basis, driven by a number of new wins and extensions to existing projects, despite challenging market conditions.

On a constant currency basis, revenue and underlying operating profit both declined by 3%. This was the result of several long-term projects nearing completion along with a delay in the starting up of new contracts, resulting in lower-than-anticipated utilisation. Operating profit margin was broadly stable on a constant currency basis at 10.4%. Mitigating actions are already under way to provide more resilience within Rail's operating model – this will lead to an improvement in its short-term profitability while at the same time also ensuring that we are well placed to secure the future mix of business opportunity that is flexible towards our customers' changing demands. These actions will continue into FY 2022/23.

During the year the team made significant strides into a North American rail market that had previously proven difficult to enter. In December 2021, our Certification team became the first organisation to be accredited as a railway Independent Safety Assessor by the Standards Council of Canada. This was a significant

Claire Ruggiero, Linda Lundberg and Carolyn Salmon and are the three most senior women working for Ricardo Rail in the UK. Claire is UK consulting business manager, Linda is Head of Safety Security, and Carolyn is the Ricardo Certification Signatory – most recently working on Crossrail (Elizabeth Line): one of the largest and most complex assessments ever undertaken by our company.

CASE STUDY

LONDON'S ELIZABETH LINE: RICARDO SUCCESSFULLY COMPLETES UK RAIL'S LARGEST AND MOST COMPLEX ASSESSMENT ROLE

With more than 6,000 evidence submissions and 3,000 technical observations, Crossrail has been one of the largest and most complex assessments ever undertaken by Ricardo Certification.

As the appointed Approved Body (ApBo) for the construction of the central tunnelled section, our experts' assessments gave confidence to stakeholders that all legal requirements were being met as construction progressed. We were also the central section's appointed Designated Body (DeBo) to assess compliance with the UK's National Technical Rules and the Assessment Body (AsBo) for both Crossrail and Rail for London Infrastructure, with responsibility for determining whether procedures for managing hazards and evaluating risk achieved the necessary regulatory compliance – a mandatory requirement for major rail projects.

Our joint roles also supported a transition towards a 'progressive assurance' approach. With a single competent body in place so early in the programme, certification could be managed as works progressed rather than waiting until the later stages when rectification work could prove more costly.

Colleagues from our Rail team inspecting a train at a customer's rolling stock maintenance facility.

achievement for Ricardo and was soon followed by our first major Canadian rail contract, with the team appointed to support the design stages of the Greater Toronto and Hamilton network upgrade.

Meanwhile, a contract to provide safety assessment services for skyTran, a Californian-based maglev technology developer, was not only the first major win by our US rail team, but also representative of the technologies now taking hold in this expansive and rapidly growing market.

Elsewhere, we continued to win a diverse range of projects across our more established territorial markets. In Asia, for example, we were assigned a major assurance role for the construction of a driverless metro route in Taipei. In Europe, we were chosen to support the transformation of Copenhagen's S-Bane railway into a fully automated system. Meanwhile, our Middle East team secured a four-year extension of our role in the development of Riyadh's mass transit system.

The past year cannot pass without mention of the opening of London's Elizabeth Line in May. We joined the project in 2012 and it has been one of the largest independent assessments ever undertaken by Ricardo Certification. Despite the wider programme's much publicised difficulties and delays, the result is a truly world-class railway that, amongst its many legacies, has transformed how approvals will be managed on major railway projects in future.

Outlook

Although some markets are recovering faster than others, passenger and freight revenues around the world are yet to return to pre-pandemic levels.

Railways are a high-cost business, and the past two years have seen many networks become increasingly reliant on public funding. Many systems are being tasked with concentrating on efficiency gains, such as increased use of digital technologies to improve operations and maintenance, and practices for extending the service life of existing assets.

Other networks are looking to increase revenues by attracting new patronage. This is the mindset in markets such as Australia and North America, where transit systems that serve major cities are planning major extensions or upgrades to deliver more reliable services in more modern environments.

The industry's scope to offer cleaner, sustainable transportation, whether for cross-border travel or local trips, is opening up opportunities with potential customers looking to promote energy efficiency practices or explore low-emission technologies.

We are well placed to support all aspects of the industry's re-emergence from the pandemic. The diversity of our service portfolio – from independent assurance to systems engineering, decarbonisation and cyber security – means we are fully aligned with the market's priorities.

DID YOU KNOW?

During the construction of London's Elizabeth Line, our experts assessed more than 6,000 evidence submissions – design drawings, safety cases and hazard records – against 1,400 defined technical requirements.

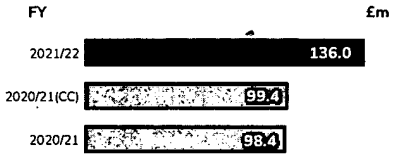
AUTOMOTIVE AND INDUSTRIAL (A&I)

Trusted specialists in clean, efficient, integrated propulsion and energy solutions.

FINANCIAL AND OPERATIONAL HIGHLIGHTS

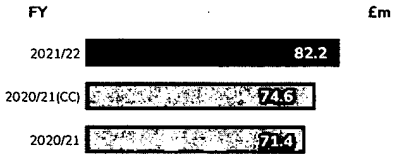
Order intake

+37%



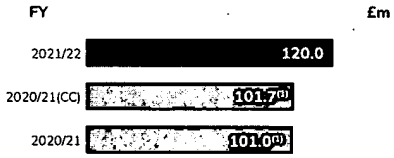
Order book

+10%



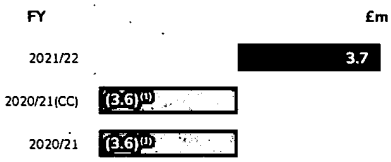
Revenue

+18%



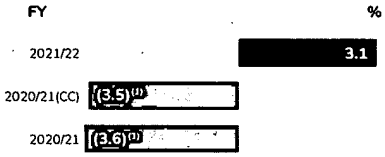
Underlying operating profit

+203%



Underlying operating profit margin

+6.6pp



Headcount

+1%

(1) Prior year comparatives have been restated to adjust for the impact of discontinued operation on A&I, see Note 5 to the Group financial statements.

Automotive and Industrial (A&I) is a trusted global engineering services partner for clean and efficient integrated propulsion and energy systems. With a customer-centric focus, A&I leverages digital engineering, systems thinking and its learning culture to offer a true end-to-end service from the initial concept phase right through to product execution. Our experience and history over more than 100 years at the forefront of mobility innovation enable us to deliver solutions to the most complex challenges, allowing our customers across all global transport sectors to achieve a sustainable zero-carbon future.

Customers

A&I has a diverse customer base. Traditionally, the passenger car market has been its focus, but today it serves customers across the globe in key automotive and industrial segments, including all transport sectors, passenger and light vehicles, commercial vehicles, off-highway vehicles, motorcycles, marine and aerospace, as well as stationary power generation and infrastructure. We are continuing to increase our customer base, aligning with original equipment manufacturers, tiered suppliers, research agencies and venture start-ups, supporting a global transport industry that is undergoing an unprecedented transformation.

Principal operating regions

Geographically, our business is anchored across the three key transport regions: North America, Asia-Pacific and EMEA, and within this footprint we deliver services to more than 50 countries. We have technical and engineering centres of excellence in four countries: USA, UK, China and Czech Republic, and consulting offices across the UK, Europe, Asia, and North America.

Growth drivers

- A rapid shift to decarbonised, sustainable transport technology
- Bridge solutions to fill the technology gap between internal combustion engines and battery electric vehicles
- Global acceleration to reduce time and cost of new-product development
- Digital transformation through industry 4.0, connected intelligence and software development capabilities to unlock new revenue streams

CASE STUDY

RICARDO SUPPORTS TOTALENERGIES WITH WORLD-FIRST BATTERY TECHNOLOGY FOR ELECTRIC VEHICLES

TotalEnergies appointed Ricardo to support the development of a new immersion-cooled battery technology for electric vehicles. The project represents a world-first mass production vehicle with this technology.

Dielectric immersion cooling reduces charge-time from two hours to less than 30 minutes: four times faster than a conventional liquid solution. This technology will also improve battery thermal management, enhance efficiency, safety and performance while increasing battery life and reducing cost and risk for vehicle original equipment manufacturers. The technological advance will help to accelerate the adoption of electrified transport with consumers.

Ricardo's strong thermal management experience together with expertise in simulation and analysis, design and testing delivered the required thermal benefits. The project fits perfectly with TotalEnergies' environmental challenge, using research and innovation to provide a solution with greater durability and better vehicle performance.

Competitive strengths

- A digital-engineering leader in clean propulsion and energy
- Preferred partner for design and delivery of innovative and technically differentiated solutions.
- Global reach with an extensive local-market footprint to provide support and flexibility in the field
- Customer intimacy with a deep legacy in solution integration and customisation
- Proven sustainable IP and process capability across the transport sector

Performance

A&I delivered good growth in order intake, revenue and underlying operating profit in FY 2021/22. Order intake grew by 37% year-on-year, on a constant currency basis. The higher demand translated into a 18% increase in revenue versus the prior year, on a constant currency basis. Underlying operating profit was £3.7m (FY 2020/21: loss of £3.6m on a constant currency basis). The underlying operating margin increased from negative 3.5% to positive 3.1%, on a constant currency basis. On a reported basis, including costs from reorganisation activities, A&I's operating loss decreased from £9.2m in FY 2020/21 to £1.5m in FY 2021/22.

During FY 2021/22, we secured several multimillion-pound contracts that included fuel cell, power electronics and battery applications for commercial trucking and electric utility vehicles; electrified motorcycle design and testing; and clean sheet engine design for defence and marine applications. Our order intake was geographically diverse with c.30% coming from North America, c.60% from EMEA and c.10% from Asia. Order intake was strong in North America and EMEA compared to the prior year while China continued to be impacted by COVID-19 related travel and working restrictions. Approximately 60% of our order intake in FY 2021/22 came from emerging technologies, focused on electrified propulsion, vehicle integration and software and digital services. Approximately 40% came from established mobility solutions, focusing on high-efficiency internal combustion engines (ICE) and emissions compliance.

We have increased revenue through higher rates of staff utilisation and improved the scale of the business relative to its cost base. This, together with an improvement in the economic environment as North America and Europe emerged from the impact of COVID-19, resulted in an improvement in project margins.

During the year, we have undertaken significant strategic and structural changes to consolidate our regions into one globally managed A&I business, which has been organised around the two key pillars of emerging technologies and established mobility solutions. This organisation structure better reflects the changing landscape of our market – which has been

Electronics Hardware Design Engineers Veranika Karpuk and Marta Krepelkova, who are based in our Prague Technical Centre, work in a diverse international engineering team headed up by a female Chief Engineer and including senior female engineers – all of whom are working to make vehicles cleaner, greener and more efficient, to help decarbonise the transport sector.

Steel E-Motive, an initiative of WorldAutoSteel, the automotive group of the World Steel Association and its engineering partner Ricardo, have unveiled the exterior styling vision for their fully autonomous ride-hailing, ride-sharing vehicle designed to showcase the benefits of using steel for global mobility-as-a-service.

heavily impacted by COVID-19, causing a temporary reduction in global passenger-car purchases together with increasing concerns over climate change – and the ever-evolving business models of our customers.

Through the global consolidation of the A&I operating segment, we have completed a number of actions to gain increased efficiencies that will support operational effectiveness across the business. These included a reduction in headcount primarily across senior management and administrative positions, the downsizing of and exit from underutilised properties, the impairment of intangible assets relating to technologies that are no longer part of our focused strategy, and external advisory and legal fees. The total restructuring charge recognised in the year in respect of these actions was £5.3m and the cash cost of these actions was £0.5m. This reorganisation process will continue into FY 2022/23, with a similar level of income statement expense expected and a total estimated cash cost of £4.5m. This will ensure continuous improvement to deliver increased value for our customers.

Furthermore, we have also gained further operational efficiencies by advancing our processes in identifying and acquiring talent and onboarding. By doing this, we can ensure that we are continuously attracting, retaining and inspiring the very best talent.

Outlook

Our global focus within A&I will be to deliver innovative, sustainable mobility solutions to customers across the world and build resilience through continued expansion across all transport sectors.

We will prioritise four key areas across all mobility and industrial sectors: deployment of electrified systems, enablement of next-generation software and controls, digital development and modelling as a path to increasing product value, and the deployment of hydrogen and de-fossilised fuels as a bridge to zero-carbon transportation. This is supported by our technology roadmap, global leadership research and development, and sustainable, high-value intellectual property.

As the transition to zero-carbon will take time, we will continue to support our customers with their current and transition bridge business models while accelerating the journey to develop environmentally sustainable products. We will drive innovation in the development of cleaner, more efficient conventional engines and electric-based propulsion systems, using software and digital tools to fundamentally reimage the product development lifecycle and accelerate our clients' paths to profit.

DID YOU KNOW?

Ricardo has always used innovation to shape future designs and technologies. In 1959, Ricardo engineers Hempson and Scott used a series of mirrors and a Fastex camera, running at 16,000 frames per second, to the give the world its first glimpse of the combustion process and the formation of pollutants within the cylinder of an engine. This innovation acted as a precursor to the way digital modelling and CFD (computational fluid dynamics) has transformed how engineers simulate and predict the performance of propulsion systems with a high degree of accuracy, without the need to build expensive hardware.

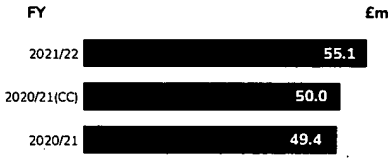
DEFENSE

Trusted experts in delivering wide-ranging engineering programmes to drive efficiencies while optimising safety.

FINANCIAL AND OPERATIONAL HIGHLIGHTS

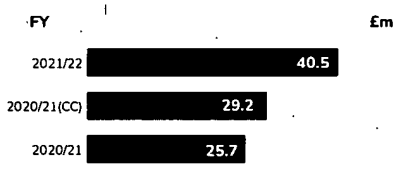
Order intake

+10%



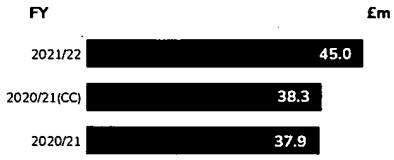
Order book

+39%



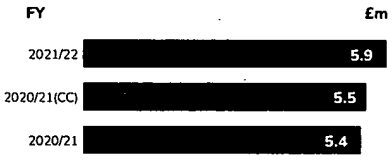
Revenue

+18%



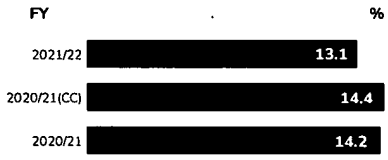
Underlying operating profit

+7%



Underlying operating profit margin

-1.3pp



Headcount

+5%

Defense has gained significant insights into the needs of armed forces and provides solutions to meet the challenges our customers face in the integration of logistics and field support for complex and diverse systems. Our wide range of engineering and software solutions provides system-integration engineering for the US Army's ground inventory and we are the data-replication agent for everything in the air, on the sea and under the surface for the US Navy. We also specialise in niche manufacturing, adapting commercial industry products to deliver innovative sector applications that protect people and infrastructure.

Customers

We have a deep legacy in partnering the US armed forces in the transition of innovative technologies from science to application, with a proven track record of successfully fielding, integrating and managing systems across the acquisition lifecycle. Our customers include the US Department of Defense (DoD), NASA, the US Airforce, the US Navy and the UK Ministry of Defence (MoD).

Principal operating regions

Our operations are located in the USA. We have several offices across the country, with the largest being in Michigan and California. We also work alongside our customers at their sites.

Growth drivers

- Decarbonisation and net zero planning focus within the US defense sector
- Demand for greater connectivity, communications and mobility within the field
- Software-driven solutions to provide functionality and systems integration
- Continued focus on cybersecurity to protect against potential and ever-evolving threats

Competitive strengths

- Leading capability in the design and management of procurement processes for US DoD
- Industry expertise across the entire defence-system lifecycle support and product sustainment
- Experts in defence acquisition strategy, policy and procedure
- Specialist in complex systems, linking all aspects of a complete system of systems

*"The appearance of U.S. Department of Defense (DoD) visual information does not imply or constitute DoD endorsement."

CASE STUDY

DEPLOYABLE METERING AND MONITORING SYSTEM HELPS TO IMPROVE ENERGY SUPPLY MANAGEMENT AND SECURE ENERGY RESOURCES

Forward manoeuvring forces using mobile distributed energy resources for critical operational assets need near-real-time visual and data analytical tools as part of energy management systems. This is to analyse changing electrical demand and fuel logistical constraints so that operators might make better informed command and control decisions on fuel and energy resilience in the battlespace.

Ricardo Defense is working with the US Marine Corps to develop and demonstrate capabilities that are in alignment with the Department of Navy climate strategy to improve management of energy supplies, better secure energy resources and reduce their overall carbon footprint.

Performance

Defense's order intake grew by £5.1m (10%) on a constant currency basis in FY 2021/22. In the year, we received USD 34m (£27m) of orders from the United States Army to retrofit Antilock Brake System/ Electronic Stability Control (ABS/ESC) retrofit kits to improve the safety of operation of the US Army' High Mobility Multi-purpose Wheeled Vehicle (HMMWV). We have also developed the framework for guiding new technologies into government applications and expanded the deployment of our data-management systems to include more fleet assets for the US Navy.

Revenue increased by 18% year-on-year on a constant currency basis. Revenue growth was driven by increased ABS/ESC volumes - in total, we delivered 3,602 ABS/ESC kits in FY 2021/22, compared to 2,950 the previous year, which included both retrofit kits and kits for new-production vehicles – and a rise in orders for our engineering services.

Underlying operating profit of £5.9m was an increase of 7% compared to FY 2020/21 on a constant currency basis. Underlying operating profit margin reduced from 14.4% to 13.1% on a constant currency basis due to a combination of the changing mix of work between ABS/ESC and engineering services, delays in the US Government's approval of the US Department

"The appearance of U.S. Department of Defense (DoD) visual information does not imply or constitute DoD endorsement."

of Defense budget (which impacted the utilisation of our engineering services team in the first half of the financial year) and higher supply chain costs in ABS/ESC.

With the expansion of our field-support solutions business, which supports the installation and maintenance of vehicles in the field, we are able to provide a complete offering to our clients, covering the entire procurement lifecycle for their vehicle platforms, from concept design and development through to production and sustainment in the field.

Additionally, with the focus on net-zero planning, we have been working with the US Marine Corps to develop and demonstrate capabilities to improve the management of energy supplies and better secure energy resources to reduce its overall carbon footprint. Utilising a deployable metering and monitoring system, the US Marine Corps is now able to analyse changing electrical demand and logistical fuel constraints so that operators can make better-informed command and control decisions on fuel and energy resiliency.

Outlook

The US DoD continues to move away from its traditional OEM-centred acquisition approach, with a strong focus on accelerating the transition of innovations to its fleet of vehicles in the field.

Our market position as a proven system integrator and technical solution provider disrupts the traditional defence market, as we can react with speed and flexibility. Our broad portfolio of engineering services, products such as ABS/ESC, and field-support solutions, is expected to fulfil the needs of future force design and spans the entire military-vehicle lifecycle.

Our digital solutions enable highly networked cross-domain operations between advanced platforms in the air, on land, and at sea. Our predictive-maintenance data-management software is enabling efficient naval fleet management and we expect to see that expand to US Army ground fleets in the coming year.

We also anticipate continued growth in field-support services with the production fielding of programs we support including ABS/ESC, Infantry Squad Vehicle (ISV), and other next-generation advanced platforms.

DID YOU KNOW?

Software developed by Ricardo Defense is being used to evaluate the existing energy grid in Ethiopia to plan and prepare for renewable energy deployment in Addis Ababa.

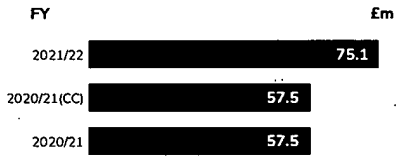
PERFORMANCE PRODUCTS (PP)

Engineering specialists in transmission design and niche-volume manufacturing.

FINANCIAL AND OPERATIONAL HIGHLIGHTS

Order intake[1]

+31%

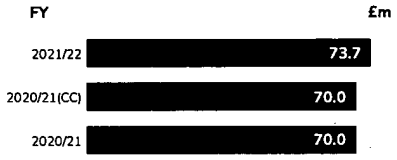


Order book[1]

+3%

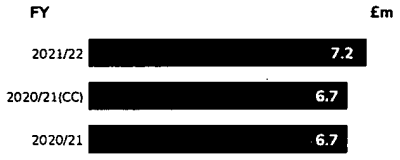
Revenue[1]

+5%



Underlying operating profit[1]

+7%



Underlying operating profit margin[1]

+0.2%

Headcount [1]

+5%

(1) All metrics presented represent continuing operations and exclude the results of the discontinued operation in both the current and prior years. See Note 5 to the Group financial statements.

Performance Products (PP) is responsible for the manufacture and assembly of niche high-quality products, including engines, transmissions, electric drive units and other performance-critical driveline and powertrain products. We also provide industrial engineering services to enable designs to successfully move from concept to series production for customers around the globe. With decades of experience, our technical experts support customers in bringing their cutting-edge innovations to market.

Customers

We have been a trusted engineering partner for world championship-winning and world record-breaking motorsport teams for over 40 years, including Formula 1, GT and prototype, single seater, WRC and electric race series including Formula E. Additionally, we deliver niche manufacturing services to blue-chip customers that operate in the high-performance vehicles, aerospace, defence and rail sectors.

Principal operating regions

We serve a global customer base from our manufacturing and operations based in the UK.

Growth drivers

- Continuing demand from the premium automotive market
- Accelerated adoption of electrified powertrains
- High demand for industrial engineering services
- Decarbonisation of transportation, with increased focus on electrification and hydrogen

Competitive strengths

- Recognised global expertise in niche-volume industrial engineering
- Continued development of manufacturing knowledge in zero-emissions propulsion technology including battery systems, e-machines and hydrogen fuelled systems
- In-depth knowledge of hybrid and electrified powertrains developed from top-flight motorsport

Performance

FY 2021/22 order intake from continuing operations was £75.1m, an increase of £17.6m (31%) on the prior year. This reflects the timing of engine orders from McLaren and securing the next multi-year Porsche 992 Cup transmission programme.

Revenue and operating profit from continuing

Ricardo Performance Products extended its successful multiple championship-winning relationship with DS Performance, designing and supplying transmissions for the team's car competing in Formula E - the world's premier all-electric street racing championship - season 8 and extending into seasons 9 and 10 with the third generation vehicle.

CASE STUDY

RICARDO PRODUCES HIGH PERFORMANCE TRANSMISSION FOR THE HYBRID ASTON MARTIN VALKYRIE

Ricardo Performance Products moved to full-rate production of the highly complex, F1 inspired, transmission system to support one of the world's most exhilarating cars: the hybrid powered Aston Martin Valkyrie.

This builds on a pedigree of supplying the world's most exotic hypercars including the Jaguar XJ220, McLaren F1, Bugatti Veyron and Chiron.

Transmission production for the two-seater coupé is conducted at Ricardo's transmission centre of excellence at Leamington Spa, UK.

During this year, Performance Products was also appointed as transmission supplier for the forthcoming spider version of the vehicle.

operations both grew in FY 2021/22, by 5% and 7%, respectively. Underlying operating profit margin was broadly stable with FY 2020/21 at 9.8%.

McLaren engine volumes increased modestly year-on-year, with an uptick in the last quarter of the financial year in support of the launch of the new V6-powered Artura.

Transmission programme revenue significantly increased year-on-year with the start of production of the Aston Martin Valkyrie, which added to the already well-established Porsche Cup and Bugatti Chiron programmes. Motorsport, aerospace and defence component and transmission projects performed in line with our expectations over the year.

We continued to develop our portfolio of existing powertrain (engine) and drivetrain (transmission) products during the year as well as new projects in the zero-emission propulsion space, including electric drive units, industrial engineering services in EV production and concept work around battery systems and electric machines.

Our world class motorsport engineering and manufacturing capabilities continued to operate at the highest tiers in motorsport, with a particular focus on next-generation technology. During the year, we worked with Hyundai (on its hybrid-powered Rally 1 car), DS (on its the all-electric Formula E race car), Porsche (in GT racing), and with our long-standing customer in Formula 1.

We continued to provide the UK Ministry of Defence with key spares components and precision machined components to the aerospace industry under our AS9100 certification. The strong outlook across all our key business areas of high-performance

DID YOU KNOW?

Did you know that for 50 years, Ricardo has been at the forefront of global motorsport transmission development? For over half a century, we have been partnering with top-tier motorsport customers to deliver championship-winning products and supporting the transition from traditional ICE powered racing towards hybridisation and full electrification in Formula One, World Rally Championship and Formula E.

automotive, motorsport, defence and aerospace were reflected in the strong order intake for the year.

COVID-19 and subsequently the conflict in Ukraine continued to cause some disruption in the supply chain. However, our rigorous process management and tools ensured that client deliveries were not affected.

Outlook

The forthcoming year will see continued growth in both our powertrain and driveline businesses. This is driven by growth in sales of high-performance vehicles and increasing demand for manufacturing engineering and supply chain consultancy, as many new customers (particularly in new technologies) take ideas and designs into production.

The key focus for FY 2022/23 will be to ensure our supply chain is able to meet the demand and to capitalise on the significant number of new products coming to market driven by emerging and green technologies.

Our 2021/22 Strategic Report, from page 1 to page 89, has been reviewed and approved by the Board of Directors on
13 September 2022

Graham Ritchie,
Chief Executive Officer

02. CORPORATE GOVERNANCE

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BOARD OF DIRECTORS

AS AT 30 JUNE 2022

Graham Ritchie
BA (Econ), ACA
Chief Executive Officer

Graham Ritchie was appointed Chief Executive Officer on 1 October 2021.
Since 2016, Graham was a member of the Executive Committee of Intertek Group plc, responsible for its operations in Europe, including Russia, and Central Asia. Prior to that role, Graham was Intertek's Group Financial Controller. Previously, Graham held senior financial positions at BT Group plc and other technology services organisations, having started his career with PwC. Graham is a qualified Chartered Accountant and holds a BA in Economics.

Ian Gibson
BSc, ACA
Chief Financial Officer

Ian Gibson was appointed Chief Financial Officer on 1 July 2013. A member of the Institute of Chartered Accountants in England and Wales, Ian is a finance professional with more than 30 years of commercial experience. He was previously Chief Financial Officer of Cable & Wireless Worldwide plc, where he spent a total of 17 years in a number of senior financial management positions. Prior to this, Ian spent 12 years at Deloitte where he worked in both the London and Toronto offices.

Sir Terry Morgan
CBE, FREng
Non-Executive Director and Chair of the Board

Sir Terry Morgan was appointed Non-Executive Director on 2 January 2014 and Chair on 29 October 2014.
He was previously non-executive Chair of Crossrail Limited, High Speed Two (HS2) Limited, The Manufacturing Technology Centre Limited and NSARE Limited (the National Skills Academy for Railway Engineering). Sir Terry was also previously a non-executive director of Boxwood Limited and the Department of Energy & Climate Change.

Sir Terry will retire from the Group and the Board on 17 November 2022.

Russell King

BA (Hons)

Non-Executive Director, Chair of the Remuneration Committee

Russell King was appointed Non-Executive Director on 5 September 2019. Russell is an independent non-executive of BDO LLP. Russell served as Chief Strategy Officer at Anglo American plc where he had global responsibility for strategy, business development, government relations, safety and sustainable development. He was also a member of its executive committee for eight years. Additionally, Russell was Senior Independent Director and remuneration committee Chair of Spectris plc from 2010 to 2020 and Senior Independent Non-Executive Director and Remuneration Committee Chair of Aggreko plc, from 2007 to 2017.

Malin Persson

MSc

Non-Executive Director, Senior Independent Director

Malin Persson was appointed Non-Executive Director on 4 January 2016 and Senior Independent Director on 14 November 2019.

Malin is also the nominated non-executive director for workforce engagement and ESG. Malin held a number of senior executive roles during her employment by the Volvo Group between 1995 and 2012. She is an elected member of the Royal Swedish Academy of Engineering Sciences and has an MSc in Industrial Engineering and Management from the Chalmers University of Technology in Gothenburg. Malin is also currently a non-executive director of Peab AB, Getinge AB, Hexpol AB and OX2 AB.

Jack Boyer OBE

OBE, BA (Hons), MSc, MBA

Non-Executive Director

Jack Boyer OBE was appointed Non-Executive Director on 5 September 2019. Jack is a non-executive director and Senior Independent Director of TT Electronics plc where he is a member of the Audit, Remuneration and Nominations committees. Jack is a non-executive director, Senior Independent Director and Chair of Remuneration Committee of Elcogen Group plc. Jack is a non-executive board member at the Department for Education. He chairs the Board of Trustees of the University of Bristol and is a non-executive director of the Henry Royce Institute for Advanced Materials. He recently chaired AIM listed companies; Seeing Machines and Ilika plc and was previously a non-executive director at FTSE 250 companies Mitie plc and Laird plc after a background in engineering and biosciences. He was until recently a board member of the Engineering and Physical Sciences Research Council and co-chaired the Advanced Materials Leadership Council at the department for Business, Energy and Industrial Strategy. Jack was awarded an OBE in 2015 for services to Science and Engineering.

Laurie Bowen

BSc, MBA

Non-Executive Director, Chair of Nomination Committee

Laurie Bowen was appointed Non-Executive Director on 1 July 2015.
She has over 30 years of international leadership experience at IBM, British Telecom, Tata Group, Telecom Italia Sparkle and Cable & Wireless Communications. She was appointed non-executive director of Chemring Group plc on 1 August 2019. Laurie has an MBA, a BSc in Electrical Engineering and a BSc in Computer Science from Washington University in St. Louis, Missouri.

Bill Spencer

BSc, FCMA, MCT

Non-Executive Director and Chair of the Audit Committee

Bill Spencer was appointed Non-Executive Director on 24 April 2017 and Chair of the Audit Committee on 8 November 2017.
For 15 years until 2010 he was the CFO of Intertek Group plc. Since then he has developed a varied non-executive career. His former NED roles where he also chaired the Audit Committee include UK Mail plc Exova Group plc and Northgate plc. Currently Bill is a Non-Executive Director and the Audit Committee Chair at The Royal Mint. He is a Chartered Management Accountant and Corporate Treasurer and has a BSc in Management Sciences from the University of Manchester.

Patricia Ryan

LLB (Hons)

Group General Counsel and Company Secretary

Patricia Ryan is a qualified solicitor. She joined Ricardo's legal department in 2002 and was appointed Group General Counsel in 2005 and Company Secretary in November 2008. Patricia holds an honours degree in law from the University of Westminster.

CORPORATE GOVERNANCE STATEMENT

Chair's Overview

The Board is committed to ensuring that the highest standards of governance are maintained throughout the Group.
This report sets out the ways in which we comply with good corporate governance principles. It describes how the Board and its Committees work, and also outlines our approach to risk management and internal control.

The Board recognises the importance of considering the Company's responsibilities and duties to both its shareholders and its broader stakeholder group, and this has been at the heart of our culture and decision-making process for many years.

The Board spends time listening to and understanding the views of its key stakeholders. When discussing matters at Board meetings these views form an integral part of its decision-making. In support of the requirements of section 172 of the Companies Act 2006, we set out on pages 102 to 103 how the Board has considered the material issues of the Group's stakeholders and how we have engaged with these stakeholders on these issues. As required by the Code, the Board considers that its non-executive directors, including the Senior Independent Director, have a good level of understanding of the issues and concerns of major shareholders.

Sir Terry Morgan CBE

SIR TERRY MORGAN CBE
CHAIR

UK Corporate Governance Code

The Board confirms that the Company has complied with the provisions of the UK Corporate Governance Code 2018 ("the Code") throughout the year ended 30 June 2022.

This report described how the Company has applied the principles and provisions set out in the Code during the year and sets out our activities relating to the main sections of the Code:

1. Board Leadership and Company Purpose
2. Division of Responsibilities
3. Composition, Succession and Evaluation
4. Audit, Risk and Internal Control
5. Remuneration

The Code and associated guidance are publicly available on the Corporate Governance and Stewardship page of the Financial Reporting Council's website, https://www.frc.org.uk/directors/ corporate-governance-and-stewardship.

1. Board Leadership and Company Purpose

The role of the Board is to provide entrepreneurial and effective leadership and we recognise that we are collectively responsible for the long-term success of the Group.

Our values and leadership behaviours are a vital part of our culture to ensure that through our conduct and decision-making we do the right thing for the business and our stakeholders.

The Board recognises that it is accountable to stakeholders for ensuring that the Group is appropriately managed and achieves its objectives in a way that is supported by the right culture and behaviours.

Our values underpin our purpose and are recognised across the Group as the basis of our culture. The Board sets the strategy for the Group to align with our purpose. It oversees the implementation of that strategy to ensure that the Group is suitably resourced to deliver on its strategic objectives.

The Board holds an annual strategic-planning session to support the long-term direction of the Group. During the year under review, the Board sharpened its strategy to focus on becoming a leading environmental and energy transition consultancy over the next five years and business plans have been developed and reviewed with this focus.

Alongside the sharpened strategy, we have redefined our vision, purpose and values. Our vision

The Board in FY 2021/22

	Board meetings	Committee meetings		
		Audit	Remuneration	Nomination
Number of scheduled meetings in the year	7	4	4	1
Number attended by each member:				
Graham Ritchie[1]	5	-	-	1
Dave Shemmans[2]	2	-	-	-
Ian Gibson	7	-	-	-
Sir Terry Morgan CBE	7	4	4	1
Jack Boyer OBE	7	4	4	1
Bill Spencer	7	4	4	1
Laurie Bowen	7	4	4	1
Malin Persson	7	4	4	1
Russell King	7	4	4	1

(1) Graham Ritchie was appointed to the Board 1 October 2021
(2) Dave Shemmans resigned from the Board and the Company on 30 September 2021

is "To create a safe and sustainable world" which together with our renewed values of: Create together, Be innovative, Aim high, and Be mindful reflects how we work together and with our customers.

Throughout the year, the Board receives regular updates on these areas to ensure the delivery of strategy in line with our purpose.

During the year, the Board reviewed and approved the refinance of its banking facilities, and following the year end the Group entered into a new £150m Revolving Credit Facility (RCF) which provides the Group with committed funding for the next four years through to July 2026 and is available for general corporate purposes as well as acquisitions and strategic investments. The RCF has an option for a £50m accordion and to extend the commitment for a further year through to July 2027.

We have a formal schedule of matters reserved for our approval which are not delegated to the executive team. These include:

- Strategy
- Acquisitions and disposals of businesses (above a certain size)
- Annual budgets
- Capital expenditure (above a certain amount)
- Financial results
- Overseeing systems of internal control, governance and risk management
- Dividends
- Appointment and removal of Directors and the Company Secretary

Our Board has Nomination, Audit and Remuneration Committees and we delegate certain responsibilities to them. These Committees comprise our independent Non-Executive Directors (save for the Nomination Committee, which includes our Chief Executive Officer) and all play a key role in supporting the Board. The full schedule of matters reserved for the Board, together with the written terms of reference for each Committee, are available on our website, www.ricardo.com or on request from the Company Secretary.

Our Code of Conduct, which defines the standards and behaviours expected of colleagues, is a fundamental part of our culture and supports our values. The Code of Conduct is supported by Group policies and mandatory training, which includes anti-bribery and corruption; whistleblowing and data protection.

In addition, an independent and confidential whistleblowing telephone hotline, re-named 'Speak Up', allows colleagues to raise concerns regarding misconduct and any breaches of the Code of Conduct. The Audit Committee routinely receives reports of any matters raised through the whistleblowing hotline. Updates on any investigations undertaken and any corrective actions are provided to the Board.

There are seven scheduled Board meetings per year, and otherwise as required. Details of attendance by Board and Committee members at scheduled meetings are shown in the table above.

If any Director is unable to attend a meeting, they discuss their views and comments with the relevant Chair in advance, so that their position can be represented at the meeting. Board meetings focus on driving Ricardo's strategy, developing strong leadership, succession planning, reviewing financial business performance, monitoring risks and protecting the strength of our relationships with clients, employees and other stakeholders. The Board has a detailed programme that ensures operational and financial performance, risk, governance, strategy, culture and stakeholder engagement are discussed at the appropriate time.

Our forward planner gives Board members visibility of what is on future agendas for their consideration. A number of the key matters considered by the Board during the year under review are set out in the table below:

Meeting in FY 2021/22	Significant matters under review
July 2021	• FY 2021/22 budget approval • Workforce engagement • Board evaluation
September 2021	• Preliminary results and Annual Report • Dividend options • KPIs • Annual General Meeting (AGM)
November 2021	• Strategy review • ESG update • Global Automotive and Industrial update
January 2022	• Strategy review approval • COP26 and Energy and Environment • Workforce Engagement 2021 feedback and 2022 plan • Health, safety and environment
February 2022	• Interim results and interim report • Interim dividend • KPIs • Funding/refinancing strategy
April 2022	• Funding and treasury update • ESG – sustainability update
June 2022	• FY 2022/23 operating segment budget presentations • Treasury – RCF update • Insurance

In each meeting, the Board receives reports from the Chief Executive Officer and the Chief Financial Officer, together with reports and updates on health and safety as well as potential acquisition and disposal activities. The Board challenges management to ensure that the flow and quality of information to the Board is of a high standard.

2. Division of Responsibilities

The Board is collectively responsible for the long-term success of the Group, ensuring that it operates within a framework of effective controls.

The operations of the Board are underpinned by the collective experience of the Directors and the diverse skills and experience which they possess. This experience ensures that leadership and decision-making are focused and balanced, and approached with independent thought and judgement. Accordingly, decisions are taken for the benefit of the Company as a whole, with due consideration for all stakeholders that may be affected.

There is a clear division of responsibilities between the Chair and the Chief Executive Officer, which is documented, clearly understood and approved by the Board.

The Chair

Sir Terry Morgan is primarily responsible for leading the Board and ensuring its effectiveness. Sir Terry sets the Board agenda in consultation with the Chief Executive Officer, other Board members and the Company Secretary. Sir Terry promotes effective communication between the Executive and Non-Executive Directors and ensures all Directors effectively contribute to discussions and feel comfortable in engaging in healthy debate and constructive challenge.

Sir Terry ensures all directors receive accurate, timely and clear information to assist them to make their decisions and ensures appropriately tailored induction programmes are delivered for new Directors.

Chief Executive Officer

Graham Ritchie has direct responsibility for the Group on a day-to-day basis and is accountable to the Board for the financial and operational performance of the Group. He plays a key role in devising and reviewing Group strategies for discussion and approval by the Board. Graham is tasked with providing regular operational updates to the Board on all matters of significance relating to the Group's business or reputation and for ensuring effective communication with shareholders and other key stakeholders.

Graham chairs the Executive Committee, which meets regularly throughout the year. The Executive Committee is primarily responsible for developing and implementing our corporate strategy and policies.

Senior Independent Director

The responsibilities of the Senior Independent Director are also documented and include the provision of an additional channel of communication between our Chair and the Non-Executive Directors. Malin Persson also provides an additional point of contact for our shareholders should they have concerns that communication through normal channels has failed to resolve, or where such contacts are inappropriate.

Malin meets with the Non-Executive Directors at least annually when leading the Non-Executive Directors appraisal of the performance of the Chair.

Non-Executive Directors

Russell King has been the Chair of the Remuneration Committee throughout the year under review. Bill Spencer has been the Chair of the Audit Committee throughout the year under review. Laurie Bowen has been the Chair of the Nomination Committee throughout the year under review. Malin Persson has

been the Senior Independent Director throughout the year under review.

On a number of occasions during the year, the Chair met the other Non-Executive Directors without the attendance of the Executive Directors. There were several other occasions during the year when discussions between various Directors took place on an informal basis. In addition to formal Board meetings, the Chair maintains regular contact with the other Directors to discuss specific issues.

The Non-Executive Directors bring insight and experience to the Board. They have responsibility for constructively challenging the strategies proposed by the Executive Directors, scrutinising the performance of management in achieving agreed goals and objectives and play leading roles in the functioning of the Board Committees, bringing an independent view to the discussion.

They meet with the Senior Independent Director to review the Chair's performance and other matters.

Workforce Engagement Director

Malin Persson is the designated as the Non-Executive Director responsible for overseeing Workforce Engagement. Ricardo has a structured engagement plan with its people, including Pulse presentations, Town Halls, Works Councils and biennial Group employee surveys together with divisional surveys on a more regular basis. Malin met small groups with a representative subset of team members including:

- Senior management
- Junior and new team members
- Senior and long-term team members
- Team members in different direct/indirect roles
- Team members from different sites and countries
- Workers Council/Interest Group members

Through these meetings, Malin has been able to provide the Board with further context to support the view that the Company was undertaking the appropriate workforce-related activities, and to also provide feedback to the Board as a whole on the feedback from the workforce. During FY 2021/22, Malin has conducted sessions focused on diversity and inclusion and has had meetings with members of the Executive Committee to discuss the outcomes of the employee survey and proposed actions for improvement. In addition, a series of interactive discussions will continue to be set up between the non-executive directors and the workforce at regular intervals. It is hoped that this will broaden the channels of communication between the Board and the workforce and provide further understanding for the Board of employee interests and better inform its decision-making process.

Company Secretary

Patricia Ryan is secretary to the Board. Her responsibilities include ensuring the Board has the information, time and resources it needs in order to discharge its duties and function effectively and efficiently.

The Company Secretary advises the Board on all governance matters and facilitates induction programmes for new directors and provides briefings and guidance on governance, legal and regulatory matters. The appointment and removal of the Company Secretary is a matter reserved for the Board as a whole.

Time commitment

Regular Board and Committee meetings are scheduled throughout the year, ensuring that directors allocate sufficient time to discharge their duties effectively. During the year, the Board held seven scheduled meetings and additional strategy days, which included presentations by senior management on each of the business areas.

Directors are expected to attend all Board and relevant Committee meetings. The table on page 95 shows the record of attendance at the scheduled Board and Committee meetings.

The nature of the Non-Executive Director role makes it impossible to be specific about the maximum time commitment. However, it is anticipated that at least 20 days per annum after the induction phase are required, plus additional time to devote to preparation ahead of each meeting.

It is recognised that at certain times it may be necessary to convene additional Board, Committee or shareholder meetings.

Prior to appointment, the Nomination Committee assesses the commitments of a proposed candidate, including other directorships, to ensure they have sufficient time to devote to the role.

Conflicts of interest

Directors are required to report actual or potential conflicts of interest to the Board for consideration and, if appropriate, authorisation. If such conflicts exist, directors excuse themselves from consideration of the relevant matter. The Company maintains a register of authorised conflicts of interest, which is reviewed annually.

Details of the Directors' service contracts and terms of appointment, together with their interests in the Company's shares, are shown in the Directors' remuneration report on pages 110 to 139. If Directors have concerns about the Company or a proposed action which cannot be resolved, it is recorded in the Board minutes.

All Directors have access to the advice of the Company Secretary and, in appropriate circumstances,

may obtain independent professional advice at the Company's expense. No such requests were made in FY 2021/22. A Directors' and Officers' Liability Insurance policy is maintained for all Directors and each Director has the benefit of a Deed of Indemnity.

3. Composition, Succession and Evaluation

Diversity, equity and inclusion (DEI)

Our Board sets the tone for inclusion and diversity across the Group and believes it is important to have an appropriate balance of skills, knowledge, experience and diversity on the Board and at senior management level to ensure good decision-making. The Board recognises the need to create conditions that foster talent and encourage all colleagues to achieve their full potential. The Board and Nomination Committee receive regular updates on the progress of diversity initiatives across the Group which have included the establishment of a DEI Forum that meets monthly with a clear set of commitments across each of the Operating segments together with an Ethnic forum, a monthly group engagement programme, to discuss various topics as a global, multi-national company.

Our Board and Committees are committed to promoting equality of opportunity for all colleagues and job applicants, free from all forms of discrimination. Ricardo is an inclusive employer and values diversity of skills, knowledge, background, industry, international experience and gender in its people and aims to recruit the best person for the role in all positions across the Group.

Our Nomination Committee appreciates that a diverse range of backgrounds is an important part of succession planning at all levels in the Group. Our Committee continually monitors tenure profile and is very conscious of the need to continue to promote diversity at Board level and throughout the Group. Upon engagement of external search consultants, our Board requires that full account of all aspects of diversity are considered in preparing candidate lists.

The composition of the Board includes 25% female representation.

The Board remains committed to promotion of diversity in our already diverse organisation. Over 62 different nationalities work for us globally and the business ensures that females are included on the interview panels at all levels with positive discrimination during candidate screening. LGBT+ training is conducted on a regular basis together with compliance training focused on topics such as the Code of Conduct, Human Rights policy and DEI. Further details of our DEI initiatives can be found at pages 36 to 55.

Details of female representation elsewhere within the Group are set out on page 27.

As set out in their biographies on pages 91 to 93 and in the notice of AGM, each member of the Board offers a range of core skills and experience that is relevant to the successful operation of the Group, providing a strong independent element to the Board and a solid foundation for good corporate governance, as well as fulfilling the vital role of corporate accountability. The oversight each of the Directors provides is balanced with individuals contributing a broad range of skills, diverse experience and knowledge, demonstrating independence and constructive challenge.

Non-Executive Directors' independence

The Nomination Committee considers whether each of the Non-Executive Directors is continuing to maintain their independence of character and judgement in line with the definition set out in the Code. The Non-Executive Directors met with the Chair without the Executive Directors being present on a number of occasions and, at least annually, Directors meet with the Senior Independent Director to review the Chair's performance and other matters.

Appointment, induction and development

Non-Executive Directors are initially appointed for a three-year term, with an expectation that they will continue for at least a further three years. Directors are nominated by the Nomination Committee and are subsequently approved by the Board for election or re-election annually by shareholders at the Company's AGM. After three years' service the performance of a Non-Executive Director is rigorously assessed by the Nomination Committee. Any development needs identified are discussed by the Chair with the Non-Executive Director.

All Directors will submit themselves for re-election at the forthcoming AGM in November 2022. Upon appointment, all new Directors receive a comprehensive induction programme over a number of months, which is designed to facilitate their understanding of the business and is tailored to their individual needs. The Chair and the Company Secretary are responsible for delivering the programme covering the Company's core purpose and values, strategy, key areas of the business and corporate governance. The new director induction programme is delivered through meetings with senior managers across the Group as well as via a number of advisors, attendance at Committee meetings, site visits and access to a library of reference materials. In support of the ongoing development of Directors, technical updates are provided at Board and Committee meetings to ensure that Directors remain up to date with key developments in the business environment.

Directors are encouraged to attend training sessions to ensure their knowledge is up to date on

relevant legal, regulatory and financial developments or changes. The Board receives presentations on each of the business areas to understand the market conditions and challenges in the different countries the Group operates in. Directors have spent time individually and collectively exploring specific operational activities in detail through presentations, meetings and site visits, giving them the opportunity to meet with local senior management to gain an insight of the business operations. The Board visits our overseas business functions on a regular basis to gain a greater understanding of the market conditions that the business operates in and to understand the challenges they face. This provides in-depth knowledge for the Directors, enabling them to share their own experiences and challenge the business.

Board evaluation

The Board undertakes a formal review of its own performance and that of its committees each year. Following the recommendation of the Nomination Committee, an internal review facilitated by the Company Secretary was commissioned during the year under consideration and the evaluation was reported back to the Board towards the latter part of the year. The review concluded that the Board was strong and effective, with each Director actively contributing to the effectiveness of the Board and the Committees of which he or she was a member during the year. Following the review, the Board set itself improvement actions and objectives, including, among other things: developing skills matrix for the board and succession planning, continued focus on diversity and greater stakeholder engagement.

4. Audit, Risk and Internal Control

This Report provides shareholders with a clear assessment of the Group's position and prospects, supplemented, as required, by other periodic financial and trading statements.

Audit Committee and auditors

The Board has delegated oversight of the relationship with the Group's and the Company's external auditors to the Audit Committee. Their work is outlined in the Audit Committee report on pages 106 to 109.

Risk management and internal control

Each year, the Board undertakes a comprehensive review of the principal risks and uncertainties facing the Group and how those risks may impact the Group's prospects.

Overall responsibility for systems of internal control rests with the Board. The Board's arrangements for the application of risk management and internal control principles are detailed on page 56 to 61.

Financial and business reporting

The Statement of Directors' Responsibilities for preparing the Annual Report, the Directors' Remuneration Report and the financial statements in accordance with applicable law and regulations are set out on page 143.

The Group's business model is set out within the Strategic Report on pages 14 to 15.

The Directors' statement relating to going concern and the Viability Statement are set out on pages 142 and 62 to 63, respectively.

5. Remuneration

Please refer to the Directors' Remuneration Report on pages 110 to 139 for further information, and in particular:

Level and components of remuneration

Please refer to pages 113 to 116.

Procedure

Please refer to pages 130 to 139.

The Non-Executive Directors have never been employees of the Company, nor have they participated in any of the Company's share schemes, pension schemes or bonus arrangements.

The Non-Executive Directors receive no remuneration from the Company other than the Directors' fees disclosed and travel expenses. Their fees are determined by the Board as a whole on the recommendation of the Chief Executive Officer.

No Director is involved in deciding their own fees.

Directors' duty under section 172 of Companies Act 2006

The Board, in line with its duties under section 172 of the Companies Act 2006, must act in a way that gives due regard, among other matters, to: the likely consequences of any decisions in the long term; the interests of the company's employees; the need to foster the company's business relationships with suppliers, customers and others; the impact of the company's operations on the community and environment; the desirability of the company maintaining a reputation for high standards of business conduct; and the need to act fairly between members of the company. Further information about how these duties have been applied can be found throughout the FY 2021/22 Annual Report, as set out in the following table.

Further details on how the Company and Board engage with stakeholders are found on pages 101 to 103. Details of key decisions taken by the Board and how stakeholders were considered are provided on page 104.

s172 duties	Key examples	Page
Consequences of decisions in the long term	Chair's statement > Strategy	7
	Chief executive's review > creating value through our sharpened strategy, outlook	9
	Our business model > aligned approach	14
	Our strategy > aligned to long term megatrends, creating value through focused priorities, focused objectives to deliver growth	16
	Principal risks and uncertainties	58
	Viability statement	62
	Board activity FY 2021/22	104
Interests of the company's employees	Our people	27
	Chair's statement > Our people, culture and diversity	7
	Chief executive's review > Investing in our people	11
	Our business model > our values	14
	Focused objectives to deliver growth > meaningful and fulfilling work	17
Company's business relationships with suppliers, customers and others	Our business at a glance > Serving key markets	5
	Ricardo's business model > Aligned approach	14
	Focused objectives to deliver growth > trusted partner to our customers, achieving high growth in chosen markets	17
Impact of the company's operations on the community and environment	Our vision	1
	Our business at a glance > who we are	
	Chair's statement > ESG	4
	Chief executive's review > Sustainability is firmly built into our DNA	11
	Innovation	22
	Sustainability and ESG	36
Maintaining a reputation for high standards of business conduct	Our business model > aligned approach, our values, our capabilities, our operating model	14
Act fairly between members of the company	Our business model > aligned approach, our values	14
	Chair's statement > Our people, culture and diversity	7
	Chief executive's review > Investing in our people	11
	Focused objectives to deliver growth > enabling meaningful and fulfilling work	17
	Our people	27

Ricardo's Annual General Meeting

Ricardo plc will be holding its Annual General Meeting (AGM) at Liberum Capital Limited, 12th Floor, 25 Ropemaker Place, London, EC2Y 9LY at 10.00am on Thursday 17 November 2022. Full details of the AGM and the resolutions that will be put to shareholders are set out in the Notice of Annual General Meeting (Notice) which can be viewed on our webpage at www.ricardo.com/AGM2022.

The Notice of Meeting sets out the resolutions being proposed at the AGM on 17 November 2022 at 10:00am and shareholders can vote separately on each proposal.

Last year, all resolutions were passed with votes ranging from 64.56% to 99.98%.

At the 2021 AGM shareholders were asked to approve the Directors' Remuneration Report which passed with 64.56% support.

The primary concerns raised related to the exit arrangements for the Company's former CEO. A secondary concern was the increase in the award levels under the Long-Term Incentive Plan without a consequential increase in the stretch to the performance targets.

The Remuneration Committee and Board appreciates the time that shareholders give to Ricardo on executive remuneration matters and will continue to engage with them and take their views into account at all times.

In addition, at the 2021 AGM shareholders were asked to give authority to allot relevant securities and approve the disapplication of pre-emption rights. Both resolutions were passed with 77.77% and 77.83% support respectively.

The use of the cash box structure for the share issue in November 2020 was not used so as to circumvent the disapplication authorities previously approved by shareholders but was used in accordance with the principles and guidelines issued by the Pre-Emption Group in April 2020 and endorsed by the FCA which clearly enabled share issues of up to 20% of a company's issued share capital on a non pre-emptive basis.

The Company consulted with its major shareholders before launching the share issue and obtained their support for it.

The Board appreciates and understands the views of those shareholders who were not able to support the resolutions and will continue to engage and take account of all shareholders' views in the event of any future share issues.

At the AGM in November 2021, we were able to provide a facility for shareholders to follow the AGM remotely by an audiocast. As a matter of policy the level of proxy votes (for, against and vote withheld) lodged on each resolution is declared at the meeting and displayed on the Company's website. Ricardo's website, www.ricardo.com, contains a wealth of information, including:

- Latest Ricardo news, stock exchange announcements and press releases; and
- Annual report, interim reports and investor presentations.

The Corporate Governance Statement was approved by the Board of Directors on 13 September 2022 and signed on its behalf by:

Sir Terry Morgan CBE
Chair

OUR STAKEHOLDERS

Engaging and building trust with our diverse range of stakeholders with whom we interact regularly is key to our long-term success. Effective engagement starts with our shared values - Create together, Be innovative, Aim high, and Be mindful – which guide our way of work and are reflected in how we collaborate with our colleagues and how we treat and interact with our customers. We understand the importance of our stakeholders and how critical active engagement is at every level. We have worked harder than ever to ensure that we understand and consider our stakeholders' views, allowing us to make more informed decisions that ensure the very best outcomes for the business and its stakeholders.

In support of the requirements of section 172 of the Companies Act 2006, the information below sets out how we engage Group-wide and at board level on the key issues that matter the most to our stakeholders and our response to those issues. As required by the UK Corporate Governance Code 2018, the board considers that its non-executive directors have a good understanding of the key areas of interest and concern to our major shareholders.

STAKEHOLDER GROUP	KEY AREAS OF INTEREST	HOW WE ENGAGE COMPANY-WIDE	HOW WE ENGAGE AT BOARD LEVEL	HOW WE RESPOND
CUSTOMERS				
At Ricardo, our customers are the cornerstone of everything that we do. We are committed to delivering service excellence and building lasting customer relationships that provide not only enhanced service levels but also ensure the future sustainability of the Ricardo Group.	• Delivery of innovative solutions. • Lasting customer relationships. • Technical expertise. • Maintain consistent and high service levels. • Sustainable services to meet evolving customer requirements around global green agendas.	• Dedicated marketing and sales teams across disciplines, market sectors, and territories. • Product management responsible for sustainable solution design. • Sector specialist knowledge to build tailored solutions in response to customer needs.	• Regular feedback from the Voice of Customer reviews, reported monthly. • Strategic-review process provides information on the customer landscape across all the markets in which we operate.	• We ensure that all investment in R&D is focused on areas that prioritise net zero and decarbonisation.

OUR STAKEHOLDERS

STAKEHOLDER GROUP	KEY AREAS OF INTEREST	HOW WE ENGAGE COMPANY-WIDE	HOW WE ENGAGE AT BOARD LEVEL	HOW WE RESPOND
COLLEAGUES				
The experience and expertise of our colleagues is essential for the delivery of our strategy. We ensure that, as a business, we promote an open culture that is diverse and inclusive, and which fosters good engagement that allows us to deliver value to our customers.	• Safety systems of work to ensure the health and safety (including mental health and wellbeing). • Systems to enable speaking up and solving problems. • Business has future capabilities in its people that it needs to grow. • Employee value proposition is appealing and attracts talent. • Talent acquisition is effective in bringing talent into Ricardo. • Culture and ways of working encourage high levels of engagement and commitment. • DEI practices to encourage further diversity in recruitment and inclusion within the organisation.	• Malin Persson appointed as Workforce engagement NED involved directly in the organisation to gain assurance of progress against key areas of interest. • Sharing of 'Speak Up', engagement survey results and action plans.	• Review the insights and findings of Workforce. • Engagement NED activities. • Annual refresh of Ricardo people strategy endorsed by the Board. • Board reporting of People based KPIs.	• Agree action plans from Workforce engagement NED activities & agree a forward annual calendar of engagement activities to pulse-check. • Continue to engage with senior leadership. • Available outside of Board meetings for informal staff listening sessions. • Invite participation in Board meetings from senior leadership teams to gain additional insight.
COMMUNITIES				
As a global company with operations in over 20 countries, we play an active role in helping our local communities thrive by contributing both socially and economically. We are duty bound to operate in a responsible and sustainable way and we do so by always aligning our decisions and actions according to our values and our ESG commitments.	• Protecting society. • Environmental impacts through indirect and direct actions. • Clear ESG policies that commit to making our operations more energy efficient. • Support local initiatives and charitable causes.	• Encourage local engagement to promote positive change through participation in charitable and social events. • Sustainability committee. Active in supporting academic institutions in promoting events related to engineering and sustainability programmes.	• The board regularly reviews ESG-related matters and supports all related initiatives to realise our net zero 2030 ambitions. • Periodic reports providing updates on key community and sustainability matters are also prepared by the Chief Executive Officer and submitted to the Board for review.	• We have enhanced our ESG reporting within our annual report and accounts. • We have appointed Malin Persson with responsibility for sustainability. • We continuously work with organisations such as the IET (Institute of Engineering and Technology) to promote education in engineering within local communities. • We have refreshed our approach to STEM and have re-commenced on-site events and school visits following the lifting of COVID-19 restrictions.

OUR STAKEHOLDERS

STAKEHOLDER GROUP	KEY AREAS OF INTEREST	HOW WE ENGAGE COMPANY-WIDE	HOW WE ENGAGE AT BOARD LEVEL	HOW WE RESPOND
SHAREHOLDERS				
We are committed to delivering value to our shareholders. Our shareholders provide us with the financial liquidity that we need to continue to operate, and it is our responsibility to build a transparent and open engagement to ensure they are well informed and understand the decision-making processes that guide our business to a profitable and sustainable future.	• Financial health and operating performance. • Strategic direction. • Long-term viability. • Growth drivers. • M&A. • ESG objectives and ongoing commitments.	• We maintain regular contact with our shareholders, principally through investor roadshows, investor events and the AGM. • The Chief Financial Officer meets lenders on a regular basis to ensure a good understanding of favourable rates and active financial planning.	• The board receives regular updates on the investor-relations programme, including investor feedback and surveys following the results presentations. • The Chair, the Senior Independent Director, the Chair of the Remuneration Committee and the Chair of the Audit Committee are available for discussion with major shareholders if required.	• In May 2022 the Chief Executive Officer and senior management hosted a Capital Markets Day to launch the sharpened strategy. • Regular updates through our website, which acts as the main gateway for results statements, trading updates and press release distribution. • Regular reviews are conducted to gain a better understanding of the views of our major shareholders. • During the year, the Chair, the Senior Independent Director, the Chair of Remuneration Committee, CEO and CFO have engaged directly with major shareholders.
SUPPLIERS				
Ricardo has a global network of suppliers that provide us with services and products that are needed for us to deliver according to customer requirements. For this reason, we actively engage with our suppliers to build trusted relationships to ensure our operational success across our operating segments.	• Sustainable procurement. • Uphold ethical standards. • Competitiveness. • Potential disruption of the supply chain. • Single-sourcing decisions made with our customers.	• We ask our suppliers to operate according to our codes of conduct and other policies and to behave responsibly at all times. This is firmly embedded in our terms and conditions. • We conduct initial and periodic due diligence and expect our suppliers to operate according to professional standards to assure good performance.	• The Chief Executive Officer reports to the to board periodically on significant supplier contracts and arrangements.	• We review our major suppliers list consistently to ensure our suppliers are conducting themselves in an ethical and responsible manner at all times. • We conduct modern slavery risk assessments on suppliers. • We launched a new supplier code and updated our procurement policy to cover sustainable procurement. • We encourage our landlords and suppliers to maximise the use of renewable energy. • Supply-chain management is closely managed to ensure minimal disruptions.

BOARD ACTIVITY

Some of the ways in which the Board considered stakeholders in principal decisions it made during the year under review are set out below.

Key matters	Matters considered and outcome	Stakeholders considered
People and culture	**Regular updates on workforce matters:** The health and wellbeing of our people at the centre of our decision-making processes. **Employee engagement through the employee survey:** The Group People, Team & Organisation Director presented a thorough review of the survey results both from a Group and business units perspective and the Board approved a number of follow-up actions which will be monitored for progress.	COLLEAGUES COMMUNITIES
Financial performance	**Regular updates to the Board on the Group's financial performance:** Including its cash management and conversion, profits and costs, plus: • Approval of the FY 2020/21 results and FY 2021/22 interim results; • Approval of the FY 2021/22 business plans; and • Update on the Group's Treasury strategy from the Chief Financial Officer and Head of Treasury and approval to refinance the Company's banking facilities for a new £150m Revolving Credit Facility. **Regular CEO reports:** concerning management of customers, suppliers and operations.	SHAREHOLDERS COLLEAGUES CUSTOMERS SUPPLIERS COMMUNITIES
Strategy review	**Refresh of Strategy:** Including the development of a sharpened strategy to become a leading environmental and energy transition consultancy over the next five years. The board has established a five-year business planning process to improve returns and create further value for all our stakeholders. **Oversight of M&A activity:** Including updates on acquisition and divestiture activities at each scheduled Board meeting. The Board continues to prioritise investment on decarbonisation and the net zero agenda with a focus on electrification and hydrogen, whilst continuing to support the transition away from fossil fuel-based internal combustion engines. The Board plans to achieve this through a combination of organic growth and a programme of focused acquisitions. The Board considers that this renewed focus on strategy will positively impact all of our stakeholders and the long- term health of the business. In March 2022, Ricardo acquired Inside Infrastructure, a business based in Adelaide, Australia to expand Ricardo's environmental capabilities across Australia. Inside Infrastructure provides environmental and technical advisory services supporting water, utility, mining, resources, healthcare, infrastructure and government sectors.	SHAREHOLDERS COLLEAGUES CUSTOMERS SUPPLIERS COMMUNITIES
Succession planning	**CEO succession:** In January 2021 the Company announced that the Board and Dave Shemmans had jointly agreed that he would be leaving his role as Ricardo's Chief Executive Officer. Dave resigned on 30 September 2021. After a thorough and rigorous search process, the Nomination Committee recommended to the Board the appointment of Graham Ritchie as Ricardo's Chief Executive Officer. The Board unanimously approved the appointment and Graham joined Ricardo on 1 October 2021. Graham has significant business experience and the drive to help take Ricardo to the next level of growth and development. The Board considers that the appointment of Graham will positively impact all of our stakeholders and the long-term health of the business. **Chair succession:** Sir Terry Morgan CBE gave notice to Ricardo in February 2022 of his intention to stand down as Chair of the Board. The Nomination Committee, under the leadership of Malin Persson, immediately commenced the process to select his successor. Russell Reynolds was appointed to assist the Committee with the selection process. Mark Clare is to be appointed Deputy Chair with effect from 1 November 2022 and it is intended that he will succeed as Chair of the Board at the close of the 2022 AGM on 17 November 2022.	SHAREHOLDERS COLLEAGUES CUSTOMERS SUPPLIERS COMMUNITIES

NOMINATION COMMITTEE REPORT

Chair's Overview

The primary objectives of the Committee are to support the Board in fulfilling its responsibilities to ensure that, firstly, there are formal, rigorous and transparent processes in place for the appointment of new Directors, both to the Board and to senior management positions and, secondly, that there are effective, deliverable and well thought-through succession and contingency planning processes in place across the Group for all key positions.

This year has been particularly busy for the Nomination Committee. The key focus areas being CEO and Chair succession planning. In the forthcoming year we will be updating talent management and succession planning for Board and senior management positions.

Laurie Bowen

LAURIE BOWEN
CHAIR OF THE NOMINATION COMMITTEE

Composition

In accordance with the UK Corporate Governance Code, the Nomination Committee comprises a majority of independent non executive directors. During the year under review the Committee comprised the independent Non-Executive Directors Sir Terry Morgan, Russell King, Malin Persson, Bill Spencer and Jack Boyer, together with the Chief Executive Officer. The Committee has one scheduled meeting per year, which is supplemented by ad hoc meetings as necessary, and informal meetings between the Committee members.

Responsibilities

The Committee evaluates the balance of skills, knowledge and experience of the Board; monitors the leadership needs and succession planning of the Company; considers the training needs of the executive and non-executive members; regularly reviews the structure, size and composition of the Board; and makes recommendations to the Board for executive and non-executive appointments.

Before such recommendations are made, descriptions of the roles and skills required to fulfil each role are prepared for each appointment. To attract suitable candidates, appropriate external advice is taken and interviews conducted by at least two members of the Nomination Committee to ensure a balanced view.

The Nomination Committee was delighted with the quality of the candidates considered for the role of Chief Executive Officer and after careful consideration and, as announced on 26 August 2021, the Nomination Committee recommended the appointment of Graham Ritchie as Chief Executive Officer.

Graham has a proven track record in leading large divisions within listed companies and is well placed to ensure the strong execution of Ricardo's strategy. Since 2016, Graham was a member of the Executive Committee of Intertek Group plc, responsible for its operations in Europe, including Russia, and Central Asia. Prior to that role, Graham was Intertek's Group Financial Controller. Previously, Graham held senior financial positions at BT Group plc and other technology services organisations, having started his career with PwC. Graham is a qualified Chartered Accountant and holds a BA in Economics.

The search for the new Chief Executive Officer during the year was managed with the assistance of recruitment consultants, Heidrich & Struggles, who have signed up to the voluntary Code of Conduct for executive search firms. Graham undertook an extensive induction programme to ensure a rounded understanding of the business and our ambitions. Heidrich & Struggles has no other connection with the Company.

In February 2022, Sir Terry Morgan CBE announced his intention to retire from the Board. Under the leadership of Malin Persson, as Senior Independent Director, the Nomination Committee commenced the selection process for his successor.

The Nomination Committee was delighted with the quality of the candidates considered for the role of Chair and after careful consideration, as previously announced, the Nomination Committee recommended the appointment of Mark Clare.

The search for the new Chair during the year was managed with the assistance of recruitment consultants, Russell Reynolds, who have signed up to the voluntary Code of Conduct for executive

search firms. The new Chair will undertake an extensive induction programme to ensure a rounded understanding of the business and our ambitions. Russell Reynolds has no other connection with the Company.

When an appointment of a Non-Executive Director is made, a formal letter is sent clearly setting out the expected time commitments for the board, committee membership and involvement outside of board meetings. Chosen candidates are required to disclose to the Board any other significant commitments before appointments can be ratified.

Non-Executive Directors, including the Chair, are subject to rigorous review when they continue to serve on the Board for any term beyond six years.

Succession Planning

Name	Date of Appointment	Tenure (years)
Dave Shemmans	Resigned on 30 September 2021	16
Ian Gibson	July 2013	9
Sir Terry Morgan CBE	January 2014	8
Laurie Bowen	July 2015	7
Malin Persson	January 2016	6.5
Bill Spencer	April 2017	5
Jack Boyer OBE	September 2019	3
Russell King	September 2019	3
Graham Ritchie	October 2021	-

The Committee also discussed talent management and succession planning for the top-performing senior managers within the business.

AUDIT COMMITTEE REPORT

Chair's overview

As Chair of the Audit Committee, I am pleased to present to you my report for the year ended 30 June 2022.

On behalf of the Board, the Audit Committee has been actively engaged in risk management to provide appropriate challenge and guidance throughout the year. Particular attention has been given to ensuring the continued integrity of the Group's internal control environment, ensuring the effective implementation of recommendations from the internal audit process, and the consideration of significant accounting and reporting matters.

Throughout the year, management has carefully considered the risks impacting the Group and maintained close contact with our Business Units. The Board has received regular updates on key issues and I have remained in regular contact with management, together with the internal and external audit teams.

I hope that you will find this report useful and I would welcome any comments.

Bill Spencer

BILL SPENCER
CHAIR OF THE AUDIT COMMITEE

Composition

I chair the Audit Committee. In line with the requirements of the UK Corporate Governance Code, during the year the Committee also comprised the independent Non-Executive Directors, Laurie Bowen, Malin Persson, Jack Boyer and Russell King. There was no change in membership during the year.

As the Committee's Chair and as is considered

desirable by the Financial Reporting Council's Guidance on Audit Committees, I have recent and relevant financial experience and a professional accountancy qualification.

As set out on page 109, the performance of the Audit Committee has been evaluated and is considered to be effective.

The Committee convenes four scheduled meetings each year and other ad hoc meetings, as required. Details of attendance at meetings held during the financial year are set out on page 95. The Chair, Executive Directors, the Group's Head of Internal Audit, PwC – the Group's internal audit co-source partners – and the Company's external auditors all have standing invitations to attend all Committee meetings. These meetings were held via a mixture of video conference and in-person.

Responsibilities and key areas of focus

The Committee is established by, and is responsible to, the Board. As authorised by the Board, the Committee has obtained all necessary documentation and information it required from officers or employees of the Company, as well as external professional advice. In order to carry out its responsibilities during the year, the Committee undertook the following activities:

Accounting, tax and financial reporting

- Considered separate reports prepared by the Chief Financial Officer and external auditors on financial reporting and internal control matters as part of the interim review and annual audit processes;
- Assessed the results, on behalf of the Board, of the application of agreed assumptions to re-confirm the continued operational and financial viability of the Group for a period of five years from the date of this report;
- Reviewed the significant financial reporting matters, judgements and estimates, and changes in accounting policies applicable in the preparation of both the Group's interim and year-end consolidated financial statements, prior to submission to the Board for approval; and
- Evaluated the content of the Annual Report & Accounts as a whole and assessed the processes in place to assure its integrity, to advise the Board on whether the information presented is fair, balanced and understandable, and whether it contains the information necessary for shareholders to assess the Group's position and performance, business model and strategy.

Risk management

- Monitored the Group's risk management processes and internal control systems as part of its role on behalf of the Board to oversee the Group's approach to risk management and with due consideration to the principle risks and uncertainties facing the Group;
- Assessed the Group's risk profile, as well as its appetite for risk on behalf of the Board, and evaluated the effectiveness of the Group's risk management and internal control systems, together with the policies and procedures in relation to ethics, speaking up (whistleblowing), fraud and bribery prevention;
- Monitored the key risks to the Group in respect of data and cyber security and evaluated the effectiveness of its control environment; and
- Reviewed the approach to ESG assurance.

Internal controls

- Considered significant matters arising from internal audits performed during the year, evaluated the effectiveness of the internal audit function, and reviewed the scope and available resource for the internal audit plan in the following year to ensure that it is appropriate.

External audit

- Reviewed the scope and planning of the external audit, and evaluated the external auditors' remuneration, effectiveness, independence and objectivity, including consideration of the provision of non-audit services.

Significant financial reporting matters

The Committee considered the following significant financial reporting matters, judgements and estimates in approving the Group financial statements for the year ended 30 June 2022. Following discussions with senior management and the external auditors, the Committee approved the disclosure as set out in Note 1(d) to the Group financial statements.

Carrying value of intangible assets

The issue: Intangible Assets receive careful attention from the Board and Committee who need to be satisfied that their carrying value is appropriate. Goodwill impairment testing is normally undertaken in the final quarter of each financial year, with additional assessments sometimes also undertaken at the half year if there are indicators of possible impairment.

During the year, the Group continued with its reorganisation of its Automotive & Industrial operating segments in EMEA, North America and China into one Global Automotive & Industrial operating segment. As part of this reorganisation, particular focus has been given to re-aligning the global Automotive & Industrial business between its established mobility offerings, centred on internal combustion engines and its emerging technologies offerings, centred on electrification and alternative fuels, together with strategic consulting. The reorganisation resulted in

a change to the classification of the cash generating unit (CGU) groups within Automotive & Industrial and a review of the implications of the change on the carrying value of the goodwill therein.

The role of the Committee: The Board and the Committee considered the appropriateness of the cash CGUs for goodwill testing. In addition, it reviewed and challenged the assumptions made by management which underpinned the impairment testing, including the FY 2021/22 forecast, FY 2022/23 budget and five-year plan.

Comments and conclusions: Following the review in the final quarter, the Board and the Committee concluded that no impairment charges were necessary.

Revenue recognition on fixed-price contracts

The issue: The Group recognises a significant proportion of its consulting revenue from the supply of services under fixed-price contracts, which may span a number of reporting periods. Changes in these estimates may impact revenue recognition and the actual outcome may differ to the estimate made at the reporting date. The identification and separate accounting of distinct performance obligations within the context of a contract is a critical judgement in recognising revenue, as set out in more detail in Note 1(d) to the Group financial statements.

The role of the Committee: A summary of the judgements and estimates taken by management to assess the extent to which these contract assets are recoverable was reviewed by the Committee at the February and September meetings.

Comments and conclusions: The Committee is satisfied that the Group's policies and procedures have been followed to reflect management's best estimate of revenue recognised at the reporting date and that no individual judgement or estimate is expected to have a materially different outcome.

Specific adjusting items

The issue: The Group presents specific adjusting items in the income statement which include the amortisation of acquired intangibles, costs relating to major restructuring programmes, acquisition-related expenditure and other items which are deemed to be significant or non-recurring in nature. The treatment and disclosure of such items is critical to allow stakeholders to fully understand the performance of the Group.

The role of the Committee: The committee reviewed the papers presented to the Board detailing the nature and composition of the specific adjusting items. The Committee challenged the nature and the amount of the items and evaluated the disclosures made in respect of the items.

Comments and conclusions: The Committee is satisfied that the items have been presented consistently and are in accordance with the Group's policy. The Committee is comfortable that the enhancements made to the disclosure of such items presents the Group's results in a transparent manner. After reviewing the Annual Report and Accounts, the Committee is satisfied that the reported and underlying results are given equal prominence throughout the document.

Defined benefit pension obligation

The issue: The Company operates the defined benefit Ricardo Group Pension Fund (RGPF). The accounting basis of the RGPF is exposed to changes in the value of its assets and liabilities. Economic uncertainty has continued to drive volatility in markets and the value of the scheme's assets and liabilities. The liabilities of the RGPF are also sensitive to changes in actuarial assumptions, on which management takes professional advice. Further detail is set out in the financial statements in Note 34 to the Group financial statements.

The role of the Committee: The Committee reviewed the papers presented to the Board at the February and September meetings and considered the impact of the changes in assumptions on the pension obligation.

Comments and conclusions: The Committee is satisfied that the assumptions were reviewed by senior management and that the value of the RGPF's liabilities reflects the best estimate at the reporting date.

Internal audit

The internal audit function is accountable to the Committee and is considered to be a key function for effective risk management.

During the year, we have continued to develop our co-source internal audit arrangement with PwC. In addition to a number of operating segment audits, PwC was engaged to carry out Group-wide audits of key topics. The co-source arrangement with PwC has given the Group access to specialist internal audit staff for deployment on higher risk, more complex audits and independent subject matter expertise. Responsibility for the internal audit process and setting the internal audit plan has remained with the Group's Head of Internal Audit, who has independently reviewed and scrutinised the work performed by PwC. The approach ensures independence in the internal audit process and combines external experience with the sharing of best practice around the Group.

All internal audit reports submitted during the year were reviewed by the Committee, and the status of each remedial action is tracked to completion to ensure appropriate resolution. The Audit Committee meets with the Group's Head of Internal Audit without the presence of management.

The Committee also monitored the effectiveness of the Group's internal audit function including the approval of the scope and resources required to carry out work to be performed, and received an external perspective on internal audit development from PwC.

External audit

KPMG LLP were reappointed for the audit of the Group's results to 30 June 2022 at the Group's AGM on 11 November 2021.

Non-audit services

The Board's policy is that the provision of permissible non-audit services may only be undertaken by KPMG in limited circumstances and is subject to a cumulative cap. In order to remove the possibility of a perceived conflict of auditor objectivity and independence, KPMG has agreed with the Committee that no permissible non-audit services will be provided to Ricardo other than those closely related to the audit of the Group, such as the interim review.

Fees for non-audit services paid to the external auditors during the year were 5% of KPMG's audit fee (FY 2020/21: 12%). The ratio of audit and non-audit fees and the nature of non-audit fees are disclosed in Note 11 to the Group financial statements. Given the nature and scale of the services provided by KPMG, the Committee concluded that these services did not cause any concerns regarding KPMG's objectivity or independence.

There are limited instances where Ricardo enters into business relationships or joint arrangements with KPMG to pursue commercial opportunities, either as a prime contractor, sub-contractor or as part of a consortium, with either party or a third party being the project manager. These business relationships are considered acceptable to the extent that they remain immaterial to both organisations and do not compromise the auditors' independence.

Independence and effectiveness

Both the Board and KPMG have safeguards in place to ensure the auditors' objectivity and independence cannot be compromised. The Committee supports KPMG in having the necessary professional scepticism in its role. KPMG also provides the Committee with information about policies and processes for maintaining its independence.

The Committee confirms that during the year it has maintained formal and transparent arrangements for considering corporate reporting, risk management and internal control and for maintaining an appropriate relationship with KPMG.

During the year, the Committee carried out its annual effectiveness review of the external auditor, which primarily focused on the 2022 audit. This assessment was completed at the end of the 2022 audit and was based upon KPMG's audit findings and responses to questions from the Committee, together with input from senior management and finance personnel. The Committee also met with the audit partner without management being present. There were no significant findings following the review and it was concluded that the audit process was effective. The Committee recommended to the Board that their re-appointment be proposed to shareholders at the 2022 AGM.

DIRECTORS' REMUNERATION REPORT

RUSSELL KING
CHAIR OF THE REMUNERATION COMMITTEE

PART 1 – REMUNERATION COMMITTEE CHAIR'S OVERVIEW AND ANNUAL STATEMENT

Dear Shareholder,

Ricardo's new leadership and strategy

It has been a year of transition and change for Ricardo. Graham Ritchie took up his appointment as Chief Executive Officer on 1 October 2021 after Dave Shemmans stepped down from the Board, following 16 years as Chief Executive Officer, on 30 September 2021. Dave Shemmans contributed very well for the three months of the year in which he served and Graham in his turn has made a very strong and pleasing start. In addition to carrying out an extensive strategic review, developing a new five-year plan, and upgrading the talent management process, he has also led the Group's delivery of a robust set of financial results despite the challenging market conditions.

Energy transition and decarbonisation are at the heart of the business and we now have a clear growth plan with a particular focus on environmental services, clean energy and utilities infrastructure, and sustainable and safe mobility – see page 16.

The three key aspects of the new five-year plan are to:

1. Leverage Ricardo's expertise in science and innovation.
2. Achieve high growth and margins in Ricardo's chosen markets.
3. Ensure disciplined execution through operational excellence and efficiency.

Ricardo's people and below Board level incentives

In order to execute the strategy successfully we have to ensure that we are able to retain and recruit the best talent available. Ricardo is particularly proud to have been identified as having the Best Woman Mechanical & Electrical Engineer at the European Women in Construction and Engineering Awards.

Our Group People, Teams & Organisation Director has worked with the new CEO since his appointment to review the design and operation of Ricardo's incentive schemes – both cash and share-based – below the Board. A new bonus plan for executives below the Board has been designed which places emphasis on financial performance as measured by profit, cash and revenue (assessed net of 'pass through' costs). In addition, share awards were made during the year to executives with key skills and the CEO also has the discretion, within parameters agreed by the Remuneration Committee, to nominate key colleagues for share awards on a non-hierarchical basis. The number of participants in the Ricardo Long-Term Incentive Plan (LTIP) and Ricardo's other share-based pay arrangements will be increased to seventy and this is expected to grow further. Every aspect of our incentives – short and long-term – is aligned to the delivery of our five year plan.

Malin Persson is the designated Non-Executive Director responsible for overseeing Workforce Engagement and has during the year shared with the Remuneration Committee what she has heard from colleagues - see page 97.

We regard the Directors' Remuneration Report as a key element of our communication both with shareholders and our people as we explain how the Remuneration Committee ensures that executive pay is aligned to the strategy and performance of the Company and with the remuneration of colleagues across the Group.

Our performance during the year

Ricardo's results for FY 2021/22 are in line with the Board's expectations and are underpinned by strong

growth in order intake and increased profitability. This is the direct consequence not only of the leadership of Graham Ritchie, Dave Shemmans (the former Chief Executive Officer) and the senior team, but also the skills and hard work of every single one of Ricardo's 3,017 people around the world. Underlying PBT for the year, including the results of Ricardo Software, was £26.3 million, an increase of 46% over the prior year. Order intake was £432.2 million, up 23% on the previous year. Net debt was £35.4 million.

The Group underlying cash conversion was 112% and, when adjusted by £3.0m to remove pension deficit payments, in line with the Group's bonus principles, the resulting adjusted underlying cash conversion was 118%. This is well ahead of the maximum hurdle set for the year and is very pleasing.

Our Energy and Environment business, which accounted for 17% of the Group's total revenue in FY 2021/22, continued to deliver good revenue and underlying profit growth in the year. The revenue and order intake of our largest business, Automotive and Industrial, rebounded during the year and the business returned to profitability. Order intake, revenue and underlying operating profit all increased in Performance Products and Defense, with volumes increasing on key customer programmes. Whilst order intake increased, revenue and underlying operating profit reduced in Rail due to the wind down of a number of large projects. Although the effects of COVID-19 are still being felt throughout the Group particularly in China, no colleagues have been furloughed during the year and Ricardo has not been in receipt of state aid or relief.

Our engagement with shareholders since last year's AGM

At the Annual General Meeting in 2021, the Directors' Remuneration Report was passed by a clear majority (64.57%) but several shareholders made it clear to us that they were unhappy principally about some of the details of the leaver arrangements for Dave Shemmans, our outgoing CEO. Some were also concerned about the increase in the level of the share awards under the LTIP. I contacted all the investors who were identified as voting against the Directors' Remuneration Report to see if there was anything further we could learn. The Remuneration Committee's decision in respect of the departure terms hinged on the need to ensure stability at a very delicate time for Ricardo in the throes of the pandemic. We also asked Dave Shemmans to be flexible on his leaving date. I hope those investors who could not support the Directors' Remuneration Report are reassured by the continuing clawback and malus provisions in relation to share based incentive awards which remain in force for two years after the end of the performance period or, in the case of deferred bonus awards, three years following the date of grant. Dave was also bound by his restrictive covenants for a period of six months following the cessation of his employment. He has been treated as a good leaver for the purposes of his deferred bonus awards and his performance awards, the latter of which have been time pro-rated. In addition, the vesting history of shares awarded under the LTIP strongly indicates that the performance targets the Committee has set have been stretching – see page 117.

Pay outcomes and performance for FY 2021/22

Salaries

No increases were made to the salaries of either Dave Shemmans or Graham Ritchie during the financial year. Graham was appointed on a salary of £470,000 which is lower than that of his predecessor. The salary of the Chief Financial Officer was increased in line with colleagues across the Group by 3 per cent with effect from 1 January 2022.

Annual bonus

Underlying Group PBT, including the results of Ricardo Software, was £26.3m for the year. This includes £0.3m of profit from recognising the Software business as held for sale at the year-end, as a result of amortisation not being charged for the month of June 2022. This benefit has been excluded from the underlying PBT used for bonus purposes. The target for underlying Group PBT was therefore met and the consequential bonus payments are 50% of the maximum for this element. Adjusted cash conversion was 118% which was well above the maximum hurdle set and this resulted in a bonus pay-out of 100% for this element.

The Committee's assessment of performance against the strategic objectives set at the start of the financial year for the Executive Directors – see pages 121 to 122 – resulted in an overall score of 100% for Dave Shemmans and of 95% and 85% for the Chief Executive Officer and the Chief Financial Officer respectively. The overall outcome resulted in bonus payments of 87.5%, 86.25% and 67% for the outgoing Chief Executive Officer, the new Chief Executive Officer and the Chief Financial Officer as a percentage of maximum. The annual bonus for the new Chief Executive Officer was pro-rated to reflect that he joined part-way through the year and is 64.7% of salary as a result. The annual bonus for the outgoing Chief Executive Officer was fully pro-rated on the basis of his contribution for three months of the financial year and one third of this will be deferred into shares to be retained for three years thereby ensuring that he retains an interest in shares following cessation of employment. The outgoing Chief Executive Officer's bonus payment was 21.9% of his salary on leaving.

The Remuneration Committee took the view that these outcomes were in line with overall Group

performance. The performance of the share price has been fully reflected in the lapsing of the shares under the LTIP – see below. Shareholders will be asked to approve a final dividend of 7.49 pence per share, which in addition to the interim dividend paid in April 2022 of 2.91 pence, brings the total dividends in respect of the financial year to 10.40 pence.

Pension
The pension allowance of both the new Chief Executive Officer and the Chief Financial Officer is 7% of salary in line with the level for other colleagues. The CFO agreed to the reduction to 7% of salary with effect from 1 January 2022.

Long-term incentives
In October 2021, awards under the LTIP and bonus-linked share awards under the Deferred Bonus Plan granted in October 2018 lapsed on the basis of underlying Earnings Per Share (EPS) and Total Shareholder Return (TSR) performance over the relevant performance periods. This is the third successive year that no performance awards have vested..

Operation of the Directors' Remuneration Policy
The Remuneration Committee is satisfied that the current Directors' Remuneration Policy has operated as intended during FY 2021/22 and, in light of the performance outcomes described above and on page 111, decided that incentive outcomes are in line with corporate performance.

Long Term Incentive Plan awards in 2021
Awards were granted under the LTIP in October 2021. The target range for EPS, which determines the vesting of two thirds of the shares under award, was disclosed in the 2021 Directors' Remuneration Report as follows:

- No part of the EPS portion will vest if the Company's underlying EPS for the final year in the performance period is below 29.7p;
- 15% of this portion (reduced from the usual 25%) will vest where the final year underlying EPS is 29.7p;
- 100% of this portion will vest where the final year underlying EPS is greater than or equal to 50.2p; and
- Vesting will take place on a straight-line basis between 29.7p and 50.2p.

The remaining one third of the shares under awards were subject to a relative TSR measure which is consistent with the prior year's grants.

Overview of exercise of other discretions

Save for those described in this statement, the Remuneration Committee did not exercise any other discretions afforded to it under Ricardo's share plans and/or its Directors' Remuneration Policy.

Remuneration for FY 2022/23

The current Directors' Remuneration Policy allows the Remuneration Committee sufficient scope to ensure that the pay of the Executive Directors supports the implementation of the new five-year plan. The personal and strategic objectives in respect of the annual bonus plan for FY 2022/23 have been set with this in mind and, as described on page 129, now include a Value Added Turnover bonus measure.

We expect to make awards under the LTIP in October 2022 on the same basis as FY 2021/22. EPS and relative TSR continue to be the measures and the targets are described on page 129.

We shall also embark on the review of executive remuneration in preparation for the new Directors' Remuneration Policy which will be submitted for approval at the Annual General Meeting in 2023. The review will also look at how we can enhance the link between our ESG strategy, the climate-related targets we set and remuneration. I shall be consulting with our largest shareholders on this during the course of 2023.

Conclusion

I hope our stakeholders will support the decisions and approach we have taken on remuneration this year. If you have any questions or comments on the Directors' Remuneration Report please do contact me through Patricia Ryan, Ricardo's Group Legal Counsel and Company Secretary, at patricia.ryan@ricardo.com.

Russell King
Chair of the Remuneration Committee

SUMMARY OF THE KEY ELEMENTS OF EXECUTIVE DIRECTORS' PAY IN FY 2021/22

The following table provides a summary of the key elements of Graham Ritchie's (CEO) and Ian Gibson's (CFO) pay in FY 2021/22.

Base salary	• CEO: £470,000 (from 1 October 2021) • CFO: £355,160 (from 1 January 2022)
Other benefits	• Company car allowance: £12,000 • Private fuel; • Private medical insurance; and • Life assurance.
Pension	• 7% of salary (over Lower Earnings Limit)[1]
Annual bonus with deferral of one-third of any bonus earned	• Maximum opportunity of 125% of salary (CEO) and 100% of salary (CFO) • Based on PBT (60%), cash conversion (20%) and personal targets (20%). • One-third of any bonus to be deferred into shares for three years.
Long-term Incentive Plan shares[2]	• CEO: 150% of salary • CFO: 130% of salary
Share ownership and retention policy	• In-post: a minimum of 200% of base salary; • Post-cessation of employment: a minimum of 200% of salary (or holding if lower) for first 12 months and half of this for second 12-month period;[3] • Net value of 50% of vested shares under LTIP/DBP to be retained until holding requirement met; • Year-end holding for the CEO is 11% of base salary;[4] and • Year-end holding for the CFO is 68% of base salary.[4]

(1) From 1 January 2022 in the case of Ian Gibson, 20% before this date.
(2) Face value of award of long-term incentive plan shares granted in October 2021 was 150% and 130% of salary for the CEO and CFO respectively:
  a. Subject to three-year performance conditions: two-thirds underlying EPS growth, one-third TSR vs. FTSE Small Cap Index (excluding financial services companies and investment trusts);
  b. Once vested, the awards will be subject to a holding period of two years; and
  c. 50% of vested shares (net of tax) to be retained until share ownership requirement met.
(3) Only share plan awards made following the shareholder approval of the revised Directors' Remuneration Policy in 2020 will be subject to these post-cessation restrictions.
(4) Calculated by reference to the number of beneficially owned shares, a share price of 361.5p per share (2021: 410.0p) and salaries as at 30 June 2022, including unvested shares not subject to performance conditions and any vested shares subject to a holding period, both on a net-of-tax basis.

As disclosed in the 2021 Directors' Remuneration Report, Dave Shemmans ceased to be employed by the Group on 30 September 2021 and therefore has been excluded from the table above.

PART 2 – ANNUAL REPORT ON REMUNERATION

This section of the report explains how Ricardo's Directors' Remuneration Policy, which was approved in November 2020, has been implemented during the financial year ended 30 June 2022. The paragraphs that have been audited in this Annual Report on Remuneration are indicated.

The Remuneration Committee

During the year under review, the Remuneration Committee (Committee) was chaired by Russell King. The Committee also comprised Sir Terry Morgan, Laurie Bowen, Malin Persson, Bill Spencer and Jack Boyer.

The Non-Executive Directors serving on the Committee have no personal financial interest (other than as shareholders) in matters to be decided, no potential conflicts of interest arising from cross-directorships and no day-to-day involvement in running the business. Biographical details of the members of the Committee are shown on pages 91 to 93; details of attendance at the meetings of the Committee during the year ended 30 June 2022 are shown on page 95.

Advisors to the Remuneration Committee

During the year, FIT Remuneration Consultants and Shepherd and Wedderburn (who have been jointly appointed by the Committee following a competitive tender process) provided independent advice on matters under consideration by the Committee and updates on legislative requirements and market practice.

FIT Remuneration Consultants' fees for this work amounted to £42,190 (calculated based on a mixture of fixed fees and time spent). Shepherd and Wedderburn's fees for advising the Committee amounted to £39,080 (also calculated based on a mixture of fixed fees and time spent). Shepherd and Wedderburn also advises Ricardo on the design, implementation and operation of its various share incentive plans.

FIT Remuneration Consultants are members of the Remuneration Consultants Group and their work is governed by its Code of Conduct. Shepherd and Wedderburn is a law firm and is regulated accordingly. Having carefully considered all relevant factors and using its judgement, the Committee is satisfied that the advice provided on executive remuneration is objective and independent and that no conflict of interest arises.

The Committee also seeks internal support from Group Human Resources and the Group General Counsel & Company Secretary, as appropriate. The Chief Executive Officer attends the Committee's meetings by invitation and is consulted in respect of certain proposals. The Chief Financial Officer may also be invited to attend meetings to address specific matters. Neither the Chief Executive Officer nor the Chief Financial Officer is consulted or involved in any discussions in respect of their own remuneration.

Voting outcome at AGM

The AGM for the financial year ended 30 June 2021 was held on 11 November 2021. The Directors' Remuneration Policy in operation during the year was approved by shareholders at the 2020 AGM. The results of the votes on the remuneration report and remuneration policy are set out below.

	Annual Report on Remuneration approved at 2021 AGM		Directors' Remuneration Policy approved at 2020 AGM	
Votes[1]	%	Number	%	Number
For, including discretion	64.57	28,346,550	94.79	37,176,754
Against	35.43	15,550,653	5.21	2,043,567
Total votes cast	100.00	43,897,203	100.00	39,220,321
Withheld[1]		7,257		2,148

(1) Excludes withheld votes. A vote withheld is not a vote in law and so is not counted for the purposes of the calculation of the proportion of votes 'for' and 'against' a resolution.

The Chair of the Committee wrote to shareholders prior to the 2021 AGM to explain the decisions made during the year on executive remuneration and in particular the arrangements for Dave Shemmans on his leaving Ricardo. Following the AGM, the Chair of the Committee engaged once more with the largest investors who voted against the 2021 Directors' Remuneration Report to further understand their views. As explained in the 6-month update statement that we released on our website in May 2022, the primary concerns raised related to the exit arrangements for the Company's former Chief Executive Officer. A secondary concern was the increase in the award levels under the Long Term Incentive Plan without any consequential increase in the stretch to the performance targets. The Committee understands the concerns of shareholders and sensitivities surrounding the remuneration decisions taken in 2021. At the same time, the Committee remains of the view that the decisions it made were appropriate and in the best interests of shareholders taking into account all the circumstances. The Committee appreciates the time that shareholders have given to Ricardo on executive remuneration matters and will continue to engage with them and take their views into account at all times.

Performance at a glance in FY 2021/22 compared with FY 2020/21

Bonus performance outcomes		Long-term incentive performance outcomes in respect of awards vesting in FY 2021/22	
Underlying PBT (adjusted)	Cash conversion (adjusted)	Underlying EPS (adjusted)	3-year TSR growth
£26.0m[1] **(FY 2021/22)**	**118%** **(FY 2021/22)**	**22.4p** **for year to 30 June 2021** (below threshold vesting level)	**(45.5)%** **(below median to October 2021)**
£18.0m (FY 2020/21)	*98% (FY 2020/21)*	*21.5p for year to 30 June 2020 (below threshold vesting level)*	*(51.4)% (below median to October 2020)*

(1) Adjusted for £0.3m of amortisation on Ricardo Software which was not charged during the held for sale period.

The closing mid-market price of the Company's shares on 30 June 2022 was 361.5p per share (2021: 410.0p). The highest closing price during the year was 490.0p per share and the lowest closing price during the year was 331.5p per share.

Pay at a glance in FY 2021/22

(1) Graham Ritchie commenced employment with the Group on 1 October 2021.
(2) Dave Shemmans ceased employment with the Group on 30 September 2021.
(3) The long-term incentive awards granted in October 2018 lapsed in full in FY 2021/22. As a result, the face value at grant of these awards and any share price appreciation has not been shown in the above table.

Single total figure of remuneration table (audited)

The table below sets out the remuneration received by the Executive Directors and Non-Executive Directors during the year.

		Fixed remuneration			Short-term variable remuneration			Long-term variable remuneration: 3-year performance periods			Totals		
	Financial year	Base salary and fees £'000	Benefits[1] £'000	Pension £'000	Bonus (cash element)[2] £'000	Bonus (deferred element) £'000	Total £'000	Bonus-linked shares[3] £'000	LTIP[4] £'000	Total £'000	Total £'000	Total Fixed Remuneration £'000	Total Variable Remuneration £'000
EXECUTIVE DIRECTORS													
Graham Ritchie[5]	2021/22	353	11	24	203	101	304	-	-	-	692	388	304
	2020/21	-	-	-	-	-	-	-	-	-	-	-	-
Ian Gibson	2021/22	350	16	46	159	79	238	-	-	-	650	412	238
	2020/21	345	15	68	31	16	47	-	-	-	475	428	47
Dave Shemmans[6]	2021/22	133	73	28	77	39	116	-	-	-	350	234	116
	2020/21	530	22	111	100	50	150	-	-	-	813	663	150
NON-EXECUTIVE DIRECTORS													
Sir Terry Morgan CBE	2021/22	162	-	-	-	-	-	-	-	-	162	162	-
	2020/21	159	-	-	-	-	-	-	-	-	159	159	-
Russell King	2021/22	60	-	-	-	-	-	-	-	-	60	60	-
	2020/21	60	-	-	-	-	-	-	-	-	60	60	-
Laurie Bowen [7]	2021/22	51	37	-	-	-	-	-	-	-	88	88	-
	2020/21	51	-	-	-	-	-	-	-	-	51	51	-
Malin Persson[8]	2021/22	59	6	-	-	-	-	-	-	-	65	65	-
	2020/21	59	2	-	-	-	-	-	-	-	61	61	-
Bill Spencer	2021/22	60	-	-	-	-	-	-	-	-	60	60	-
	2020/21	60	-	-	-	-	-	-	-	-	60	60	-
Jack Boyer	2021/22	51	-	-	-	-	-	-	-	-	51	51	-
	2020/21	51	-	-	-	-	-	-	-	-	51	51	-
Total	2021/22	1,279	143	98	439	219	658	-	-	-	2,178	1,520	658
	2020/21[9]	1,315	39	179	131	66	197	-	-	-	1,730	1,533	197

(1) Further information on benefits for the Executive Directors can be found on page 120. The benefits for Non-Executive Directors represent reimbursement of expenses incurred (including any associated personal tax charges) while travelling for business and Committee meetings.
(2) Further details of the annual bonus can be found from page 120.
(3) Further details of the lapse in FY 2021/22 of the bonus-linked shares historically granted under the Deferred Bonus Plan can be found on pages 123 and 124. As no bonus-linked shares vested in the year, share price appreciation had no impact on the relevant figure included in the above table.
(4) Further details of the lapse of the LTIP awards in FY 2021/22 can be found on pages 123 and 124. As no LTIP shares vested in the year, share price appreciation had no impact on the relevant figure included in the above table.
(5) Graham Ritchie commenced employment with the Group on 1 October 2021.
(6) Dave Shemmans ceased to be a Director on 30 September 2021. Payments made to Dave Shemmans in respect of loss of office are described on page 124 and are not included in the above table.
(7) Laurie Bowen's benefits consisted of travel expenditure. Laurie did not receive any taxable benefits in FY 2020/21 as she was unable to travel due to COVID-19.
(8) Malin Persson's benefits consisted of travel expenditure and accountancy fees.
(9) Mark Garrett has been excluded from the table as he was not a Director of the Company in FY 2021/22 therefore the total figure for FY2020/21 will differ to the total figure disclosed in last year's Director's Remuneration Report.

Following the year-end, the Committee considered whether there were any circumstances that could or should result in the recovery or withholding of any sums pursuant to the Company's clawback arrangements. The conclusion reached by the Committee was that it was not aware of any such circumstances.

Pay for performance – TSR performance graph and CEO pay history

The chart above shows Ricardo's TSR performance for the past ten years against the FTSE Small Cap index (excluding investment trusts). In the Committee's opinion, the FTSE Small Cap index (excluding investment trusts) represents an appropriate index against which the Company should be compared when considering the Company's size. The FTSE All Share Support Services index is also shown for information. The remuneration of the Chief Executive Officer for the same period is shown in the table below.

Financial year	Group CEO	Single figure of CEO's total remuneration £'000	Annual variable element award rates against maximum opportunity %	Long-term incentive vesting rates against maximum opportunity %
2021/22	Graham Ritchie[1]	692	52	N/A
2021/22	Dave Shemmans[2]	350	18	-
2020/21	Dave Shemmans	813	23	-
2019/20	Dave Shemmans	656	-	-
2018/19	Dave Shemmans	998	25	40
2017/18	Dave Shemmans	1,411	43	74
2016/17	Dave Shemmans	1,612	-	100
2015/16	Dave Shemmans	2,291	63	100
2014/15	Dave Shemmans	1,367	59	67
2013/14	Dave Shemmans	760	38	N/A[3]
2012/13	Dave Shemmans	1,546	75	77

(1) Graham Ritchie commenced employment with the Group on 1 October 2021 and as a result did not hold any long-term incentive awards that vested during the year.
(2) Dave Shemmans ceased to be a Director on 30 September 2021. Payments made to Dave Shemmans in respect of loss of office are described on page 124 and are not included in the above table.
(3) The performance period for awards made in November 2011 ended in October 2014 and so their vesting rate is included in the 2014/15 row of the table above. The vesting rate is 'N/A' for the 2013/14 row because the performance period for awards made in October 2010 ended in June 2013 and so the applicable vesting rate for those grants is included in the 2012/13 row of the table above.

Directors' remuneration compared to employees

The table below shows the percentage change in each Directors' salary / fees, taxable benefits and annual bonus between:

- the year ended 30 June 2019 and 30 June 2020;
- the year ended 30 June 2020 and 30 June 2021; and
- the year ended 30 June 2021 and 30 June 2022,

and the percentage change in the same remuneration elements over the same periods in respect of all employees of the Group on a full-time equivalent basis.

	Between FY 2020/21 and FY 2021/22			Between FY 2019/20 and FY 2020/21			Between FY 2018/19 and FY 2019/20		
	% change in base salary and fees	% change in taxable benefits	% change in annual bonus[1]	% change in base salary and fees	% change in taxable benefits[2]	% change in annual bonus	% change in base salary and fees	% change in taxable benefits[2]	% change in annual bonus
All Employees	3	-	556	-	-	N/A	3	-	(100)
EXECUTIVE DIRECTORS									
Graham Ritchie (CEO)[3]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Ian Gibson (CFO)[4]	1	3	403	1	(9)	N/A	3	-	(100)
Dave Shemmans[5] (former CEO)	(75)	236	(23)	1	(4)	N/A	3	-	(100)
NON-EXECUTIVE DIRECTORS									
Sir Terry Morgan CBE	1	-	N/A	1	(100)	N/A	3	-	N/A
Russell King	-	-	N/A	28	(100)	N/A	N/A	N/A	N/A
Laurie Bowen	-	See note (6) below	N/A	1	(100)	N/A	3	(39)	N/A
Malin Persson[7]	-	232	N/A	7	(57)	N/A	14	(52)	N/A
Bill Spencer	-	-	N/A	1	(100)	N/A	3	-	N/A
Jack Boyer	-	-	N/A	21	(100)	N/A	N/A	N/A	N/A

(1) The Non-Executive Directors are not eligible to participate in the bonus scheme. The large % change in annual bonus reflects the business recovering from the COVID-19 pandemic and returning to normal levels of bonus payments
(2) The reduction in taxable benefits for the Non-Executive Directors reflects a lower level of travel and associated costs compared to the prior year.
(3) Graham Ritchie commenced employment with the Group on 1 October 2021.
(4) The large % change in annual bonus for Ian Gibson reflects that a bonus of only 13.7% of annual salary was paid in respect of FY 2020/21. While not included in the table above, as explained on page 112, Ian Gibson's cash in lieu of pension contributions reduced with effect from 1 January 2022 from 20% of salary (above the lower earnings limit) to 7% of salary (above the lower earnings limit).
(5) The % change in base salary and fees figure for Dave Shemmans reflects that he stepped down as CEO on 30 September 2021. The % change in taxable benefits figure for Dave Shemmans is based on the actual figure due to mix of benefits received. The increase in taxable benefits is due to the payment of accrued but untaken holidays on cessation of employment.
(6) The year-on-year change in Laurie Bowen's taxable benefits cannot be shown as no taxable benefits were received in respect of the 2020/21 financial year.
(7) The increase in taxable benefits for Malin Persson largely reflects an increase in travel and associated costs since the prior financial year.

Pay ratio information in relation to Chief Executive Officer's remuneration

Year	Method of calculation adopted	25th percentile pay ratio (CEO : UK employees)	Median pay ratio (CEO : UK employees)	75th percentile pay ratio (CEO : UK employees)
2022	Option A	32 : 1	24 : 1	16 : 1
2021	Option A	25 : 1	18 : 1	12 : 1
2020	Option A	19 : 1	14 : 1	10 : 1

In calculating the pay data for the Chief Executive Officer, the Company has aggregated the amount shown in the single total figure of remuneration table (on page 116) of £349,563 for Dave Shemmans in respect of his services from 1 July 2021 to 30 September 2021 and the amount of £691,878 shown in the single total figure table for Graham Ritchie in respect of his services from 1 October 2021 to 30 June 2022.

The median, 25th percentile and 75th percentile figures used to determine the above ratios were calculated by reference to the full-time equivalent annualised remuneration (comprising salary, benefits, pension, annual bonus and long-term incentives) of all UK based employees of the Group as at 30 June 2022 (i.e. "Option A" under the applicable regulations). The Committee selected this calculation methodology as it was felt to produce the most statistically accurate result available to it.

The median pay ratio for 2022 should be treated with particular caution this year as the data is based on the combined totals of remuneration for the outgoing and the new Chief Executive Officer. The multiple of the Chief Executive Officer's pay when compared to that of the median total pay for Ricardo's UK employees has increased year on year. This is partly the result of Ricardo's improved performance. Even though there has been no vesting of shares under the LTIP in either of the FYs 2020/21 or 2021/22, Ricardo's performance over the year has been much stronger for FY 2021/22 compared to performance in FYs 2020/21 and FY 2019/20 and this is reflected in the level of bonus payments – see page 123. Because incentive pay makes up a significant portion of the Chief Executive Officer's total remuneration there is by definition much more variability in the resulting levels of total pay from year to year than there is for UK employees as a whole where fixed pay accounts for a much bigger proportion of total pay. The ratios shown for all the quartiles have been calculated on the same basis. We take the view that the median pay ratio which results from Ricardo's desire to pay for performance, to pay competitively and to pay fairly is consistent with the pay, reward and progression policies for the Company's UK employees taken as a whole. The ratio will prove volatile from year to year and will widen further as our share price increases and Graham Ritchie's awards under the LTIP start to vest. The Committee reviews the pay of all Ricardo's employees to ensure the alignment of the Executive Directors' pay with pay across the Group.

Pay details (on a full-time equivalent annualised basis where appropriate) for the individuals whose FY 2021/22 remuneration is at the median, 25th percentile and 75th percentile amongst UK based employees are as follows:

2022	25th percentile	Median	75th percentile
Salary	£30,500	£37,375	£56,074
Total pay and benefits	£32,513	£44,102	£66,886

Relative importance of pay spend

The following table sets out the total amounts spent on remuneration for all employees, the dividends declared and other significant distributions to shareholders in FY 2020/21 and FY 2021/22.

	FY 2021/22	FY 2020/21	% change
Total remuneration spend (£m)	195.4	182.0	7%
Key management remuneration as a percentage of total remuneration spend[1] (%)	3.5	3.3	6%
R&D expenditure[2] (£m)	13.3	10.2	30%
Distributions to shareholders[3] (£m)	6.5	4.3	51%

(1) The key management personnel are the Board of Directors, together with the Managing Directors who have the authority and responsibility for planning, directing and controlling the Group's activities and resources within the market sectors in which the Group operates. Further details on key management remuneration can be found on page 209. This measure was chosen in order to give greater context for the scale of key management remuneration within Ricardo.
(2) Further details on R&D expenditure can be found on pages 21 and 71. This measure was chosen because of the importance to Ricardo's business of developing its R&D portfolio.
(3) The only distributions made by the Company over these years were in the form of dividends.

Detailed breakdown of pay in FY 2021/22

Base salary

As described in the policy section on page 132, a number of factors are taken into account when salaries are reviewed, principally: market levels of total pay for comparable roles in companies of a similar size, complexity and sector; the individual's experience, scope of responsibilities and performance; and the salary increases for colleagues across the Group. The current salary levels for the Executive Directors, and the date on which those salaries become effective are shown in the table below. Ian Gibson's salary reflects a 3% increase from the previous year. The Group-wide average increase approved in FY 2021/22 was 3%.

Executive Director	Salary	Effective Date
Graham Ritchie (CEO)	£470,000	1 October 2021
Ian Gibson (CFO)	£355,160	1 January 2022
Dave Shemmans (former CEO)	£530,484	1 January 2020

Other benefits (audited)

The Company provides other cash benefits and benefits in kind to its Executive Directors. These include a company car or cash alternative, private fuel, private medical insurance, life assurance and permanent health or disability insurance. The car allowance levels are set at £12,000 p.a. for both Graham Ritchie and Ian Gibson, and was previously set at £17,500 p.a. for Dave Shemmans. The benefits total for Dave Shemmans in the single total figure of remuneration table on page 116 also includes £67,331 in respect of accrued but untaken holidays up to 30 September 2021 as disclosed in last year's Directors' Remuneration Report and set out in a statement on Ricardo's website in accordance with section 430(2B) of the Companies Act 2006. Further details of the benefits Dave Shemmans received following his cessation of employment are included on page 124. Non-Executive Directors can recover travel and accommodation expenses for carrying out their duties and do not receive any other benefits. If tax is payable by a Non-Executive Director on expenses received, these may be paid gross of tax.

Pension (audited)

(a) The defined benefit scheme is closed and there are no active members. During the year ended 30 June 2022, the transfer value in respect of Dave Shemmans, the former Chief Executive Officer, has increased. The transfer value at 30 June 2022 was £730,590, an increase of £19,569 from the prior year.

The former Chief Executive Officer's Normal Retirement Date (NRD) is 16 June 2031, at which point he will receive his pension at the date of leaving the fund, increased for the period in deferment until his NRD. If he decides to retire early, he will receive an immediate pension calculated as for retirement at NRD but reduced for early payment.

(b) With respect to defined contribution pension schemes, each of the Directors received cash in lieu of such contributions as set out below:

	Cash in lieu £'000
Graham Ritchie (CEO)	24
Ian Gibson (CFO)[1]	46
Dave Shemmans (Former CEO)[2]	28

(1) This reflects a reduction in Ian Gibson's cash in lieu of pension contributions with effect from 1 January 2022 from 20% of salary (above the lower earnings limit) to 7% of salary (above the lower earnings limit).

(2) Dave Shemmans ceased employment with the Group on 30 September 2021. The table shows the cash payment in lieu of pension in relation to his employment to that date. For payments made to Dave Shemmans after that date, please see page 124.

Annual performance-related bonus (audited)

Introduction

For the year ended 30 June 2022, the maximum annual performance-related bonus opportunity was 125% of salary for the current and former Chief Executive Officer and 100% of salary for any other Executive Director. To determine the amount of bonus payable for the year, the Committee assessed the level of achievement against the financial measures and targets set in respect of:

- Group underlying profit before tax (60%);
- Cash conversion (20%); and
- The achievement of specified individual objectives (20%).

The choice of these measures, and their respective weightings for each individual, reflected the Committee's belief that any incentive compensation should be tied both to the overall performance of the Group and to those areas of the business that the relevant individual can directly influence.

As disclosed in the FY 2019/20 Directors' Remuneration Report, the Committee introduced a cash conversion measure as it was, and continues to be, regarded as a key and more effective indicator of ongoing operational cash efficiency than a cash balance / net debt figure.

Cash conversion is defined as underlying cash generated from operations (excluding defined benefit pension scheme payments) divided by underlying EBITDA. The definition of "*underlying*" EBITDA excludes specific adjusting items comprising amortisation of acquired intangible assets, acquisition-related expenditure and reorganisation costs.

On-target performance (50% pay-out) is set at the budgeted cash conversion, i.e. budgeted underlying cash from operations ÷ budgeted underlying EBITDA. Threshold and maximum cash conversion targets are calculated based on performance below and above budget respectively.

Details of financial targets

The financial targets for FY 2021/22 (details of which are provided in the following table along with confirmation of their respective weightings) were set by the Committee after taking into account several factors such as the business plan, management's expectations and brokers' forecasts. Underlying profit before tax performance was achieved at 'on target' and the cash conversion performance was well ahead of the maximum of the performance range set.

	Weighting (% of maximum opportunity)		Performance required			Actual performance outturn	Pay-out (as % of maximum opportunity)
Measure	**CEO**	**CFO**	**Threshold**	**On-target**	**Maximum**		
Underlying profit before tax	60	60	£24m	£26.0m	£28m	£26.0m	30
Cash conversion	20	20	78%	82%	89%	118%	20

A sliding scale of targets for each financial measure of the Group was also set at the start of FY 2021/22:

Performance achieved	Element payable
Threshold	-
On-target	50%
Maximum	100%
Between any two performance levels	Sliding scale between the above percentages

Details of personal objectives

The personal objectives of the Executive Directors were different for each individual and were ascribed different weightings. The Committee, supported by the Chair of the Board in the case of the Chief Executive Officer, and supported by the Chief Executive Officer in the case of Chief Financial Officer and members of the leadership team, set the personal objectives at the start of the year. The Committee usually identifies 'strategic areas' which each Executive Director is asked to focus on and seeks to ensure that all personal objectives are specific, measurable and are indirect drivers of financial performance and value creation. They usually set four to five objectives and weight them in accordance with their relative importance. At the end of the year, based on a formal and qualitative assessment of performance against each objective (at half year and full year), the Committee decides how well each individual has performed overall.

The goals set by the Committee include a number of desired outcomes not all of which can be disclosed in detail as they remain highly commercially sensitive.

	Personal objectives FY 2021/22	Examples of performance outcomes against personal objectives	Overall achievement (%)	Pay-out (% of maximum opportunity)
Graham Ritchie (CEO)	• Develop a clear 'People Plan' to support the strategic delivery of the business plan. Deliver quick win initiatives in Q2 and H1 in line with the Board approved 'People Plan' timetable. • Create clear strategy, vision, mission and values for internal and external cascade in H2. Create and execute communications plan of new strategy for external investors, customers and internal teams in H2. • Establish clear strategy and execution plan to develop A&I growth and profitability. Plan to include 3-year growth, portfolio transition and restructuring plan by service and geography. • Deliver clear portfolio transition and M&A target sequencing with approval from the Board in H1. Deliver portfolio transitions and M&A transactions in line with agreed timeline in H2.	• Monthly communications during the year to align objectives and priorities across the Group. Several work streams established with actions and priorities aligned to delivering strategic objectives. ESG governance improvements implemented through relevant appointments, enhanced reporting and external benchmarking to improve index scores. • Refreshed vision, purpose and strategic objectives with clear focus on becoming a leader in Environmental and Energy transition. Successful communication of this to investors having developed a clear financial plan for the next 5 years. Internal alignment on growth focus and resourcing requirements. • 5-year financial plan created by service and geography. Strong order growth in A&I, with developments toward improved visibility and forecast accuracy moving forward. • H1 and H2 portfolio transitions and M&A transactions delivered in line with agreed timelines, or immediately following UK Government approvals.	95	19

	Personal objectives FY 2021/22	Examples of performance outcomes against personal objectives	Overall achievement (%)	Pay-out (% of maximum opportunity)
Ian Gibson (CFO)	• Ensure talent retention, acquisition and appropriate diversity across Group Finance. Work toward a reduction in costs underpinning the delivery of budgeted operating profit, including the development of a reporting framework and data collection from Business Units that will facilitate performance reviews. • Introduce the CEO to key investors, analysts and brokers. Support the CEO in the development of clear messaging in respect of performance, expectations and strategy. • Support M&A prioritisation and successful completion of portfolio transitions. • Reduction in indirect and overhead costs to underpin the delivery of the FY 2021/22 budgeted operating profit, cash and cost exit run rate. • Develop reporting framework/template including dashboard; collect data from business units on a monthly basis and prepare reporting pack to facilitate performance review. • Work and support Business Units to accelerate the completion and review of their five-year plan.	• Strong team capability and motivation with significant delivery of extra strategic tasks, more detailed 5-year planning and additional monthly insight. • Good relationship management with key stakeholders and investors. • Developed good insight on cost efficiency across all Business Units, including effective use of central analysis for heightened precision in performance review. • Maintained strong focus throughout the year by establishing good visibility of targets and reporting.	85	17
Dave Shemmans (Former CEO)	• Continue to deliver the Group strategy programme in terms of planning and executing the portfolio transitions to reposition the business to focus around the ESG agenda with environmental consulting at the heart. Build the acquisition pipeline to execute as appropriate within the agreed sectors and geographies of interest. Ensure the integration of global automotive programme proceeds and maintains performance. • Ensure that the business is ready and well prepared for the new CEO and that the onboarding plan is comprehensive and effective, covering all stakeholders. Maintain the performance and continuity of the senior and broader team ensuring that they are motivated, focused, tight and onboard to receive the incoming CEO.	• Continued to lead and deliver the Group strategy programme as agreed with clear progress made in Q1 in driving results, planning and executing the M&A agenda. • Contributed to the creation of a readiness plan toward the integration of global automotive programme. • Planned a comprehensive onboarding for the new CEO, ensuring continuity of business performance and facilitating smooth transition. • Received the incoming CEO into the organisation with visible support internally and the inclusion of all stakeholders.	100	20

Committee's assessment of achievement levels and determination of bonuses payable

The performance of the Group over the year included a 46% increase in underlying profit before tax to £26.3m (2020: £18.0m). This includes £0.3m of profit from recognising the software business as held for sale at the year-end, as a result of amortisation not being charged for the month of June 2022. This benefit has been excluded from the underlying PBT used for bonus purposes, resulting in underlying PBT for FY 2021/22 of £26.0m. This is in line with on-target underlying PBT set and therefore the resulting bonus outturn is 50% of the maximum payable for this element of bonus or 30% of the overall bonus maximum opportunity.

The Group underlying cash conversion for the year was 112%. The Group cash from operations was adjusted by £3.0m to remove pension deficit payments, in line with the Group's bonus principles, resulting in an adjusted underlying cash conversion of 118%. This was well above the maximum of the target range set and hence the bonus outturn for Group cash conversion was achieved in full.

The Committee carried out a detailed and rigorous review of the achievement of personal objectives and determined that these had been achieved at a level of 95%, 85% and 100% for Graham Ritchie, Ian Gibson and Dave Shemmans, respectively. The bonuses for Graham Ritchie and Dave Shemmans shall each be reduced on a strict pro-rated basis to reflect the period they each served. Graham Ritchie served from 1 October 2021 to 30 June 2022 and Dave Shemmans served from 1 July 2021 to 30 September 2021.

The following table summarises the bonus outcomes for FY 2021/22.

Measure	Pay out		
	Graham Ritchie	Ian Gibson	Dave Shemmans
Underlying profit before tax (payout as % of maximum bonus opportunity)	30	30	30
Cash conversion (payout as % of maximum bonus opportunity)	20	20	20
Personal objectives (payout as % of maximum bonus opportunity)	19	17	20
Total pay-out (as a % of maximum) = (a)	69	67	70
Maximum % of base salary) = (b)	125	100	125
Total pay-out (% of base salary) = (a) x (b)	86.25	67	87.5
% of FY in employment	75	N/A	25
Pay-out following time pro-rating reduction (% of salary)	64.7	N/A	21.9

One third (approximately 33%) of any bonus paid to an Executive Director, including former Executive Directors, is subject to a policy of compulsory deferral into ordinary shares, via the deferred share bonus plan (DBP).

Long-term incentive awards vesting during the financial year (audited)

Awards under the LTIP and bonus-linked awards under the DBP made in October 2018 lapsed in October 2021 on the basis of underlying EPS and TSR performance measured over specified periods, the last of which ended in October 2021. For the avoidance of doubt, the Committee did not exercise any discretion in relation to these awards.

The performance conditions applicable to these awards are summarised below:

Relative TSR portion (50%) Relative TSR performance against the FTSE Small Cap (excl. financial services companies and investment trusts)	Vesting level (%)
Below median	-
Median	25
Upper quartile (or above)	100
Between median and upper quartile	Sliding scale between the above percentages

Underlying EPS (50%) Underlying EPS (adjusted)	Vesting level (%)
Less than 60p	-
60p	25
Equal to or greater than 69p	100
Between 60p and 69p	Sliding scale between the above percentages

Over the three-year performance period, Ricardo was ranked below the median of the TSR comparator group, giving a zero vesting level for this portion of the award. Ricardo's TSR over the period was (45.5)% against a median of 13.8%. The adjusted EPS for the year was 22.4p with the result that the adjusted EPS target was not achieved. Therefore, the overall vesting level for this award was zero and the shares under the awards lapsed in full.

The number of shares which lapsed in October 2021 in respect of awards granted to each of the Executive Directors in October 2018 are set out on pages 126 and 127 of this report.

The Chair of the Board's and the Non-Executive Directors' fees

The Chair's fees as of 1 January 2022 and Non-Executive Directors' are as follows:

	£'000
Chair's fee	164
Non-Executive Directors' fees:	
Basic fee	51
Additional fee for Audit and Remuneration Committee Chairs	9
Additional fee for the Senior Independent Director	8

Payments to past directors and in respect of loss of office (audited)

As disclosed in last year's Directors' Remuneration Report and set out in a statement on Ricardo's website, the Board and Dave Shemmans jointly agreed that he would leave his role as Ricardo's Chief Executive Officer on 30 September 2021. In accordance with Dave's Service Agreement, Ricardo exercised its right to make a payment in lieu of the 12 months' notice (the PILON) that Dave was entitled to receive and, as a result, Dave ceased to be a Director of, and employed by, the Group on the same date. The aggregate amount of the PILON was £682,476, comprised of:

- £530,484 in respect of salary;
- £111,140 in respect of cash in lieu of pension over the notice period; and
- £17,500 in respect of car allowance and £23,352 in respect of other benefits that he would have received had he continued in employment during the notice period.

Dave Shemmans received an immediate PILON payment of £341,238 on his departure, which was equal to half of the PILON amount. The remaining half was to be paid in 6 equal instalments, from April to September 2022 (inclusive) of which an aggregate of £170,619 was paid during FY 2021/22. Under his settlement agreement, Dave Shemmans is obliged to use his best endeavours to obtain alternative employment. The remuneration received by him from any such alternative employment would be set-off against, and reduce, any outstanding instalments of the PILON.

Finally, Ricardo paid £21,500 in respect of Dave's legal fees in connection with his cessation of employment.

Dave Shemmans was also entitled to receive a bonus for the financial year ending 30 June 2022, pro-rated to reflect the part of the year that Dave was in-post. Details of the amounts involved are included in the single total figure of remuneration table on page 116. One third of this bonus will be deferred into an award of shares under the DBP with the balance being paid in cash on the normal payment date.

Dave was treated as a good leaver in respect of the awards granted under the DBP and LTIP. The relevant awards (including the award granted in respect of the FY 2021/22 bonus) will vest (subject to the satisfaction of the applicable performance conditions in the case of the performance awards), and the relevant shares will be released, on or around their third anniversary of grant, except in the case of awards made under the Ricardo plc 2020 Long Term Incentive Plan where the relevant shares will be released at the expiry of the post-vesting holding period. No time pro-rata reduction will apply to DBP awards as the awards relate to annual bonus already earned. A strict time pro-rata reduction will, however, apply in respect of the 2019 and 2020 performance share awards granted under the Company's share plans taking into account the elapsed time from the date of grant to the date of cessation of employment agreed with Dave Shemmans for this purpose (30 September 2022). Ricardo's standard malus and clawback provisions will apply to the above awards as described in the Directors' Remuneration Policy.

All payments referred to in this section are subject to deductions for tax and national insurance contributions.

Long-term incentive awards granted during the financial year (audited)

LTIP awards were granted on 27 October 2021 under the rules of the Ricardo plc 2020 Long Term Incentive Plan to the Executive Directors on the basis set out below.

	Type of award	Basis of award (% of salary)	Number of shares	Face value of award (£)[1]	Threshold level of vesting (%)	End of performance period
Graham Ritchie (CEO)	Performance shares[2]	150	167,857	£704,999	15% for EPS portion of awards and 25% for TSR portion of awards	35 days after release of preliminary results announcement for FY 2023/24 (expected to be October 2024)
Ian Gibson (CFO)		130	106,728	£448,258		

(1) The face value of the award is based on the average of the share prices over the five days up to and including 26 October 2021 (420p).
(2) As the LTIP awards are granted in the form of performance share awards, no 'exercise price' is payable in order to receive any vested shares. This position has not changed since the awards were granted.

The vesting of these awards will be based on Ricardo's underlying EPS growth (two-thirds) and three-year relative TSR (one-third) performance summarised in the table below. The relative TSR measure was chosen by the Committee to link the remuneration of Executive Directors to the performance experienced by shareholders and to further align their interests. The underlying EPS measure was chosen to reward sustained profit growth and align with one of our key performance indicators.

In addition, no part of an award will vest unless the Committee is satisfied that the achievement against the TSR and underlying EPS performance conditions is a genuine reflection of the underlying performance of the Group over the performance period. The Committee will consider all relevant factors when the awards vest in October 2024 and may reduce vesting levels to ensure that recipients do not benefit from windfall gains. These factors will include the timing and extent of the recovery of the share price of the Company, the indices on which it is listed, the overall performance of the Company during the period 2021 - 2024 and any other considerations that the Committee deems relevant.

The Committee chose the weighting between TSR and underlying EPS growth to signal the importance of increasing Ricardo's profitability as measured by underlying EPS and to give the management team a stronger incentive to drive profitable performance which should in turn lead to increased shareholder value.

Relative TSR portion (one-third) **Relative TSR performance against the FTSE Small Cap (excl. financial services companies and investment trusts)**	**Vesting level (%)**
Below median	-
Median	25
Upper quartile (or above)	100
Between median and upper quartile	Sliding scale between the above percentages

Adjusted EPS portion (two-thirds) **Adjusted underlying EPS for the final year in the performance period (FY 2023/24)**	**Vesting level (%)**
Less than 29.7p	-
29.7p	15
Equal to or greater than 50.2p	100
Between 29.7p and 50.2p	Sliding scale between the above percentages

Performance target setting and those applying to awards outstanding during FY 2021/22

As shown in previous Directors' Remuneration Reports, the Committee has a track record of setting stretching underlying EPS targets which are carefully calibrated to deliver maximum pay-outs only where Ricardo has outperformed the business plan and market expectations. Full vesting of the shares linked to relative TSR performance only occurs where Ricardo's performance is in the upper quartile of the FTSE Small Cap Index (excluding financial services companies and investment trusts).

The EPS performance targets applicable to LTIP and the bonus-linked share awards under the DBP outstanding during the year are as follows:

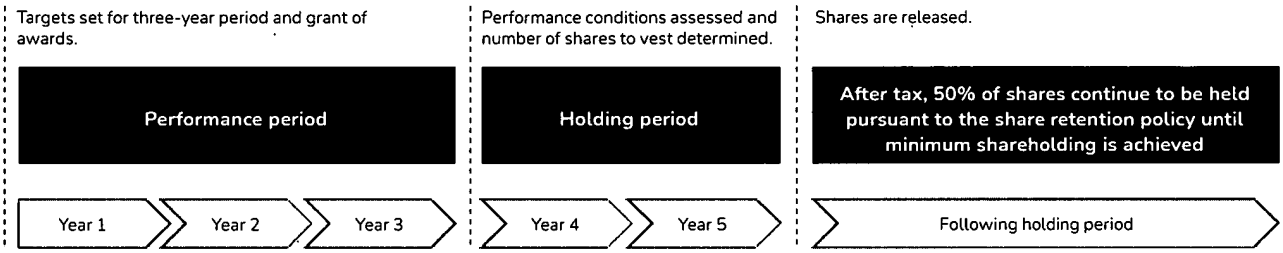
	FY 2018/19	FY 2019/20	FY 2020/21
Threshold vesting[1]	60p	60.1p	28.5p
Maximum vesting	69p	69.1p	40.7p

(1) 25% for FY 2018/19 & FY 2019/20 and 15% for FY 2020/21

The performance condition applicable to the TSR portion of awards has remained constant through this period and is the same as set out on page 125 for awards granted in the year ended 30 June 2022. The number and value of shares which were awarded to each of the Executive Directors in the year ended 30 June 2022 are set out in the table on page 125. The performance conditions applicable to these awards have not been adjusted to take into account the impact of COVID-19.

Directors' interests in shares provisionally awarded under the LTIP (audited)

The following chart sets out in graphical form how the Company's LTIP was operated in FY 2021/22:



For details of the share retention policy, see pages 127 and 128.

Awards granted prior to November 2020 under the rules of the previous Ricardo plc 2014 Long Term Incentive Plan are not subject to the two-year holding period.

As at 30 June 2022, the Directors' interests in shares provisionally awarded under the LTIP were as follows:

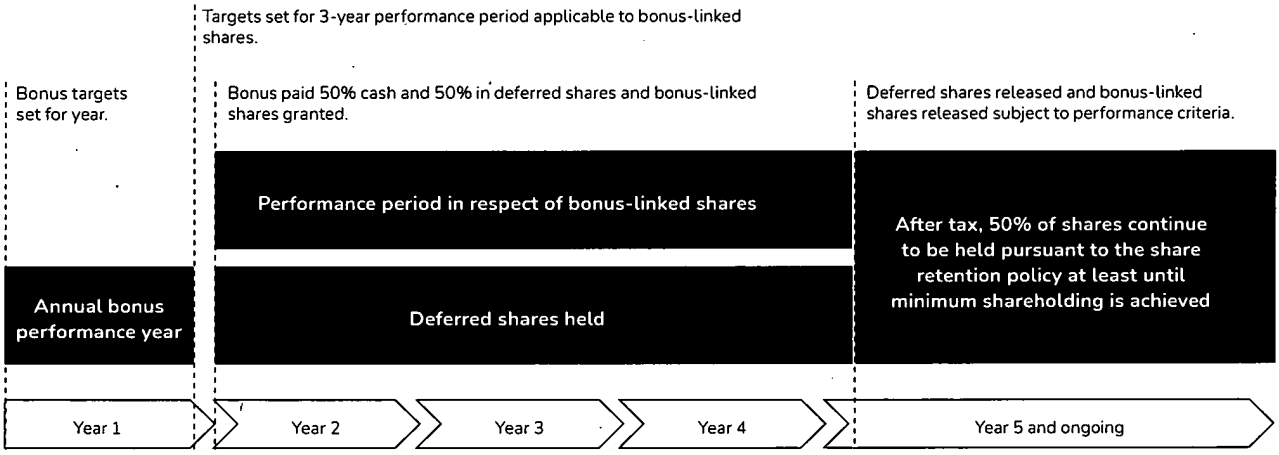
			Number of provisional shares						
	Award date[1]	Share price at award date in pence	At 1 July 2021	Awarded[2]	Lapsed	Vested	At 30 June 2022[3]	Vesting date	Holding period ends
Graham Ritchie (CEO)	Oct 21	420.00	-	167,857	-	-	167,857	27/10/2024	27/10/2026
Ian Gibson (CFO)	Oct 18	756.00	23,418	-	23,418	-	-	25/10/2021	-
	Oct 19	623.60	29,526	-	-	-	29,526	24/10/2022	-
	Nov 20	354.80	126,341		-	-	126,341	27/11/2023	27/11/2025
	Oct 21	420.00	-	106,728			106,728	27/10/2024	27/10/2026
Dave Shemmans (former CEO)[4]	Oct 18	756.00	66,141	-	66,141	-	-	25/10/2021	-
	Oct 19	623.60	82,590	-	-	-	82,590	24/10/2022	-
	Nov 20	354.80	224,274	-	-	-	224,274	27/11/2023	27/11/2025

(1) Awards granted in 2018 and 2019 were made under the rules of the Ricardo plc 2014 Long Term Incentive Plan. The awards granted in November 2020 and thereafter were made under the rules of the Ricardo plc 2020 Long Term Incentive Plan. Performance conditions applicable to all awards are as outlined on pages 125 and 126.
(2) The face value at the date of grant of the awards made in October 2021 was £704,999 for Graham Ritchie; and £448,258 for Ian Gibson.
(3) The mid-market closing price of the Company's shares on 30 June 2022 was 361.5p per share (2021: 410.0p).
(4) These awards will be time pro-rated at the point of vesting.

The October 2018 awards that were due to vest in October 2021 lapsed in full because the performance conditions as set out on page 123 were not satisfied.

Directors' interests in shares provisionally awarded under the DBP (audited)

The following chart sets out in graphical form how the DBP was operated in earlier years and continues to operate in respect of currently outstanding DBP awards (set out in the table below):



For details of the share retention policy, see pages 127 and 128.

Following the adoption of the new Directors' Remuneration Policy in November 2020, Executive Directors will no longer be entitled to future bonus-linked share awards and a third (rather than half) of any bonus payable will be deferred in shares.

As at 30 June 2022, the Directors' interests in shares provisionally awarded under the DBP were as follows:

	Type of Award[1]	Award date	Deferral / performance period	Share price at award date in pence	Number of provisional shares: At 1 July 2021	Awarded[2]	Dividend shares[3]	Lapsed	Vested	At 30 June 2022[4]
Ian Gibson (LFU)	Deferred	Oct 18	3 years	756.00	10,416	-	-	-	10,416	-
	Bonus-linked shares[5]	Oct 18	3 years	756.00	9,686	-	-	9,686	-	-
	Deferred	Oct 19	3 years	623.60	7,147	-	136	-	-	7,283
	Bonus-linked shares[5]	Oct 19	3 years	623.60	6,844	-	-	-	-	6,844
	Deferred	Nov 21	3 years	426.80	-	3,695	69	-	-	3,764
Dave Shemmans (former CEO)	Deferred	Oct 18	3 years	756.00	18,893	-	-	-	18,893	-
	Bonus-linked shares[5]	Oct 18	3 years	756.00	17,568	-	-	17,568	-	-
	Deferred	Oct 19	3 years	623.60	13,544	-	258	-	-	13,802
	Bonus-linked shares[5][6]	Oct 19	3 years	623.60	12,969	-	-	-	-	12,969
	Deferred	Nov 21	3 years	426.80	-	11,715	224	-	-	11,939

(1) Awards granted in 2018 and 2019 were made under the rules of the Ricardo plc 2011 Deferred Bonus Plan. The awards granted in November 2021 were made under the rules of the Ricardo plc 2021 Deferred Bonus Plan.
(2) The face value at the date of grant of the awards made in October 2021 was £15,770 for Ian Gibson and £50,000 for Dave Shemmans.
(3) Amounts allocated include shares equivalent to dividends on provisional deferred award shares.
(4) The mid-market closing price of the Company's shares on 30 June 2022 was 361.5p (2021: 410.0p).
(5) Bonus-linked shares awarded under the rules of the Ricardo plc 2011 Deferred Bonus Plan: performance conditions as outlined on pages 125 and 126.
(6) This award will be subject to time pro-rating at the point of vesting.

Share retention policy

In-post

In order to foster greater alignment between our Executive Directors and our shareholders, the Board currently operates a share retention policy with the intention that each Executive Director will own shares in the Company with a value equal to at least two times annual base salary with the requirement that 50% of any vested LTIP / DBP shares (net of tax) are held until this is met. In line with the Investment Association's Principles of Remuneration, vested shares subject to a holding period (i.e. vested LTIP awards under the new 2020 LTIP) and unvested shares that are not subject to performance conditions (i.e. DBP

deferred awards) will count towards this shareholding requirement on a net-of-tax basis.

Post-cessation of employment

The retention requirement described on the preceeding page will continue post-cessation of employment with shares worth two times annual base salary (or, if lower, the shareholding as at the date of cessation) to be held for the initial 12 month period, and half of this amount required to be held for the second 12 month period. This will apply to share plan awards granted after the 2020 Directors' Remuneration Policy was approved by shareholders.

In order to facilitate the post-cessation retention requirements, vested shares that are released will be held in a nominee structure.

Directors' shareholdings (audited)

The interests of Directors and their connected persons in ordinary shares as at 30 June 2022, including any shares provisionally awarded under the LTIP and DBP, are presented in the table below. At 13 September 2022, the interests in shares of the Directors who were still in office were unchanged from those at 30 June 2022.

	No. of shares held	Share awards not subject to performance conditions[1]	Share awards subject to a holding period	Shareholding for purposes of share retention policy[2]	Shareholding (% of base salary)[3]	Share awards subject to performance conditions[4]
EXECUTIVE DIRECTORS						
Graham Ritchie (CEO)	14,880	-	-	14,880	11	167,857
Ian Gibson (CFO)	60,854	11,047	-	66,570	68	269,439
Dave Shemmans (Former CEO)[5]	104,088	25,741	-	117,408	80	319,833
NON-EXECUTIVE DIRECTORS						
Sir Terry Morgan CBE	26,111	-	-	-	-	-
Russell King	5,105	-	-	-	-	-
Laurie Bowen	6,000	-	-	-	-	-
Malin Persson	1,500	-	-	-	-	-
Bill Spencer	10,402	-	-	-	-	-
Jack Boyer	-	-	-	-	-	-

(1) Deferred awards granted pursuant to the rules of the Ricardo plc 2011 Deferred Bonus Plan and the Ricardo plc 2021 Deferred Bonus Plan.
(2) This includes the number of beneficially owned shares, unvested shares not subject to performance conditions and any vested shares subject to a holding period, on a net-of-tax basis (i.e. 51.75% of the shares shown in the adjacent "share awards not subject to performance conditions" and "share awards subject to a holding period" columns).
(3) For Executive Directors only (i.e. those who are subject to the share retention policy). Calculated by reference to the number of shares shown in the adjacent "shareholding for purposes of share retention policy" column, a share price of 361.5p per share (2021: 410.0p) and salaries as at 30 June 2022.
(4) Bonus-linked awards granted pursuant to the rules of the Ricardo plc 2011 Deferred Bonus Plan and LTIP awards granted pursuant to the rules of the Ricardo plc 2014 Long Term Incentive Plan and the Ricardo plc 2020 Long Term Incentive Plan.
(5) Shareholding as at 30 September 2021, being the date Dave Shemmans ceased employment with the Group. None of the shares that he held on cessation were subject to any post-cessation share retention policy. This policy was only adopted by Ricardo in November 2020.

Dilution limits

The number of shares that may be issued in any ten-year rolling period will be restricted to:

- 10% of the issued ordinary share capital of the Company in respect of all Ricardo share plans; and
- (included within the above limit) 5% of the issued ordinary share capital of the Company for Ricardo's discretionary share plans.

At the end of the year under review, the Company's overall share plan dilution was 4.43%, of which 4.43% related to discretionary share plans. The Company operates an employee benefit trust which has principally been used to facilitate the operation of the LTIP and DBP arrangements. Any new shares issued to the trust are, however, included in the dilution limits noted above.

Executive Directors and their Board positions with other companies during FY 2021/22

Executive Directors may, with the prior consent of the Board, hold a non-executive directorship with another company.

On 1 September 2014, the Company's former Chief Executive Officer was appointed as a non-executive director of Sutton and East Surrey Water plc. He is permitted to retain the associated fees which, for the year from 1 July 2021 to 30 September 2021 (inclusive), amounted to £9,186.

On 24 August 2021, the Company's former Chief Executive Officer was appointed as a non-executive director of Electra Meccanica. He is permitted to retain the associated fees which, for the period from 24 August 2021 to 30 September 2021 (inclusive), amounted to US$10,607.

Implementation of Directors' Remuneration Policy in FY 2022/23

It is anticipated that the implementation of the 2020 Directors Remuneration Policy (2020 Policy) in FY 2022/23 will be similar to that of FY 2021/22.

The Committee will:

- Review base salary levels for the Executive Directors with effect from 1 January 2023;
- Set and review the performance targets for the FY 2022/23 annual bonus and the LTIP awards to be made in 2022 to ensure continued alignment to strategy;
- Make awards under the Ricardo plc 2020 Long Term Incentive Plan (2020 LTIP); and
- Make awards under the Ricardo plc 2021 Deferred Bonus Plan (2021 DBP).

To determine the amount of bonus payable for FY 2022/23, the Committee will assess the level of achievement against the financial measures and targets set in respect of:

- Group underlying profit before tax (40%);
- Value Added Turnover (20%) (a measure that focuses on profitable revenue growth);
- Cash conversion (20%); and
- The achievement of specified individual objectives (20%).

Owing to concerns about commercial sensitivity, we do not believe it is in shareholders' interests to disclose any further details of these targets on a prospective basis. However, the Company is committed to adhering to principles of transparency and will, provided disclosure of targets is not then deemed to be commercially sensitive, make appropriate and relevant levels of disclosure of bonus targets and performance against these targets for the FY 2022/23.

2022 LTIP Awards

The Committee has so far considered the performance measures to apply to the LTIP awards to be granted in October 2022. In accordance with the Directors' Remuneration Policy, the measures and targets and the different weightings ascribed to them are set annually by the Committee in order to ensure they are relevant to participants, challenging to achieve and take account of the most up-to-date business plan and strategy.

The Committee believes that TSR and underlying EPS continue to be appropriate measures for the Company's long-term incentive arrangements as they are strongly aligned to shareholder value creation.

The peer group applicable to the TSR portion of these awards will be the same as those which applied to awards granted last year. Threshold performance (i.e. median ranking in the comparator group, for which 25% of this portion will vest) is generally intended to align with the anticipated performance of the relevant market and our competitors. If the maximum performance is achieved (i.e. upper quartile ranking in the comparator group), we would expect to have significantly outperformed the relevant market and our competitors.

In order to ensure that the target range for the EPS portion of the awards remains challenging in light of market expectations of the Company's underlying EPS performance to the year ending 30 June 2025, the Committee has determined that:

- No part of the underlying EPS portion of these awards will vest if the Company's underlying EPS for the final year in the performance period is lower than 36.8p;
- 20% of this portion will vest where the final year underlying EPS is 36.8p;
- 100% of this portion will vest where the final year underlying EPS is greater than or equal to 51p; and
- Vesting will take place on a straight-line basis between 36.8p and 51p.

Where the underlying EPS performance period ends before 30 June 2025 (the final year of the performance period), the Committee retains the discretion to amend these targets and the corresponding vesting levels accordingly.

It should also be noted that in terms of the 2020 Directors' Remuneration Policy, the Committee will have the ability to adjust the formulaic outcomes from performance conditions where appropriate and the Committee will ensure that outcomes reflect Company and executive performance as well as the experience of shareholders and other stakeholders. The Committee will also use its discretion to reduce vesting outcomes where it determines that windfall gains have been received.

New Board Chair

As part of the arrangement for the appointment of a new Board Chair to replace Sir Terry Morgan on his retirement from the Board at the end of the 2022 AGM, the Committee has considered the fee of his successor and determined that this should be £170,000.

Other points

The Committee considered, and will continue to consider, the impact on the Company's incentive arrangements of the introduction of IFRS 15 *Revenue from Contracts with Customers* on 1 July 2018 and IFRS 16 Leases on 1 July 2019. It will make any adjustments when assessing the performance outcomes to outstanding long-term incentive awards to ensure that performance measurements are carried out on a like for like basis and are fair to both shareholders and plan participants.

PART 3 – DIRECTORS' REMUNERATION POLICY

Introduction

This part of the Directors' Remuneration Report provides an overview of the Company's policy on Directors' pay that is designed to align with and support Ricardo's strategic plan and will operate over the three years from the AGM held on 12 November 2020 (2020 AGM) until the AGM to be held in 2023 (2020 Policy). The previous policy that was approved by shareholders at the AGM held on 8 November 2017 (2017 Policy) continued to operate until the 2020 AGM and indeed the 2020 Policy permits the execution of remuneration arrangements that were agreed when the 2017 Policy was in effect. The 2017 Policy was most recently reproduced in the *Annual Report and Accounts 2019* with the originally approved text being included in the *Annual Report and Accounts 2017*, both of which are available on our website at www.ricardo.com. There have been no changes of substance to the text of the 2020 Policy that was approved at the 2020 AGM. We have, however, updated the 'remuneration outcomes' chart on page 137, some of the wording (particularly relating to time) and page references for ease of use. A copy of the originally approved text is in the *Annual Report & Accounts 2020*, which is also available at www.ricardo.com.

In accordance with the requirements of the Large and Medium-sized Companies and Groups (Accounts and Reports) Regulations 2008 (as amended) (Regulations), the 2020 Policy was subject to a binding vote at the 2020 AGM and took effect immediately upon receipt of such approval from shareholders.

The Remuneration Committee – what we do

The Committee's primary purpose is to make recommendations to the Board on the Group's framework or broad policy for executive remuneration. The Board has also delegated responsibility to the Committee for determining the remuneration, benefits and contractual arrangements of the Chair and the Executive Directors. No individual is involved in deciding his or her remuneration.

The Committee has written terms of reference, which are available at www.ricardo.com, and its responsibilities include:

- Determining and agreeing with the Board the policy for executive remuneration and monitoring and considering the policy for, and structure of, senior management remuneration, taking into account that the ultimate decision-making responsibility for the remuneration of the senior management team (other than the Executive Directors) lies with the Chief Executive Officer;
- Agreeing the terms and conditions of employment for Executive Directors, including their individual annual remuneration and pension arrangements, and reviewing such provisions for senior management;
- Agreeing the measures and targets for any performance-related bonus and share plans;
- Agreeing the remuneration of the Chair of the Board;
- Ensuring that, on termination, contractual terms and payments made are fair, both to the Company and the individual, so that failure is not rewarded and the duty to mitigate loss is recognised wherever possible; and
- Agreeing the terms of reference of any remuneration advisors it appoints.

Taking shareholders' views into account

When considering Ricardo's remuneration policy and its implementation, the Committee is always keen to ensure that it takes into account the views and opinions of all the relevant stakeholders in the business. In particular, when preparing its policy for approval at the 2020 AGM, the Committee undertook a programme of engagement with the Company's largest institutional investors and their representative bodies in order to better understand their perspective on our previous pay practices and the then proposed policy for 2020-2023. Shareholders were given an early opportunity to provide feedback and in finalising the proposals this was taken into account. As a result of the feedback received through this consultation programme:

- Incumbent Executive Directors have been aligned to the pension provision levels of the UK workforce from 1 January 2022 (in addition to any new appointees being capped at this level from the date of joining) – further details are included in the 2020 Policy table on pages 132 to 136;
- One-third of any bonus paid will be deferred into shares for three years; and
- Extension of share ownership guideline to two years' post-cessation of employment (reducing from two times salary in the first year to one times salary in the second year).

In the spirit of continuous improvement and in order to ensure that our remuneration policy continues fully to support achievement of business objectives and delivery of value to shareholders, the Committee will continue to review our policy periodically in the context of the changing business environment. Any material future changes to the policy will be discussed with shareholders in advance.

Consideration of employment conditions elsewhere in the Company

While Ricardo does not consult directly with employees on the subject of Directors' remuneration, the remuneration packages for each Executive Director and their fixed and variable elements are reviewed annually. This process (and the setting of the revised remuneration policy as a whole) takes into account a number of factors, including the following:

- Individual and business performance;
- Pay arrangements for similar roles in other companies and consultancy organisations of Ricardo's size, complexity and international reach;
- Risk management; and
- Pay and employment conditions of employees of the Group.

The Committee also looks at the differential between the Chief Executive Officer's pay and Ricardo average employee earnings over time.

Overview of Ricardo's remuneration policy for 2020 – 2023

The objective of Ricardo's executive remuneration policy is to support the business strategy and timescales of an international consultancy business by not only rewarding the standard of performance and the outcomes that our shareholders require, but also encouraging share ownership and fostering alignment of interest between the Executive Directors and shareholders. We do this by setting base levels of salaries that are competitive, compared with companies of similar size and complexity to Ricardo, and providing other remuneration package elements, namely the short-term annual bonus plan and long-term incentive arrangement, that only pay for performance. Taken together, our two variable pay platforms focus on growing the profitability of the business, its resilience, the achievement of discrete non-financial targets and linking executive outcomes with the shareholder experience both by delivering rewards in the form of Ricardo shares and also by using a relative total shareholder return performance measure over the longer term.

Changes to the 2017 Directors' Remuneration Policy

The changes to the 2017 Policy were as follows:

- Pension provision for new joiners and incumbents alike has been aligned with the UK workforce;
- One third of any bonus will be deferred into shares and ordinarily delivered at the expiry of a three-year period from grant;
- To simplify our long-term incentive arrangements, the ability to receive bonus-linked shares was removed and the limits under the LTIP were increased in order to compensate;
- A two-year post vesting holding period under the LTIP was introduced for future grants to Executive Directors; and
- A 200% share ownership requirement for all Executive Directors was introduced with a requirement that 50% of any gains from any share awards (vesting of LTIP or deferred bonus) be retained until the increased level is met. This will continue post-cessation of employment for two years (with the holding requirement reducing by 50% for the second year).

Overview of the decision making process that was followed for the determination of the new policy

As explained in the Chair's introduction on page 102 of the *Annual Report & Accounts 2020*, the new 2020 Policy, which shareholders approved at the 2020 AGM, was developed by the Remuneration Committee following a thorough review of the pre-existing executive remuneration arrangements. This also involved the Committee undertaking a consultation exercise with our major shareholders and the then Chief Executive Officer and Chief Financial Officer.

In its deliberations, the Committee received support and advice from FIT Remuneration Consultants and Shepherd and Wedderburn, its independent external advisors (see page 114 for details).

Although the Executive Directors provided the Committee with a level of input in relation to the formulation of the new policy, the final decisions around its structure were taken by the Committee alone in order to avoid any conflicts of interest arising.

Corporate Governance

When determining the 2020 Policy, the Committee was mindful of its obligations under Provision 40 of the Corporate Governance Code to ensure that the policy and other remuneration practices were clear, simple, predictable, proportionate, safeguarded the reputation of the Company and were aligned to Company culture and strategy. Set out below are examples of how the Committee addressed these factors:

Clarity

- Remuneration policy and arrangements are clearly disclosed each year in the Annual Report.
- The Company invited its principal shareholders and shareholder representative groups to consult on the updated remuneration policy and received good feedback. Changes were made to the proposals following input from this process.
- The Committee is regularly updated on workforce pay and benefits across the Group during the course of its activity.

Simplicity

- Our remuneration structure is comprised of fixed and variable remuneration, with the performance conditions for variable elements clearly communicated to, and understood by, participants in order to ensure they are effective.
- The proposed 2020 Policy has received positive feedback from stakeholders in relation to its simplicity. The bonus-linked shares have been removed to result in a simpler structure.

Risk

- The rules of the 2020 LTIP provide discretion to the Committee to reduce award levels, and awards are subject to malus and clawback provisions.
- The total pay of the Executive Directors is considered by the Committee as well as pay ratios with the wider workforce and shareholder returns.

Predictability

- The range of possible rewards for the Executive Directors is considered in the scenario chart on page 137.
- The Committee has a range of discretions in relation to variable pay awards, new joiners and leavers, which are identified and explained in the Remuneration Policy section.

Proportionality

- As shown in the scenario chart on page 137, variable performance-related elements represent a significant proportion of the total remuneration opportunity for our Executive Directors.
- The Committee considers the appropriate financial and personal performance measures each year to ensure that there is a clear link to strategy. For example, for FY 2020/21 the cash conversion measure was introduced under the annual bonus.
- Discretions are available to the Committee to reduce awards if necessary to ensure that outcomes do not reward poor performance.

Alignment to culture

- The Committee remains confident that the incentive schemes operated under the Remuneration Policy are aligned with the Company's purpose, values and strategy.
- The use of metrics in both the annual bonus and LTIP measure how we perform against our financial and non-financial KPIs.

THE STRUCTURE OF OUR DIRECTORS' REMUNERATION PACKAGE – THE 2020 POLICY TABLE

Pay element and link to strategy	Maximum	Operation	Framework for assessing performance
Base salary *To provide a core level of remuneration to enable the Company to attract and retain skilled, high-calibre executives to deliver its strategy.*	Base salary increases will not ordinarily be more than 10% p.a. with exceptional increases over the normal maximum limit capped at 25% p.a. However, generally speaking, increases will be in line with salary increases for employees across the Group.	Salary levels are normally reviewed annually in January each year. Pay is set by considering: • Market levels of total pay for comparable roles in companies of similar size, complexity and sector; • Each individual Director's experience, scope of responsibilities and performance; and • The salary increases for employees across the Group. Ricardo places a strong emphasis on internal succession planning. This emphasis may mean that talented individuals are promoted rapidly. In such circumstances, the Committee's policy is to set a relatively low base salary initially and then increase this to a market competitive level for the role over time. This may mean relatively high annual salary increases as the individual gains experience in the new role. We will notify shareholders where this is the case.	None
Other benefits *To provide market competitive benefits.*	The total value of benefits will not exceed 10% of base salary p.a., save in the case of relocation.	The Company provides other cash benefits and benefits in kind to Executive Directors in line with market practice. These include a company car or cash alternative, private fuel, private medical insurance, life assurance and permanent health and disability insurance. The benefits arrangements are reviewed on an annual basis. The Committee reserves the right to provide further benefits where this is appropriate in the individual's particular circumstances (for example, costs associated with relocation as a result of the Director's role with the Company). Certain other employees are eligible for the same or similar benefits described above depending on their role, seniority and geographical location.	None

Pay element and link to strategy	Maximum	Operation	Framework for assessing performance
Pension *To offer market-competitive retirement benefits.*	Until 31 December 2021 the maximum pension contribution was 20% of salary over the Lower Earnings Limit. From 1 January 2022 this was reduced to match the pension provision levels of the UK workforce from time to time (currently 7%). In addition, in line with payments given to all employees who were previous members of the old defined benefit scheme operated by the Company, the former Chief Executive Officer was entitled to an additional 1.2% of salary pension contribution.	The Company operates a defined contribution scheme (the 'Pension Scheme'). Until 31 December 2021, the policy for Executive Directors (save for the former Chief Executive Officer's legacy pension arrangements described opposite) was a pension contribution of 20% of base salary over the Lower Earnings Limit. From 1 January 2022 (again save for the former Chief Executive Officer's additional 1.2% legacy entitlement), the pension arrangements were aligned with the pension provision levels of the UK workforce from time to time (currently 7%). To the extent that any contributions have used up the adjusted annual allowance limit, any additional payment will be cash in lieu of pension. Executive Directors may only choose to opt out of the Pension Scheme where they are close to or have exceeded the pension lifetime allowance and have applied for fixed protection from HMRC. Under such circumstances, Executive Directors will receive a cash payment in lieu of pension. On death in service, all Executive Directors, subject to the medical requirements of the insurance company, are entitled to a lump sum of four times annual salary at date of death. Early retirement is available with the consent of the Company and the pension scheme trustees if the individual is over 55 or retiring due to ill health. All UK employees are entitled to receive Company pension contributions. While levels vary, the majority of UK employees receive a 7%-of-salary employer pension contribution into the Pension Scheme. For new Executive Director appointments, regardless of appointment date, pension contribution will be aligned with the contribution available to the wider workforce.	None

Pay element and link to strategy	Maximum	Operation	Framework for assessing performance
Pay for performance: **Annual bonus** *To reward the annual delivery of financial and operational targets.*	Maximum opportunity of 125% of base salary for the Chief Executive Officer and 100% of base salary for other Executive Directors.	**Bonuses are awarded by reference to performance against specific targets measured over a single financial year.** Two-thirds of any bonus paid to an Executive Director will be paid out in cash shortly after the assessment of the performance targets has been completed. The remaining one third of the bonus will be compulsorily deferred into ordinary shares, the vesting of which is normally subject to continued employment for a three-year period from the award date. The cash element of the bonus is not payable unless the individual remains in employment at the payment date. The principal purpose of this bonus deferral mechanism is to: • Provide for further alignment of executives' and shareholders' interests; • Provide an additional retention element; and • Encourage Executive Directors to build up a shareholding in accordance with our share retention policy. Dividends and dividend equivalents for each deferral period may also be paid in respect of shares under award to the extent that shares have vested in the relevant participants. Bonus arrangements exist for certain other employees throughout the Group on terms that are applicable to their role, seniority and geographical location, although typically at lower levels of maximum opportunity to reflect that a greater proportion of Executive Directors' remuneration is performance-based. **Malus and clawback** Annual bonuses (including any element deferred into shares) may be subject to malus and clawback provisions if certain events occur in the period of three years from the end of the financial year to which they relate. These events include the Committee becoming aware of: • A material misstatement of the Company's financial results; • An error in the calculation of performance conditions; or • An act committed by the relevant participant that could have resulted in summary dismissal by reason of gross misconduct or which has caused significant reputational damage to the Group. The mechanism through which malus and clawback can be implemented enables the Committee to take various actions including: • Reducing outstanding incentive awards; and • Requiring a cash payment to be made by participants.	The measures and targets applicable to the annual bonus scheme (and the different weightings ascribed to them) are set annually by the Committee in order to ensure they are relevant to participants and take account of the most up-to-date business plan and strategy. A significant majority (at least 50%) of the bonus opportunity will normally be determined by reference to performance against Group KPIs such as: • Underlying Profit Before Tax; and • Cash conversion. Any remaining part of an Executive Director's bonus will normally be based on the achievement of personal objectives which relate to delivery of the business strategy. See pages 121 to 122 for examples. A payment scale for different levels of achievement against each performance target is specified by the Committee at the outset of each year – this ranges from zero for below-threshold performance up to 100% for full satisfaction of the relevant target. Bonus payments will also be subject to the Committee considering whether the proposed awards, calculated by reference to performance against the targets, appropriately reflect the Company's overall performance and shareholders' experience. If the Committee does not believe this to be the case, it retains the discretion to adjust the bonus outturn accordingly.

Pay element and link to strategy	Maximum	Operation	Framework for assessing performance
Pay for performance: **Long-term incentives** Performance shares under the Long-Term Incentive Plan ('LTIP') *To focus motivation on the long-term performance of the Group and reward shareholder value creation.* *To encourage share ownership and alignment with shareholders.*	Maximum opportunity of 150% of base salary for the Chief Executive Officer and 130% for other Executive Directors.	**LTIP – performance measured over a three-year period** Performance share awards under the LTIP are made on an annual basis to the Executive Directors and a small group of other senior managers. From time to time a number of employees below board level are granted non-performance based share awards to reflect exceptional performance. **Holding Period** Vesting of awards will generally take place on the third anniversary of grant or, if later, the date on which the performance conditions are assessed by the Committee. Executive Directors' awards that vest will normally be subject to a holding period in terms of which the relevant shares will only be released after a further period of at least two years has expired from the vesting date. **Dividends and equivalents** Dividends and dividend equivalents for each performance / holding period may also be paid in respect of shares under award to the extent that shares have vested in the relevant participants. **Malus and clawback** Long-term incentive awards may be subject to malus and/ or clawback provisions if certain events occur after their grant but before the expiry of the period of two years from the end of the relevant performance period. These events include the Committee becoming aware of: • A material misstatement of the Company's financial results; • An error in the calculation of performance conditions; or • An act committed by the relevant participant that has (or could have) resulted in summary dismissal by reason of gross misconduct or which has caused significant reputational damage to the Group. The mechanism through which malus and clawback can be implemented enables the Committee to take various actions including: • Reducing outstanding incentive awards; and • Requiring a cash payment to be made by participants.	The vesting of long-term incentive awards is subject to both continued employment and the extent to which performance conditions measured over a specified three-year period are met. The measures and targets applicable to the long-term incentive awards will consist of challenging shareholder return, financial and strategic measures. The particular measures and targets to apply (and the different weightings ascribed to them) will be set annually by the Committee in order to ensure they are relevant to participants, challenging to achieve and take account of the most up-to-date business plan and strategy. The initial weightings between the two long-term incentive measures that were granted since the 2020 AGM were 67% EPS performance and 33% TSR performance; however, our policy is simply for financial and shareholder return targets to make up at least 50% of awards. A maximum of 25% of each element of an award will vest for achieving the threshold performance target with 100% of the awards being earned for maximum performance (with straight-line vesting between these points). Further details of the performance conditions applicable to awards to be made in FY 2022/23 are set out on page 129. Formulaic outcome of all LTIP performance measures will also be subject to the Committee considering whether the proposed vesting levels, calculated by reference to performance against the targets, appropriately reflect the Company's overall performance and shareholders' experience. If the Committee does not believe this to be the case, it retains the discretion to adjust the LTIP outturn accordingly.

Pay element and link to strategy	Maximum	Operation	Framework for assessing performance
Chair and other Non-Executive Directors *Helps recruit and retain high-quality experienced individuals.* *Reflects time commitment and role.*	Company's Articles of Association place a limit on the aggregate annual level of Non-Executive Directors' and Chair's fees (currently £500,000).	The fees for Non-Executive Directors are set in line with prevailing market conditions and at a level that will attract individuals with the necessary experience and ability to make a significant contribution to the Group's affairs. Non-Executive Directors receive an annual basic fee plus an additional fee for acting as the Chair of the Audit or Remuneration Committee or the Senior Independent Director. An additional fee may be paid for membership of the Technical Exploitation Board ('TEB'). No Non-Executive Director is currently a member of the TEB. The Chair of the Board receives an annual fee payable monthly with no additional fees for chairing Board committees. They also receive reimbursement for travel and incidental costs (including any associated personal tax charges) incurred in furtherance of Company business.	None

Notes to the 2020 Policy table:

1. Where maximum amounts for elements of remuneration have been set within the 2020 Policy, these will operate simply as caps and are not indicative of any aspiration.
2. A description of how the Company intends to implement the 2020 Policy set out in the tables on pages 132 to 136 during the financial year to 30 June 2023 is provided on page 129.
3. A general overview of how each remuneration element applies to other employees of the Group is included under the relevant section of the policy table.
4. The Committee reserves the right to make any remuneration payments and payments for loss of office (including exercising any discretions available to it in connection with such payments) notwithstanding that they are not in line with the 2020 Policy (as set out on pages 132 to 136) where the terms of the payment were agreed:
   I. before 29 October 2014 (the date the Company's first shareholder-approved Directors' Remuneration Policy came into effect);
   II. before the 2020 Policy came into effect, provided that the terms of the payment were consistent with the shareholder-approved Directors' Remuneration Policy in force at the time they were agreed; or
   III. at a time when the relevant individual was not a Director of the Company and, in the opinion of the Committee, the payment was not in consideration for the individual becoming a Director of the Company.

   For these purposes, payments include the Committee satisfying awards of variable remuneration and, in relation to an award over shares, the terms of the payment are 'agreed' at the time the award is granted.
5. The 'framework for assessing performance' column of the tables on pages 132 to 136 provide information on choosing the particular performance measures and target setting in relation to them.
6. Ricardo's variable pay may have any performance conditions applicable to the relevant element amended or substituted by the Committee if an event occurs which causes the Committee to determine that an amended or substituted performance condition would be more appropriate and not materially less difficult to satisfy. The Committee may make adjustments, where these are fair and reasonable, to measures or targets to take account of, for example, the implications of acquisitions and disposals.
7. Long-term incentive awards can be granted in a variety of forms such as performance shares, nil-cost options or forfeitable shares, and the Committee reserves the right to grant long-term incentive awards with the same economic effect but in any of these different contractual forms (including in cash). Long-term incentive awards can also be adjusted in the event of any variation of the Company's share capital or any demerger, delisting, special dividend or other event that may affect the Company's share price.
8. Under the terms of long-term incentive award performance conditions, where any company becomes unsuitable as a member of the comparator group as a result of, for example, a change of control or delisting, the Committee has the discretion to treat that company in such manner as it deems appropriate (including replacing it with another organisation).
9. In the event of a change of control, long-term incentive awards will normally vest at that time, taking into account, amongst other things, the extent to which any performance criteria have been met (over the shortened performance periods) and the time elapsed since grant.

All-employee share plans

For its UK employees the Company operates from time to time tax-advantaged share plans. These are a Share Incentive Plan ('SIP') and a Save As You Earn share option plan and they are intended to encourage share ownership and wider interest in the performance of the Company's shares. Executive Directors are eligible to participate in these arrangements up to the applicable statutory limits. The SIP provides for partnership, matching, free and dividend shares. Equivalent arrangements operate from time to time for non-UK employees.

Illustrative remuneration outcomes at different performance levels

Ricardo's pay policy seeks to ensure the long-term interests of Executive Directors are aligned with those of shareholders. The remuneration packages for each Executive Director and their fixed and variable elements are reviewed annually. The scenario chart below presents remuneration outcomes for the 2020 Policy under minimum, on-target, maximum and maximum with share price appreciation scenarios.

The target scenario broadly illustrates the remuneration level when budgeted performance is achieved. A further column has also been included which illustrates the impact on the figures contained in the maximum scenario of an assumed share price appreciation for the LTIP award of 50% over the relevant performance period. The disclosures in the chart above reflect FY 2021/22 data on the basis of the assumptions set out below.

- Fixed elements comprise current base salary, pension and other benefits. For example, for the Chief Executive Officer, fixed elements comprise base salary of £470,000, pension (cash in lieu) of 7% of base salary above the Lower Earnings Limit and benefits equal to those received in FY 2021/22 (annualised);
- For minimum performance, Executive Directors receive only the fixed elements of pay;
- For target performance, an assumption of 50% of bonus pay-out and threshold vesting (25%) in respect of long-term incentives has been applied;
- For maximum performance, an assumption of maximum bonus pay-out and maximum vesting in respect of long-term incentives has been applied;
- Save for the 'maximum with share price appreciation' column, no share price increase has been assumed for the above and this means that the single total figure in any year may be higher than the maximum shown above; and
- For maximum with share price growth performance, share price appreciation of 50% over the relevant performance period has been assumed for the LTIP awards.

Recruitment remuneration policy

New Executive Directors will be appointed on remuneration packages with the same structure and elements as described in the policy table starting on page 132. Annual bonus and long-term incentive awards will be within the limits described in the policy table for the particular role. The limits for any new Executive Director roles will be set by the Committee taking into account the particular responsibilities of the role, but will not exceed those that apply to the current Chief Executive Officer. Pension contribution levels will be aligned to those applicable to the wider workforce.

For external appointments, although we have no plans to offer additional benefits on recruitment (and indeed did not do so for our last Executive Director appointment), the Committee reserves the right to offer such benefits when it considers this to be in the best interests of the Company and shareholders, and in order to protect a new Director against additional costs. The Committee may agree that the Company will meet certain relocation expenses as appropriate.

The Company may make an award to compensate a new recruit for the value of any remuneration relinquished when leaving a former employer. Any such award would reflect the nature, timescales and performance requirements attaching to that relinquished remuneration. The Listing Rules exemption 9.4.2 may be used for the purpose of such an award. Shareholders will be informed of any such payments as soon as practicable following the appointment.

For an internal appointment, any variable pay element awarded in respect of the prior role may be allowed to pay out according to its terms, adjusted as relevant to take into account the appointment. In addition, any other ongoing remuneration obligations existing prior to appointment may continue, and will be disclosed to shareholders at the earliest opportunity.

On the appointment of a new Chair or Non-Executive Director, fees will be set taking into account the experience and calibre of the individual. Where specific cash or share arrangements are delivered to Non-Executive Directors, these will not include share options or other performance-related elements.

The Board's policy on setting notice periods for Directors is that these should not exceed one year. It recognises, however, that it may be necessary in the case of new executive appointments to offer an initial longer notice period, which would subsequently reduce to one year after the expiry of that period. All future appointments to the Board will comply with this requirement.

Termination remuneration policy

The contractual termination provision is payment in lieu of notice equal to one year's base salary or, if termination is part way through the notice period, the amount of base salary relating to any unexpired notice to the date of termination.[1] There is an obligation on Directors to mitigate any loss which they may suffer if the Company terminates their service contract. The Committee will take such mitigation obligation into account when determining the amount and timing of any compensation payable to any departing Director. No compensation is paid for summary dismissal, save for any statutory entitlements.

The cash element of the bonus is not payable unless the individual remains in employment at the payment date.

Unvested share-based awards will lapse unless the individual concerned leaves for one of a number of specified 'good leaver' reasons which are: death; injury, illness or disability; redundancy; or retirement. The Committee retains the discretion to prevent such awards from lapsing depending on the circumstances of the departure and the best interests of the Company.

Awards which do not lapse on cessation of employment will vest on their originally anticipated vesting date with the new holding period also continuing to apply (although the Committee retains the discretion to allow vesting and/or release from the holding period at cessation, depending on the circumstances under the applicable rules). These awards will also usually be subject to a time pro-rating reduction to reflect the unexpired portion of the performance or deferral period concerned, although the Committee will retain the discretion to disapply this pro-rating. Awards that are subject to performance conditions will usually only vest to the extent that these conditions are satisfied.

Executive Directors will also be entitled to a payment in respect of any accrued but untaken holiday and statutory entitlements on termination.

In the event that any payment is made in relation to termination for an Executive Director, this will be fully disclosed.

(1) For Ian Gibson the contractual termination provision is payment in lieu of notice equal to one year's base salary, car allowance and pension allowance, to the extent that these benefits are paid in cash.

Executive Directors' service contracts

The service contracts of Executive Directors in post during the financial year contain the key terms shown in the table below:

Provision	Detailed terms
Remuneration	• Salary, pension and benefits; • Company car or cash allowance; • Private health insurance for Director and dependants; • Life assurance and death in-service benefits; • Permanent health and disability insurance; • Director's liability insurance; • Up to 30 days' paid annual leave; • Participation in annual bonus plan, subject to plan rules and at the discretion of the Committee; and • Eligible to participate in share plans, subject to plan rules and at the discretion of the Committee.
Duration	• Indefinite subject to termination by either party in certain circumstances including serving notice as set out below.
Notice period	• 6 months' notice by the Director and 12 months' notice by the Company.[1]
Termination payment	• See separate general disclosure on page 124. The service contract entered into with Dave Shemmans permitted any payment in lieu of notice to also include an amount in respect of benefits that he would have been entitled to receive during the notice period. It also permitted Dave Shemmans to receive a sum in respect of any accrued bonus to the date of termination notwithstanding that he may not be in employment on the payment date of the bonus.
Restrictive covenants	• During employment and for 12 months after leaving.[2][3]

(1) Except for Graham Ritchie, who must give 12 months' notice.
(2) Except for Dave Shemmans, who is restricted for 6 months after leaving.
(3) Save that, in the case of Graham Ritchie, if the termination falls before the first anniversary of his commencement date with the Company, he shall only be restricted for a period for 6 months thereafter.

The Executive Directors' service contracts are available for inspection, on request, at the Company's registered office.

Non-Executive Directors – fees and letters of appointment

The Committee determines the Chair's fees. The Chair and the Executive Directors determine the fees to other Non-Executive Directors. No Director is present for any discussion or decision about their own remuneration. The fees are reviewed each January.

The Non-Executive Directors do not participate in any of the Company's employee share plans, pension schemes or bonus arrangements, nor do they have service agreements.

The Non-Executive Directors are appointed for a period of three years by letter of appointment and are entitled to one month's notice of early termination for which no compensation is payable. The unexpired terms of the Non-Executive Directors' appointments, as at 30 June 2022, are:

Non-Executive Director	Unexpired terms of appointment (months)
Sir Terry Morgan CBE	6
Russell King	2
Laurie Bowen	24
Malin Persson	30
Bill Spencer	16
Jack Boyer	2

The Directors' Remuneration Report, comprising the Chair's Overview and Annual Statement in Part 1, the Annual Report on Remuneration in Part 2 and the Directors' Remuneration Policy in Part 3 was approved by the Board on 13 September 2022 and signed on its behalf by:

Russell King
Chair of the Remuneration Committee

DIRECTORS' REPORT

The Directors present their report and the audited consolidated financial statements of Ricardo plc for the year ended 30 June 2022.

Dividends

On 8 April 2022 an interim dividend of 2.91p (HY 2020/21: 1.75p) was paid to shareholders. The Directors recommend the payment of a final dividend of 7.49 pence per ordinary share on 25 November 2022 to shareholders who are on the register of members at the close of business on 4 November 2022, which together with the interim dividend paid on 8 April 2022 makes a total of 10.40 pence (FY 2020/21: 6.86 pence) per ordinary share for the year.

Acquisitions and disposals

On 7 March 2022 the Company acquired Inside Infrastructure, an environmental consultancy based in Adelaide, Australia.

Events after the reporting date

On 1 August 2022 Ricardo completed the sale of its Software business, comprising of shares in the UK, US and Czechia companies of Ricardo Software together with related assets ("Ricardo Software") to FOG Software Group, a division of Constellation Software Inc (CSI).

Research & Development

The Group continues to devote effort and resources to the research and development of new technologies. Costs of £13.3m have been incurred, of which £7.3m has been capitalised and £3.5m has been charged to the income statement, excluding amortisation of any capitalised costs and net of £2.5m of government grant income, during the year.

Board of Directors

The current Directors of the Company at the date of this report appear on pages 91 and 93 and their biographical details are contained in the Notice of AGM. On 25 January 2021 the Company announced that the Board and Dave Shemmans had jointly agreed that he would leave his role as Chief Executive Officer. Dave Shemmans resigned from the Board on 30 September 2021. Graham Ritchie was appointed as Chief Executive Officer with effect from 1 October.

On 24 February 2022 the Company announced that Sir Terry Morgan CBE gave notice of his intention to retire from the Board. Sir Terry will resign from the Board on 17 November 2022 following the close of the AGM. Mark Clare will be appointed as non-executive director and Deputy Chair on 1 November 2022 and it is intended that he will be appointed as Chair at the close of the AGM on 17 November 2022.

Directors' interests in shares

Directors' interests in shares and share options are detailed on pages 126 to 127 of the Directors' Remuneration Report

Directors' indemnities

The Company has entered into deeds of indemnity in favour of each of its Directors, under which the Company agrees to indemnify each Director against liabilities incurred by that Director in respect of acts or omissions arising in the course of their office or otherwise by virtue of their office.

Where such deeds are for the benefit of Directors, they are qualifying third-party indemnity provisions as defined by section 309B of the Companies Act 1985 or section 234 of the Companies Act 2006, as applicable. At the date of this report, these indemnities are therefore in force for the benefit of all the current Directors of the Company.

On 30 June 2014, Ricardo UK Limited and Ricardo-AEA Limited, subsidiaries of the Group, entered into qualifying third-party indemnity provisions as defined by section 234 of the Companies Act 2006 in favour of their Directors, under which each Director is indemnified against liabilities incurred by that Director in respect of acts or omissions arising in the course of their office or otherwise by virtue of their office and such provisions remain in force as at the date of this report.

Employee information

The Company provides colleagues with various opportunities to obtain information on matters of concern to them and to improve awareness of the financial and economic factors that affect the performance of the Company. These include bi-annual presentations to all members of staff, department and team briefings and meetings with employee representatives that take place throughout the year.

All companies within the Group strive to operate fairly at all times and this includes not permitting discrimination against any employee or applicant for employment on the basis of race, religion or belief, colour, gender, disability, national origin, age, military

service, veteran status, sexual orientation or marital status. This includes giving full and fair consideration to suitable applications for employment from disabled persons and making appropriate accommodations so that if existing team members become disabled they can continue to be employed, wherever practicable, in the same job or, if this is not practicable, making every effort to find suitable alternative employment and to provide relevant training.

Change of control provisions

There are a number of agreements that take effect, alter or terminate upon a change of control of the Company following a takeover bid, such as commercial contracts, bank facility agreements, property lease arrangements and employees' share plans. None of these are considered to be significant in terms of their likely impact on the business of the Group as a whole.

Management report

The management report required by the provisions of the Disclosure and Transparency Rules is included within the Strategic Report and has been prepared in consultation with management.

Share capital

As at 19 August 2022, the Company's share capital is divided solely into 62,218,280 ordinary shares of 25 pence each, all of which are fully paid. The ordinary shares are listed on the London Stock Exchange.

All ordinary shares rank equally for all dividends and distributions that may be declared on such shares. At general meetings of the Company, each member who is present (in person, by proxy or by representative) is entitled to one vote on a show of hands and, on a poll, to one vote per share.

With respect to shares held on behalf of participants in the all-employee Share Incentive Plan, the trustees are required to vote as the participants direct them to do so in respect of their plan shares. There are no restrictions on voting rights and no securities carry special voting rights with regard to the control of the Company.

Awards granted under the Company's share plans are satisfied either by shares held in the employee benefit trust or by the issue of new shares when awards vest. The Remuneration Committee monitors the number of awards made under the various share plans and their potential impact on the relevant dilution limits recommended by the Investment Association.

Based on the Company's issued share capital as at 30 June 2022, the overall dilution was 4.43% (i.e. below the 10% limit for all plans in any rolling 10-year period) and 4.43% for discretionary employee share plans (i.e. below the 5% limit for discretionary employee share plans in any rolling 10-year period).

The Company was given authority to purchase up to 15% of its existing ordinary share capital at the 2021 AGM. That authority will expire at the conclusion of the 2022 AGM unless renewed.

Accordingly, a special resolution to renew the authority will be proposed at the forthcoming AGM.

The existing authority for Directors to allot ordinary shares will expire at the conclusion of the 2022 AGM unless renewed. Accordingly, an ordinary resolution to renew this authority will be proposed at the forthcoming AGM. In addition, it will be proposed to give the Directors further authority for a period of one year to allot ordinary shares in connection with a rights issue in favour of ordinary shareholders. This is in accordance with guidance issued by the Association of British Insurers. If the Directors were to use further authority in the year following the 2022 AGM, all Directors wishing to remain in office would stand for re-election at the 2022 AGM.

Details of these resolutions are included with the Notice of AGM.

Resolutions at the Annual General Meeting

The Company's AGM will be held on 17 November 2022. The Notice of AGM sets out the resolutions to be considered and approved at the meeting, together with some explanatory notes. The resolutions cover such routine matters as the renewal of authority to allot shares, to disapply pre-emption rights and to purchase own shares.

Substantial shareholdings

As at 19 August 2022, the Company has been notified of the following material interests in the voting rights of the Company under the provisions of the Disclosure and Transparency Rules.

Rank	Shareholder	Shares	% IC
1	Gresham House	5,101,215	8.20
2	JO Hambro Capital Mgt	4,648,104	7.47
3	Aberforth Partners	4,288,906	6.89
4	Aviva Investors	3,372,299	5.42
5	Tellworth Investors	3,171,601	5.10
6	Invesco	2,862,370	4.60
7	Royal London Asset Mgt	2,849,111	4.58
8	Canaccord Genuity Wealth Mgt	2,800,000	4.50
9	Schroder Investment Mgt	2,477,225	3.98
10	Russell Investments	1,918,712	3.08
11	Montanaro Asset Mgt	1,911,965	3.07

Donations

During the year the Group made various charitable donations, which are summarised in the Environmental, Social and Governance Report on page 49. The Group

made no political donations nor incurred any political expenditure during the year to 30 June 2022.

Independent auditors

Following shareholder approval at the 2021 AGM, KPMG LLP were re-appointed as independent auditors of the Group and Company for the year ended 30 June 2022.

In accordance with Section 489 of the Companies Act 2006, a resolution to re-appoint KPMG LLP as independent auditors of the Group and Company will be proposed at the 2022 AGM.

The Directors who held office at the date of approval of the Directors' Report confirm that:

- So far as they are each aware, there is no relevant audit information, which would be needed by the Company's auditor in connection with preparing its audit report, of which the Company's auditor is unaware; and
- Each Director has taken all steps that they ought to have taken as a Director in order to make themselves aware of any relevant audit information and to establish that the Company's auditor is aware of that information.

Going concern

Having assessed the principal risks and the other matters discussed in connection with the Viability Statement on pages 62 and 63, the Directors considered it appropriate to adopt the going concern basis of accounting in preparing the financial statements.

Branches outside the UK

The Company has no overseas branches outside the UK. A number of the Group's subsidiaries have overseas branches outside the UK, which are disclosed in their local statutory financial statements, where required.

Additional information

Certain information that is required to be included in the Directors' Report can be found elsewhere in this document as referred to below, each of which is incorporated into the Directors' Report by cross-reference:

- An indication of the likely future developments in the Group's business can found in the Strategic Report, on pages 8, 11, 75, 79, 83, 86 and 89
- Information on greenhouse-gas emissions, in the Sustainability and ESG report on page 46.
- Information on engagement with suppliers, customers and others in a business relationship with the Group in Our Stakeholders on pages 101 and 103.
- The Group's statement on corporate governance in the Corporate Governance Statement on pages 94 to 100.
- The Group's financial risk management objectives and policies in relation to its use of financial instruments and its exposure to capital, liquidity, credit and market risk, to the extent they are material, in Note 28 to the Group financial statements.

The Directors' Report was approved by order of the Board on 13 September 2022 and signed on its behalf by:

Patricia Ryan
Group General Counsel & Company Secretary

Registered office Ricardo plc
Shoreham Technical Centre Shoreham-by-Sea
West Sussex BN43 5FG

STATEMENT OF DIRECTORS' RESPONSIBILITY

in respect of the Annual Report and the Financial Statements

The Directors are responsible for preparing the Annual Report and the Group and parent Company financial statements in accordance with applicable law and regulations.

Company law requires the Directors to prepare Group and parent Company financial statements for each financial year. Under that law they are required to prepare the Group financial statements in accordance with UK-adopted international accounting standards and applicable law and have elected to prepare the parent Company financial statements in accordance with UK accounting standards and applicable law, including FRS 101 *Reduced Disclosure Framework*.

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 Group and parent Company and of the Group's profit or loss for that period. In preparing each of the Group and parent Company financial statements, the directors are required to:

- Select suitable accounting policies and then apply them consistently;
- Make judgements and estimates that are reasonable, relevant, reliable and prudent;
- For the Group financial statements, state whether they have been prepared in accordance with UK-adopted international accounting standards;
- For the parent Company financial statements, state whether applicable UK accounting standards have been followed, subject to any material departures disclosed and explained in the parent company financial statements;
- Assess the Group and parent Company's ability to continue as a going concern, disclosing, as applicable, matters related to going concern; and
- Use the going concern basis of accounting unless they either intend to liquidate the Group or the parent Company or to cease operations, or have no realistic alternative but to do so.

The Directors are responsible for keeping adequate accounting records that are sufficient to show and explain the parent Company's transactions and disclose with reasonable accuracy at any time the financial position of the parent Company and enable them to ensure that its financial statements comply with the Companies Act 2006. They are responsible for such internal control as they determine is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error, and have general responsibility for taking such steps as are reasonably open to them to safeguard the assets of the Group and to prevent and detect fraud and other irregularities.

Under applicable law and regulations, the Directors are also responsible for preparing a Strategic Report, Directors' Report, Directors' Remuneration Report and Corporate Governance Statement that complies with that law and those regulations.

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

In accordance with Disclosure Guidance and Transparency Rule 4.1.14R, the financial statements will form part of the annual financial report prepared using the single electronic reporting format under the TD ESEF Regulation. The auditor's report on these financial statements provides no assurance over the ESEF format.

Responsibility statement of the directors in respect of the annual financial report

We confirm that to the best of our knowledge:

- The financial statements, prepared in accordance with the applicable set of accounting standards, give a true and fair view of the assets, liabilities, financial position and profit or loss of the company and the undertakings included in the consolidation taken as a whole; and
- The strategic report includes a fair review of the development and performance of the business and the position of the issuer and the undertakings included in the consolidation taken as a whole, together with a description of the principal risks and uncertainties that they face.

We consider the annual report and accounts, taken as a whole, is fair, balanced and understandable and provides the information necessary for shareholders to assess the Group's position and performance, business model and strategy.

Graham Ritchie
Chief Executive Officer

Ian Gibson
Chief Financial Officer
13 September 2022

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KPMG

Independent auditor's report

to the members of Ricardo plc

1. Our opinion is unmodified

We have audited the financial statements of Ricardo plc ("the Company") for the year ended 30 June 2022 which comprise the consolidated income statement, consolidated statement of comprehensive income, consolidated statement of financial position, consolidated statement of changes in equity, consolidated cash flow statement, company statement of financial position, company statement of changes in equity, and the related notes, including the accounting policies in note 1.

In our opinion:

- the financial statements give a true and fair view of the state of the Group's and of the parent Company's affairs as at 30 June 2022 and of the Group's profit for the year then ended;
- the Group financial statements have been properly prepared in accordance with UK-adopted international accounting standards;
- the parent Company financial statements have been properly prepared in accordance with UK-adopted accounting standards, and as applied in accordance with the provisions of the Companies Act 2006; and
- the financial statements 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 are described below. We believe that the audit evidence we have obtained is a sufficient and appropriate basis for our opinion. Our audit opinion is consistent with our report to the audit committee.

We were first appointed as auditor by the shareholders on 15 November 2018. The period of total uninterrupted engagement is for the four financial years ended 30 June 2022. We have fulfilled our ethical responsibilities under, and we remain independent of the Group in accordance with, UK ethical requirements including the FRC Ethical Standard as applied to listed public interest entities. No non-audit services prohibited by that standard were provided.

Overview		
Materiality: group financial statements as a whole	£1.075m (2021: £1.16m) 5% (2021: 5.3%) of normalised profits and losses that make up Group profit before tax	
Coverage	76% (2021: 88%) of normalised profits and losses that make up Group profit before tax	
Key audit matters		**vs 2021**
Recurring risks	Valuation of defined benefit pension obligation	◀▶
	Revenue recognition of fixed price contracts	▼
	Goodwill Impairment A&I Established CGU	▼
Event Driven	**New:** CGU Assessment: Change in A&I CGU(s) & A&I Goodwill allocation	▲

2. Key audit matters: our assessment of risks of material misstatement

Key audit matters are those matters that, in our professional judgement, were of most significance in the audit of the financial statements and include the most significant assessed risks of material misstatement (whether or not due to fraud) identified by us, including those which had the greatest effect on: the overall audit strategy; the allocation of resources in the audit; and directing the efforts of the engagement team. We summarise below the key audit matters, in decreasing order of audit significance, in arriving at our audit opinion above, together with our key audit procedures to address those matters and, as required for public interest entities, our results from those procedures. These matters were addressed, and our results are based on procedures undertaken, in the context of, and solely for the purpose of, our audit of the financial statements as a whole, and in forming our opinion thereon, and consequently are incidental to that opinion, and we do not provide a separate opinion on these matters.

	The risk	Our response
Group and parent Company: Valuation of defined benefit pension obligation (£111.9m; 2021: £149.3m) *Refer to page 108 (Audit Committee Report), page 169 (accounting policy) and page 209 (financial disclosures).*	**Subjective estimate:** A significant level of estimation is required in order to determine the valuation of the gross liability of the Defined Benefit Obligation. Small changes in the key assumptions (in particular, discount rates, inflation & mortality rates) can have a material impact on the gross liability. The effect of these matters is that, as part of our risk assessment, we determined that the valuation of the defined benefit obligation has a high degree of estimation uncertainty, with a potential range of reasonable outcomes greater than our materiality for the financial statements as a whole, and possibly many times that amount. The financial statements (Note 34) disclose the sensitivity estimated by the Group and Parent Company.	We performed the detailed tests below rather than seeking to rely on any of the company's controls because the nature of the balance is such that we would expect to obtain audit evidence primarily through the detailed procedures described. Our procedures included: — **Benchmarking assumptions:** We challenged key assumptions applied (discount rate, inflation rate, and mortality rate) with the support of our own actuarial specialists, including a comparison of key assumptions against external market data; — **Assessing base data:** We have confirmed the data used in the current year valuation is consistent with that prepared at the triennial valuation as at 31 March 2020. We used our actuarial specialists to challenge the methodology used to roll forward the results of the triennial valuation as at 5 April 2020 to 30 June 2022. — **Assessing transparency:** We considered the adequacy of the Group and Company's disclosures in respect of the sensitivity of the deficit to changes in key assumptions. **Our results** — We found the valuation of the defined benefit pension obligation to be acceptable. (2021: acceptable)
CGU Assessment: Change in A&I CGU(s) & A&I Goodwill allocation FY22: A&I Established (£5.2m) & A&I Emerging (£14.4m) FY21: A&I EMEA (19.6m); A&I (Nil) Shanghai and A&I US (Nil). *Refer to page 107 (Audit Committee Report), page 166 (accounting policy) and page 186 (financial disclosures).*	**Accounting Judgement:** The group initiated a significant restructuring of the A&I business in the period. As a result this triggered a reassessment of the underlying CGUs and subsequently the allocation of goodwill within the new A&I CGUs. Both of these decisions require significant judgement, with the risk being an unrecognised impairment of the goodwill.	We performed the detailed tests below rather than seeking to rely on any of the company's controls because the nature of the balance is such that we would expect to obtain audit evidence primarily through the detailed procedures described. Our procedures included: — **Accounting Analysis:** Assessing the judgements made in identifying the new CGUs, including by reviewing the latest five year plan; — **Assessing methodology:** Assessing the Director's method of allocation of goodwill to new CGUs that was based on relative values in use by performing procedures outlined in the Goodwill Impairment A&I Established KAM; — **Assessing transparency:** Assessing whether the group's disclosures about the change in CGU are sufficient. **Our results** — We found that the revised CGUs and approach to reallocating goodwill is acceptable

2. Key audit matters: our assessment of risks of material misstatement (continued)

	The risk	Our response
Goodwill Impairment A&I Established CGU (£5.2m; 2020: N/A) *Refer to page 107 (Audit Committee Report), page 166 (accounting policy) and page 186 (financial disclosures).*	**Forecast-based assessment:** Goodwill associated with the Established A&I CGU is significant and at risk of irrecoverability due to reduced demand and recent trading losses. The estimated recoverable amount is subjective due to the inherent uncertainty involved in forecasting and discounting future cash flows. Due to the change in the identified CGUs, the risk has reduced because the goodwill associated with the new A&I Established CGU is smaller than that which was associated with the previous A&I EMEA CGU. The effect of these matters is that, as part of our risk assessment, we determined that the value in use of A&I Established goodwill has a high degree of estimation uncertainty, with a potential range of reasonable outcomes greater than our materiality for the financial statements as a whole, and possibly many times that amount. The financial statements (note 15) disclose the sensitivity estimated by the Group.	We performed the detailed tests below rather than seeking to rely on any of the company's controls because the nature of the balance is such that we would expect to obtain audit evidence primarily through the detailed procedures described. Our procedures included: — **Our sector experience:** Evaluating cashflow assumptions used, in particular those relating to forecast revenue growth and profit margin. — **Benchmarking assumptions:** Comparing the group's assumptions to externally derived data in relation to key inputs such as projected economic growth and discount rates; — **Sensitivity analysis:** Performing breakeven analysis on the assumptions noted above and considered reasonably possible changes in key inputs that had the greatest judgment and their impact on the valuation; — **Assessing transparency:** Assessing whether the group's disclosures about the sensitivity of the outcome of the impairment assessment to changes in key assumptions reflect the risks inherent in the recoverable amount of the CGU. **Our results** — We found the group's conclusion that there is no impairment of goodwill to be acceptable.

2. Key audit matters: our assessment of risks of material misstatement (continued)

	The risk	Our response
Revenue recognition on fixed price contracts (£217.9m; 2021: £210.8m) *Refer to page 108 (Audit Committee Report), page 163-165 (accounting policy) and page 177(financial disclosures).*	**Accounting application:** Fixed price contracts is an area which requires the largest allocation of senior team members in the audit, and which has a major impact on directing the efforts of the engagement team, due to the volume of contracts and the amount of the fixed price contracts revenue. For fixed price contracts the Group recognises the majority of revenue and profit on the stage of completion based on the proportion of contract costs incurred for the work performed to the balance sheet date, relative to the estimated total forecast costs of the contract at completion. The judgments and estimates impacting the recognition of revenue include: - The identification of distinct performance obligations. - Assessment of stage of completion and costs to complete - The recognition of variations A large part of the portfolio comprises contracts that individually have low estimation uncertainty. The highest value, highest risk, most technically complex and financially challenging contracts to deliver are categorised as 'Red CAT 4' contracts, which are subject to more frequent and senior levels of management review. The financial statements (note 1d) disclose the range of possible financial outcomes estimated by the Group on 'Red CAT 4' contracts.	Our procedures included: — **Control observation:** We attended the 'Red CAT 4' review meetings in January and July 2022 at which performance of these contracts was discussed with the Chief Financial Officer, Group Financial Controller, Group Quality & Risk Director, and divisional Managing and Finance Directors; — **Test of detail:** We selected a sample of costs incurred in the year and agreed to supporting documentation which included, for example invoices and timesheets; — We inspected a sample of correspondence with customers and instances where contractual variations had arisen to inform our assessment of the revenue and costs recorded up to the balance sheet date. We also agreed the variations to relevant invoicing schedules and payment plans and the subsequent cash receipts, where possible; — **Historical comparisons:** We assessed the reasonableness of the Group's forecasts by comparing with the comparative year forecasts and the financial performance; — **Independent reperformance:** We recalculated the stage of completion on the basis of actual costs and the Group's latest forecast to inform our assessment of the appropriate amount of revenue and profit to recognise and compared this to the amounts recorded by the Group; — **Assessing transparency:** We considered the adequacy of the Group's disclosures about the degree of estimates involved in estimating the stage of completion for determining the revenue amounts for fixed price contracts; **Our results** — We found revenue recognised on fixed price contracts to be acceptable (2021: acceptable).

3. Our application of materiality and an overview of the scope of our audit

Materiality for the group financial statements as a whole was set at £1.1m (2021: £1.2m), determined with reference to a benchmark of normalised group profit before tax, of which it represents 5% (2021: 5.3%).

We normalised PBT by adding back adjustments that do not represent the normal, continuing operations of the Group, and additionally in 2021 by averaging over 4 years. The items we adjusted for were exceptional acquisition related expenditure, asset purchases and disposals and other reorganisation costs as disclosed in note 7.

Materiality for the parent company financial statements as a whole was set at £0.4m (2021: £0.3m), which is the component materiality for the parent company determined by the group audit engagement team. This is lower than the materiality we would otherwise have determined with reference to company total assets, of which it represents 0.2% (2021: 0.1%).

In line with our audit methodology, our procedures on individual account balances and disclosures were performed to a lower threshold, performance materiality, so as to reduce to an acceptable level the risk that individually immaterial misstatements in individual account balances add up to a material amount across the financial statements as a whole.

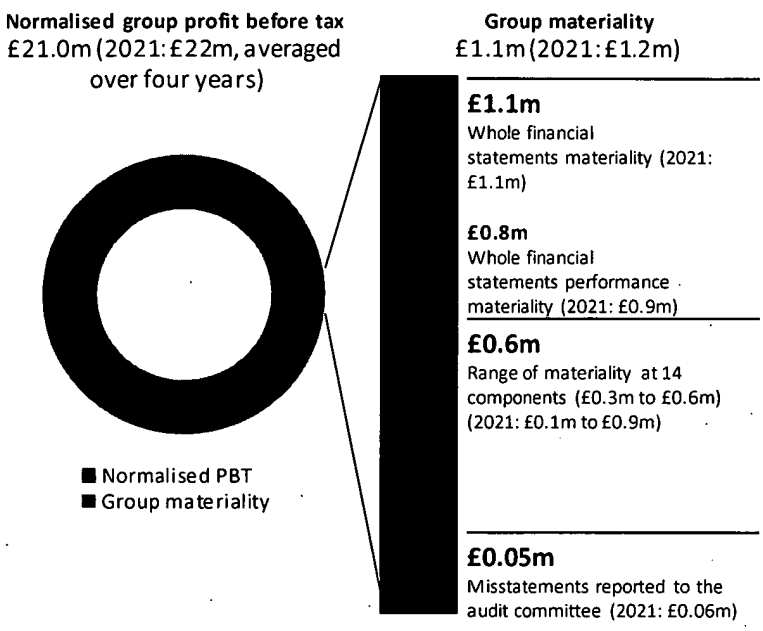
Performance materiality was set at 75% (2021: 75%) of materiality for the financial statements as a whole, which equates to £0.8m (2021: £0.9) for the group and £0.3m (2021: £0.2m) for the parent company. We applied this percentage in our determination of performance materiality because we did not identify any factors indicating an elevated level of risk.

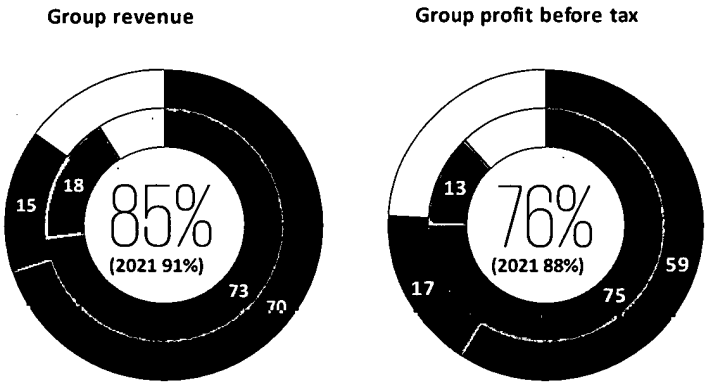
We agreed to report to the Audit Committee any corrected or uncorrected identified misstatements exceeding £0.05m (2021: £0.06m), in addition to other identified misstatements that warranted reporting on qualitative grounds.

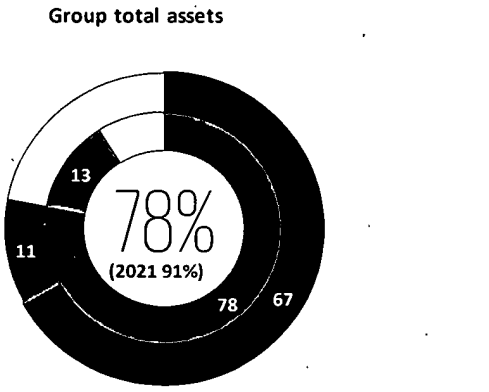
Of the group's 68 (2021: 57) reporting components, we subjected 11 (2021: 16) to full scope audits for group purposes and 3 (2021: 6) to specified risk-focused audit procedures including; revenue, inventory, and cash journals. The latter were not individually financially significant enough to require a full scope audit for group purposes, but did present specific individual risks that needed to be addressed.

The components within the scope of our work accounted for the percentages illustrated opposite.

The remaining 15% (2021: 9%) of total group revenue, 24% (2021: 12%) of group profit before tax and 22% (2021: 9%) of total group assets is represented by 54 (2021: 35) reporting components, none of which individually represented more than 5.5% (2021: 2.4%) of any of total group revenue, group profit before tax or total group assets. For the residual components, we performed analysis at an aggregated group level to re-examine our assessment that there were no significant risks of material misstatement within these.







Full scope for group audit purposes 2022
Specified risk-focused audit procedures 2022
Full scope for group audit purposes 2021
Specified risk-focused audit procedures 2021
Residual components

3. Our application of materiality and an overview of the scope of our audit (cont.)

The Group team instructed component auditors as to the significant areas to be covered, including the relevant risks detailed above and the information to be reported back. The Group team approved the component materialities, which ranged from £0.3m to £0.6m (2021: £0.1m to £0.9m), having regard to the mix of size and risk profile of the Group across the components. The work on 10 of the 14 components (2021: 10 of the 22 components) was performed by component auditors and the rest, including the audit of the parent company, was performed by the Group team. The group team performed procedures on the items excluded from normalised group profit before tax.

The Group team visited 1 (2021: 0) component locations in order to assess the audit risk and strategy. In addition the Key audit partner for the UK components was a member of the group engagement team, involved in group risk and strategy discussions. No sites overseas were visited by the Group team, instead video and telephone conference calls were held with all component auditors. At these meetings, the findings reported to the Group team were discussed in more detail, and any further work required by the Group team was then performed by the component auditor.

4. Going concern

The Directors have prepared the financial statements on the going concern basis as they do not intend to liquidate the Group or the Company or to cease their operations, and as they have concluded that the Group's and the Company's financial position means that this is realistic. They have also concluded that there are no material uncertainties that could have cast significant doubt over their ability to continue as a going concern for at least a year from the date of approval of the financial statements ("the going concern period").

We used our knowledge of the Group, its industry, and the general economic environment to identify the inherent risks to its business model and analysed how those risks might affect the Group's and Company's financial resources or ability to continue operations over the going concern period. The risks that we considered most likely to adversely affect the Group's and Company's available financial resources and metrics relevant to debt covenants over this period were:

- challenges impacting the automotive industry with a potential decline in trading results for the A&I Established CGU and limited growth for A&I Emerging CGU;
- Lower than expected production volumes in Defense or Performance Products segments.

We considered whether these risks could plausibly affect the liquidity or covenant compliance in the going concern period by assessing the Directors' sensitivities over the level of available financial resources and covenant thresholds indicated by the Group's financial forecasts taking account of severe, but plausible adverse effects that could arise from these risks individually and collectively.

Our procedures also included:

- Critically assessing assumptions in base case and downside scenarios relevant to liquidity and covenant metrics, in particular in relation to the A&I Established CGU by comparing to the recent downward trend during the pandemic and overlaying knowledge of the entity' plans based on approved budgets and our knowledge of the entity and the sector in which it operates.
- We also compared past budgets to actual results to assess the directors' track record of budgeting accurately.
- We inspected the confirmation from the lender of the level of committed financing, and the associated covenant requirements.

Our conclusions based on this work:

— we consider that the directors' use of the going concern basis of accounting in the preparation of the financial statements is appropriate;

— we have not identified, and concur with the directors' assessment that there is not, a material uncertainty related to events or conditions that, individually or collectively, may cast significant doubt on the Group's or Company's ability to continue as a going concern for the going concern period;

— we have nothing material to add or draw attention to in relation to the directors' statement in note 1 to the financial statements on the use of the going concern basis of accounting with no material uncertainties that may cast significant doubt over the Group and Company's use of that basis for the going concern period, and we found the going concern disclosure in note 1 to be acceptable; and

— the related statement under the Listing Rules set out on page 143 is materially consistent with the financial statements and our audit knowledge.

However, as we cannot predict all future events or conditions and as subsequent events may result in outcomes that are inconsistent with judgements that were reasonable at the time they were made, the above conclusions are not a guarantee that the Group or the Company will continue in operation.

5. Fraud and breaches of laws and regulations – ability to detect

Identifying and responding to risks of material misstatement due to fraud

To identify risks of material misstatement due to fraud ("fraud risks") we assessed events or conditions that could indicate an incentive or pressure to commit fraud or provide an opportunity to commit fraud. Our risk assessment procedures included:

- Enquiring of directors, the audit committee, internal audit and inspection of policy documentation as to the Group's high-level policies and procedures to prevent and detect fraud, including the internal audit function, and the Group's channel for "whistleblowing", as well as whether they have knowledge of any actual, suspected or alleged fraud.
- Reading Board and Audit Committee minutes.

We communicated identified fraud risks throughout the audit team and remained alert to any indications of fraud throughout the audit. This included communication from the group to full scope component audit teams of relevant fraud risks identified at the Group level and request to full scope component audit teams to report to the Group audit team any instances of fraud that could give rise to a material misstatement at group.

As required by auditing standards, and taking into account possible pressures to meet profit targets and our overall knowledge of the control environment, we perform procedures to address the risk of management override of controls, in particular the risk that Group and component management may be in a position to make inappropriate accounting entries. On this audit we do not believe there is a fraud risk related to revenue recognition because of the relatively low estimation risk across the contract portfolio, the historical accuracy of forecasting and the strength of the control environment in place.

We identified a fraud risk related to inappropriate capitalisation of development costs in response to possible pressures to meet profit targets.

We performed procedures including:

- Identifying journal entries to test for all full scope components based on risk criteria and comparing the identified entries to supporting documentation. These included those posted to cash and capitalised development costs where applicable to check for unexpected journal pairings.
- agreeing of a sample of timesheet entries recorded directly with employees to confirm the accuracy.

Identifying and responding to risks of material misstatement due to non-compliance with laws and regulations

We identified areas of laws and regulations that could reasonably be expected to have a material effect on the financial statements from our general commercial and sector experience, through discussion with the directors and other management (as required by auditing standards), and discussed with the directors and other management the policies and procedures regarding compliance with laws and regulations.

As the Group is regulated, our assessment of risks involved gaining an understanding of the control environment including the entity's procedures for complying with regulatory requirements.

We communicated identified laws and regulations throughout our team and remained alert to any indications of non-compliance throughout the audit. This included communication from the group to full scope component audit teams of relevant laws and regulations identified at the Group level, and a request for full scope component auditors to report to the group team any instances of non-compliance with laws and regulations that could give rise to a material misstatement at the Group level.

The potential effect of these laws and regulations on the financial statements varies considerably.

Firstly, the Group is subject to laws and regulations that directly affect the financial statements including financial reporting legislation (including related companies legislation), distributable profits legislation, taxation legislation and pensions legislation and we assessed the extent of compliance with these laws and regulations as part of our procedures on the related financial statement items.

Secondly, the Group is subject to many other laws and regulations where the consequences of non-compliance could have a material effect on amounts or disclosures in the financial statements, for instance through the imposition of fines or litigation. We identified the following areas as those most likely to have such an effect: health and safety, anti-bribery, employment law, road and motor vehicle regulations, competition laws, regulatory capital and liquidity and certain aspects of company legislation recognising the regulated nature of the Group's activities and its legal form. Auditing standards limit the required audit procedures to identify non-compliance with these laws and regulations to enquiry of the directors and other management and inspection of regulatory and legal correspondence, if any. Therefore if a breach of operational regulations is not disclosed to us or evident from relevant correspondence, an audit will not detect that breach.

Context of the ability of the audit to detect fraud or breaches of law or regulation

Owing to the inherent limitations of an audit, there is an unavoidable risk that we may not have detected some material misstatements in the financial statements, even though we have properly planned and performed our audit in accordance with auditing standards. For example, the further removed non-compliance with laws and regulations is from the events and transactions reflected in the financial statements, the less likely the inherently limited procedures required by auditing standards would identify it.

In addition, as with any audit, there remained a higher risk of non-detection of fraud, as these may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal controls. Our audit procedures are designed to detect material misstatement. We are not responsible for preventing non-compliance or fraud and cannot be expected to detect non-compliance with all laws and regulations.

6. We have nothing to report on the other information in the Annual Report

The directors are responsible for the other information presented in the Annual Report together with the financial statements. Our opinion on the financial statements does not cover the other information and, accordingly, we do not express an audit opinion or, except as explicitly stated below, any form of assurance conclusion thereon.

Our responsibility is to read the other information and, in doing so, consider whether, based on our financial statements audit work, the information therein is materially misstated or inconsistent with the financial statements or our audit knowledge. Based solely on that work we have not identified material misstatements in the other information.

Strategic report and directors' report

Based solely on our work on the other information:

- we have not identified material misstatements in the strategic report and the directors' report;
- in our opinion the information given in those reports for the financial year is consistent with the financial statements; and
- in our opinion those reports have been prepared in accordance with the Companies Act 2006.

Directors' remuneration report

In our opinion the part of the Directors' Remuneration Report to be audited has been properly prepared in accordance with the Companies Act 2006.

Disclosures of emerging and principal risks and longer-term viability

We are required to perform procedures to identify whether there is a material inconsistency between the directors' disclosures in respect of emerging and principal risks and the viability statement, and the financial statements and our audit knowledge.

Based on those procedures, we have nothing material to add or draw attention to in relation to:

- the directors' confirmation within the viability statement on page 62 that they have carried out a robust assessment of the emerging and principal risks facing the Group, including those that would threaten its business model, future performance, solvency and liquidity;
- the Principal risks and uncertainties disclosures describing these risks and how emerging risks are identified, and explaining how they are being managed and mitigated; and
- the directors' explanation in the viability statement of how they have assessed the prospects of the Group, over what period they have done so and why they considered that period to be appropriate, and their statement as to whether they have a reasonable expectation that the Group will be able to continue in operation and meet its liabilities as they fall due over the period of their assessment, including any related disclosures drawing attention to any necessary qualifications or assumptions.

We are also required to review the viability statement, set out on page 62 under the Listing Rules. Based on the above procedures, we have concluded that the above disclosures are materially consistent with the financial statements and our audit knowledge.

Our work is limited to assessing these matters in the context of only the knowledge acquired during our financial statements audit. As we cannot predict all future events or conditions and as subsequent events may result in outcomes that are inconsistent with judgements that were reasonable at the time they were made, the absence of anything to report on these statements is not a guarantee as to the Group's and Company's longer-term viability.

Corporate governance disclosures

We are required to perform procedures to identify whether there is a material inconsistency between the directors' corporate governance disclosures and the financial statements and our audit knowledge.

Based on those procedures, we have concluded that each of the following is materially consistent with the financial statements and our audit knowledge:

- the directors' statement that they consider that the annual report and financial statements taken as a whole is fair, balanced and understandable, and provides the information necessary for shareholders to assess the Group's position and performance, business model and strategy;
- the section of the annual report describing the work of the Audit Committee, including the significant issues that the audit committee considered in relation to the financial statements, and how these issues were addressed; and
- the section of the annual report that describes the review of the effectiveness of the Group's risk management and internal control systems.

We are required to review the part of the Corporate Governance Statement relating to the Group's compliance with the provisions of the UK Corporate Governance Code specified by the Listing Rules for our review. We have nothing to report in this respect.

7. **We have nothing to report on the other matters on which we are required to report by exception**

Under the Companies Act 2006, we are required to report to you if, in our opinion:

- adequate accounting records have not been kept by the parent Company, or returns adequate for our audit have not been received from branches not visited by us; or
- the parent Company financial statements and the part of the Directors' Remuneration Report to be audited 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.

We have nothing to report in these respects.

8. **Respective responsibilities**

Directors' responsibilities

As explained more fully in their statement set out on page 143, the directors are responsible for: the preparation of the financial statements including being satisfied that they give a true and fair view; such internal control as they determine is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error; assessing the Group and parent 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 they either intend to liquidate the Group or the parent Company or to cease operations, or have no realistic alternative but to do so.

Auditor's responsibilities

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 our opinion in an auditor's report. Reasonable assurance is a high level of assurance, but does not 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 aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of the financial statements.

A fuller description of our responsibilities is provided on the FRC's website at www.frc.org.uk/auditorsresponsibilities.

The Company is required to include these financial statements in an annual financial report prepared using the single electronic reporting format specified in the TD ESEF Regulation. This auditor's report provides no assurance over whether the annual financial report has been prepared in accordance with that format.

9. **The purpose of our audit work and to whom we owe our responsibilities**

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.

Jeremy Hall (Senior Statutory Auditor)

for and on behalf of KPMG LLP, Statutory Auditor

Chartered Accountants

15 Canada Square

London

E14 5GL

13 September 2022

GROUP PRIMARY STATEMENTS

CONSOLIDATED INCOME STATEMENT
FOR THE YEAR ENDED 30 JUNE

		2022			2021 - Restated*		
		Underlying	Specific adjusting items(**)	Total	Underlying	Specific adjusting items(**)	Total
	Note	£m	£m	£m	£m	£m	£m
Continuing operations							
Revenue	*6*	**380.2**	-	**380.2**	343.7	-	343.7
Cost of sales		**(250.7)**	-	**(250.7)**	(230.7)	-	(230.7)
Gross profit		**129.5**	-	**129.5**	113.0	-	113.0
Administrative expenses		**(102.0)**	**(11.8)**	**(113.8)**	(93.8)	(13.7)	(107.5)
Other income		**0.5**	-	**0.5**	1.2	-	1.2
Operating profit	*4*	**28.0**	**(11.8)**	**16.2**	20.4	(13.7)	6.7
Finance income		**0.6**	-	**0.6**	0.8	-	0.8
Finance costs		**(4.4)**	-	**(4.4)**	(5.5)	-	(5.5)
Net finance costs	*10*	**(3.8)**	-	**(3.8)**	(4.7)	-	(4.7)
Profit before taxation		**24.2**	**(11.8)**	**12.4**	15.7	(13.7)	2.0
Income tax (expense)/credit	*12*	**(6.5)**	**2.3**	**(4.2)**	(4.4)	2.6	(1.8)
Profit from continuing operations		**17.7**	**(9.5)**	**8.2**	11.3	(11.1)	0.2
Discontinued operation							
Profit from discontinued operation, net of tax	*3*	**1.7**	**(1.3)**	**0.4**	1.9	(0.4)	1.5
Profit for the year		**19.4**	**(10.8)**	**8.6**	13.2	(11.5)	1.7
Profit/(loss) attributable to:							
Continuing operations							
- Owners of the parent		**17.7**	**(9.5)**	**8.2**	11.3	(11.1)	0.2
Discontinued operation							
- Owners of the parent		**1.7**	**(1.3)**	**0.4**	1.9	(0.4)	1.5
Total							
- Owners of the parent		**19.4**	**(10.8)**	**8.6**	13.2	(11.5)	1.7
- Non-controlling interests	*32*	-	-	-	-	-	-
		19.4	**(10.8)**	**8.6**	13.2	(11.5)	1.7
Earnings per ordinary share attributable to owners of the parent during the year							
Basic	*8*			**13.8**			2.9
Diluted	*8*			**13.8**			2.9

* Comparative information has been re-presented due to a discontinued operation. See Note 3.
** Specific adjusting items are disclosed separately in the financial statements where it is necessary to do so to provide further understanding of the financial performance. See Notes 2 and 7.

The notes on pages 160 to 217 form an integral part of these consolidated financial statements.

CONSOLIDATED STATEMENT OF COMPREHENSIVE INCOME
FOR THE YEAR ENDED 30 JUNE

	Note	2022 £m	2021 £m
Profit for the year		**8.6**	1.7
Other comprehensive income			
Items that will not be reclassified to profit or loss:			
Remeasurements of the defined benefit pension scheme	*34*	**5.2**	9.1
Deferred tax on remeasurements of the defined benefit pension scheme	*21*	**(1.6)**	(2.0)
Total items that will not be reclassified to profit or loss		**3.6**	7.1
Items that are, or may be, subsequently reclassified to profit or loss:			
Currency translation on foreign currency net investments		**6.5**	(2.9)
Total items that may be subsequently reclassified to profit or loss		**6.5**	(2.9)
Total other comprehensive income for the year (net of tax)		**10.1**	4.2
Total comprehensive income for the year		**18.7**	5.9
Comprehensive income attributable to:			
- Owners of the parent		**18.7**	5.9
- Non-controlling interests	*32*	**-**	-
		18.7	5.9

The notes on pages 160 to 217 form an integral part of these consolidated financial statements.

CONSOLIDATED STATEMENT OF FINANCIAL POSITION
AS AT 30 JUNE

	Note	2022 £m	2021 £m
Assets			
Non-current assets			
Goodwill	15	**90.6**	84.7
Other intangible assets	16	**23.1**	33.9
Property, plant and equipment	17	**47.0**	46.9
Right-of-use assets	18	**18.3**	19.5
Retirement benefit surplus	34	**15.2**	6.8
Other receivables	23	**2.5**	2.3
Deferred tax assets	21	**9.0**	8.3
		205.7	202.4
Current assets			
Inventories	22	**21.0**	16.9
Trade, contract and other receivables	23	**128.7**	126.9
Derivative financial assets	27	**0.8**	0.9
Current tax assets		**3.6**	1.5
Cash and cash equivalents	25	**49.4**	42.0
Assets held for sale	19	**9.6**	-
		213.1	188.2
Total assets		**418.8**	390.6
Liabilities			
Current liabilities			
Borrowings	25	**11.2**	12.8
Lease liabilities	18	**5.0**	5.5
Trade, contract and other payables	24	**78.2**	76.6
Current tax liabilities		**4.2**	1.4
Derivative financial liabilities	27	**5.1**	1.0
Provisions	20	**5.1**	4.0
Liabilities directly associated with the assets held for sale	19	**3.4**	-
		112.2	101.3
Net current assets		**100.9**	86.9
Non-current liabilities			
Borrowings	25	**74.7**	76.1
Lease liabilities	18	**18.3**	18.8
Deferred tax liabilities	21	**12.7**	8.2
Provisions	20	**3.3**	3.4
		109.0	106.5
Total liabilities		**221.2**	207.8
Net assets		**197.6**	182.8
Equity			
Share capital	29	**15.6**	15.6
Share premium	29	**16.8**	16.8
Other reserves	30	**44.5**	38.0
Retained earnings	31	**120.5**	112.2
Equity attributable to owners of the parent		**197.4**	182.6
Non-controlling interests	32	**0.2**	0.2
Total equity		**197.6**	182.8

The notes on pages 160 to 217 form an integral part of these consolidated financial statements.

Approved by the Board of Ricardo plc on 13 September 2022 and signed on its behalf by:

Graham Ritchie
Chief Executive Officer

Ian Gibson
Chief Financial Officer

CONSOLIDATED STATEMENT OF CHANGES IN EQUITY
FOR THE YEAR ENDED 30 JUNE

		Attributable to owners of the parent						
		Share capital	Share premium	Other reserves	Retained earnings	Total	Non-controlling interests	Total equity
	Note	£m	£m	£m	£m	£m	£m	£m
At 1 July 2020		13.4	14.3	17.4	103.5	148.6	0.5	149.1
Profit for the year		-	-	-	1.7	1.7	-	1.7
Other comprehensive (expense)/income for the year		-	-	(2.9)	7.1	4.2	-	4.2
Total comprehensive income for the year		-	-	(2.9)	8.8	5.9	-	5.9
Issue of ordinary share capital	29	2.2	2.5	23.5	-	28.2	-	28.2
Reduction in share capital	9	-	-	-	-	-	(0.2)	(0.2)
Equity-settled transactions	35	-	-	-	1.0	1.0	-	1.0
Ordinary share dividends	9	-	-	-	(1.1)	(1.1)	(0.1)	(1.2)
At 30 June 2021		15.6	16.8	38.0	112.2	182.6	0.2	182.8
At 1 July 2021		**15.6**	**16.8**	**38.0**	**112.2**	**182.6**	**0.2**	**182.8**
Profit for the year		-	-	-	**8.6**	**8.6**	-	**8.6**
Other comprehensive income for the year		-	-	**6.5**	**3.6**	**10.1**	-	**10.1**
Total comprehensive income for the year		-	-	**6.5**	**12.2**	**18.7**	-	**18.7**
Equity-settled transactions	35	-	-	-	**1.6**	**1.6**	-	**1.6**
Tax credit relating to share option schemes		-	-	-	**(0.3)**	**(0.3)**	-	**(0.3)**
Purchases of own shares to settle awards		-	-	-	**(0.2)**	**(0.2)**	-	**(0.2)**
Ordinary share dividends	9	-	-	-	**(5.0)**	**(5.0)**	-	**(5.0)**
At 30 June 2022		**15.6**	**16.8**	**44.5**	**120.5**	**197.4**	**0.2**	**197.6**

The notes on pages 160 to 217 form an integral part of these consolidated financial statements.

CONSOLIDATED CASH FLOW STATEMENT
FOR THE YEAR ENDED 30 JUNE

	Note	2022 £m	2021 £m
Cash flows from operating activities			
Profit/(loss) before taxation		**13.2**	3.9
Adjustments for:			
- Share-based payments	35	**1.3**	1.4
- Unrealised foreign exchange (gains)/losses	27	**(1.0)**	0.7
- Losses/(gains) on disposal of property, plant and equipment	4	**0.1**	(0.3)
- Net finance costs	10	**3.8**	4.7
- Depreciation, amortisation and impairment	4	**25.1**	26.6
Defined benefit pension scheme payments in excess of past service costs	34	**(3.0)**	(4.6)
Operating cash flows before movements in working capital		**39.5**	32.4
Changes in:			
- Inventories	22	**(3.6)**	2.9
- Trade, contract and other receivables	23	**4.6**	(7.5)
- Trade, contract and other payables	24	**8.5**	4.1
- Provisions	20	**0.9**	1.1
Cash generated from operations		**49.9**	33.0
Net interest paid		**(3.5)**	(4.2)
Income tax paid		**(2.8)**	(2.9)
Net cash generated from operating activities		**43.6**	25.9
Cash flows from investing activities			
Acquisitions of subsidiaries, net of cash acquired	14	**(9.9)**	(5.2)
Purchases of property, plant and equipment	17	**(6.1)**	(4.5)
Proceeds from disposal of property, plant and equipment	17	**0.1**	0.3
Purchases of intangible assets and capitalised development costs	16	**(8.0)**	(8.9)
Net cash used in investing activities		**(23.9)**	(18.3)
Cash flows from financing activities			
Proceeds from issuance of ordinary shares	29	**-**	28.2
Purchases of own shares to settle awards		**(0.2)**	-
Principal element of lease payments	18	**(4.5)**	(6.5)
Principal element of lease receivables	18	**-**	0.2
Proceeds from borrowings	25	**13.0**	5.0
Repayment of borrowings	25	**(15.0)**	(57.9)
Dividends paid to shareholders	9	**(5.0)**	(1.4)
Net cash used in financing activities		**(11.7)**	(32.4)
Effect of exchange rate changes on cash and cash equivalents		**1.9**	(1.7)
Net increase/(decrease) in cash and cash equivalents	25	**10.1**	(26.5)
Net cash and cash equivalents at 1 July		**29.3**	55.8
Net cash and cash equivalents at 30 June		**39.4**	29.3
At 1 July			
Cash and cash equivalents		**42.0**	66.3
Bank overdrafts		**(12.7)**	(10.5)
Net cash and cash equivalents at 1 July		**29.3**	55.8
At 30 June			
Cash and cash equivalents	25	**49.4**	42.0
Cash included in disposal group held for sale	25	**1.1**	-
Bank overdrafts	25	**(11.1)**	(12.7)
Net cash and cash equivalents at 30 June		**39.4**	29.3

The notes on pages 160 to 217 form an integral part of these consolidated financial statements.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

1. Principal accounting policies

This section describes the critical accounting judgements and estimates that management has identified as having a potentially material impact on the Group's consolidated financial statements and sets out our significant accounting policies. Where an accounting policy is generally applicable to a specific note to the financial statements, the policy is cross referenced. We have also detailed below the new accounting pronouncements that we will adopt in future years and our current view of the impact they will have on our financial reporting.

Ricardo plc, a public company limited by shares, is listed on the London Stock Exchange and incorporated and domiciled in the United Kingdom. The address of its registered office is Shoreham Technical Centre, Shoreham-by-Sea, West Sussex, BN43 5FG, England, United Kingdom, and its registered number is 222915.

a) Basis of preparation

These consolidated financial statements of the Ricardo plc Group (the Group) have been prepared in accordance with UK-adopted international accounting standards. The financial statements have been prepared on a going concern basis under the historical cost convention, as modified by financial assets and financial liabilities which are measured at fair value through profit or loss. Derivative instruments that are hedge accounted are measured at fair value through other comprehensive income for the effective element of the hedge, with the ineffective element being charged to the profit or loss.

The principal accounting policies applied in the preparation of these financial statements have been consistently applied to the years ended 30 June 2021 and 30 June 2022.

Going concern

The Board of Ricardo plc has undertaken an assessment of the ability of the Group and Company to continue in operation and meet its liabilities as they fall due over the period of its assessment. In doing so, the Board considered events throughout the period of their assessment, including the availability and maturity profile of the Group's financing facilities and covenant compliance. These financial statements have been prepared on the going concern basis which the Directors consider appropriate for the reasons set out below.

The Group funds its operations through cash generated by the Group and has access to a £200m Revolving Credit Facility (RCF) which is linked to two covenants: Adjusted Leverage (defined as net debt divided by underlying EBITDA, adjusted for the impact of acquisitions and disposals, excluding the impact of IFRS 16, for the last twelve months); and Interest Cover (defined as underlying EBITDA, adjusted for the impact of acquisitions and disposals, excluding the impact of IFRS 16, for the last twelve months, divided by net finance costs excluding pension and IFRS 16 interest). Covenant limits are a maximum of 3.0x for Adjusted Leverage and a minimum of 4.0x for Interest Cover. These covenants are tested at 30 June and 31 December each year until the debt matures in July 2023.

On 2 August 2022, the Group completed a refinancing of its facilities, entering into a new £150m RCF, which provides the Group with committed funding through to August 2026. The facility offers a £50m accordion together with an option to extend to June 2027. There are no changes to debt covenants under the new facility.

Net debt at 30 June 2022 was £35.4m, comprising cash and cash equivalents of £50.5m and borrowings, including hire purchase liabilities, but excluding IFRS 16 lease liabilities, of £85.9m. Adjusted Leverage was 0.8x and Interest Cover was 13.7x. As at the date of approval of these financial statements, the amount of RCF undrawn and available to the Group was £85.0m with total borrowing, including overdrafts, of £77.4m and cash and cash equivalents of £40.5m.

The Directors have prepared a cash flow forecast which covers the period from the date of approval of these financial statements for a period of at least 12 months from the date of approval of the financial statements. In this forecast, the Directors have considered the impact of known risks, including the pace of technological change in the Automotive sector, driven by climate change, which continues to rapidly shift away from the traditional internal combustion engine towards more renewable propulsion methods, on the Group's results, operations and financial position in a severe but plausible downside scenario. The scenario includes lower gross margins and higher costs across the Business Units to account for global inflationary pressures and the removal of new or 'blue sky' revenue streams, together with:

- A 10% reduction in Automotive and Industrial revenue from established mobility solutions each year, together with a lower growth rate in emerging technologies revenues;
- Reduced revenue growth rates in Energy and Environment;
- A decline in Rail EBITDA in FY 2022/23;
- Delays in the ramp up of production volumes in Performance Products and Defense on key programmes with no revenue from new revenue streams in later years; and
- An increase of 10 working capital days for each business unit in FY 2022/23 and FY 2023/24.

The scenario was separately adjusted to exclude the results of

1. Principal accounting policies (continued)

a) Basis of preparation (continued)

Ricardo Software and to build in the proceeds from the disposal of the business, which was completed on 1 August 2022.

The scenario incorporates the appropriate reversal of discretionary bonuses and setting appropriate levels of dividends based on the sensitised results of the operating segments. The scenario results in a reduction of c.10% in the Group's Adjusted EBITDA from continuing operations in FY 2022/23, with a further c.15% reduction in FY 2023/24 on the sensitised FY 2022/23 Adjusted EBITDA. The results showed that the Group would be able to continue operating well within its debt covenants and liquidity headroom under the downside scenario. If full bonus costs were included, headroom under the Group's banking covenants and liquidity is reduced, but no covenants are breached.

Following this assessment, the Directors are confident that the Group and Company will have sufficient funds to continue to meet its liabilities as they fall due for at least 12 months from the date of approval of the financial statements and therefore have prepared the financial statements on a going concern basis. Further information on the going concern of the Group can be found on page 62 in the Viability Statement.

b) Basis of consolidation

The financial statements of the Group consolidate the results of the Company and its subsidiary entities, and include its share of its joint ventures' results accounted for under the equity method. Subsidiaries are all entities (including structured entities) over which the Group has control. The Group controls an entity when the Group is exposed to, or has rights to, variable returns from its involvement with the entity and has the ability to affect those returns through its power over the entity. Subsidiaries are fully consolidated from the date on which control is transferred to the Group and are deconsolidated from the date that control ceases. Intercompany transactions and balances are eliminated on consolidation.

The Group applies the acquisition method of accounting for business combinations. The consideration transferred for an acquisition is the fair value of the assets acquired and the liabilities assumed. The consideration transferred includes the fair value of any asset or liability resulting from a contingent consideration arrangement. Changes in fair value of contingent consideration are included within specific adjusting items. Contingent consideration dependent upon the employment or retention of specific individuals is expensed over the specified period and included within specific adjusting items. Identifiable assets acquired, together with liabilities and contingent liabilities assumed in a business combination are measured initially at their fair values at the acquisition date. Acquisition-related expenditure is expensed as incurred and recognised within specific adjusting items.

c) Discontinued operations and assets held for sale

Non-current assets, or disposal groups comprising assets and liabilities, are classified as held-for-sale if it is highly probable that they will be recovered primarily through sale rather than through continuing use.

Such assets, or disposal groups, are measured at the lower of their carrying amount and fair value less costs to sell. Any impairment loss on a disposal group is allocated first to goodwill, and then to the remaining assets and liabilities on a pro rata basis, except that no loss is allocated to inventories, financial assets, deferred tax assets, employee benefit assets, investment property or biological assets, which continue to be measured in accordance with the Group's other accounting policies. Impairment losses on initial classification as held-for-sale or held-for-distribution and subsequent gains and losses on remeasurement are recognised in profit or loss.

Once classified as held-for-sale, intangible assets and property, plant and equipment are no longer amortised or depreciated, and any equity-accounted investee is no longer equity accounted.

A discontinued operation is a component of the Group's business, the operations and cash flows of which can be clearly distinguished from the rest of the Group and which:

- represents a separate major line of business or geographic area of operations;
- is part of a single co-ordinated plan to dispose of a separate major line of business or geographic area of operations; or
- is a subsidiary acquired exclusively with a view to resale.

Classification as a discontinued operation occurs at the earlier of disposal or when the operation meets the criteria to be classified as held-for-sale.

When an operation is classified as a discontinued operation, the comparative income statement of profit or loss statement of comprehensive income is re-presented as if the operation had been discontinued from the start of the comparative year.

d) Management judgements and key accounting estimates

The preparation of financial statements under IFRS requires the Group's management to make judgements and estimates that affect the application of accounting policies and the reported amounts of assets, liabilities, revenues and costs. These judgements and estimates 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.

Critical judgements in applying the Group's accounting policies

The following are the critical judgements, apart from those involving estimations (which are dealt with separately below), that the Directors have made in the process of applying the Group's accounting policies and that have the most significant effect on the amounts recognised in the financial statements:

Specific adjusting items: Reorganisation costs – Note 2 and Note 7

Reorganisation costs include expenditure incurred as part of fundamental restructuring activities; significant impairments of property, plant and equipment and leased assets; significant losses on disposal of assets; and other items deemed to be one-off in nature. These costs are presented within specific adjusting items in the income statement. The classification and presentation of these items require significant judgement to determine the nature and intention of the transaction. Details of the Group's alternative performance measures and specific adjusting items are included in Note 2 and Note 7.

Discontinued Operation and Disposal Group Held for Sale – Note 3 and Note 19

Significant judgment was required in order to assess whether

1. Principal accounting policies (continued)

d) Management judgements and key accounting estimates (continued)

the facts and circumstances at 30 June 2022 indicated that the sale of the Software business was highly probable within one year, and therefore met the definition of a disposal group held for sale. If the asset had not been considered held for sale at that date, the assets and liabilities listed in Note 14 would have been included in the respective balances in the statement of financial position and related notes. In addition, the classification of the disposal group as a discontinued operation requires that the operation represents a major separate line of business. Management is satisfied that this is the case as the Software business meets the definition of an operating segment prior to aggregation. If the software business were not presented as a discontinued operation, the related amounts would be included in continuing operations in the Income Statement.

Significant judgement is also required to present intercompany transactions in such a way as to allow users of the financial statements to evaluate the financial effects of the discontinued operation. Management has elected to present these transactions in a way that reflects the continuance of these operations, as shown in Note 3. If all intercompany transactions were eliminated, profit before tax from the discontinued operation would be reduced by £1.9m in the prior year and £2.0m in the current year.

Revenue recognition on fixed price contracts - Note 6

The identification of and separate accounting for distinct performance obligations within the context of a contract is considered to be a critical judgement. Fixed price contracts often have multiple performance obligations that are indistinct from one another within the context of the contract. This is due to a homogeneous pattern of transfer of control to the customer who is unable to benefit from the performance of less than all of the promises set out in the contract. This is particularly the case where any intellectual property created is stipulated as not being owned by the customer until the full transaction price has been paid. These judgments determine the timing of revenue recognition and recognition of contract assets. If performance obligations were identified on a different basis, revenue and amounts recoverable on contracts may be materially reduced or increased.

Goodwill: allocation to CGUs – Note 15

Significant judgement is applied in order to allocate goodwill to cash-generating units (CGUs), or a group of CGUs, as a change in the allocation of goodwill would impact the result of the impairment review. As set out in Note 1(l), for the purpose of impairment testing, goodwill acquired in a business combination is allocated to each of the CGUs, or groups of CGUs, that is expected to benefit from that business combination, at the lowest level at which goodwill is monitored for internal management purposes. Goodwill is allocated at the operating segment level, and if goodwill were allocated at a lower level, the results of impairment testing may be different. The Rail segment comprises several CGUs which have been grouped for impairment testing purposes as they are expected to benefit from the synergies of the relevant combinations.

At the beginning of the current financial year, the Group reorganised its business units. The Automotive and Industrial segment (A&I) now consists of one operating segment, rather than representing an aggregation of the A&I EMEA, A&I China and A&I US operating segments. Further, the five-year plan for the Global A&I segment has been prepared based on a split of established mobility and emerging technologies, and this distinction is expected to be reflected in the operating segments in future years, as information will be reviewed by the chief operating decision maker at this level.

As per the Group accounting policy (Note 1(j)), when the Group changes the composition of its CGUs, it reallocates goodwill using a relative value approach at the date of the reorganisation, unless the entity can demonstrate that some other method provides a better allocation of goodwill to the reorganised units.

Goodwill of £19.6m previously allocated to the A&I EMEA operating segment was reallocated to the Global A&I established and Global A&I established groups of CGUs using a relative value approach. Management concluded that any other method of allocation would be arbitrary. Other allocation methods may have resulted in a different outcome to the impairment review, including recognition of an impairment. As an impairment review was carried out at 30 June 2021, immediately prior to the reorganisation, management do not consider there to be a risk that the reallocation of Goodwill is shielding an impairment that would otherwise have been recognised.

Recoverability of capitalised development costs – Note 16

Judgement is required as to when development costs meet the criteria to be recognised as intangible assets. The majority of capitalised development costs relate to the development of software, products and other technology, tools and processes. These costs are recognised as an asset once it has been determined that the attributable expenditure can be measured reliably, that there is an intention and the necessary resources to complete development and that it is considered probable that the resulting asset will generate future economic benefits for the Group. Determining whether it is probable that the resulting asset will generate sufficient economic benefits in the future requires management judgement.

Key sources of estimation uncertainty

Estimates and underlying assumptions are reviewed on an ongoing basis. Revisions to accounting estimates are recognised in the period in which the estimate is revised if the revision affects only that period, or in the period of the revision and future periods if the revision affects both current and future periods. The areas involving significant risk of a material adjustment to the carrying amounts of assets and liabilities within the next financial year are as follows:

Revenue recognition on fixed price contracts - Note 6

The majority of the Group's revenue in is earned from contracts for the provision of consultancy services that are typically awarded on a fixed price basis. A small number of similar contracts are also entered into by Performance Products to design and set up production lines and supply chains. Services provided under a fixed price contract generally have a single distinct performance obligation, or a single distinct series of performance obligations, which is satisfied over time. For each distinct performance obligation recognised over time, revenue is recognised using an input method, based on total costs incurred to date as a percentage of total estimated costs to satisfy each performance obligation.

1. Principal accounting policies (continued)

d) Management judgements and key accounting estimates (continued)

The percentage of completion basis of revenue recognition is determined as actual costs incurred as a proportion of total forecast contract costs to complete. This method places importance on the accuracy of uncertain estimates, including total costs to complete, the outcome of contract and technical risks, as well as the extent to which variation requests are recognised for proposed changes to the agreed schedule, price or scope of a contract under negotiation with a customer at the reporting date. Changes in these estimates may impact revenue recognised at the reporting date with the revenue recognition in the reporting period appropriately adjusted as required.

The actual outcome of wholly or partially unsatisfied performance obligations may differ to the estimate made at a reporting date and it is reasonably possible that outcomes on these contracts within the next reporting period could differ, adversely or favourably, in aggregate to those estimated. It is not possible to fully quantify the expected impact of this, but the estimated costs to complete reflect management's best estimate at that point in time and no individual estimate is expected to have a materially different outcome.

As set out further on pages 59 and 108, management undertakes a process to assess the risks on inception of all fixed price contracts, then monitors and reviews the risks and performance of contracts as they progress to completion. The highest value, highest risk, most technically complex and financially challenging contracts to deliver, as measured against a number of quantitative and qualitative factors, are categorised as 'Red Category 4' contracts, which are subject to more frequent and senior levels of management review.

As at 30 June 2022, the number of live consulting contracts within the portfolio was in excess of 2,500 (2021: 2,500), with a total value in excess of £850m (2021: £750m). Of this portfolio of contracts, 9 contracts (2021: 9) were categorised as Red Category 4. At 30 June 2022, £3.9m (2021: £3.6m) of revenue had been recognised in respect of work performed on these where outcomes were subject to negotiation with customers. Management has made a specific judgement over the ability to recover each of the amounts under negotiation and has recognised provisions of £2.9m (2021: £1.7m) against this revenue, resulting in a net exposure of £1.0m (2021: £1.9m). The possible financial outcomes from these negotiations range from an upside of £2.9m, if management recovers the full £3.9m of revenue and potential negotiation upside, to a downside of £1.0m, if management is unsuccessful in recovering any of the £3.9m.

Carrying value of Goodwill – Note 15

In performing the impairment assessment of the carrying amount of goodwill, the recoverable amounts of the CGUs, or groups of CGUs, to which goodwill has been allocated are determined using value-in-use (VIU) calculations (see Note 1(l)).

The recoverable amount of each CGU, or group of CGUs, is calculated by assessing its value in use, which is determined by performing discounted future pre-tax cash flow calculations for a three-year period and projected into perpetuity. Significant judgements are used to estimate the operating cash flows, growth rates and pre-tax discount rates applied in computing the recoverable amounts of different CGUs, or groups of CGUs. The sensitivity of estimates used to calculate the value in use of each CGU, or group of CGUs, are discussed in Note 15.

Goodwill: Inclusion of Research and Development Expenditure Credits – Note 15

Certain UK-based CGUs benefit from Research and Development Expenditure Credits (RDEC), which are an enhanced tax relief on qualifying research and development expenditure. These cashflows are material to the A&I group of CGUs and have been included in the value-in-use calculations, taking into account known changes to legislation, on the basis that there is no indication that the UK government will withdraw this benefit. Note 15 sets out the impact of the inclusion of RDEC in the value-in-use calculation.

Defined benefit obligation – Note 34

The Group operates a defined benefit pension scheme that provides benefits to a number of current and former employees. This scheme is closed to new entrants and the accrual of future benefits for active members ceased at the end of February 2010. The value of the deficit is particularly sensitive to the market value of the discount rates and actuarial assumptions related to mortality. The sensitivity of the defined benefit obligation to changes in the principal assumptions is set out in Note 34.

e) Research and development expenditure – Note 4

Research and development expenditure is recognised as an administrative expense in the income statement in the year in which it is incurred. Where the activity is performed for customers the cost is recognised as a cost of sale. Directly attributable development expenditure that meets the criteria for recognition as an intangible asset is described in Note 16.

f) Government grants – Note 4

The Group receives income-related grants from various national and supranational government agencies, principally for credits in respect of qualifying research and development expenditure, together with funding of research and development and capital projects. The Group also receives employment-related grants, and other grants intended to mitigate the financial impact of COVID-19 on the business. A grant is recognised in the income statement when there is reasonable assurance that the Group will comply with its conditions and that the grant will be received. Grants are presented in the income statement as a deduction from the related expenses.

Grants contributing to the cost of an asset are deducted from the cost of the asset and reflected in depreciation throughout its useful life.

Grants are not normally received until after qualification conditions have been met and the related expenditure has been incurred. Where this is not the case, they are recorded within trade, contract and other payables either as payments received in advance on contracts or as deferred revenue.

g) Revenue – Note 6

Principle approach

The Group principally earns revenue through the provision of consultancy services and bespoke products and recognises revenue based on the satisfaction of performance obligations in contracts with its customers. The core principle is that revenue is recognised in a manner that depicts the transfer of promised goods and services to customers in an amount that reflects

1. Principal accounting policies (continued)

g) Revenue – Note 6 (continued)

the consideration to which the Group expects to be entitled in exchange for those goods and services.

A contract with a customer is considered to exist when the Group is in possession of documentation to provide an agreed scope of goods or services on mutually understood terms and conditions that are acceptable to the Group which, subject to the successful execution of the contract, is expected to be invoiced against and paid for by the customer. Each contract with a customer is assessed to identify the promises to transfer distinct goods or services, or a series of distinct goods or services, that are substantially the same and have the same pattern of transfer to the customer. Goods and services are distinct and accounted for as separate performance obligations if they are separately identifiable in the contract and if the customer can benefit from them, either on their own or together with other readily available resources.

The total transaction price for a contract is estimated as the amount of consideration to which the Group expects to be entitled in exchange for transferring the promised goods or services to the customer, excluding sales taxes. Where multiple distinct performance obligations are identified within a contract with a customer, the total transaction price is allocated to each of the distinct performance obligations in proportion to their relative stand-alone selling prices. Given the bespoke nature of many of the Group's products and services, which are designed or manufactured under contract to the customer's individual scope and specifications, there are typically no observable stand-alone selling prices. Instead, stand-alone selling prices are typically estimated based on expected costs plus contract margin.

Costs of fulfilling performance obligations on existing contracts with customers are expensed as incurred. Costs incurred in advance of obtaining a new contract or an anticipated contract that directly relate to the fulfilment of specific performance obligations are initially recognised as an asset and subsequently expensed once the new contract is obtained or obtaining the contract is no longer anticipated. Incremental costs incurred to obtain new contracts with customers are recognised as an asset and amortised consistently with the recognition of revenue over the contract term, providing: the contract term is greater than one year; the costs are only incurred as a direct result of the new contract being obtained; and the costs do not directly relate to the fulfilment of specific performance obligations. Costs incurred to obtain new contracts with customers are expensed when those costs are incurred irrespective of whether a contract is obtained from a customer.

Revenue is recognised as distinct performance obligations are satisfied, and as control of the goods or services is transferred to the customer. For each distinct performance obligation within a contract, the Group determines whether they are satisfied over time or at a point in time. Performance obligations are considered to be satisfied over time if the goods or services provided have no alternative use to the Group and there is an enforceable right to payment for performance completed to date, or the customer simultaneously receives and consumes the goods or services as the Group provides them.

Services provided under fixed price contracts

The majority of the Group's revenue is earned from contracts for the provision of consultancy services that are typically awarded on a fixed price basis. A small number of similar contracts are also awarded to Performance Products to design and set up production lines and supply chains. Services provided under a fixed price contract generally have a single distinct performance obligation, or a single distinct series of performance obligations, which is satisfied over time. For each distinct performance obligation recognised over time, revenue is recognised using an input method, based on total costs incurred to date as a percentage of total estimated costs to satisfy each performance obligation.

Revenue and attributable margin are calculated by reference to reliable estimates of transaction price and total expected costs, after making suitable allowances for technical and other risks. Revenue and associated margin are therefore recognised progressively as costs are incurred, and estimated costs to complete are updated regularly as anticipated risks are mitigated or unanticipated risks materialise. The Group has determined that this method faithfully depicts the Group's performance in transferring control of the services to the customer.

The transaction price generally does not include consideration resulting from contract modifications of distinct performance obligations, such as variation orders, until they have been approved by the customer. Variable consideration, such as for the achievement of performance targets or variation requests under negotiation with the customer at the reporting date, can be included in the transaction price together with the estimated costs to perform the associated obligations. These estimates of the expected value or most likely amount are recognised to the extent that it is highly probable that there will not be a significant reversal in the amount of cumulative revenue recognised in a future reporting period.

Changes in transaction price from contract modifications that do not create separate distinct performance obligations are added to the transaction price of pre-existing performance obligations to which the modification relates. Contract modifications for goods or services that do create separate distinct performance obligations are accounted for separately from pre-existing performance obligations, together with the expected costs to satisfy those separate distinct performance obligations.

Contract assets arising from the recognition of revenue as and when performance obligations are satisfied are initially recognised as accrued revenue or amounts recoverable on contracts (AROC) within trade, contract and other receivables, and transferred to trade receivables when invoiced. Contract liabilities arising from amounts received from customers for services not yet performed are initially recognised as deferred revenue or payments received in advance on contracts (POA) within trade, contract and other payables, and transferred to revenue as and when performance obligations are satisfied.

A loss on a contract is recognised immediately when it becomes probable that the total estimated directly attributable costs to satisfy the contract will exceed the consideration receivable. Monthly reviews of contracts by local management, in conjunction with reviews by senior management of contracts deemed to be of higher risk, ensure that the Group identifies and immediately recognises expected losses on fixed price performance obligations within a contract.

Services provided under time and materials contracts

Certain contracts for the provision of consultancy services may be awarded on a time and materials basis. Services provided under a time and materials basis typically have a single

1. Principal accounting policies (continued)

g) Revenue – Note 6 (continued)

distinct performance obligation to provide a variable amount of labour to the customer at an agreed set of time-based labour rates, which represents the sales value. Revenue is therefore recognised over time based upon the agreed sales value of the time worked and costs incurred to date, as the customer simultaneously receives and consumes these services as the Group provides them.

Services provided under subscription and software support contracts

Other contracts primarily relate to annual subscriptions by customers to emergency response and support services for chemical incidents and crisis management. Subscription services are considered to be a single distinct performance obligation for which revenue is recognised at the agreed transaction price on a straight-line basis over the period of subscription.

Software maintenance and support services revenue is recognised separately from the supply of software products on a straight-line basis over the period of maintenance and support. Revenue derived from the supply of ad hoc software-related services, such as training and application engineering, is recognised at the agreed transaction price on a straight-line basis over a typically short period during which the obligation is performed.

Supply of manufactured or assembled products

The majority of the Group's revenue in Performance Products and Defense is earned from the supply of manufactured or assembled high-performance products, some of which are supplied with assurance-type warranties. Revenue for the supply of these products is measured at the agreed transaction price per unit that is expected to flow to the Group, and is recognised at the point in time that the Group has transferred control of the products to the customer, which is typically on delivery or collection. The point in time at which revenue is recognised can vary based on the specific intercompany terms present in a contract with a customer.

Revenue recognised from bill-and-hold arrangements occurs when all performance obligations have been satisfied and there is a substantive reason for the arrangement, which is typically that the customer has requested the products to be held by the Group until such times as delivery or collection is required by the customer. Revenue is recognised and billed under usual payment terms when the customer formally agrees to accept control of the bespoke products which cannot be sold to another customer and provided that the products have been separately identified and made available for delivery or collection.

Supply of software products

The Group's software products are standard version-controlled computer aided design, engineering and analysis tools, available for general sale and are primarily sold through Performance Products. The majority of revenue is derived from new and renewed licences of these software products, for which the customer has the right to access the product during the licence period, including rolling releases of the latest functionality. A new or renewed licence is considered to be a single distinct performance obligation for which revenue is recognised at the agreed transaction price on a straight-line basis over the licence period.

Perpetual licence sales provide the customer with an indefinite right to use the product, excluding rolling releases of the latest functionality. Rolling releases are provided through the separate provision of maintenance and support services. The transaction price of these two distinct performance obligations are separately identifiable within a contract. Revenue is recognised for perpetual licence sales when the performance obligation is satisfied, being the point of delivery of the licence key to the customer.

h) Specific adjusting items – Note 7

Specific adjusting items are disclosed separately in the financial statements where it is necessary to do so to provide further understanding of the financial performance of the Group. These items comprise the amortisation of acquired intangible assets, acquisition-related expenditure, reorganisation costs and other items that are included due to their significance, non-recurring nature or amount. Acquisition-related expenditure includes the costs of acquisitions, deferred and contingent consideration fair value adjustments (including the unwinding of discount factors), transaction-related fees and expenses, and post-deal integration costs. Reorganisation costs include costs arising from major restructuring activities, profits or losses on the disposal of businesses, and significant impairments of property, plant and equipment and right-of-use assets.

i) Dividends – Note 9

Dividends are recognised as a liability in the year in which they are fully authorised. Interim dividends are recognised when paid.

j) Net finance costs – Note 10

Finance income and finance costs are recognised in the income statement in the period in which they are incurred using the effective interest method.

k) Income tax expense – Note 12

The tax expense for the year comprises current and deferred tax. Tax is recognised in the income statement, except to the extent that it relates to items recognised in other comprehensive income or directly in equity. The current tax charge is the expected tax payable on taxable income for the year, calculated using the average rate applicable for the year on the basis of the tax laws enacted or substantively enacted at the reporting date in the countries where the Group operates. The current tax charge also includes any adjustment to tax payable in respect of previous years.

Management periodically evaluates uncertain positions taken in tax returns with respect to situations in which applicable tax regulation is subject to interpretation and establishes provisions where appropriate on the basis of amounts expected to be paid to the relevant tax authorities. The Group submits annual claims in respect of the UK Government's Research and Development Expenditure Credit (RDEC) scheme. RDEC is taxable income and is a form of government grant that effectively gives corporation tax relief on qualifying research and development (R&D) expenditure. In accordance with IAS 20 Accounting for Government Grants and Disclosure of Government Assistance, credits receivable under the RDEC scheme are offset against the associated qualifying R&D expenditure incurred, both of which are included within operating profit.

The Group have provided for uncertain positions taken in the tax returns with respect to situations in which applicable tax regulation is subject to interpretation and establishes provisions

1. Principal accounting policies (continued)

k) Income tax expense – Note 12 (continued)

where appropriate on the basis of amounts expected to be paid to the relevant tax authorities.

Uncertain tax positions relate primarily to risks around transfer pricing and on-going tax audits. The Group's provision is based on experience of dealing with Tax Authorities in certain jurisdictions in which it operates and an estimate of the most likely outcomes in each territory.

l) Goodwill – Note 15

Goodwill arises on the acquisition of subsidiaries and represents the excess of the consideration transferred and the fair value of contingent consideration, over the fair value of the identifiable assets acquired and liabilities assumed. Goodwill arising on acquisitions denominated in foreign currencies is retranslated using exchange rates prevailing at each reporting date.

Goodwill is recognised as an asset and is carried at cost less accumulated impairment losses. It is not subject to amortisation, but is reviewed for impairment annually, or more frequently if events or changes in circumstances indicate a potential impairment. For the purpose of impairment testing, goodwill acquired in a business combination is allocated to each of the CGUs, or group of CGUs, that is expected to benefit from that business combination. Each CGU, or group of CGUs, to which goodwill is allocated represents the lowest level at which goodwill is monitored for internal management purposes and is not larger than an operating segment before aggregation.

When the Group changes the composition of its CGUs, it reallocates goodwill using a relative value approach at the date of the reorganisation, unless the entity can demonstrate that some other method provides a better allocation of goodwill to the reorganised units.

The Group's impairment review compares the carrying value of the goodwill to the recoverable amount of the CGU, or group of CGUs, to which the goodwill has been allocated. The recoverable amount is the higher of the value in use or the fair value less costs of disposal. Estimating the value in use requires the Directors to perform an assessment of the discounted future cash flows that the CGU, or group of CGUs, is able to generate. See Note 1(c) for discussion of the critical estimates involved in this assessment.

An impairment is deemed to have occurred where the recoverable amount of a CGU, or group of CGUs, is less than the carrying value of the allocated goodwill. Any impairment is recognised immediately in the income statement within specific adjusting items and is not subsequently reversed. On disposal of an operation, the attributable amount of goodwill is included in the determination of the gain or loss on disposal.

m) Other intangible assets – see Note 16

Acquired intangible assets

Acquired intangible assets that are either separable or arising from contractual rights are recognised at fair value at the date of acquisition, and subsequently at amortised cost. Such intangible assets include customer contracts and relationships, together with acquired software and technology. The fair value of acquired intangible assets is determined by use of appropriate valuation techniques.

Software

Purchased software is capitalised on the basis of the purchase price of the software product plus any external and internal costs subsequently incurred that are directly attributable to bring the software product to the condition necessary for it to be capable of operating in the manner intended.

Development costs

Directly attributable costs which are incurred in the development of certain assets are capitalised and amortised over their finite useful lives once the Group has determined that it has the intention and the necessary resources to complete the relevant project, that it is probable the resulting asset will generate economic benefits for the Group and the attributable expenditure can be reliably measured.

Amortisation

Amortisation is typically calculated using the straight-line method to allocate the cost of intangible assets over their estimated useful lives, as follows:

• Acquisition-related intangible assets:	
- Customer contracts and relationships	Between 2 and 9 years
- Software and technology	Between 5 and 7 years
• Software	Between 2 and 10 years
• Development costs	Between 3 and 5 years

For certain assets classified as development costs in the Group's Defense operating segment, amortisation is charged on a units of production basis, as this is considered to more accurately reflect the expected pattern of consumption of the future economic benefits embodied in the assets. Assets under construction are carried at cost less any impairment in value, and are included in the relevant asset category. Amortisation of these assets commences when they are available for their intended use or sale.

n) Property, plant and equipment – see Note 17

Property, plant and equipment is stated at historical cost less depreciation. The gross cost of an item of property, plant and equipment is the purchase price and any costs directly attributable to bring the asset to the location and condition necessary for it to be capable of operating in the manner intended. Grants contributing to the cost of an asset are deducted from the cost of the asset and reflected in depreciation throughout its useful life.

Depreciation is typically calculated using the straight-line method to allocate the cost of items of property, plant and equipment less any residual value, over their estimated useful lives, as follows:

• Freehold land	Not depreciated
• Freehold buildings including improvements	Between 25 and 50 years
• Leasehold property improvements	Over the term of the lease
• Plant and machinery	Between 4 and 25 years
• Fixtures, fittings and equipment	Between 2 and 10 years

The residual values and useful lives of assets are reviewed, and adjusted if appropriate, at the end of each reporting period. For certain assets classified as plant and machinery in the Group's Defense operating segment, depreciation is charged on a units of production basis, as this is considered to more accurately

1. Principal accounting policies (continued

n) Property, plant and equipment – see Note 17 (continued)

reflect the expected pattern of consumption of the future economic benefits embodied in the assets.

Assets under construction are carried at cost less any impairment in value and are included in the relevant asset category. Depreciation of these assets commences when they are available for their intended use or sale.

Government Grants
Grants contributing to the cost of an asset are deducted from the cost of the asset and reflected in its depreciation throughout its useful life.

o) Leases – see Note 18

The Group's policy for leases is as follows:

Definition of a lease
Under IFRS 16, a contract is, or contains, a lease if the contract conveys a right to control the use of an identified asset for a period of time in exchange for consideration.

Lessee accounting
At the lease commencement date, a right-of-use asset is recognised for the leased item with a corresponding lease liability for any payments due. The right-of-use asset is initially measured at cost, being the present value of the lease payments paid or payable (net of any incentives received from the lessor), plus any initial direct costs and/or restoration costs.

Right-of-use assets are depreciated on a straight-line basis from the commencement date of the lease to the earlier of the end of the asset's useful life or the end of the lease term. The lease term is the non-cancellable period of the lease plus any periods for which the Group is 'reasonably certain' to exercise any extension options. If right-of-use assets are considered to be impaired, the carrying value is reduced accordingly.

For assets where the lessor transfers ownership of the underlying asset to the Group by the end of the lease term, or where the lease contains a purchase option at a nominal/notional value, then these assets will be initially classified as property, plant and equipment, and subsequently follow the depreciation rules set out in Note 1(n).

The lease liability is initially measured at the value of future lease payments, discounted using the interest rate implicit in the lease. Where this rate is not determinable, the Group's incremental borrowing rate is used, which is then adjusted to reflect an estimate of the interest rate the Group would have to pay to borrow the amount necessary to obtain an asset of similar value, in a similar economic environment, and with similar terms and conditions.

After initial recognition, the lease liability is recorded at amortised cost using the effective interest method. It is remeasured when there is a change in future lease payments arising from a change in an index or rate (e.g. an inflation related increase) or if the Group's assessment of the lease term changes. Any change in the lease liability as a result of these changes also results in a corresponding change in the recorded right-of-use asset.

Payments in respect of short-term and/or low-value leases are charged to the income statement on a straight-line basis over the lease term. The Group has classified the principal portion of lease payments within financing activities and the interest portion within operating activities within the consolidated cash flow statement.

Lessor accounting
The Group determines at inception of the lease whether the lease is a finance or an operating lease. When a lease transfers substantially all the risks and rewards of ownership of the underlying asset to the lessee then the lease is classified as a finance lease; otherwise, the lease is classified as an operating lease. Where the Group is an intermediate lessor, the interest in the head lease and the sub-lease is accounted for separately and the lease classification of a sub-lease (finance or operating) is determined by reference to the right-of-use asset arising from the head lease, not with reference to the underlying asset.

Other sub-leased assets are all classified as operating leases, where payments received (net of any incentives granted by the Group) are recognised in the income statement on a straight-line basis over the lease term.

p) Provisions for liabilities and charges – see Note 20

Provisions are required for restructuring costs and employment-related benefits when the Group has a present legal or constructive obligation at the reporting date as a result of a past event and it is probable that settlement will be required of an amount that can be reliably estimated. Provisions for warranty costs are recognised at the date of sale of the relevant products, at the Directors' best estimate of the expenditure required to settle the Group's probable liability.

Other provisions reflect the Directors' best estimate of future obligations relating to legal claims and litigation, together with dilapidation costs for the maintenance of leasehold properties arising from past events such as lease renewals or terminations. These estimates are reviewed at the reporting date and updated as necessary.

q) Deferred tax – Note 21

Deferred tax is recognised on temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for taxation purposes. Deferred tax liabilities are not recognised if they arise from the initial recognition of goodwill. Deferred tax is not accounted for if it arises from the initial recognition of an asset or liability in a transaction other than a business combination that at the time of the transaction affects neither accounting nor taxable profit and differences relating to investments in subsidiaries to the extent that it is not probable that they will reverse in the foreseeable future. The amount of deferred tax provided is based on the expected manner of realisation or settlement of the carrying amount of assets and liabilities, using tax rates enacted or substantively enacted at the reporting date.

Deferred tax assets are recognised only to the extent that it is probable that taxable profits will be available in the foreseeable future against which the asset can be utilised. Deferred tax assets are reduced to the extent that it is no longer probable that the related tax benefit will be realised within the foreseeable future.

r) Inventories – Note 22

Inventories are stated at the lower of cost, including attributable overheads allocated on the basis of normal operating capacity, and net realisable value. Cost is calculated using the 'weighted average' method across the Group apart from Performance Products and Defense which are on a 'first-in, first-out' method.

1. Principal accounting policies (continued)

s) Trade, contract and other receivables – Note 23

Trade receivables are stated net of impairment and for the purposes of impairment testing include non-financial contract assets (amounts recoverable on contracts, AROC) and accrued revenue. These assets are assessed for impairment using the simplified approach to the expected credit loss (ECL) model, which applies a default rate' at the point of origination that increases as the unpaid asset ages. The simplified approach of IFRS 9 applies a default rate to trade receivables and contract assets. Although past experience of significant credit losses on these assets has been negligible, the impairment assessment considers both past experience and future expectations of credit losses. As a result of this assessment, the Group considers the risk of expected credit losses on contract assets to be immaterial.

In order to assess the ECL over the lifetime of the asset, a historical provision matrix is used to inform a group-wide 'default rate' which is adjusted for current and expected future economic conditions. To calculate the Group default rates a weighted average default rate for each business unit was taken. It is considered appropriate for the Group as the customer base across the Group is sufficiently homogenous. Each business unit's customers are primarily comprised of large corporations and historical provision matrixes are sufficiently homogenous.

Trade receivables and contract assets are provided in full and subsequently written off when there is no reasonable expectation of recovery. Indicators that there may be no reasonable expectation of recovery could include, amongst others, evidence that the customer has entered administration or liquidation proceedings, or the persistent failure of a customer to enter into or adhere to a repayment plan. The 'general approach' is applied to the impairment of other financial assets, the amount of which is based on whether there has been a significant deterioration in the credit risk of a financial asset.

t) Trade, contract and other payables – Note 24

Trade payables are not interest-bearing and are stated at their nominal value.

u) Net debt and borrowings – Note 25

Cash and cash equivalents in the Consolidated cash flow statement comprise cash balances and bank overdrafts repayable on demand, including cash and cash equivalents included in disposal groups held for sale. Bank overdrafts are shown within borrowings in current liabilities and bank loans and finance leases are shown within borrowings in either current liabilities or non-current liabilities depending on the maturity date.

Financial liabilities are classified as either amortised cost or fair value through profit and loss. Borrowings are recognised initially at fair value net of direct issue costs and subsequently at amortised cost. Differences between initial value and redemption value are recorded in the income statement over the period of the loan. The fair value of borrowings due for repayment after more than one year approximates to the carrying value as they are primarily floating rate loans where payments are reset to market rates at regular short-term intervals

v) Fair value of financial assets and liabilities – Note 27

The Group uses derivative financial instruments, including foreign exchange contracts, to mitigate currency exposures on trading transactions. Fair values of derivative financial instruments are based on the market values of similar instruments at the reporting date.

The Group uses the fair value of foreign currency swap contracts on intercompany loans as hedging instruments. The initial fair value is determined with reference to the relevant spot market exchange rate. The differential between the contracted strike rate and the discounted spot market exchange rate is defined as the movement in fair value. The movement of the hedge's fair value gains and losses on the remeasurement of cash flow derivatives are recognised in retained earnings through the income statement.

The Group hedges the entire carrying value of all intercompany loans denominated in foreign currencies, on which credit risk is considered to be immaterial. Changes in fair value of foreign currency swap, forward and option contracts that relate to hedged items are recognised in retained earnings through the income statement, together with the change in the fair value of the related hedge at the reporting date.

Where intercompany loans denominated in a foreign currency are neither planned nor likely to be settled in the foreseeable future, they are considered to form part of the net investment in the borrowing entity, and foreign exchange differences are recognised through other comprehensive income.

Short-term borrowings and deposits

The fair value of short-term deposits, loans and overdrafts approximates to the carrying amount because of the short maturity of these instruments.

Long-term borrowings

The fair value of borrowings approximates to the carrying amount as they are primarily floating rate loans where payments are reset to market rates at regular intervals.

Derivatives

Derivative financial instruments are initially recognised and measured at fair value on the date a derivative contract is entered into and subsequently measured at fair value on the reporting date. Fair value is estimated by discounting expected future contractual cash flows using prevailing interest rate curves. Amounts denominated in foreign currencies are valued at the exchange rate prevailing at the reporting date (Level 2 of the fair value hierarchy within IFRS 13 Fair Value Measurement). Measurement of all derivative financial instruments was taken to the income statement.

1. Principal accounting policies (continued)

w) Retirement benefits – Note 34

The Group operates one defined benefit and several defined contribution pension schemes, the assets of which are held in separately administered funds. The defined benefit pension scheme is closed to new entrants and the accrual of future benefit for active members ceased at the end of February 2010. Payments to defined contribution pension schemes are charged as an expense as they fall due. Differences between contributions payable in the year and contributions actually paid are included in either accruals or prepayments. Payments to state-managed pension schemes are dealt with as payments to defined contribution pension schemes as the Group's obligations under the schemes are similar in nature.

For the defined benefit pension scheme, the cost of providing benefit is determined using the projected unit credit method, with actuarial valuations being carried out at each reporting date. Remeasurements are recognised in other comprehensive income except where they result from settlements or curtailments, in which case they are reported in the income statement.

Where necessary, past service costs are recognised immediately in the income statement at the earlier of when the plan amendment or curtailment occurs and when the related restructuring costs or termination benefit are recognised. The defined benefit obligation recognised represents the present value of the pension scheme liabilities net of the fair value of scheme assets. Any asset resulting from this calculation is limited to past service cost, plus the present value of available refunds and reductions in future contributions to the plan.

The interest cost on the net defined benefit obligation for the year is determined by applying the discount rate used to measure the defined benefit obligation at the beginning of the year to the net defined benefit obligation at the end of the year and is included in finance costs.

x) Share-based payments – Note 35

Equity-settled share-based payments are measured at fair value at the date of grant. The fair value determined at the grant date is expensed on a straight-line basis over the vesting period. The amount expensed is adjusted over the vesting period for changes in the estimate of the number of shares that will eventually vest, save for changes resulting from any market-related performance conditions.

Cash-settled share-based payments are measured at fair value at the date of grant and expensed over the vesting period until the vesting date with the recognition of a corresponding liability. The liability is remeasured to fair value at each reporting date up to and including the settlement date, with changes in fair value recognised in the income statement for the year. The amount expensed is adjusted over the vesting period for changes in the estimate of the number of shares that will eventually vest. Fair value is measured by using the Monte Carlo and Black Scholes models. The expected life used in the models are adjusted for the effects of exercise restrictions and behavioural considerations.

y) Foreign currency

Transactions

The functional currency of the Company and the presentation currency of the Group is Pounds Sterling. The functional currency of each subsidiary is the currency of the primary economic environment in which the entity operates. Transactions in currencies other than the functional currency are recorded at prevailing exchange rates. At each reporting date, monetary assets and liabilities denominated in foreign currencies are retranslated at the rates prevailing on the reporting date. Non-monetary assets and liabilities denominated in foreign currencies are translated at the rates prevailing at the date when the transaction occurred. Gains and losses arising on retranslation and settlements are included in the income statement for the year.

Consolidation

On consolidation the assets and liabilities of foreign operations, including goodwill and fair value adjustments, are translated into the presentation currency at exchange rates prevailing on the reporting date. Revenues and costs are translated at the average exchange rates of the year unless exchange rates fluctuate significantly. All resulting exchange differences are recognised in other comprehensive income and the translation reserve within equity. On disposal of an operation the related cumulative translation differences are recognised in the income statement as a component of the gain or loss arising on disposal.

1. Principal accounting policies (continued)

z) Recent accounting developments

Adopted by the Group

The following other standards, interpretations and amendments to existing standards became effective for periods commencing on or after 1 January 2021 and were adopted by the Group from 1 July 2021 and have not had a material impact on the Group:

	Effective date (period commencing)	Endorsed by EU
Amendments and Interpretations to IFRS		
-IFRS 9 Financial Instruments, IAS 39 Financial Instruments, IAS 7 Statement of Cash Flows, IFRS 4 Insurance Contracts, IFRS 16 Property, Plant and Equipment: Interest Rate Benchmark Reform phase 2	1 Jan 2021	Yes
- IFRS 4 Insurance Contracts: Deferral if IFRS 9	1 Jan 2021	Yes
- IFRS 3 Business Combinations; IAS 16 Property, Plant and Equipment; IAS 37 Provisions, Contingent Liabilities and Contingent Assets: Annual Improvements 2018-2022	1 Jan 2021	Yes
- IFRS 16 Leases: COVID-19 Related Rent Concessions beyond 30 June 2021.	1 Apr 2021	Yes

Issued standards, amendments and interpretations not yet effective

The following other standards, interpretations and amendments to existing standards have been issued but were not yet mandatory for the Group for the accounting period commencing on 1 July 2021 and are not expected to have a material impact on the Group:

	Effective date (period commencing)	Endorsed by EU
Issued IFRS		
- IFRS 17 *Insurance Contracts*; including amendments to IFRS 17	1 Jan 2023	Yes
Amendments and Interpretations to IFRS		
- IAS 1 *Presentation of Financial Statements* and IFRS Practice Statement 2, Disclosure of Accounting policies	1 Jan 2023	Yes
- IAS 8 *Accounting policies, Changes in Accounting Estimates and Errors*: Definition of Accounting Estimates	1 Jan 2023	Yes
- IAS 1(2) *Presentation of Financial Statements*: Classification of Liabilities as Current or Non-Current – Deferral of Effective Date	1 Jan 2023	No
- IAS 12 *Income Taxes*: Deferred Tax related to Assets and Liabilities arising from a Single Transaction	1 Jan 2023	No
- IFRS 17 *Insurance contracts*: Initial application of IFRS 17 and IFRS 9 – Comparative Information	1 Jan 2023	No

2. Alternative performance measures

Throughout this document the Group presents various alternative performance measures (APMs) in addition to those reported under IFRS. The measures presented are those adopted by the Chief Operating Decision Maker (CODM, deemed to be the Chief Executive Officer), together with the main Board, and analysts who follow us in assessing the performance of the business. Ricardo provides guidance to the investor community based on underlying results. Explanations of how they are calculated and how they are reconciled to an IFRS statutory measure are set out below.

The underlying results and other APMs may be considered in addition to, but not as a substitute for or superior to, information presented in accordance with IFRS.

(a) Group profit and earnings measures

Underlying profit before tax (PBT) and underlying operating profit: These measures are used by the Board to monitor and measure the trading performance of the Group. Underlying results include the benefits of the results of acquisitions and major restructuring programmes but exclude significant costs (such as the amortisation of acquired intangibles, acquisition-related expenditure, reorganisation costs and other specific adjusting items). Ricardo believes that the underlying results, when considered together with the reported results, provide investors, analysts and other stakeholders with helpful complementary information to better understand the financial performance and position of the Group.

The Group's strategy includes geographic and sector diversification, including targeted acquisitions and disposals. By excluding acquisition-related expenditure from underlying PBT and underlying operating profit, the Board has a clearer view of the performance of the Group and is able to make better operational decisions to support its strategy.

Acquisition-related expenditure includes the costs of acquisitions, deferred and contingent consideration fair value adjustments (including the unwinding of discount factors), transaction-related fees and expenses, and post-deal integration costs.

Reorganisation costs arising from major restructuring activities, profits or losses on the disposal of businesses, and significant impairments of property, plant and equipment, are excluded from underlying PBT and underlying operating profit as they are not reflective of the Group's trading performance in the year, as are any other specific adjusting items deemed to be one-off in nature.

The related tax effects on the above and other tax items which do not form part of the underlying tax rate are also taken into account. Items are treated consistently year-on-year, and these adjustments are also consistent with the way that performance is measured under the Group's incentive plans and its banking covenants. A reconciliation is shown below. Further details of the nature of the specific adjusting items are given in Note 7.

Reconciliation of underlying profit to reported profit

	2022			2021 - Restated*		
	Underlying	**Specific adjusting items**	**Total**	Underlying	Specific adjusting items	Total
	£m	**£m**	**£m**	£m	£m	£m
Revenue	**380.2**	**-**	**380.2**	343.7	-	343.7
Cost of sales	**(250.7)**	**-**	**(250.7)**	(230.7)	-	(230.7)
Gross profit	**129.5**	**-**	**129.5**	113.0	-	113.0
Administrative expenses and other income	**(101.5)**	**-**	**(101.5)**	(92.6)	-	(92.6)
Amortisation of acquired intangibles	**-**	**(4.5)**	**(4.5)**	-	(5.0)	(5.0)
Acquisition-related expenditure	**-**	**(0.8)**	**(0.8)**	-	(1.7)	(1.7)
Reorganisation costs	**-**	**(6.2)**	**(6.2)**	-	(5.4)	(5.4)
ERP implementation costs	**-**	**(0.6)**	**(0.6)**	-	-	-
CEO exit costs	**-**	**-**	**-**	-	(1.5)	(1.5)
Other	**-**	**0.3**	**0.3**	-	(0.1)	(0.1)
Operating profit from continuing operations	**28.0**	**(11.8)**	**16.2**	20.4	(13.7)	6.7
Net finance costs	**(3.8)**	**-**	**(3.8)**	(4.7)	-	(4.7)
Profit before taxation from continuing operations	**24.2**	**(11.8)**	**12.4**	15.7	(13.7)	2.0
Income tax (expense)/credit	**(6.5)**	**2.3**	**(4.2)**	(4.4)	2.6	(1.8)
Profit before taxation from continuing operations	**17.7**	**(9.5)**	**8.2**	11.3	(11.1)	0.2
Profit for the year from discontinued operation, net of tax	**1.7**	**(1.3)**	**0.4**	1.9	(0.4)	1.5
Profit for the year	**19.4**	**(10.8)**	**8.6**	13.2	(11.5)	1.7

* Comparative information has been re-presented due to a discontinued operation. See Note 3.

2. Alternative performance measures (continued)

Underlying earnings attributable to the owners of the parent/earnings per share: The Group uses underlying earnings attributable to the owners of the parent as the input to its adjusted EPS measure. This profit measure excludes the amortisation of acquired intangibles, acquisition-related expenditure, reorganisation costs and other specific adjusting items, but is an after-tax measure. The Board considers underlying EPS to be more reflective of the Group's trading performance in the year. A reconciliation between earnings attributable to the owners of the parent and underlying earnings attributable to the owners of the parent is shown in Note 8.

Organic growth/decline: Organic growth/decline is calculated as the growth/decline in the result for the current year compared to the prior year, after adjusting for the impact of acquisitions or disposals, to include the results of those acquisitions or disposals for an equivalent period in each financial year. As set out in Note 14, the Group acquired the entire issued share capital of Inside Infrastructure Pty Ltd (Inside Infrastructure) on 21 March 2022. The current year results include £0.9m of revenue, £0.1m of operating profit and £0.1m of profit before tax from Inside Infrastructure.

Constant currency growth/decline: The Group generates revenues and profits in various territories and currencies because of its international footprint. Those results are translated on consolidation at the foreign exchange rates prevailing at the time. Constant currency growth/decline is calculated by translating the result for the prior year using foreign currency exchange rates applicable to the current year. This provides an indication of the growth/decline of the business, excluding the impact of foreign exchange. In the prior year, constant currency results were calculated by translating the result for the current year using foreign currency exchange rates applicable to the prior year. Using current year rates to restate prior year results is considered to provide a more useful comparison, since current year performance remains stated at actual rates.

Headline trading performance

		Underlying		Reported	
	External revenue	Operating profit	Profit before tax	Operating profit	Profit before tax
	£m	£m	£m	£m	£m
2022					
Total	**387.3**	**30.1**	**26.3**	**17.0**	**13.2**
Less: discontinued operation	**(7.1)**	**(2.1)**	**(2.1)**	**(0.8)**	**(0.8)**
Continuing operations	**380.2**	**28.0**	**24.2**	**16.2**	**12.4**
Less: performance of acquisitions	**(0.9)**	**(0.1)**	**(0.1)**	**(0.1)**	**(0.1)**
Continuing operations - organic	**379.3**	**27.9**	**24.1**	**16.1**	**12.3**
2021					
Total	351.8	22.7	18.0	8.6	3.9
Less: discontinued operation	(8.1)	(2.3)	(2.3)	(1.9)	(1.9)
Continuing operations	343.7	20.4	15.7	6.7	2.0
Continuing operations at current year exchange rates	343.5	20.4	15.7	6.8	2.1
Growth (%) - Total	10%	33%	46%	98%	238%
Growth (%) - Continuing operations	11%	37%	54%	142%	520%
Growth (%) - Continuing organic	10%	37%	54%	140%	515%
Constant currency growth (%) – Continuing operations	11%	37%	54%	138%	490%

Segmental underlying operating profit: This is presented in the Group's segmental disclosures and reflects the underlying trading of each segment, as assessed by the main Board. This excludes segment-specific amortisation of acquired intangibles, acquisition-related expenditure and other specific adjusting items, such as reorganisation costs. It also excludes unallocated Plc costs, which represent the costs of running the public limited company and specific adjusting items which are outside of the control of segment management. A reconciliation between segment underlying operating profit, the Group's underlying operating profit and operating profit is presented in Note 5.

2. Alternative performance measures (continued)

(b) Cash flow measures

Cash conversion: A key measure of the Group's cash generation is the conversion of profit into cash. This is the reported cash generated from operations (defined as operating cash flow, less movements in net working capital and defined benefit pension deficit contributions) divided by earnings before interest, tax, depreciation and amortisation (EBITDA), expressed as a percentage.

Underlying cash conversion: This is underlying cash generated from operations (defined as reported cash generated from operations, adjusted for the cash impact of specific adjusting items) divided by underlying EBITDA (defined as reported EBITDA, adjusted for the impact of specific adjusting items). A reconciliation between the two is shown below.

Cash conversion

	2022			2021		
Cash conversion	**Underlying £m**	**Specific adjusting items £m**	**Total £m**	Underlying £m	Specific adjusting items £m	Total £m
Operating profit from continuing operations	**28.0**	**(11.8)**	**16.2**	20.4	(13.7)	6.7
Operating profit from discontinued operation	**2.1**	**(1.3)**	**0.8**	2.3	(0.4)	1.9
Operating profit	**30.1**	**(13.1)**	**17.0**	22.7	(14.1)	8.6
Depreciation, amortisation and impairment	**18.6**	**2.0**	**20.6**	19.7	1.9	21.6
Amortisation of acquired intangibles	**-**	**4.5**	**4.5**	-	5.0	5.0
EBITDA	**48.7**	**(6.6)**	**42.1**	42.4	(7.2)	35.2
Movement in working capital	**8.2**	**2.2**	**10.4**	(2.3)	2.9	0.6
Pension deficit payments	**(3.0)**	**-**	**(3.0)**	(4.6)	-	(4.6)
Profit on disposal of assets	**0.1**	**-**	**0.1**	(0.3)	-	(0.3)
Share based payments	**1.3**	**-**	**1.3**	1.0	0.4	1.4
Fair value (losses)/gains on derivative financial instruments	**(0.7)**	**(0.3)**	**(1.0)**	0.7	-	0.7
Cash generated from operations	**54.6**	**(4.7)**	**49.9**	36.9	(3.9)	33.0
Cash conversion	**112.1%**		**118.5%**	87.0%		93.8%

The movement in working capital in relation to specific adjusting items for the current year includes accruals of £1.6m and provisions of £2.2m in relation to specific adjusting items recognised as an expense during the current year which had not been paid at 30 June 2022. This was offset by the payment of £2.4m of amounts related to specific adjusting items included in trade and other payables and provisions at the prior year end. In addition £0.5m of prepayments relating to an ERP implementation were recognised in operating profit in the current year, and a receivable of £0.3m a reduction in the fair value of contingent consideration arising from the disposal of the Group's test facilities in Detroit was recognised to operating profit (see Note 7).

Net debt: is defined as current and non-current borrowings less cash and cash equivalents, including hire purchase agreements, but excluding any impact of other IFRS 16 lease liabilities. Management believes this definition is the most appropriate for monitoring the indebtedness of the Group and is consistent with the treatment in the Group's banking agreements. Further details are provided in Note 25.

(c) Tax measures

Underlying effective tax rate (ETR): The Group reports one adjusted tax measure, which is the tax rate on underlying profit before tax. This is the tax charge applicable to underlying profit before tax expressed as a percentage of underlying profit before tax.

(d) Other measures

Order book: The value of all unworked purchase orders and contracts received from customers at the reporting date, providing an indication of revenue that has been secured and will be recognised in future accounting periods – see Note 23. Management do not consider there to be a closely equivalent GAAP measure.

Order intake: The value of purchase orders and contracts received from customers during the period. The order intake for the current year was £432.2m (2021: £352.1m), including results of the discontinued operation. Management do not consider there to be a closely equivalent GAAP measure.

Headcount: Headcount is calculated as the number of colleagues on the payroll at the reporting date and includes subcontractors on a full-time equivalent basis. The number of employees disclosed in Note 33 is the average for the year.

FINANCIAL PERFORMANCE

The following disclosures provide further information about the drivers of the Group's financial performance in the year. This includes analysis of the respective contribution of the Group's reportable segments along with information about its operating cost base, net finance costs and tax. In addition, disclosure on earnings per share and the dividend is provided.

3. Discontinued operation

Discontinued operations and held for sale accounting policy *– Note 1(c)*

On 23 May 2022, the Group classified its Software segment held for sale following agreement of terms with a potential buyer, as a result of a strategic decision to focus on core lines of business. The results of the Software business have been presented as a discontinued operation and the prior year results restated to reflect this presentation. On 1 August 2022, the business was sold to a third party. See Notes 19 and 39.

Subsequent to the disposal, the Group has continued to purchase software licenses from the discontinued operation and recharge the business for space in its Prague office. Although intra-group transactions have been fully eliminated in the consolidated financial results, management has elected to attribute the elimination of transactions between the continuing operations and the discontinued operation before the disposal in a way that reflects the continuance of these transactions subsequent to the disposal, because management believes this is useful to the users of the financial statements.

Result from discontinued operation	**2022 £m**	2021 £m
Revenue	**9.4**	10.3
Inter-segment revenue [1]	**(2.3)**	(2.2)
External Revenue	**7.1**	8.1
Expenses	**(4.1)**	(4.8)
Elimination of inter-segment revenue net of recoverable expenses[1]	**2.0**	1.9
Amortisation of intangible assets[2]	**(2.9)**	(2.9)
External expenses	**(5.0)**	(5.8)
Underlying profit from operating activities	**2.1**	2.3
Specific adjusting items	**(1.3)**	(0.4)
Profit from operating activities	**0.8**	1.9
Income tax	**(0.4)**	(0.4)
Profit from discontinued operation, net of tax	**0.4**	1.5

Cash from discontinued operation	**2022 £m**	2021 £m
Net cash from operating activities	**4.5**	5.1
Net cash from investing activities	**(3.2)**	(3.1)
	1.3	2.0

(1) Inter-segment revenue and expenses are presented in the discontinued operation to the extent that they are expected to continue after the disposal of the operation.
(2) The amortisation of intangible assets was ceased at 23 May when the Software disposal group was classified as held for sale. If amortisation had been charged for the full financial year an additional £0.3m would have recognised within administrative expenses within the discontinued operation.

The earnings per share related to the discontinued operation is shown in Note 8.

4. Operating profit

Research and development expenditure accounting policy *– Note 1(e)*
Government grants accounting policy *– Note 1(f)*

Operating profit, including the result of the discontinued operation, are stated after charging/(crediting) the following amounts:

	Note	**2022 £m**	2021 £m
Depreciation of property, plant and equipment	*17*	**5.7**	5.7
Impairment of property, plant and equipment	*17*	**-**	0.3
Depreciation of right-of-use assets	*18*	**4.0**	5.7
Impairment of right-of-use assets	*18*	**0.6**	0.2
Amortisation of other intangible assets	*16*	**12.6**	13.2
Impairment of other intangible assets	*16*	**2.2**	-
Impairment on held for sale assets		**-**	1.5
Repairs and maintenance on property, plant and equipment		**12.3**	12.1
Net impairment expense on trade receivables	*23*	**1.3**	0.3
Losses/(gains) on disposal of property, plant and equipment		**0.1**	(0.3)
Research and Development Expenditure Credits (RDEC)		**5.3**	5.5
Research and development expenditure		**6.0**	1.7
Government grant income in respect of research and development expenditure		**(2.5)**	(1.2)
Government grant income in respect of COVID-19		**-**	(1.3)

Government grant income in respect of COVID-19 above includes £nil (2021: £0.4m) in respect of the UK Government Coronavirus Job Retention Scheme, which is intended to support continuing employment for businesses affected by COVID-19. It also includes £nil (2021: £0.6m) of grant income in respect of the Netherlands NOW scheme.

5. Financial performance by segment

The segmental analysis helps explain the business in the way that it is monitored by management.

The Group's operating segments are being reported based on the financial information provided to the Chief Operating Decision Maker who is the Chief Executive Officer. The information reported includes financial performance but does not include the financial position of assets and liabilities. The operating segments were identified by evaluating the Group's products and services, processes, types of customers and delivery methods.

During the current year the Software segment, previously reported within Performance Products, is classified as held-for-sale. Comparative amounts are restated to reflect this classification. Due to a reorganisation of the business units within the Group, the Automotive and Industrial segment (A&I) now consists of one operating segment, rather than representing the aggregation of the A&I EMEA, A&I China and A&I US operating segments. This reflects the revised organisational structure and operating model of the business unit.

The following summarises the operations in each of the Group's reportable segments:

- Energy and Environment (EE) – EE generates revenue from the provision of environmental consultancy services to customers across the world. Customers include governments, public agencies and private businesses;
- Rail – Rail generates revenue from through two separate operations: a consultancy unit that provides technical advice and engineering services; and a separate, independent entity, Ricardo Certification, that performs accredited assurance services;
- Automotive and Industrial (A&I) – A&I generates revenue through the provision of engineering, strategic consulting, and design, development and testing services, focused on hybrid and electric systems, electrification, engines, driveline and transmissions, testing, and vehicle engineering. Customers include businesses in the automotive, aerospace, defence, energy, off-highway and commercial, marine, motorcycle and light-personal transport, and rail markets;
- Defense – Defense provides engineering services, software and products to customers in the US defence market, aimed and protecting life and improving the operation, maintenance and support of complex systems; and
- Performance Products (PP) manufactures, assembles and develops niche high-quality components, prototypes and complex products, including engines, transmissions and other precision and performance-critical products. Its customers manufacture low-volume, high-performance products in markets such as motorsport, automotive, aerospace, defence and rail.

The operations of the Group have been categorised into these segments due to the nature of their services, market sectors, client bases and distribution channels and operating across markets requiring adherence to regulatory frameworks that are similar in nature.

5. Financial performance by segment (continued)

Measurement of performance

Management monitors the financial results of its operating segments separately for the purpose of making decisions about allocating resources and assessing performance. Segmental performance is measured based on underlying operating profit, as this measure provides management with an overall view of how the different operating segments are managing their total cost base against the revenue generated from their portfolio of contracts.

There are varying levels of integration between the segments. The segments use EE for their specialist environmental knowledge. A&I and PP have various shared projects. There are also shared service costs between the segments. Inter-segment transactions are eliminated on consolidation. Inter-segment pricing is determined on an arm's length basis in a manner similar to transactions with third parties.

Included within Plc costs in the following tables are costs arising from a central Group function, including the costs of running the public limited company, which are not recharged to the other operating segments. Comparative figures for the year ended 30 June 2021 have been restated, reflecting the impact of the changes the Group made to its operating segments during the year ended 30 June 2022. The operating segment section of this Annual Report provides further detail on the segments' performance (see page 73 to 89).

For the year ended 30 June 2022	EE £m	Rail £m	A&I £m	Defense £m	PP £m	Plc £m	Total Continuing Operations £m	Discontinued Operation £m	Total £m
Total segment revenue	68.2	74.6	123.2	45.1	75.0	-	386.1	9.4	395.5
Inter-segment revenue	(1.0)	(0.3)	(3.2)	(0.1)	(1.3)	-	(5.9)	(2.3)	(8.2)
Revenue from external customers	67.2	74.3	120.0	45.0	73.7	-	380.2	7.1	387.3
Segment underlying operating profit	9.1	7.7	3.7	5.9	7.2	-	33.6	2.1	35.7
Plc costs	-	-	-	-	-	(5.6)	(5.6)	-	(5.6)
Underlying operating profit/(loss)	9.1	7.7	3.7	5.9	7.2	(5.6)	28.0	2.1	30.1
Specific adjusting items (*)	(0.6)	(4.4)	(5.2)	(0.4)	(0.6)	(0.6)	(11.8)	(1.3)	(13.1)
Operating profit/(loss)	8.5	3.3	(1.5)	5.5	6.6	(6.2)	16.2	0.8	17.0
Net finance costs							(3.8)	-	(3.8)
Profit before taxation							12.4	0.8	13.2
Depreciation, amortisation and impairment	3.2	4.8	9.8	1.7	0.8	1.9	22.2	2.9	25.1
Capital expenditure:									
- Other intangible assets	1.9	-	2.5	0.4	(0.1)	-	4.7	3.2	7.9
- Property, plant and equipment	0.7	1.1	2.2	0.1	0.6	-	4.7	-	4.7
- Right-of-use assets	-	4.2	0.5	-	-	-	4.7	-	4.7

For the year ended 30 June 2021 2021 restated (**)	EE £m	Rail £m	A&I £m	Defense £m	PP £m	Plc £m	Total Continuing Operations £m	Discontinued Operation £m	Total £m
Total segment revenue	57.9	77.7	104.2	37.9	70.4	-	348.1	10.3	358.4
Inter-segment revenue	(0.8)	-	(3.2)	-	(0.4)	-	(4.4)	(2.2)	(6.6)
Revenue from external customers	57.1	77.7	101.0	37.9	70.0	-	343.7	8.1	351.8
Segment underlying operating profit/(loss)	8.5	8.0	(3.6)	5.4	6.7	-	25.0	2.3	27.3
Plc costs	-	-	-	-	-	(4.6)	(4.6)	-	(4.6)
Underlying operating profit/(loss)	8.5	8.0	(3.6)	5.4	6.7	(4.6)	20.4	2.3	22.7
Specific adjusting items (*)	(0.9)	(3.6)	(5.6)	(0.4)	-	(3.2)	(13.7)	(0.4)	(14.1)
Operating profit/(loss)	7.6	4.4	(9.2)	5.0	6.7	(7.8)	6.7	1.9	8.6
Net finance costs							(4.7)	-	(4.7)
Profit before taxation							2.0	1.9	3.9
Depreciation and amortisation	3.3	6.1	10.2	1.8	1.0	1.3	23.7	2.9	26.6
Capital expenditure:									
- Other intangible assets	1.4	-	3.6	0.5	-	0.3	5.8	3.1	8.9
- Property, plant and equipment	0.4	0.2	2.3	0.6	0.8	-	4.3	-	4.3
- Right-of-use assets	0.2	0.8	0.6	0.8	-	-	2.4	-	2.4

* See Note 7

** Prior year amounts have been restated as follows. References to Software relate to amounts which were previously reported in the PP aggregated operating segment and are now presented as a discontinued operation.

5. Financial performance by segment (continued)

- Revenue from external customers of £1.5m transferred from A&I to the discontinued operation, relating to revenue invoiced by A&I for Software products, not expected to continue to be generated by the Group after the sale of the business. Inter-segment revenue from Software has been reduced by this amount.
- A&I underlying operating loss increased, and Software profit increased, by £2.0m to reflect costs that will not be charged to the Software business on an ongoing basis. Software revenue has been grossed up by £2.2m to reflect intragroup recharges to A&I previously net off against these expenses.
- Plc costs increased by £0.2m and Software operating profit increased by £0.2m to reflect costs which were previously recharged to the Software business, for which there is no mechanism to recharge after the sale of the business.

Revenue from one customer represents approximately 11% (2021: 12%) of the Group's external revenue, which is primarily reported in the PP segment.

6. Revenue

***Revenue accounting policy** – Note 1(g)*
***Key sources of estimation uncertainty: Revenue on fixed price contracts** – Note 1(d)*

	Continuing operations		Discontinued operation		Total	
	2022	2021	**2022**	2021	**2022**	2021
	£m	£m	**£m**	£m	**£m**	£m
Revenue stream						
Service provided under:						
- fixed price contracts	**217.9**	210.8	**-**	-	**217.9**	210.8
- time and materials contracts	**64.5**	65.9	**-**	-	**64.5**	65.9
- subscription and software support contracts	**5.2**	5.1	**0.6**	1.5	**5.8**	6.6
Goods supplied:						
- manufactured and assembled products	**90.7**	61.8	**-**	-	**90.7**	61.8
- software products	**1.2**	0.1	**6.5**	6.6	**7.7**	6.7
Intellectual property	**0.7**	-	**-**	-	**0.7**	-
Total	**380.2**	343.7	**7.1**	8.1	**387.3**	351.8
Customer location						
United Kingdom	**134.5**	118.7	**0.2**	0.2	**134.7**	118.9
Europe	**72.7**	75.0	**1.3**	1.2	**74.0**	76.2
North America	**88.3**	67.6	**1.9**	1.9	**90.2**	69.5
Rest of Asia	**30.7**	22.2	**2.8**	3.5	**33.5**	25.7
Australia	**22.2**	27.2	**-**	0.1	**22.2**	27.3
China	**20.9**	22.9	**0.9**	1.2	**21.8**	24.1
Rest of the World	**10.9**	10.1	**-**	-	**10.9**	10.1
Total	**380.2**	343.7	**7.1**	8.1	**387.3**	351.8
Timing of recognition						
Over time	**289.0**	283.2	**5.5**	6.4	**294.5**	289.6
At a point in time	**91.2**	60.5	**1.6**	1.7	**92.8**	62.2
Total	**380.2**	343.7	**7.1**	8.1	**387.3**	351.8

See Note 23 for disclosure of impairment losses recognised on receivables and contract assets arising from the Group's contracts with customers. Note 23 also provides details of the opening and closing balances of receivables and contract assets, together with the Group's order book which comprises the value of all unworked purchase orders and contracts received from customers at the reporting date and provides an indication of revenue that has been secured and will be recognised in future accounting periods.

See Note 24 for the opening and closing balances of contract liabilities from contracts with customers.

7. Specific adjusting items

Specific adjusting items accounting policy *- Note 1(h)*
Critical judgement on specific adjusting items: Reorganisation costs *– Note 1(c)*

Specific adjusting items are disclosed separately in the financial statements where it is necessary to do so to provide further understanding of the financial performance of the Group. These items comprise the amortisation of acquired intangible assets, acquisition-related expenditure, reorganisation costs and other items that are included due to their significance, non-recurring nature or amount. Acquisition-related expenditure is incurred by the Group to effect a business combination, including the costs associated with the integration of acquired businesses. Reorganisation costs relate to non-recurring expenditure incurred as part of fundamental restructuring activities, significant impairments of property, plant and equipment, and other items deemed to be one-off in nature.

	2022	2021 Restated*
	£m	£m
Continuing operations		
Amortisation of acquired intangibles	**4.5**	5.0
Acquisition-related expenditure	**0.8**	1.7
Reorganisation costs		
- Purchases and disposals	**0.3**	2.0
- Other reorganisation costs	**5.9**	3.4
ERP implementation costs	**0.6**	-
CEO exit costs	**-**	1.5
Revaluation gain	**(0.3)**	-
Guaranteed Minimum Pensions ('GMP') equalisation	-	0.1
Total specific adjusting items from continuing operations before tax	**11.8**	13.7
Tax credit on specific adjusting items	**(2.3)**	(2.6)
Total specific adjusting items from continuing operations after tax	**9.5**	11.1
Specific adjusting items from discontinued operation		
Purchases and disposals	**1.3**	0.4
Total specific adjusting items after tax	**10.8**	11.5

* Comparative information has been re-presented due to a discontinued operation. See Note 3

Amortisation of acquired intangible assets
On acquisition of a business, the purchase price is allocated to assets such as customer contracts and relationships. Amortisation occurs on a straight-line basis over its useful economic life, which is between 2 and 9 years. During the year, certain "customer contracts and relationships" intangible assets reached the end of their economic life, resulting in a decrease in amortisation charges compared to the prior period. The current year charge includes £0.1m in respect of the amortisation of intangibles, predominantly customer relationships, acquired as part of the purchase of Inside Infrastructure Pty Ltd (Inside Infrastructure) in March 2022

Acquisition-related expenditure
Current year acquisition-related expenditure comprises £0.4m of external fees, earn out accruals and post-deal integration costs in respect of the acquisition of Inside Infrastructure. In addition, it includes a £0.1m retention amount paid to the former owners of PLC Consulting Pty Ltd, now Ricardo Energy Environment and Planning (REEP), which was acquired in July 2019, in accordance with the terms of the purchase agreement, and £0.3m of external fees in relation to other strategic projects.

The prior year charge comprises £1.6m of earn-out and employee retention costs, accrued in relation to Transport Engineering Pty Ltd (now Ricardo Rail Australia - RRA), acquired in May 2019, and REEP. Further details are provided in Note 14. In addition, £0.1m of fees were incurred on strategic projects in the year.

The above items have been classified as specific adjusting items as they meet the Group's definition of acquisition-related expenditure.

Reorganisation costs

Purchases and disposals

The current year charge of £0.3m (USD 0.4m) represents a reduction in the fair value of contingent consideration arising from the disposal of the Group's test facilities in Detroit in June 2020, in accordance with the treatment of the original proceeds. The test facilities were sold for up-front consideration of £2.8m (USD 3.5m), with up to an additional £1.5m (USD 2.0m)

7. Specific adjusting items (continued)

contingent on volume of testing work placed into the facility by Ricardo over a two-year period to 30 June 2022. The charge reflects a lower level of traditional engine test work than expected at the time of the sale. A similar charge of £0.5m (USD 0.8m) was recognised in the prior year. Ricardo received less than £0.1m (USD 0.1m) of contingent consideration in the year (2021: £0.2m (USD 0.3m)).

The prior year charge also included a £1.5m impairment charge as a result of a decrease in the fair value of the Detroit Technology Campus (DTC) South building, reflecting its market value at the balance sheet date. The impairment charge reflected the impact of COVID-19 on the property market at the time, with a significantly lower demand for office space depressing prices in the DTC area. The impairment was classified as a specific adjusting item as it was significant in value and would have distorted the underlying trading performance of the Group.

£1.3m of costs were recognised in the year in respect of external fees incurred in the disposal of Ricardo Software (2021: £0.4m). These costs have been recognised within the discontinued operation and have been classified as specific adjusting items as they are incremental costs which are directly attributable to the sale of the business.

Other reorganisation costs

A&I reorganisation costs £4.9m (2021: £3.4m): The current year charge reflects the commencement of a major restructuring programme to combine the three regional A&I businesses in, EMEA, US, and China, into one globally operated business, re-aligned around two key pillars: emerging technologies, focused on electrified propulsion, vehicle integration and software and digital services; and established mobility, focusing on high efficiency internal combustion engines (ICE) and emissions compliance. This programme has resulted in £5.3m of reorganisation costs in FY 2021/22, relating to:

- Headcount reductions (£2.3m): These redundancies have focused on senior management and administrative positions in the UK and China, as a result of the implementation of a more streamlined organisation structure. All redundancy costs relate to those staff members notified by 30 June 2022.
- Property downsizings and exits (£0.9m): The business has reduced its footprint in the Prague Technical Centre, with one floor being vacated, resulting in an impairment of the lease asset and the recognition of an onerous contract provision in relation to the ongoing service charges through to the end of the lease term in February 2027.
- The impairment of intangible assets (£2.0m): Following a detailed review of the asset base against the future strategy, assets relating to technologies and areas that the A&I business will no longer focus on or invest in were identified and impaired, with no significant further economic benefits expected to arise from these assets.
- External advisory and legal fees (£0.1m): External costs to support the programme.

The cash cost of the actions in the year was £0.5m. This programme will continue into the next financial year, where the Group expects to incur a similar level of income statement expense. The total cash cost of the programme is estimated to be in the region of £4.5m.

Current year reorganisation costs include a credit of £0.4m in respect of unutilised provisions from the prior year. During the prior year, £3.4m of reorganisation costs were incurred in the A&I business in EMEA, as a result of the challenging trading conditions and COVID-19, which combined to depress short-term workable orders and delay projects. This led to in headcount reductions (£2.5m, of which £2.1m was utilised in FY 2021/22), the exit from sites in Cambridge (£0.7m) and Germany (£0.1m), and the write off of equipment in the Santa Clara Technical Centre, which was exited in June 2020 (£0.1m). The cash cost of these actions in FY 2021/22 was £1.6m.

These costs have been included within specific adjusting items as they are significant in quantum and would otherwise distort the underlying trading performance of the Group.

Rail reorganisation costs £1.0m (2021: nil): The current year charge reflects the result of a significant review of the operational structure of the Rail business, aimed at creating a more flexible and agile business. Costs incurred related to the exit of a number of senior positions in the organisation, including associated legal and external fees. The review will continue into FY 2022/23. The cash cost of these actions in FY 2021/22 was £0.3m.

These costs have been included within specific adjusting items as they are significant in quantum and would otherwise distort the underlying trading performance of the Group.

ERP implementation costs

As a result of an IFRS Interpretations Committee (IFRIC) decision in March 2021, £0.5m of external costs incurred in the prior year in relation to the implementation of a new cloud-based ERP system within the PP segment have been expensed in the current period, together with £0.1m of expenditure in the current year. The prior year costs were previously capitalised in line with prevailing practice at the time the costs were incurred. They have been classified as a specific adjusting item as they are not reflective of the underlying performance of the business in the period. The ERP system is expected to have a useful life of at least five years.

CEO exit costs

In January 2021, the Board announced that CEO Dave Shemmans will be leaving the Group, after sixteen years in the role. Costs of £1.5m were accrued in the prior year, covering his settlement, external legal fees, and external recruitment fees to find a successor. The costs were recognised as specific adjusting items due to their non-recurring nature and quantum.

Revaluation gain

During the current year, an intercompany loan from Ricardo plc to Ricardo Investments Ltd, representing a quasi-equity investment in one of the Group's subsidiaries, was repaid. The loan was previously classed as not repayable in the foreseeable future under IAS 21 with any revaluation of the foreign currency loan recognised in the statement of Other Comprehensive Income. Following the repayment of the loan, a gain of £0.3m was reclassified from equity to the income statement, as required under IAS 21, and was reported as a specific adjusting item.

Guaranteed Minimum Pensions (GMP) equalisation

In the prior period, a charge of £0.1m was incurred in order to equalise male and female members' benefits for the effect of for historical transfers out of the Group's defined benefit pension scheme. The treatment of this cost as a specific adjusting item is consistent with the treatment of similar costs in prior years.

8. Earnings per share

Basic earnings per share is calculated by dividing the earnings attributable to ordinary shareholders by the weighted average number of shares outstanding during the year, excluding those held by an employee benefit trust for the Long-Term Incentive Plan ('LTIP') and by the Share Incentive Plan ('SIP') for the free share scheme which are treated as cancelled for the purposes of the calculation.

For diluted earnings per share, the weighted average number of ordinary shares in issue is adjusted to assume conversion of all dilutive potential ordinary shares. These include potential awards of LTIP shares and options granted to employees. The assumed proceeds from these is regarded as having been received at the average market price of ordinary shares during the year.

Reconciliations of the earnings and the weighted average number of shares used in the calculations are set out below. Underlying earnings per share is also shown because the Directors consider that this provides a useful indication of underlying performance and trends over time. There are no potentially dilutive shares (2021: Nil).

	2022	2021
	£m	£m
Earnings attributable to owners of the parent	**8.6**	1.7
Add back the net-of-tax impact of:		
- Amortisation of acquired intangibles	**3.2**	3.9
- Acquisition-related expenditure	**0.8**	1.6
- Asset purchases and disposals	**0.3**	1.5
- Other reorganisation costs	**4.9**	2.7
- ERP implementation costs	**0.5**	-
- Revaluation gain	**(0.2)**	-
- CEO exit costs	**-**	1.3
- Guaranteed Minimum Pensions ('GMP') equalisation	**-**	0.1
- Discontinued operation	**1.3**	0.4
Underlying earnings attributable to owners of the parent	**19.4**	13.2

	2022	2021
	Number of shares millions	Number of shares millions
Basic weighted average number of shares in issue	**62.2**	58.9
Effect of dilutive potential shares	**-**	-
Diluted weighted average number of shares in issue	**62.2**	58.9

	2022	2021
Earnings per share	**pence**	pence
Basic	**13.8**	2.9
Diluted	**13.8**	2.9

	2022	2021
Underlying earnings per share	**pence**	pence
Basic	**31.2**	22.4
Diluted	**31.2**	22.4

	2022	2021
Earnings per share from continuing operations	**pence**	pence
Basic	**13.2**	0.3
Diluted	**13.2**	0.3

	2022	2021
Earnings per share from discontinued operation	**pence**	pence
Basic	**0.6**	2.5
Diluted	**0.6**	2.5

9. Dividends

***Dividend accounting policy** – Note 1(i)*

	2022	2021
	£m	£m
Final dividend for prior period: 5.11p per share (2021: 0.00p) per share	**3.2**	-
Interim dividend for current period: 2.91p per share (2021: 1.75p) per share	**1.8**	1.1
Equity dividends paid	**5.0**	1.1

A dividend of £nil (2021: £0.1m) was issued during the year by a subsidiary of the Group to a non-controlling party of that subsidiary. A return of capital of £nil (2021: £0.2m) was made during the year by a subsidiary of the Group to a non-controlling party of that subsidiary.

10. Net finance costs

Net finance costs accounting policy – Note 1(j)

	2022	2021
	£m	£m
Finance income		
Bank interest receivable	**0.3**	0.4
Other interest receivable	-	0.2
Defined benefit pension financing income	**0.2**	-
Interest income on finance lease receivable	**0.1**	0.2
Total finance income	**0.6**	0.8
Finance costs		
Bank interest payable on borrowings	**(3.5)**	(4.4)
Interest expense on lease liabilities	**(0.9)**	(1.0)
Defined benefit pension financing costs	-	(0.1)
Total finance costs	**(4.4)**	(5.5)
Net finance costs	**(3.8)**	(4.7)

11. Auditor's remuneration

During the year the Group (including its subsidiaries) obtained the following services from the Group auditors and its associates:

Fees payable for services provided by the Company's auditor and its associates	2022 £k	2021 £k
Audit fees		
Statutory audit of the Company and its consolidated financial statements	**771**	322
Statutory audit of the Company's subsidiaries and their financial statements	**539**	380
Total audit fees	**1,310**	702
Non-audit fees		
Audit-related assurance services provided to the Company	**65**	42
Audit-related assurance services provided to the Company's subsidiaries	**-**	43
Total non-audit fees	**65**	85
Non-audit fees as a percentage of audit fees	**5.0%**	12.1%

Fees payable during the year to the Company's auditors and its associates for audit-related assurance services related to independent reviews, agreed-upon procedures and other services closely related to the audit of the Company and its subsidiaries. The current year charge includes £73,000 of additional fees in relation to the prior year audit which were agreed during the current year. Total audit fees have increased by 87% in the current year due to additional regulatory audit requirements.

Non-audit services comprised the Group's interim review and other audit-related assurance services.

12. Tax expense

***Tax expense accounting policy** – Note 1(k)*

	2022 £m	2021 £m
Current income tax		
UK corporation tax	**0.3**	-
Adjustments in respect of prior years	**-**	0.1
Total UK tax	**0.3**	0.1
Foreign corporation tax	**2.3**	0.9
Overseas withholding tax suffered	**0.1**	-
Adjustments in respect of prior years	**0.1**	0.1
Total foreign tax	**2.5**	1.0
Total current tax	**2.8**	1.1
Deferred tax		
Charge for the year	**0.6**	0.1
Adjustments in respect of prior years	**1.2**	(0.1)
Impact of change in UK tax rate	**-**	1.1
Total deferred tax	**1.8**	1.1
Total taxation	**4.6**	2.2
Tax on items recognised in other comprehensive income	**1.6**	2.0
Tax on items recognised directly in equity	**0.3**	-

The tax charge attributed to the discontinued operation is shown in Note 3.

Tax on items recognised in other comprehensive income relate to the tax impact of remeasurements of the defined benefit pension scheme and changes in tax rate. Tax on items recognised directly in equity relate to equity-settled share-based payment transactions.

12. Tax expense (continued)

The main rate of UK corporation tax for the year ending 30 June 2022 is 19%. The Finance Act 2020 reversed the decision to reduce the main rate from 19% to 17% from 1 April 2020. The Finance Act 2021, which was substantially enacted on 10 June 2021, announced that the main UK corporation tax rate will increase to 25% with effect from 1 April 2023. Deferred taxes in the UK have been measured at the corporation tax rate expected to apply to the reversal of the timing difference, resulting in a charge to the income statement of £1.1m in the prior year. Overseas deferred taxes at the reporting date have been measured and reflected in these financial statements by using the enacted rate within each jurisdiction. The tax charge for the year is higher (2021: higher) than the standard rate of corporation tax in the UK. The differences are set out below:

	2022	2021
	£m	£m
Profit before taxation	**13.2**	3.9
Multiplied by the standard rate of corporation tax in the UK of 19% (2021: 19%)	**2.5**	0.7
Effects of:		
Expenses not deductible for tax purposes	**0.1**	0.4
Government tax incentives[1]	**(0.3)**	(0.3)
Other overseas taxes[2]	**0.4**	0.6
Adjustment to the IFRIC 23 provision	**(0.4)**	(0.9)
Adjustments in respect of prior years	**1.2**	0.2
Deferred tax - change in UK tax rate	**0.5**	1.1
Changes in corporation tax rates	**0.6**	0.4
Total taxation	**4.6**	2.2

(1) Primarily relates to R&D tax credits.
(2) Primarily relates to withholding taxes.

The Group operates in a number of countries and is subject to taxation in numerous jurisdictions. Legislation related to taxation is complex and management are required to make judgements based on appropriate professional advice, and amounts provided are accrued based on management's interpretation of country-specific tax laws. In particular, management applies judgement in respect of ongoing tax audits around the Group, which can take a significant amount of time to be agreed with Tax Authorities. The Group estimates and accrues taxes that will ultimately be payable when reviews or audits by Tax Authorities of tax returns are completed. These estimates include judgements about the position expected to be taken by each Tax Authority.

Management judgement has also been required to ensure that appropriate transfer pricing is applied on all intra-group transactions, and in determining the amounts that would be undertaken on an arm's length basis. As a result, actual liabilities could differ from the amounts provided which could have a consequent impact on the results and net position of the Group.

None of the amounts are individually material and therefore there is not a significant risk of material differences in future periods.

CAPITAL BASE

13. Non-current assets by geographical location (excluding deferred tax assets)

Asset location	Note	2022 £m	2021 £m
United Kingdom		**103.1**	100.9
Australia		**31.5**	26.6
Netherlands		**20.4**	17.6
North America		**16.7**	22.4
Rest of the World		**25.0**	26.6
Total		**196.7**	194.1
Goodwill	*15*	**90.6**	84.7
Other intangible assets	*16*	**23.1**	33.9
Property, plant and equipment	*17*	**47.0**	46.9
Right-of-use assets	*18*	**18.3**	19.5
Retirement benefit surplus	*34*	**15.2**	6.8
Other receivables	*23*	**2.5**	2.3
Total		**196.7**	194.1

14. Acquisitions

(a) Acquisition in the year to 30 June 2022 – Inside Infrastructure

On 21 March 2022, the Group acquired the entire issued share capital of Inside Infrastructure Pty Ltd (Inside Infrastructure) for cash consideration of £5.6m (AUD 10.4m), which included an adjustment for cash and normalised net working capital of £0.5m (AUD 0.9m), paid during FY 2021/22. £0.6m (AUD 1.0m) of cash was acquired with the business.

Inside Infrastructure is an Australian technical advisory firm which specialises in water and sustainable resource management. The following tables set out the fair value of cash consideration payable to acquire Inside Infrastructure, together with the fair value of net assets acquired.

	Note	£m
Fair value of cash consideration		
Cash consideration		**5.6**
Total fair value of cash consideration		**5.6**
Fair value of identifiable net assets acquired		
Customer contracts	*16*	**2.0**
Property, plant and equipment - right of use	*18*	**0.4**
Trade, contract and other receivables		**0.3**
Cash and cash equivalents		**0.6**
Trade, contract and other payables		**(0.5)**
Lease liabilities	*18*	**(0.4)**
Deferred tax liabilities		**(0.6)**
Fair value of identifiable net assets acquired		**1.8**
Goodwill	*15*	**3.8**
Total fair value of cash consideration		**5.6**

14. Acquisitions (continued)

The maximum contingent cash payable is £0.6m (AUD 1.0m). The amounts payable will be based on the achievement of annual performance targets measured against the earnings before interest, tax, depreciation and amortisation of Inside Infrastructure during FY 2022/23. These payments are dependent upon the continuing employment of the sellers in the business, and are not considered to form part of the consideration for the acquisition. £0.1m (AUD 0.2m) has been recognised within specific adjusting items in order to reflect an accrual for the fair value of the expected service received during the current year (see Note 7).

Adjustments have been made for the recognition of customer-related intangible assets separable from goodwill amounting to £2.0m (AUD 3.6m). The fair value of the contingent cash consideration and provisional identifiable net assets acquired were identified in accordance with the requirements of IFRS 3 Business Combinations and the sale and purchase agreement. The provisional fair values identifiable net assets acquired may be adjusted in future in accordance with the requirements of IFRS 3 Business Combinations. Further work is required to quantify the value of long-term employee benefits due to the complex nature these calculations. Adjustments may be required to trade and other payables or to provisions as a result of this work. The amount of the adjustment is not expected to be significant.

The provisional goodwill arising on acquisition can be ascribed to the existence of a skilled assembled workforce, developed expertise and processes within the existing business. None of these meet the criteria for recognition as intangible assets separable from goodwill. None of the goodwill recognised on consolidation is expected to be deductible for tax purposes.

The net assets acquired of £1.8m (AUD 3.3m) included trade receivables of £0.3m (AUD 0.6m), all of which have been subsequently collected.

Acquisition-related expenditure of £0.3m representing transaction costs and costs incurred to integrate the business into the Group post-acquisition, plus £0.1m of amortisation on acquired intangibles, have been charged to the income statement for the year ended 30 June 2022 and are included as specific adjusting items in Note 7.

£0.9m of revenue and £0.1m profit after tax is included in the consolidated statement of comprehensive income in the current year in relation to Inside Infrastructure.

If the acquisition date for all business had occurred at the beginning of the financial year, a total of £3.1m revenue and £0.3m profit after tax would have been included in the consolidated statement of comprehensive income in the current year in relation to Inside Infrastructure.

(b) Acquisitions in the year to 30 June 2020 - PLC Consulting

On 31 July 2019, the Group acquired the entire issued share capital of PLC Consulting Pty Ltd (PLC Consulting) for initial cash consideration of £4.2m (AUD 7.4m), paid in November 2019. Following its acquisition the business was renamed Ricardo Energy, Environment and Planning (REEP).

The maximum contingent cash payable was £1.2m (AUD 2.2m). The amounts payable were based on the achievement of a range of annual performance targets measured against the earnings before interest, tax, depreciation and amortisation of PLC Consulting across a two-year earn-out period. These payments were dependent upon the continuing employment of the sellers in the business and are not considered to be consideration. Year one performance targets were achieved and £0.7m (AUD 1.3m) was paid in October 2020 in respect of the year one earn out. Whilst performance targets were achieved in the year to 30 June 2021, the maximum contingent cash was not payable as one of the sellers left the business during that year. An accrual of £0.5m (AUD 0.9m) was recognised as at 30 June 2021, and paid during the current financial year. An additional retention payment of £0.1m was recognised in the current year. The related costs were included within specific adjusting items (see Note 7). No further costs are expected in future periods.

(c) Acquisitions in the year to 30 June 2019 – Transport Engineering

On 31 May 2019, the Group acquired the entire issued share capital of Transport Engineering Pty Ltd (Transport Engineering) for initial cash consideration payable of £21.7m (AUD 39.5m), paid in August 2019, together with the accrued fair value of contingent cash consideration payable of £5.1m (AUD 9.4m). Following its acquisition the business was renamed Ricardo Rail Australia (RRA).

The maximum contingent cash consideration payable was £8.1m (AUD 15.0m). The fair value of the contingent cash consideration was considered to be Level 3 of the fair value hierarchy within IFRS 13 Fair Value Measurement. The fair value was valued based on a financial forecast using the Group's own data, with a probability applied for the likely outcome. Significant unobservable inputs are order intake, pipeline of opportunities and historical performance. The stronger these inputs, the higher the estimated fair value. The amounts payable were based on the achievement of annual performance targets measured against the profit before tax of Transport Engineering across a two-year earn-out period. Each earn-out was only payable in full if the performance target was achieved.

Year one performance targets were achieved, and £4.3m (AUD 7.8m) was paid in October 2020 in respect of the year one earn out. A charge of £1.9m (AUD 3.5m) was recognised within specific adjusting items to reflect the change in fair value during the year ended 30 June 2020. The increase in the fair value of the contingent consideration between 30 June 2020 and 30 June 2021 of £1.1m (AUD 1.9m), including the unwind in the discount rate, was charged to the income statement within specific adjusting items (see Note 7). A final payment of £4.4m (AUD 7.2m) was made during the current year.

15. Goodwill

Goodwill accounting policy *– Note 1(l)*
Critical judgement on carrying value of Goodwill: CGUs *– Note 1(d)*
Key sources of estimation uncertainty on carrying value of Goodwill *– Note 1(d)*

Movement in goodwill	Note	2022 £m	2021 £m
At 1 July		**84.7**	87.8
Acquisition of business[1]	*14*	**3.8**	-
Exchange adjustments		**2.1**	(3.1)
At 30 June		**90.6**	84.7

The carrying value of goodwill and the key assumptions used in determining the recoverable amount of each CGU, or group of CGUs, are as follows:

	Carrying value		Pre-tax discount rate		Long-term growth rate	
Scheme movements	**2022 £m**	2021 £m	**2022 £m**	2021 £m	**2022 £m**	2021 £m
Rail	**46.2**	44.9	**12.3%**	10.8%	**3.1%**	3.6%
Automotive and Industrial - Established[2]	**5.0**	-	**13.1%**	-	**(10.0%)**	-
Automotive and Industrial - Emerging[2]	**14.6**	-	**13.3%**	-	**3.0%**	-
Automotive and Industrial - EMEA[2]	**-**	19.6	-	13.2%	**-**	*
Energy and Environment[1]	**20.0**	15.9	**13.8%**	12.5%	**2.8%**	4.7%
Defense	**3.7**	3.2	**13.8%**	14.3%	**-**	3.4%
Performance Products	**1.1**	1.1	**14.0%**	12.9%	**1.7%**	0.4%
At 30 June	**90.6**	84.7				

(1) As set out in further detail in Note 14(a), the Group acquired Inside Infrastructure on 21 March 2022, adding goodwill of £3.8m to the Energy and Environment CGU.
(2) During the year, the Group reorganised its Automotive and Industrial (A&I) business from a regional to a global structure (see Notes 5 and 7). The five-year plan for this segment has been prepared based on established mobility and emerging technologies, and this distinction is expected to be reflected in the operating segments in future years. Goodwill was allocated to these groups of CGUs using a relative value approach, and the review of goodwill for impairment was carried out at this level (see Note 1(d)).
(*) See key assumptions below.

Key assumptions

The five-year plan and discounted cash flow calculations thereon provide a value in use which supports the carrying value of the goodwill allocated to each CGU, or group of CGUs, at 30 June 2022, resulting in no impairment for the year (2021: Nil). The five-year cashflow forecasts are based on the budget for the following year (year one) and the business plans for years two to five. The five-year plan is prepared by management, and is reviewed and approved by the Board. The five-year plan reflects past experience, management's assessment of the current contract portfolio, contract wins, contract retention, price increases, gross margin, as well as future expected market trends (including the impact of climate change, where relevant), adjusted to meet the requirements of IAS 36 Impairment of Assets.

The risks associated with climate change which have been incorporated into the five-year planning process include the known and expected increased regulation in relation the use of the internal combustion engine (ICE) and the impact that will have on our customers operating in this market. The five-year planning process takes into account the requirement to adapt our product and service portfolios in response to megatrends influenced by climate change. Some risks, such as the risk of sea level rise (see discussion of Principal Risks on page 58 of the Annual Report) are expected to arise outside of the timeline of the five-year plan and are not considered sufficiently quantifiable to include in the longer-term element of the value-in-use calculation. No other individually significant key financial risks or expenditures have been identified and any additional costs of meeting our net zero objective are not expected to be significant.

Cash flows beyond year five are projected into perpetuity using a long-term growth rate, which is determined as being the lower of the planned compound annual growth rate in each CGU's, or group of CGU's, five-year plan and external third party forecasts of the prevailing inflation and economic growth rates for each of the territories in which each CGU, or group of CGUs, primarily operates.

Global A&I cashflows were analysed into cashflows expected to arise directly from revenues related to established mobility, such as fossil fuel internal combustion engines, and those related to emerging technologies, such as electrification. Due to regulatory and other changes in the market relating to ICE, a long-term decrease of 10% p.a. has been applied to established

15. Goodwill (continued)

mobility cashflows, and a long-term growth rate of 3% p.a., based on prevailing inflation and economic growth by territory, has been applied to the emerging technologies cashflows.

The cash flows are discounted at a pre-tax discount rate, which is derived from externally sourced data and reflects the current market assessment of the Group's time value of money and risks specific to each CGU.

Research and Development Expenditure Credits (RDEC) cashflows are included in the value-in-use calculations for A&I - Established, A&I - Emerging, Performance Products and Energy and Environment. They are material to the A&I Established and A&I Emerging groups of CGUs and have been included, taking into account known changes to legislation, on the basis that there is no indication that the UK government will withdraw this benefit.

Sensitivities

The value-in-use calculations were assessed for sensitivity to reasonably possible changes to assumptions. The change in pre-tax discount rate, growth rate, operating profit and working capital which would cause the unit's (or group of units') carrying amount to exceed its recoverable amount was identified and an assessment made as to whether that change was considered reasonably possible. The following changes in assumptions, resulting in carrying amount exceeding the recoverable amount of goodwill, were identified:

- A&I Established: A reduction of 19% in operating profit levels. A reduction in operating profit of this magnitude is considered reasonably possible, given the current and projected levels of profitability in the plan.
- Rail: An increase in the pre-tax discount rate of 2.1%. An increase in discount rates of this magnitude is considered reasonably possible given the current macroeconomic uncertainty.

No other reasonably possible changes to individual assumptions were identified which would cause the carrying amount of a unit's (or group of units') goodwill to exceed its recoverable amount.

In addition, a scenario was modelled combining each of a 10% reduction in operating profit, a 10% increase in working capital movement, a 2% increase in the pre-tax discount rate and a 2% decrease in the long-term growth rate. The combined scenario would result in an impairment of £0.7m to A&I Established goodwill, £1.5m to Performance Products goodwill, and £21.3m to Rail. No impairment would be recognised against other goodwill balances.

A scenario was calculated excluding the benefits arising from RDEC. This scenario did not result in an impairment of any goodwill balance.

16. Other intangible assets

Other intangible assets accounting policy *– Note 1(m)*
Critical judgement on recoverability of capitalised development costs *– Note 1(c)*

	Acquired intangible assets				
	Customer contracts and relationships	Software and technology	Software	Development costs	Total
	£m	£m	£m	£m	£m
Cost					
At 1 July 2020	39.2	2.2	23.9	37.2	102.5
Additions	-	-	0.4	8.5	8.9
Disposals	-	-	(0.8)	(0.2)	(1.0)
Reclassifications	-	-	0.3	(0.2)	0.1
Exchange rate adjustments	(1.2)	(0.1)	(0.2)	(2.1)	(3.6)
At 30 June 2021	38.0	2.1	23.6	43.2	106.9
At 1 July 2021	**38.0**	**2.1**	**23.6**	**43.2**	**106.9**
Acquisition of business	**2.0**	-	-	-	**2.0**
Additions	-	-	**0.6**	**7.3**	**7.9**
Disposals	-	-	**(1.5)**	**(17.4)**	**(18.9)**
Reclassified to held-for-sale	-	-	-	**(14.0)**	**(14.0)**
Reclassifications	-	-	**0.2**	**(0.7)**	**(0.5)**
Exchange rate adjustments	**1.1**	-	**0.4**	**2.1**	**3.6**
At 30 June 2022	**41.1**	**2.1**	**23.3**	**20.5**	**87.0**
Accumulated amortisation					
At 1 July 2020	23.5	2.1	18.6	18.4	62.6
Charge for the period	5.0	0.1	1.6	6.5	13.2
Disposals	-	-	(0.8)	(0.2)	(1.0)
Reclassifications	-	-	0.3	0.1	0.4
Exchange rate adjustments	(0.7)	(0.2)	(0.2)	(1.1)	(2.2)
At 30 June 2021	27.8	2.0	19.5	23.7	73.0
At 1 July 2021	**27.8**	**2.0**	**19.5**	**23.7**	**73.0**
Charge for the period	**4.5**	-	**1.5**	**6.6**	**12.6**
Impairment charge	-	-	**0.2**	**2.0**	**2.2**
Disposals	-	-	**(1.4)**	**(17.4)**	**(18.8)**
Reclassified to held-for-sale	-	-	-	**(7.0)**	**(7.0)**
Exchange rate adjustments	**0.8**	**0.1**	**0.3**	**0.7**	**1.9**
At 30 June 2022	**33.1**	**2.1**	**20.1**	**8.6**	**63.9**
Net book value					
At 1 July 2020	15.7	0.1	5.3	18.8	39.9
At 30 June 2021	10.2	0.1	4.1	19.5	33.9
At 30 June 2022	**8.0**	-	**3.2**	**11.9**	**23.1**

16. Other intangible assets (continued)

Customer contracts and relationships were primarily identified as part of the previous acquisitions LR Rail and Transport Engineering (see Note 14(b)). The assets specific to these acquisitions have carrying values of £2.1m (2021: £3.8m) and £3.9m (2021: £5.7m) and have remaining amortisation periods of two years. Customer contracts and relationships were also identified as part of the acquisition in the current year of Inside Infrastructure (see Note 14(a)) having a carrying value of £2.0m and a remaining amortisation period of six years.

Software which is not acquired through business combinations primarily comprises costs that have been capitalised in respect of an internally developed ERP system. The ERP system has a carrying value of £0.7m (2021: £1.0m) and has a remaining amortisation period of one year. Software includes £0.1m (2021: £0.7m) in respect of assets under construction which are not being amortised until the assets are made available for use.

Development costs are incurred to develop and regularly update a suite of simulation and analysis software tools used in the Automotive sector, but also with applications in other sectors. These assets were classified as held-for sale at the year-end as part of the Software disposal group (see Note 19). Following a detailed review of the asset base against the future strategy, assets relating to technologies and areas that the A&I business will no longer focus on or invest in were identified and derecognised, as no significant further economic benefits are expected to arise from these assets, resulting in a charge to the income statement of £2.0m (see Note 7). Development costs also include a patented system that combines anti-lock braking and electronic stability control (ABS brake kits) to mitigate rollover fatalities commonly associated with the High Mobility Multipurpose Wheeled Vehicle (HMMWV or Humvee). This asset has a carrying value of £1.7m (2021: £2.3m). £0.5m of ABS brake kit tooling costs previously classified to development costs have been reclassified to plant and machinery to more accurately reflect the nature of the assets (see also Note 17).

In addition, development costs include £4.6m (2021: £2.6m) in respect of assets under construction which are not being amortised until the assets are made available for use. Development costs under construction include new technology, tools and processes in the A&I and EE segments.

The amortisation charge of £12.6m (2021: £13.0m) is comprised of £2.7m (2021: £4.3m) included within cost of sales and £9.9m (2021: £8.7m) included within administrative expenses in the income statement, of which £4.5m (2021: £5.0m) relates to acquired intangible assets and is presented within specific adjusting items, as set out in Note 7.

17. Property, plant and equipment

***Property, plant and equipment accounting policy** – Note 1(n)*

	Freehold land and buildings	Leasehold properties	Plant and machinery	Fixtures, fittings and equipment	Total
	£m	£m	£m	£m	£m
Cost					
At 1 July 2020	21.1	4.4	82.3	24.4	132.2
Additions	-	0.3	2.8	1.2	4.3
Disposals	-	(0.8)	(1.0)	(1.7)	(3.5)
Reclassified from held-for-sale	10.7	-	-	-	10.7
Reclassifications	0.3	0.5	(1.6)	0.7	(0.1)
Exchange rate adjustments	(0.1)	(0.1)	(0.3)	(0.5)	(1.0)
At 30 June 2021	32.0	4.3	82.2	24.1	142.6
At 1 July 2021	**32.0**	**4.3**	**82.2**	**24.1**	**142.6**
Additions	**0.2**	**0.5**	**2.1**	**1.9**	**4.7**
Disposals	**(0.1)**	**(0.4)**	**(4.9)**	**(4.4)**	**(9.8)**
Reclassified to held-for-sale	-	-	-	**(0.3)**	**(0.3)**
Reclassifications	**(0.1)**	**(0.1)**	**0.7**	**(0.1)**	**0.4**
Exchange rate adjustments	**1.5**	**0.1**	**0.4**	**0.7**	**2.7**
At 30 June 2022	**33.5**	**4.4**	**80.5**	**21.9**	**140.3**
Accumulated depreciation and impairment					
At 1 July 2020	4.9	2.2	61.0	18.7	86.8
Charge for the period	0.4	0.4	3.0	1.9	5.7
Impairment loss	-	0.3	-	-	0.3
Disposals	-	(0.8)	(1.0)	(1.7)	(3.5)
Reclassified from held-for-sale	7.4	-	-	-	7.4
Reclassifications	0.9	0.3	(1.1)	(0.5)	(0.4)
Exchange rate adjustments	(0.1)	-	(0.1)	(0.4)	(0.6)
At 30 June 2021	13.5	2.4	61.8	18.0	95.7
At 1 July 2021	**13.5**	**2.4**	**61.8**	**18.0**	**95.7**
Charge for the period	**0.5**	**0.3**	**3.1**	**1.8**	**5.7**
Disposals	**(0.1)**	**(0.3)**	**(4.8)**	**(4.4)**	**(9.6)**
Reclassified to held-for-sale	-	-	-	**(0.2)**	**(0.2)**
Reclassifications	-	**(0.1)**	-	-	**(0.1)**
Exchange rate adjustments	**1.1**	-	**0.1**	**0.6**	**1.8**
At 30 June 2022	**15.0**	**2.3**	**60.2**	**15.8**	**93.3**
Net book value					
At 1 July 2020	16.2	2.2	21.3	5.7	45.4
At 30 June 2021	18.5	1.9	20.4	6.1	46.9
At 30 June 2022	**18.5**	**2.1**	**20.3**	**6.1**	**47.0**

Current year plant and machinery additions are presented net of a £1.5m government grant.

The carrying value of assets under construction included in property, plant and equipment amounts to £4.1m (2021: £6.4m). The current year value of assets under construction includes £2.3m relating to test cells and related equipment. The prior year value of assets under construction included £5.1m relating to a hybrid powertrain rig, which was placed in use in the current year.

At 30 June 2022, the Group had plant and machinery financed through a hire-purchase agreement and secured on the asset (see Note 25) with a carrying value of £0.6m (2021: £0.6m). As disclosed in Note 36, a guarantee was provided to the Ricardo Group Pension Fund ('RGPF') of £2.8m in respect of certain contingent liabilities that may arise, which have been secured on freehold land and buildings with a carrying value of £14.8m (2021: £15.2m).

At 30 June 2022, contracts had been placed for future capital expenditure, which have not been provided for in the financial statements, amounting to £1.1m (2021: £2.4m). £0.5m of ABS brake kit tooling costs previously classified to development costs have been reclassified to plant and machinery to more accurately reflect the nature of the assets (see also Note 16).

18. Right-of-use assets, lease liabilities and lease receivables

***Leases accounting policy** – Note 1(o)*

(a) Leasing activities as lessee

The Group leases various office premises and technical centres, vehicles and other equipment.

Lease terms are negotiated on an individual basis and contain a wide range of different terms and conditions. The lease agreements do not impose any covenants. Leased assets may not be used as security for borrowing purposes. Property lease terms range from one to 21 years, with an average of six years, and may have extension or termination options. The impact of exercising these options, where not currently considered reasonably certain, is quantified below. There are several property subleases within the Group - see Note 18(b) below. Other lease terms range from one to five years, with an average of three years. Where leases are short-term and/or leases of low-value items, the Group has elected not to recognise right-of-use assets and lease liabilities for these leases.

Information about leases for which the Group is a lessee is presented below.

(i) Right-of-use assets

	Property	Plant and machinery	Fixtures, fittings and equipment	Total
	£m	£m	£m	£m
Cost				
At 1 July 2020	34.6	1.0	0.4	36.0
Additions	2.0	0.2	0.2	2.4
Disposals	(1.5)	(0.2)	-	(1.7)
Remeasurements	(0.4)	(0.1)	-	(0.5)
Exchange rate adjustments	(0.8)	-	-	(0.8)
At 30 June 2021	33.9	0.9	0.6	35.4
At 1 July 2021	**33.9**	**0.9**	**0.6**	**35.4**
Arising on acquisition	**0.4**	**-**	**-**	**0.4**
Additions	**4.1**	**0.2**	**0.4**	**4.7**
Disposals	**(6.2)**	**(0.2)**	**-**	**(6.4)**
Remeasurements	**(2.0)**	**-**	**-**	**(2.0)**
Exchange rate adjustments	**0.5**	**-**	**-**	**0.5**
At 30 June 2022	**30.7**	**0.9**	**1.0**	**32.6**
Accumulated depreciation and impairment				
At 1 July 2020	11.6	0.4	0.1	12.1
Charge for the period	5.2	0.4	0.1	5.7
Impairment loss	0.2	-	-	0.2
Disposals	(1.5)	(0.2)	-	(1.7)
Exchange rate adjustments	(0.4)	-	-	(0.4)
At 30 June 2021	15.1	0.6	0.2	15.9
At 1 July 2021	**15.1**	**0.6**	**0.2**	**15.9**
Charge for the period	**3.5**	**0.3**	**0.2**	**4.0**
Impairment loss	**0.6**	**-**	**-**	**0.6**
Disposals	**(6.2)**	**(0.2)**	**-**	**(6.4)**
Exchange rate adjustments	**0.2**	**-**	**-**	**0.2**
At 30 June 2022	**13.2**	**0.7**	**0.4**	**14.3**
Net book value				
At 1 July 2020	23.0	0.6	0.3	23.9
At 30 June 2021	18.8	0.3	0.4	19.5
At 30 June 2022	**17.5**	**0.2**	**0.6**	**18.3**

18. Right-of-use assets, lease liabilities and lease receivables (continued)

During the current period, an impairment charge of £0.6m was recognised in respect of the decision to reduce occupancy of the Prague office. The charge reflects a reduction in the carrying value for part of the site to value-in-use based on expected sublease income, which is expected to be higher than the fair value less costs of disposal. In the prior period, an impairment charge of £0.1m was recognised in respect of the decision to exit the Cambridge Technical Centre, and £0.1m was recognised in relation to the planned surrender of the Schwäbisch Gmünd site. These costs are recognised within administrative expenses and included in "Reorganisation costs: Other reorganisation costs" within specific adjusting items (Note 7).

Other reassessments of lease terms resulted in a remeasurements which decreased both right-of-use assets and lease liabilities by £2.0m (2021: £0.5m). In the current year, these reassessments included a remeasurement related to the surrender of the Schwäbisch Gmünd site (£1.5m).

The net book value of Property above is shown net of £0.8m (2021: £0.9m) in respect of consideration received as part of a historical sale and leaseback transaction, deemed to be an incentive for extending the lease term.

The lessee's incremental borrowing rate applied to lease liabilities recognised in the statement of financial position at the date of initial application vary due to length and geographical location and are as follows:

- Property – 0.9% to 5.0%
- Plant and machinery – 0.6% to 4.2%
- Fixtures, fittings and equipment – 0.9% to 4.0%

The following amounts are included in the income statement relating to short-term and low value leases:

	2022	2021
Short-term leases	**0.7**	0.5
Low-value leases (excluding short-term leases above)	**-**	0.1
	0.7	0.6

As at 30 June 2022, potential future cash outflows of £4.4m (undiscounted) (2021: £9.6m) have not been included in the lease liability because it is not reasonably certain that the leases will be extended, or not terminated.

(ii) Lease liabilities

Movement in lease liability	*Note*	**2022 £m**	2021 £m
At 1 July		**24.3**	29.3
Arising on acquisition		**0.4**	-
New leases		**4.7**	2.6
Interest	*10*	**0.9**	1.0
Payments		**(5.4)**	(7.3)
Remeasurements		**(2.0)**	(0.5)
Exchange rate adjustments		**0.4**	(0.8)
At 30 June		**23.3**	24.3

Maturity of lease liability	**2022 £m**	2021 £m
Current liabilities - maturing within one year	**5.0**	5.5
Non-current liabilities - maturing after one year	**18.3**	18.8
At 30 June	**23.3**	24.3

The maturity analysis of this liability is shown Note 28(c).

18. Right-of-use assets, lease liabilities and lease receivables (continued)

(b) Leasing activities as lessor

The Group subleases out several parts of its leased property. All subleases are classified as operating leases from a lessor perspective with the exception of one sublease, which the Group has classified as a finance sublease.

For significant subleases, a dilapidations provision is put in place to minimise the risk related to the value of the residual asset.

Information about leases for which the Group is a lessor is presented below.

(i) Finance lease

During the year, the Group recognised finance income of £0.1m (2021: £0.2m) relating to its lease receivable.

The following table sets out the movements in the lease receivable balance during the year.

Movement in lease receivable	*Note*	**2022 £m**	2021 £m
At 1 July		**2.0**	2.3
Interest	*10*	**0.1**	0.2
Receipts		**(0.2)**	(0.2)
Exchange rate adjustments		**0.2**	(0.3)
At 30 June		**2.1**	2.0

The following table sets out a maturity analysis of lease receivable, showing the undiscounted lease payments to be received after the reporting date:

Maturity of lease receivable	**2022 £m**	2021 £m
Less than one year	**0.2**	0.2
One to two years	**0.2**	0.2
Two to three years	**0.2**	0.2
Three to four years	**0.2**	0.2
Four to five years	**0.2**	0.2
More than five years	**1.8**	1.7
Undiscounted lease receivable	**2.8**	2.7
Unearned finance income	**(0.7)**	(0.7)
Net investment in the lease	**2.1**	2.0

This is a back-to-back lease with a right-of-use asset. As a finance lease this is included in other receivables. See Note 23.

(ii) Operating lease

During the year, the Group recognised rental income of £0.5m (2021: £1.1m) relating to operating leases.

The following table sets out a maturity analysis of lease payments, showing the undiscounted lease payments to be received after the reporting date.

Operating lease income	**2022 £m**	2021 Restated* £m
Less than one year	**0.4**	0.6
One to two years	**0.4**	0.3
Two to three years	**0.4**	0.3
Three to four years	**0.3**	0.3
Four to five years	**-**	0.1
	1.5	1.6

*The prior year amount is restated for amounts due in more than five years, which were previously shown as £1.6m.

19. Disposal group held for sale and non-current assets held for sale

***Discontinued operations and held for sale accounting policy** – Note 1(c)*

The Group's software business was classified as held for sale at 30 June 2022. An offer had been agreed with a buyer and was subject to National Security and Investment Act (NSIA) clearance. Clearance was received on 26 July 2022, and the sale completed on 1 August 2022 - see Note 39.

The fair value less costs to dispose of the disposal group is considered to exceed its carrying value immediately prior to its classification as held for sale. No impairment loss was therefore recognised on reclassification of the disposal group as held for sale.

The value of assets and liabilities included in the disposal group are as follows:

	Note	**2022** £m	2021 £m
Other intangible assets	*16*	**7.0**	-
Property, plant and equipment	*17*	**0.1**	-
Trade, contract and other receivables	*23*	**1.4**	-
Cash and cash equivalents	*25*	**1.1**	-
Assets held for sale		**9.6**	-
Trade, contract and other payables	*24*	**3.4**	-
Liabilities held for sale		**3.4**	-

Other reserves includes £1.0m in other reserves relating to exchange impacts in relation to the disposal group which were historically recognised via other comprehensive income.

Movements on non-current assets held for sale are as follows:

Movements on non-current assets held for sale	**Other intangible assets £m**	**Property, plant and equipment £m**	**Total £m**
At 1 July 2020	-	5.3	5.3
Impairment loss	-	(1.5)	(1.5)
Transferred from non-current assets	-	(3.3)	(3.3)
Exchange rate adjustments	-	(0.5)	(0.5)
At 30 June 2021	-	-	-
At 1 July 2021	-	-	-
Transferred from non-current assets	**7.0**	**0.1**	**7.1**
At 30 June 2022	**7.0**	**0.1**	**7.1**

At 30 June 2020, the DTC south building was being marketed and remained held for sale. On 18 January 2021, it was no longer deemed to be highly probable to be sold within one year, and was reclassified back to property, plant and equipment. It remains unsold at the current period end. An impairment charge of £1.5m was recognised within specific adjusting items in the prior year, included within the A&I segment and within administrative expenses in the reported result.

20. Provisions for liabilities and charges

***Provisions for liabilities and charges accounting policy** – Note 1(p)*

	Warranty	Restructuring costs	Employment-related benefits	Other	Total
	£m	£m	£m	£m	£m
At 1 July 2020	2.8	1.7	1.6	0.4	6.5
Charged to the income statement	1.2	3.2	0.4	0.2	5.0
Utilised in the period	(0.4)	(2.9)	(0.1)	(0.1)	(3.5)
Released in the period	(0.2)	(0.1)	-	-	(0.3)
Exchange rate adjustments	-	(0.2)	(0.1)	-	(0.3)
At 30 June 2021	3.4	1.7	1.8	0.5	7.4
At 1 July 2021	**3.4**	**1.7**	**1.8**	**0.5**	**7.4**
Charged to the income statement	**1.9**	**2.2**	**0.5**	**0.2**	**4.8**
Utilised in the period	**(1.5)**	**(1.5)**	**(0.3)**	**-**	**(3.3)**
Released in the period	**(0.4)**	**-**	**-**	**(0.1)**	**(0.5)**
Exchange rate adjustments	**-**	**0.1**	**-**	**(0.1)**	**-**
At 30 June 2022	**3.4**	**2.5**	**2.0**	**0.5**	**8.4**

	2022	2021
	£m	£m
Current	**5.1**	4.0
Non-current	**3.3**	3.4
At 30 June	**8.4**	7.4

The warranty provision reflects the Directors' best estimate of the cost required to fulfil the Group's assurance-type warranty obligations within a number of contracts. Subsequent to their initial recognition, warranty provisions are utilised or released over the periods of the various warranty obligations, which are expected to be less than five years.

The provision for restructuring costs included amounts payable to former employees who have been made redundant, primarily as part of the reorganisation of our A&I and Rail segments, as set out in further detail in Note 7. The element of the provision relating to redundancy costs was partially utilised during the year with the remaining balance expected to be utilised in less than one year. Provisions for service charge costs of the remaining lease period on onerous lease contracts is also included above.

Employment-related benefits are statutory provisions which include long-service awards and termination indemnity schemes. The timing of the cash outflows is dependent upon the retirement or attrition of employees, but is predominantly expected to be more than five years.

Other provisions comprise expected costs of legal claims and litigation, together with dilapidation and restoration costs for leasehold property. The associated cash outflows for legal claims and litigation are predominantly expected to be less than one year. Dilapidation and restoration costs reflects the Directors' best estimate of future obligations relating to the maintenance and restoration of leasehold properties arising from past contractual commitments to new, extended or terminated lease agreements. Restoration costs expected at the commencement of the lease are included within the right-of-use asset value (see Note 18(a)). The timing of the cash outflows is dependent upon the remaining term of the associated leases and are subject to negotiation.

21. Deferred tax

This note explains how our Group deferred tax charge arises and also provides information on our expected future tax charges and sets out the tax assets held across the Group together with our view on whether or not we expect to be able to make use of these in the future.

***Deferred tax accounting policy** – Note 1(q)*

	2022	2021
Non-current	**£m**	£m
Assets	**9.0**	8.3
Liabilities	**(12.7)**	(8.2)
At 30 June	**(3.7)**	0.1

	Accelerated capital allowances	Defined benefit obligation	Tax losses and credits	Unrealised capital gains	Other	Total
	£m	£m	£m	£m	£m	£m
At 1 July 2020	(4.6)	1.2	7.6	(0.4)	-	3.8
Reclassification	-	-	-	-	(1.9)	(1.9)
Credited to income statement	0.6	(0.9)	0.1	(0.3)	2.4	1.9
Charged to other comprehensive income	-	(2.0)	-	-	-	(2.0)
Impact of change in tax rate	(1.5)	0.4	-	-	-	(1.1)
Exchange rate adjustments	-	-	-	-	(0.6)	(0.6)
At 30 June 2021	(5.5)	(1.3)	7.7	(0.7)	(0.1)	0.1
At 1 July 2021	**(5.5)**	**(1.3)**	**7.7**	**(0.7)**	**(0.1)**	**0.1**
Arising on acquisition	**-**	**-**	**-**	**-**	**(0.6)**	**(0.6)**
Credited to income statement	**(1.1)**	**(0.9)**	**(1.5)**	**-**	**1.7**	**(1.8)**
Charged to other comprehensive income	**-**	**(1.6)**	**-**	**-**	**-**	**(1.6)**
Credited directly to equity	**-**	**-**	**-**	**-**	**(0.3)**	**(0.3)**
Exchange rate adjustments	**-**	**-**	**-**	**-**	**0.5**	**0.5**
At 30 June 2022	**(6.6)**	**(3.8)**	**6.2**	**(0.7)**	**1.2**	**(3.7)**

At 30 June 2022, a deferred tax liability of £0.5m is recognised on temporary differences associated with the undistributed earnings of subsidiaries. The Group controls the timing of payment of these undistributed earnings and would suffer a withholding tax charge on these, when remitted to the United Kingdom.

The Finance Act 2020 reversed the decision to reduce the main rate from 19% to 17% from 1 April 2020. The Finance Act 2021, which was substantially enacted on 10 June 2021, announced that the main UK corporation tax rate will increase to 25% with effect from 1 April 2023. Deferred taxes in the UK have been measured at the corporation tax rate expected to apply to the reversal of the timing difference, resulting in a charge to the income statement of £1.1m in the prior year (see also Note 12).

A deferred tax asset continues to be recognised in the United States as at 30 June 2022 in respect of historic research and development claims ('R&D credits') that can be utilised against future taxable profits. These R&D credits carry a 20-year statute of limitation and must be utilised within that period. The carrying value of the R&D credits recognised at 30 June 2022 is £4.3m (USD 5.7m) (2021: £4.9m (USD 6.5m)).

The Directors have performed an assessment and consider that it is probable that future taxable profits will be available in the United States against which the carrying value of the recognised deferred tax asset for the R&D credits can be utilised in the foreseeable future. This assessment was based on a review of the projected annual profit before tax of the consolidated tax group in the United States, based upon the latest Board-approved budgets and business plans for the next three years, together with long-term growth assumptions based on prevailing inflation and economic growth rates. Based on the 'base case' assumptions, the entire deferred tax asset is forecast to be predominantly utilised by 30 June 2023. The assessment was subject to reverse-stress testing, the results of which did not change management's view of the recoverability of the asset.

In addition, a deferred tax asset is recognised in the United Kingdom on trading losses of £5.0m (2021: £4.4m) incurred in the year ending 30 June 2022. The Directors have made a decision to carry these losses forward to offset against future taxable profits in the UK. Based on an assessment carried out by the Directors it probable that future taxable profits will be available in the United Kingdom against which the carrying value of the recognised deferred tax asset can be utilised in the foreseeable future. This assessment has been based on projected annual profit before tax of the consolidated tax group in the United Kingdom based upon the latest Board-approved budgets and business plans for the next three years, together with long-term growth assumptions based on prevailing inflation and economic growth rates. The trading losses have no expiry date. A deferred tax asset has not been recognised on capital losses of £0.3m.

21. Deferred tax (continued)

The tax losses incurred in Germany as at 30 June 2022, for which no deferred tax asset has been provided, amounts to £31m (EUR 36m) (2021: £34m, EUR 39m). Due to the restructuring in Germany and the reduction in activity in Germany in recent years, the Directors consider it unlikely that sufficient future taxable profits will be available in Germany in the foreseeable future against which the carrying value of the brought forward deferred tax asset can be utilised. In the prior year comparatives, the deferred tax asset and deferred tax liability balances have been netted off where they relate to the same class of temporary differences across all of the tax jurisdictions. However, under IAS 12 the deferred tax balances are netted off when relate to the same tax jurisdiction and when an entity has a legally enforceable right to set off current tax assets against current tax liabilities. The effect of changing the presentation to follow this approach would have been that deferred tax assets and deferred tax liabilities both increased by £1.4m. This has been adjusted for in the current year's balance sheet. Comparative numbers have not been changed as management do not consider this to be material to users of the financial statements.

WORKING CAPITAL

22. Inventories

Inventories accounting policy *– Note 1(r)*

	2022	2021
	£m	£m
Raw materials and consumables	**15.6**	10.8
Work in progress	**4.2**	4.4
Finished goods	**1.2**	1.7
At 30 June	**21.0**	16.9

Inventories of £53.8m (2021: £50.6m) were recognised as an expense during the year and included in cost of sales. During the year £0.5m (2021: £0.4m) of inventory was written down and also included in cost of sales.

23. Trade, contract and other receivables

Trade, contract and other receivables mainly consist of amounts owed to us by customers and amounts that we pay to our suppliers in advance. The note also includes contract assets, which represent an asset for accrued revenue in respect of goods or services delivered to customers for which a trade receivable does not yet exist.

Trade, contract and other receivables accounting policy *– Note 1(s)*
Critical judgements - Impairment of financial assets *– Note 1(d)*

		2022	2021
	Note	**£m**	£m
Trade receivables		**61.8**	62.6
Less: provision for impairment of trade receivables		**(3.3)**	(3.3)
Trade receivables - net		**58.5**	59.3
Contract assets:			
- Amounts recoverable on contracts ('AROC')		**52.7**	49.2
- Accrued revenue		**0.3**	0.5
Prepayments		**5.7**	8.2
Lease receivable	*18*	**2.1**	2.0
Other receivables		**11.9**	10.0
At 30 June		**131.2**	129.2
Current		**128.7**	126.9
Non-current		**2.5**	2.3
At 30 June		**131.2**	129.2

23. Trade, contract and other receivables (continued)

Contract assets arise from the recognition of revenue as and when performance obligations are satisfied, initially recognised as accrued revenue or amounts recoverable on contracts ('AROC'). The carrying amount of AROC at year-end has increased from £49.2m to £52.7m due to a change in the mix of projects of different sizes and at different stages of completion. AROC is presented net of a provision for impairment of contract assets of £2.1m (2021: £1.0m). Amounts are transferred to trade receivables when the right to consideration becomes unconditional. Typically this is once specified billing milestones are approved by the customer. Payment terms typically range from immediate payment to 90 days after the invoice date, and standard payment terms are 30 days after the invoice date. The revenue recognised in the year from wholly or partially satisfied distinct performance obligations in previous years is £26.2m (2021: £17.8m). This is primarily due to the impact of variation orders and cancellations for changes in scope and transaction price on contracts. Information about the Group's exposure of its trade receivables to credit and market risk is included in Notes 28(d) and 28(e).

Included within prepayments are £1.1m (2021: £1.5m) of assets recognised from the costs to obtain or fulfil an expected contract with a customer. No revenue has been recognised on these costs. An asset has been recognised because the costs directly related to an anticipated contract, they will be used in satisfying performance obligations in the future and the cost are expected to be recoverable.

The £2.5m (2021: £2.3m) non-current asset relates to other receivables. £2.0m (2021: £1.9m) of this relates to the IFRS 16 lease receivable as disclosed in Note 18. £0.5m (2021: £0.4m) relates to other receivables.

The movement on the provision for impairment of trade receivables is as follows. The impairment charge is shown net of the release of impairment charge for items subsequently paid.

Provision for impairment of trade receivables	*Note*	**2022 £m**	2021 £m
At 1 July		**3.3**	3.8
Net impairment to the income statement	*4*	**1.3**	0.3
Amounts utilised		**(1.5)**	(0.7)
Exchange rate adjustments		**0.2**	(0.1)
At 30 June		**3.3**	3.3

Order book

Order book comprises the value of all unworked purchase orders and contracts received from customers at the reporting date and provides an indication of the amount of revenue that has been secured and will be recognised in future accounting periods. Order book represents the transaction price allocated to wholly and partially unsatisfied distinct performance obligations, as defined by IFRS 15 *Revenue from Contracts with Customers*. The periods from 30 June in which the distinct performance obligations are expected to be satisfied, excluding the order book of the discontinued operation, are as follows:

	2022 £m	2021 £m
Less than 6 months	**161.9**	142.8
6 to 12 months	**73.9**	71.5
Over 12 months	**104.2**	79.2
At 30 June	**340.0**	293.5

24. Trade, contract and other payables

Trade, contract and other payables mainly consist of amounts owed to suppliers that have been invoiced or are accrued and contract liabilities relating to consideration received from customers in advance. They also include taxes and social security amounts due in relation to the Group's role as an employer.

***Trade, contract and other payables accounting policy** – Note 1(t)*

	2022	2021
	£m	£m
Trade payables	**17.8**	16.1
Accruals	**27.2**	26.4
Contract liabilities:		
- Payments received in advance on contracts ('POA')	**20.5**	15.3
- Deferred revenue	**2.7**	6.6
Tax and social security payable	**8.2**	8.3
Other payables	**1.8**	3.9
At 30 June	**78.2**	76.6
Current	**78.2**	76.6
Non-current	**-**	-
At 30 June	**78.2**	76.6

Revenue recognised in the year from contract liabilities at the beginning of the year was £17.1m (2021: £19.7m). Contract liabilities primarily relate to the Group's obligation to perform services, which are paid by customers in advance of those services being provided. Contract liabilities have decreased due to changes in the mix of contracts containing upfront payment terms.

NET DEBT AND FINANCIAL RISK MANAGEMENT

25. Net debt and borrowings

The objectives when managing capital are to safeguard the ability to continue as a going concern in order to provide returns for shareholders, benefits for other stakeholders and to maintain an optimal capital structure to reduce the cost of capital. Capital is monitored on the basis of the gearing ratio, which is calculated as net debt divided by total capital.

The majority of the Group's cash is held in bank deposits. The Group's sources of borrowing for funding and liquidity purposes come from the Group's £200.0m multi-currency revolving credit facility and through short-term overdraft facilities.

***Accounting policy** – Note 1(u)*

The disclosures in this note include certain Alternative Performance Measures ('APMs'). For more information on the APMs used by the Group, including definitions, please refer to Note 2.

(a) Gearing ratio

	2022	2021
	£m	£m
Net debt	**35.4**	46.9
Total equity	**197.6**	182.8
Total capital	**233.0**	229.7
At 30 June	**15.2%**	20.4%

25. Net debt and borrowings (continued)

(b) Net debt

Analysis of net debt	2022 £m	2021 £m
Current assets - cash and cash equivalents		
Cash and cash equivalents	**49.4**	42.0
Cash included in disposal group held-for-sale	**1.1**	-
Total cash and cash equivalents	**50.5**	42.0
Current liabilities - borrowings		
Bank overdrafts repayable on demand	**(11.1)**	(12.7)
Hire purchase liabilities maturing within one year	**(0.1)**	(0.1)
Total current borrowings	**(11.2)**	(12.8)
Non-current liabilities - borrowings		
Hire purchase liabilities maturing after one year	**(0.2)**	(0.3)
Bank loans maturing after one year	**(74.5)**	(75.8)
Total non-current borrowings	**(74.7)**	(76.1)
At 30 June	**(35.4)**	(46.9)
Total cash and cash equivalents at 30 June	**50.5**	42.0
Total borrowings at 30 June	**(85.9)**	(88.9)
At 30 June	**(35.4)**	(46.9)

Movement in net debt	2022 £m	2021 £m
At 1 July	**(46.9)**	(73.4)
Net increase/(decrease) in cash and cash equivalents and bank overdrafts	**10.1**	(26.5)
Repayments of hire purchase	**0.1**	0.1
Proceeds from bank loans	**(13.0)**	(5.0)
Repayments of bank loans	**15.0**	57.9
Amortisation of bank loan fees	**(0.7)**	-
At 30 June	**(35.4)**	(46.9)

At the year-end, the Group had current hire-purchase liabilities of £0.1m and non-current hire-purchase liabilities of £0.2m. This hire-purchase agreement has an implicit rate of interest of 2.4%. The future undiscounted minimum lease payments due within one year is £0.1m and due after one year is £0.2m.

At the year-end, the Group held total banking facilities of £216.8 (2021: £215.5m), which included committed facilities of £200.0m (2021: £200.0m). The committed facility consists of a £200.0m multi-currency Revolving Credit Facility ('RCF') which provides the Group with committed funding through to July 2023. In addition, the Group has uncommitted facilities including overdrafts of £16.8m (2021: £15.5m), which mature throughout this and the next financial year and are renewable annually.

Non-current bank loans comprise committed facilities of £74.5m (2021: £75.8m), net of direct issue costs, which were drawn primarily to fund acquisitions and general corporate purposes. These are denominated in Pounds Sterling and have variable rates of interest dependent upon the Group's adjusted leverage, which range from 1.4% to 2.2% above SONIA (2021: 1.4% to 2.2% above LIBOR).

Adjusted leverage is defined in the Group's banking documents as being the ratio of total net debt to adjusted EBITDA. Adjusted EBITDA is further defined as being earnings before interest, tax, depreciation, impairment and amortisation, excluding the impact of IFRS 16, adjusted for any one-off, non-recurring, exceptional costs and acquisitions or disposals during the relevant period. At the reporting date, the Group has an adjusted leverage of 0.8x, which attracts a rate of interest of SONIA plus 1.4% (2021: LIBOR plus 1.8%). The Group has banking facilities for its UK companies which together have a net overdraft limit, but the balances are presented on a gross basis in the financial statements.

After the reporting date, the Group completed a refinance of its banking facilities – see Note 39.

26. Reconciliation of movements of liabilities to cash flows arising from financing activities

	Borrowings Note 25 £m	Lease liabilities Note 18 £m	Total £m
At 1 July 2020	139.7	29.3	169.0
Changes from financing cash flows (see Cash Flow Statement)			
- Proceeds from loans and borrowings	5.0	-	5.0
- Repayment of hire purchase liability	(0.1)	-	(0.1)
- Repayment of bank loan	(57.9)		(57.9)
- Movement in bank overdraft	2.2	-	2.2
- Repayment of lease liabilities	-	(6.5)	(6.5)
Total changes from financing cash flows	(50.8)	(6.5)	(57.3)
Effect of changes in foreign exchange rates	-	(0.8)	(0.8)
Other changes			
Liability related			
- New leases	-	2.6	2.6
- Remeasurements	-	(0.5)	(0.5)
- Interest expense	4.4	1.0	5.4
- Interest paid	(4.4)	(0.8)	(5.2)
Total other changes	-	2.3	2.3
At 30 June 2021	88.9	24.3	113.2
At 1 July 2021	**88.9**	**24.3**	**113.2**
Changes from financing cash flows (see Cash Flow Statement)			
- Proceeds from loans and borrowings	**13.0**	**-**	**13.0**
- Repayment of hire purchase liability	**(0.1)**	**-**	**(0.1)**
- Repayment of bank loan	**(15.0)**	**-**	**(15.0)**
- Movement in bank overdraft	**(1.6)**	**-**	**(1.6)**
- Repayment of lease liabilities	**-**	**(4.5)**	**(4.5)**
Total changes from financing cash flows	**(3.7)**	**(4.5)**	**(8.2)**
Effect of changes in foreign exchange rates	**-**	**0.4**	**0.4**
Other changes			
Liability related			**-**
- Arising on acquisition	**-**	**0.4**	**0.4**
- New leases	**-**	**4.7**	**4.7**
- Remeasurements	**-**	**(2.0)**	**(2.0)**
- Interest expense	**3.5**	**0.9**	**4.4**
- Interest paid	**(2.8)**	**(0.9)**	**(3.7)**
Total other changes	**0.7**	**3.1**	**3.8**
At 30 June 2022	**85.9**	**23.3**	**109.2**

27. Fair value of financial assets and liabilities

***Fair value of financial assets and liabilities accounting policy** – Note 1(v)*

There are no differences between the fair value of financial assets and liabilities and their carrying value. The Group holds the following financial instruments:

	Note	**2022 £m**	2021 £m
Financial assets			
Amortised cost:			
- Trade receivables - net	*23*	**58.5**	59.3
- Lease receivable	*23*	**2.1**	2.0
- Other receivables	*23*	**11.9**	10.0
- Cash and cash equivalents	*25*	**49.4**	42.0
Fair value through profit or loss (FVTPL)			
- Fair value hedging instruments		**0.8**	0.9
At 30 June		**122.7**	114.2
Financial liabilities			
Amortised cost:			
- Borrowings	*25*	**85.9**	88.9
- Lease payables	*18*	**23.3**	24.3
- Trade payables	*24*	**17.8**	16.1
- Other payables	*24*	**1.8**	3.9
Fair value through profit or loss (FVTPL)			
- Fair value hedging instruments		**5.1**	1.0
At 30 June		**133.9**	134.2

A net derivative financial loss of £4.2m (2021: gain £2.5m) was recognised in the period relate to foreign exchange contracts (see also Note 28(g):

	2022 £m	2021 £m
Foreign exchange swap contract assets:		
- Fair value losses	**(5.4)**	(3.8)
- Fair value gains	**0.9**	6.8
Foreign exchange swap contract liabilities:		
- Fair value losses	**(0.6)**	(1.1)
- Fair value gains	**0.9**	0.6
	(4.2)	2.5

28. Financial risk management

The financial risks faced by the Group comprise capital risk, liquidity risk, credit risk and market risk (comprising interest rate risk and foreign exchange risk). The Board reviews and agrees policies for managing each of these risks. The Group have no material exposure to commodity price fluctuations and this situation is not expected to change in the foreseeable future.

The financial instruments of the Group comprise floating rate borrowings, the main purpose of which is to raise finance for the Group's operations, and foreign exchange contracts used to manage currency risks.

(a) Objectives, policies and strategies

The objectives when managing capital are to safeguard the ability to continue as a going concern in order to provide returns for shareholders, benefits for other stakeholders and to maintain an optimal capital structure to reduce the cost of capital.

(b) Capital risk

Capital is monitored on the basis of the gearing ratio. This ratio is calculated as net debt divided by total capital. Net debt is calculated as borrowings less cash and cash equivalents. Total capital is calculated as equity, plus net debt. Please see Note 25.

(c) Liquidity risk

The Group's policy towards managing its liquidity risks is to maintain a mix of short- and medium-term borrowing facilities. Short-term flexibility is provided by bank overdraft facilities. In addition, the Group maintains medium-term borrowing facilities in order to provide the appropriate level of finance to support current and future working capital requirements. As the cash profile on large contracts can vary significantly, the Group seeks committed facilities that provide sufficient headroom against forecast requirements to mitigate its exposure.

The tables below analyse the Group's external non-derivative financial liabilities into relevant maturity groupings, based on the remaining period at the reporting date to the contractual maturity date. All amounts disclosed in the tables below are the contractual undiscounted cash flows. These amounts approximate to their carrying amount as the impact of discounting on trade payables that mature after more than one year is insignificant and borrowings that mature after more than one year are primarily floating rate bank loans where payments are reset to market rates at regular short-term intervals.

Not included within the tables below are the following financial liabilities:

- Derivative financial liabilities as their contractual maturities are not considered to be essential for an understanding of the timing of the cash flows; and
- Other payables as the phasing of these liabilities is not contractually defined;

Maturity of trade payables	2022 £m	2021 £m
Within one month	**14.3**	9.8
After one month and within three months	**3.5**	6.3
At 30 June	**17.8**	16.1

Maturity of borrowings	2022 £m	2021 £m
Overdrafts repayable on demand	**11.1**	12.7
Within 12 months:		
- Hire purchase liabilities	**0.1**	0.1
After 12 months and within 5 years:		
- Hire purchase liabilities	**0.2**	0.3
- Bank loans	**74.5**	75.8
At 30 June	**85.9**	88.9

Maturity of undiscounted lease liability	2022 £m	2021 £m
Within one year	**5.1**	5.6
Between one and five years	**13.0**	14.2
After five years	**8.5**	8.4
Finance portion of net liability	**(3.3)**	(3.9)
At 30 June	**23.3**	24.3

28. Financial risk management (continued)

(d) Credit risk

The Group is exposed to credit risk in respect of its trade receivables, which are stated net of provision for impairment (see Note 1(s)). Exposure to this risk is mitigated by careful evaluation of the granting of credit and the use of credit insurance where practicable. Concentrations of credit risk with respect to trade receivables are limited due to the Group's customer base being large and unrelated.

Expected credit loss assessment	Weighted-average loss rate %	Gross carrying amount £m	Impairment loss allowance £m
At 30 June 2022			
Not overdue not impaired	**0.25%**	**47.4**	**(0.4)**
Overdue but not impaired:			
Less than 30 days overdue	**2.00%**	**7.7**	**(0.2)**
31-60 days overdue	**5.00%**	**1.3**	**(0.1)**
61-90 days overdue	**10.00%**	**1.0**	**(0.1)**
91-120 days overdue	**20.00%**	**0.9**	**(0.2)**
121-180 days overdue	**25.00%**	**0.5**	**(0.1)**
181-365 days overdue	**50.00%**	**0.3**	**(0.2)**
Over 365 days overdue	**75.00%**	**2.7**	**(2.0)**
		61.8	**(3.3)**
At 30 June 2021			
Not overdue not impaired	0.25%	47.5	(0.1)
Overdue but not impaired:			
Less than 30 days overdue	2.00%	7.3	(0.1)
31-60 days overdue	5.00%	1.6	(0.1)
61-90 days overdue	10.00%	1.0	(0.1)
91-120 days overdue	20.00%	0.5	(0.1)
121-180 days overdue	25.00%	0.8	(0.2)
181-365 days overdue	50.00%	0.8	(0.4)
Over 365 days overdue	75.00%	3.1	(2.2)
		62.6	(3.3)

The Group's customers include the world's major transportation original equipment manufacturers, tier 1 suppliers, energy companies and government agencies. Revenue by customer location is disclosed within Note 6(b) and trade receivables are derived from these customer groups and locations.

The Group has limited experience of bad debts with any of these customers. Of the total net trade receivables balance as at 30 June 2022, £25.9m was received in July 2022 (2021: £34.1m). Trade receivables and contract assets are provided in full when there is no reasonable expectation of recovery. There were no such balances in the current or prior year.

28. Financial risk management (continued)

An analysis of net trade receivables by currency is as follows:

Analysis of net trade receivables by currency	2022 £m	2021 £m
Pounds Sterling	**25.7**	25.2
US Dollars	**15.5**	15.9
Chinese Renminbi	**6.2**	6.7
Euros	**5.6**	5.8
Australian Dollars	**1.5**	1.4
Other currencies	**4.0**	4.3
At 30 June	**58.5**	59.3

The Group is exposed to bank credit risk in respect of money held on deposit and certain derivative transactions entered into with banks. Exposure to this form of risk is mitigated as material transactions are only undertaken with bank counterparties that have high credit ratings assigned by international credit-rating agencies. The Group further limits risk in this area by setting an overall credit limit for all transactions with each bank counterparty in accordance with the institution's credit standing.

Maximum exposure to counterparty risk	2022 £m	2021 £m
Cash and cash equivalents (including held-for-sale disposal group)	**50.5**	42.0
Derivative financial assets	**0.8**	0.9
At 30 June	**51.3**	42.9

Analysis of cash and cash equivalents by geographic location (including held-for-sale disposal group)	2022 £m	2021 £m
United Kingdom	**19.6**	18.5
Asia	**8.5**	8.1
Europe	**5.6**	5.8
Australia	**5.0**	3.7
North America	**4.8**	1.7
Rest of the World	**7.0**	4.2
At 30 June	**50.5**	42.0

28. Financial risk management (continued)

(e) Market risk

Interest rate risk

The Group's borrowings and cash balances held at floating interest rates are exposed to cash flow interest rate risk. The exposure to interest rate movements is not currently hedged as the variable rates of interest are largely dependent upon the adjusted leverage of the Group. The effect of any foreseen changes in the underlying reference interest rate remain unhedged, although the policy is reviewed on an ongoing basis. The Group's lease assets and liabilities are held at fixed interest rates.

Financial assets and liabilities by interest type	**2022 £m**	2021 £m
Financial assets		
- Fixed rate	**2.1**	2.0
- Floating rate	**28.7**	24.5
- Interest-free	**91.9**	87.7
At 30 June	**122.7**	114.2
Financial liabilities		
- Fixed rate	**23.6**	24.7
- Floating rate	**86.1**	89.7
- Interest-free	**24.2**	19.8
At 30 June	**133.9**	134.2

Foreign exchange risk

The Group faces currency exposures on trading transactions undertaken by its subsidiaries in foreign currencies and balances arising therefrom, and on the translation of profits earned in, and net assets of, overseas subsidiaries primarily in the US, Europe and China. The carrying amounts of the Group's foreign currency denominated monetary assets and liabilities are:

	Assets		**Liabilities**	
Foreign currency denominated assets and liabilities	**2022 £m**	2021 £m	**2022 £m**	2021 £m
US Dollar	**24.4**	23.1	**10.1**	7.6
Euro	**12.9**	12.8	**12.8**	15.1
Chinese Renminbi	**13.5**	12.4	**1.6**	0.5

The following foreign exchange differences were (charged)/credited to the income statement for the Group:

Foreign exchange gains/(losses) on financial assets and liabilities	Note	**2022 £m**	2021 £m
Derivative contracts measured at FVTPL			
- Foreign exchange contract assets	27	**(4.5)**	3.0
- Foreign exchange contract liabilities	27	**0.3**	(0.5)
Other financial assets		**1.8**	2.5
Other financial liabilities		**2.8**	(5.6)
		0.4	(0.6)

The Group does not undertake any speculative currency transactions.

The Group use derivative financial instruments primarily to manage currency risk on its US Dollar, Euro, Chinese Renminbi, Japanese Yen, Hong Kong Dollar and Australian Dollar denominated receivables from its subsidiaries, in addition to managing transactional exposures relating to customer contracts denominated in foreign currencies.

(f) Sensitivity analysis of financial instruments to market risk

Exchange rate sensitivity

The Group has financial assets and liabilities denominated in foreign currencies, principally in US Dollars, Euros and Chinese Renminbi, which are not in the functional currency of the entity that holds them. A 20% change in the value of the US Dollar, Euro or Chinese Renminbi would have an immaterial impact on the value of these financial instruments at the year-end.

28. Financial risk management (continued)

Interest rate sensitivity

A reasonably possible change of 2 percentage points in interest rates at the reporting date would have decreased profit or loss by the amounts shown below, based on the value of the Group's floating rate financial instruments at the year-end.

A 2 percentage points sensitivity is deemed to be appropriate as interest charges on the Group's loans are based on SONIA, and are therefore considered reasonably possible to be subjected to fluctuations in interest rates in the foreseeable future.

	2022	2021
	Decrease in profit before tax	Decrease in profit before tax
Impact of interest rate movements	**£m**	£m
2pp increase in interest rates	**(1.5)**	(1.5)

Cash flow derivatives

The Group employs derivative financial instruments, including foreign exchange contracts, to mitigate currency exposures on trading transactions that could affect the income statement. Changes in the fair value of effective derivative foreign exchange swap contracts designated as hedge accounted under IFRS 9 are recognised in other comprehensive income, with any ineffective amount recognised in the income statement. Any other changes in the fair value of derivative foreign exchange forward and option contracts are recognised in the income statement. No derivative transactions were designated as hedge accounted in the current year.

Cash flows expected to occur from derivative financial instruments used by the Group for hedging purposes are set out below, which will be largely offset by cash flows expected to occur from hedged items.

	2022	2021
Affecting the income statement	**£m**	£m
Within three months	**23.8**	14.9
After three months and within twelve months	**9.1**	23.4
After twelve months	**10.5**	21.7
	43.4	60.0

EQUITY

29. Share capital and share premium

	2022	2021	**2022**	2021
Share capital - ordinary shares of 25p each	**Number**	Number	**£m**	£m
Allotted, called up and fully paid				
At 1 July	**62,218,280**	53,406,250	**15.6**	13.4
Issue of ordinary share capital	**-**	8,812,030	**-**	2.2
At 30 June	**62,218,280**	62,218,280	**15.6**	15.6

No dividends were paid for interim and final dividends in respect of shares held by an Employee Benefit Trust (EBT) in relation to the LTIP. There were 8,795 such shares at 30 June 2022 (2021: 18,317 shares).

	2022	2021
Share premium	**£m**	£m
At 1 July	**16.8**	14.3
Premium on share issue	**-**	2.5
At 30 June	**16.8**	16.8

On 11 November 2020, Ricardo plc issued 8,812,030 new ordinary shares of 25 pence, representing 16.5% of the existing issued ordinary share capital of the Company. They were issued at a price of 333 pence per share, being a discount of 9.76 per cent to the closing mid-price on 10 November 2020, raising gross proceeds of £29.3m. Associated transaction costs of £1.1m were incurred, including £0.7m brokerage fees and £0.4m of other directly attributable professional fees. The issue was carried out in order to reduce leverage, strengthen the balance sheet and provide adequate working capital for the business.

29. Share capital and share premium (continued)

Treatment of proceeds

The total net proceeds were accounted for as follows:

	£m
Share capital: at 25p per share	2.2
Share premium: premium on retail and subscription share issue, net of directly attributable costs	2.5
Merger reserve: premium on placing share issue, net of directly attributable costs	23.5
Net proceeds	28.2

30. Other reserves

The merger reserve represents the amount by which the fair value of the shares issued as consideration for historic acquisitions exceeded their nominal value, offset by the goodwill on these acquisitions, and the premium on a placing share issue, net of directly attributable costs. The translation reserve comprises cumulative foreign exchange differences arising from the translation of financial statements of foreign operations on consolidation.

	Merger reserve	Translation reserve	Total
	£m	£m	£m
At 1 July 2020	1.0	16.4	17.4
Premium on share issue	23.5	-	23.5
Exchange rate adjustments	-	(2.9)	(2.9)
At 30 June 2021	24.5	13.5	38.0
At 1 July 2021	**24.5**	**13.5**	**38.0**
Exchange rate adjustments	**-**	**6.5**	**6.5**
At 30 June 2022	**24.5**	**20.0**	**44.5**

31. Retained earnings

		2022	2021
	Note	£m	£m
At 1 July		**112.2**	103.5
Profit for the period		**8.6**	1.7
Remeasurements of the defined benefit pension scheme	*34*	**5.2**	9.1
Deferred tax on remeasurements of the defined benefit pension scheme	*21*	**(1.6)**	(2.0)
Ordinary share dividends	*9*	**(5.0)**	(1.1)
Purchases of own shares to settle awards		**(0.2)**	-
Tax credit relating to share option schemes		**(0.3)**	-
Equity-settled transactions	*35*	**1.6**	1.0
At 30 June		**120.5**	112.2

32. Non-controlling interests

In the opinion of the Directors, the comprehensive income for the year and equity at the reporting date which is attributable to non-controlling interests is not considered to be material. Non-controlling interests are as follows:

- C2D Joint Venture is 33.3% owned by Ricardo Defense, Inc.; 33.3% owned by DG Technologies; 33.3% owned by Claxton Logistics Services LLC.
- CDQ Joint Venture is 50% owned by Ricardo Defense, Inc.; 50% owned by DG Technologies

For their registered office and principal activities please see Note 37.

EMPLOYEES

33. Employee numbers and costs

Employee numbers and costs, including the discontinued operation, are as follows:

Staff costs	Note	2022 £m	2021 £m
Wages and salaries (including redundancy and termination costs)		**166.7**	155.3
Social security costs		**16.6**	15.3
Pensions costs - defined contribution schemes		**10.5**	10.0
Share-based payments	35	**1.4**	1.4
Total staff costs		**195.2**	182.0

Average monthly number of employees (including Executive Directors)	2022	2021
Energy and Environment	**729**	621
Rail	**566**	605
Automotive and Industrial	**969**	1,047
Defense	**182**	180
Performance Products	**411**	397
Plc and Board	**58**	55
Total average number of employees	**2,915**	2,905

Key management compensation	2022 £m	2021 £m
Short-term employee benefits	**4.6**	3.8
Share-based payments	**1.0**	1.2
Post-employment benefits	**0.2**	0.3
Termination benefits	**1.0**	0.7
Total key management compensation	**6.8**	6.0

Key management personnel are the Board of Directors, together with the Managing Directors who have the authority and responsibility for planning, directing and controlling the Group's activities and resources within the market sectors in which the Group operates. The remuneration received by all Executive and Non-Executive Directors during the year is disclosed in the Directors' Remuneration Report on page 110.

34. Retirement benefits

Retirement benefits accounting policy *– Note 1(w)*
Key sources of estimation uncertainty on defined benefit obligations *– Note 1(d)*

The Group operates a defined benefit pension scheme, the Ricardo Group Pension Fund ('RGPF'), which closed to future accrual on 28 February 2010. Responsibility for the governance of the RGPF - including investment decisions and contribution schedules - lies with the Board of Trustees, with the assets held in the fund governed by local regulations and practice in the United Kingdom. The Board of Trustees must be comprised of representatives of the Group and RGPF participants in accordance with the RGPF's regulations. The last approved triennial valuation of the RGPF was completed with an effective date of 5 April 2020 and was approved on 30 November 2021. At the effective date, the assets of the RGPF had a market value of £135.8m and were sufficient to cover 84% of the benefit that had accrued to members when assessed on the Trustees' prudent funding basis. Based on the recovery plan agreed following the 2020 valuation annual contributions due to the RGPF during the year ending 30 June 2023 will be £1.8m. The next triennial valuation with an effective date of 5 April 2023 will be discussed by the Group and the Trustees in FY 2022/23. The IAS 19 Employee Benefits valuation was completed as at 30 June 2022. The pension costs relating to the RGPF were assessed using the projected unit credit method, in accordance with the advice of Mercer, qualified actuaries.

From June 2016, the Group and Trustees decided to introduce a 'retirement flexibility' option to the RGPF, which allows members to transfer out their benefit at retirement. The Group continues to make no allowance within the defined benefit obligation as at 30 June 2022 for members who may elect to

34. Retirement benefits (continued)

transfer out their benefits at retirement. This assumption will be reviewed on an ongoing basis and may change in future as experience emerges as to the level of members who elect to transfer out their benefits at retirement.

The post-retirement mortality assumptions for the current year have been reviewed and use mortality tables known as the SAPS 'Series 3' tables (2021: SAPS 'Series 3'), with an 85% (2021: 85%) multiplier for males and an 84% (2021: 84%) multiplier for females, both applicable to the 'standard' version of the table. The future improvements component has been updated to be in line with the Continuous Mortality Investigation (CMI) 2021 projection model with an 'S-kappa' smoothing parameter of 7, an initial addition to mortality improvements of 0.5% and no weighting on 2021 or 2020 data (2021: CMI 2020 with 'S-kappa' smoothing parameter of 7 an initial addition to mortality improvements of 0.5% and no weight on 2020 data). The latest available CMI model will be used at each year-end to provide the most accurate representation of the defined benefit obligation. The use of a 1.25% long-term trend is consistent with the prior year. While COVID-19 has had an impact on mortality in FY 2021/22, the impact on future mortality trends is currently unknown and consequently no adjustment has been made to mortality assumptions in this regard. We will continue to monitor this in the future and have disclosed the sensitivity the defined benefit obligation had to mortality below. Under these principal mortality assumptions, the expected future life expectancy from age 65 is as follows:

	2022		2021	
Age	**Males**	**Females**	Males	Females
65 now	**23.6**	**26.0**	23.6	25.9
65 in 20 years	**25.0**	**27.4**	24.9	27.3

Other principal assumptions	**2022 % p.a.**	2021 % p.a.
Discount rate	**3.85%**	1.85%
RPI inflation rate	**3.25%**	3.30%

Other assumptions	**2022 %**	2021 %
Rate of increase in pensions in payment accrued p.a.		
- Pre 1 July 2002 (pensioner/deferred for current year)	**3.70% / 3.60%**	3.65%
- Post 1 July 2002 (pensioner/deferred for current year)	**3.15% / 2.80%**	3.15%
- Post 88 GMP (pensioner/deferred for current year)	**2.10% / 2.05%**	2.15%
Rate of increase in deferred pension revaluation p.a.	**2.70%**	2.60%
Percentage of pension to be commuted for lump sum at retirement	**15.00%**	15.00%

	2022			2021		
	Quoted	**Unquoted**	**Total**	Quoted	Unquoted	Total
Scheme assets	**£m**	**£m**	**£m**	£m	£m	£m
Equities	**15.1**	**-**	**15.1**	22.2	-	22.2
Debt	**82.4**	**-**	**82.4**	103.9	-	103.9
Cash and other	**9.7**	**0.4**	**10.1**	0.6	0.4	1.0
Property fund	**-**	**9.8**	**9.8**	-	8.3	8.3
Investment funds	**9.7**	**-**	**9.7**	20.7	-	20.7
At 30 June	**116.9**	**10.2**	**127.1**	147.4	8.7	156.1

The property fund relates to a share of the BlackRock UK Property Fund (Fund). Real property is valued either on the basis of the open market value or under the premise of a forced sale. Property fund investments are valued by reference to the underlying value of assets or the latest available net asset value.

Movements in the fair value of scheme assets and present value of the defined benefit surplus/(obligation) were as follows:

34. Retirement benefits (continued)

	2022			2021		
	Fair value of plan assets	**Present value of obligation**	**Net total**	Fair value of plan assets	Present value of obligation	Net total
Scheme movements	**£m**	**£m**	**£m**	£m	£m	£m
At 1 July	**156.1**	**(149.3)**	**6.8**	150.4	(157.1)	(6.7)
Past service costs	-	-	-	-	(0.1)	(0.1)
Finance income/(expense)	**2.9**	**(2.7)**	**0.2**	2.4	(2.5)	(0.1)
Total credit/(charge) to the income statement	**2.9**	**(2.7)**	**0.2**	2.4	(2.6)	(0.2)
Return on plan assets excluding finance income	**(28.1)**	-	**(28.1)**	6.3	-	6.3
Effect of change in demographic assumptions	-	**(0.1)**	**(0.1)**	-	(3.6)	(3.6)
Effect of change in financial assumptions	-	**39.5**	**39.5**	-	1.2	1.2
Effect of experience adjustments	-	**(6.1)**	**(6.1)**	-	5.2	5.2
Total remeasurements in other comprehensive income	**(28.1)**	**33.3**	**5.2**	6.3	2.8	9.1
Contributions from sponsoring companies	**3.0**	-	**3.0**	4.6	-	4.6
Benefit payments from plan assets	**(6.8)**	**6.8**	-	(7.6)	7.6	-
Total cash flows	**(3.8)**	**6.8**	**3.0**	(3.0)	7.6	4.6
Total movements	**(29.0)**	**37.4**	**8.4**	5.7	7.8	13.5
At 30 June	**127.1**	**(111.9)**	**15.2**	156.1	(149.3)	6.8

The sensitivity of the defined benefit scheme to changes in principal assumptions:	**Change in assumption**	**2022 Impact on present value of obligation**	2021 Impact on present value of obligation
Discount rate	- 0.25%	**Increase by £4.0m**	Increase by £6.5m
Inflation rate	+ 0.25%	**Increase by £2.3m**	Increase by £3.1m
Post-retirement mortality assumptions	- 1 year	**Increase by £4.6m**	Increase by £6.2m

The above sensitivity analyses are based on a change in an assumption while holding all other assumptions constant. In practice this is unlikely to occur and changes in some of the assumptions may be correlated. When calculating the sensitivity of the defined benefit obligation to significant actuarial assumptions, the same method has been applied as when calculating the pension liability recognised within non-current liabilities. The methods and types of assumptions used in preparing the sensitivity analysis did not change when compared to the previous year. Exposure to significant risks from the RGPF are as follows:

Risks	**Impact**
Asset volatility	The RGPF liabilities are calculated using a discount rate set with reference to corporate bond yields. If the RGPF assets underperform this yield, the deficit will increase. The RGPF holds a significant proportion of equities and diversified growth funds, which are expected to outperform corporate bonds in the long-term while providing volatility and risk in the short-term. The Directors are of the view that due to the long-term nature of the RGPF liabilities and the strength of the supporting Group, this is an appropriate strategy to manage the RGPF efficiently.
Corporate bond yields	A decrease in corporate bond yields will increase RGPF liabilities, although this will be partially offset by an increase in the value of the RGPF's bond holdings. Brexit and COVID-19 have caused volatility in the market, which may continue to adversely affect corporate bond yields, with a corresponding impact on discount rates as described above.
Inflation	Although there are some caps in place to protect the RGPF against extreme inflation, increases in the level of inflation will lead to higher liabilities.
Post-retirement mortality assumptions	The RGPF provides benefits for the life of the members, therefore improvements in post-retirement mortality assumptions will result in an increase in the RGPF's liabilities.

The weighted average duration of the defined benefit obligation is 13.0 (2021: 16.0) years.

34. Retirement benefits (continued)

Expected maturity of undiscounted pension benefits	2022 £m	2021 £m
Less than one year	**4.8**	4.6
Between one and two years	**4.9**	4.8
Between two and five years	**15.6**	15.1
Beyond five years	**29.0**	28.2

Amounts charged to the income statement in respect of the defined benefit obligation	*Note*	2022 £m	2021 £m
Past service costs for GMP equalisation	*7*	**-**	0.1
Net financing (income)/costs	*10*	**(0.2)**	0.1
Total		**(0.2)**	0.2

35. Share-based payments

***Accounting policy** – Note 1(x)*

The Group operates the following share-based payment schemes: an equity-settled and a cash-settled Long-Term Incentive Plan ('LTIP'); a Deferred Share Bonus Plan ('DBP') and an equity-settled all-employee Share Incentive Plan ('SIP'). The general terms and conditions, including vesting requirements and performance conditions for the equity-settled LTIP, the DBP and the equity-settled SIP are described in the Directors' Remuneration Report. The LTIP, DBP and SIP require shareholder approval for the issue of shares. There were no awards outstanding in relation to the SIP at the year-end.

One third (2021: one third) of awards granted under the LTIP and DBP Matching Awards are dependent on a Total Shareholder Return ('TSR') performance condition. As relative TSR is defined as a market condition under IFRS 2 Share-based Payment, this requires the valuation model used to take into account the anticipated performance outcome. The TSR element of the charge to the income statement has been calculated using the Monte Carlo model and the earnings per share ('EPS') element has been calculated using the share price at grant date. The following assumptions are used for the plan cycles commencing in these years:

	2022	2021
Weighted average share price at date of award (pence)	**420p**	472p
Expected volatility	**54.0%**	54.0%
Expected life (years)	**3**	3
Risk-free rate	**0.6%**	0.0%
Dividend yield	**0.0%**	0.0%
Possibility of ceasing employment before vesting	**10.0%**	10.0%
Weighted average fair value per LTIP as a percentage of a share at date award	**86.4%**	81.4%

Expected volatility was determined by calculating the historical volatility of the Company's share price over the three financial years preceding the date of award. The share-based payments charge of £1.4m (2021: £1.4m) disclosed in Note 33 was all in respect of equity-settled schemes.

Equity-settled Long-Term Incentive Plan

The current LTIP is described in the Directors' Remuneration Report. Awards are forfeited if the employee leaves the Group before the awards vest, unless they are considered 'good leavers'.

35. Share-based payments (continued)

Outstanding	2022 Shares allocated[1]	2021 Shares allocated[1]
At 1 July	**1,210,262**	693,796
Awarded	**772,799**	742,379
Lapsed	**(261,164)**	(225,913)
Vested	**(22,362)**	-
At 30 June	**1,699,535**	1,210,262

(1) Shares allocated excludes dividend roll-up.

The outstanding LTIP awards had a weighted average contractual life of 1.6 years (2021: 1.9 years). The weighted average exercise price during the current year was 375p (2021:Nil). During the prior year, the Group utilised existing shares held in order to settle vested awards.

Cash-settled Long-Term Incentive Plan

The cash-settled LTIP has the same performance conditions as the equity-settled LTIP but the award is settled in cash rather than by share issue.

Outstanding	2022 Shares allocated[1]	2021 Shares allocated[1]
At 1 July	**21,748**	11,699
Awarded	**41,702**	10,049
Vested	**(6,500)**	-
At 30 June	**56,950**	21,748

(1) Shares allocated excludes dividend roll-up.

The outstanding LTIP awards had a weighted average contractual life of 2.2 years (2021: 1.7 years). The weighted average exercise price during the current year was 380p (2021: Nil).

Deferred Share Bonus Plan

The Deferred Share Bonus Plan is described in the Directors' Remuneration Report.

Outstanding	2022 Shares allocated[1]	2021 Shares allocated[1]
At 1 July	**107,883**	132,274
Awarded	**15,410**	-
Forfeited	**(27,320)**	(1,736)
Dividend shares awarded in the year	**756**	221
Vested	**(36,316)**	(22,876)
At 30 June	**60,413**	107,883

(1) Shares allocated excludes dividend roll-up.

The outstanding DBP awards had a weighted average contractual life of 0.9 years (2021: 0.7 years). The weighted average exercise price during the current year was 427p (2021: Nil). During the year, the Group utilised existing shares held to settle vested awards.

UNRECOGNISED ITEMS AND UNCERTAIN EVENTS

36. Contingent liabilities

In the ordinary course of business, the Group has £11.4m (2021: £13.0m) of possible obligations for bonds, guarantees and counter-indemnities placed with the Group's banking and other financial institutions and primarily relating to performance under contracts with customers. These possible obligations are contingent on the outcome of uncertain future events which are considered unlikely to occur. The Group is also involved in commercial disputes and litigation with some customers, which is also in the normal course of business. Whilst the result of such disputes cannot be predicted with certainty, the ultimate resolution of these disputes is not expected to have a material effect on the Group's financial position or results.

In July 2013, a guarantee was provided to the Ricardo Group Pension Fund ('RGPF') of £2.8m in respect of certain contingent liabilities that may arise, which have been secured on specific land and buildings (see Note 17). The outcome of this matter is not expected to give rise to any material cost to the Group. In October 2018, a further guarantee was provided to the RGPF for an amount that shall not exceed the employers' liability were a debt to arise under Section 75 of the Pensions Act 1995. In November 2021 the guarantee was extended for a further 3 years and will now terminate on 5 April 2026. The outcome of this matter is not expected to give rise to any material cost to the Group on the basis that the Group continues as a going concern.

OTHER

37. Related undertakings of the Group

UK subsidiaries

Subsidiary or related undertaking	Registered office	Company Number	Principal activities
Ricardo Investments Limited(*)	Shoreham Technical Centre, Old Shoreham Road, Shoreham-by-Sea, West Sussex, BN43 5FG, United Kingdom†	02251330	Holding Company and Management Services
Ricardo EMEA Limited ∞	Shoreham Technical Centre, Old Shoreham Road, Shoreham-by-Sea, West Sussex, BN43 5FG, United Kingdom†	09461485	Holding Company and Management Services
Ricardo UK Limited	Shoreham Technical Centre, Old Shoreham Road, Shoreham-by-Sea, West Sussex, BN43 5FG, United Kingdom†	02815682	Automotive & Industrial Consulting, Strategic Consulting, Defence Consulting and Performance Products
Ricardo Asia Limited ∞	Shoreham Technical Centre, Old Shoreham Road, Shoreham-by-Sea, West Sussex, BN43 5FG, United Kingdom†	03143661	Automotive & Industrial Consulting, Rail Consulting and Business Development
Ricardo Consulting Engineers Limited ∞	Shoreham Technical Centre, Old Shoreham Road, Shoreham-by-Sea, West Sussex, BN43 5FG, United Kingdom†	05891521	Automotive & Industrial Consulting
Power Planning Associates Limited ∞	Shoreham Technical Centre, Old Shoreham Road, Shoreham-by-Sea, West Sussex, BN43 5FG, United Kingdom†	03419816	Holding Company
Ricardo-AEA Limited	Shoreham Technical Centre, Old Shoreham Road, Shoreham-by-Sea, West Sussex, BN43 5FG, United Kingdom†	08229264	Energy & Environmental Consulting
Cascade Consulting (Environment & Planning) Limited ∞	Shoreham Technical Centre, Old Shoreham Road, Shoreham-by-Sea, West Sussex, BN43 5FG, United Kingdom†	04176068	Energy & Environmental Consulting
Ricardo Innovations Limited ∞	Shoreham Technical Centre, Old Shoreham Road, Shoreham-by-Sea, West Sussex, BN43 5FG, United Kingdom†	08977105	Energy & Environmental Consulting
Ricardo Rail Limited	Shoreham Technical Centre, Old Shoreham Road, Shoreham-by-Sea, West Sussex, BN43 5FG, United Kingdom†	03226319	Rail Consulting
Ricardo Certification Limited ∞	Shoreham Technical Centre, Old Shoreham Road, Shoreham-by-Sea, West Sussex, BN43 5FG, United Kingdom†	09481761	Independent Assurance
Ricardo Software Limited	Shoreham Technical Centre, Old Shoreham Road, Shoreham-by-Sea, West Sussex, BN43 5FG, United Kingdom†	07527490	Dormant
Ricardo Strategic Consulting Limited	Shoreham Technical Centre, Old Shoreham Road, Shoreham-by-Sea, West Sussex, BN43 5FG, United Kingdom†	03696451	Dormant
Ricardo Technology Limited	Shoreham Technical Centre, Old Shoreham Road, Shoreham-by-Sea, West Sussex, BN43 5FG, United Kingdom†	02924157	Dormant
Ricardo Transmissions Limited	Shoreham Technical Centre, Old Shoreham Road, Shoreham-by-Sea, West Sussex, BN43 5FG, United Kingdom†	01498115	Dormant
Ricardo Pension Scheme (Trustees) Limited	Shoreham Technical Centre, Old Shoreham Road, Shoreham-by-Sea, West Sussex, BN43 5FG, United Kingdom†	02376569	Dormant

37. Related undertakings of the Group (continued)

Overseas subsidiaries

Subsidiary or related undertaking	Registered office	Country	Principal activities
Ricardo Energy Environment and Planning Pty Ltd	Grant Thornton Australia Limited, Level 17, 383 Kent Street, Sydney, NSW, 2000, Australia	Australia	Energy & Environmental Consulting
Ricardo Australia Pty Ltd	Level 7, 151 Clarence Street, Sydney, New South Wales, 2000, Australia	Australia	Energy & Environmental Consulting and Rail Consulting
Ricardo Rail Australia Pty Ltd	Suite 2.01, Level 2, Tower B, The Zenith, 821 Pacific Highway, Chatswood, New South Wales, 2067, Australia	Australia	Rail Consulting
Wamarragu Transport Services Pty Ltd (45%)[7]	Suite 2.01, Level 2, Tower B, The Zenith, 821 Pacific Highway, Chatswood, New South Wales, 2067, Australia	Australia	Rail Consulting
Inside Infrastructure	Level 1, 101 Flinders Street, Adelaide, SA 5000, Australia	Australia	Energy & Environmental Consulting
Ricardo Canada, Inc	2600-160 Elgin Street, Ottawa, Ontario, Canada, K0A 3PO	Canada	Business Development
Ricardo Shanghai Company Limited[*]	Floor 17, Phoenix Building, No. 1515 Gumei Road, Xuhui District,Shanghai, 200233, PR China	China	Automotive & Industrial Consulting, Rail Consulting and Business Development
Chongqing Transportation Railway Safety Assessment Center Limited (60%)[6]	No. 2 Yangliu Road, Mid Huangshan Street, New North District,Chongqing, 401123, PR China	China	In Liquidation
Ricardo Beijing Company Limited	Room 1302, Building 11, No.1 Xiangheyuan Street, Dongcheng District, Beijing P.R. of China	China	Independent Assurance
Ricardo Prague s.r.o.	Palác Karlín, Thámova 11-13, 186 00 Praha 8, Czech Republic	Czech Republic	Automotive & Industrial Consulting and Software
Ricardo Certification Denmark ApS	Høffdingsvej 34, 2500 Valby, Copenhagen, Denmark	Denmark	Independent Assurance
Ricardo GmbH	Güglingstraße 66, 73529, Schwäbisch Gmünd, Germany	Germany	Automotive & Industrial Consulting and Business Development
Ricardo Strategic Consulting GmbH	Güglingstraße 66, 73529, Schwäbisch Gmünd, Germany	Germany	Strategic Consulting
Ricardo Deutschland GmbH	Güglingstraße 66, 73529, Schwäbisch Gmünd, Germany	Germany	Liquidated
Ricardo Hong Kong Limited	Units No.18, 11/F., Shui On Centre, 6-8 Harbour Road, Hong Kong	Hong Kong	Rail Consulting
Ricardo India Private Limited[1]	6th Floor, M6 Plaza, Jasola District Centre, New Delhi 110076, India	India	Business Development
Ricardo Motorcycle Italia s.r.l.	Via Giovanni Pascoli 47, 47853, Cerasolo, Coriano, Rimini, Italy	Italy	Automotive & Industrial Consulting and Business Development
Ricardo Japan K.K.	18th Floor, Shin Yokohama Square Building, 2-3-12 Shin Yokohama, Kohoku-ku, Yokohama-shi, Kanagawa, 222-0033, Japan	Japan	Automotive & Industrial Consulting, Rail Consulting and Business Development
Ricardo Nederland B.V.	Daalsesingel 51, 3511SW Utrecht	Netherlands	Rail Consulting
Ricardo Certification B.V.	Daalsesingel 51, 3511SW Utrecht	Netherlands	Independent Assurance
Ricardo Technical Consultancy LLC (49%)[5]	Palm Tower, Block B, 15th Floor, P.O. Box 26600, West Bay, Doha, Qatar	Qatar	Independent Assurance
Ricardo Environment Arabia LLC[9]	Bahrain Tower, Building Number 8953, 2393, King Fahd Road, Olaya, 12214, Kingdom of Saudi Arabia	Saudi Arabia	Dormant
Ricardo-AEA Limited Saudi Branch	Bahrain Tower, 2nd Floor, King Fahad Road, PO Box 8953, Riyadh, 12214-2393 Kingdom of Saudi Arabia	Saudi Arabia	Dormant
Ricardo Singapore Pte Limited	141 Middle Road, 5-6 GSM Building, 188976, Singapore	Singapore	Rail Consulting

37. Related undertakings of the Group (continued)

Subsidiary or related undertaking	Registered office	Country	Principal activities
Ricardo South Africa (Pty) Ltd (formerly PPA Energy (Pty) Ltd)	111 Pretoria Road, Rynfield, Benoni, Johannesburg, 1501, South Africa	South Africa	Energy & Environmental Consulting
Ricardo Consulting SL	Agustín de Foxá 29, 9B, 28036, Madrid, Spain	Spain	Energy & Environmental Consulting and Rail Consulting
Ricardo Certification Iberia SL	Agustín de Foxá 29, 9B, 28036, Madrid, Spain	Spain	Independent Assurance
Ricardo Rail (Taiwan) Ltd	11F-2 (Westside), No.51, Hengyang Rd., Zhongzheng Dist., Taipei City 10045, Taiwan (R.O.C.)	Taiwan	Independent Assurance
Ricardo (Thailand) Ltd (49%)[4]	140/36 ITF Tower 17th Floor, Silom Road, Kwang Surawong, Khet bangrak, Bangkok, 10500, Thailand	Thailand	In Liquidation
Ricardo Gulf Technical Consultancy LLC (49%)[3]	Abu Dhabi Island, Corniche Street, G5, Block 17, Floor 11, Office 1108, Unit Building / Mesmak Real Estate Company, United Arab Emirates	UAE	Energy & Environmental Consulting
Ricardo Defense Systems LLC	35860 Beattie Dr, Sterling heights, Michigan, 48312, United States	USA	Defence Manufacture
Ricardo Defense, Inc.	175 Cremona Drive, Suite 140, Goleta, California, 93117, United States	USA	Defence Consulting
C2D Joint Venture (33.3%)[2]	175 Cremona Drive, Suite 140, Goleta, California, 93117, United States	USA	Defence Consulting
Ricardo, Inc.	Detroit Technical Campus, 40000 Ricardo Drive, Van Buren Township, Detroit, Michigan, 48111-1641, United States	USA	Automotive & Industrial Consulting, Strategic Consulting and Software and Rail Consulting
Ricardo US Holdings, Inc.	Detroit Technical Campus, 40000 Ricardo Drive, Van Buren Township, Detroit, Michigan, 48111-1641, United States	USA	Holding Company
Ricardo Real Estate LLC	Detroit Technical Campus, 40000 Ricardo Drive, Van Buren Township, Detroit, Michigan, 48111-1641, United States	USA	Property Investment Company
Ricardo Software, Inc.	Detroit Technical Campus, 40000 Ricardo Drive, Van Buren Township, Detroit, Michigan, 48111-1641, United States	USA	Dormant
CDQ Joint Venture (50%)[8]	175 Cremona Drive, Suite 140, Goleta, California, 93117, United States	USA	Dormant

* Wholly owned direct subsidiary of Ricardo plc
† Registered in England and Wales
∞ These companies have claimed exemption from audit per 479A of the Companies Act 2006.
(1) 99% owned by Ricardo plc; 1% owned by Ricardo UK Limited.
(2) 33.3% owned by Ricardo Defense, Inc.; 33.3% owned by DG Technologies; 33.3% owned by Claxton Logistics Services LLC.
(3) 49% of share capital and 80% of retained earnings owned by Ricardo-AEA Limited; 51% of share capital and 20% of retained earnings owned by SSD Commercial Investment
(4) 49% of share capital and 92.5% of retained earnings owned by Ricardo Hong Kong Limited; 51% of share capital and 7.5% of retained earning owned by First Asia Industries Limited.
(5) 49% of share capital and 97% of retained earnings owned by Ricardo Rail Limited; 51% of share capital and 3% of retained earnings owned by Pro-Partnership LLC.
(6) 60% owned by Ricardo Beijing Company Limited; 40% owned by Chongqing Science & Technology Testing Center Limited.
(7) 45% owned by Ricardo Rail Australia Pty Ltd; 55% owned by Justin Brooker Nominees Pty Ltd. This associate undertaking is immaterial to the Group.
(8) 50% owned by Ricardo Defense, Inc.; 50% owned by DG Technologies.
(9) 15% owned by Ricardo plc; 85% owned by Ricardo-AEA Limited.

In the opinion of the Directors, the comprehensive income for the year and equity at the reporting date which is attributable to non-controlling interests is not considered to be material. Non-controlling interests are set out above in Footnotes (2) to (8).

38. Related parties' transactions

Key management personnel are the Board of Directors, together with the Managing Directors who have the authority and responsibility for planning, directing and controlling the Group's activities and resources within the market sectors in which the Group operates. This is set out in Note 33.

The remuneration received by all Executive and Non-Executive Directors during the year is disclosed in the Directors' Remuneration Report on page 110.

The Ricardo Pension Scheme (Trustees) Limited is a related party to the Group. Amounts paid to the Group's retirement payments is set out in Note 34.

39. Events after the reporting date

On 2 August 2022, the Group completed a refinance of its banking facilities, entering into a new £150.0m committed multi-currency Revolving Credit Facility ('RCF'). The banking facilities were used to repay and cancel the previous committed RCF of £200m. The RCF is committed for 4 years to August 2026 with an uncommitted option to extend for a further year and with an additional uncommitted £50m accordion. The interest rate of the facility ranges from 1.65% to 2.45% above SONIA and is dependent upon the Group's adjusted leverage. All other terms of the facility remain materially the same. The refinanced banking facilities will provide the Group with sufficient funding to support future acquisitions, strategic investments and new projects, and will also be used for general corporate purposes.

On 1 August 2022, the Group completed the sale of its Software business, which was classified as held for sale at the 30 June 2022, and presented as a discontinued operation. Initial consideration was £14.3m (USD 17.5m), and variable deferred consideration was between £0.8m and £2.4m (USD 1.0m to USD 3.0m), resulting in an estimated gain on disposal of £9m excluding transaction fees - see Note 19.

COMPANY PRIMARY STATEMENTS

COMPANY STATEMENT OF FINANCIAL POSITION OF RICARDO PLC
AS AT 30 JUNE

	Note	2022 £m	2021 Restated(*) £m
Assets			
Non-current assets			
Other intangible assets	2	**0.7**	1.1
Property, plant and equipment	3	**4.1**	4.5
Right-of-use assets	4	**5.2**	5.7
Retirement benefit surplus	11c	**15.2**	6.8
Investments	5	**103.1**	103.1
Other receivables	7	**115.0**	95.7
Deferred tax assets	6	**1.5**	1.2
		244.8	218.1
Current assets			
Other receivables	7	**22.2**	38.4
Derivative financial assets	11f	**0.8**	0.9
Current tax assets		**-**	0.7
Cash and cash equivalents		**2.1**	5.4
		25.1	45.4
Total assets		**269.9**	263.5
Liabilities			
Current liabilities			
Borrowings	8	**6.7**	5.9
Lease liabilities	9	**0.8**	0.8
Trade and other payables	10	**98.0**	111.8
Current tax liabilities		**0.3**	-
Derivative financial liabilities	11f	**5.1**	1.0
		110.9	119.5
Net current liabilities		**(85.8)**	(74.1)
Non-current liabilities			
Lease liabilities	9	**5.7**	6.1
Deferred tax liabilities	6	**4.9**	2.1
		10.6	8.2
Total liabilities		**121.5**	127.7
Net assets		**148.4**	135.8
Equity			
Share capital		**15.6**	15.6
Share premium		**16.8**	16.8
Other reserves		**23.5**	23.5
Retained earnings		**92.5**	79.9
Total equity		**148.4**	135.8

(*) The split of prior year other receivables have been restated between current and non-current. See note 7 for further details.

The Ricardo plc Company statement of financial position has been prepared in accordance with Financial Reporting Standard 101 *Reduced Disclosure Framework* ('FRS 101'). The notes on pages 219 to 223 form an integral part of these financial statements.

The Company has not presented its own Income Statement and Statement of Comprehensive Income as permitted by Section 408 of the Companies Act 2006. The Company's profit for the year was £13.0m (2021: loss £0.4m). The financial statements of Ricardo plc (registered number 222915) on pages 218 to 223 were approved by the Board of Directors on 13 September 2022 and signed on its behalf by:

Graham Ritchie
Chief Executive Officer

Ian Gibson
Chief Financial Officer

COMPANY STATEMENT OF CHANGES IN EQUITY OF RICARDO PLC
FOR THE YEAR ENDED 30 JUNE

	Share capital	Share premium	Other reserves	Retained earnings	Total
	£m	£m	£m	£m	£m
At 1 July 2020	13.4	14.3	-	73.2	100.9
Loss for the year	-	-	-	(0.4)	(0.4)
Other comprehensive income for the year	-	-	-	7.2	7.2
Total comprehensive income for the year	-	-	-	6.8	6.8
Issue of ordinary share capital	2.2	2.5	23.5	-	28.2
Equity-settled transactions	-	-	-	1.0	1.0
Ordinary share dividends	-	-	-	(1.1)	(1.1)
At 30 June 2021	15.6	16.8	23.5	79.9	135.8
At 1 July 2021	**15.6**	**16.8**	**23.5**	**79.9**	**135.8**
Profit for the year	**-**	**-**	**-**	**13.0**	**13.0**
Other comprehensive income for the year	**-**	**-**	**-**	**3.1**	**3.1**
Total comprehensive income for the year	**-**	**-**	**-**	**16.1**	**16.1**
Equity-settled transactions	**-**	**-**	**-**	**1.7**	**1.7**
Purchases of own shares to settle awards	**-**	**-**	**-**	**(0.2)**	**(0.2)**
Ordinary share dividends	**-**	**-**	**-**	**(5.0)**	**(5.0)**
At 30 June 2022	**15.6**	**16.8**	**23.5**	**92.5**	**148.4**

COMPANY NOTES TO THE FINANCIAL STATEMENTS OF RICARDO PLC

1. Principal accounting policies

Basis of preparation

Notwithstanding net current liabilities of £85.8m (2021: £74.1m) the financial statements of Ricardo plc have been prepared on a going concern basis, as discussed in the viability statement on page 62. These financial statements were prepared in accordance with Financial Reporting Standard 101 Reduced Disclosure Framework ("FRS 101"). In preparing these financial statements, the Company applies the recognition, measurement and disclosure requirements of UK-adopted international accounting standards in conformity with the requirements of the Companies Act 2006 but makes amendments where necessary in order to comply with Companies Act 2006 and has set out below where advantage of the FRS 101 disclosure exemptions has been taken. The accounting policies set out below have been applied consistently to all years presented in these financial statements. The following exemptions available under FRS 101 have been applied:

- Paragraphs 45(b) and 46 to 52 of IFRS 2 *Share-based Payment* (details of the number and weighted average exercise prices of share options and how the fair value of goods and services received was determined).
- IFRS 7 Financial Instruments: Disclosures.
- Paragraphs 91 to 99 of IFRS 13 *Fair Value Measurement* (disclosure of valuation techniques and inputs used for fair value measurement of assets and liabilities).
- Paragraph 38 of IAS 1 *Presentation of Financial Statements* to present comparative information in respect of:
  - paragraph 73(e) of IAS 16 *Property, Plant and Equipment*; and
  - paragraph 118(e) of IAS 38 *Intangible Assets*.
- The following paragraphs of IAS 1 Presentation of financial statements:
  - 10(d) (statement of cash flows);
  - 16 (statement of compliance with all IFRS);
  - 38(a) (requirement for minimum of two primary statements, including cash flow statements);
  - 38(b)-(d) (additional comparative information);
  - 111 (cash flow statement information); and
  - 134-136 (capital management disclosures).
- IAS 7 *Statement of Cash Flows* (the Company has not published its individual cash flow statement as its liquidity, solvency and financial adaptability are dependent on the Group rather than its own cash flows).

1. Principal accounting policies (continued)

- Paragraphs 30 and 31 of IAS 8 Accounting Policies, *Changes in Accounting Estimates and Errors* (requirement for the disclosure of information when an entity has not applied a new IFRS that has been issued and is not yet effective).
- Paragraph 17 of IAS 24 *Related Party Disclosures* (key management compensation) and the requirements of IAS 24 Related Party Disclosures to disclose related party transactions entered into between two or more members of the Group, provided that any subsidiary which is party to the transaction is wholly-owned by such a member.

Significant accounting policies
The significant accounting policies applied in the preparation of these individual financial statements are set out below. These policies have been applied consistently to all the years presented, unless otherwise stated.

Investments
Investments in subsidiaries are stated at cost less any impairment in value. The Company evaluates the carrying value of investments at the end of each financial year to determine if there has been an impairment in value, which would result in the inability to recover the carrying amount. When it is determined that the carrying value exceeds the recoverable amount, the excess is written-off to comprehensive income.

Amounts owed by subsidiary undertakings
The majority of the Company's financial assets are amounts owed by subsidiary undertakings. These are measured initially at fair value, and subsequently at amortised cost. The general approach is applied to the impairment of financial assets, recognising a loss allowance for expected credit losses ('ECL'). Where the credit risk has not increased significantly since initial recognition the loss allowance are measured as 12-month ECL. For balances repayable on demand, or where the credit risk has increased significantly since initial recognition, a lifetime ECL is measured. ECLs are a probability-weighted estimate of credit losses. Credit losses are measured as the present value of all cash shortfalls (i.e. the difference between the cash flows due to the entity in accordance with the contract and the cash flows that the Company expects to receive, therefore considering future expectations). ECLs are discounted at the effective interest rate of the financial asset.

When determining whether the credit risk of a financial asset has increased significantly since initial recognition and when estimating ECL, the Company considers the available cash and cash equivalents within the subsidiary, the net current assets of the undertaking and future cash generation.

Assets are provided in full and subsequently written off when there is no reasonable expectation of recovery. Indicators that there may be no reasonable expectation of recovery could include, amongst others, evidence that the subsidiary has entered liquidation proceedings, or no reasonable expectation that sufficient future cash generation to repay the loan will occur in the subsidiary undertaking.

Other significant accounting policies
Other significant accounting policies are consistent with the Group financial statements.

Judgements in applying accounting policies and key sources of estimation uncertainties
The preparation of financial statements under FRS 101 requires the Company's management to make judgements and estimates that affect the application of accounting policies and the reported amounts of assets, liabilities, revenues and costs. These judgements and estimates 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. The key area of judgment that has the most significant effect on the amounts recognised in the financial statements is the review of financial assets for impairment. Management has applied judgement to when determining the credit risk of fellow Group undertakings and their ability to repay loans.

The area involving significant risk of a material adjustment to the carrying amounts of assets and liabilities due to estimate uncertainty within the next financial year is the Company's defined benefit obligation. This risk is the same as that of the Group and is explained in Note 1(d) to the Group financial statements. Another area of estimation uncertainty is management's assessment of the Company's investments to determine whether an indicator of impairment exists. Where applicable, management then evaluates the carrying value of investments against their value in use to determine if there has been an impairment in value, which would result in the inability to recover the carrying amount. The value in use is estimated using a discounted cash flow methodology. A pre-tax discount rate is used to discount the cash flows, which are derived from externally sourced data reflecting the current market assessment of these investments.

The basis for the projected cash flows is the Group's five-year plan, which is prepared by management and reviewed and approved by the Board. The plan reflects past experience and management's assessment of the current contract portfolio, contract wins, contract retention, price increases, and gross margin, as well as future expected market trends. Cash flows after the five-year plan are projected into perpetuity using a growth rate based on inflation and an average long-term economic growth rate for the territory.

Changes in accounting policies
Several other standards, interpretations and amendments to existing standards became effective on 1 July 2021 as detailed in Note 1(z) to the Group financial statements; none of these had a material impact on the Company.

2. Intangible assets

	Software £m
Cost	
At 1 July 2020	9.5
Additions	0.2
At 30 June 2021	9.7
At 1 July 2021	**9.7**
Disposals	**(0.2)**
At 30 June 2022	**9.5**
Accumulated amortisation	
At 1 July 2020	8.4
Charge for the period	0.2
At 30 June 2021	8.6
At 1 July 2021	**8.6**
Charge for the period	**0.4**
Disposals	**(0.2)**
At 30 June 2022	**8.8**
Net book value	
At 1 July 2020	1.1
At 30 June 2021	1.1
At 30 June 2022	**0.7**

Software includes £0.1m (2021: £0.7m) in respect of assets under construction which are not being amortised until the assets are made available for use.

3. Property, plant and equipment

	Land and property £m	Fixtures, fittings and equipment £m	Total £m
Cost			
At 1 July 2020	6.7	1.4	8.1
At 30 June 2021	6.7	1.4	8.1
At 1 July 2021	**6.7**	**1.4**	**8.1**
At 30 June 2022	**6.7**	**1.4**	**8.1**
Accumulated depreciation and impairment			
At 1 July 2020	2.8	0.6	3.4
Charge for the period	0.1	0.1	0.2
At 30 June 2021	2.9	0.7	3.6
At 1 July 2021	**2.9**	**0.7**	**3.6**
Charge for the period	**0.2**	**0.2**	**0.4**
At 30 June 2022	**3.1**	**0.9**	**4.0**
Net book value			
At 1 July 2020	3.9	0.8	4.7
At 30 June 2021	3.8	0.7	4.5
At 30 June 2022	**3.6**	**0.5**	**4.1**

A contingent liability of up to £2.8m which is associated with a guarantee provided to the Ricardo Group Pension Fund in July 2013 is secured on specific land and buildings. Further detail is given in Note 36 to the Group financial statements.

4. Leases

(a) As a lessee

The Company leases one office premises and technical centre, with a remaining lease term of 10 years. The lease agreement does not impose any covenants. The leased asset may not be used as security for borrowing purposes.

Right-of-use assets

	Property £m	Motor Vehicles £m	Total £m
Cost			
At 1 July 2020	7.6	-	7.6
At 30 June 2021	7.6	-	7.6
At 1 July 2021	**7.6**	-	**7.6**
Additions	**-**	**0.1**	**0.1**
At 30 June 2022	**7.6**	**0.1**	**7.7**
Accumulated depreciation and impairment			
At 1 July 2020	1.4	-	1.4
Charge for the period	0.5	-	0.5
At 30 June 2021	1.9	-	1.9
At 1 July 2021	**1.9**	**-**	**1.9**
Charge for the period	**0.6**	**-**	**0.6**
At 30 June 2022	**2.5**	**-**	**2.5**
Net book value			
At 1 July 2020	6.2	-	6.2
At 30 June 2021	5.7	-	5.7
At 30 June 2022	**5.1**	**0.1**	**5.2**

See Note 9 for details of the associated lease liabilities.

4. Leases (continued)

(b) As a lessor

The Company subleases part of its right of use property with a remaining term of 4 years. This lease is classified as an operating lease.

During the year the Company recognised rental income of £0.3m (2021: £0.2m) on these subleases.

The following table sets out a maturity analysis of lease payments, showing the undiscounted lease payments to be received after the reporting date.

Operating lease	2022 £m	2021 £m
Less than one year	**0.4**	0.2
One to five years	**1.0**	0.7
Total	**1.4**	0.9

5. Investments

	Shares in subsidiaries £m
Cost and Net Book Value	
At 1 July 2020	103.1
At 30 June 2021	103.1
At 1 July 2021	**103.1**
At 30 June 2022	**103.1**

The Directors consider that the fair value of investments is not less than the carrying value. Details of the Company's subsidiaries and related undertakings are shown in Note 37 to the Group financial statements.

6. Deferred tax

Movement in deferred tax balance	2022 £m	2021 £m
At 1 July	**(0.9)**	1.4
Charged to income statement	**(0.5)**	(0.3)
Charged to other comprehensive income	**(2.0)**	(2.0)
At 30 June	**(3.4)**	(0.9)

Balance comprised of:	2022 £m	2021 £m
Accelerated capital allowances	**(0.3)**	(0.3)
Defined benefit obligation	**(3.9)**	(1.3)
Tax losses and credits	**0.3**	-
Unrealised capital gains	**(0.6)**	(0.7)
Other	**1.1**	1.4
At 30 June	**(3.4)**	(0.9)

	2022 £m	2021 £m
Non-current:		
Assets	**1.5**	1.2
Liabilities	**(4.9)**	(2.1)
At 30 June	**(3.4)**	(0.9)

7. Other receivables

	2022 £m	2021 Restated (*) £m
Amounts owed by subsidiaries	**134.3**	131.0
Prepayments	**1.5**	2.0
Other receivables	**1.4**	1.1
At 30 June	**137.2**	134.1
Current	**22.2**	38.4
Non-current	**115.0**	95.7
At 30 June	**137.2**	134.1

(*) £59.6m (2021: £55.3m) amounts owed by subsidiaries have been classified as non-current other receivables, as they are not expected to be repaid in the 12 months following the year end. The equivalent prior year balance was previously shown within current other receivables and has been restated.

£9.8m (2021: £24.1m) of the amounts owed by subsidiaries are due for repayment within the next 12 months and the remaining £124.5m (2021: £106.9m) have no fixed repayment date.

Non-current trade and other receivables consist of amounts owed by subsidiaries which are neither planned nor likely to be settled in the foreseeable future. £113.8m (2021: £108.8m) of the amounts owed by subsidiaries carry interest at rates between 2.0% and 5.0% (2021: 2.0% and 5.0%) with the remaining £20.5m (2021: £22.2m) being interest-free. All amounts owed by subsidiaries are unsecured, and expected credit losses are considered to be immaterial.

8. Borrowings

	2022 £m	2021 £m
Current liabilities - borrowings		
Bank overdrafts repayable on demand	**6.7**	5.9
At 30 June	**6.7**	5.9

The Company has the same banking facilities as the Group. See Note 25 to the Group financial statements.

9. Lease liabilities

Movement in lease liability	2022 £m	2021 £m
At 1 July	**6.9**	7.4
Additions	**0.1**	-
Interest	**0.3**	0.3
Payments	**(0.8)**	(0.8)
At 30 June	**6.5**	6.9

	2022 £m	2021 £m
Current liabilities - maturing within one year	**0.8**	0.8
Non-current liabilities - maturing after one year	**5.7**	6.1
At 30 June	**6.5**	6.9

Maturity of undiscounted lease liability	2022 £m	2021 £m
Within one year	**0.8**	0.8
Between one and five years	**3.2**	3.2
After five years	**4.0**	4.8
Finance portion of net liability	**(1.5)**	(1.9)
At 30 June	**6.5**	6.9

10. Trade and other payables

	2022 £m	2021 £m
Trade payables	**0.4**	0.6
Tax and social security payable	**0.6**	0.4
Amounts owed to subsidiaries	**92.8**	107.8
Accruals	**4.1**	3.0
Other payables	**0.1**	-
At 30 June	**98.0**	111.8

All amounts owed to subsidiaries are unsecured. £86.0m (2021: £99.6m) of the amounts owed to subsidiaries carry interest at rates between 2.0% and 3.1% (2021: 2.0% and 3.0%) and has no fixed repayment date. £6.8m (2021: £8.2m) of the amounts owed to subsidiaries are interest-free and due for repayment within the next 12 months.

11. Other information

(a) Company audit fee
Fees payable to the Company's auditor for the audit of the Company's annual financial statements totalled £0.8m (2021: £0.3m). Fees payable to KPMG LLP and its associates for non-audit services to the Company are not required to be disclosed because the Group financial statements disclose such fees on a consolidated basis (see Note 11 to the Group financial statements).

(b) Director's emoluments
The remuneration received by all Executive and Non-Executive Directors during the year is disclosed in the Directors' Remuneration Report on page 110.

(c) Employees and defined benefit obligation
During the year the Company employed an average of 50 (2021: 48) employees.

The Company operates a defined benefit pension scheme, the Ricardo Group Pension Fund ('RGPF'). This is disclosed in Note 34 to the Group financial statements together with the accounting policy and key accounting estimates.

(d) Share capital, share premium and other reserves
See Notes 29 and 30 to the Group financial statements.

(e) Contingent liabilities
Contingent liabilities exist in the form of guarantees provided in the ordinary course of business to certain subsidiaries to give assurance of their contractual and financial commitments. None of these arrangements are expected to give rise to any material cost to the Company.

In July 2013, a guarantee was provided to the Ricardo Group Pension Fund ('RGPF') of £2.8m in respect of certain contingent liabilities that may arise, which have been secured on specific land and buildings. The outcome of this matter is not expected to give rise to any material cost to the Group. In October 2018, a further guarantee was provided to the RGPF for an amount that shall not exceed the employers' liability were a debt to arise under Section 75 of the Pensions Act 1995. In November 2021 the guarantee was extended for a further 3 years and will now terminate on 5 April 2026. The outcome of this matter is not expected to give rise to any material cost to the Group on the basis that the Group continues as a going concern.

(f) Derivative financial assets and liabilities
The Company has the same derivative financial assets and liabilities as the Group. These are disclosed in Note 27 to the Group financial statements.

(g) Related party transactions
The Company has taken the exception under FRS 101 not to disclose related party transactions entered into between two or more members of the Group, nor to disclose key management compensation. Directors' emoluments are referenced in Note 11(b).

04. ADDITIONAL INFORMATION

CORPORATE INFORMATION

Group General Counsel and Company Secretary
Patricia Ryan

Registered office
Ricardo plc
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BN43 5FG

Registered Company number
222915

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Independent auditors
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Tel: 0203 100 2000

Website: www.ricardo.com

A PDF version of this Annual Report & Accounts can be downloaded from the Investors page of our website.

Key dates
Annual General Meeting: 17 November 2022

Shareholder services
Link Asset Services provide a share portal service, which allows shareholders to access a variety of services online, including: viewing shareholdings; buying and selling shares online; registering change of address details; and bank mandates to have dividends paid directly into your bank account. Any shareholder who wishes to register with Link Asset Services to take advantage of this service should visit www.linkassetservices.com/shareholders.

Shareholder enquiries
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RH16 0NT

Financial advisors
NM Rothschild & Sons New Court
St Swithin's Lane London
EC4P 4DU

GLOSSARY

Term	Definition
B-BBEE legislation	South African employment legislation – Broad-based Black Economic Empowerment
Cash conversion	Statutory cash conversion is calculated as cash generated from operations divided by earnings before interest, tax, depreciation and amortisation (EBITDA)
Constant currency organic growth/decline	The Group generates revenues and profits in various territories and currencies because of its international footprint. Those results are translated on consolidation at the foreign exchange rates prevailing at the time. Constant currency organic growth/decline is calculated by translating the result for the current year using foreign currency exchange rates applicable to the prior year. This provides an indication of the growth/decline of the business, excluding the impact of foreign exchange.
DTC	Detroit Technology Campus
EBITDA	Earnings before interest, tax, depreciation, impairment and amortisation
ESG	Environmental, Social and Governance
FY	Financial Year
GHG	Greenhouse gases
Headcount	Headcount is calculated as the number of colleagues on the payroll at the reporting date and includes subcontractors on a full-time equivalent basis.
ISO 9001	International standard for Quality Management Systems
ISO 14001	International standard for Environmental Management Systems
ISO 27001	International standard for Information Security Management Systems
ISO 45001	International standard for Occupational Health and Safety Management Systems
Net debt	Net debt is defined as current and non-current borrowings less cash and cash equivalents, including hire purchase agreements, but excluding IFRS 16 lease liabilities. Management believes this definition is the most appropriate for monitoring the indebtedness of the Group and is consistent with the treatment in the Group's banking agreements.
Order book	The value of all unworked purchase orders and contracts received from customers at the reporting date, providing an indication of revenue that has been secured and will be recognised in future accounting periods.
Order intake	The value of purchase orders and contracts received from customers during the period.
Organic growth/decline	Organic growth/decline is calculated as the decline in the result for the current year compared to the prior year, after adjusting for the performance of acquisitions or disposals, to include the results of those acquisitions for an equivalent period in each financial year.
Organic result	The organic result for the prior year includes the performance of acquisitions for an equivalent period to FY 2019/20.
REEP	Ricardo Energy, Environment and Planning, formerly PLC Consulting Pty Ltd, acquired 31 July 2019
RRA	Ricardo Rail Australia, formerly Transport Engineering Pty Ltd, acquired 31 May 2019
SBTi	Science Based Targets initiative.
Scope 1 Emissions	Direct emissions from owned or controlled sources
Scope 2 Emissions	Indirect emissions from the generation of purchased energy.
Scope 3 Emissions	All indirect emissions (not included in scope 2) that occur in the value chain, including both upstream and downstream emissions.
TCFD	Task Force on Climate-Related Financial Disclosures: An organization of 31 members aiming to develop guidelines for voluntary climate-centred financial disclosures across industries
Underlying	Underlying measures exclude the impact on statutory measures of specific adjusting items. Underlying measures are considered to provide a more useful indication of underlying performance and trends over time.