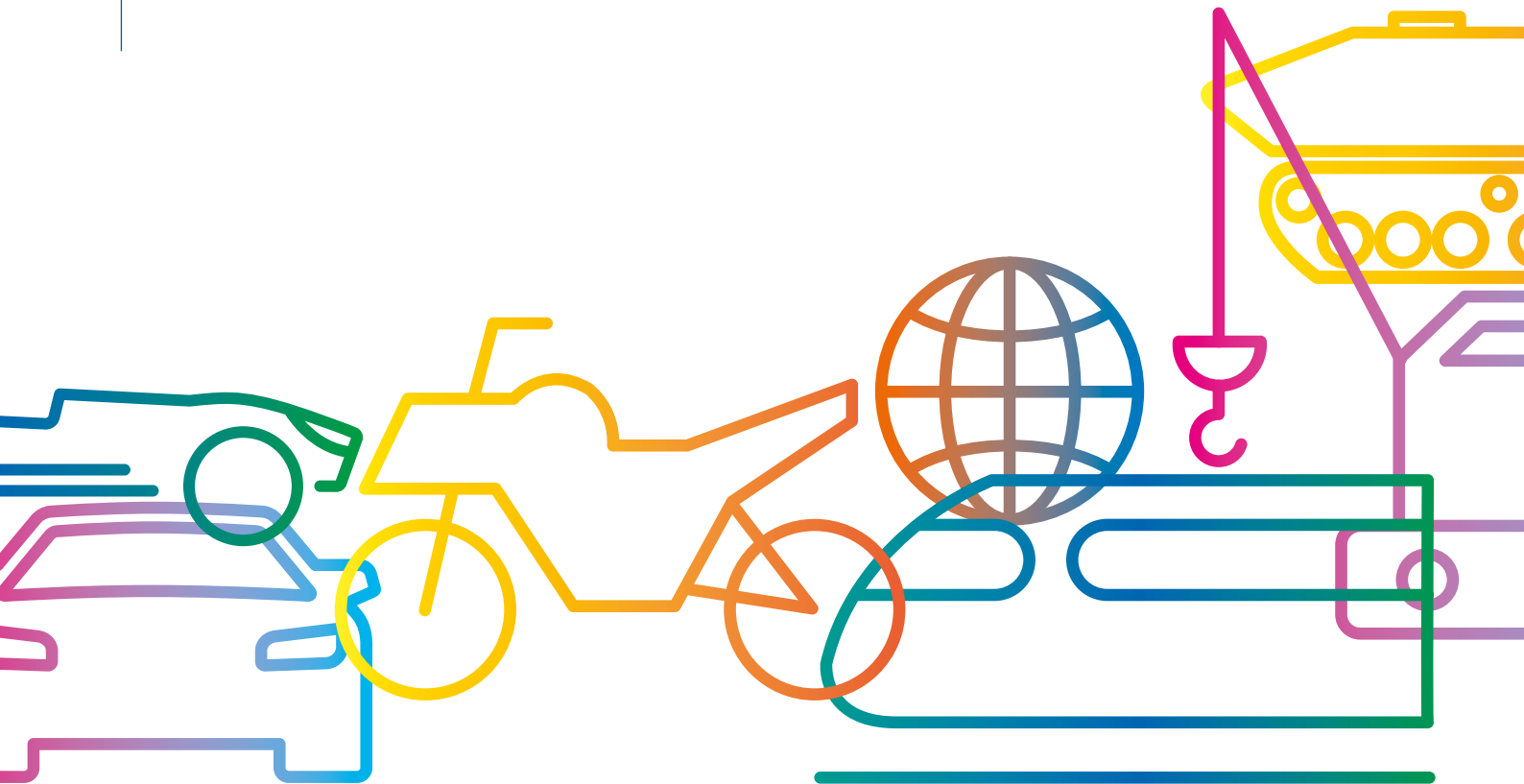




Ricardo plc
**Annual Report
& Accounts 2016**



Delivering Excellence Through Innovation & Technology

Group overview

Introduction

Who we are

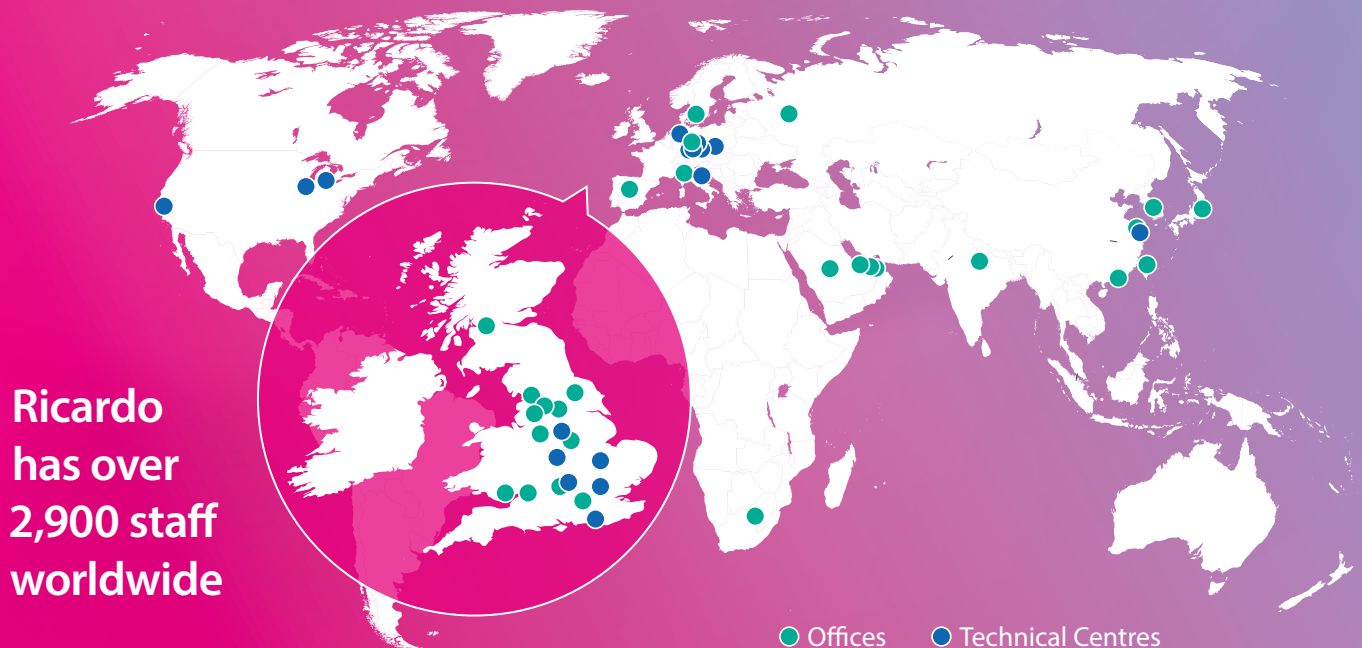
Ricardo is a global engineering and strategic, technical and environmental consultancy business with a value chain that includes the niche manufacture and assembly of high-performance products. Our ambition is to be the world's pre-eminent brand in the development and application of solutions to meet the challenges in the transportation, energy and scarce resource sectors.

Drawing on over 100 years of commitment to research and development, Ricardo's team of over 2,900 professional engineers, consultants, scientists and support staff delivers class-leading and innovative products and services for the benefit of a broad customer base.

This includes the world's major transportation original equipment manufacturers and operators, supply chain organisations, energy companies, financial institutions and government agencies.

The delivery of our products and services is made possible through our people, who are at the heart of our business and are the bedrock of our success. Ricardo cultivates the talent, the innovation, and the engineering and scientific excellence of its professionals and invests in their development for the benefit of the individual, our organisation and its stakeholders. Ricardo's community is bound together and driven by our corporate values of Respect, Integrity, Creativity and Innovation, and Passion.

Where we are



Ricardo has over 2,900 staff worldwide

250+
North America

1,800+
United Kingdom

600+
Mainland Europe

250+
Asia & Rest of the World

What we do

Technical Consulting

We provide engineering, design and consulting services to customers across a range of market sectors. We also provide independent assurance services to the rail industry.



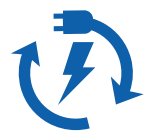
Engines



Vehicle Systems



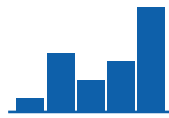
Driveline & Transmission Systems



Hybrid & Electric Systems



Critical Systems



Strategic Consulting



Environmental Consulting



Energy Consulting



Independent Assurance



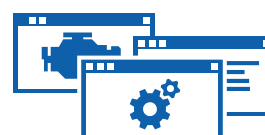
Test Services

Performance Products

We manufacture and assemble low-volume, high-quality, high-performance products including transmissions, engines and complete vehicles. We also develop and sell licences for a portfolio of innovative computer-aided engineering software products.



Niche Manufacturing



Software

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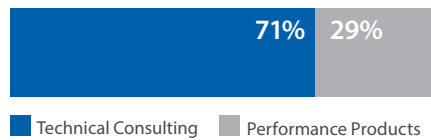
Additional information

- 156 Corporate information
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Group order intake at a glance

Order intake

Year ended 30 June 2016



Total order intake

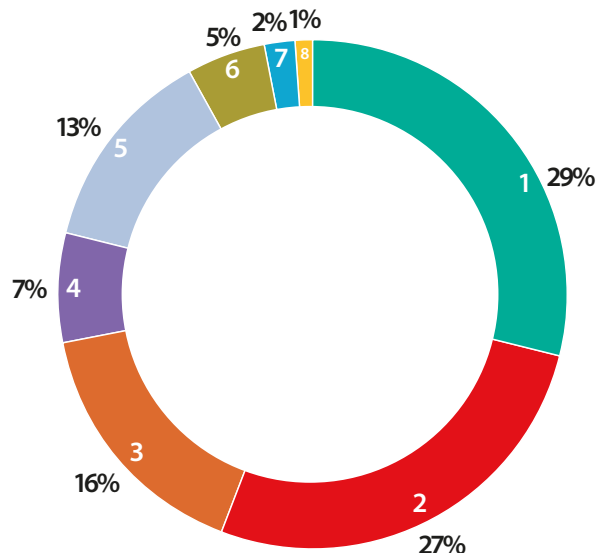
£361m

Order intake by:

Our market sectors

Our strategy of diversification into adjacent market sectors has improved the balance of our order intake.

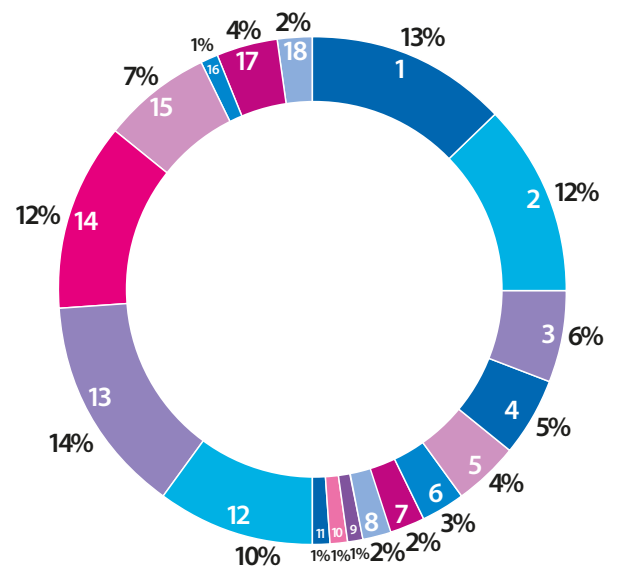
- 1. Automotive
- 2. High-Performance Vehicles & Motorsport
- 3. Rail
- 4. Commercial Vehicles
- 5. Energy & Environment
- 6. Defence
- 7. Motorcycle & Personal Transportation
- 8. Off-Highway



Our customers

Our order intake arises from a client list that includes the world's major transportation original equipment manufacturers and operators, supply chain organisations, energy companies, financial institutions and government agencies.

- 1-11. Key clients
- 12. Rest of UK
- 13. Rest of Asia
- 14. Rest of Europe
- 15. Rest of North America
- 16. Rest of the World
- 17. UK Government
- 18. US Defense

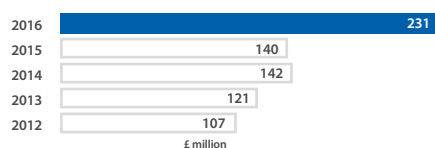


Highlights

Financial

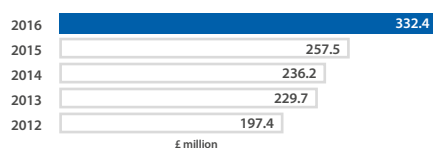
Order book

£231m +65%



Revenue

£332.4m +29%

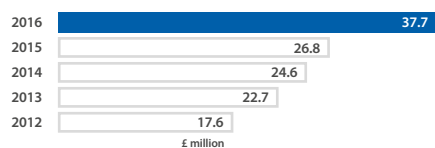


Operational

- Acquisitions of Lloyd's Register Rail and Cascade completed in the financial year and both performing well;
- Ricardo Certification business launched in the rail industry, with UKAS accreditation for ISO 17020 and ISO 17065 standards;
- Expansion of McLaren engine manufacturing facility completed as part of long-term engine supply contract;
- Secured a large, multi-year contract for the manufacture and supply of high-performance transmissions;
- Obtained large, local programmes in California;
- High-profile support provided by Ricardo Energy & Environment to COP21; and
- Further expansion of Ricardo Motorcycle, following the post year-end acquisition of the trade and assets of Exnov.

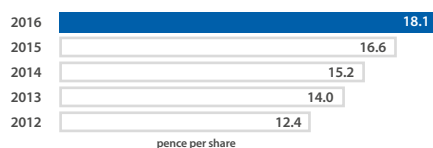
Underlying⁽¹⁾ profit before tax including RDEC⁽²⁾

£37.7m +41%



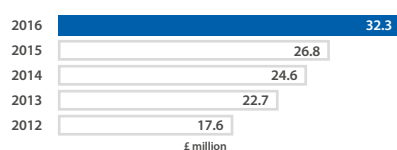
Dividends per share (paid and proposed)

18.1p +9%



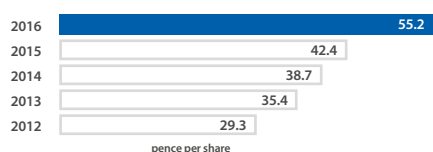
Underlying⁽¹⁾ profit before tax excluding RDEC⁽²⁾

£32.3m +21%



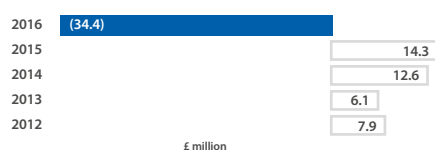
Underlying⁽¹⁾ basic earnings per share

55.2p +30%



Net (debt)/funds

£(34.4)m



1. Excludes specific adjusting items, which comprise amortisation of acquired intangible assets of £3.4m (2015: £1.3m), acquisition-related expenditure of £2.8m (2015: £2.6m) and non-recurring income of £1.5m for claims under the Research & Development Expenditure Credit ("RDEC") scheme in respect of prior years.

2. Income of £5.4m under the RDEC scheme in respect of the current year.



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Chairman's statement



Sir Terry Morgan – Chairman

The Group continues to pursue its strategic objectives through organic growth and carefully targeted acquisitions. I would like to welcome the employees of Lloyd's Register Rail and Cascade to Ricardo, following the acquisitions earlier in the year. Ricardo is a people business and our employees underpin everything that the Group achieves.

Results

For the year ended 30 June 2016, the Group delivered a strong underlying operating result with 29% growth in revenue to £332.4m and 41% growth in underlying profit before tax to £37.7m, as well as a 30% increase in basic underlying earnings per share to 55.2 pence.

As set out in more detail in the Financial Review of the Chief Financial Officer on pages 28 to 31, much of this performance is attributable to businesses acquired during the financial year, together with credits in respect of research and development expenditure, but there has been good organic growth of the Group of 7% in both revenue and underlying profit before tax.

The consideration paid for the businesses that have been acquired during the year has resulted in the Group having net debt of £34.4m at year-end, but the financial position of the Group remains strong.

The Group continues to pursue its strategic objectives through organic growth and carefully targeted acquisitions. The Group's performance against its strategic objectives are outlined on pages 16 and 17. Investment in research and development (described on pages 26 and 27), people and facilities has continued.

People

I would like to thank all of our employees for their hard work and professionalism over the last year. I would particularly like to welcome the employees from Lloyd's Register Rail and Cascade to Ricardo and thank them for their contribution to our business.

As set out on pages 32 and 33, Ricardo is a people business and our employees underpin everything that the Group achieves. It is the commitment of our employees that enables us to deliver these results and which underpins our reputation with clients.

I would also like to congratulate all those individuals and team members who have won awards under the various Ricardo recognition programmes during the year, together with those members of staff who have gained academic success or peer group recognition in their chosen career paths.

Corporate governance

The Board firmly believes that robust corporate governance and risk management are essential to maintain the stability of the Group and its financial health. I am reporting separately on Corporate



Governance on pages 78 to 87 of this Annual Report.

I am delighted that Ricardo has been included in the FTSE4Good Index Series for demonstrating strong Environmental, Social and Governance ('ESG') practices. This achievement bears testament to our commitment to the highest standards of corporate governance which ultimately produces a better business and supports long-term performance.



The Board

David Hall stepped down as non-executive director at the close of last year's Annual General Meeting on 4 November 2015 and Malin Persson joined the Board as non-executive director on 4 January 2016. Malin has extensive international automotive and technology experience and we look forward to the guidance she will bring.

Dividend

The Board has declared a final dividend of 13.03 pence per share to give a total dividend of 18.1 pence, an

increase of 9% on the prior year. This is in line with the Board's policy to pay progressive dividends and reflects its confidence in the prospects of the Group.

Outlook

Global economic trends, including emissions legislation, air quality, climate change and resource scarcity, continue to underpin the Ricardo strategy. The Group has a good financial platform and a range of opportunities open to it as a diverse global engineering and environmental consulting business. Subsequent to the UK's referendum vote to leave the EU, it is business as usual and we will continue to monitor developments and work with the UK government to protect our future business needs. Ricardo is well positioned for future growth, with both a good order book and pipeline of opportunities across all our sectors.

Sir Terry Morgan, CBE
Chairman

Some of Ricardo's recent technology demonstrator vehicles, exhibiting some of the latest and most advanced low-carbon powertrain innovations for possible use in the future products of the world's leading automakers

Chief executive's statement



Dave Shemmans – Chief Executive Officer

Our mission at Ricardo is a simple one: to play a major part in solving the world's big issues around transportation, pollution, climate change and the efficient use of scarce resources such as oil and water.

We strive to create an environment in which we can attract, motivate and inspire the very best international engineers, consultants, scientists and support staff - the people who really want to make a difference. Our task is to support governments and industry worldwide to develop frameworks, policies and technical solutions to tackle the increasing impact contemporary society is having on these big global issues.

Rapidly increasing population means that mobility and urbanisation solutions are urgently required to address the issues of transport, energy and the use of scarce resources. As society transitions from a 'linear economy' of create-use-dispose to a 'circular economy' of create-use-reuse, we are continuing to make efficiency and sustainability the central focus in all of our activities and offerings. We are extremely proud to see our contributions to public policies and to green products in everyday use around the world; we welcome our engagement at the very top of the world's environmental agenda.

This year we have extended our capabilities into rail and water consulting through the acquisitions of LR

Rail and Cascade, and expanded our capability in the urban mobility market through the acquisition of the Exnovo business after the year-end. We have stepped up our investment into facilities and research for the development of advanced clean automotive products, and we have supported countries worldwide with their submissions to the global COP21 congress in Paris.

We are also welcoming additional members to our growing worldwide team of engineers and scientists who are inspired to make that vital difference. We continue to deliver a good set of financial results year-on-year, with revenue and profit growth across a diverse portfolio of clients and projects. Both of the businesses acquired in the year have performed strongly in their first year within the Ricardo Group.

Our strategy to build long-term, multi-year contracts and relationships has been supported by the further expansion of the McLaren engine assembly line, by a high-profile transmission supply contract and through multi-year projects secured within the Environmental and Technical Consulting parts of the business. Our year-end order book stands at a record high and, in combination with our financial position, provides a good platform for the continued exploitation of the central strategy – to play our part in solving those big global issues.

The multi-award winning Indian Scout motorcycle was the subject of a successful collaboration between Ricardo and Vepro pre-dating the formation of Ricardo Motorcycle (see pages 54 to 57)



Strategy

Our strategy is underpinned by the long-term global societal and economic drivers of air quality, emissions, fuel efficiency, urbanisation, energy security and resource scarcity. These drivers impact all elements of the Ricardo business and play a key role in shaping our strategic vision and the future for our business.

We continue to follow a consistent strategy of growth, through both organic expansion of the Technical Consulting business and acquisitions, together with risk mitigation, ensuring no undue dependence on any one sector, client or geography. Strategic expansion of the business has seen us successfully complete two acquisitions in the financial year: Lloyd's Register Rail, a global rail assurance and consultancy business and Cascade, a water consulting business. After the year-end, we also acquired the operating assets and employees of Exnovo, a motorcycle, urban mobility and industrial design and engineering business.

Our strategy focuses on three core growth areas: Transport & Security, Energy, and Scarce Resources & Waste. All three areas are of fundamental importance in the escalating trend of global

urbanisation as the world's population moves towards mega cities. All three are targeted at addressing the challenges that urbanisation will present: detailed techno-economic analysis, strategic road-mapping, technology-led innovation, assured programme delivery and high-performance product supply. In each of these areas, we will exploit our core competencies in Technical Consulting and

Performance Products to further expand and diversify the business. We are also looking for additional expansion in the strategic partnerships we have established with clients to provide longer-term visibility of revenue and order book, as well as a platform for sustained growth. We continue to seek opportunities to grow both organically and through partnerships or acquisitions.



Cascade, Ricardo's water consultancy, is helping Southern Water transform its approach from the traditional practice of supply-use-disposal towards a more sustainable future model of Integrated Water Cycle Management (see pages 66 to 69)

Strategic report

Chief executive's statement

Our strategic priorities remain:

- continuing to focus the business around common competencies, both organically and by acquisition;
- further expanding business opportunities in Asia, particularly in China;
- continuing to grow in Technical Consulting, and ensuring stability by balancing order intake across market sectors and customers;
- exploiting our research and development programmes;
- seeking opportunities to expand the geographic footprint of Performance Products; and
- continuing to develop world-class capability through investment in our people.

Further information on the execution of our strategy can be found on pages 16 and 17.

Highlights from the year

2016 was another good year for the Group. We saw strong growth in revenue of 29% to £332.4m (2015: £257.5m) and in underlying profit before tax of 41% to £37.7m (2015: £26.8m). The underlying result included the performance of recent acquisitions, in addition to a required change in the accounting for research and development expenditure credits. Whilst it

is particularly pleasing to see our acquired businesses performing well, our existing business has also seen good organic growth of 7% in both revenue and profit before tax. Further details are provided in the Financial Review on pages 28 to 31.

Market demand was variable across our geographical markets: UK, Japan, China and Dutch markets performed well; North America was mixed, with good development for our Ricardo Defense Systems subsidiary; California and the new entrants to the Automotive market were buoyant in terms of outsourcing, whilst the traditional Automotive and Off-Highway clients remained largely subdued in outsource spend; there was a mix of long-term German strategic clients and some new wins in France, which is pleasing.

The overall order intake in the year was £361m (2015: £252m), and this is analysed across clients and market sectors in the charts on page 2. Overall, there was a good balance of new business, with good performance in the Automotive, Rail, High-Performance Vehicles & Motorsport, Commercial Vehicles, Defence and Energy & Environment sectors. The order book at the year-end was £231m (2015: £140m). Research and development and the creation of further innovation remain core drivers of growth, and following the launch last year of the Ricardo Innovations Division we have been focused on the



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faster development and exploitation of our IP portfolio.

Satisfying customers through excellent project delivery is at the heart of Ricardo's success, and during the year our global teams have delivered a wide range of successful projects. Some examples are discussed in the Case Studies section between pages 44 and 73, and each illustrates a different facet of Ricardo's engineering expertise and its engagement at the very highest levels of industry and public policy issues:

- Real emissions: using our integrated automotive and environmental expertise, we are helping the auto industry and public authorities achieve their goals for cleaner air and more sustainable transportation systems;
- An electric future: with large numbers of electric cars all recharging at the same time, how will local electricity distribution networks cope? Ricardo's smart demand management technology provides the answers;



The all-new Ford Focus RS is powered by an advanced new 2.3-litre EcoBoost engine developed in an engineering partnership with Ricardo (see pages 62 to 65)

Ricardo is playing a key role in a partnership to support and develop the UK Ministry of Defence's Cougar fleet of protected patrol vehicles for their future roles with the military (see pages 70 to 73)



- Easy riders: American cruiser motorcycles must look, feel and sound authentic to convince a choosy clientele. These exacting requirements make Ricardo Motorcycle the ideal engineering partner for Polaris and its iconic Indian brand;
- Thameslink upgrade: Ricardo Rail is providing state-of-the-art signalling expertise for crucial new transport projects such as London's £6 billion Thameslink north-south commuter railway network;
- Powering a global icon: the all-new Ford Focus RS provides exceptional performance – thanks in large measure to an advanced new 350 horsepower EcoBoost engine developed in an engineering partnership with Ricardo;
- Sustainability in water: Cascade, Ricardo's water consultancy, is helping a major UK water company transition to a more sustainable future model of Integrated Water Cycle Management; and
- Engineering future security: Ricardo, with its long track record in military engineering, is playing a key role in a

partnership to support and develop the UK Ministry of Defence's Cougar fleet of protected patrol vehicles for their future roles.

For readers wanting to find out more about other Ricardo programmes, our quarterly RQ magazine can be found on our website www.ricardo.com.

Our operational priorities are to continue to develop business within each of the regions as well as to balance workload across our global engineering facilities in the UK, US, the Netherlands, Germany, the Czech Republic and China. Balancing workload ensures the optimal use of resources and the lowest flexible cost. Moreover, it provides our highly skilled and motivated workforce with the diversity of challenges they relish. Further information on our people can be found on pages 32 and 33.

Conclusion

Market conditions remain positive, underpinned by the legislative drivers of

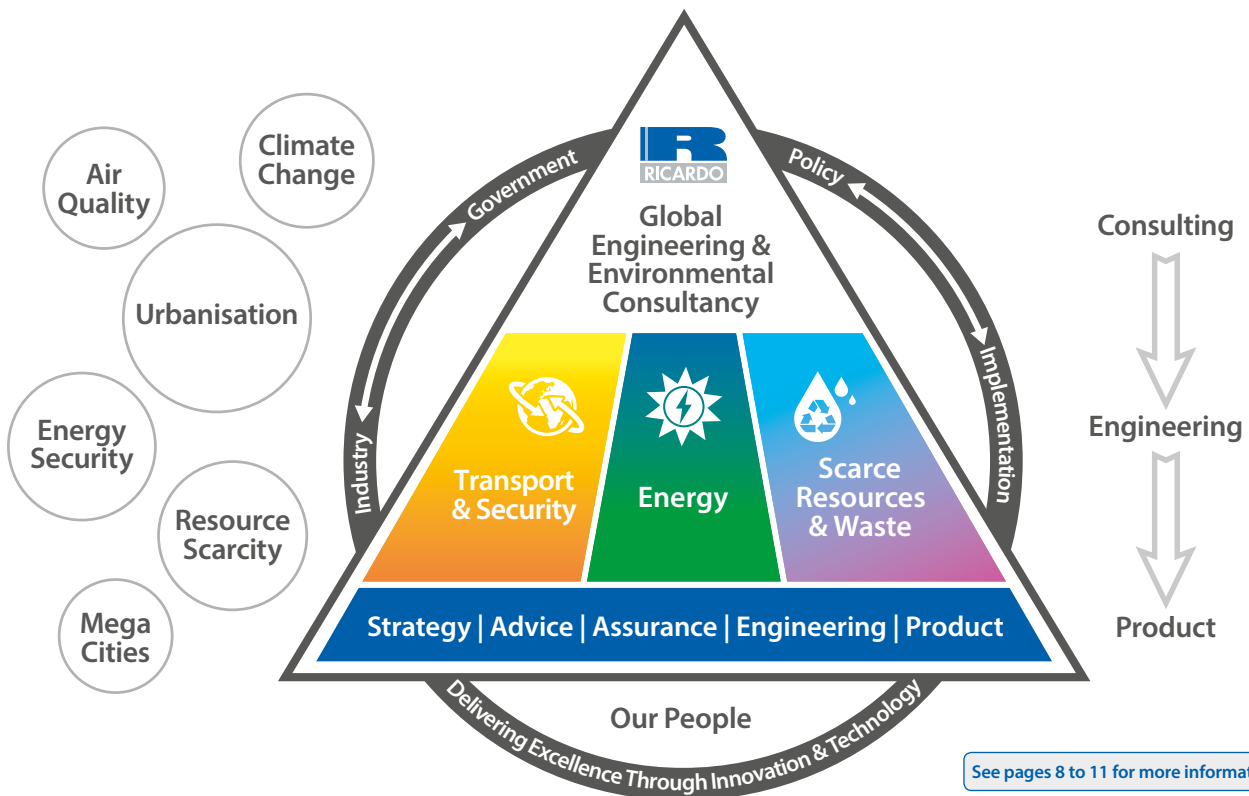
our business and clients. We continue to focus on business as usual following the UK's referendum vote to leave the EU. We have European mainland operations within the Group which will continue to support the EU's R&D programmes and deliver to our European clients close to their operations, as before. We are a global business, with delivery centres and clients across the world, and are diversified across many market sectors.

We enter the new financial year with a record order book and a good pipeline of opportunities across all sectors: our focus, as always, remains on converting this pipeline into orders and delivering to clients efficiently and with quality. Taking these together with our existing large, long-term assembly contracts, we continue to have confidence in the further development of the Group.

Dave Shemmans
Chief Executive Officer

Our strategy

Our strategic mission is to be the world's leading brand for engineering and environmental consultancy in our core competencies of transport and security, energy, and scarce resources and waste.



Our strategic objectives

Performance growth

Performance growth delivered by focusing on future market demands driven by technology change, customer preferences and prevailing or impending policies and regulation

Risk mitigation

Reducing risk through the avoidance of business cyclicity and external dependency, whether geographic, technical, industry sector or customer related

World-class talent

Ensuring an environment which attracts, develops and motivates our world-class team and continues to foster industry thought leadership

Operational excellence

Maintenance of an optimised cost base through an efficient global operation and the development of leading-edge tools, processes and capability to maximise value from our resources

Added value for clients

Provision of in-demand products and services through our commitment to research, development and innovation to provide maximum and enduring benefit to customers

See pages 16 and 17 for more information >

Competitive landscape



Our range of services includes engineering, energy, environmental and strategic consulting, together with niche manufacturing, software product solutions and the delivery of critical systems. These services are offered across a range of different market sectors, including Automotive, High-Performance Vehicles & Motorsport, Rail, Commercial Vehicles, Energy & Environment, Defence, Motorcycle & Personal Transportation, and Off-Highway. We also offer independent assurance services in the Rail sector through Ricardo Certification.

The competitors we face differ significantly across each segment and sector of our business and as a result, we have a large number of discrete competitors. We have no direct competitors that can match our breadth of segment and sector capability or product

offering – and this is a deliberate market position. By focusing on our strategic objectives and aligning our technology and product offering, our expertise, our delivery capabilities and our key client relationships, we are able to actively manage the competitive threat that we face and thus ensure that we remain differentiated from our key competitors wherever possible.

On an ongoing monthly basis, we review the actions taken by a small group of key competitors: we use this information to ensure that we are able to rapidly respond to any immediate threats and, additionally, we use this gathered intelligence to validate our own activities.

On an annual basis and as part of our strategic planning activities, we benchmark our position in the marketplace in relation to our principal competitors in each sector

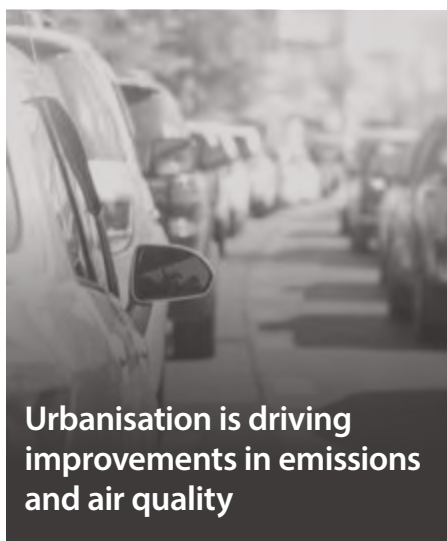
and against the following measures:

- commercial competitiveness;
- quality of client engagement;
- relevance of our research and development portfolio;
- breadth and depth of product and service offering;
- facility capability, location and availability; and
- our thought leadership position.

We use the direct feedback that we receive from our clients and our competitor benchmarking activities to ensure that our performance continues to improve and that we remain in a strong competitive position. We also clearly highlight the improvement actions that need to be taken to address any perceived weaknesses and exploit any identified opportunities.

Market overview

MARKET TRENDS



Urbanisation is driving improvements in emissions and air quality



Increasing environmental awareness is driving fuel efficiency and climate change



Population growth is driving resource scarcity

KEY INDUSTRY DRIVERS

- Urbanisation predicted to grow dramatically as people migrate to cities and global populations continue to increase;
- Low Emission Zones initiatives such as that operating in London likely to be repeated in other cities;
- Air quality identified as a key health concern, requiring increasing levels of urban air-quality monitoring and management;
- Latest US Tier 4, Euro 6/VI regulations and increasingly strict emissions limits in emerging markets; GHG II is driving lower emissions in commercial vehicles; California ZEV mandates; and
- Significant shift to mass electrification of the passenger car fleet.

- Fuel prices and taxation policy drive consumer behaviour and technology adoption (where prices remain high, fuel economy is seen as desirable);
- Escalating fuel economy/CO₂ regulation in most developed countries (e.g. CAFE standard for 2025);
- Fuel prices drive continued interest in natural gas in the commercial vehicle sector (even with fluctuating oil prices);
- Decarbonisation of the energy sector, and active carbon capture system development;
- International obligations for countries to manage and report greenhouse gas emissions levels (COP21);
- Growth of 'circular economy' and intolerance of environmental damage; and
- International Maritime Organisation action on marine grade fuels and emissions.

- Growing global populations and urbanisation are placing increasing pressures on the supply of key resources;
- Water scarcity and competition between potable and industrial use now starting to be recognised as a major future issue in many nations;
- Continued focus on renewable energy options (wind, tidal, solar, geothermal);
- Fluctuating energy prices driving different capital investment profiles;
- Nuclear new-build starting to emerge again as an area of growth; and
- 3D printing will remove need for holding some products as inventory.

RICARDO PLC

- World leader in vehicle emissions monitoring and aftertreatment technology;
- Recognised industry solution provider for vehicle electrification and urban mobility;
- Successful and experienced developer of clean technologies;
- Respected international authority on urban air quality;
- Expertise in transforming the way organisations manage resources, leading to considerable cost savings and minimised environmental impacts; and
- Ricardo Energy & Environment – provision of chemical response service and air quality monitoring for cities.

- Technology leadership in vehicle fuel economy – engine, driveline, whole vehicle, lightweight materials, powertrain electrification, battery electric vehicles, waste heat recovery, infrastructure, autonomous vehicle systems;
- Strategy, policy and technology road-mapping to support government and industry;
- Expertise in natural gas and alternative fuels, energy storage and management;
- Technology-agnostic, objective, informed and commercially independent provision of services; and
- World-leading expertise on the measurement, reporting and verification of climate mitigation and adaptation actions.

- Proven track record of delivering innovation into the renewables sector;
- Working with cities and utilities on policy, optimisation, validation and integration of city systems;
- Developing energy storage systems for utility-scale usage with technologies including batteries and compressed air;
- Engaging in end-of-life engineering and remanufacture of products;
- Developer of MultiLife bearing technology, with potential to make wind energy cheaper; and
- Acquisition of Cascade adds capability in water resource management, water quality, flooding and environmental impact assessment to the Group.



Increasing wealth is driving a surge in demand for premium brands and products

- Growing demand for higher performance 'halo' variants of existing vehicles to deliver enhanced brand differentiation;
- Vehicle attribute refinement (NVH, ride and handling) now an increasingly important determinant of customer car purchasing decisions;
- Product differentiation and novel integrated technologies also becoming increasingly important in niche products;
- Connectivity becoming increasingly important;
- Growing attention to the impact of quality and recalls on brand value; and
- New automotive companies emerging, primarily in California, focused on electric, connected and autonomous vehicles.



- Ricardo is a highly regarded and experienced technology leader in vehicle attribute development, especially in powertrain and vehicle NVH, thermal performance and vehicle dynamics;
- Leading-edge complex system optimisation helps to ensure the vehicle's control strategy and systems promote desired brand values;
- Proven track record in manufacturing high-performance niche products; and
- Unique global skill set to quickly solve technical issues and protect customer brands.

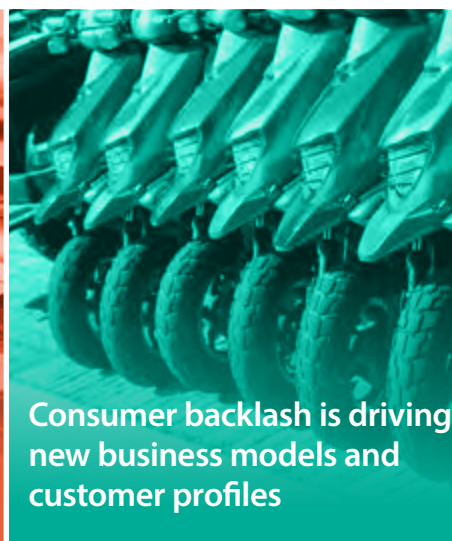


Growth of 'intelligent' services is driving rapid growth in connectivity

- New social interaction modes are driving increased levels of connectivity;
- Need for connected mobility solutions (V2V and V2X) will be met through an increasing mix of connected public and individual transport modes;
- Accident avoidance technologies driven by the need to dramatically reduce death rates will prompt the widespread implementation of autonomous and intelligent transport technologies;
- Growth of vehicle platooning technologies for commercial vehicles;
- Increasing cyber security concerns in a connected world;
- Rapid technology adoption is leapfrogging legacy systems; and
- Increase in waste reduction and interest in the 'circular economy'.



- Expansion of Ricardo's California facility driven by the demand for state-of-the-art vehicle engineering;
- Ricardo Rail benefiting from the global growth in high-speed and metro-based rail systems and interest in 'intelligent rail' and advanced signalling solutions;
- Ricardo Motorcycle is leading the development of urban mobility and 2- and 3-wheeler solutions to meet future urban mobility needs. E-bike capability also becoming increasingly important; and
- Platooning technology developed through R&D (such as SARTRE) increasingly important.



Consumer backlash is driving new business models and customer profiles

- People are increasingly looking for an improved balance between their work and their personal lives, and are re-evaluating the importance of wealth;
- Generational changes to the role of product 'ownership' are emerging;
- Consumers are looking for more choice and more customisation (parallels with consumer electronics products);
- Emergence of new market entrants in Automotive, Motorcycle and Off-Highway sectors; start-ups looking to develop products using novel and less capital intensive approaches that are heavily software dependent; and
- Increasing demand for technology transfer and skills development.



- Open attitude towards technology transfer across multiple sectors and geographies;
- Global reach, coupled with local delivery, provide a compelling customer proposition for new entrants;
- Capability covering a wide range of skills in software development, controls and electronics;
- Unique strategic and technical delivery capability supports activities in product planning, process definition, design, development, supply chain optimisation and manufacture; and
- Long-range product planning and solution development.

Strategic performance

The Board monitors performance indicators related to our strategic objectives

Performance growth delivered by focusing on future market demands driven by technology change, customer preferences and prevailing or impending policies and regulation

	Commentary	Principal risks						
<p>Revenue £m</p> <table border="1"> <tr><td>2016</td><td>332.4</td></tr> <tr><td>2015</td><td>257.5</td></tr> <tr><td>2014</td><td>236.2</td></tr> </table>	2016	332.4	2015	257.5	2014	236.2	<p>The increase in revenue included £58.1m from acquisitions, but also increased due to improvements in Technical Consulting activity in the UK and Asia. More details of this are described in the Financial Review section on pages 28 to 31, and also in the Technical Consulting and Performance Products sections on pages 18 to 23 and 24 to 25, respectively.</p>	<p>Customers and Markets</p>
2016	332.4							
2015	257.5							
2014	236.2							
<p>Order book £m</p> <table border="1"> <tr><td>2016</td><td>231</td></tr> <tr><td>2015</td><td>140</td></tr> <tr><td>2014</td><td>142</td></tr> </table>	2016	231	2015	140	2014	142	<p>The order book ended the year at a record level, with significant order intake from the UK, Europe and Asia, in particular, and includes £66m in respect of the LR Rail and Cascade acquisitions.</p>	<p>Customers and Markets</p>
2016	231							
2015	140							
2014	142							
<p>Net (debt)/funds £m</p> <table border="1"> <tr><td>2016</td><td>(34.4)</td></tr> <tr><td>2015</td><td>14.3</td></tr> <tr><td>2014</td><td>12.6</td></tr> </table>	2016	(34.4)	2015	14.3	2014	12.6	<p>The Group has used net cash of £48.7m in the year, which includes £45.4m spent on acquisitions, net of cash acquired and £3.4m of acquisition-related payments. Working capital management remains a key focus for the Group.</p>	<p>Contracts, Financing & Defined Benefit Pension Scheme</p>
2016	(34.4)							
2015	14.3							
2014	12.6							

Reducing risk through the avoidance of business cyclical and external dependency, whether geographic, technical, industry sector or customer related

	Commentary	Principal risks						
<p>Sector diversity Number of sectors exceeding 10% of revenue</p> <table border="1"> <tr><td>2016</td><td>5</td></tr> <tr><td>2015</td><td>3</td></tr> <tr><td>2014</td><td>3</td></tr> </table>	2016	5	2015	3	2014	3	<p>The number of sectors exceeding 10% of revenue has increased, demonstrating that the Group is growing less dependent upon a small number of market sectors.</p>	<p>Customers and Markets & Technology</p>
2016	5							
2015	3							
2014	3							
<p>Client dependency Number of clients generating revenue for Ricardo exceeding 10% of Group revenue</p> <table border="1"> <tr><td>2016</td><td>2</td></tr> <tr><td>2015</td><td>1</td></tr> <tr><td>2014</td><td>1</td></tr> </table>	2016	2	2015	1	2014	1	<p>The number of clients exceeding 10% of revenue has increased but, whilst we retain a small number of key customers, we continue to have a diverse client base.</p>	<p>Customers and Markets</p>
2016	2							
2015	1							
2014	1							

More detail on these principal risks together with how they are mitigated is presented on pages 41 and 42 >

Ensuring an environment which attracts, develops and motivates our world-class team and continues to foster industry thought leadership

	Commentary	Principal risks						
<p>Employee and knowledge retention Voluntary employee turnover % per annum</p> <table border="1"> <tr><td>2016</td><td>10</td></tr> <tr><td>2015</td><td>15</td></tr> <tr><td>2014</td><td>15</td></tr> </table>	2016	10	2015	15	2014	15	<p>Employee turnover has reduced in spite of increased activity in the labour market, as demand for engineers and scientists grows.</p>	<p>People</p>
2016	10							
2015	15							
2014	15							

Maintenance of an optimised cost base through an efficient global operation and the development of leading-edge tools, processes and capability to maximise value from our resources

	Commentary	Principal risks						
<p>Underlying* operating profit margin %</p> <table border="1"> <tr><td>2016</td><td>10.3</td></tr> <tr><td>2015</td><td>10.8</td></tr> <tr><td>2014</td><td>10.8</td></tr> </table>	2016	10.3	2015	10.8	2014	10.8	<p>The underlying operating profit margin has been diluted slightly as a result of the operating results in the Performance Products segment. Further details are described in the Financial Review from page 28.</p> <p>*excluding specific adjusting items and current year RDEC claims as described on page 3</p>	<p>Contracts</p>
2016	10.3							
2015	10.8							
2014	10.8							
<p>Environment CO₂e tonnes per employee for scope 1 and scope 2 emissions according to the reporting regulations</p> <table border="1"> <tr><td>2016</td><td>8.3</td></tr> <tr><td>2015</td><td>8.8</td></tr> <tr><td>2014</td><td>8.1</td></tr> </table>	2016	8.3	2015	8.8	2014	8.1	<p>Scope 1 emissions vary based on project mix. We encourage improvements to reduce underlying emissions and improve effective use of resources on projects. Our emissions per employee decreased this year, primarily as a result of the acquisition of employees from LR Rail, which is mainly office-based and less energy-intensive than our manufacturing and product development activities.</p>	<p>Compliance with laws and regulations</p>
2016	8.3							
2015	8.8							
2014	8.1							

Provision of in-demand products and services through our commitment to research, development and innovation to provide maximum and enduring benefit to customers

	Commentary	Principal risks						
<p>Technology development R&D spend (£m)</p> <table border="1"> <tr><td>2016</td><td>9.4</td></tr> <tr><td>2015</td><td>9.8</td></tr> <tr><td>2014</td><td>8.5</td></tr> </table>	2016	9.4	2015	9.8	2014	8.5	<p>R&D spend was in line with our plans. The reported spend includes amounts capitalised in respect of development costs around the Group. The Ricardo Innovations Division was established in the prior year to drive rapid technology development.</p>	<p>Technology & Customers and Markets</p>
2016	9.4							
2015	9.8							
2014	8.5							
<p>Customer satisfaction Customer satisfaction ratings out of 10 across a range of measures</p> <table border="1"> <tr><td>2016</td><td>8.6</td></tr> <tr><td>2015</td><td>8.6</td></tr> <tr><td>2014</td><td>8.3</td></tr> </table>	2016	8.6	2015	8.6	2014	8.3	<p>Customer satisfaction has remained strong at over 8 out of 10 during the past 12 months.</p>	<p>Contracts</p>
2016	8.6							
2015	8.6							
2014	8.3							

Technical Consulting



Performance

Ricardo's Technical Consulting activity accounts for around 80% of Group revenue and underlying operating profit. We deliver projects focused on world class innovation in our core service offerings of engines, transmissions, vehicles, hybrid electric and autonomous vehicles, environmental, energy and strategic consulting, independent assurance and the delivery of critical systems into industries like rail. Our activities range from detailed collaborations with customers on strategy, policy and regulatory advice, advanced engineering work, technology evaluations, independent safety assessments, asset optimisation and market studies up to large-scale turnkey new product delivery programmes, encompassing multiple products and international markets.

Revenue has grown by 36% to £267.9m (2015: £196.6m). The growth in revenue can be attributed to the strong opening order book, our competitive offerings and the impact of the acquisitions of LR Rail and Cascade made during the year, which is set out in more detail in the Financial Review on pages 28 to 31. Underlying operating profit, excluding £4.7m of RDEC income as described in Note 2 to the financial statements, increased by 39% to £27.8m (2015: £20.0m), of which £4.6m was contributed by acquisitions. The underlying operating profit margin has increased to 10.4%, up from 10.2% in 2015. Order intake in the year stood at £258m (2015: £209m). There has been a good balance of Technical Consulting order intake across the regions and we have continued to see good levels

of diversification across different market sectors. Highlights can be found on pages 21 to 23.

The acquisition of LR Rail, and establishment of Ricardo Rail, has enabled our rail business to expand into new geographic and product sectors and this business has performed strongly throughout its integration into Ricardo.

The acquisition of Cascade has enabled our Energy & Environment business to drive private sector and international growth into the water sector.

Our Technical Consulting business growth continues to be underpinned by the following global drivers:

- Reducing carbon dioxide emissions, underpinned by agreements reached at COP21;



Ricardo was a participant in the EcoTwin European Truck platooning project, alongside DAF, TNO and NXP, and contributing in the areas of safety support and project management

- Improvements in the efficient use of energy;
- Eliminating the release of noxious pollutants and particulates;
- The rise of global connectivity (Internet of Things – ‘IoT’) and their safety case;
- Addressing a changing and diverse global energy mix; and
- Increasing levels of urbanisation and resource scarcity.

The European Technical Consulting (‘EUTC’) Division, which also includes India, Japan and South Korea, has secured a range of large, multi-year programmes in the Automotive, Commercial Vehicles and Energy sectors, with a particular increase in vehicle electrification activities in many regions. Activity levels have been

high across all engineering disciplines, with increasing demand for powertrain application, calibration, electrical and electronics skills. The EUTC Division continues to be the main business in terms of profit generation.

In the US, trading continues to be difficult, with reduced levels of work in Detroit and Chicago partially offset by increasing work in California. The business is increasingly focused on achieving growth in the Commercial Vehicles sector, especially around platooning technologies and the growth of autonomous vehicle and connected car technologies and their safety cases in both the traditional automotive and new entrant landscape. We are building a team in Silicon Valley to service the new automotive clients in

California and to access the relevant talent.

Ricardo Defense Systems was established in the previous financial year to enable us to deliver classified projects for the US Defense Administration, and this business has won a number of new contracts primarily in the land defence space.

China remains a key market and we have secured a number of large, locally won contracts, some of which are being locally delivered through our Shanghai- and Beijing-based technical centres. These contracts have included a mixture of hybrid vehicle, engine, transmission and rail activities.

In Ricardo Rail, the primary focus has been on growing the business whilst integrating the former Lloyd’s Register Rail business into Ricardo. We have successfully established a new brand in the Rail sector and have seen a



A team of Rail and Automotive experts from Ricardo supported the launch of a new driverless passenger vehicle, the six-seater WEpod that will initially operate on the campus of Wageningen University, Netherlands

very positive reaction to the new products and services that Ricardo Rail can offer. The order book has remained at consistently high levels as we have seen both historic and new customer wins throughout the year. In July 2016, following the award of UKAS accreditation for ISO 17020 and ISO 17065, we established Ricardo Certification. This business will independently manage and deliver our independent assurance and accreditation services to the Rail sector.

In Ricardo Motorcycle, the focus has been on the delivery of existing large, multi-year powertrain and vehicle programmes and the global roll-out of an expanded product and service offering to existing and new clients. As a result, we have secured a number of contracts with new clients in the UK, US and Asia. We are also developing our urban mobility product offering.

Ricardo Energy & Environment has had a good year and has seen growth in both international and private-sector clients. The linkage of our powertrain expertise with our air quality team has provided our customers with a unique insight into recent urban air quality issues and how to resolve them. The acquisition of Cascade

has enabled the business to rapidly expand into the fast-growing water sector.

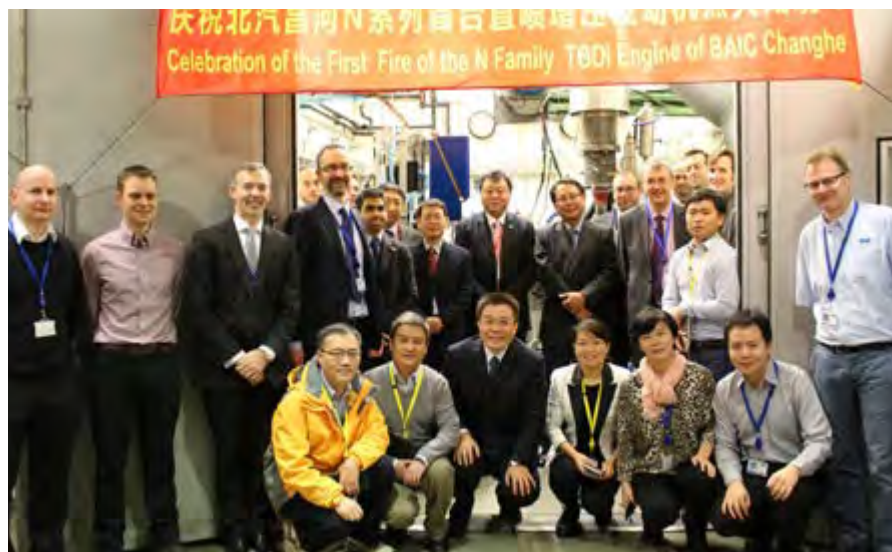
Our strategic consulting activities continue to operate well across all geographies and performance has been good in all operating regions. The combination of management consulting skills and deep industry insight offers a unique proposition to our

customers. These include companies in the Automotive, Energy & Environment and Commercial Vehicles sectors, plus numerous government bodies and private equity firms.

Business model

We have a global infrastructure that helps us to meet the needs of our customers, and provides an exciting work environment for our employees. We now have 45 offices in 19 countries, with technical centres in the UK, US, Germany, China, the Netherlands and the Czech Republic, supported by offices where a local presence is needed to service our customers. The technical centres include specialists in mechanical and electrical design, test and development, electronics, software and control strategy, vehicle attribute development, prototype build, programme management, independent assurance, signalling, critical system design and development, cost estimation, supply chain management and manufacturing.

People are at the heart of our Technical Consulting business and we have a balance of experienced professional engineers, scientists and economists, along with a thriving graduate and apprenticeship recruitment programme. Engineers from any of the technical centres can be deployed on projects across the globe using common engineering processes and often by making use of short-term geographical secondments. Our



In the presence of visiting dignitaries from Changhe and its majority shareholder BAIC Group, a new 3-cylinder 1.0 litre turbocharged direct injection gasoline engine prototype engine was fired-up for the first time at a ceremony held at the Shoreham Technical Centre in January

environmental and energy consulting services are delivered from a number of UK locations and are making increasing use of our global network. Our strategic consulting service already has a well-established global team operating out of a number of different locations.

Ricardo's projects range in size from a few thousand pounds to multiple millions over several years. Typically, Ricardo will be engaged on 800 to 1,000 projects and assignments across the globe at any one time. Each of these is specific to a client's needs and has defined deliverables. Ricardo will provide engineering, technical, scientific, policy- and advice-based services where required; accreditation and independent assurance services may also be provided. In general, these are delivered on a fixed-price basis for a scope of work. Our value chain is based on the application of IP, know-how, knowledge and experience, and benefits from a wide range of facilities and equipment selected from our global resources and internally funded R&D for each project. Project management, resource management and customer management are therefore key skills to enable efficient delivery.

Where the scope of a project is changed, Ricardo will negotiate appropriate changes to the commercial terms of the contract. The sequence of the business process is normally this: the development of client relationships, developing unique value propositions, proposing or tendering to meet a need, negotiating a contract, delivery with clearly defined milestones, and closing out the programme by capturing customer feedback.

Market sector highlights Automotive

The Automotive sector remains the most significant for Ricardo. Fuel economy and CO₂ reduction remain top global industry priorities and are being driven strongly by consumers. We have secured a range of large, multi-year programmes, in vehicle systems, hybrid and electric systems and the core powertrain areas of our business, focused on both new and existing product upgrades. We continue to invest in advanced combustion and other key technologies in areas related to improvements in overall vehicle efficiency such as lightweighting, intelligent driveline and electrification.

The future of mobility solutions, including connected and autonomous vehicle technology in particular, is attracting significant interest in North America, along with challenges around the regulatory environment, safety and assurance of autonomous vehicles. Interest in hybrid and electric vehicle architectures, battery pack and battery management system design and vehicle attribute development also feature strongly as OEMs increasingly look to accelerate the launch of PHEV and BEV vehicles based around existing vehicle platforms.

Rail

On 1 July 2015, following the completion of the acquisition of LR Rail, we launched Ricardo Rail. This new business, with its footprint in the UK, Europe, Asia and the Middle East, is benefiting from the significant global growth in high-speed and metro-based railways. The business has the following core product offerings: Independent Assurance; Rolling Stock; Signalling and Train Control; Intelligent Rail and Operations. The latter includes asset management, human factors and Noise, Vibration and Harshness ('NVH')

development and optimisation. The business has a large, long-term order book which provides a strong platform for growth. The launch of Ricardo Certification enables us to independently manage and deliver our independent assurance and accreditation services to the Rail sector.

We continue to look for a range of organic and acquisitive growth opportunities in the Rail sector.

Energy & Environment

We continue to win new work and retain long-standing contracts with various government agencies in the UK and the EU. In parallel, we have seen accelerated growth of private sector and international clients. Services continue to be delivered in the key practice areas of climate change and sustainability, air quality, waste and resources, sustainable transport, chemical risk, energy, and water. The recent additions through acquisition of PPA Energy (2014) and Cascade (2015) have provided strong opportunities for growth into the electricity networks and water sectors respectively and we have seen strong recent growth in both these businesses. We are also engaged in supporting many global stakeholders with the implementation of commitments agreed at COP21 in December 2015.

In power generation, we are engaged in a number of large projects covering genset



The Dubai tram network has benefited from Independent Safety Assessment services provided by Ricardo

development, gas engine conversions, heavy fuel oil engines and CHP ('Combined Heat and Power') solutions. The customer base is broad and globally diverse.

Across the renewables sector, we continue to pursue a range of opportunities in offshore wind, tidal and energy storage applications.

Motorcycle & Personal Transportation

Growth in this sector is being driven by the need for a reduction in CO₂ emissions, the increasing focus on urban mobility solutions and a growing interest in electric bicycles ('e-bikes'), together with the increased demand for high-quality motorcycles in developing markets. We also recognise the strong market differences between the value-driven brands of south-east Asia and the technology-focused luxury marques of Europe, North America and Japan.

During the year the team remained focused on the development of long-term multi-product relationships with major customers across Asia, Europe and North America.

Commercial Vehicles

We have seen growth and secured a number of large engine and transmission projects across the medium- and heavy-duty sectors. We continue to see interest across Asia, in particular, for Ricardo's capabilities in the Commercial Vehicles sector. The order pipeline is based around a broad mix of largely engine and transmission opportunities. In the US,



Ricardo's Performance Products motorsport team working to support customers at the 2016 Le Mans 24hr Race



An advanced tilting design of a 3-wheeler personal transportation vehicle – incorporating a retractable roof – under assembly by Ricardo for ADIVA

greenhouse gas and low NOx standards are driving interest in powertrain and trailer efficiency, emissions control and the use of alternative fuels. Commercial vehicle platooning is also a fast-growing area of opportunity.

Strong engagement in this sector has driven increasing engine test activity, especially in North America. We have also seen growing interest in our aftertreatment and fuel cell capabilities at our technical facility in California.

In addition to our core powertrain offering we have also focused on developing our product offering in the areas of fuel economy improvement, system optimisation, platooning and hybridisation: we see all these as areas of significant future growth.

Defence

In the US we have established Ricardo Defense Systems, which now enables us to deliver US classified projects and

expand the range of opportunities that we can pursue across the defence sector. The business has won a number of new contracts, mainly in the land domain, and is focused on growth into new areas of the US Defense Administration.

In the UK we have broadened our network within the Ministry of Defence (MoD) and have continued to grow key relationships with defence contractors. In Asia we have secured contracts to deliver new engine and vehicle designs and we are pursuing other large, new opportunities.

Off-Highway

Activity in the Off-Highway sector continues to remain at a relatively low level following the recent implementation of Stage IV emissions standards in Europe. Our focus in the coming years will be in assisting clients with EU, US and China legislation for 2020.

The marine industry is driven by increasing demands for high-speed

diesel generator sets and main propulsion systems, and also for the conversion of engines for gas or dual-fuel operation. The majority of our activities in this industry have been based around failure analysis, investigations, specialist design and development activities.

Outlook

Technical Consulting orders have become increasingly balanced geographically and we end the financial year with a good order book. We have successfully grown our client base with a foundation built around quality of delivery and the experience of our people who deliver these projects to our customers. We continue to seek diversified opportunities that will drive growth into Transport & Security, Energy, and Scarce Resources & Waste and to exploit the breadth of our skill-set and global footprint.

Performance Products



Performance

The Performance Products segment accounts for around 20% of Group revenue with a large proportion of revenue generated this year through the supply of products and services to a single customer.

In the Performance Products segment revenue increased by 6% to £64.5m (2015: £60.9m), but underlying operating profit, excluding £0.7m of RDEC income as described in Note 2 to the financial statements, fell as expected by £1.3m to £6.4m (2015: £7.7m). Order intake in the year stood at £103m (2015: £43m) as we secured a high-profile multi-year transmission supply contract. Profit performance is lower than the prior year as increased volumes in respect of the new engine supply contract for McLaren have been more than offset by lower one-off software licence sales and an expected reduced level of shipments of high-performance and monorail transmissions in the year.

The Performance Products business

continues to focus on the development of long-term, strategic relationships, the development of its people, and using a growing track record of product quality and on-time delivery to win new, large contracts.

Further details of activity within the year can be found within the market sector highlights on page 25.

Business model

We manufacture and assemble low-volume, high-quality prototypes and niche volumes of complex engine, transmission and vehicle products which have either been designed by Ricardo's Technical Consulting segment, by our motorsport products design team within the Performance Products segment, or by our clients.

This activity is based in the UK and to service our clients we have a global support infrastructure built around our network of technical and engineering centres in the UK, US, Germany, China,

the Netherlands and the Czech Republic. We manage the complete supply chain and earn revenue either for the products that we supply or for the manufacturing or assembly services that we provide. Activities will expand internationally when profitable future opportunities are identified.

The key skills to deliver these services include product design and development, production and operations management, and supply chain management as well as customer management. Our productive resources are centred on a highly flexible transmissions manufacturing facility at our Midlands Technical Centre, in conjunction with engine assembly facilities based at our Shoreham Technical Centre. The products and services that we supply are critical for our customers, but thanks to Ricardo's manufacturing know-how and ability to manage low-volume production and assembly, customers

Ricardo was responsible for the design, ongoing development and support throughout the season, for the complete driveline of Greaves Motorsport's LM P2 Gibson 0155 2015 championship winning chassis



often prefer to use Ricardo rather than our competitors or their own in-house facilities. High customer satisfaction means that programmes can continue over many years. We often have downstream spares or other post-supply support arrangements for our larger programmes, which can extend relationships.

The Performance Products segment also includes the activities of the Ricardo Software Division, which develops and commercialises a wide range of computer-aided engineering ('CAE') software products for virtual engineering of powertrain and vehicle systems. Ricardo's CAE products are licensed and supported globally by staff in Asia, Europe and North America, and in select regions via channel partners. We have also established partnerships with companies like Modelon to bring exciting new software products to market.

Market sector highlights

High-Performance Vehicles & Motorsport

The expansion of Ricardo's engine build facility is now complete. This gives us a doubling of capacity and the capability to deal with increased engine variants. Production of engines for the McLaren 650S, 675LT and the McLaren P1™ supercar continues in line with expectations, and full production of engines for the new 570S has been added. We also secured a high-profile, multi-year transmission supply contract.

Ricardo remains a key supplier to the motorsport sector, having commenced deliveries for BMW and Multimatic (for Ford) GT3 programmes and for the Hyundai R5 Rally programme. Ricardo continues to manufacture for Formula 1, and supplies products such as the Ricardo-designed transmissions for the Japanese Super

Formula 14, Indy Lights and the Renault World Series. Production continues for the Porsche Cup and Bugatti transmissions in line with the long-term supply agreements.

Defence

As part of a teaming agreement with a leading defence Tier 1, Ricardo has developed and provided retrofit kits for the Cougar family of vehicles for the UK MoD.

Outlook

We have a significant pipeline of new opportunities in a range of market sectors and geographies. Future plans are underpinned by our advanced production and manufacturing techniques.

Research and Development



Mark Garrett – Chief Operating Officer

We continue our investment in R&D and are well placed in each of our markets with a portfolio of programmes that support cost-effective solutions in areas such as emissions reduction and efficiency improvement. The identification and incubation of new and disruptive ideas leading to new products and services is a key part of our R&D activities.

Ricardo is well placed in each of its markets with a portfolio of R&D programmes that support CO₂ reduction with new powertrain solutions including electrification, lightweighting and innovation.

Ricardo has established a pipeline of opportunities and innovations supported by a long-range roadmap. The opportunities are prioritised and funded based on our customer needs, our strategic goals, and shareholder value. Recently Ricardo has been successful in winning new government grant-funded programmes; nearly 70% of the portfolio consists of this type of collaborative programme. Most of our collaborative partners are Ricardo customers. Many new programmes started this year, and new projects represent 60% of our portfolio.

This year Ricardo completed six R&D programmes and started fourteen new R&D projects. Key programmes are outlined in this section.

ADEPT

Advanced Diesel Electric Powertrain

The concept of 'intelligent electrification' enables highly aggressive engine downsizing and down-speeding beyond what might normally be possible other than through more expensive hybridisation approaches. The Advanced Diesel Electric Powertrain ('ADEPT') vehicle demonstrator is an advanced 48V mild hybrid powertrain architecture, capable of delivering near full hybrid-scale diesel fuel efficiency and reduced CO₂ emissions. The integration of hybrid and emissions control systems has the potential to deliver up to a 10-12% reduction in fuel consumption, equivalent to sub-80g/km of CO₂ emissions on the current New European Driving Cycle ('NEDC').

The technology is delivered at lower costs than a more traditional approach of optimising each system separately. The demonstrator vehicle is an already downsized and competitively fuel-efficient diesel Ford Focus ECONetic 1.5TDCi. Following three years of

testing, development and validation, the demonstrator is ready for customer evaluation. The ADEPT project is led by Ricardo in a research partnership with the Advanced Lead Acid Battery Consortium ('ALABC'), Controlled Power Technologies ('CPT'), Faurecia Emissions Control Technologies UK Limited, Ford Motor Company, and the University of Nottingham. The research programme is partially funded by Innovate UK.

ULTRAN

Ultra-Lightweight Transmission and Driveline

Ricardo and our collaborative partners designed an innovative rear-drive unit that is 25% lighter than the current Original Equipment Manufacturer ('OEM') production equivalent. The project is partially funded by Innovate UK and is led by Jaguar Land Rover, with Ricardo a major contributor.

In addition to the rear-drive unit, Ricardo has manufactured prototypes for both rig- and vehicle-based testing and



evaluation to confirm durability and the anticipated CO₂ benefit. The hardware was displayed publicly for the first time at LCV 2015 and has since been shown at the Aachen Colloquium, Autosport International, the Vienna Symposium, CTI Detroit and the JSAE Spring Congress, promoting interest in the capabilities of Ricardo's Driveline and Transmission System ('DTS') engineering.

OWDIn Offshore Wind Drivetrain Innovations

Ricardo has developed fundamental innovations to improve wind turbine drivetrain reliability on current and future product generations – the new systems are MultiLife, SensorLife and TorqLife. MultiLife can provide increased planet bearing life, SensorLife can provide early detection of faults, and TorqLife can eliminate damaging driveline overloads. MultiLife and SensorLife have now been demonstrated and commissioned in a 600 kW Vestas V42 onshore wind turbine in Barnesmore (Ireland), owned by Scottish Power Renewables.

The system is designed to increase bearing life in an onshore wind turbine and to reduce downtime (and thus operating and maintenance costs) for large-scale offshore wind turbines. The demonstrator features an advanced Condition Monitoring System ('CMS') allowing lower cost maintenance interventions by enabling early and more accurate service planning. The research project is partially funded

by the UK Government's Department for Business, Energy and Industrial Strategy. Ricardo is collaborating in this programme with Scottish Power Renewables and the Universities of Sheffield and Strathclyde.

Climate change challenge inspires innovation

The need to improve air quality, particularly in urban areas, is a global requirement. Research and development programmes are in progress across the breadth of Ricardo business units. Particular priorities are research in future emissions systems and the imperative to develop strategies to address real-world drive cycle regulations.

Ricardo has delivered Real Driving Emissions research that provided an objective assessment of diesel emissions control technologies over proposed real world driving cycles. The programme was timely, given the recent worldwide media attention focused on diesel passenger car emissions.

A new engine research programme called Magma looks at optimised approaches for gasoline engines, including adoption of the Miller cycle. ECOCHAMPS, a new Horizon 2020 project, is targeting the next generation of light- and heavy-duty electric vehicles. The CryoPower project has delivered test results in a single-cylinder

split-cycle engine showing brake thermal efficiencies approaching 60%. This equates to a 20% fuel-economy improvement and could be a game changer in large-engine applications.

New business growth Safety and stability systems for the defence sector

The US Department of Defense ('DoD') continues to emphasise rapid acquisition of proven innovations that can save soldiers' lives. Ricardo has demonstrated the first anti-lock braking system in a military-grade High Mobility Multi-purpose Wheeled Vehicle ('HMMWV') that complies with US Federal Motor Vehicle Standards for Stability Control performance.

Innovations

The identification and incubation of innovative products and the fostering of support for new and disruptive ideas are a small but important part of our research and development investments. Ricardo collaborates with universities around the world to investigate and validate research opportunities before deciding to commit to significant investments.

Innovation pipelines are being developed in conjunction with leading universities. At the University of Brighton, the Sir Harry Ricardo Combustion Research Centre is expanding and a new dedicated joint research facility is nearing completion. Innovative research programmes such as our CryoPower engine are important initiatives that materially assist in the design and development of the next generation of low CO₂ engine solutions.

This aligns well with Ricardo's goal to develop new skills and capabilities within our staff, and is also a strategic priority of the UK Automotive Council in its policy to support the development of the next generation of automotive design engineers.



Financial review



Ian Gibson – Chief Financial Officer

A strong set of results this year, which include the contribution from recent acquisitions and the new Research and Development Expenditure Credit ('RDEC'). Excluding acquisitions and RDEC, we achieved good organic revenue and profit growth of 7%.

Group results

The Group has delivered a strong underlying operating result with good organic growth for the year ended 30 June 2016. Total Group revenues increased by 29% to £332.4m (2015: £257.5m) and underlying profit before tax, which includes £5.4m of income in the current year in respect of the Research & Development Expenditure Credit ('RDEC')

scheme but excludes specific adjusting items as set out in more detail in Note 4 to the financial statements, increased by 41% to £37.7m (2015: £26.8m). Underlying profit before tax excluding the current year RDEC increased by 21% to £32.3m, with the margin reducing slightly from 10.4% in the prior year to 9.7%. Reported profit before tax for the year increased by 44% to £33.0m (2015: £22.9m).

The Group results include two acquisitions which completed during the year. On 1 July 2015, the Group materially completed the acquisition of the Lloyd's Register Rail ('LR Rail') consultancy and assurance business from the Lloyd's Register Group, which subsequently completed in full on 1 March 2016 with the 100% share purchase of a Chinese joint venture which was partly owned by the Lloyd's Register Group.

In addition, on the 18 August 2015, the Group also acquired the entire issued share capital of Cascade Consulting Holdings Limited and its subsidiary, Cascade Consulting (Environment & Planning) Limited (together, 'Cascade'), an environmental consultancy business specialising in the UK water sector.

Headline Group performance is as follows:

	2016	2015
Revenue	£332.4m	£257.5m
Underlying ⁽¹⁾ profit before tax	£37.7m	£26.8m
Basic underlying ⁽¹⁾ EPS	55.2p	42.4p
Net (debt)/funds	£(34.4)m	£14.3m

(1) excluding specific adjusting items, which comprise amortisation of acquired intangible assets, acquisition-related expenditure and non-recurring income for claims under the Research & Development Expenditure Credit ('RDEC') scheme in respect of prior years.

Organic performance

	Revenue (£m)	PBT (£m)
FY 2015/16		
Underlying	332.4	37.7
Less performance of acquisitions:		
LR Rail	(53.2)	(3.9)
Cascade	(3.4)	(0.6)
Vepro and PPA on a like-for-like basis with prior year	(1.5)	(0.1)
Less: RDEC in respect of current year	-	(5.4)
Add: Net interest in respect of acquisitions	-	1.0
Organic	274.3	28.7
FY 2014/15	257.5	26.8
Organic growth	7%	7%

The LR Rail and Cascade acquisitions have been reported within the Technical Consulting segment (see Note 12 to the financial statements on pages 134 and 135). As set out in the table above, organic growth in underlying revenues and profit before tax, which excludes the performance of acquisitions, the associated incremental borrowing costs and the impact of RDEC, was 7%.

The financial year ended with another record closing order book of £231m (2015: £140m), of which £66m is in respect of the acquired LR Rail and Cascade businesses. On a like-for-like basis, the closing order book has increased by 18% on the prior year. The closing order book, together with a good pipeline of further opportunities, remains well diversified across market sectors, customers and geographies. Our order book comprises the value of all unworked purchase orders received.

Technical Consulting results

Segmental operating results for Technical Consulting are discussed on pages 18 to 20. Technical Consulting revenues and underlying operating profits were £267.9m and £32.5m, respectively. Underlying organic revenues and operating profit, which excludes performance from acquisitions as noted above and £4.7m of RDEC income as described in Note 2 to the financial statements, increased to £209.8m

(2015: £196.6m) and £23.2m (2015: £20.0m), resulting in growth of 7% and 16%, respectively.

Our European Technical Consulting Division was a key driver of profit generation, with profits growing significantly as a result of an internal reorganisation undertaken in the prior year to improve co-ordination and delivery to our clients, as well as to achieve cost efficiencies.

The Rail business has performed well, and encouragingly, a number of joint bids between Rail and the core business have been successful, which neither business could have achieved alone.

The performance of the US business has struggled in challenging market conditions, but strategic focus is shifting towards our operations in California in order to support growth from a wider US customer base.

Our Energy & Environment consulting business has performed well, and is reducing its reliance on the UK public sector where ongoing cuts continue to be experienced.

In Asia we continue to grow our activities, establishing a greater geographical footprint through our acquisition of the Rail business in China on 1 March 2016, which was partly owned by the Lloyd's Register Group.

Our Strategic Consulting activities continue to make good progress.

Performance Products results

Segmental operating results for Performance Products are discussed on page 24. Performance Products revenues have increased by 6% on the prior year to £64.5m (2015: £60.9m). However, as expected, organic underlying operating profit, which excludes £0.7m of RDEC income as described in Note 2 to the financial statements, decreased by £1.3m to £6.4m (2015: £7.7m). The current year performance was driven principally by lower one-off software licence sales and an expected reduced level of shipments of high-performance and monorail transmissions in the year, partially offset by increased volumes in respect of the new engine supply contract for McLaren.

Basis of preparation

The financial statements have been prepared in accordance with International Financial Reporting Standards ('IFRS') and International Financial Reporting Standards Interpretations Committee ('IFRS IC') interpretations adopted by the European Union ('EU') and the Companies Act 2006 applicable to companies reporting under IFRS. The Group's principal accounting policies are detailed in Note 1 to the financial statements on pages 122 to 126. Those accounting policies that have been identified as being particularly sensitive to complex or subjective judgements or estimates are disclosed in Note 1(c) to the financial statements on pages 122 and 123.

Acquisitions and acquisition-related intangible assets

On 1 July 2015, the Group materially completed the acquisition of the Rail consultancy and assurance business from the Lloyd's Register Group and on 1 March 2016, acquired the interests of all partners of a related joint venture operation in China, for total consideration of £46.3m. In addition, the Group also acquired the issued share capital of Cascade on 18 August 2015, for consideration of £3.2m.

These investments added goodwill of £2.5m to the Ricardo Energy & Environment cash-generating unit and a new Ricardo Rail cash-generating unit has been identified, in respect of which £24.2m of goodwill has been allocated (retranslated to £26.6m at year-end). Total goodwill at 30 June 2016 is therefore £57.0m (2015: £26.0m). Acquisition-related intangible assets have been identified as a result of the LR Rail and Cascade acquisitions, which have net book values at the year-end of £14.3m and £0.6m, respectively.

As set out in more detail in Note 12 to the financial statements, an exercise to assess the fair value of the identifiable net assets has been completed in respect of the LR Rail businesses acquired on 1 July 2015 and Cascade. The preliminary assessment of the provisional fair value of identifiable net assets in respect of the Chinese joint venture operation acquired from the Lloyd's Register Group on 1 March 2016 may be adjusted in future in accordance with the requirements of IFRS 3 'Business Combinations'.

After the reporting date, on 29 July 2016, the Group also acquired the entire issued share capital of Motorcycle Engineering Italia s.r.l., a business that was formed from the trade and assets of Exnovo s.r.l., for initial consideration of £2.1m (€2.5m). Subsequent to a preliminary assessment, the provisional fair value of identifiable net assets acquired is £0.1m, together with provisional goodwill and other acquisition-related intangible assets of £2.0m. This is disclosed in Note 38 to the financial statements on page 155.

As a result of the acquisitions completed in the financial year, amortisation of acquisition-related intangible assets has increased to £3.4m (2015: £1.3m). The Group also incurred acquisition-related expenditure of £2.8m (2015: £2.6m) during the year in respect of all completed acquisitions as noted above. The acquisition-related expenditure and amortisation of acquisition-related intangible assets have been charged to the Consolidated Income Statement as specific adjusting items. Further detail is disclosed in Note 4 to the financial statements on page 129.

Research and Development

The Group continues to invest in Research and Development ('R&D'), and spent £9.4m (2015: £9.8m) before government grant income of £1.3m (2015: £1.1m). This includes costs capitalised in accordance with IFRS of £3.2m (2015: £4.2m) in respect of continued development expenditure on a range of product developments around the Group and reflects our continued focus on development activity within Europe and the US. An overview of current R&D activities is presented on pages 26 and 27.

Net finance costs

Finance income was £0.3m (2015: £0.2m), which is similar to the prior year, but finance costs were £2.2m (2015: £1.1m), giving net finance costs of £1.9m (2015: £0.9m). Finance costs were higher as a result of interest payments on the Group's loan facilities drawn at the end of the previous financial year, primarily in order to fund the LR Rail acquisition.

Taxation

The new Research and Development Expenditure Credit ('RDEC') became mandatory from 1 April 2016 and the Group adopted RDEC from 1 July 2015. Under the new regime, the current year R&D credit is no longer a tax incentive that benefits the corporation tax line in the Consolidated Income Statement, but is instead treated as grant income to offset R&D expenditure within operating profit, increasing profit before tax, its associated tax charge and the effective rate of tax.

In addition, applications have been revised during the current year in respect of accounting years ended 30 June 2014 and 30 June 2015, which were open under the new RDEC regime, generating £1.5m of non-recurring income. These applications have also been treated as grant income but disclosed as a specific adjusting item as no associated qualifying R&D expenditure has been incurred in the current year against which the grant income in respect of prior years can be offset.

The total current year R&D credit as a result of adopting RDEC from 1 July 2015 is £5.4m which has a corresponding favourable impact on profit before tax.

The total tax charge for the year was £7.4m (2015: £4.3m), but primarily as a result

of the Group's adoption of RDEC, the total effective rate of tax has increased to 22.4% (2015: 18.8%).

The Directors have considered the recoverability of the existing deferred tax assets of £3.6m (2015: £3.1m) and £4.9m (2015: £4.7m) which exist in Germany and the US, respectively, and remain satisfied that it is probable that sufficient taxable profits will be generated in the future, against which the recognised assets can be utilised. Consistent with the prior year, a deferred tax asset has not been recognised for the current year tax losses within the consolidated tax group controlled by Ricardo GmbH, within which Ricardo Deutschland GmbH is the primary trading entity.

Earnings per share

Basic earnings per share increased by 37% to 48.6p (2015: 35.6p). The Directors consider that an underlying earnings per share provides a more useful indication of underlying performance and trends over time. Underlying basic earnings per share for the year increased by 30% to 55.2p (2015: 42.4p). On an organic basis, underlying basic earnings per share increased by 10%.

Basic earnings per share, with a reconciliation to an underlying basic earnings per share, which excludes the net-of-tax impact of specific adjusting items, is disclosed in Note 11 to the financial statements on page 133.

Dividend

The total (paid and proposed) dividend for the year has increased by 9% to 18.1p per ordinary share (2015: 16.6p) and amounts to £9.5m (2015: £8.7m). The proposed final dividend of 13.03p (2015: 11.95p) will be paid on 11 November 2016 to shareholders who are on the register of members at the close of business on 21 October 2016, subject to approval at the Annual General Meeting on 3 November 2016.

Capital investment

Cash expenditure on property, plant and equipment was £8.5m (2015: £10.4m) as we continue to invest in our business operations. This expenditure included new offices as a result of the Rail acquisition, together with IT and office equipment

to fit out and refurbish a number of new and existing premises. In addition, new and upgraded vehicle workshop facilities, test beds and equipment were purchased for the existing business. The Centenary Innovation Centre has been constructed at our Shoreham Technical Centre in the UK, in recognition of our centenary year.

Net debt

Closing net debt was £34.4m (2015: net funds of £14.3m). The Group used net cash of £48.7m (2015: generated net cash of £1.7m), after £3.4m (2015: £3.6m) of acquisition-related payments and a cash outflow net of cash acquired of £45.4m in respect of the two acquisitions completed in the financial year. The composition of net debt is defined in Note 33 to the financial statements on page 152.

The Group continues to focus on its management of working capital, which increased during the year as we invested in revenue growth in Asia and the Middle East, and as our Energy & Environment business transitions towards more private sector and international work. We also invested in our major long-term assembly programme.

Banking facilities

At the end of the financial year, the Group held total facilities of £90.9m (2015: £89.4m), which included committed facilities of £75.0m (2015: £75.0m). Of the committed facilities, a £35.0m facility is available until September 2019 and £40.0m is available until April 2020. In addition, the Group has uncommitted facilities including overdrafts of £15.9m (2015: £14.4m), which mature throughout the next financial year and are renewable annually.

Committed facilities of £54.5m, net of direct issue costs, were drawn (2015: £45.4m) primarily in order to fund the acquisition of LR Rail on 1 July 2015. These are denominated in Pounds Sterling and have variable rates of interest dependent upon the Group's adjusted leverage, which range from 1.6% to 2.35% above LIBOR and are repayable in the year ending 30 June 2020.



Foreign exchange

On consolidation, income and expense items 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 and Chinese Renminbi. The average value of Pound Sterling was 1.9% higher against the Euro, 5.9% lower against the US Dollar and 1.5% lower against the Chinese Renminbi during the year compared to the previous financial year.

Had the current year results been stated at constant exchange rates, reported revenue and profit before tax would have been £2.6m and £0.1m lower, respectively. Significant exposures are hedged through foreign currency contracts.

The movement in foreign exchange rates and the corresponding impact on financial

performance was more significant as a result of the UK referendum vote to leave the EU on 23 June 2016, but these movements only impacted upon the final week of the financial year.

Pensions

The Group's defined benefit pension scheme operates within the UK. The accounting deficit measured in accordance with IAS 19 'Employee Benefits' was £21.5m before tax, or £17.4m after tax (2015: £20.7m and £16.6m, respectively).

The £0.8m increase in the net pension deficit was primarily due to a reduction in the discount rate assumption to 2.95% (2015: 3.8%), offset by a reduction in inflation to 2.8% (2015: 3.25%), the return on plan assets of £9.7m, together with £4.3m of cash contributions paid to the scheme during the financial year.

Our people

Our people are what makes Ricardo successful as a business – this is true for all organisations but especially in a business like Ricardo, which primarily operates in service industries such as engineering and environmental consulting. Our processes, management tools and values strive to support our employees, enabling them to serve our customers even better.

People are respected for their contribution: integrity is demonstrated in all that we do. We provide exciting work which allows innovation and creativity to flourish and where our passion is tangible. To further encourage this our divisions have instituted a variety of recognition programmes which embrace individual contributions at all levels. There are Group Awards for Young Engineer of the year, a six-monthly Award for Engineering Excellence and a quarterly CEO Award which recognises outstanding team performance. The European Technical Consulting Division presents a quarterly Exceptional Performance Award at either team or individual level. There are also more localised recognition programmes which are common across the organisation,

	Males	Females
Board/Company Secretary At 30 June 2016 there were five non-executives (including the Chairman), two of whom are female and three executives all of whom are male as well as a female Company Secretary	6	3
Senior leadership There were 51 divisional senior leaders in Ricardo at 30 June 2016 of which 46 (90%) were male and five (10%) were female	46	5
All employees There were 2,665 employees in Ricardo at 30 June 2016, of whom 2,173 (82%) were male and 492 (18%) were female	2,173	492

such as voucher schemes and on-the-spot awards for exceptional performance.

We are conscious that the key to an engaged workforce is for everyone to understand the Company's vision, strategy and values as well as their own contribution. We continue to share this information by using a multimedia approach with web-based channels, films, strategy brochures and face-to face information sessions. An increased use of social media has opened new channels of communications, not only with the younger generation.

Results from the biennial Employee Engagement Survey were positive, with 96% of employees returning the response that they are proud to work for Ricardo. Over 80% of respondents were happy

to recommend Ricardo as a good place to work, with 69% confirming they had experienced career-enhancing growth over the previous 24 months. Following the survey a number of improvement programmes have been rolled out locally to improve and consolidate on this position. These positive results confirm that employees recognise the effort which the Company puts into high-potential identification and development as well as in the reward, recognition and growth of all our employees. The formation and integration of our European Technical Consulting Division in the prior year has led to stronger interaction and improved collaboration between the UK, Germany and the Czech Republic, offering greater career opportunities across Europe.

The recent acquisitions of Cascade and especially LR Rail have added more than 500 people to the Ricardo family. In addition, through LR Rail (subsequently rebranded as Ricardo Rail) we have added further geographical dimensions with offices in the Netherlands, Spain, Hong Kong, Denmark and Taiwan: these countries have not previously been part of the Ricardo global footprint. This brings a greater diversity in terms of culture and thinking, which significantly enriches our business.

Diversity and inclusion are further qualities that Ricardo is keen to enhance through its recruitment and personal development practices. We promote equality of opportunity for all employees and job applicants regardless of gender, sexual orientation, disability, or social or cultural background and we are actively striving to enhance diversity at all levels



Following the recently completed expansion of the engine assembly facility at Shoreham – including a threefold increase in footprint – the Ricardo Performance Products team celebrates the increased production volumes and new derivatives supporting McLaren's requirements for the engine co-designed and developed with Ricardo

across Ricardo. It is a longer term project to be fully representative of the modern society in which we operate. We want a strong brand reputation as an inclusive employer which highly values broad representation in its employees whilst aiming to recruit the best person for the role.

The gender mix continues to present a challenge at all levels of recruitment. The ratio of applicants broadly reflects the reduced percentages of females both studying engineering and remaining in the engineering sector following qualification. This year a particular focus continues on gender-based diversity, with a number of initiatives promoting women in engineering having been launched. Females entering our graduate programme in Technical Consulting are up 14% on last year. Our Energy & Environment business, which consists of environmental scientists, economists and consultants, maintains a more balanced gender mix, with 40% of employees being female, similar to our Asian entities with 35% female employees.

Ricardo is privileged to continue to attract new hires from prestigious organisations and has seen a number of returnees. Throughout the year the Group continued to bring in fresh talent in line with its business requirements, helping to refresh and enhance the skill sets through carefully targeted recruitment. Ricardo additionally maintains its commitment to develop its employees through internal promotion as well as believing very strongly in home-grown talent. Complementing this and continuing the trend set last year, our apprentice and graduate recruitment continues strongly. Further improvements have been made to the graduate scheme which now includes – in addition to established European exchanges – international graduate exchanges to China as well as the opportunity to second more experienced graduates into Ricardo Strategic Consulting in the US.

The introduction of the UK Government's new apprentice scheme in 2017 will offer



Ricardo engineers Angela Johnson and Yvonne Paige-Stimson were included in Autocar's list of the 100 most influential British women in the car industry



Giovanni Costa receives the Ricardo 'Young Engineer of the Year' award from the Company's former chairman, Marcus Beresford, CBE

further opportunities to grow apprentice programmes within the organisation. The introduction of degree apprenticeships will further the opportunity to recruit and 'grow our own' in areas outside traditional craft routes. This should enable a step change in apprentice numbers recruited from 2017, allowing for great career opportunities in all functional areas including engineering, science and other professional disciplines. In 2015/16 Ricardo took on intakes of eight apprentices and 44 graduates, further adding to our talent pipeline.

Ricardo also takes on a wider social responsibility to support young people in finding the right career, especially promoting Science, Technology, Engineering and Maths ('STEM' subjects) in schools and colleges: there is a special focus on attracting young women in those careers, in line with our gender-based diversity focus. This is all part of our ongoing broader commitment to promoting the next generation of engineers who will be the core of our future value chain. We continue to offer work experience placements to pupils from local schools and colleges and we are providing an increasing number of undergraduate placements to help young people in their career choices, as well as to connect with, and inspire them, for a possible career in Ricardo.

Ricardo is all about its people. We would like to close by thanking all our employees for their continued efforts, engagement, enthusiasm and professionalism over the past year.

Corporate responsibility and sustainability

Why it matters to Ricardo

Ricardo has a proactive and engaged approach to corporate responsibility and sustainability. The environment is a key driver for our strategy and is seen in many of our delivery streams, where excellence through innovation and technology provides the central focus for all of our teams. It is embedded in what we do and the solutions we deliver:

- Developing new combustion systems and engineering solutions to meet the next steps in emissions regulations;
- Improving vehicle fuel economy and energy efficiency via engine developments, lightweight vehicle structures and transmissions, hybrid vehicle systems, renewable energy and rail operating efficiency;
- Helping governments and cities address climate change, energy and waste challenges; and
- Providing policy and technical advice across the public and private sector to improve the environmental, social and economic performance of the transport sector.

We rely on innovation, talent, skills and customer care from our employees, in whom we invest and develop for the benefit of all our stakeholders. Our values and policies are designed to ensure that we and our suppliers operate ethically, honestly and meet human rights obligations.

Ricardo's employees are engaged as active members of the communities where most of our larger sites operate, with a strong focus on working to promote Science, Technology, Engineering and Maths ('STEM') subjects in schools and colleges as this links directly to the next generation of engineers and scientists who will be the core of our future value chain.

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

The environment – a strategic driver in action

The environment is at the heart of what we do and is embedded in our strategy, shown on page 12:

- Transport & Security work is driven by the worldwide trends in climate change, emissions and fuel consumption legislation;
- Energy work is similarly driven by the need to provide more sustainable and efficient solutions in the areas of power generation and renewable and clean energy; and
- Scarce Resources & Waste teams provide solutions to improve air quality, reduce environmental risk and improve efficiency in the use of resources and waste management.

We support all these areas with R&D activities to enhance our capabilities. This is described on pages 26 and 27.

Environmental thought leadership

As an organisation, Ricardo Energy & Environment is renowned for providing strategic consultancy on a wide range of technical environmental issues. As a result, we regularly provide key thought leadership through a number of different routes. These range from attending and co-chairing the technical working group meetings of a broad range of international bodies and directly advising major donor organisations and country governments, through to speaking at events, running webinars and providing practical information on our website. The subject matter includes:

- Policy development for international governments;
- Guidance and advice on environmental issues and legislation for national and multi-national companies, such as the EU's Non-Financial Reporting directive or global transportation of dangerous goods regulations; and
- Developing practical toolkits and guides for international development organisations.

This support is aimed at directly helping governments and organisations to reduce their environmental impact and stem the worsening effects of climate change: the aim is to position Ricardo as a 'go-to expert' in the relevant markets.

Ahead of the 2015 Climate Change Conference in Paris, and as part of the collective effort to limit global temperature increases to below 2 degrees Celsius, Ricardo Energy & Environment helped more than fifteen countries, with a combined population of more than 500 million people, to identify their climate commitments. During the conference Ricardo hosted a well-attended side event with a panel of distinguished guests from the national governments of Kenya, Bangladesh, the Philippines, Lebanon and Germany.

Following the publication of the Paris Climate Agreement, Ricardo has continued to build on its previous thought leadership, delivering a webinar to help countries understand a best-practice methodology for implementing the agreement's commitments. The webinar was attended by over 200 government officials and key stakeholders within international donors and development partners.

Environmental benefits

Ricardo delivers many positive environmental outcomes which are the result of the work we undertake in the Technical Consulting Division. This broadly comes from several themes:

- Ricardo-funded and client-funded engineering projects where technology is developed to provide low-emissions and high-efficiency technologies for incorporation into products in all parts of the world;
- Lower carbon use from the results of engineering projects which lead to more efficient consumer products manufactured by our clients;
- Environmental consulting work which is largely undertaken by Ricardo Energy & Environment; and



As part of its involvement in the United Nations Conference on Climate Change (COP21) hosted in Paris in December 2015 Ricardo Energy & Environment hosted the event *Turning plans into achievement: the art of INDC Implementation*

- Operating efficiency work for rail operators and rolling stock manufacturers undertaken by Ricardo Rail.

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

The very nature of Ricardo Energy & Environment's environmental consultancy work provides a further significant environmental benefit: we work with businesses, governments and international organisations to help find solutions to some of the most pressing environmental challenges. We have a comprehensive environmental consulting capability which provides:

- Excellence in thought leadership around economic, societal and environmental interactions;

- Extensive understanding of the climate change, resource scarcity and sustainability agendas;
- Deep understanding of policy drivers, providing insight and project delivery for business and industry; and
- Economic modelling and data management to identify and realise value for business and industry.

Environmental consulting

Ricardo Energy & Environment's work focuses on delivering environmental benefits for our enviable customer base of governments, multinational companies and international development partners. We support a wide range of projects around the world to deliver innovative solutions and technology that reduces environmental impacts. Project highlights during the year include:

- Leading a consortium on a European Commission framework on policy development and implementation assessment of industrial emissions legislation. This will ultimately improve the development and implementation

of industrial pollution control legislation, delivering cost-effective reductions in air, water and land pollution;

- Cascade, which was acquired earlier in the financial year, continuing to support EU and UK water and environmental policy development and preparation, as well as providing practical advice on ecosystems, hydroecology and flood risk management;
- Supporting the Community And Renewable Energy Scheme ('CARES') project, which aims to maximise community involvement in renewable energy solutions in Scotland. The work has included preparing a step-by-step project development toolkit for use by communities and building a high-level financial model that can be used by community groups to determine the financial viability of those solutions;
- The evaluation of renewable projects that have submitted applications for start-up grant funding;
- Helping a range of companies to meet their Energy Savings Opportunity Scheme ('ESOS') compliance obligations:



we have audited energy consumption that accounted for 5% of the UK's final annual usage. On average, our clients identified opportunities to save circa 11% of their energy use, delivering a total saving of over £400m;

- PPA Energy, which was acquired in the previous financial year, working with Electricity North West to unlock additional capacity from the UK's North West electricity network, by enhancing the thermal efficiency of substation assets to maximise the power potential of existing infrastructure;
- Delivery of activities to support Resource Efficient Scotland, a Scottish Government programme designed to help the public, private and third sectors reduce costs by implementing resource efficiencies in energy, water, raw materials and waste management. Our support of the programme identified CO₂ savings in 2015/16 of 62,708 tonnes of carbon dioxide equivalent ('tCO₂e');
- Delivering training for Asia-Pacific governments on the practical steps countries can take to finance and deliver climate-smart agriculture;

- Contributing to a leading international report on the importance of public engagement in climate change mitigation for the Royal Society of Chemistry's landmark review, *Still Only One Earth: Progress in the 40 Years Since the First UN Conference on the Environment*; and
- Supporting the Ministry of New and Renewable Energy ('MNRE') in India with policy and regulatory recommendations that aim to enable accelerated growth of solar photovoltaics ('PV') mini grids to support low-carbon development of the rural electrification sector.

Operational environmental impact and greenhouse gas emissions

Ricardo is committed to keeping the environmental impact of the Group's facilities and activities to a minimum as well as ensuring that our services have positive impacts on society. The Board's commitment is embodied in the Ricardo Environmental Policy. It is available via our intranets and to the public via the website www.ricardo.com.

The drivers for the policy are:

- Delivering services that enable strategic improvements for our clients and the end users of their products and services;
- The need for continuous improvement; and
- 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. Our testing for customer and research programmes primarily use fuels and electrical energy in addition to heating some of our buildings. Our manufacturing energy use is predominantly power for machine tools and assembly facilities and gas used in our heat treatment plant. Other Scope 1 (direct) emissions include fire suppression gases such as FM200 and the more usual fuels for business travel. Immaterial sources include gases used for emissions measuring equipment and air conditioning top-ups. Our Scope 2 use is all electricity. We do not measure our Scope 3 emissions.

We comply with the Companies Act 2006 (Strategic and Directors' Report) Regulations 2013 on GHG Emissions and have stated our comparative history in the KPIs on page 17. As this requires us to include fuels used in engine and vehicle testing, variability in results year-on-year can be expected due to the varied mix in types of test and engine size. Projects to reduce energy consumption and waste generation are actively encouraged and have become more important as unit fuel costs increase, and waste streams will also become more important as the manufacturing activities of Performance Products grow in future years. Regenerative dynamometers enable the re-use of electricity generated by testing operations, leading to savings and environmental benefits, which include lower water usage. The majority of our test cells have this capability.

We focus our operational carbon footprint improvements on underlying energy efficiency prior to use of fuels for testing. We continue to use tonnes of carbon dioxide equivalent ('tCO₂e') per employee as an intensity measure.

tCO₂e '000 tonnes per employee

tCO ₂ e '000	2016	2015	2014
Scope 1	11.4	8.2	8.1
Scope 2	10.9	10.4	8.8
Total	22.3	18.6	16.9
<hr/>			
tCO ₂ e per employee	8.3	8.8	8.1

In deciding if an emission is within Scope 1, we apply the operational control test.

Our Scope 1 variability is driven by varying fuel and fire suppression needs on client projects in Technical Consulting together with an increase in general testing activity and the addition of Rail. Scope 2 is electricity and shows a modest increase, which is encouraging as manufacturing and test activity levels have increased, and we have additional office sites as part of the Rail acquisition. The reduction in emissions per head is caused by dilution due to the acquisition of employees through the Rail business, which is mainly office-based and therefore less energy-intensive than our manufacturing and product development activities.

Other environmental impacts include waste streams, which are monitored to identify potential improvement opportunities and to ensure legislative compliance. Higher-risk areas of the facilities, such as fuel storage and distribution systems, have containment and inspection regimes which meet local legislative requirements.

We now have an enhanced energy-saving focus amongst our facility managers, where sharing best practice is encouraged and budgets for this area are allocated. Energy savings continue to be achieved across Ricardo sites, with improvement projects, which include further installation of LED lighting, the replacement of energy-inefficient buildings and the installation of solar panels.

These measures give an estimated annual saving of circa 120 tCO₂e. The focus is on larger sites and those with longer leases. Other ongoing projects include modernising air conditioning systems, IT equipment, and resolving air compression leaks. During the 2015 calendar year Ricardo won awards for 'cycle friendly employer' and for the

environmental sustainability of our new offices in London.

Many of Ricardo's clients require certification to the environmental management system standard ISO 14001 for their key suppliers. We are accredited to this standard in our technical centres in the UK, US, the Netherlands, Germany and the Czech Republic. The application of the policy is defined by appropriate processes and procedures as part of the quality system in each division. Many of these are closely linked to both quality and health and safety procedures.

The suite of 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 are registered in the UK for the Carbon Reduction Commitment ('CRC'), but Ricardo does not engage in carbon trading as we are not required to.

Governance – corporate responsibility

The Board as a whole reviews the key elements of corporate responsibility on an annual basis. To underline the importance of integrity in all relationships between employees and stakeholders, we have ethics, fraud prevention and whistleblowing policies which are communicated to all employees. A summary of these is communicated externally via our Code of Conduct, which includes the policy elements to meet our human rights obligations. We have reviewed the requirements of the Modern Slavery Act and have published a statement for this financial year on our website. Under our ethics policy we do not permit bribery, anti-competitive or corrupt business practices in any dealings. Under our fraud prevention policy we do not allow intentional acts by one or more individuals within the business to use deception or theft to gain unjust or illegal advantage. Under our whistleblowing policy we provide a procedure for any employee to raise any malpractice concerns in an appropriate manner, with protection to the whistleblower.

Health and safety – operations

Ricardo is committed to compliance with local health and safety legislation, to a safe working environment and to a very low level of reportable accidents. We support training in health and safety awareness, impending changes in relevant legislation and other specialist health and safety subjects. Health and safety activities are verified



The Rt Hon George Osborne MP visited Ricardo in June and met with CEO Dave Shemmans and some of our apprentice trainees

Strategic report

Corporate responsibility and sustainability



Ricardo volunteers carry out STEM masterclasses for students at Shoreham Academy, and participate in the 2016 'Big Bang' fair South East event - celebrating and raising your people's achievements in science and engineering - which attracted 8,500 9-19 year-olds (below); a family fun day is hosted for friends and family at the Leamington site (opposite, right)

by regular internal audits and inspections and certification to OHSAS 18001 in our technical centres in the UK, US, Germany, the Netherlands and the Czech Republic. Ricardo Energy & Environment has a Gold Award from the Royal Society for the Prevention of Accidents ('RoSPA'); a demonstration of our commitment to good governance and to being an employer of choice. Our Health and Safety Policy is available via our intranets and to the public via the website.

We recognise the level of reportable accidents as a primary performance indicator. The number of reportable accidents rose from 2015: the level is still low overall and shows the success of our health and safety policies. We continue to focus on reducing accidents and near-misses as part of our commitment to continuous improvement and loss prevention.

Health and safety

Reportable accidents



Based on current RIDDOR definitions

Health and safety – chemical risk

The National Chemical Emergency Centre ('NCEC') at Ricardo Energy & Environment is delivering chemical emergency response



telephone advice to 50% of the world's top 100 chemical manufacturers and over 500 other organisations. As the largest UK chemical emergency centre, we also receive a grant from Government to provide support to the emergency services, a role we have undertaken since 1973. The economic impact of our work is significant, providing a return on investment of 16:1 in the last year for the UK exchequer and ensuring not only the efficiency of valuable emergency services but also reducing the impact of incidents on UK transport infrastructure amounting to savings of millions of pounds.

Health and safety – rail

Safety has long been an over-arching priority for the railway, as it attracts considerable political and social interest. We support the industry need for ongoing

structural attention to safety, as well as for investing in its continual improvement by providing engineering and certification services. Ricardo Certification provides technically capable accredited third-party independent oversight to national and international standards supporting the construction of new railways, rolling stock and upgrade programmes.

Human rights

The Group firmly believes in the principles behind the Universal Declaration of Human Rights. We support this by having a strong commitment to compliance with laws and regulations where we operate, and by expecting the same from our suppliers. We articulate this via our Values and Code of Conduct, the relevant policy elements of which are on the following page:



- Being honest, ethical and above reproach with each other and with our stakeholders in all our business dealings;
- Treating all others as we would like to be treated ourselves;
- We will not engage in activity that can be considered as trafficking in persons, including the use of forced labour or procurement of immoral services for the performance of contracts;
- There should be no discrimination against, or harassment of, any employee or job applicant either directly or indirectly;
- Encourage all our employees to take an active role against all forms of discrimination and harassment; and
- Ricardo will only employ or use staff who are appropriately vetted and have the proven right to work in the country of employment for the type of work being undertaken.

The Group's position on human rights is supported through a number of ethics and employment policies which are designed to ensure we conduct business in a legal and ethical manner at all times.

Modern slavery

Following a review of the matter and our risk profile at the February Audit Committee, the Group has implemented a policy on modern slavery and human trafficking. The Group does not tolerate modern slavery or human trafficking practices within any of its businesses or in any part of its supply chain. We have also published a statement on www.ricardo.com and the subject will be reviewed annually at the July Audit Committee.

Suppliers

Relations with our suppliers are essential in achieving client and shareholder satisfaction. Our policy is that key suppliers should be certified to ISO 9001 and ISO 14001 standards, and all suppliers are encouraged to obtain these certifications. Local suppliers are used where commercially practical. There are no significant supply contracts which 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 deliver savings by consolidating the supply base and reducing the total cost of doing business. We strongly encourage our suppliers to comply with our Code of Conduct or their own equivalent policies.

Local communities

It is our policy and objective to make a positive contribution to all countries and communities in which we operate, particularly in education in areas local to our main sites. Most of the larger Ricardo offices support local community activity and give charitable donations, particularly where employees participate in community or charitable fund-raising activities. The focus is on creating sustainable links and on improving the image and understanding of the business and the engineering profession in the community.

Our community engagement in the UK is broadening with Business in the Community ('BITC'), a business-led charity focused on responsible business: within this scheme we work with local academies close to our larger UK sites and undertake

community engagement projects as part of their 'Give and Gain' programme.

Community engagement promoting STEM and diversity has been a key part of our employee involvement. A wide range of activities have been undertaken:

- Close partnerships with secondary schools close to our larger UK sites supporting curriculum delivery and teacher engagement in STEM;
- Most of our UK graduates are automatically enrolled as STEM ambassadors when they join the business;
- Sponsoring STEM events such as 'Big Bang South East' where circa 8,500 students attended to experience opportunities from over 200 employers; and
- Ricardo Software supporting university teaching with its products in 200 locations across 33 countries.

We also work with our local communities to provide business input on economic regeneration, and we actively engage in local partnerships, particularly in the area where our Shoreham Technical Centre is located, where we are the largest private sector employer. To this end, we actively supported the Greater Brighton City Deal, which secured public and private investment for the area.

We often match staff donations to charitable activities, particularly where there is active staff participation in events. Financial contributions to charities in the year to 30 June 2016 were £26,226 (2015: £11,816). The effectiveness of these policies is informally measured by community feedback.

Risk management

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. That said, 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 of 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 before mitigation and with the effect of compensating controls being applied. This is captured in consistent reporting formats, enabling Internal Audit and Risk to consolidate and rank the risk information and summarise the key risks in the form of the Group risk profile ahead of it being submitted to the Board for final approval.

As part of the risk management process, Directors and Senior Managers are required to certify on a bi-annual basis that they have established effective controls to manage risk and to comply with legislation and Group procedures and disseminated Group policies.

Ricardo's internal control and monitoring procedures include:

- Clear and understood responsibility on the part of the line and financial management for the maintenance of good financial controls and the production of accurate and timely management information;
- Divisional finance leads being required to confirm that appropriate controls are in place and identify any exceptions on a monthly basis, with the outcome being reviewed by the Group Financial Controller and Head of Internal Audit;
- Control of key financial risks through clearly set authorisation levels and appropriate segregation of accounting

duties, the control of key project risks through project delivery and review systems, and the control of other key business risks via a number of processes and activities recorded in the Group risk register;

- Detailed monthly forecasting and reporting of trading results, financial position and cash flow, with regular review by management of variances from budget;
- Reporting on compliance with internal financial controls and procedures by Internal Audit and Risk; and
- Review of reports by external auditors.

To ensure our risk process drives 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 decision-making at Board level. In the July 2016 risk review cycle, risks associated with our customers, our employees and our finances included consideration of the potential impact as a result of the referendum vote for the UK to leave the EU.

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 Technical Consulting projects are reviewed on a monthly basis. The highest risk category projects are either independently reviewed on a quarterly basis or once significant milestones are deemed to have been achieved. Non-contract risks are owned by the leaders of global product groups, Group functions and divisional Managing Directors. These non-contract risks are analysed and reviewed regularly and are recorded in the Group's risk register in liaison with the Group's Risk Manager, who has an independent reporting line to the Chairman 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, via insurances, is managed by the Group Risk Manager under the direction of the Chief Financial Officer. The insurance programme is reviewed annually by the Board to ensure that it meets the business needs as the risk profile changes. During the year, work was undertaken to ensure compliance with the Insurance Act 2015, which impacted our renewal on 1 September 2016. The review required modest process change in order to meet the 'fair presentation' requirements.

Risk appetite is managed by a number of internal controls via authority limits as well as setting excesses on insurances. Risk appetite was reviewed during the year as part of the Board's review of risks and stated as an internal policy document.

The Group's internal audit function provides assurance regarding the systems of internal control and risk management and compliance with applicable legislation and regulations. This is complemented by the internal audits required as part of maintaining certifications to international standards for management systems. These risk management and internal audit processes and their effectiveness are reviewed annually by the Audit Committee.

Financial risks faced by the Group comprise capital risk, liquidity risk, credit risk and market risk (comprising interest rate risk and foreign exchange risk) and the Group's objectives, policies and strategies in respect of these risks are set out in Note 23 to the financial statements on pages 142 to 144.

We comply with the Code by ensuring that:

- We are classifying risks as either strategic or operational and as either internally or externally driven;
- The risks are evaluated on a gross and net risk basis; and
- The Chief Executive Officer reviews the higher-rated risks on the register with the Audit Committee twice each year.

Principal risks

Principal risks and uncertainties

In common with all businesses, we face risk and uncertainties on a daily basis. It is the effective management of these that places us in a better position to be able to achieve our strategic objectives and to embrace opportunities as they arise.

We set out below, and on the following page, details of our principal risks, the mitigating activities in place to address them, and additional actions implemented to further reduce net risk to the Group. It is recognised that the Group is exposed to a number of risks, wider than those

listed. Additional risks and uncertainties not presently known to management, or currently deemed to be less material, may also have an adverse effect on the business.

Movement in risk

 Reduced risk
  No change
  Increased risk

Customers and markets

The Group is largely dependent on a dynamic and increasingly diverse marketplace which is exposed to many external political and economic pressures, such as the referendum vote for the UK to leave the EU, as well as competition and structural change caused by global economic, cost-base, environmental and capacity concerns.



Impact

This could cause changes or uncertainty in client product plans or government policy, leading to delays in the placement of orders, the redirection, delay or curtailment of contracts, slippage in payments or variations in demand for resources and availability of R&D funding sources. The precise timing of order receipt and rate of ramp-up of project workload delivering the subsequent revenue, profit and cash streams may give some volatility in our ability to forecast future performance.

Mitigation

These risks are mitigated by the strategy of broadening the base of the business to reduce exposure to any one specific client, territory or market sector, and the success of this strategy is measured by the key performance indicators for client dependency and sector diversity shown on page 16 and by the geographic spread disclosed in Note 3 to the financial statements. In the event of a sudden downturn, contingency plans are quickly deployed to minimise the short-term performance effects and preserve cash whilst protecting the long-term needs of the stakeholders. The impact of insolvency risk is mitigated by robust working capital management and the use of credit insurance where this is economically available.

Contracts

The majority of the Group's revenue arises from contracts for engineering and environmental consulting, and certification services, with an increasingly broad range of projects, customers and geographies. The costs and liabilities to complete these contracts may be different from initial estimates, thus reducing or increasing margins and project timescales. In product supply contracts, there is a risk of dependency on specialist suppliers; additional risks include product liability, recall or warranty claims. Contracts denominated in foreign currencies can be subject to exchange rate risk.



Impact

Failure to perform on contracts, the infringement of the rights of others, or a faulty product could potentially subject the business to a claim from a customer and loss of reputation or reduced opportunity for repeat business or increased costs. On contracts where we exceed planned performance, additional profit may be generated. 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 clients and increase operating costs. Adverse foreign exchange rate movements could affect profitability.

Mitigation

These risks are proactively managed by clearly defined lead qualification, bidding, contracting and project management processes, whereby projects are categorised according to their risk level, 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 good quality and meets client requirements without infringing the rights of others, within time and cost targets. These processes are subject to continued improvement focus with the central leadership of the Chief Operating Officer and are core to our strategy. Procurement processes are in place to assess critical suppliers and selections are often made with the involvement of the client. 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.

People

Ricardo is a business that is knowledge-driven and people-led, with a focus on attracting and retaining the best talent. Recruiting, developing and retaining knowledge and talent in the right locations are essential.



Impact

The failure to recruit, develop or retain the very best talent would restrict growth and the execution of the strategy and have an impact on delivery and client relationships.

Mitigation

We are focusing on a model of 'bringing in and bringing on' the best talent. We aim to ensure that we actively develop and manage staff to encourage their optimum contribution, encourage mobility and professional development, and provide appropriate remuneration and working conditions. As our business grows internationally, we will be able to increase the range of services we deliver from more locations by focusing on mobility. Our people as stakeholders are reviewed further on pages 32 and 33.

Technology

The business is driven by changes in technology to meet the needs of markets, sectors and regulators on varying time scales.



Impact

If the Group invests in the wrong technologies it could lose marketplace advantage and business levels could reduce. If there are delays in the implementation of new regulations, which in turn delay client programmes dependent on new technology, the time taken to deliver returns from our R&D programmes may also increase.

Mitigation

Our R&D programmes are developed through a mixture of client consultation, long-range forecasting and deep technology roadmap development. Many of our programmes are collaboratively developed and delivered with governments, clients, partners and suppliers, which creates strong links to the market and ensures the output is relevant and credible. The programmes are approved and delivered by the Ricardo Innovations Division, which operates within Ricardo as a global R&D organisation singularly focused on delivery and exploitation of approved programmes. This enables staff and facilities to be dedicated onto relevant programmes regardless of geography, which will accelerate delivery of innovation to market and promote the exploitation of developed IP and know-how. Further details of our R&D programmes are given on pages 26 and 27.

Compliance with laws and regulations

The Group's operations are subject to an increasingly wide range of domestic and international laws, regulations, restrictions and standards.



Impact

Non-compliance with these laws, regulations, restrictions and standards could expose the Group to fines, penalties or loss of reputation, or result in trading restrictions which could have a material adverse effect on the business.

Mitigation

To mitigate these risks the Group has a number of defined policies and operating procedures, and takes professional advice, where considered necessary, to ensure that employees and others act with the highest ethical standards and within local legal and regulatory requirements. Our Code of Conduct is published on www.ricardo.com to increase awareness and provide availability to external stakeholders. Also, the Group's internal audit programme includes within its remit the review of compliance with applicable legislation and regulations and awareness of key policies. Policies are updated as regulations change and as our knowledge of best practice increases. We aim to anticipate the effects of working in new countries and new sectors, particularly rail: these add to the range of regulations, standards and laws with which we need to comply and the list of new territories where laws, regulations and cultures are addressed.

Defined benefit pension scheme

The Group has a UK defined benefit pension scheme which currently has a funding deficit. The result of the referendum vote for the UK to leave the EU has the potential for increasing volatility.



Impact

Any decline in the value of the pension fund assets, improvement in the life expectancy, long periods of high inflation or future decreases in interest rates could increase the funding deficit and require additional funding contributions in excess of those currently expected.

Mitigation

The current UK funding plan was agreed on the basis of a valuation undertaken at 5 April 2014 and anticipates deficit recovery contributions being made until January 2021. The Group also closed the pension fund to future accrual on 28 February 2010. In addition the Group regularly monitors the performance of the pension fund.

Financing

The Group is in a net debt position, having recently drawn on available facilities in order to fund expansion.



Impact

There is a risk of the Group being unable to secure sufficient funds or the cost of funds and facilities being high.

Mitigation

This risk is managed by robust cash management, regular improvement initiatives, monitoring forecast and actual cash flows, maintaining good relationships with the Group's bankers and ensuring sufficient borrowing facilities are in place at all times to support the Group's requirements, with additional headroom available to meet possible downside scenarios. The Group has ample facility and covenant headroom. Further details of the Group's borrowing facilities and other financial risks can be found in Note 23 to the financial statements.

Viability statement

The Directors have assessed the prospects of the Group in accordance with provision C.2.2 of the 2014 UK Corporate Governance Code, which has become applicable to the Group for this year ended 30 June 2016.

The context supporting the assessment

The Group's prospects are underpinned by its business model and strategy, which can be found on pages 8 to 25. The Group continues to follow a balanced approach to its strategy, which is subject to ongoing monitoring and development as described below. The underlying operating profit of the Group has grown on average by 12% over the last five years and the Group has a closing year-end order book of £231m, of which 34% is expected to be workable beyond 12 months from the year-end. The order book comprises the value of all unworked purchase orders received.

The Group continues to be focused on global engineering and environmental consulting together with the development of longer-term, multi-year contracts and relationships, underpinned by global macro trends. 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 annual strategy review and business planning processes, which cover a five-year period and a three-year period, respectively, and are both led by the Chief Executive Officer.

The strategy review is a forward-looking process and is undertaken by the divisions, with full participation by members of the Board, which results in a five-year strategic

plan. Part of the Board's role is to review the performance of the Group in the last financial year and to consider whether the strategic plan remains appropriate. This includes an assessment of changes in the market and competitive environment, together with macroeconomic, political, social and technological changes. Actions are implemented as necessary to continue to support the strategic plan.

Detailed business plans are also prepared during the last quarter of each financial year by all divisions and relevant functions are involved, including Finance and Treasury, which are then reviewed and approved by the Board. 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. The second and third years are based on the overall content of the year-one business plan together with the strategic plan, having been flexed for known or anticipated events.

Assessment of viability

The three-year business plan reflects the best estimate of the future prospects of the Group and has been stress tested for certain scenarios. The impact on the Group's detailed financial plan has been quantified and presented to the Board as part of the approval process. These scenarios, which are based on aspects of the principal risks including customers and markets, contracts and financing as set out on pages 41 and 42, represent severe but plausible circumstances that the Group could experience.

The results of the stress testing showed that the Group would be able to withstand the impact of these scenarios occurring over the period of the plan by making adjustments to its operating activities within the normal course of business.

The Group also considered a number of scenarios that would represent serious threats to its liquidity, including reverse stress testing. None of these scenarios were considered to be plausible.

Statement

The Directors have assessed the prospects of the Group over the three-year period to 30 June 2019 and confirm that their assessment of the principal risks facing the Group was robust. A three-year period was selected for the following reasons:

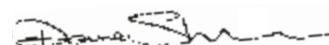
- This period reflects the detailed business planning cycle;
- Customer lead times and typical engineering programmes are no longer than three years; and
- Although the strategic plan covers a five-year period, the Group's order book and pipeline of opportunities does not extend significantly beyond three years.

Whilst the Directors have no reason to believe the Group will not be viable over a longer period, given the inherent uncertainty involved, the stress testing scenarios considered as part of the three-year business plan, together with the reasons outlined above, a three-year period is deemed most appropriate.

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 three-year period ending 30 June 2019.

Going concern

Given the viability statement above, the Directors therefore considered it appropriate to prepare the financial statements on a going concern basis, as explained in Note 1(a) to the financial statements on page 122.



Dave Shemmans, Chief Executive Officer
14 September 2016

Our 2016 Strategic Report, from page 4 to page 43, has been reviewed and approved by the Board of Directors on 14 September 2016



Case studies

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Ricardo brings the combined strength of its automotive and environmental expertise to help the auto industry as well as local and regional authorities and regulatory bodies achieve their goals for cleaner, healthier and more sustainable future transportation



**GETTING
'REAL'
ABOUT EMISSIONS
AND AIR QUALITY**

The late summer of 2015 will very probably be remembered as the time when vehicle emissions testing – in particular of diesel cars – became the subject of widespread international debate in the mainstream media, in politics and among the public.

The immediate impetus for this very public discussion was undoubtedly the revelation by the EPA and CARB in the United States that so-called 'defeat device' software had been used to circumvent regulations on some diesel cars.

However, the resultant outpouring of concern soon began to extend further. How fundamentally effective is the vehicle type approval testing process in representing and monitoring, from within a laboratory environment, the performance of vehicles in everyday use on the road? And why do street-level concentrations of NO₂ in urban settings remain persistently high?

There can be little doubt that Europe has a problem with emissions of NO_x – oxides of nitrogen including nitric oxide ('NO') and nitrogen dioxide ('NO₂'). NO₂ is a pollutant that can directly harm human health and, disconcertingly, monitoring has revealed that in many urban areas concentrations of NO₂, especially at street level where it is most harmful to young and old, remain high in several locations.

These questions surrounding the effectiveness of vehicle type approval testing and the poor air quality in urban centres represent a comparatively new agenda for the public, politicians and media. But for Ricardo they are core areas of professional expertise – expertise that positions the Company extremely well in helping to deliver sustainable transportation and clean air.

How did we get here?

Emissions regulation around the globe has progressed very significantly since the first rules were implemented in the 1960s in California and across the USA, with the overall goal of improving air quality and, later, reducing greenhouse gas emissions. The test cycles, emissions limits and associated requirements for diagnostics and durability have progressed in parallel, with different regions developing different strategies, but all based on a common approach of known and repeatable lab-based vehicle testing.

Type approval testing in Europe is carried out in the laboratory in controlled conditions over the so-called New European Drive Cycle ('NEDC'). But both industry and regulators have realised for some time that the process is not sufficiently well defined to ensure that all the objectives of the regulations are met; both sides have been engaged in discussions to migrate to more representative legislative approaches.

The NEDC was defined at a time when CO₂ emissions were not required to be recorded, and before fuel prices had re-escalated following the recession of the early 1990s. This was also a time when the ability to control the test environment was comparatively crude and test equipment lacked the sophistication of that available today. The NEDC was a pragmatic approach to standardising emissions production and measurement, even though not fully representative of the wide range of driving conditions encountered on the roads of Europe.

Case studies

Emissions and air quality



This situation has led to an increasing divergence between officially quoted NEDC test figures for fuel economy and those experienced by drivers. This discrepancy is regularly highlighted by consumer groups, and the International Council on Clean Transportation, for example, has concluded, based on its own analysis, that the difference between official laboratory and real-world fuel consumption and CO₂ was around 7% in 2001, but had risen over fourfold to 30% in 2013.

The NO_x dilemma

With the early enthusiasm of regulators towards the end of the last century to control CO₂ and noxious emissions such as particulates ('PM') and hydrocarbons ('HC'), NO_x emissions were not specifically controlled. While PM in particular was an appropriate focus for emissions reduction, it is now more widely accepted that NO_x is equally harmful to health.

It is perhaps slightly ironic that the early efforts of the automotive industry and regulators to reduce PM emissions have in fact resulted in an increase in overall NO_x emissions. Specifically, the proportion of NO_x being emitted as NO₂ by diesel vehicles has risen. Historically, in order to enable the operational of diesel particulate filters, an oxidation catalyst has typically been fitted: this lowers the effective temperature at which particles can be safely burned off the filter,

but it does so by increasing the proportion of NO₂ in the exhaust stream. Until the type of NO_x aftertreatment systems effectively required from Euro 6 onwards, PM emissions were thus being reduced at the expense of increased NO₂.

A particular strength of Ricardo in understanding the complex interactions between vehicle emissions technology and urban air quality has been in the very strong links forged between the air quality team based at Harwell and the automotive emissions and aftertreatment chemists in the Company's automotive business. This has led to a unique understanding of the complex science of both disciplines, providing insights that would otherwise not be possible.

A new approach to type approval testing

The automotive industry and regulators around the world have been responding to the requirement for more representative type approval data with the development over recent years of the World Harmonised Light Vehicles Test Procedure ('WLTP'). In Europe and some other regions, the WLTP framework will see the NEDC replaced by the World Harmonised Light Vehicle Test Cycle ('WLTC'), a cycle heavily influenced by a huge survey of European driving characteristics and designed to be more representative of the way that vehicles are used on the road. In particular, the WLTC includes a much wider load and speed range and a significantly longer duration of test.

It is understood that there is no current plan for WLTP to be adopted in the US, though the country's regulators have adopted several drive cycles in an attempt to cover a wider range of operating conditions. In parallel, US regulators have created mechanisms to allow consumer fuel consumption labelling to be adapted and adjusted from the base legislated test cycle results.

The WLTP includes the measurement of a greater range of pollutant emissions than have been mandated in previous regulations; more significantly, it will also bring the 'Real Driving Emissions' ('RDE') requirements developed for Europe in the past few years to the global market. The principle of the RDE approach is to create a fundamental link between the rigorously controlled chassis dyno-based certification test and real-world on-road emissions control performance.

For specific regulated emissions, limits will be set for the closely controlled laboratory-based WLTC testing, as well as for the laboratory limit value multiplied by a maximum permitted 'Conformity Factor' ('CF') that is allowed under RDE road testing. With the advent of such a fundamental shake-up in the manner in which vehicles are tested for type approval in Europe, there is clearly an imperative for an independent powertrain expert such as Ricardo to be in a position to assist its clients in developing the next generation of RDE-compliant vehicles.

Defining a RDE testing process

Ricardo has been actively engaged in a research project in parallel with the development of the new European RDE regulations. While to an extent aiming at a moving target in terms of the detail of the future test regime, this research aims to establish a development process that is capable of providing cost-effective yet RDE-compliant diesel powertrain and aftertreatment solutions. In planning the research, Ricardo aimed to couple its practical

experience of Portable Emissions Monitoring System ('PEMS') testing with its vehicle simulation capabilities in order to enable assessment of different vehicle and aftertreatment systems. Parallel laboratory-based testing of the research vehicles is carried out in the new Ricardo Vehicle Emissions Research Centre ('VERC'). This state-of-the-art facility is amongst the most advanced vehicle emissions laboratories anywhere in the world. Already in high demand for today's testing requirements, the facility is also future-proofed against the needs of all projected future regulatory requirements including RDE.

In order for RDE testing to be carried out in a manner that is both representative of the day-to-day experience of road users while also comparable and repeatable, a wide range of requirements are placed on route design. These arise from the many boundary conditions and strict validation criteria demanded by the software that processes the route and emissions data. Ricardo's Shoreham Technical Centre provides an ideal location for the type of mixed driving that is considered likely to form the basis of RDE regulations; conditions include rural, urban, and fast highway roads, and a range of gradients. As such, Ricardo has been able to define an RDE route comprising all of the likely requirements within a 20 km radius of the Company's Shoreham Technical Centre.

In addition to Ricardo's own internal RDE research project, this Shoreham-based RDE route system is already being exploited by the Company in its commercial work for automakers wishing to evaluate on-highway emissions performance in a manner consistent with the likely parameters of the future regulations.

Policy options to improve local air quality

In broad terms, while Ricardo's automotive engineers are helping to create the clean vehicle fleet of the future, the focus of the air quality team remains one of helping national, regional and city authorities develop practical policy tools to manage the impacts of today's fleet. These tools are effectively grouped under the categories of 'avoid', 'shift' and 'improve': reducing or avoiding the need to travel, shifting towards more environmentally sustainable modes of travel, and improving the energy efficiency of vehicle technology.

In some urban areas the team will assist with the design and implementation of low emissions zones, either focused on all traffic or just upon significant fleets such as buses. In many instances this work will look to leverage traffic management initiatives: for example, managing emissions in real time by linking air quality monitoring sensors to traffic light phasing.

A uniquely valuable perspective

As Europe's towns and cities take on the challenge of improving air quality for their citizens and the auto industry and regulators move to a system for type approval with greater relevance to real-world driving, Ricardo is ideally placed to assist.

Working with cities as they strive to improve the air quality experienced by their citizens, Ricardo is able to use its expertise to help optimise the traffic management of today's fleet. At the same time, Ricardo also has the toolkit already in place to help automakers develop future vehicles that are fully compliant under the new RDE regulations, ensuring that emissions targets for real driving – as well as on the test bed – are comfortably met or exceeded.



How will local electricity distribution networks cope with increasingly complex future loads, including large numbers of electric cars? Ricardo is assisting in the development of new technologies and innovation to deliver smart demand management, energy buffering and improved network operating efficiency



PREPARING FOR AN ELECTRIC FUTURE



Some of the participants in the My Electric Avenue project – a major initiative investigating the capacity of local electrical distribution networks to support widespread take-up of electric vehicles – for which Ricardo was contracted to provide independent overall technical oversight

The demands on local power distribution networks in industrialised nations such as the UK were – until recently – broadly static and predictable. Our homes and businesses may be filled with an increasing proliferation of electrical consumer goods including the chargers for our many mobile devices, but the parallel focus on energy saving and connection of wind and solar generation has meant that the overall demand seen by the transmission network has not increased: indeed, on sunny and windy days, demand has actually fallen. Morning and evening peaks still occur due to the requirements of cooking, space heating and hot water, but the demand picture has been a fairly stable one over time. Until now.

Local distribution networks have already had to cope with the imbalances of renewable energy microgeneration, with a seemingly random patchwork take-up of solar photovoltaic installations across their low-voltage 240/415V network feeders. If nothing else, this has served to demonstrate that such technologies can be unpredictable in their uptake as well as intermittent in their operation. This in turn provides a big lesson for the next thirty years: significant new energy demands will be placed on distribution networks by the increasing popularity of technologies such as ground-source heat pumps and, most crucially of all, the rapid growth in the market for plug-in hybrid and pure electric vehicles.

For example, figures published by the UK Society of Motor Manufacturers and Traders show that in 2015 28,188 new-car sales qualified for the Plug-in Car Grant scheme, representing 1.2% of UK new registrations in the year: this compares with just 14,532 (0.6%) in 2014. Customers can currently choose from approximately 40 different plug-in hybrid and pure battery electric models, and the list lengthens with the passing of each international motor show.

While this growth in the market for plug-in vehicles is almost universally viewed positively in terms of promoting local air quality, there is a growing recognition that the recharging requirements of this expanding electrified fleet are going to place a significant new burden on the electricity network. The additional loads are likely to cause thermal and/or voltage issues on parts of the distribution networks, depending on the existing network arrangements and the location of distributed generation.

Assessing technologies to manage demand

In order to assess the impact of this future load pattern and the ability of smart demand management technology to manage the local distribution network, a multi-partner research project known as 'My Electric Avenue' was initiated. Scottish and Southern Energy Power Distribution ("SSEPD") was the 'host' distribution network operator ('DNO'), while EA Technology was appointed by SSEPD as the project co-ordinator. Other partners included Nissan, leasing company Fleetdrive Electric, DNO Northern Powergrid and low-carbon transport consultancy Zero Carbon Futures. Project subcontractors included The University of Manchester and De Montfort University, along with Automotive Comms, Creative Concern, and Ricardo, which was contracted to provide independent overall technical oversight.

Case studies

An electric future



In one of the largest evaluations of electric vehicle charging patterns in Europe and perhaps the world, My Electric Avenue set out to create a series of ten test clusters of users, whose homes share the same low-voltage feed from a local substation. Each cluster comprised around ten vehicles, giving a total of approximately one hundred in the technical trial; this was used to assess EA Technology's Esprit demand management technology. Separately to the technical trial, a further 'social' trial focused on a slightly larger sample size of 120 electric vehicle users – this time unconstrained geographically by network connections – and

sought to evaluate the behavioural aspects of vehicle recharging such that future network demand could be predicted in terms of the long-term usage patterns of different customers.

Analysis of the impact of vehicle recharging on a number of feeders studied by My Electric Avenue showed that an electric vehicle market penetration of around 40% would lead to overloading of many networks. This level effectively means just four in ten houses having one vehicle with a comparatively modest recharging capacity of 3.5 kW. At a technical level, demand management using Esprit was shown to be able to eliminate the likely evening overload of uninterrupted charging, and to provide voltage headroom equivalent to an additional 10% of customers connecting to recharge their vehicles at this level.

"Having Ricardo as a part of the project has meant that we could have confidence that we were doing the right things," explains Tim Butler of EA Technology. "From a technical perspective in achieving the learning that the project aimed for, while also applying best-practice project management principles, we knew that Ricardo would not be afraid to tell us if we needed to change the way we were working."

Energy buffering

In parallel with its technical oversight of the My Electric Avenue project, Ricardo has also been assisting Future Transport Systems ('FTS') in the development of its E-STOR technology. Marketed through FTS subsidiary Connected Energy, E-STOR is an innovative charging solution which provides significantly improved functionality for the plug-in driver while also reducing peak demand on the distribution network. It achieves these twin benefits by reusing electric vehicle batteries – supplied under an agreement with Renault – in a 'second life' application as an energy buffer for charging. This provides a robust and cost-effective solution that enables higher-capacity fast charging from a standard 3 kW electrical connection. In addition to avoiding





additional stress upon the local distribution network, E-STOR can also play an important role as part of a smart grid by acting as a useful energy buffer to absorb surplus generating capacity, as well as allowing the exploitation of low-cost off-peak energy tariffs.

Ricardo's support for FTS has included the implementation of interface and communication stacks to facilitate FTS application software. This included developing and testing the various commutation protocols to link the multiple energy storage systems and power electronics on the E-STOR architecture. Ricardo developed the TCP/Modbus, CAN, RS 485 and Ethernet communications and selected the appropriate control system hardware to implement the E-STOR application software. Ricardo's expertise in embedded software and hardware ensured a robust product development cycle.

Smart network management

Demand management and energy buffering, together with other technologies such as smart metering and real-time tariff-based incentives, have their place in helping to manage low-voltage network demand. But there can be no substitute for smarter network controls involving power electronics alongside targeted network reinforcements to optimise capacity and extend asset life.

Earlier in 2016 Ricardo Energy & Environment announced its participation in the 'Celsius' project. Funded by the UK Office of Gas and Electricity Markets ('OFGEM') and also involving Electricity North West, the project's task is to unlock additional capacity from the UK's North West electricity network. In this project, Ricardo's energy practice – based on the team that joined the business through the acquisition of PPA Energy – is working with Electricity North West to identify innovative methods to accommodate the increasing demands on low-voltage networks by optimising the capacity of substation assets such as transformers. The project aims to do this by analysing performance and capacity to handle increased electricity demand across a range of environments and demand characteristics, including time of day and seasonal variability. These insights will allow the team to develop operational strategies and retrofit cooling techniques that enhance the thermal performance and capacity of existing systems, thus avoiding the need for early replacement and also safeguarding costs for energy users.

In the increasingly complex electrical distribution network ecosystem of the future, with more widespread use of microgeneration, ground-source heat pumps, and an unprecedented increase in plug-in vehicle use, there is clearly a place for innovations that seek to reduce and manage loads through both local demand management and energy buffering. However, a key imperative for the electrical power distribution network operators will be to find ways of managing their most vulnerable assets so that the maximum possible capacity can be delivered through the existing infrastructure before reinforcement is required.

In each of these areas Ricardo's engineers and consultants stand ready to help in creating a more sustainable and more efficient future for the power distribution network and the electrified transportation system that it supports.

American cruiser motorcycles are aesthetically driven products where look, feel and sound quality are crucial considerations affecting customer choice and brand loyalty. These exacting requirements make Ricardo Motorcycle an ideal engineering partner to help manufacturers - from concept to production implementation in a highly individual marketplace

EASY RIDER



Ricardo Motorcycle was formed to build on the success of Ricardo's existing motorcycle business with the acquisition of UK consultancy Vepro in October 2014 and collaboration under a Memorandum of Understanding with Exnovo of Italy, a business whose operating assets and employees were acquired in July 2016. With their core skill sets in motorcycle chassis and engine design respectively, Vepro and Ricardo had already collaborated in the US cruiser motorcycle market for many years before the acquisition. They had worked together on iconic brands like Excelsior Henderson, Victory Motorcycles, Harley-Davidson Motorcycles and Indian Motorcycles, the latter since acquired by Polaris. The formation of the new Ricardo subsidiary thus provided the impetus for even greater operational synergies, building upon a proven market and formula.

Distinctive in every sense

The cruiser style of motorcycle is uniquely American in its origin – relaxed and comfortable, with easy-going power delivery and oozing style. The cruiser's roots are set deep in the heart of middle America and it represents a style of motorcycling that has endured from the 1930s to this day. As such, it also represents a considerable commercial opportunity for global motorcycle manufacturers – yet this is a market that has historically proven formidably difficult for non-American producers to crack.

Cruisers are configured with a feet-forward, back-upright riding position; they are focused on delivering an easy, relaxed riding experience with smooth shifting and lots of low-end torque taking precedence over high power. Providing such an easy style of riding is not without its drawbacks, however: often, performance, handling and low-speed manoeuvrability can appear compromised in comparison with other more conventional motorcycles. This means that cruisers are if anything more challenging to engineer successfully in a manner that meets or exceeds customer expectations.

Heritage driven

Even today, the cruiser engine draws extensively upon heritage themes. Ahead of all other types, the air-cooled V-twin became the favourite engine configuration for both pre-war and post-war American-built motorcycles; even from the very early days, large capacity engines, some as large as 1300 cc (79 cu in) were not uncommon. It is this engine configuration which presents one of the biggest challenges, a challenge which Ricardo Motorcycle is especially well equipped to meet.

Throughout its history the cruiser motorcycle has evolved through an array of styles. The type of customer has evolved too, one of the latest buyer groups being the 'Weekend Warrior' – someone who may spend weekdays toiling in the office and who at weekends wants to escape the rat race and take to the open road. To that customer, the motorcycle is a panacea for the stress of modern life, an extension of personality, a style icon and fashion accessory whose aesthetic appeal must hit the spot exactly to succeed.

Case studies

Easy rider

The multi-award winning Indian Scout motorcycle was the subject of a successful collaboration between Ricardo and Vepro, pre-dating the formation of Ricardo Motorcycle



Ricardo Motorcycle understands the minute details that are important to such discerning buyers, a factor which is crucial to success in this most demanding of markets. For this reason the business is careful to make use of American test riders even when assisting European or Asian brands with motorcycles targeting North America.

Also very high on the product development agenda in Ricardo Motorcycle's view is the development of high-quality accessories good enough to tempt even the most die-hard of enthusiasts. While accessories might be considered something of an afterthought when dealing with other markets, these equipment lines can form a substantial chunk of the profit centre for the manufacturers of a cruiser.

Look, sound and feel come before technology

When it comes to the cruiser market, the standard engineering rule book is put to one side. Styling and character are paramount, and the look, sound and feel of the engine are considered to be far more important than its technical specification or even performance.

NVH is a particular area in which Ricardo Motorcycle's offering can draw upon the expertise available from Ricardo's automotive business. The sound that a cruiser motorcycle makes reveals the bike's true character and comprises a complex blend of attributes. Sound quality is inherently subjective, and many decades of motorcycle culture have given customers clear expectations of the way a product should sound.

The ability to simulate sound as early as the design concept stage

provides an invaluable engineering tool. Simulation can be used to make subjective evaluations and judgements while excluding other factors that may influence a road tester, such as appearance, feel, smell or touch. Such 'blind' evaluations of the sound files ensure that there is no subliminal brand-related bias. These evaluations are made by a panel of expert listeners made up from the staff of both the client and Ricardo Motorcycle. A sound quality target is typically benchmarked against around six bikes, and the panellists score the sounds on a scale of one to 10, each describing their emotional responses in terms of feel and style.

Ricardo's WAVE software is used to predict the all-important sound level and quality of the exhaust which forms a major part of a V-twin's character. Those predicted sounds can also be played back to the panel and assessed subjectively, as well as being compared directly with the target sounds. WAVE is also used to develop the muffler system and to modify the sound to match the targets. This modelling phase can involve hundreds of iterations, yielding perhaps two or three muffler types to be built and fitted to motorcycles.

With cruisers, the normal sign-off criteria for combustion stability, gearshift quality, vibration and other similar parameters take on a different perspective. Cylinder firing angle is critical to achieve the 'right' sound. Cooling is critical not just for full power, but for 'parade duty' where the engine idles or runs at low speed for extended periods.

Proven capability

In 2003 – more than ten years before Ricardo's acquisition of Vepro and the subsequent formation of Ricardo Motorcycle – Vepro and Ricardo were engaged to work on a new cruiser platform for the



Indian brand, from which the 'Indian Spirit' would be launched for the 2006 model year. Two versions of the Spirit were to be powered by an all-new 1667 cc, 55-degree V-twin engine driving through a six-speed gearbox and belt drive. Unusually, the technical development of the engine went hand-in-hand with a powertrain styling exercise, something that was considered crucial to the bike's success.

The programme included detailed analysis with full vehicle and powertrain benchmarking, with the focus on brand value, styling and design. The Ricardo-developed V-twin concept underwent full performance simulation and port design: this included modelling and test validation of the competitor benchmarks using proven Ricardo analytical and test techniques.

The intake and exhaust systems were carefully developed with the emphasis on acoustic quality. Ricardo acoustic development techniques played a major part in honing this crucial aspect of

the brand character and an expert 'listening panel' provided experienced subjective opinion.

The parent company of the Indian brand went into Chapter 11 administration before the Spirit could be launched, but in 2011 Vepro and Ricardo were again asked to help with the rebirth of the brand by its new owner, Polaris. The bike in question was the Indian Scout, which went on to win of the Best Cruiser in both the Cycle World 'Ten Best Bikes', and the 2015 Motor Cycle News Awards, with MCN particularly praising the free-revving V-twin engine and the bike's build quality.

Vepro and Ricardo also worked together on another Polaris brand, Victory Motorcycles. The successful working partnership between the two companies in these, and other projects, spanning many years, was a significant element in Ricardo's decision to acquire Vepro and the subsequent formation of Ricardo Motorcycle.

Cruisers: part of a much bigger picture

Developing a successful cruiser requires an understanding of the cultural significance and the emotion that lies behind the hardware. The DNA of the genuine article is something the people at Ricardo Motorcycle have spent more than two decades understanding and emulating, inspiring the design and engineering of genuinely impressive products that have been well received in this highly demanding market. Now as a unified team, Ricardo Motorcycle's specialists are able to take this collaboration forward to the benefit of both the existing well-established US brands, as well as motorcycle OEMs from all parts of the world who aspire to success in the American cruiser motorcycle market.

Case studies

London's Thameslink

London's population grows by an extra Tube train full of people every three days, which is why new transport projects such as the £6 billion Thameslink north-south commuter railway network – for which Ricardo Rail is providing expertise in the area of signalling – are crucial for the UK capital's further economic and social development





SIGNALLING ***LONDON'S THAMESLINK***



Stretching from Brighton on England's south coast, up through London's commuter suburbs and central districts, through to the city of Cambridge, the Thameslink upgrade programme will bring new, longer trains to resolve some notorious network bottlenecks. It is also involving some fundamental improvements to famous interchanges such as Farringdon, Blackfriars and London Bridge.

The upgrade will see a realignment of existing infrastructure, in some cases linking tunnels dating from the 1860s, adding new-build viaducts, dive-unders and tunnels, and enabling the transformation of hitherto separate lines into an integrated network capable of operation at unprecedented capacity levels.

Signalling the Thameslink 'Core'

Central to the entire programme is the 'Core' – a short, double-track section between London's Blackfriars and St Pancras stations, and spanning barely three miles (5 km). All cross-city services will have to pass through this section, meaning that it will have to support service frequencies more akin to those of a city-centre metro system. This in turn poses major technical challenges for Thameslink – and a team from Ricardo Rail has been busily engaged in the crucial task of designing signalling systems for the heavily trafficked Core section.

Signalling systems are at the very heart of railway safety: they provide the means by which trains are kept separate on individual lines and across networks. And the fact that signalling systems are so central to railway operations brings with it some significant challenges in terms of system design and maintenance. Any modern European metro system under construction or refurbishment today would turn to Communications-Based Train Control ('CBTC') as its signalling technology. This is because CBTC is designed for the stop-start nature of metros, with automated control of train movements allowing shorter headways (the time

between successive trains on the same track). However, CBTC is not a realistic option for a network like Thameslink, which also extends outwards from central London onto mixed-traffic suburban routes.

Furthermore, the Thameslink network is a project of the country's national rail network infrastructure manager, Network Rail, which has a commitment to adopt the train control technology championed by the EU to bring consistency across its member states. Thameslink will therefore use the European Train Control System ('ETCS') as its standard for signalling.

After detailed modelling showed manual control could not reliably deliver the high traffic frequencies required through the Thameslink Core, the decision was taken to add Automatic Train Operation ('ATO'), a further safety and efficiency enhancement on top of ETCS. Once engaged by the driver as the train enters the Core, ATO will control power and braking, with the driver only controlling the doors.

This will be the first use of ATO with ETCS on a UK mainline railway, and in itself presents a complex proposition for the project's engineers. However, it will resolve the problem of safely providing the all-important 'metro style' frequencies of up to 24 trains per hour through the Core – a 50% increase on current service levels.

Ricardo signalling safety expertise

Ricardo Rail's ongoing role in the Thameslink Core signalling project has been to develop the safety programme. Being involved from an early stage – the work commenced in 2009 before the acquisition by Ricardo of LR Rail – allowed Ricardo Rail to influence the subsystem requirements and operations, not only to achieve high levels of safety but also to ensure performance is optimised.

The team started with the high-level operational requirements and developed application scenarios to model in detail how the new ETCS would work, at the same time looking at every possible risk to the system's safe and efficient operation. Since this time, the team has moved on to looking at the integration aspects of the chosen signalling technology, using scenario modelling to identify the detailed subsystem functional and safety requirements, and to develop new operating rules and principles.

By using ATO, with the underlying Automatic Train Protection ('ATP') provided by ETCS, the Core section will safely support trains passing at just two and a half minute headways; the system also has the ability to further reduce this to just two minutes when necessary in recovery mode. However, the technology must first undergo an extensive period of testing.

Thameslink is the first application in which ATO will have been used with ETCS; indeed, it is the first use on any mainline in the UK, so the Ricardo team has done a lot of work to reach the current stage. There have been many system integration aspects for the Ricardo team to consider, such as working with the new Siemens Class 700 rolling stock units that are gradually being introduced to the network, once extensive testing with the new signalling technology has been successfully completed.

Improving London's transport – in the background

Perhaps the biggest challenge of all for Thameslink's managers has been keeping the network – including the Core, and its major

stations – operational throughout the upgrade process. It has at times been compared to conducting the engineering equivalent of open heart surgery, with the patient awake throughout.

Yet Thameslink has already succeeded in improving London's transport offer, without significant disruption. Blackfriars station, which spans the Thames, has won acclaim for its architectural splendour. More prosaically, the re-signalling around London Bridge – including a new dive-under just outside the station – has resolved the issue of a major service conflict for Network Rail.

However, the re-signalling of the Core, supported by the contribution of Ricardo Rail, is ultimately the key to unlocking the entire project. Without a reliable, capable technology in place, the entire programme would not be able to play its part in resolving London's transport pressure. Though less immediately noticeable to the railway's customers than the refurbished platforms and the new, state-of-the-art rolling stock, the re-signalling programme is critical to the success of the entire project.

Prepared for the future

As cities and regions develop, railways across the world share the common pressure to support ever-higher traffic volumes, both through new-build lines as well as through development projects, such as Thameslink, which involve existing infrastructure. And this is precisely why both Ricardo Rail and Ricardo Certification (the subsidiary formed in parallel in 2015 in order to provide a growing range of accredited assurance services for clients within the rail market) are confident that the experience and knowledge already amassed in their many international signalling projects will prove invaluable to Ricardo and its customers long into the future.

Case studies

Powering a global icon

Launched early in 2016 to widespread acclaim, the all-new Ford Focus RS is a truly global model that raises the bar on the competition. Despite its mainstream nameplate it provides exceptional performance and an award-winning dynamic driving experience worthy of its 'Rallye Sport' badge - and it is powered by an advanced new 2.3-litre EcoBoost engine developed in an engineering partnership with Ricardo





POWERING

A GLOBAL ICON

Case studies

Powering a global icon



The all-new Ford Focus RS is powered by an advanced new 2.3-litre EcoBoost engine developed in an engineering partnership with Ricardo

The all-new Focus RS is the ultimate performance version of the Ford Motor Company's worldwide best-selling single nameplate. Developed through the new global Ford Performance team, which comprises engineers in both the US and Europe, the new RS is for the first time being made available in all of Ford's major international markets and, critically, it is the first RS-branded derivative to be sold in North America. The Ford RS designation stands for a proud 46-year performance car heritage, a lineage which started with the Ford Escort RS1600 in 1970. The all-new third-generation Ford Focus RS is the 18th vehicle to wear this iconic suffix.

Among the many important innovations pioneered on the Focus RS are Ford Performance's All Wheel Drive with Dynamic Torque Vectoring, designed to offer new dimensions in handling agility, road grip and cornering speed. Selectable Drive Modes – including Launch Control and, as an industry first, a Drift Mode that allows controlled oversteer drifts in track driving, feature on an RS model for the first time.

Developed by Ford Performance across engineering centres in both Europe and the US, the model is powered by a specially engineered version of Ford's 2.3-litre EcoBoost engine delivering 350 horsepower. And it is this power unit, engineered and

developed in partnership with Ricardo, that enables the new car to sprint from 0 to 62 mph in 4.7 seconds – and which makes it the fastest accelerating RS model ever produced by Ford.

This impressive dynamic performance was undoubtedly instrumental in the Focus RS being awarded the prestigious 'Car of the Year' title at the 2016 Vehicle Dynamics International Awards. Performance-oriented automotive magazines around the world have been similarly unanimous in their praise for the new RS's performance and handling, often comparing it favourably with premium models at a substantial multiple of the Ford's price.

Taking EcoBoost to a new level

The objective of the engine upgrade was to enhance the already established high-performance vehicle brand. The unit shares the same basic structure as the engine used in the latest Ford Mustang, now launched across Europe for the first time. For Ford, it was judged crucial to take the engine to the next level to truly complement the other advanced technologies utilised in the vehicle, the most headline-catching of these being the new all-wheel drive system with Dynamic Torque Vectoring Control.

As an engineering partner to Ford Performance, Ricardo delivered the RS programme using a turnkey project approach,



with Ricardo holding responsibility for the engineering delivery of the power unit and its associated systems from concept through to the 90-day point following the start of production. This turnkey approach required close collaboration and interfacing with global powertrain engineering teams, manufacturing teams, engine and vehicle testing teams, calibration teams and suppliers.

The result of this highly successful collaboration between Ricardo and Ford Performance engineers has seen the upgrade of the Ford 2.3-litre turbocharged direct-injection EcoBoost engine deliver an awesome 350 horsepower at 6,000 rev/min, matched with up to 470 Nm of torque (during overboost operation) throughout the majority of the engine operating speed range. The advanced 2,261 cc EcoBoost engine's revolutionary technology incorporates direct fuel injection, twin independent variable camshaft timing and a twin-scroll turbocharger, with further improvements to the base engine to handle the increased thermal and mechanical loads.

Increased output is generated by the new low-inertia twin-scroll turbocharger with larger compressor that delivers significantly greater air flow, along with a much bigger intercooler to maximise charge density. Engine breathing is also enhanced through a less restrictive intake design, and a large-bore high-performance exhaust system with an electronically controlled valve in the

tailpipe that helps optimise the balance of back pressure and noise output.

Ricardo collaborated closely with Ford engineers on the engineering and calibration mapping for this iconic RS brand vehicle, developing this game-changer engine from prototype phases through to launch.

Public acclaim

Following its launch in early 2016 the new Ford Focus RS has shown itself to be a truly worthy successor to the revered RS models that went before. Its engine is extremely impressive: an advanced unit unique to the RS derivative and providing excellent low-end responsiveness, matched by a powerful mid-range pull and a vigorous free-revving top end up to a maximum crankshaft speed of 6,800 rev/min.

The new model has also received some very positive responses from the automotive media, with *Auto Express* hailing it in these words: "...thumping 345bhp power output, hi-tech four-wheel-drive transmission and an eye-catching price tag, the fire-breathing Focus promises to be one of the most thrilling driving machines of 2016."

Meanwhile the BBC's *Top Gear* was unequivocal in its view of the engine: "This engine might be turbocharged, but it does a damn good job of hiding it – responding cleanly to the throttle with a confidence-inspiring linear thrust that runs right up to the 6,800rpm limiter. There's none of the dead spot followed by a surge you had with its predecessor, or the whistling and puffing you got from its turbo either. In fact, it just pulls like something larger in capacity with more cylinders at its disposal... it's a game-changer, this car. Really, it's that good."

With such a positive public response to the engine of the latest Ford Focus to bear the iconic RS branding, Ricardo's position as engineering partner to the world's automakers on some of the most challenging and prestigious vehicles – including those with truly mass-market global appeal – is surely undeniable.

Cascade, Ricardo's water consultancy, is helping one of the UK's major water companies transform its approach from the traditional practice of supply-use-disposal towards a more sustainable future model of Integrated Water Cycle Management

A SUSTAINABLE FUTURE FOR WATER

Southern Water provides drinking water to almost 2.4 million people and treats and recycles wastewater from nearly 4.5 million people: it operates across an area of southern England extending through Kent, Sussex, Hampshire and the Isle of Wight. Each day it supplies almost 530 million litres of drinking water from 94 water supply works, delivered through 13,800 kilometres of water mains. At the same time, at its 365 treatment works, it treats and recycles 730 million litres of wastewater per day, through a sewer network of more than 39,600 km.

Reflecting the geology and terrain of Southeast England, the water sources on which Southern Water draws are predominantly underground aquifers, representing 64% of supplies; 31% of supplies come from river abstraction and 5% from storage reservoirs.

Southern Water recognises, however, that it faces some significant strategic challenges in terms of securing its future water supply and disposing of subsequent wastewaters. Its region is already classified as facing a 'serious' level of water stress: the ability to meet current and future demand is highly dependent on the area's effective rainfall. And as the region's river basins are largely contained within its operational area, there are no available indirect supplies originating from rainfall elsewhere.

This situation is likely to be exacerbated by the effects of climate change, which are expected to result in a reduction in average annual rainfall, thus reducing a significant element of the supply; the likely increase in extreme weather events will also add to the stress. Future socio-economic developments, too, are expected to place further demands on the water system: by 2040 the company expects to have to accommodate a population increase of greater than 20%.

The scope for development of the existing model of water supply is limited. The Southern Water region comprises a mixture of towns and cities as well as many environmentally sensitive areas; the available land for potential future reservoir capacity expansion is thus extremely limited. It includes two National Parks – the South Downs and the New Forest – and boasts some of the highest quality rivers in the UK. In short, traditional models for the development of the water system to meet future demand are neither practical nor economically viable.

Catchment focus

Ricardo's Cascade practice has long been a proponent of the 'catchment based approach' to improving the quality of the water environment; the consultancy has been instrumental in assisting the UK Government's Department for Environment, Food & Rural Affairs in developing policy in this area over the last five years. This approach recognises that the water environment is affected by the majority of activity in land use, as well as by the processes of abstracting, using and returning water to rivers, groundwater and the sea.

The catchment – effectively the basin of each river system – is the natural framework in which to consider this aspect of the



environment. The system-wide-focus allows demand and supply to be managed in-line with the whole water cycle. This contrasts with the asset-focused traditional linear model of capital development within the water industry.

Integrated Water Cycle Management

It was at around the time of its acquisition by Ricardo that Cascade began working with Southern Water to assist with the planning of a future strategy of Integrated Water Cycle Management ('IWCM'). The IWCM strategy builds upon the catchment-based approach to integrate the management of the entire water cycle within the catchment: its water resources, water used in domestic, agricultural or commercial consumption, and its ultimate reuse or return to the environment. Southern Water seeks to integrate its business operations and asset management within this broader framework, bringing opportunities for greater operational cost effectiveness and the possibility of multiple internal and wider societal benefits.

The synergy of the acquisition of Cascade by Ricardo provided the perfect impetus for this particular project, combining the strengths of one of the UK's foremost water industry consultancies with the multi-industry technology and innovation leadership of Ricardo, itself headquartered within the Southern Water area. A team of consultants from Cascade has been working actively with Southern Water to help scope and define the IWCM strategy in a programme which aims to provide for a fully integrated water environment that offers much higher levels of operational efficiency and environmental protection than would be possible from the current linear model. The approach will also allow greater resilience to the future pressures from predicted climate and demographic change.

In order to assess the change required to deliver the strategic aspirations of IWCM, the Cascade team has been reviewing many aspects of investment allocation and planning management. Change management is a particular focus in this respect: a very significant industry cultural shift will be required to deliver the necessary transition as the perspective moves from one focused on the highly efficient execution and delivery of discrete capital projects (such as new treatment plants and pumping stations) to an approach defined by the much wider socio-economic needs of the catchment and region.

Within the fully implemented future-oriented IWCM strategy, the potential integration of activities will need to extend beyond the boundaries of the water company: it will need to consider and work with local authorities, catchment partnerships and other non-profit organisations, and regulators – including the flood risks managed by organisations such as the Environment Agency and individual river and drainage boards. The capital projects and initiatives arising from the IWCM approach are likely to be more broadly based than before, and aimed at securing multiple benefits from more integrated planning and implementation. With such profound change envisaged, there is a significant requirement for the type of objective expert advice, guidance and partnership working that Ricardo's Cascade team is able to provide.

To date, the partnership between Ricardo's Cascade team and Southern Water has been extremely successful in charting the first stages of what will be a significant but gradual transition to a more sustainable future for water management. A key aspect of this success is based on the wealth of water industry experience available in Cascade, combined with access to the technology and processes of the Ricardo group, integrating with the expert team at Southern Water.

To support and accelerate the partnership, the Cascade team is linking with Ricardo Innovation to access expertise from within the wider Ricardo group. For example, the team has recently agreed a research programme with Southern Water to explore the use of the IGNITE complex system modelling software – developed for the defence and automotive sectors – for application to Southern Water business activities. In this way, novel solutions can be proposed which draw upon the potential unlocked by innovations in other industries but which also remain sensitive to the uniquely detailed requirements of the regulatory planning cycles of the UK water sector.

A more sustainable future

Ultimately, the success of IWCM will be measurable not in the shape of obvious and highly visible outcomes, but rather by the ability of Southern Water to continue to provide an extremely high quality drinking water and wastewater service, despite the added stresses imposed by the effects of climate change and increasing population. Less immediately visible but nonetheless valuable to the region and communities in which it operates, however, will be the wider environmental and socio-economic benefits that the new approach is set to deliver.

Ricardo's Cascade team aims to continue working towards these goals with Southern Water as well as with other UK partners – and also with the many potential international customers who recognise the technological leadership and cross-sector innovative approaches being demonstrated through delivery of Integrated Water Cycle Management.



With the British Army's combat missions in Afghanistan and Iraq now completed, Ricardo is playing a key role in a partnership to support and develop the UK Ministry of Defence's Cougar fleet of protected patrol vehicles for their future roles with the military

ENGINEERING FUTURE SECURITY

The wars in Afghanistan and Iraq presented the UK Ministry of Defence ('MoD') with an entirely new form of conflict: an asymmetric confrontation in which the need to project force flexibly, at the same time as defending against improvised explosive devices, became an urgent imperative for UK forces. This led to a much streamlined Urgent Operational Requirement ('UOR') process for the procurement of a wide range of protected patrol vehicles for rapid deployment to these theatres – in sharp contrast to the highly planned and evaluative procedures for defence procurement that would be expected in peacetime.

Those familiar with Ricardo will know how closely the Company collaborated on the design and development of the Foxhound light protected patrol vehicle, taking the vehicle from an initial sketch through to full-scale production in just 26 months. Foxhound was in fact the last of a series of vehicles purchased under UOR rules for active deployment in Afghanistan and Iraq. Before this, between 2006 and 2010, the UK MoD had purchased a fleet of larger US Mine Resistant Ambush Protected ('MRAP') vehicles based on the General Dynamics Force Protection Cougar platform. For British Army use these vehicles were fitted out by Morgan Advanced Materials (formally NP Aerospace) with the UK mission equipment such as communication and armour systems and electronic countermeasures. In their new specification the Cougar-derived vehicles became known as Mastiff, Wolfhound, Ridgeback and Buffalo, and formed the backbone of the UK's protected patrol fleet in the Afghanistan and Iraq theatres of operation.

It is not uncommon for a defence vehicle fleet to be in service for in excess of 20 years, meaning that a normal procurement activity would focus as much on the through-life support and sustainment of the platform as it does on its initial capability. However, the nature of UOR purchase processes is that they arise in response to immediate and often rapidly evolving needs, rather than to the potential longer term roles of the vehicle. The Cougar fleet, in particular, was purchased through a succession of UOR acquisition phases, as well as upgrades and evolutions of the fleet to meet theatre-based operational needs.

Post-design services

Having performed exceptionally well in combat operations, as the Cougar fleet began to be returned to the UK the MoD took the strategic decision to transition the vehicles into the Army's core fleet capability. This necessitated the creation of an effective support solution through to the fleet's projected end of service life of 2035.

To this end, the MoD sought support from industry in the form of a Post-Design Services ('PDS') contract covering current maintenance and future development. The role of the PDS contractor is to act as the design authority for the fleet on behalf of the MoD, providing expert knowledge, configuration management, safety case management, obsolescence management and change control. This Cougar PDS contract took in the entire UK Cougar-derived fleet which, in addition to the 6x6 Mastiff, comprises the smaller 4x4 Ridgeback, the Wolfhound utility vehicle, and a small fleet of Buffalo mine-protected clearance vehicles. In total, this represents a fleet of more than 700 vehicles, comprising in excess of 20 variants.



In normal circumstances PDS contracts are typically placed with the original equipment manufacturer, as is the case with Ricardo for the RWMIK Land Rover-based vehicle. What made the Cougar vehicles very different, however, was that the fleet had been assembled through multiple contracts involving different industrial partners for the base platform and mission systems, and included inter-government acquisition for some of the earliest vehicles, from US Marine Corps. As there was no clear single best-value source for the Cougar PDS contract, which was set to be worth up to £20 million over its first two years, the MoD decided to go to competitive tender.

A unique partnership

In participating in the competition and ultimately securing this strategically important PDS contract, Ricardo partnered with prime contractor Morgan, together with fellow team member Ultra Electronics, as part of an entirely UK-based team. Collectively, this partnership offered an extremely compelling blend of skills and experience. Morgan designed, developed and integrated UK-specific, specialised armour protection and electronic systems into the entire Cougar family and also implemented and operated the spares support processes, including configuration management, stocking and supply chain management to keep the fleets running during combat operations. With its access to state-of-the-art automotive technologies and its extensive defence vehicles expertise in the development of Foxhound and RWMIK, Ricardo was clearly extremely well placed to take responsibility as the design authority for the Cougar fleet's automotive systems. Making up the partnership, Ultra Electronics was able to take responsibility for the electronic systems of the vehicle.

The Morgan-Ricardo-Ultra partnership won the bid against strong competition by best meeting the key criteria specified by the MoD such as quality, software, safety, environmental impact and vehicle integration, as well as the ability to provide a truly sustainable support solution. An important aspect of the Ricardo contribution in this respect is the Company's ability to provide engineering support through its Technical Consulting business, while also offering parts manufacturing fulfilment and supply chain management through the Ricardo Performance Products business.

Key development projects

Under its core commitment to the Cougar PDS contract, Ricardo provides engineering support at the site of Morgan, where the project is co-ordinated. Work on the core programme includes support for system technical and safety reviews and participation in ongoing programme review meetings and providing ad hoc technical advice. Crucially, the work also includes the scoping and costing of additional non-core tasks, such as significant vehicle upgrade initiatives.

The major focus of the non-core tasks to date has been on safety-related issues and improving the support solution. For example, one of the implications of transferring the vehicles to the UK was that they were non-compliant with UK road regulations. Whilst this is less of an issue in a theatre of operations, the consequential requirement to use low-loaders to transport the vehicles between UK bases and training grounds adds significant cost and time burdens.

Whilst the base vehicles were originally fitted to US highway compliant standards, the addition of UK mission equipment such



as bar armour both obscured the lights and in effect extended the extremities of the vehicles; as such, lighting systems were in the wrong position according to the legislation. Ricardo has therefore developed a UK / EU road-legal modular lighting system that can be fitted to all of the Cougar fleet. This system is based on modern LED lamp technology that saves energy while increasing reliability and reducing the need for multiple spares.

A further Ricardo task has been the engineering of a common axle and brake system across the UK Cougar fleet. As a result of the multiple UOR purchases over an evolving operational requirements specification, the MoD's stores system was supporting no fewer than 23 different axle combinations for Cougar. The Ricardo project has rationalised this down to just three variants which will both save cost in terms of peacetime maintenance operations, and also make the vehicles easier to sustain in any future theatre of operations. Moreover, through the supply of Ricardo upgrade kits – manufactured by the Performance Products business – many of the older, lower specification vehicles have been brought up to a common standard, thus increasing the overall capability of the fleet.

Building upon its unparalleled expertise in military vehicle design, engineering and support, Ricardo's independence is equally valuable to defence customers as its unrivalled focus on automotive systems and technologies. Whereas the engineering teams of major defence contractors may, for example, see an engine and vehicle integration project just once in a decade, Ricardo's team has access to specialists who are used to dealing



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with this sort of challenge on an ongoing basis. The Company benefits from access to the latest simulation and engineering tools, state-of-the-art vehicle technologies and supply chain knowledge, some which is derived from the products Ricardo manufactures in house. While the highly arduous duty cycles of military vehicles are very different to those of on-highway vehicles, these same processes and skills can be applied. This not only saves cost but also delivers a better engineered, safer and more capable product for the MoD and other defence customers around the world.



Corporate governance

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Board of Directors



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.

David Hall
CBE, MA, MSc
Non-Executive Director, Senior Independent Director

David Hall (not pictured) joined Ricardo plc as non-executive director on 21 February 2006 and resigned on 4 November 2015.

Ian Gibson
BSc, ACA
Chief Financial Officer

Ian Gibson was appointed Chief Financial Officer on 1 July 2013. Ian is a Chartered Accountant, previously with Deloitte. He is a highly experienced finance professional with almost thirty years' commercial experience, most recently as Chief Financial Officer of Cable & Wireless Worldwide plc.

Peter Gilchrist
CB
Non-Executive Director, Senior Independent Director and Chairman of the Remuneration Committee

Peter Gilchrist was appointed non-executive director on 1 December 2010. He was appointed Chairman of the Remuneration Committee on 14 November 2013 and Senior Independent Director on 1 July 2015. His military career spanned almost four decades in the British Army, his last appointment was at the British Embassy in Washington DC. Previously, he was Master General of the Ordnance on the Army Board and an executive director in the Defence Procurement Agency. Peter is currently Chairman of Push Technology Limited, Enterprise Control Systems Limited and the Board of Trustees, Tank Museum. He is also a director of Synergie Global Limited.

Malin Persson
MSc
Non-Executive Director

Malin Persson was appointed a non-executive director on 4 January 2016. Malin was employed by the Volvo Group between 1995 and 2012, where she held roles including Vice President of Corporate Strategy and Business Development, President and CEO of the research and innovation company, Volvo Technology, and Head of Environmental Affairs at Volvo Logistics. Malin is an elected member of the Royal Swedish Academy of Engineering Sciences and is owner and CEO of Accuracy AB, a consultancy and engineering company. Malin has an MSc in Industrial Engineering and Management from the Chalmers University of Technology in Gothenburg.



Sir Terry Morgan
CBE, FREng
Non-Executive Director and Chairman

Sir Terry Morgan was appointed non-executive director on 2 January 2014 and Chairman on 29 October 2014. He is currently non-executive chairman of Crossrail Limited, the Manufacturing Technology Centre and the National Skills Academy for Railway Engineering. He was also a previous non-executive director of Boxwood Limited and the Department of Energy and Climate Change.

Dave Shemmans
BEng
Chief Executive Officer

Dave Shemmans joined Ricardo in 1999. He was appointed to the Board as Chief Executive Officer Designate in February 2005, and became the Chief Executive Officer of Ricardo plc on 4 November 2005. Prior to joining Ricardo he was operations director of a subsidiary of PowerGen plc. He has also gained consulting experience in both listed and private companies. He is a graduate of the Harvard Business School. Dave was appointed non-executive director of Sutton and East Surrey Water plc on 1 September 2014.

Mark Garrett
CEng, FIMechE
Chief Operating Officer

Mark Garrett joined Ricardo in 1998 and was appointed Chief Operating Officer in 2010. Prior to joining Ricardo Mark spent 14 years in various powertrain related roles in Rover Group including BMW Engineering centre in Munich. Mark is a Chartered Engineer and a Fellow of the Institution of Mechanical Engineers.

Ian Lee
BA, CA, CPA
Non-Executive Director and Chairman of the Audit Committee

Ian Lee was appointed non-executive director and Chairman of the Audit Committee in 2008. He was a former audit partner of Ernst & Young and a member of their UK Governing Council. He was the Convener of the Institute of Chartered Accountants of Scotland Audit and Assurance Committee. Ian was a non-executive director and chairman of the audit committee of Clyde Process Solutions plc, Vice Chairman of NHS Greater Glasgow and Clyde Board, Chairman of East Renfrewshire Integration Joint Board for the Health and Social Care Partnership and is currently the independent external member of the audit committee of the Student Loans Company and a director and trustee of Erskine Hospital.

Laurie Bowen
BSc, MBA
Non-Executive Director

Laurie Bowen was appointed a non-executive director on 1 July 2015. Laurie has over 30 years of international leadership experience at IBM, British Telecom, Tata Group and Cable and Wireless Communications. She now serves as CEO, Americas for Telecom Italia Sparkle and is based in Miami, Florida. Laurie has an MBA, a BSc in Electrical Engineering and a BSc in Computer Science from Washington University in St. Louis, Missouri.

Corporate governance statement



Sir Terry Morgan – Chairman

CHAIRMAN'S OVERVIEW

I am pleased to introduce the Corporate Governance Statement for the year ended 30 June 2016. Governance is an important contributor to the success of the Ricardo Group.

The Board is committed to ensuring that appropriate standards of governance are maintained throughout the Group.

This report sets out the way we comply with good

corporate governance principles. It describes how the Board and its committees work, and also our approach to risk management and internal control.

As part of the Board's succession planning, during the year our Nomination Committee conducted a search for additional non-executive directors and I am pleased to advise that Laurie Bowen joined the Board on 1 July 2015 and Malin Persson on 4 January 2016.

Sir Terry Morgan, CBE

UK CORPORATE GOVERNANCE CODE

The Board confirms that the Company has complied with the provisions of the UK Corporate Governance Code published in September 2014 ('the Code') throughout the year ended 30 June 2016.

The Code contains a number of new provisions, including requiring companies to make greater disclosures of their strategic approach to risk and risk management; to make a statement about the long-term viability and prospects of the Company; to ensure that remuneration policies are designed to deliver long-term benefits to the Company and include measures for claw-back on variable pay and, in cases where a significant proportion of shareholders oppose any particular measure, to explain the actions the Company intends to take to understand the reasons for this opposition.

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

Leadership, Effectiveness, Accountability, Remuneration and Relations with Shareholders.

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

LEADERSHIP

The role of Ricardo's Board

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

We set strategy and oversee its implementation by the executive team. We assess business opportunities and seek to ensure that appropriate controls are in place to assess and manage risk. We are responsible for reviewing the executive team's performance and we oversee senior-level succession planning within the Group.

We agree the Company's values and standards and ensure that the Company's obligations to its shareholders are met.

	Board meetings	Committee meetings		
		Audit	Remuneration	Nomination
Number of scheduled meetings in the year	8	3	5	1
Number attended by each member:				
Dave Shemmans	8	-	-	1
Ian Gibson	8	-	-	-
Mark Garrett	8	-	-	-
Sir Terry Morgan, CBE	8	2	4	1
Peter Gilchrist, CB	8	3	5	1
Ian Lee	8	3	5	1
Laurie Bowen*	8	3	5	1
Malin Persson**	4	1	1	1
David Hall, CBE***	4	2	4	-

* Laurie Bowen appointed as non-executive director on 1 July 2015

** Malin Persson appointed as non-executive director on 4 January 2016

*** David Hall retired from the Board on 4 November 2015

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 (over a certain size);
- Annual budgets;
- Capital expenditure;
- Financial results;
- Overseeing systems of internal control, governance and risk management;
- Dividends; and
- Appointment and removal of Directors and Company Secretary.

The full schedule of matters reserved for our decision is available on our website (www.ricardo.com). We delegate certain responsibilities to our Nomination, Audit and Remuneration Committees. These committees comprise our independent non-executive directors (save for the Nomination Committee, which includes the Chief Executive Officer) and all play a key role in supporting us.

Board meetings and visits

There are eight scheduled Board meetings a year and otherwise as required. Details of attendance at scheduled Board and Committee meetings are shown in the table above. 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. Our agendas allow time for debate and long-term strategic discussion. Our forward planner gives Board members visibility of what is on future agendas for their consideration. The Board agenda is set by the Chairman in consultation with the Chief Executive Officer and the Company Secretary.

We have spent considerable time focusing on the Group strategies and reviewing progress against respective objectives. We held a strategy meeting in December 2015 at our Prague Technical Centre at which we reviewed progress and improvements on the five year strategy agreed in 2014.

EFFECTIVENESS

Board composition and independence

As at 30 June 2016 our Board comprised five non-executive directors and three executive directors as follows:

Dave Shemmans	Chief Executive Officer
Ian Gibson	Chief Financial Officer
Mark Garrett	Chief Operating Officer
Sir Terry Morgan, CBE	Non-Executive Chairman (independent at the time of appointment)
Peter Gilchrist, CB	Independent Non-Executive Director, Chairman of Remuneration Committee and Senior Independent Director
Ian Lee	Independent Non-Executive Director and Chairman of Audit Committee
Laurie Bowen	Independent Non-Executive Director
Malin Persson	Independent Non-Executive Director

David Hall resigned as non-executive director on 4 November 2015.

Malin Persson joined the Board on 4 January 2016.

Biographies of Directors, giving brief details of their experience and other commitments are set out on pages 76 and 77. The wide-ranging experience and backgrounds of the non-executive directors enable them to debate and constructively challenge management in relation to the strategy and performance of the Group.

On 1 July 2015 the Company announced that Laurie Bowen had been appointed as a non-executive director to the Board. Laurie has most recently been Chief Executive Officer of Business Solutions for Cable & Wireless Communications and was previously President of Enterprise Business & Growth Ventures for Tata Communications. Laurie was also a non-executive director of Transcom Worldwide and has an MBA and BScs in Electrical Engineering and Computer Science from Washington University in St Louis. Laurie also currently serves as CEO of Americas for Telecom Italia Sparkle.

On 4 November 2015 the Company announced that Malin Persson had been appointed as non-executive director to the Board, effective 4 January 2016. Malin was employed by the Volvo Group between 1995 and 2012, where she held roles including Vice President of Corporate Strategy and Business Development, President and CEO of the research and innovation company, Volvo Technology and Head of Environmental Affairs at Volvo Logistics. Prior to joining Volvo, Malin was responsible for transport and environmental technology development at the Swedish Office of Science and Technology in Brussels. Malin is an elected member of the Royal Swedish Academy of Engineering Sciences and is owner and CEO of Accuracy AB, a consultancy and engineering company.

The Board has concluded that Sir Terry Morgan CBE, Ian Lee, Peter Gilchrist CB, Laurie Bowen and Malin Persson are independent in character and judgement. They have never been employees of the Company, nor have they participated in any of the Company's share schemes, pension schemes or bonus arrangements. They 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. They all held office throughout the year, with the exception of Malin Persson who joined the Board on 4 January 2016.

The Company has procedures in place to ensure that the Board's power to authorise conflicts of interests are operated effectively and such procedures have been followed during the year under review.

Letters of appointment for the non-executive directors are available for inspection by shareholders at each AGM and during normal business hours at the Company's registered office.

Non-executive directors are appointed for specified terms of three years which can be extended by agreement provided that the individual's performance continues to be effective. In accordance with the Company's Articles of Association and the Code, all directors will retire at the Annual General Meeting in November 2016 and, being eligible, will offer themselves for election and re-election (as appropriate). We believe that each of the directors should be elected and re-elected by the shareholders because each continues to be effective and demonstrates commitment to the role that each of them performs.

During the year the Chairman met the other non-executive directors without the attendance of the executive directors on a number of occasions.

There were several other occasions during the year when discussions between various directors took place on an informal basis.

The Chairman and the non-executive directors have provided assurances to the Board that they remain fully committed to their respective roles and can dedicate the necessary amount of time to attend to the Company's affairs.

Executive directors must obtain the prior consent of the Board before accepting a non-executive directorship in any other company. Executive directors may retain the fees from any such directorship. One executive director, Dave Shemmans, held a non-executive directorship during the year under review.

Board objectives

The Company is confident that the Board and the wider leadership team have the experience and track record to meet the Company's aims of delivering long-term growth and successfully managing the challenges of an expanding international group. The Board sets its specific future objectives at the end of each year and these reflect the particular focus of the Company in the year ahead. Progress against each objective is tracked by the Company Secretary and reviewed with the Chairman and the Board at the mid-year point.

Chairman, Chief Executive Officer and Senior Independent Director

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

Sir Terry Morgan is primarily responsible for leading the Board and ensuring its effectiveness. Dave Shemmans 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.

Dave Shemmans chairs the Executive Committee, which meets formally at least three times a year. The Executive Committee is primarily responsible for developing and implementing our corporate strategy and policies.

The responsibilities of the Senior Independent Director are also documented and include the provision of an additional channel of communication between our Chairman and the non-executive directors. The Senior Independent Director 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 these contacts are inappropriate.

Board appointments

We recognise our responsibility for planned and progressive refreshing of the Board. There is a formal and transparent procedure for the appointment of new directors, the primary responsibility for which is delegated to the Nomination Committee. Further details of the work undertaken by the Committee during the year under review are contained on page 82. Our Board has continued to discuss matters relating to succession planning and talent management for leadership succession.

Diversity

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

Our Board appreciates that a diverse range of backgrounds is an important part of succession planning at all levels in the Group. Our Board 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. Details of the

diversity of our workforce are described in the Strategic Report on pages 32 and 33.

Induction

There is a written framework for the full, formal and tailored induction of new directors. Laurie Bowen's and Malin Persson's induction has and will include site visits, meetings with senior management and advisors and the provision of corporate documentation to facilitate their understanding of our business, its operations, key markets and risks.

Support and professional development

Our Chairman is responsible for ensuring the directors receive accurate, timely and clear information, with Board and Committee papers being circulated sufficiently in advance of meetings.

The Board and its committees are kept informed of corporate governance and relevant regulatory developments as they arise through the Company Secretary.

In addition, we keep ourselves informed about the Group's activities through a structured programme of presentations from each of the businesses within the Group and from a number of Group functional leaders. During the year under review we received presentations from the Group HR Director and the Group Risk Manager, together with specific presentations on key projects for the business.

Directors are updated continually on the Group's business with monthly performance packs and by means of additional presentations on matters including insurance, treasury and health, safety and environmental risk management.

The Audit Committee is routinely briefed on accounting and technical matters by senior management and by the external auditors.

The Remuneration Committee receives updates on remuneration trends and market practices as part of its regularly scheduled business, and during the year under review Willis Towers Watson provided updates on the proposals and reporting requirements for executive remuneration.

Training for directors is available as required and is provided mainly by way of external courses. A register of the training that individual directors have undertaken is maintained by the Company Secretary and is reviewed by the Chairman individually with each director as part of the Board evaluation process. The Board considers that it is the primary responsibility of each director to identify the individual training and development needs he or she requires.

All directors have access to the advice and services of the Company Secretary and each director has been informed that, in the furtherance of his or her duties, they are entitled to seek independent professional advice at the expense of the Company. The Company arranges appropriate insurance cover in respect of legal actions against its directors. In addition, the Company has entered into indemnities with its directors as described on page 106.

Board evaluation

The Board undertakes a formal review of its performance and that of its Committees each year. Following recommendation by the Nomination Committee during the year, the Board commissioned an externally-facilitated review, conducted by Condign Consulting Limited, with no other connection to the Company.

The review consisted of attendance at a Board meeting by Duncan Reed of Condign Consulting and one-to-one meetings with each of the Directors and the Company Secretary.

The review and meetings were conducted towards the latter end of the year under review and a report was prepared which was discussed in detail by the Board in the July 2016 meeting. Areas for focus and improvement were identified and agreed, further details of which will be disclosed in the 2017 Annual Report.

Additionally, Ricardo's auditors and remuneration consultants provide an evaluation on the performance of our Audit and Remuneration Committees respectively.

Overall, the conclusion from the evaluation and appraisal process was positive, with each director actively contributing to the effectiveness of the Board and the Committees of which he or she is a member.

Board committees

Our Board has Nomination, Audit and Remuneration Committees. Written terms of reference for each committee are reviewed annually and are available on our website, www.ricardo.com or on request from the Company Secretary.

REMUNERATION Composition

The Remuneration Committee, which is chaired by Peter Gilchrist, comprises the independent non-executive directors, Ian Lee, Malin Persson (appointed 4 January 2016), Laurie Bowen (appointed 1 July 2015) and Sir Terry Morgan. David Hall was also part of the Remuneration Committee before he retired from the Board on 4 November 2015.

Responsibilities

During the year, the Committee had five scheduled meetings. The work of the Committee, including the Chairman's Overview, is described in the Directors' Remuneration Report on pages 88 to 105. The Directors' Remuneration Report is the subject of a binding vote by shareholders at the 2016 Annual General Meeting.

ACCOUNTABILITY

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

The Board's arrangements for the application of risk management and internal control principles are detailed on pages 40 to 42. The Board has delegated oversight of the relationship with the Group's and Company's external auditors to the Audit Committee. Their work is outlined in the Audit Committee report on pages 83 to 87.

Nomination Committee



CHAIRMAN'S OVERVIEW

A key focus during the year has been the appointment of two additional non-executive directors. These appointments were managed in conjunction with recruitment consultants, the JCA Group. Further details of this process are included in the Responsibilities section below.

In addition, the Committee conducted a competitive bidding process for the appointment of a consultant to facilitate an external evaluation of the Board. Following this process, the Committee recommended to the Board the appointment of Condign Consulting Limited.

In the forthcoming year we will seek to further refresh the Board and we continue to focus on talent management and succession planning for management below Board level.

Sir Terry Morgan, CBE

COMPOSITION

The Nomination Committee, which is chaired by Sir Terry Morgan, comprises the independent non-executive directors Ian Lee, Laurie Bowen, Peter Gilchrist and Malin Persson, as well as the Chief Executive Officer, Dave Shemmans. David Hall was a member of the Committee until he retired in November 2015. 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 in fulfilling these roles are prepared for particular appointments. 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 search for our new non-executive directors during the year was managed with the assistance of recruitment consultants the JCA Group, who have signed up to the voluntary Code of Conduct for executive search firms. The JCA Group provided a shortlist of candidates who were interviewed by Sir Terry Morgan, Dave Shemmans, Ian Lee and Peter Gilchrist before it was agreed to offer the roles to Laurie Bowen and Malin Persson. Laurie has undertaken an extensive induction programme to ensure a rounded understanding of the business and our ambitions. Laurie joined the Board as non-executive director on 1 July 2015. Malin Persson's induction has and will follow the same format as Laurie's. The JCA Group have no other connection with the Company.

When an appointment of a non-executive director is made, a formal letter is sent setting out clearly what is expected regarding time commitment, committee membership and involvement outside Board meetings. The chosen candidate is required to disclose to the Board any other significant commitments before the appointment can be ratified.

The Committee recognises the need for diversity, in its broadest sense, when considering the composition of the Board. Diversity in all its aspects, including gender diversity, continues to be important to the Company.

The Board's policy on diversity is set out on page 80, and the details of female representation elsewhere within the Group is set out on pages 32 and 33.

The Chairman of the Committee is the Chairman of the Board, Sir Terry Morgan, except when a new Chairman of the Board is being sought, when it is the Senior Independent Director.

Non-executive directors, including the Chairman, 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
Dave Shemmans	April 2005	11 years
Ian Gibson	July 2013	3 years
Mark Garrett	July 2008	8 years
Sir Terry Morgan, CBE	January 2014	3 years
Peter Gilchrist, CB	December 2010	6 years
Ian Lee	August 2008	8 years
Laurie Bowen	July 2015	1 year
Malin Persson	January 2016	6 months

The Committee has spent time looking at succession planning for the executive director team as well as for the Board over the medium term. We have also discussed talent management and succession planning for the top managers in the business.

Audit Committee



CHAIRMAN'S OVERVIEW

The Audit Committee has continued to take an active role in discussing and evaluating risk, as delegated by the Board, to ensure that appropriate challenge and guidance is provided to management.

As in previous years, the Committee has again reported its key considerations in respect of the significant accounting judgements taken by management during the year. The Group has continued to integrate four businesses during the year that had been acquired as of the date of the Committee's last report, the most complicated and notable of which was the acquisition of the Lloyd's Register Rail ('LR Rail') business from the Lloyd's Register Group.

As a result of these activities, the Committee considered the implications on risk, internal audit and associated accounting matters such as the appropriateness of the accounting in respect of those acquisitions.

In addition, the Committee reviewed with executive management the work undertaken in connection with the provision of a viability statement and has recommended the approval of the statement to the Board. The viability statement has become applicable to the Group for this year ended 30 June 2016.

Ian Lee

COMPOSITION

The Audit Committee, which is chaired by Ian Lee, comprises the independent non-executive directors, Peter Gilchrist, Laurie Bowen and Malin Persson. David Hall also attended the July and September Committee meetings before he retired from the Board on 4 November 2015.

The Committee's Chairman, Ian Lee, has recent and relevant financial experience and a professional accountancy qualification as considered desirable by the Financial Reporting Council's Guidance on Audit Committees, issued in April 2016. The Chairman, executive directors and the Company's external auditors have standing invitations to attend all Committee meetings. In addition, the Committee meets our external auditors and the Head of Internal Audit without management being present at least once a year. The Committee has three scheduled meetings per year and ad hoc meetings as required.

RESPONSIBILITIES

The Committee is established by, and is responsible to, the Board. Its main responsibilities are to:

- Monitor and be satisfied with the truth and fairness of the Group's consolidated and Company's standalone financial statements before submission to the Board for approval, ensuring their compliance with the appropriate accounting standards, the law and the Listing Rules of the UK Listing Authority;
- Review the Group's risk profile and the effectiveness of the Group's risk management processes, internal controls and systems;
- Review the effectiveness of the internal audit function and to ensure that it is appropriately resourced;
- Make recommendations to the Board in relation to the appointment and re-appointment of the external auditors and their remuneration, before appointment or re-appointment by the shareholders in general meeting;
- Review the scope and planning of the external audit and be satisfied with the auditors' independence, objectivity and effectiveness on an ongoing basis;
- Review the content of the Annual Report and Accounts and advise the Board on whether, taken as a whole, they are fair, balanced and understandable and provide the information necessary for shareholders to assess the Group's performance, business model and strategy;
- Oversee the process that executive management used to enable the Board to confirm the operational and financial viability of the Group for a period of three-years from the date of this report;
- Establish and oversee the Company's arrangements for employee disclosure and fraud prevention arrangements within the Company; and
- Implement the policy relating to any non-audit services performed by the external auditors.

The Chairman of the Audit Committee meets regularly with the Head of Internal Audit and executive management on matters of risk, controls, audit and accounting.

The Audit Committee receives reports from management and internal audit on the effectiveness of the system of internal controls

and risk management systems. The Committee also receives from the external auditors a report of matters arising during the course of the audit which the auditors deem to be of significance for the Audit Committee's attention.

The Committee has completed its review of the effectiveness of the Group's systems of internal control during the year and up to the date of the Annual Report, in accordance with the guidance on internal control published by the FRC. The Committee confirms that no significant failings or weaknesses were identified in the review.

The Committee meeting in September 2016 carried out a full review of the year-end consolidated financial statements and of the audit, based upon reports prepared by the Chief Financial Officer and the external auditors, together with taking into account any significant accounting policies, any changes to them and any significant estimates or judgements.

Management are challenged as to the existence of any significant or unusual transactions where the accounting treatment could be open to different interpretations. A similar, but less detailed review is carried out in February when the Interim Report is considered.

The Committee also reviewed the processes to assure the integrity of the Annual Report and Accounts, in particular that the information presented in the report, when taken as a whole, is fair, balanced and understandable and contains the information necessary for shareholders to assess the Group's performance, business model and strategy.

In April 2016 an unscheduled meeting was held to consider management's work to assess the longer-term viability of the Group and consider the statement disclosed within the Annual Report and Accounts, which was subsequently approved at the July meeting (not included in the table on page 79).

The February 2016 meeting considered the Company's approach to risk appetite and the risk profile of the Group, and amongst other agenda items, initially considered the implications of the requirement to disclose a viability statement, as noted above.

The July 2015 meeting focused on the risk management process, the risk profile, terms of reference, the results of internal audits for the year, the plan for the following year, and the systems for internal control. It also reviewed the ethics and whistleblowing processes.

The Audit Committee is authorised by the Board to seek and obtain any information it requires from any officer or employee of the Company and to obtain external legal or other independent professional advice as is deemed necessary by it. The topics covered by the Committee during the year under review included:

- Review of any significant financial reporting issues and judgements in respect of the condensed interim and consolidated year-end financial statements;
- Review of any significant matters raised by the internal auditors;
- Review of risk management processes and impact assessment on the risk profile of the Group as a result of recent acquisitions;
- Review of the assessment performed and confirmation made in connection with the viability statement;
- Consideration of the audit fee and the balance between audit and non-audit fees;
- Annual review of the terms of reference of the Committee;
- Evaluation of auditor independence and effectiveness;

- Recommending the re-appointment of the external auditors; and
- Review of the effectiveness of internal control systems.

Significant financial reporting issues considered by the Audit Committee

The Committee receives and considers reports from the Chief Financial Officer and senior management in relation to the critical accounting judgements, key sources of estimation uncertainty, proposed disclosure of these in the 2016 Annual Report and Accounts, and on the outcome of the half-year review and annual audit.

The Committee supports PricewaterhouseCoopers LLP in displaying the necessary professional scepticism their role requires. Following discussions with management and the external auditor, the Committee approved the critical accounting judgements and proposed disclosure.

The Committee considered the following significant issues and judgements in approving the 2016 financial statements:

Contract accounting and performance

The Group derives a significant proportion of its revenue from fixed-price contracts that may extend for a substantial period of time. All contracts are based on detailed proposals issued to clients which are approved in accordance with the Group's authority limits, which may include Board approval where contract values dictate. Revenue and margin performance is measured based on costs incurred to date as a percentage of total expected costs. Management judgement and experience is required to determine the completeness of those forecasts, the recoverability of the costs incurred and the revenue recognised on contracts. Unforeseen future events may adversely impact the accuracy of those forecasts and recoverability judgements.

Project risk is assessed and determined at the proposal stage of a contract and is refreshed throughout the life of a contract on a regular basis. The risk rating of a contract is categorised into five levels, with one being the lowest and five being the highest. The risk category of a contract is determined from the application of quantitative and qualitative criteria. As a contract progresses the project is allocated a 'traffic-light' -based colour rating to categorise its performance against a number of factors, including cost, schedule, customer relationship, availability of resources and technical complexity.

High-risk contracts (Category 4 and 5 contracts) which experience significant challenges are categorised internally as 'Red' contracts, which are monitored and controlled at the senior management level and reported as appropriate to the Board as part of the monthly performance review. Net Group project over- and under-spends are also monitored and reported to the Board on a monthly basis. A summary of these 'Red Cat 4/5' contracts is presented bi-annually by senior management to the Committee at the February and September meetings, whereby the significant judgements taken are reviewed, challenged and evaluated. Following the September review, the Committee satisfied itself with the judgements taken by management with regards to the Red Cat 4/5 contracts. In addition, these contracts were subjected to a more focused level of audit work during the external audit process.

Acquisition accounting for LR Rail

During the year, the Group completed the acquisition of the Lloyd's Register Rail ('LR Rail') business, operating assets and employees from the Lloyd's Register Group. As part of the LR Rail acquisition, the Group also acquired the interests from all partners in a joint venture operation in China. Total consideration paid for LR Rail was £46.3m, including purchase price adjustments for cash, debt-like items and normal levels of working capital.

Acquisition accounting is complex and involves significant accounting judgements. In accordance with International Financial Reporting Standards, adjustments have been made to the identifiable assets and liabilities on acquisition to reflect their fair value. These adjustments include the recognition of customer-related intangible assets of £13.1m and technology assets of £1.3m, with resulting goodwill of £24.2m. Further details are provided within Note 12, 'Acquisitions', to the financial statements.

Acquisition-related expenditure for LR Rail of £3.4m has been charged to the Consolidated Income Statement for the year ended 30 June 2016. Acquisition-related expenditure includes £1.6m for costs associated with the integration of the LR Rail businesses, dual-running costs incurred during a transitional services period with Lloyd's Register, as well as £1.8m for amortisation of the acquisition-related intangible assets. These costs have been included within specific adjusting items, details of which are presented within Note 4 to the financial statements.

The Committee received reports and analysis from senior management outlining the positions taken and judgements made with regards to the fair value of assets and liabilities, goodwill and specific adjusting items. The reports and analysis were reviewed, critically evaluated and challenged. The Audit Committee was satisfied with the appropriateness of the positions and judgements taken on the acquisition accounting. The acquisition accounting has also been a key focus for the external auditor for the year ended 30 June 2016.

Capitalisation and carrying value of development costs

Certain directly attributable costs incurred in the development of an intangible asset are capitalised. These costs are recognised as an asset once the Group has determined that it has the intention and the necessary resources to complete the relevant project, and it is probable that the resulting asset will generate economic benefits for the Group and the attributable expenditure can be measured reliably. Determining whether it is probable that the resulting asset will generate economic benefit requires management judgement.

During the year ended 30 June 2016, £3.2m of development costs were capitalised. The net book value of development assets as at 30 June 2016 was £8.4m.

The Committee received reports from senior management detailing their analysis and the assumptions used when assessing whether the costs incurred during the year met the requirements for capitalisation under IFRS. The reports also assessed whether future economic benefits support the recoverability of all development assets. The Committee was satisfied that both the level of capitalisation during the year and the carrying value of the development assets was appropriate. In addition, this matter was a key focus for the external audit.

Deferred taxation

The Group holds a £10.4m deferred tax asset in relation to accumulated tax losses and credits as outlined in Note 25, 'Deferred tax', to the financial statements. A key management judgement is the extent to which deferred tax should be recognised in respect of these accumulated tax losses and credits and recovered against future profits.

The Committee received reports and detailed analysis from senior management which included the assumptions used when assessing the recoverability of the deferred tax asset. The Committee critically evaluated and challenged the appropriateness of management's business plans and expectations which underpin future taxable profits. The Committee was satisfied that the carrying value of the deferred tax asset was appropriate. In addition, this matter was a key focus of the external audit.

Internal audit

As set out in the Strategic Report on page 40, internal audit is considered by the Committee to be a key function for effective risk management. Internal audit and risk comprises both the Group risk and internal audit function. Whilst Group risk facilitates and manages the risk process that is ultimately owned by the Board, internal audit is accountable to the Audit Committee.

Internal audit is centrally managed and led by suitably skilled staff from head office or parts of the business independent from the business or function being audited. It is resourced by staff from around the Group with suitable skills, experience and independence from the area they are auditing.

Where relevant, external specialists are used to supplement internal resources when specialist knowledge is required. This approach not only ensures independence in the process but also the relevance of the recommendations and the sharing of best practice around the Group.

The following examples illustrate how internal audit work supports Group risk whilst driving improvements to our control environment and adding value in core business areas.

- Project reviews look at a range of risk and process control areas across projects in divisions: these reviews identify best-practice techniques which can be shared across divisions, and lessons learned have been applied;
- Selected in-depth process reviews evaluate control risks and efficiency, leading to revaluation of risks during the risk review processes; and
- Testing of controls and process awareness in our Fraud and Bribery Risk Assessment.

Management actions from all of our internal audits are tracked to completion and the status of these actions is reported to the Audit Committee to ensure that the risks identified are appropriately addressed.

As part of the annual process the Committee's review includes:

- The internal audit process, the audit plan and resources;
- The internal audit reports and management's response to the findings and recommendations; and

- Meetings with the Head of Internal Audit without management being present; additionally, the Head of Internal Audit is invited to attend audit committees where considered appropriate.

The Audit Committee considers that the internal audit process is an effective tool in the overall context of the Company's risk management system.

Whistleblowing, ethics and fraud prevention

Internal audit scope includes a review of compliance with Group policies, including on established whistleblowing, ethics (including Bribery Act related matters) and fraud prevention policies.

The whistleblowing policy is designed to deal with concerns, which must be raised without malice, in relation to specific issues which are in the public interest and which fall outside the scope of other Company policies and procedures. The whistleblowing policy is overseen by the Chairman of the Audit Committee, and has been reviewed during the year and is promoted via the staff briefing process and the Company's intranet site.

One matter was reported to the Committee during the year and following investigation by senior management, it was established that there was no case to answer.

External audit

PricewaterhouseCoopers LLP were appointed as external auditors in 1990 and no formal tender for audit services has been conducted since appointment. One of the Committee's duties under its Terms of Reference is to ensure that at least once every ten years, commencing 1 July 2013, the audit services contract is put out to tender to enable the committee to compare the quality and effectiveness of the services provided by the incumbent auditor with those of other audit firms.

The auditor's quality and effectiveness are assessed on their own merits on an annual basis after the completion of each audit. Subject to continued satisfactory performance in this regard, it is expected that the audit services contract will be put out to tender no later than when the five-year rotation cycle of the incumbent audit partner draws to a conclusion in 2018.

The external auditors are required to give the Committee information about policies and processes for maintaining their independence and compliance with requirements regarding the rotation of audit partners and staff.

The Committee considers all relationships between the external auditors and the Company to ensure that they do not compromise the auditors' judgement or independence, particularly with the provision of non-audit services where a policy relating to these has been agreed by the Board.

Essentially, the external auditors would be excluded from carrying out non-audit services if they are put in the position of auditing their own work, making management decisions for the Company, if a mutual interest between the Company and the auditors is created, or if the auditors take on the role of an advocate for the Company.

Our policy in respect of services provided by the external auditors is as follows:

Audit-related services

The external auditors are invited to provide services which, in their position as auditors, they must or are best placed to undertake. This includes review of the interim results and any other review of the accounts for regulatory purposes; assurance work related to compliance and corporate governance, including high-level controls; work in connection with listing particulars and prospectuses (if required); regulatory reviews or reviews commissioned by the Audit Committee; and accounting advice and reviews of accounting standards.

Tax consulting

In cases where they are best suited, we use the external auditors provided that such advice does not conflict with the external auditors' statutory responsibilities and ethical guidance.

General consulting

There may be occasions when the external auditors are best placed to undertake other accounting, advisory, consultancy and due diligence work on behalf of the Company due to their in-depth knowledge of the Company. However, the following are specifically prohibited:

- Work related to accounting records and financial statements that will ultimately be subject to external audit;
- Management of, or significant involvement in, internal audit services;
- Secondments to management positions that involve any decision-making;
- Any work where a mutuality of interest is created that could compromise the independence of the external auditor; and
- Any other work which is prohibited by UK ethical guidance.

If the external auditors carry out non-audit services and the cost of these services is estimated to exceed £50,000 or in aggregate more than 100 percent of the audit fees, prior approval by the Committee is required.

The split between audit and non-audit fees for the year ended 30 June 2016 and information on the nature of non-audit fees appear in Note 6, 'Auditors' remuneration', to the financial statements.

Both the Board and the external auditors have for many years had safeguards in place to avoid the possibility that the auditors' objectivity and independence could be compromised.

The Committee carried out a formal effectiveness assessment of the external auditors, including:

- The continuity and objectivity of the audit partner and audit team;
- Effectiveness of audit planning and execution;
- The role of management in ensuring an effective audit;
- Communication with and support of the Audit Committee; and
- The formal reporting of the auditors.

The assessment was completed with input from an internal questionnaire completed by senior and relevant finance staff. The Committee also considered the audit firm's annual transparency report on its own internal quality control procedures.

The Audit 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 the Company's auditors.

The Audit Committee has recommended to the Board that the reappointment of PricewaterhouseCoopers LLP be proposed to shareholders at the 2016 Annual General Meeting.

RELATIONS WITH SHAREHOLDERS

Shareholder dialogue

The Chief Executive Officer and the Chief Financial Officer regularly meet with institutional shareholders to foster a mutual understanding of objectives, answer their questions and to keep them updated on our performance and plans.

These meetings range from one-to-one discussions to group presentations and investor conference calls following our results announcements. Any presentations provided in these meetings are uploaded to our website and comments are fed back to us.

Additionally, the Chairman communicates with key shareholders at least once a year and both the Chairman, the Senior Independent Director and the Chairman of the Audit Committee are available for discussions with major shareholders if required. The Chairman also looks to shareholder groups' annual voting guidelines to better understand their policies on governance and voting.

For an independent view, Investec, the capital markets advisory firm, provides us with regular reviews of major investors' views on company management and performance. Surveys of shareholder opinion are normally carried out following announcements of results and are circulated to the Board.

Ricardo's AGM

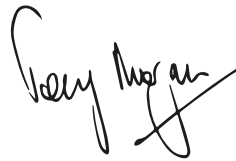
The Notice of Meeting sets out the resolutions being proposed at the Annual General Meeting (3 November 2016 at 10.00am). Last year all resolutions were passed with votes ranging from 99% to 100%. Shareholders unable to attend the AGM are encouraged to vote in advance of the meeting.

The Annual General Meeting ('AGM') in October 2015 was attended by all Directors in office at the time of the meeting. The Directors encourage the participation of all shareholders, including private investors, at the AGM and 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 and Investor presentations.

The Directors' Corporate Governance Statement was approved by the Board on 14 September 2016 and signed on its behalf by:



Sir Terry Morgan, CBE
Chairman



Ian Lee
Chairman of the Audit Committee

Directors' remuneration report



Peter Gilchrist – Chairman of the Remuneration Committee

CHAIRMAN'S OVERVIEW

I am pleased to present our Directors' Remuneration Report for 2016, for which we will be seeking your approval at our Annual General Meeting ('AGM').

We do not propose to make any changes to our Directors' remuneration policy this year. We have, however, reproduced it in this report for ease of reference. The remuneration policy which was approved by shareholders in 2014 is available exactly as approved on our Company website.

The Remuneration Committee has always aimed to ensure that remuneration at Ricardo is closely linked to business strategy and to align executives' interests with the KPIs described on pages 16 and 17 of the annual report through the use of our incentive plans. During the year, the Committee has built on the comprehensive review carried out in the previous year and monitored remuneration arrangements to make sure they reflected Ricardo's remuneration philosophy and principles. The Committee's other activities included:

- Approving the annual bonus outcomes and vesting of long-term incentives;
- Reviewing base salary levels for executive directors;
- Setting 2015/2016 annual bonus targets and performance targets for our long-term incentives;
- Reviewing the 2015/2016 Directors' Remuneration Report; and
- Reviewing our terms of reference.

During the year the Remuneration Committee also held a review of their advisors and after 7 years with Willis Towers Watson decided that it would be sensible to make a change. With effect from 1 July 2016, FIT Remuneration Consultants were appointed alongside Shepherd and Wedderburn to provide the Committee with independent advice. We would like to thank Willis Towers Watson for the valuable service that they have given the Committee over many years.

It is the Committee's intention to be clear and transparent in matters of remuneration and we hope that the report's format continues this approach by being informative and easy to understand. As always, we welcome feedback from shareholders on both the content and style of the report.

2015/2016 performance and pay

The Remuneration Committee, after considering other alternatives, decided that the broad remuneration framework and policy that was approved by shareholders in 2014 continued to provide the best alignment of executive remuneration with the long-term sustainable performance of the Group and remained right for the Company and shareholders in 2015/2016; we therefore decided not to make any changes, as was the case in the previous year. The decisions that we took within the terms of this existing policy were designed both to reward superior performance that benefits shareholders and focus management on delivering the agreed business strategy.

The Committee remains focused on ensuring that executive pay is closely linked to the performance of the Group and the successful development of its business. All of the Committee's decisions are made in the context of performance achieved. During the year ended 30 June 2016, Ricardo delivered revenue of £332.4m which is 29% ahead of the prior year and underlying profit before tax of £37.7m, which is 41% higher than last year. The order book was £231m at the year-end, which is a record high.

Against the backdrop of the year's strong performance, annual bonuses for executive directors paid out at 79%, 61% and 60% of base salary. This is the equivalent of 63%, 61% and 60% of the maximum bonus.

Share awards granted in 2012 to executive directors under our Long-term Incentive Plan ('LTIP') and the matching element of our Deferred Bonus Plan ('DBP') vested in full during the year as a result of Ricardo's TSR performance against the FTSE Small Cap Index (excluding financial services companies and investment trusts) and Ricardo's growth in normalised earnings per ordinary share over the past three

years. The fact that this was the first time for many years that 100% vesting has been achieved gives the Remuneration Committee comfort that, over this period as a whole, the performance targets have been appropriately stretching. Ricardo's Total Shareholder Return was 150.1% over the three year performance period against an upper quartile of 112.8% and EPS grew by over 36% in real terms. This is a very pleasing level of performance.

2016/2017 activity

Looking ahead, the Committee will be monitoring the new UK Prime Minister's business reward initiatives and will review and renew our policy in 2017. The Committee will also consider the points arising from the work of The Investment Association and the Executive Remuneration Working Group.

The Directors' Remuneration Report received considerable shareholder support again at the 2015 AGM and I am grateful to our shareholders for this. As appropriate, the Committee will continue to engage and communicate with shareholders on Ricardo's remuneration policy.

Peter Gilchrist

The executive directors' remuneration arrangements – at a glance

	Dave Shemmans	Ian Gibson	Mark Garrett
Base salary	£466,796 (effective 01/01/2016)	£300,500 (effective 01/01/2016)	£262,254 (effective 01/01/2016)
Annual bonus	Maximum opportunity of 125% of salary Based on PBT (60%), cash (15%) and personal targets (25%) 50% of any bonus to be deferred into shares for three years	Maximum opportunity of 100% of salary Based on PBT (60%), cash (20%) and personal targets (20%) 50% of any bonus to be deferred into shares for three years	Maximum opportunity of 100% of salary Based on PBT (60%), cash (20%) and personal targets (20%) 50% of any bonus to be deferred into shares for three years
Deferred bonus matching shares (DBP)	Matching award of shares on bonus deferred up to 1:1 basis Subject to three-year performance conditions: 50% EPS growth, 50% TSR vs FTSE Small Cap Index	Matching award of shares on bonus deferred up to 1:1 basis Subject to three-year performance conditions: 50% EPS growth, 50% TSR vs FTSE Small Cap Index	Matching award of shares on bonus deferred up to 1:1 basis Subject to three-year performance conditions: 50% EPS growth, 50% TSR vs FTSE Small Cap Index
Long-term incentive plan (LTIP)	Annual award of shares of face value of 100% of base salary Subject to three-year performance conditions: 50% EPS growth, 50% TSR vs FTSE Small Cap Index	Annual award of shares of face value of 55% of base salary Subject to three-year performance conditions: 50% EPS growth, 50% TSR vs FTSE Small Cap Index	Annual award of shares of face value of 55% of base salary Subject to three-year performance conditions: 50% EPS growth, 50% TSR vs FTSE Small Cap Index
Pension	21.2% of salary over Lower Earnings Limit ⁽¹⁾	20% of salary over Lower Earnings Limit	20% of salary over Lower Earnings Limit
Other benefits	Company car allowance: £17,500 Private fuel Private medical insurance Life assurance	Company car allowance: £12,000 Private fuel Private medical insurance Life assurance	Company car allowance: £12,000 Private fuel Private medical insurance Life assurance
Share retention policy ⁽²⁾	100% of base salary	100% of base salary	100% of base salary

(1) This reflects legacy pension arrangements.

(2) This is the shareholding requirement for each executive director.

Directors' remuneration policy

Remuneration policy

This policy report outlines the framework of Ricardo's remuneration strategy, which is designed to ensure the close alignment with Ricardo's strategic plan, for the three years from the 2014 AGM which was held on 29 October 2014. There have been no changes of substance to the text of the policy that was approved at the 2014 AGM. (A copy of the originally approved text is available in the 2014 annual report on our website at www.ricardo.com.) We have, however, updated the 'remuneration outcomes' chart on page 93 and the page references for ease of use.

The objective of Ricardo's executive remuneration policy is to provide remuneration packages which will reward and thereby retain talented people in the business and enable the recruitment of appropriately skilled and experienced newcomers. Therefore, the executive remuneration policy is to set levels of base salary that are competitive – compared with companies of similar size and complexity to Ricardo – and to provide other remuneration package elements, namely the annual bonus plan and long-term incentive schemes, that give the senior management team the opportunity to receive upper quartile earnings for superior individual and corporate performance.

Pay element and link to strategy	Maximum	Operation
Base salary		
<i>To provide a core level of remuneration to enable the Company to attract and retain skilled, high-calibre executives to deliver its strategy</i>	There is no prescribed maximum annual increase. However, generally speaking, increases will be in line with salary increases for employees across the Group.	<p>Salary levels are reviewed annually in January each year.</p> <p>Pay is set by considering market levels of total pay for comparable roles in companies of similar size, complexity and sector, as well as each individual director's experience, scope of responsibilities and performance and the salary increases for employees across the Group.</p> <p>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.</p>
Pension		
<i>To offer market competitive retirement benefits</i>	<p>For the Chief Executive Officer, the pension contribution is 21.2% of salary due to legacy pension arrangements.</p> <p>For all other executive directors, the pension contribution is 20% of salary over the Lower Earnings Limit.</p>	<p>The Company operates a Defined Contribution Scheme, the Ricardo International Pension Scheme ('RIPS'). The policy for executive directors continues to be a pension contribution of 20% of base salary only over the Lower Earnings Limit. Contributions are made up to the annual allowance limit and the rest paid as cash in lieu of pension.</p> <p>Executive directors may only choose to opt out of the RIPS 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 cash payment in lieu of pension.</p> <p>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.</p> <p>Early retirement is available with the consent of the Company and the trustees if the individual is over 55 or retiring due to ill health.</p> <p>The same policy approach applies to all employees although contribution levels vary by seniority.</p> <p>Under the transitional arrangements to the Defined Contribution Scheme, the Chief Executive Officer was also entitled to a death in service benefit which was a protected term as carry-over on death from the previous (discontinued) Defined Benefit arrangement such that he was entitled on death to a spouse's pension of 35% of annual salary and a pension per child of 12.5% of annual salary, subject to a maximum limit of 25%, until the child attains the age of 18 (or 21 if in full time education). This benefit ended on 31 January 2015 and he thereafter became entitled to death in service benefits in line with other executive directors, as described above.</p>
Other benefits		
<i>To provide market competitive benefits</i>	The cost to the Group of providing such benefits will vary from year to year in accordance with the cost of insuring such benefits.	<p>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 insurance. The benefits arrangements are reviewed on an annual basis.</p> <p>Certain other employees are eligible for the same or similar benefits described above depending on their role, seniority and geographical location.</p>

Pay element and link to strategy	Maximum	Operation
<p>Annual bonus</p> <p><i>To reward the annual delivery of financial and operational targets</i></p>	<p>Maximum opportunity of 125% of base salary for the CEO and 100% of salary for other executive directors.</p>	<p>Executive directors participate in the annual bonus plan. Under this plan, payouts are based on performance measured against:</p> <ul style="list-style-type: none"> • Group PBT; • Group cash balance; and • Achievement of individual strategic objectives. Individual objectives vary from year to year but our policy is to set goals which relate to achievement of the business strategy. Examples include the development and efficient execution of the strategic plan, developing the business in emerging markets, identifying opportunities for inorganic growth and succession planning. <p>The performance targets and weightings are reviewed annually to ensure alignment to strategy. The weighting of the Group PBT portion will be at least 50% of total bonus opportunity.</p> <p>The choice of these measures, and their respective weightings for each individual, will be disclosed at the end of the performance period and reflect 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.</p> <p>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 0% for below-threshold performance up to 100% for full satisfaction of the relevant target.</p> <p>One half of any bonus paid to an executive director 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.</p> <p>The principal purpose of this bonus deferral mechanism is to:</p> <ul style="list-style-type: none"> • provide for further alignment of executives' and shareholders' interests; • provide an additional retention element; and • encourage executive directors to build up a shareholding of a value of at least one times annual base salary within five years of appointment (see share retention policy). <p>Bonus arrangements exist for certain other employees throughout the Group on terms that are applicable to their role, seniority and geographical location.</p> <p>Clawback: The Committee retains the discretion to reduce or 'claw back' the number of deferred bonus shares to vest in the event of significant misstatement of the Group's financial results in respect of the financial year to which the bonus relates.</p>
<p>Long-term incentives</p> <p><i>Deferred bonus matching shares ('DBP')</i></p> <p><i>DBP to link short-term and long-term performance</i></p>	<p>DBP:</p> <p>Maximum opportunity of 62.5% of salary for the CEO and 50% of salary for other executive directors</p>	<p>DBP:</p> <p>Executive directors will be granted an award over further shares (up to a maximum of 1 for 1) in relation to deferred bonus shares. The vesting of these awards will be subject to both continued employment and the extent to which performance conditions measured over a specified three year period are met. These awards will be granted pursuant to the rules of the Ricardo plc 2011 Deferred Bonus Plan (the '2011 DBP'), for which shareholder approval was given at the 2011 Annual General Meeting.</p> <p>The performance conditions applicable to the above awards will be identical to those that will be applied to the awards to be made under the terms of the Ricardo plc 2014 Long-Term Incentive Plan (the '2014 LTIP' or the 'LTIP') in the same period. These are described in more detail on the following page.</p>

Pay element and link to strategy	Maximum	Operation
<p>Long-term incentives</p> <p>Long-term incentive plan ('LTIP')</p> <p><i>To focus motivation on the long-term performance of the Group and reward shareholder value creation</i></p> <p><i>To encourage share ownership and alignment with shareholders</i></p>	<p>LTIP:</p> <p>Normal maximum: face value of 100% of salary.</p> <p>Exceptional maximum award under the 2014 LTIP plan rules: face value of 200% of salary per year. This does not apply to current executive directors.</p>	<p>LTIP:</p> <p>Awards under the LTIP are made on an annual basis to the executive directors and a small group of other senior executives. Awards are subject to the following performance conditions:</p> <ul style="list-style-type: none"> • 50% of any award vests according to Ricardo's total shareholder return (share price movement plus dividends reinvested – 'TSR') performance relative to the constituents of the FTSE Small Cap Index (excluding financial services companies and investment trusts) over the three years from grant. <ul style="list-style-type: none"> - For below median performance, none of this portion of awards will vest. - For median performance, 25% of this portion of awards will vest. - For upper quartile or above performance, 100% of this portion of awards will vest. - For between median and upper quartile performance, straight-line vesting will apply. • 50% of any award vests according to Ricardo's growth in normalised earnings per ordinary share ('EPS') over a period of three consecutive financial years. <p>The Committee will decide appropriate EPS growth targets each year. Threshold performance (for which 25% of this portion will vest) is generally intended to align to the performance of the relevant market and / or our competitors' level. If the maximum performance is achieved, we would expect to have significantly outperformed the relevant market and / or our competitors.</p> <p>The Committee believes that TSR and EPS are appropriate measures for the LTIP as they are strongly aligned to shareholder value creation. In particular, the normalised EPS performance targets are considered by the Committee to be suitably stretching. When calibrating performance targets the Committee takes into account the economic and market outlook, the business plan and investor expectations at the time of each award.</p> <p>For both DBP and LTIP awards, dividends and dividend equivalents for each performance or deferral period may also be paid in respect of shares under award to the extent that shares have vested to participants.</p> <p>Clawback: The rules of the 2014 LTIP include provision for 'clawback' which would allow the Committee discretion to claw back the value of awards in the event of:</p> <ul style="list-style-type: none"> • Material mis-statement of results; • Material error in performance assessment; or • Misconduct (for example, reputational issues) or fraud.
<p>Share retention policy</p> <p><i>To align further the interests of executive directors and shareholders and encourage both the continued holding of Ricardo shares and a long-term business perspective</i></p>		<p>The Board operates a share retention policy for the executive directors. It is the intention of this policy that each executive director will own shares in the Company with a value at least equal to one times annual base salary within five years of the date of the executive's appointment.</p> <p>Executive directors are not required to purchase shares to fulfil this requirement but are expected to retain all shares earned under various share plans, less an allowance for income tax and national insurance, until the requirement is met.</p>

Non-executive directors – fees and appointments

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. The Committee determines the Chairman's fees. The Chairman and the executive directors determine the fees paid to the other non-executive directors. Non-executive directors are not present at meetings for any discussion or decision about their own remuneration. The fees are reviewed each January.

Non-executive directors do not participate in incentive plans. They receive reimbursement for travel and incidental costs incurred in furtherance of Company business. An aggregate limit on fees paid to non-executive directors of £500,000 is laid down in the Company's Articles of Association.

Remuneration for non-executives is in the form of cash fees and is payable monthly. The Chairman of the Board receives an annual fee. Non-executive directors receive an annual basic fee plus an additional fee for acting as the Chairman 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 non-executive directors do not participate in any of the Company's share schemes, pension schemes or bonus arrangements, nor do they have service agreements. They 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 2016, are:

Non-executive directors	Unexpired terms of appointments
Sir Terry Morgan	6 months
Ian Lee	13 months
Malin Persson ⁽¹⁾	30 months
Peter Gilchrist ⁽²⁾	5 months
Laurie Bowen ⁽³⁾	24 months

(1) Malin Persson joined the Ricardo Board on 4 January 2016.

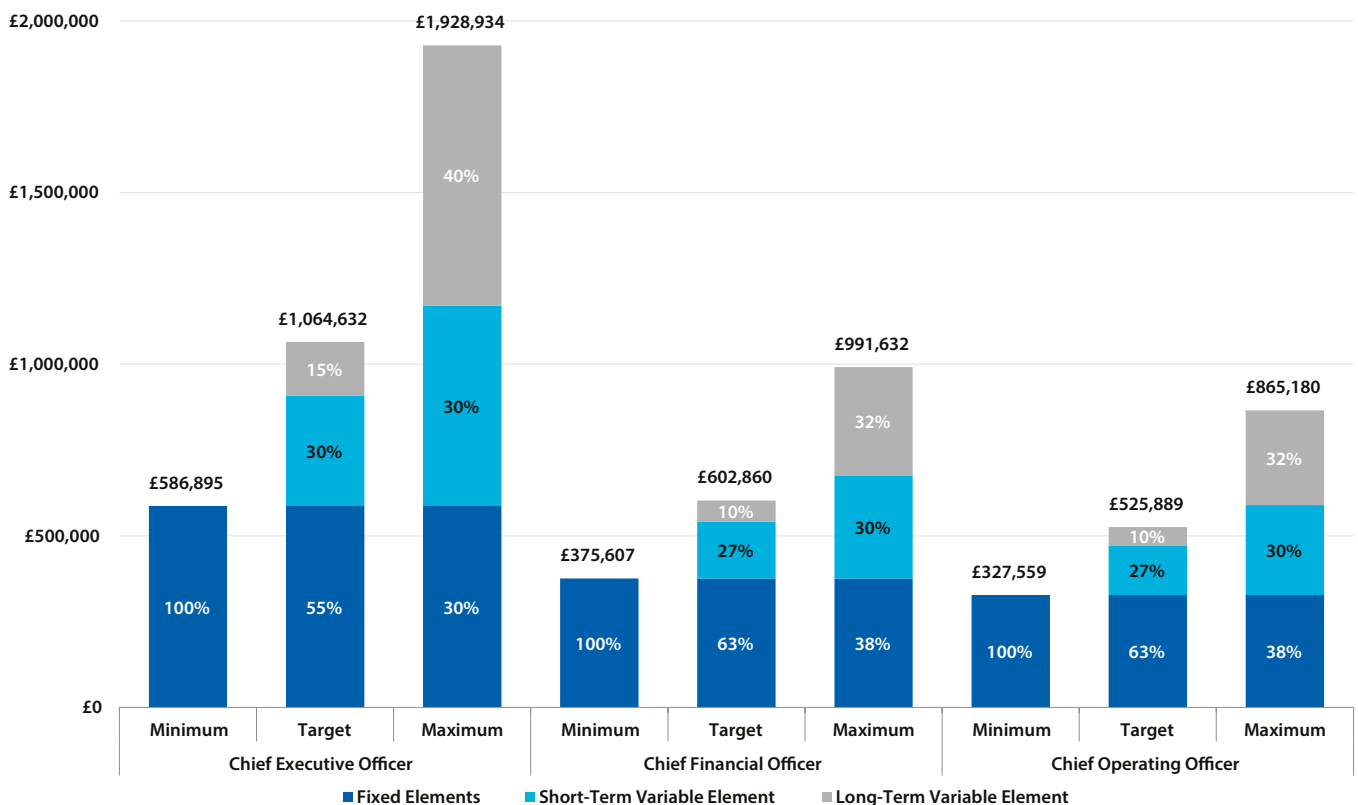
(2) Peter Gilchrist became the Senior Independent Director on 1 July 2015.

(3) Laurie Bowen joined the Ricardo Board on 1 July 2015.

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 under minimum, on-target and maximum scenarios.



The target scenario broadly illustrates the remuneration level when budgeted performance is achieved. The disclosures in the chart on the previous page have been updated to reflect the 2015/2016 data on the basis of the assumptions set out below.

- Fixed elements comprise current base salary, pension and other benefits. For example, for the CEO, fixed elements comprise base salary of £466,796, pension (pension contribution and cash in lieu) of 21.2% of base salary above the Lower Earnings Limit and benefits equal to those received in 2015/2016;
- For minimum performance, executive directors receive only the fixed elements of pay;
- For target performance, an assumption of 55% of bonus payout and threshold vesting (25%) for long-term incentives is applied;
- For maximum performance, maximum bonus payout and maximum vesting for long-term incentives are applied; and
- No share price increase has been assumed.

Recruitment remuneration policy

New executive directors will be appointed on remuneration packages with the same structure and elements as described in the policy table on pages 90 to 92. Annual bonus and LTIP awards will be within the limits described in the policy table.

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 remuneration relinquished when leaving a former employer. Any such award would reflect the nature, time horizons 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 Chairman 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.

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.

Share scheme 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 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 may either vest at that time or, in the case of awards granted under the 2014 LTIP, on their originally anticipated vesting date (although the Remuneration Committee retains the discretion to allow vesting at cessation, depending on the circumstances under the 2014 LTIP rules). These awards will also usually be subject to 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 accrued but untaken holiday and any 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 in the next Directors' Remuneration Report.

Change of control

In the event of a termination due to change of control, awards granted under the 2014 LTIP and the previous 2006 Long-Term Incentive Plan ('2006 LTIP') and matching awards granted under the 2011 DBP will normally vest at that time, taking into account the extent to which the performance criteria have been met and the time elapsed since grant.

Executive directors' service contracts

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.

Executives	Date of service contract
Dave Shemmans	7 April 2005
Ian Gibson	15 May 2013
Mark Garrett	28 January 2008

(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 share options

Executive share option plan awards have not been made to executive directors in recent years and there is no intention to make any such awards in future. However, the Company wishes to retain the flexibility to make ESOP awards below Board level in certain circumstances – for example, recruiting in territories where the prevailing local remuneration market practice involves the grant of share options or for retaining key individuals following acquisitions. The ESOP was put up for renewal and was subsequently approved at the 2014 AGM.

No share options were granted during the year ending 30 June 2016 to directors (or indeed any Ricardo employees). The last share options were exercised in September 2014 and consequently no director currently holds any outstanding share options. The maximum level of award that can be made to any executive under this plan is 100% of base salary per annum. ESOP awards that are granted must be subject to performance conditions. Also, the exercise price per share payable to acquire the shares subject to the option must be equal to the market value of a Ricardo share on the date of grant.

All-employee share plans

For its UK employees the Company operates from time to time tax advantaged Share Incentive Plan ('SIP') and Save As You Earn share option ('SAYE') arrangements, which 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.

The SIP provides for partnership, matching, free and dividend shares, either by delivery of market purchased or newly issued shares. The Company has to date offered partnership shares and, in the year ended 30 June 2012, offered an award of 281 shares to all UK-based employees (with overseas employees being provided with a broadly equivalent benefit via a cash based 'notional' share arrangement). The latter shares (and the cash equivalent awards) vested on the third anniversary of grant, subject to continued employment.

Dilution limits

The number of shares that may be issued under all Ricardo employee share plans in any ten year rolling period will be restricted to 10% of the issued ordinary share capital of the Company and 5% of the issued ordinary share capital of the Company for discretionary employee share plans.

At the end of the year under review, the Company's overall dilution was 4.48% of which 4.04% related to discretionary employee share plans. The Company operates an employee benefit trust ('EBT') 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.

Consideration of employment conditions elsewhere in the Company

Ricardo does not consult directly with employees on the subject of director remuneration, but the remuneration packages for each executive director and their fixed and variable elements are reviewed annually. This process 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;
- Pay and employment conditions of employees of the Group; and
- As necessary, the views of the Company's principal shareholders (which are sought by the Committee's Chairman).

Consideration of shareholders' views

Shareholders' views in respect of directors' remuneration have been taken into account in the formulation of the directors' remuneration policy. The Committee continues to welcome feedback and comments regarding the remuneration arrangements at Ricardo.

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 periodically reviews policy in the context of the changing business environment. Any material future changes to policy will be discussed with shareholders in advance.

Annual report on remuneration

The paragraphs in this Annual Report on Remuneration that have been audited are indicated below.

The Remuneration Committee

During the year under review the Committee was chaired by Peter Gilchrist. The Committee also comprised Sir Terry Morgan, Ian Lee, Laurie Bowen, Malin Persson (who joined the Committee on appointment on 4 January 2016) and David Hall (who stepped down from the Committee on 4 November 2015).

The non-executive directors 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 76 and 77; details of attendance at the meetings of the Committee during the year ended 30 June 2016 are shown on page 79.

Role and responsibilities of the Remuneration Committee

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 Chairman 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 recommending the policy for, and structure of, senior management remuneration;
- 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 schemes;
- Agreeing the remuneration of the Chairman 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 consultants it appoints.

Advisors to the Remuneration Committee

The Committee is supported by the Group HR Director (Timothy Hargreaves), the Group Head of Remuneration and Pensions (Mark Jarvis) and the Company Secretary (Patricia Ryan). The Chief Executive Officer (Dave Shemmans) is not a member of the Committee but may attend its meetings by invitation and is consulted in respect of certain of its proposals. Similarly, the Chief Financial Officer (Ian Gibson) is not a member of the Committee but may occasionally be invited to attend parts of its 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.

During the year, Willis Towers Watson and Shepherd and Wedderburn (who were originally jointly appointed by the Committee following a competitive tender process held in a previous period) provided independent advice on matters under consideration by the Committee and updates on good practice, legislative requirements and market practice.

Willis Towers Watson's fees for this work amounted to £59,648 (calculated based on a mixture of fixed fees and time spent). Willis Towers Watson, through separate teams, also provides advice to Ricardo in relation to pension plan arrangements. Shepherd and Wedderburn's fees for advising the Committee amounted to £20,400 (also calculated based on a mixture of fixed fees and time spent) – and they also advise Ricardo on the design, implementation and operation of its various share incentive plans.

This coming year sees a change in advisors as FIT Remuneration Consultants LLP will replace Willis Towers Watson going forward. FIT Remuneration Consultants will work alongside Shepherd and Wedderburn in providing independent advice on executive remuneration to the Committee throughout the year.

Willis Towers Watson and FIT Remuneration Consultants are members of the Remuneration Consultants Group and their work is governed by the Code of Conduct. Having carefully considered all relevant factors, the Remuneration Committee is satisfied that the advice provided on executive remuneration is objective and independent and that no conflict of interest arises as a result of other services.

Remuneration for 2015/2016

This section of the report explains how Ricardo's remuneration policy has been implemented during the financial year.

Single total figure table (audited)

The table below sets out the remuneration received by the executive directors and non-executive directors during the year. This should be considered in conjunction with the TSR performance graph on page 101.

The significant increase in the single total figure for the Chief Executive Officer and the Chief Operating Officer reflects the very strong performance of Ricardo in the last three years and the value of share-based pay that vested in the year. Ricardo's Total Shareholder Return was 150% over the performance period for the deferred bonus matching shares and the LTIP. Please note that 75% of the CEO's single total figure is performance-related.

	Financial year	Fixed remuneration			Variable remuneration						TOTAL (£'000)
		Base salary and fees (£'000)	Benefits ⁽¹⁾ (£'000)	Pension (£'000)	Bonus (cash element) ⁽²⁾ (£'000)	Bonus (deferred element) (£'000)	Total bonus (£'000)	Deferred bonus matching shares (£'000)	LTIP (£'000)	Total LTIs (£'000)	
EXECUTIVE DIRECTORS											
Dave Shemmans	2015/2016	460	22	97	185	185	370	356	986	1,342	2,291
	2014/2015	447	22	94	167	167	334	-	470	470	1,367
Ian Gibson	2015/2016	296	16	58	92	92	184	-	-	-	554
	2014/2015	287	16	56	85	85	170	-	-	-	529
Mark Garrett	2015/2016	258	14	51	79	79	158	162	288	450	931
	2014/2015	251	16	49	72	72	144	-	129	129	589
NON-EXECUTIVE DIRECTORS											
Sir Terry Morgan	2015/2016	137	1	-	-	-	-	-	-	-	138
	2014/2015	104	1	-	-	-	-	-	-	-	105
Peter Gilchrist ⁽³⁾	2015/2016	57	3	-	-	-	-	-	-	-	60
	2014/2015	50	2	-	-	-	-	-	-	-	52
Ian Lee	2015/2016	51	5	-	-	-	-	-	-	-	56
	2014/2015	50	4	-	-	-	-	-	-	-	54
Laurie Bowen ⁽⁴⁾	2015/2016	43	47	-	-	-	-	-	-	-	90
	2014/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Malin Persson ⁽⁵⁾	2015/2016	22	2	-	-	-	-	-	-	-	24
	2014/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
David Hall ⁽⁶⁾	2015/2016	15	1	-	-	-	-	-	-	-	16
	2014/2015	49	1	-	-	-	-	-	-	-	50

(1) Further information on benefits for the executive directors can be found on page 98. The benefits figures for non-executives represent reimbursement of expenses incurred (including any associated personal tax charges) while traveling for business and committee meetings.

(2) Further details of the annual bonus can be found on page 98.

(3) Peter Gilchrist became the Senior Independent Director on 1 July 2015.

(4) Laurie Bowen was appointed as a Director on 1 July 2015. Her benefits figure largely consists of travel expenditure to and from the United States.

(5) Malin Persson was appointed as a Director on 4 January 2016.

(6) David Hall retired as a Director on 4 November 2015.

Base salary

Base salaries were reviewed in January 2016. As described in the policy section, a number of factors are taken into account when salaries are reviewed: principally, market levels of total pay for comparable roles in companies of similar size, complexity and sector; the individual director's experience, scope of responsibilities and performance; and the salary increases for employees across the Group. The increase for each executive director (and the Group-wide average) was 3%.

Current salary levels from 1 January 2016 are:

- Dave Shemmans: £466,796
- Ian Gibson: £300,500
- Mark Garrett: £262,254

Pension (audited)

(a) The Defined Benefit scheme is closed and there are no active members. During the year ended 30 June 2016, the transfer value in respect of the Chief Executive Officer has increased. The transfer value at 30 June 2016 was £503,000 an increase of £71,000 from the prior year.

The CEO'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:

	Employer contributions payable in the year (£'000)	Cash in lieu (£'000)
Dave Shemmans	14	83
Ian Gibson	-	58
Mark Garrett	22	29

Other benefits (audited)

The Company provides other cash benefits and benefits in kind to executive directors. These include a company car or cash alternative, private fuel, private medical insurance, life assurance and permanent health insurance. The car allowance levels remain unchanged and set at £17,500 p.a. for Dave Shemmans and at £12,000 p.a. for Ian Gibson and Mark Garrett.

Non-executive directors can recover travel expenses for board meetings and do not receive any other benefits. If tax is payable by a non-executive director on travel expenses for board meetings, these may be paid gross of tax.

Annual performance-related bonus (audited)

For the year ended 30 June 2016, the maximum annual performance-related bonus opportunity was 125% of salary for the Chief Executive Officer and 100% of salary for the other executive directors. The amount of bonus actually paid for the period was based on achievement against the financial measures of Group profit before tax (60%) and Group cash balance at year end (15% for CEO / 20% for other executive directors) and the achievement of specified individual objectives (25% for CEO / 20%

for other executive directors). 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.

The following table sets out the targets, actual performance and payouts which applied to the executive directors' bonus scheme for the 2015/2016 financial year:

Measure	Weighting (% of maximum opportunity)			Performance required			Actual performance (adjusted) ⁽¹⁾			Payout (% of maximum opportunity)		
	CEO	CFO	COO	Threshold	On-Target	Maximum	CEO	CFO	COO	CEO	CFO	COO
Profit before tax	60%	60%	60%	£29.9m	£31.9m	£33.9m		£32.1m ⁽¹⁾		33%	33%	33%
Group cash balance	15%	20%	20%	£(35.8)m	£(31.8)m	£(29.8)m		£(31.4)m ⁽¹⁾		9%	12%	12%
Personal objectives	25%	20%	20%	0%	75%	100%	85%	80%	75%	21.25%	16%	15%
Total payout (% of maximum opportunity) = (a)										63.25%	61%	60%
Maximum opportunity (% of base salary) = (b)										125%	100%	100%
Total payout (% of base salary) = (a) x (b)										79%	61%	60%

(1) The actual underlying profit before tax of £37.7m was adjusted by £5.4m for the Research and Development Expenditure Credit and by £0.2m for acquisition related costs. The actual net debt balance of £(34.4)m was adjusted by £3.0m to £(31.4)m for unbudgeted acquisition related expenditure. The purpose of the adjustments to profit before tax and net debt was to ensure that actual performance and the original targets were compared on a like for like basis.

The targets set by the Remuneration Committee take into account several factors such as the business plan, management's expectations and brokers' forecasts. In assessing the performance outcomes, the Remuneration Committee has, to ensure consistency, removed the effect of unbudgeted acquisitions.

A sliding scale of targets for each financial measure of the Group was set at the start of the 2015/2016 financial year:

Performance achieved	% of element payable
Threshold	0%
On-target	50%
Maximum	100%
Between any two points	Straight-line percentage

The personal objectives of the executive directors were different for each individual and were weighted. Examples of the types of personal objectives set include:

- Integrating acquisitions and delivering synergies in overhead savings and benefits
- Continuing to improve management and corporate reporting
- Order book in key parts of the business
- Ensuring the R&D programme is balanced and competitive
- Identifying further opportunities for inorganic growth

The performance of the Group over the year included a 41% increase in underlying profit before tax to £37.7m (2015: £26.8m) and a year-end net debt of £34.4m (2015 net funds: £14.3m).

The underlying profit before tax of £37.7m was adjusted by £5.4m

for the Research and Development Expenditure Credit and by £0.2m for acquisition related costs, to give an adjusted underlying profit before tax of £32.1m. The profit target was therefore achieved at a level of 55% of maximum. The net debt of £34.4m was adjusted by £3.0m for unbudgeted expenditure related to the Cascade acquisition to give an adjusted net debt of £31.4m. The cash target, which was set taking into account the bank funding required to make the Lloyd's Register Rail acquisition, was achieved at a level of 60% of maximum. The purpose of the adjustments to profit before tax and net debt was to ensure that actual performance and the original targets were compared on a like-for-like basis. The Remuneration Committee reviewed these adjustments and the achievement of the cash target was also reviewed by the Audit Committee.

The Remuneration 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 85% for the CEO, 80% for the CFO and 75% for the COO. This reflects the Remuneration Committee's assessment that most, but not all, of the objectives were met in full.

Finally, the Remuneration Committee also considered whether the outturn from the assessment of the specific bonus targets reflected the overall performance of the Group during the year and were satisfied that this was the case.

One half of any bonus paid to an executive director is subject to a policy of compulsory deferral into ordinary shares, via the 2011 DBP, the release of which is dependent on to continued employment for a three-year period from the award date.

Long-term incentives

Awards vesting during the financial year (audited)

Awards under the LTIP made in November 2012 vested in November 2015 on the basis of EPS and TSR performance over performance periods, the last of which ended in October 2015. The performance conditions applicable to these awards are summarised below:

Relative TSR portion (50%)		EPS growth portion (50%)	
Relative TSR performance against the FTSE Small Cap (excluding financial services companies and investment trusts)	Vesting level	EPS growth performance	Vesting level
Below median	Nil	Less than RPI + 4% p.a.	Nil
Median	25%	RPI + 4% p.a.	30% ⁽¹⁾
Upper quartile (or above)	100%	RPI + 10% p.a.	100%
Between median and upper quartile	Straight-line basis	Between RPI + 4% and RPI + 10% p.a.	Straight-line basis

(1) Please note that the threshold vesting level for the EPS growth portion of these awards is different from the Directors' Remuneration Policy because these awards were granted in 2012 before the current Remuneration Policy was adopted in 2014.

Over the three-year performance period, Ricardo was ranked above the upper-quartile of the TSR comparator group, giving a vesting level for this portion of 100%. Ricardo's TSR over the period was 150.1% against an upper quartile of 112.8%. The EPS figure for the year resulted from growth of 36.6% in real terms which represented compound growth of RPI + 11% p.a., compared to the base year, with the result that the EPS condition was achieved to a level of 100%. Therefore, the overall vesting level for this award was 100%. The number and value of shares which vested in November 2015 in respect of awards granted to each of the executive directors in November 2012 are set out on page 104 of this report. The Remuneration Committee also concluded that there had been a sustained improvement in the overall performance of the Group over the 3 years in question.

Awards made in the year (audited)

Awards were made to the executive directors under the 2011 DBP and 2014 LTIP in October 2015. The awards granted to each executive were as follows:

2011 DBP

	Chief Executive Officer David Shemmans	Chief Financial Officer Ian Gibson	Chief Operating Officer Mark Garrett
Type awarded	Performance Shares (Matching Award) ⁽¹⁾		
Basis for award	1:1 match for corresponding Deferred Award		
Date of award	19 October 2015		
Number of shares	18,509	9,431	7,949
Share price ⁽²⁾	£9,048	£9,048	£9,048
Face value of award	£167,469	£85,332	£71,923
% which would vest for the achievement of threshold performance	25%	25%	25%
End of performance period	35 days after release of preliminary results announcement in respect of the 2017/2018 financial year (expected to be October 2018)		

(1) As the Matching Awards are granted in the form of performance share awards, no 'exercise price' is payable in order to receive any vested shares.

(2) Average of the share prices over the five days up to and including 16 October 2015.

2014 LTIP

	Chief Executive Officer David Shemmans	Chief Financial Officer Ian Gibson	Chief Operating Officer Mark Garrett
Type awarded	Performance Shares ⁽¹⁾		
Basis for award	100% of base salary	55% of base salary	55% of base salary
Date of award	19 October 2015		
Number of shares	50,088	17,734	15,477
Share price ⁽²⁾	£9,048	£9,048	£9,048
Face value of award	£453,196	£160,457	£140,036
% which would vest for the achievement of threshold performance	25%	25%	25%
End of performance period	35 days after release of preliminary results announcement in respect of the 2017/2018 financial year (expected to be October 2018)		

(1) As the 2014 LTIP Awards are granted in the form of performance share awards, no 'exercise price' is payable in order to receive any vested shares.

(2) Average of the share prices over the five days up to and including 16 October 2015.

The vesting of these awards will be based on Ricardo's three-year relative TSR (50%) and EPS growth (50%) performance summarised in the table below. In addition, no part of an award will vest unless the Remuneration Committee is satisfied that the achievement against the TSR and EPS performance condition is a genuine reflection of the underlying performance of the Group over the performance period.

Relative TSR portion (50%)		EPS growth portion (50%)	
Relative TSR performance against the FTSE Small Cap (excluding financial services companies and investment trusts)	Vesting level	EPS growth performance	Vesting level
Below median	Nil	Less than RPI + 3% p.a.	Nil
Median	25%	RPI + 3% p.a.	25%
Upper quartile (or above)	100%	RPI + 10% p.a.	100%
Between median and upper quartile	Straight-line basis	Between RPI + 3% and RPI + 10% p.a.	Straight-line basis

Performance targets history

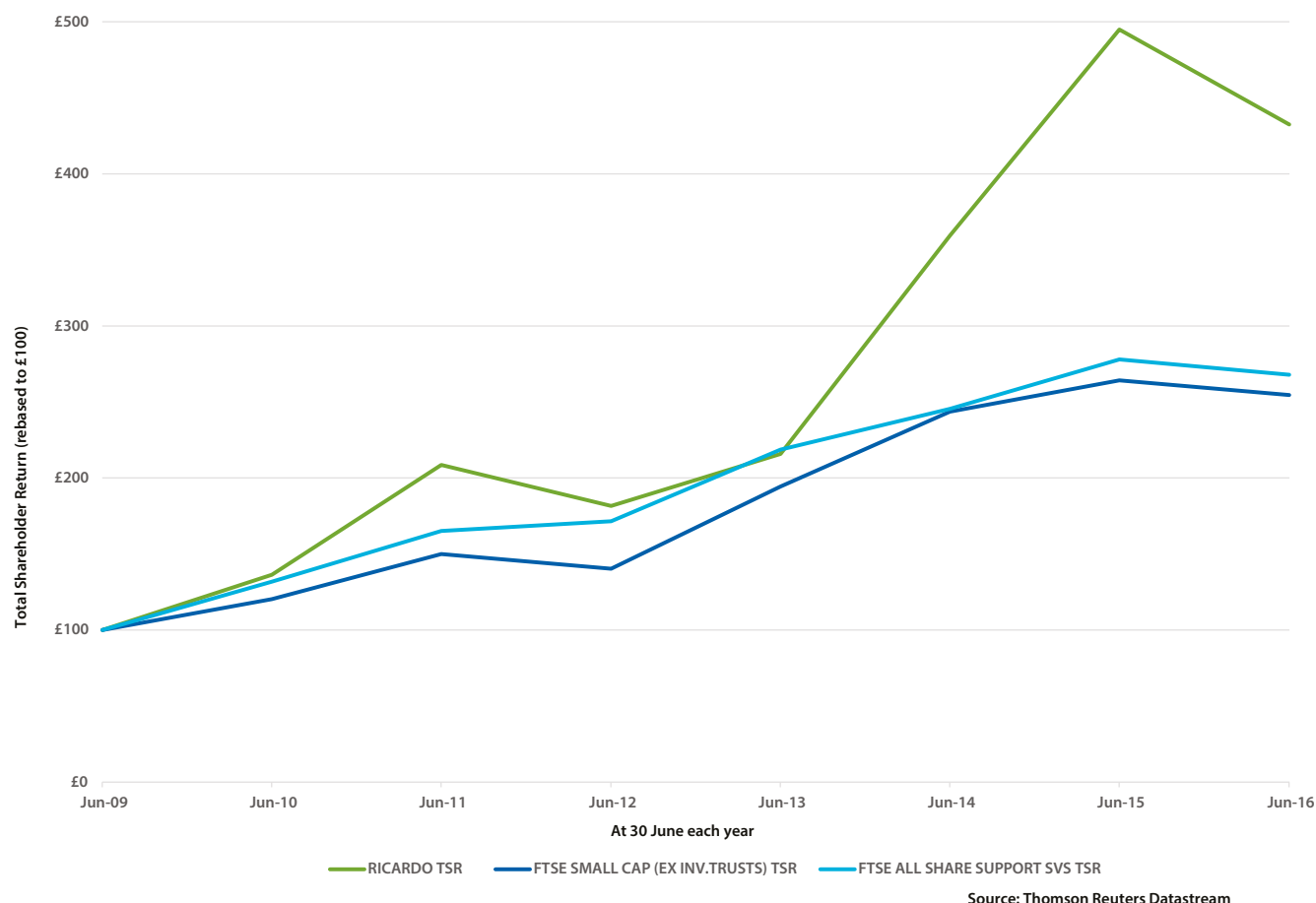
The Committee reviews targets each year and has adjusted the top end of the EPS target range a number of times in recent years to ensure that it remains appropriately stretching. For awards made in the year ending 30 June 2008, maximum vesting of the EPS portion required growth of RPI + 10% p.a. For awards in years ending 30 June 2009 and 2010, the EPS growth required for maximum vesting was RPI + 11% p.a. This target was increased again to RPI + 12% p.a. for awards in the year ending 30 June 2011. This increase was made in response to a relatively low base year. The figure was subsequently adjusted to RPI + 11% p.a. for awards in the year ending 30 June 2012 and RPI + 10% p.a. for awards in years ending 30 June 2013, 2014, 2015 and 2016 respectively.

The EPS targets to achieve threshold vesting have, since 2008, required performance in excess of RPI + 4% p.a. However this target was reduced to RPI + 3% p.a. for awards made in the financial year ended 30 June 2015. This change was the result of extensive consideration of the EPS target in particular in light of market expectations and management plans. This reduction was also offset by a reduction in the threshold vesting level applicable to these awards. The EPS growth required for threshold vesting remained unchanged at RPI + 3% p.a. for awards made in the year ending 30 June 2016.

The performance condition applicable to the TSR portion of awards has remained constant through this period. The number and value of shares which were awarded to each of the executive directors in the year ended 30 June 2016 are set out on the previous page.

TSR performance graph and CEO pay history

TSR for the years 30 June 2009 to 30 June 2016



The chart above shows Ricardo's TSR performance for the past 7 years against the FTSE Small Cap index (excluding investment trusts). In the Directors' 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 CEO Dave Shemmans' remuneration for the period is represented in the table below.

Financial Year	Single figure of total remuneration (CEO (£'000))	Annual variable element award rates against maximum opportunity	Long term incentive vesting rates against maximum opportunity
2015/2016	2,291	63%	100%
2014/2015	1,367	59%	67%
2013/2014	760	38%	N/A
2012/2013	1,546	75%	77%
2011/2012	979	58%	35%
2010/2011	1,116	97%	46%
2009/2010	708	19%	36%

Non-executive directors' fees

Current non-executive director fees as from 1 January 2016 are as follows:

	£'000
Chairman's total fees	139
Other non-executive director fees:	
Basic fee	45
Additional fee for Audit and Remuneration Committee Chairmen	7
Additional fee for the Senior Independent Director	6

The above table reflects a 3% increase in the Chairman's total fees and the basic fee for non-executive directors relative to 2014/2015.

Executive director board appointments with other companies during 2015/2016

On 1 September 2014, the Company's 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 period from 1 July 2015 to 30 June 2016 (inclusive), amounted to £31,208.

Payments to past directors and in respect of loss of office

No payments have been made to past directors or in respect of loss of office in the financial year.

Directors' shareholdings (audited)

The interests of directors and their connected persons in ordinary shares as at 30 June 2016 (or date of cessation of employment, if earlier), including any interests in share options and shares provisionally awarded under the LTIP and DBP are presented below.

At 14 September 2016, the interests in shares of the directors who were still in office were unchanged from those at 30 June 2016 except for Sir Terry Morgan who acquired a further 5,000 shares, taking his total shareholding to 15,000 shares and Laurie Bowen who acquired 4,000 shares taking her total shareholding to 4,000 shares.

	Shareholding as at 30 June 2016		Not subject to performance conditions	Subject to performance conditions
	# of shares	% of base salary ⁽¹⁾	Deferred Awards ⁽²⁾	LTIP awards and Matching Awards ⁽²⁾
EXECUTIVE DIRECTORS				
Dave Shemmans	104,085	165%	72,856	262,178
Mark Garrett	89,021	251%	31,937	89,985
Ian Gibson	-	0%	18,051	85,755
NON-EXECUTIVE DIRECTORS				
Sir Terry Morgan	10,000	N/A	-	-
Peter Gilchrist	4,970	N/A	-	-
Ian Lee	13,876	N/A	-	-
Laurie Bowen ⁽³⁾	-	N/A	-	-
Malin Persson ⁽⁴⁾	1,500	N/A	-	-
David Hall ⁽⁵⁾	20,000	N/A	-	-

(1) For executive directors only (i.e. those who are subject to the share retention policy). Percentages calculated by reference to the mid-market closing price of the Company's shares on 30 June 2016 which was 739p (2015: 862.0p).

(2) Deferred Awards and Matching Awards were granted pursuant to the 2011 DBP and LTIP awards were granted pursuant to either the 2006 LTIP or the 2014 LTIP.

(3) Laurie Bowen was appointed as a Director on 1 July 2015.

(4) Malin Persson was appointed as a Director on 4 January 2016.

(5) As at 4 November 2015, the date that David Hall ceased to hold office as a director.

As described in the policy table, the Board operates a share retention policy for the executive directors with the intention that each executive director will own shares in the Company with a value at least equal to one times annual base salary within five years of the date of the executive's appointment. As at 30 June 2016, Dave Shemmans and Mark Garrett met this shareholding requirement. Having joined the Company on 1 July 2013, Ian Gibson has not yet met this required level and will be expected to retain any vested shares net of tax from the LTIP and DBP until the guideline has been achieved.

CEO remuneration compared to employees

The table on the following page compares the percentage change in the CEO's remuneration and the percentage change in employees' remuneration between 2014/2015 and 2015/2016. The increase in the CEO's bonus compared to the prior year reflects performance against the Group targets of profit before tax and the cash balance, together with the degree of achievement of personal objectives. The CEO's bonus in 2014/2015 was lower at 59% of maximum opportunity which also contributed to the year on year change. By comparison, average bonus paid to all employees

across the Group also increased year on year. The change in the employees' annual bonus represents the average percentage change in bonuses for employees across the Group as a whole with individual performance against target varying between divisions.

	CEO	Employees
Base salary	3%	3%
Benefits	0%	0%
Annual bonus	11%	23%

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 2014/2015 and 2015/2016.

	2014/2015 (£m)	2015/2016 (£m)	% change
Total remuneration spend	118.2	160	35.4%
Distribution to shareholders ⁽¹⁾	8.7	9.5	9%

(1) The only distributions made by the Company over this period were in the form of dividends.

Voting outcome at AGM

The AGM for the financial year 2014/2015 was held on 4 November 2015 and Ricardo's remuneration report received strong support from shareholders. The result of the vote on the remuneration report is set out below. The remuneration policy was approved by shareholders at the AGM that was held on 29 October 2014; details of this approval are also set out below.

	Remuneration Report approved at 2015 AGM		Remuneration Policy approved at 2014 AGM	
	% of votes (excluding withheld)	Number of votes	% of votes (excluding withheld)	Number of votes
For, including discretion	99.6%	38,467,903	98.3%	38,634,371
Against	0.4%	164,368	1.7%	663,779
Total votes cast		38,632,271		39,298,150
Withheld ⁽¹⁾		863,599		18,413

(1) 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.

Implementation of remuneration policy in following year

The Committee anticipates the implementation of the policy to be similar to that of the current financial year. The Committee will:

- Review base salary levels for the executive directors with effect from 1 January 2017;
- Set/review the performance targets for the 2016/2017 annual bonus, the LTIP awards and matching awards under the DBP to be made in 2016 to ensure continued alignment to strategy;
- Make awards under the 2014 LTIP; and
- Make awards under the 2011 DBP where necessary.

The Committee has so far considered the targets to apply to the EPS portion of performance awards to be made under the 2014 LTIP and 2011 DBP later on in the year. In order to ensure that the targets remain challenging in light of market expectation of the Company's EPS performance, the Committee has determined that:

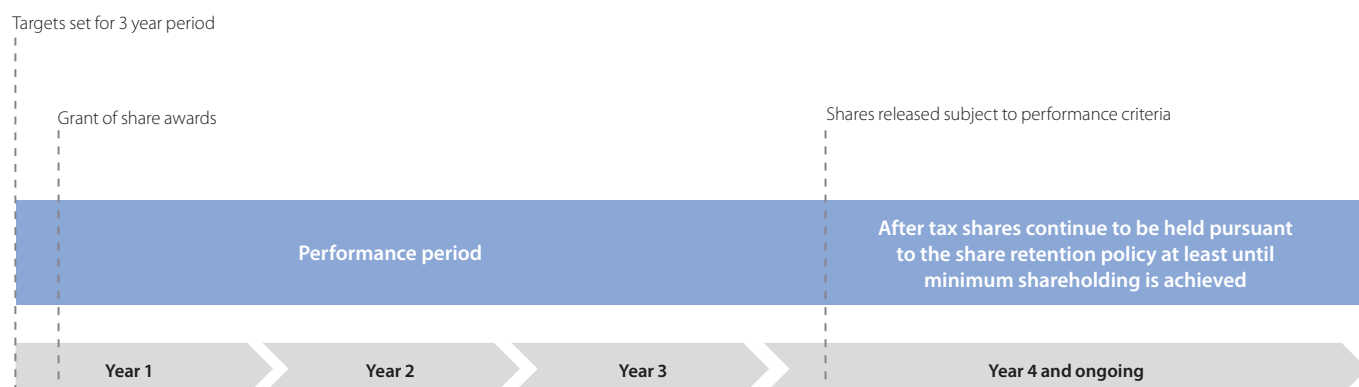
- No part of the EPS portion of these grants will vest if the Company's EPS growth does not exceed the growth in inflation ('RPI') by 3% compound per annum;
- 25% of this portion will vest where EPS growth meets RPI + 3% compound per annum;
- 100% of this portion will vest where EPS growth meets or exceeds RPI + 10% compound per annum; and
- Vesting will take place on a straight-line basis between RPI + 3% and RPI + 10% compound per annum.

The targets applicable to the TSR portion of these awards will be the same as those which applied to awards granted last year.

At our AGM in 2017, our Remuneration Policy will have been in place for a period of three years and so we will again put it to shareholders for their approval. Over the course of the next year, the Committee will consider what, if any, changes are required to the Policy. As part of this review, the Committee will be monitoring the new UK Prime Minister's business reward initiatives and will also consider the points arising from the work of The Investment Association and the Executive Remuneration Working Group. It is the Committee's intention that any changes that it may wish to make to the Policy will be communicated to and discussed with key shareholders during the year.

Directors' interests in shares provisionally awarded under the LTIP (audited)

The following chart sets out in graphical form how the LTIP operates:



For details of the share retention policy, see page 92.

The directors' interests in shares provisionally awarded under the LTIP are as follows:

	3-year cycle ending	Award date ⁽¹⁾	Share price at award date in pence	Number of provisional shares					
				At 1 July 2015	Awarded	Lapsed	Vested	At 30 June 2016 ⁽²⁾	Vesting date
Dave Shemmans	2015	Nov 12	364.40	113,804	-	-	113,804	-	16.11.15
	2016	Oct 13	582.10	73,380	-	-	-	73,380	25.10.16
	2017	Oct 14	635.20	69,269	-	-	-	69,269	29.10.17
	2018	Oct 15 ⁽³⁾	904.80	-	50,088	-	-	50,088	19.10.18
Ian Gibson	2016	Oct 13	582.10	25,983	-	-	-	25,983	25.10.16
	2017	Oct 14	635.20	24,525	-	-	-	24,525	29.10.17
	2018	Oct 15 ⁽³⁾	904.80	-	17,734	-	-	17,734	19.10.18
Mark Garrett	2015	Nov 12	364.40	33,205	-	-	33,205	-	16.11.15
	2016	Oct 13	582.10	22,676	-	-	-	22,676	25.10.16
	2017	Oct 14	635.20	21,404	-	-	-	21,404	29.10.17
	2018	Oct 15 ⁽³⁾	904.80	-	15,477	-	-	15,477	19.10.18

(1) Awards made under the 2006 LTIP; performance conditions as outlined on page 99.

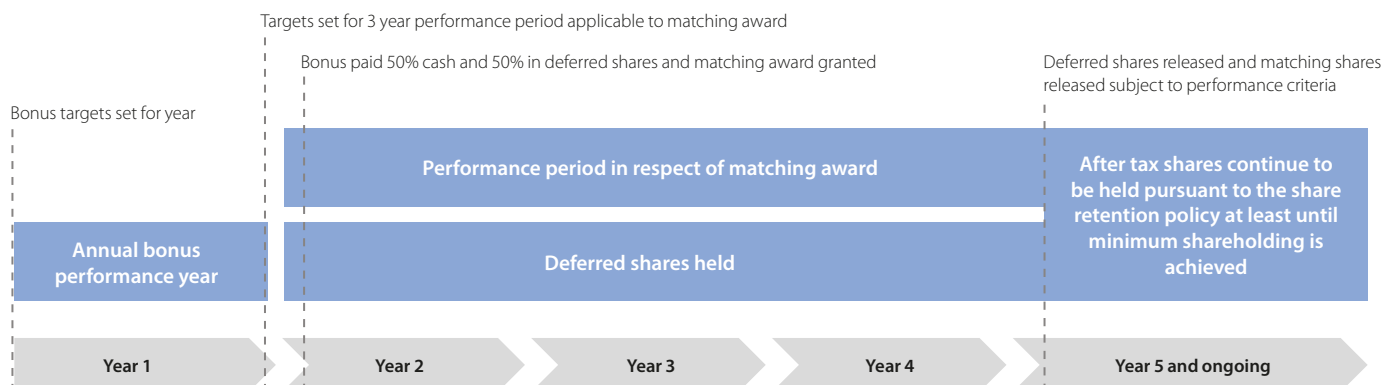
(2) The mid-market closing price of the Company's shares on 30 June 2016 was 739p (2015: 862.0p).

(3) Awards made under the 2014 LTIP; performance conditions as outlined on page 100. The face value of the awards made in October 2015 at the date of grant was Dave Shemmans: £453,196; Ian Gibson: £160,457; Mark Garrett: £140,036.

The value of shares vested under the November 2012 awards was £986,112 for Dave Shemmans and £287,721 for Mark Garrett. The market price per share of these shares that vested on 16 November 2015 was 866.5p.

Directors' interests in shares provisionally awarded under the DBP (audited)

The following chart sets out in graphical form how the DBP operates:



For details of the share retention policy, see page 92.

The Directors' interests in shares provisionally awarded under the DBP are as follows:

	Type of Award	Award date	Deferral / performance period	Share price at award date in pence	Number of provisional shares					
					At 1 July 2015	Awarded	Dividend shares ⁽¹⁾	Lapsed	Vested	At 30 June 2016 ⁽⁴⁾
Dave Shemmans	Deferred	Nov 12	3 yrs	364.40	44,527	-	608	-	45,135	-
	Matching ⁽²⁾	Nov 12	3 yrs	364.40	41,111	-	-	-	41,111	-
	Deferred	Oct 13	3 yrs	582.10	35,900	-	713	-	-	36,613
	Matching ⁽²⁾	Oct 13	3 yrs	582.10	34,292	-	-	-	-	34,292
	Deferred	Oct 14	3 yrs	635.20	17,028	-	338	-	-	17,366
	Matching ⁽²⁾	Oct 14	3 yrs	635.20	16,640	-	-	-	-	16,640
	Deferred	Oct 15	3 yrs	904.80	-	18,509 ⁽³⁾	368	-	-	18,877
	Matching ⁽²⁾	Oct 15	3 yrs	904.80	-	18,509 ⁽³⁾	-	-	-	18,509
Ian Gibson	Deferred	Oct 14	3 yrs	635.20	8,270	-	164	-	-	8,434
	Matching ⁽²⁾	Oct 14	3 yrs	635.20	8,082	-	-	-	-	8,082
	Deferred	Oct 15	3 yrs	904.80	-	9,431 ⁽³⁾	186	-	-	9,617
	Matching ⁽²⁾	Oct 15	3 yrs	904.80	-	9,431 ⁽³⁾	-	-	-	9,431
Mark Garrett	Deferred	Nov 12	3 yrs	364.40	20,204	-	276	-	20,480	-
	Matching ⁽²⁾	Nov 12	3 yrs	364.40	18,655	-	-	-	18,655	-
	Deferred	Oct 13	3 yrs	582.10	16,351	-	324	-	-	16,675
	Matching ⁽²⁾	Oct 13	3 yrs	582.10	15,620	-	-	-	-	15,620
	Deferred	Oct 14	3 yrs	635.20	7,018	-	138	-	-	7,156
	Matching ⁽²⁾	Oct 14	3 yrs	635.20	6,859	-	-	-	-	6,859
	Deferred	Oct 15	3 yrs	904.80	-	7,949 ⁽³⁾	157	-	-	8,106
	Matching ⁽²⁾	Oct 15	3 yrs	904.80	-	7,949 ⁽³⁾	-	-	-	7,949

(1) Amounts allocated include shares equivalent to dividends on provisional shares.

(2) Matching Awards made under the 2011 DBP: performance conditions as outlined on page 100.

(3) The face value of the awards made in October 2015 at the date of grant was Dave Shemmans: £167,469; Ian Gibson: £85,332; Mark Garrett: £71,923.

(4) The mid-market closing price of the Company's shares on 30 June 2016 was 739p (2015: 862.0p).

The value of shares vested under the November 2012 awards was £747,322 for Dave Shemmans and £339,105 for Mark Garrett. The market price per share of these shares that vested on 16 November 2015 was 866.5p.

The 2004 Executive Share Option Plan

The table relating to the 2004 Executive Share Option Plan (the '2004 ESOP') that was included in the Directors' Remuneration Reports for previous years has now been removed as the last option under the 2004 ESOP held by a director of the Company was exercised on 11 September 2014 as reported on in the 2015 Directors' Remuneration Report.

The closing mid-market price of the Company's shares on 30 June 2016 was 739 pence. The highest closing price during the year was 944.5 pence and the lowest closing price during the year was 739 pence.

The Directors' Remuneration Report was approved by the Board on 14 September 2016 and signed on its behalf by:



Peter Gilchrist

Chairman of the Remuneration Committee
14 September 2016

Directors' report



Patricia Ryan – Group General Counsel and Company Secretary

Group results and dividends

The Directors recommend the payment of a final ordinary share dividend for 2016 of 13.03 pence per ordinary share on 11 November 2016 to shareholders who are on the register of members at the close of business on 21 October 2016, which together with the interim dividend paid on 7 April 2016 makes a total of 18.1 pence per ordinary share for the year (2015: 16.6 pence).

Acquisitions and disposals

The acquisitions of the Lloyd's Register Rail ('LR Rail') business from the Lloyd's Register Group (now known as 'Ricardo Rail') and Cascade Consulting Holdings Limited and its subsidiary, Cascade Consulting (Environment & Planning) Limited (together, 'Cascade'), were made in the year under review. No disposals were made during the year.

Events after the reporting date

The acquisition of Motorcycle Engineering Italia s.r.l., the business of which was formed from the operating assets and employees of Exnovo s.r.l., completed on 29 July 2016.

Research and Development

The Group continues to devote effort and resources to research and development of new technologies. Costs of £9.4m have been incurred, of which £3.2m has been capitalised and £6.2m has been charged to the Consolidated Income Statement during the year.

Board of Directors

The current Directors of the Company at the date of this report appear on pages 76 and 77. Laurie Bowen joined the Board on 1 July 2015, David Hall retired from the Board on 4 November 2015 and Malin Persson joined the Board on 4 January 2016.

All other Directors held office through the financial year under review.

Directors' interests in shares

Directors' interests in shares and share options are contained on pages 102, 104 and 105 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 s.309B of the Companies Act 1985 or s.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 Company, entered into qualifying third party indemnity provisions as defined by s.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 employees 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 'Pulse' 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 employees 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 17 August 2016 the Company's share capital is divided solely into 52,854,823 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 trusts 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 Association of British Insurers. Based on the Company's issued share capital, as at 30 June 2016, these were in respect of the limit of 10% in any rolling 10-year period for all plans (4.48%) and in respect of the limit of 5% in any rolling 10-year period for discretionary share plans (4.04%).

The Company was given authority to purchase up to 15% of its existing ordinary share capital at the 2015 Annual General Meeting ('AGM'). That authority will expire at the conclusion of the AGM in 2016 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 2016 AGM. 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 2016 AGM, all Directors wishing to remain in office would stand for re-election at the 2017 AGM.

Details of these resolutions are included with the Notice of AGM enclosed with this report.

Resolutions at the Annual General Meeting

The Company's AGM will be held on 3 November 2016. Accompanying this report is the Notice of AGM which 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

The Company has been notified, as at 17 August 2016, of the following material interests in the voting rights of the Company under the provisions of the Disclosure and Transparency Rules.

Shareholders	Number of shares	% of issued share capital
J P Morgan Asset Management	5,037,992	9.53
Standard Life Investments	3,772,611	7.14
Schroder Investment Management	3,283,250	6.21
Royal London Asset Management	3,231,240	6.11
Lansdowne Partners	2,970,139	5.62
Baillie Gifford & Co Limited	2,637,419	4.99
Hargreave Hale	2,444,791	4.63
Aviva Investors	2,105,318	3.98
Delta Lloyd Asset Management	1,762,802	3.34

Donations

During the year the Group made various charitable donations which are summarised in the Corporate Responsibility and Sustainability Report on page 39. The Group made no political donations during the year to 30 June 2016.

Auditors

A resolution to reappoint PricewaterhouseCoopers LLP as auditors of the Group and Company will be proposed at the AGM.

Going concern

Having assessed the principal risks and the other matters discussed in connection with the Viability Statement on page 43, the Directors considered it appropriate to adopt the going concern basis of accounting in preparing the financial statements.

Corporate governance

Directors' report

Branches outside the UK

The Group has overseas branches in France, Saudi Arabia, United Arab Emirates, Malaysia, Taiwan and South Korea.

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 be found in the Strategic Report, on pages 7, 11, 23 and 25;
- Information on greenhouse gas emissions can be found on pages 36 and 37;
- The Group's statement on corporate governance can be found in the Corporate Governance Statement on pages 78 to 87; and

- 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 material, are set out in Note 23 to the financial statements on pages 142 to 144.

The Directors' Report was approved by order of the Board on 14 September 2016 and signed on its behalf by:



Patricia Ryan
Group General Counsel & Company Secretary

Statement of Directors' responsibilities

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

Company law requires the Directors to prepare financial statements for each financial year. Under that law the Directors have prepared the Group and Parent Company financial statements in accordance with International Financial Reporting Standards ('IFRSs') as adopted by the European Union. 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 the Company and of the profit or loss of the Group for that period. In preparing these financial statements, the Directors are required to:

- select suitable accounting policies and then apply them consistently;
- make judgements and accounting estimates that are reasonable and prudent;
- state whether applicable IFRSs as adopted by the European Union have been followed, subject to any material departures disclosed and explained in the financial statements; and
- prepare the financial statements on the going concern basis unless it is inappropriate to presume that the Company will continue in business.

The Directors are responsible for keeping adequate accounting records that are sufficient to show and explain the Company's transactions and disclose with reasonable accuracy at any time the financial position of the Company and the Group and enable them to ensure that the financial statements and the Directors' Remuneration Report comply with the Companies Act 2006 and, as regards the Group financial statements, Article 4 of the IAS Regulation. They are also responsible for safeguarding the assets of the Company and the Group and hence for taking reasonable steps for the prevention and detection of fraud and other irregularities.

The Directors are responsible for the maintenance and integrity of the Company's website. Legislation in the United Kingdom governing the preparation and dissemination of financial statements may differ from legislation in other jurisdictions.

Disclosure of information to the auditors

In accordance with Section 418 of the Companies Act 2006, each Director confirms that:

- so far as the Director is aware, there is no relevant audit information of which the Company's auditors are unaware; and
- they have taken all the 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 auditors are aware of that information.

Responsibility statement of the Directors in respect of the Annual Report

Each of the Directors, whose names and functions are listed on the Board of Directors page, confirms that, to the best of their knowledge:

- the Group financial statements, which have been prepared in accordance with IFRSs as adopted by the EU, give a true and fair view of the assets, liabilities, financial position and profit of the Group; and
- the Strategic Report contained in this Annual Report includes a fair review of the development and performance of the business and the position of the Group, together with a description of the principal risks and uncertainties that it faces.

The Directors 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 performance, business model and strategy.

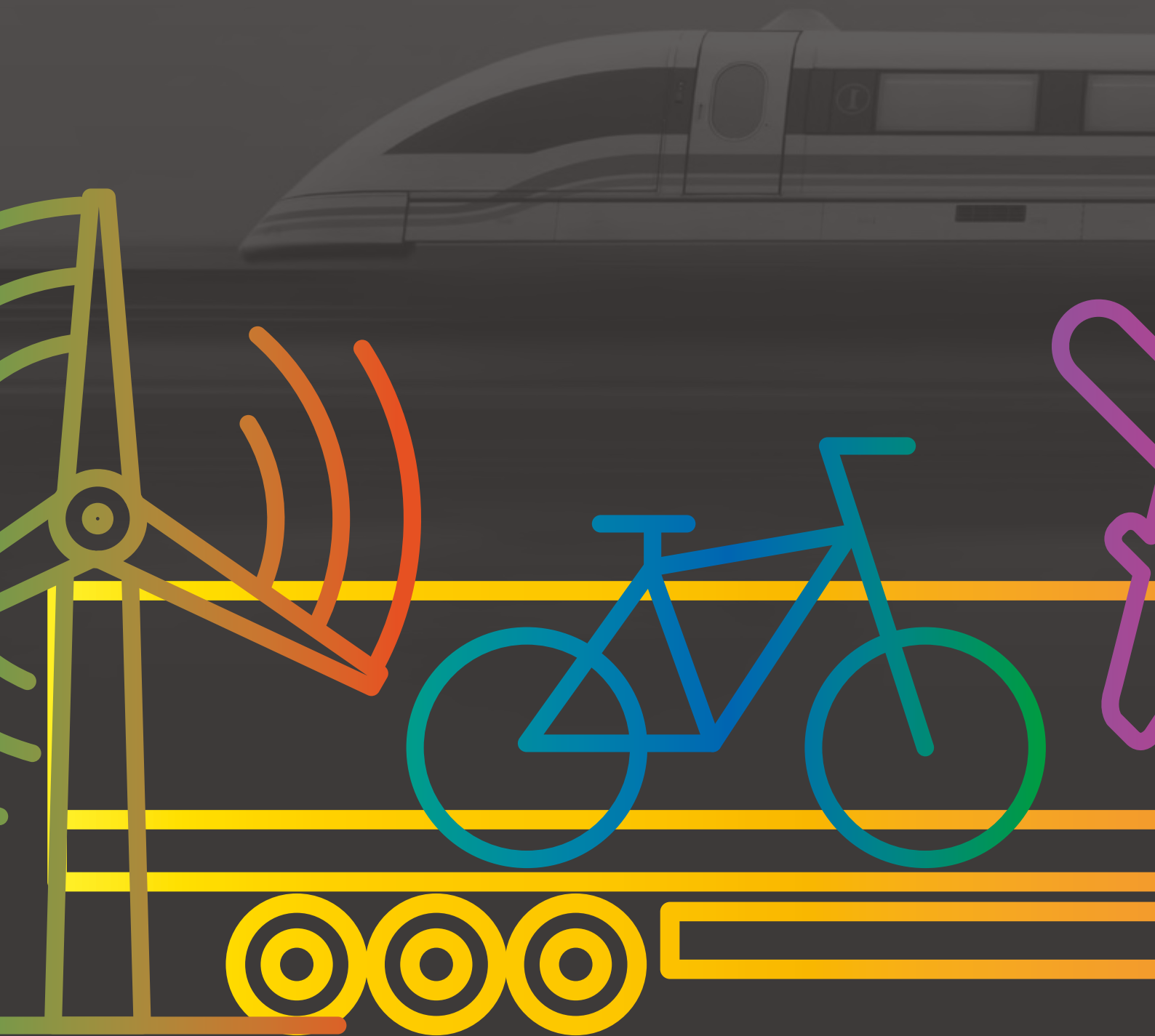


Dave Shemmans
(Chief Executive Officer)

14 September 2016



Ian Gibson
(Chief Financial Officer)



Financial statements

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Independent auditors' report

to the members of Ricardo plc

REPORT ON THE FINANCIAL STATEMENTS

Our opinion

In our opinion:

- Ricardo plc's Group financial statements and Parent Company financial statements (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 2016 and of the Group's profit and the Group's and the Parent Company's cash flows for the year then ended;
- the Group financial statements have been properly prepared in accordance with International Financial Reporting Standards ('IFRSs') as adopted by the European Union;
- the Parent Company financial statements have been properly prepared in accordance with IFRSs as adopted by the European Union 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 and, as regards the Group financial statements, Article 4 of the IAS Regulation.

What we have audited

The financial statements, included within the Annual Report & Accounts (the 'Annual Report'), comprise:

- the Consolidated and Parent Company Statements of Financial Position as at 30 June 2016;
- the Consolidated Income Statement and Consolidated Statement of Comprehensive Income for the year then ended;
- the Consolidated and Parent Company Statements of Changes in Equity for the year then ended;
- the Consolidated and Parent Company Statements of Cash Flow for the year then ended; and
- the notes to the financial statements, which include a summary of significant accounting policies and other explanatory information.

Certain required disclosures have been presented elsewhere in the Annual Report, rather than in the notes to the financial statements. These are cross-referenced from the financial statements and are identified as audited.

The financial reporting framework that has been applied in the preparation of the financial statements is IFRSs as adopted by the European Union, and applicable law and, as regards the Parent Company financial statements, as applied in accordance with the provisions of the Companies Act 2006.

Our audit approach

Overview

Materiality	<ul style="list-style-type: none">• Overall Group materiality: £1,870,000 which represents 5% of profit before tax, amortisation of acquired intangible assets and acquisition-related expenditure.
Audit scope	<ul style="list-style-type: none">• We audited the complete financial information at five reporting units (2015: four reporting units), with procedures on specific balances at six further reporting units.• As a result, audit procedures have been conducted at reporting units representing 95% of the Group's profit before tax, amortisation of acquired intangible assets and acquisition-related expenditure and 93% of revenue.
Areas of focus	<ul style="list-style-type: none">• Contract accounting in the Technical Consulting business;• Acquisition accounting;• Recoverability of capitalised development costs; and• Taxation.

The scope of our audit and our areas of focus

We conducted our audit in accordance with International Standards on Auditing (UK and Ireland) ('ISAs (UK & Ireland)').

We designed our audit by determining materiality and assessing the risks of material misstatement in the financial statements. In particular, we looked at where the Directors made subjective judgements, for example, in respect of significant accounting estimates that involved making assumptions and considering future events that are inherently uncertain. As in all of our audits, we also addressed the risk of management override of internal controls, including evaluating whether there was evidence of bias by the Directors that represented a risk of material misstatement due to fraud.

The risks of material misstatement that had the greatest effect on our audit, including the allocation of our resources and effort, are identified as 'areas of focus' in the tables on the following pages. We have also set out how we tailored our audit to address these specific areas in order to provide an opinion on the financial statements as a whole, and any comments we make on the results of our procedures should be read in this context. This is not a complete list of all risks identified by our audit.

Area of focus	How our audit addressed the area of focus
<p>Contract accounting in the Technical Consulting business</p> <p><i>Refer to page 84 ('Contract accounting and performance' within the Audit Committee Report), Notes 1(c) and 1(e) to the financial statements for the Directors' disclosures of the related accounting policies, judgements and estimates for further information.</i></p> <p>Contract accounting is used in the Group's Technical Consulting businesses, which contributes the majority of the revenue, at £267.9m (2015: £196.6m). The contracts are inherently complex and may span a number of reporting periods. They therefore require estimates and judgements by management related to the stage that the contract has reached and the costs to complete the work, that could lead to an under or overstatement of revenue and profit, either intentionally or in error.</p> <p>In contract accounting the amounts recorded in the Consolidated Statement of Financial Position depend on the relationship between the work done and forecast costs to come, the invoicing schedule agreed with the client and the cash payments received.</p> <p>The Consolidated Statement of Financial Position at 30 June 2016 showed amounts recoverable on contracts ('AROC') of £47.3m and payments received in advance of £16.3m in respect of the Technical Consulting business. We carried out procedures on each of these balances in the course of the work as described opposite.</p> <p>AROC represents work done that has not yet been invoiced and we focused on the risk that it, or the receivables for work that had been invoiced prior to the year-end, would not be recoverable in full. We also considered whether payments received in advance were recognised where the related work had not yet been done.</p> <p>In addition, management assesses the contract-related AROC and trade receivable balances to ensure sufficient confidence over the likely recoverability of these balances.</p>	<p>We tested the key controls over contract accounting in the Technical Consulting business, including the controls over recording work done, invoicing and cash receipts. We also attended the 'Red CAT4' (high-risk and underperforming contracts) review meetings in January and July 2016 with the Group Chief Financial Officer and the divisional Managing Directors, at which the performance of these contracts was discussed. We were satisfied that a robust process had been undertaken in the contract reviews and that the outcomes were reflected in the year-end positions in the financial statements.</p> <p>We also tested a sample of contracts by meeting with the relevant project managers and engineers to analyse the contracts in detail. These meetings included discussion and evaluation of the key estimates used in the long-term contract accounting calculations, such as costs to complete, key project risks, contingencies held and adherence to billing schedules, which were all reconciled to the project records.</p> <p>Where appropriate, we obtained the relevant contracts and other supporting information and validated the data included in the calculations and management's assumptions for costs to complete based on the contractual requirements. We found that management was able to provide reasonable explanations and appropriate supporting evidence for the various judgements taken.</p> <p>We discussed significant AROC positions with management and performed testing to assess the recoverability of these. We were able to confirm that the positions were consistent with the relevant invoicing schedules and payment plans. We also considered recent communications with customers and traced amounts to subsequent cash receipt where possible. No material issues were identified in this testing.</p> <p>We considered the appropriateness and completeness of judgemental contract provisions and obtained and challenged the evidence provided in support of these, which included reading correspondence with third parties.</p> <p>We also tested manual journals with a material impact on revenue and found that all journals tested relating to contract accounting were properly supported.</p>

Area of focus	How our audit addressed the area of focus
<p>Acquisition accounting <i>Refer to page 85 ('Acquisition accounting' within the Audit Committee Report) and Notes 1(c), 1(o) and 12 to the financial statements for the Directors' disclosures of the related accounting policies, judgements and estimates for further information.</i></p> <p>As described in Note 12, the Group acquired the Lloyd's Register Rail business and the Cascade business in the financial year. In addition, the Group also acquired the trade and operating assets of Exnovo s.r.l. post year-end, as described in Note 38.</p> <p>Acquisition accounting can be complex. There is a need for a calculation of fair value adjustments, along with the allocation of some of the consideration between goodwill and other intangible assets (e.g. customer relationships and brands), which is calculated through a discounted cash flow model. These were both matters that we focused on, as well as the useful economic lives assigned to the intangible assets identified.</p> <p>In addition, management have separately presented the amortisation of acquisition-related intangible assets and acquisition-related expenditure as 'specific adjusting items' within the Consolidated Income Statement so we needed to be satisfied that the costs included were appropriately classified.</p>	<p>We agreed the acquisition balance sheet through to completion accounts and tested a sample of the fair value adjustments through to supporting documentation. We considered the judgements taken by management in calculating the fair value adjustments to be appropriate.</p> <p>We obtained and tested the resulting acquisition accounting calculation to assess the allocation of the consideration to identifiable intangible assets, including goodwill, technology assets and customer relationships arising on acquisition to determine whether the accounting standard had been appropriately applied. Based on our procedures on the discounted cash flow models used, we found the judgements taken by management around the valuation of intangible assets to be reasonable.</p> <p>We considered the appropriateness of amortisation rates for the identified intangible assets and recalculated the charge during the year. We were satisfied that the useful economic lives used for each class of intangible asset were appropriate on the basis of management's assessment of the likely period of benefit arising.</p> <p>We tested a sample of items that were classified as acquisition-related expenditure and confirmed that they were accurate and appropriately classified under the Group's accounting policy.</p>
<p>Recoverability of capitalised development costs <i>Refer to page 85 ('Capitalisation and carrying value of development costs' within the Audit Committee Report), and Notes 1(c), 1(o) and 14 to the financial statements for the Directors' disclosures of the related accounting policies, judgements and estimates for further information.</i></p> <p>The Group has continued to focus on research and development activities, targeted in areas that can maximise future benefit. During the year £3.2m of development spend was capitalised in respect of development projects, resulting in a total of £8.4m held on the Statement of Financial Position at 30 June 2016.</p> <p>The capitalised costs must comply with the criteria set out in IAS 38 – Intangible Assets. In particular, management must only capitalise costs that are directly attributable to the projects and, until signed contracts exist, there is a risk that such projects will not generate sufficient economic benefit in the future to support the current carrying value.</p>	<p>We tested that development costs were capitalised in accordance with the requirements of the accounting framework and were properly attributable to the relevant projects by obtaining supporting documentation such as invoices and time records and checking the nature of each cost incurred.</p> <p>We found that the costs on these projects had been capitalised in accordance with the criteria set out in IAS 38.</p> <p>We obtained project plans for a sample of the larger projects and met with the project directors to understand progress to date, the potential opportunity and management's assessment of the future returns that will be generated. We challenged management on the specific opportunities tested and found that a number of these have started to realise future economic benefit. In other cases, we were able to obtain appropriate evidence and explanations for the future value.</p>

Area of focus	How our audit addressed the area of focus
<p>Taxation <i>Refer to page 85 ('Deferred taxation' within the Audit Committee Report), and Notes 1(c), 1(l), 9 and 25 to the financial statements for the Directors' disclosures of the related accounting policies, judgements and estimates for further information.</i></p> <p>The Group claims significant R&D credits and has potential liabilities for permanent establishment risks and transfer pricing for which it maintains provisions.</p> <p>The German and US entities have £3.6m and £4.9m, respectively, of recognised deferred tax assets, but the performance of these businesses in the past few years has been variable, leading to doubt over the likely realisation of the assets.</p>	<p>We obtained the tax calculations, including those for R&D credits, and the position papers prepared by management to understand and test the tax charge and deferred tax position for the Group.</p> <p>We considered the processes and procedures undertaken by management to understand their risks arising from permanent establishments and transfer pricing. We formed our own view on these judgements and concluded that the judgements taken by management in establishing provisions for these risks were reasonable.</p> <p>We evaluated the Group's forecasts for the German and US statutory entities and the process by which they were prepared in considering the forecast utilisation of the relevant deferred tax assets.</p> <p>We noted that while no German deferred tax asset was utilised in the current year, this was due to contract losses recognised during the year which are not expected to recur. As a result, we found management's assessment of recoverability to be reasonable.</p> <p>We noted the US businesses, although close to break even, are in a profitable position and continue to utilise the deferred tax asset recognised.</p>

How we tailored the audit scope

We tailored the scope of our audit to ensure that we performed enough work to be able to give an opinion on the financial statements as a whole, taking into account the geographic structure of the Group, the accounting processes and controls, and the industry in which the Group operates.

The Group is structured by division, with significant reporting units in the UK, Europe, and the USA, and further smaller reporting units in locations across Asia and the rest of Europe. The Group financial statements are a consolidation of 55 reporting units, comprising the Group's operating businesses and centralised functions. During the year the Lloyd's Register Rail business was acquired, resulting in the creation of new reporting units in the Netherlands, the UK, Asia and the Middle East.

For each reporting unit, we determined whether we required an audit of the complete financial information or whether alternative procedures would be sufficient. Our principal measure for these scoping decisions was revenue, as in the Ricardo Group this is a reasonable indicator of the scale of activities of an individual entity. Based on this measure the full scope components were Europe Technical Consulting and Performance Products, as each reporting unit made up more than 15% of the Group's revenue. We included Ricardo Energy & Environment as full scope for Group reporting given the scale of the operation and the requirement for a UK statutory audit to be performed for the entity. We also included both the Ricardo Rail UK and Netherlands statutory entities as full scope for Group reporting, given this was the first year of consolidation into the Ricardo Group, and due to the statutory audit requirements in the UK and Netherlands. Ricardo, Inc. and Ricardo Software in the US are the other more significant trading businesses within the Group. As these have no local statutory requirement, we performed specified procedures for Group

reporting and performed risk-focused testing over key contracts and the associated balances. In addition, we performed procedures over specific balances in Ricardo plc, Ricardo Investments Limited, Ricardo Deutschland GmbH and Ricardo Shanghai Company Limited, along with higher level risk-focused procedures with respect to the remaining entities and performed procedures over consolidation entries.

The Group audit team was responsible for all the work carried out in the UK. PwC Netherlands performed work over the Ricardo Rail entity in the Netherlands under our instruction. Members of the Group engagement team visited the Netherlands to understand the business and to support judgements made within the acquisition accounting. The specified procedures on the US operations were carried out by a team from PwC US under our instruction. Discussions were held with the PwC Netherlands and PwC US teams at both planning and completion to discuss the scope of their procedures and their findings.

Taken together, our audit work in the UK, along with work performed by PwC Netherlands and PwC US, addressed 95% of the Group's profit before tax, amortisation of acquired intangible assets and acquisition-related expenditure and 93% of revenue. This gave us the evidence we needed for our opinion on the Group financial statements as a whole.

Financial statements

Independent auditors' report

Materiality

The scope of our audit was influenced by our application of materiality. We set certain quantitative thresholds for materiality. These, together with qualitative considerations, helped us to determine the scope of our audit and the nature, timing and extent of our audit procedures on the individual financial statement line items and disclosures and in evaluating the effect of misstatements, both individually and on the financial statements as a whole.

Based on our professional judgement, we determined materiality for the financial statements as a whole as follows:

Overall Group materiality	£1,870,000 (2015: £1,330,000).
How we determined it	5% of profit before tax, amortisation of acquired intangible assets and acquisition-related expenditure.
Rationale for benchmark applied	We chose this because we consider this to be the principal measure used by shareholders to assess the Group's underlying performance.

We agreed with the Audit Committee that we would report to them misstatements identified during our audit above £75,000 (2015: £65,000) as well as misstatements below that amount that, in our view, warranted reporting for qualitative reasons.

Going concern

Under the Listing Rules we are required to review the Directors' statement, set out on page 107, in relation to going concern. We have nothing to report having performed our review.

Under ISAs (UK & Ireland) we are required to report to you if we have anything material to add or to draw attention to in relation to the Directors' statement about whether they considered it appropriate to adopt the going concern basis in preparing the financial statements. We have nothing material to add or to draw attention to.

As noted in the Directors' statement, the Directors have concluded that it is appropriate to adopt the going concern basis in preparing the financial statements. The going concern basis presumes that the Group and Parent Company have adequate resources to remain in operation, and that the Directors intend them to do so, for at least one year from the date the financial statements were signed. As part of our audit, we have concluded that the Directors' use of the going concern basis is appropriate. However, because not all future events or conditions can be predicted, these statements are not a guarantee as to the Group's and Parent Company's ability to continue as a going concern.

OTHER REPORTING MATTERS

Consistency of other information

Companies Act 2006 opinion

In our opinion, the information given in the Strategic Report and the Directors' Report for the financial year for which the financial statements are prepared is consistent with the financial statements.

ISAs (UK & Ireland) reporting

Under ISAs (UK & Ireland) we are required to report to you if, in our opinion:

- | | |
|--|----------------------------------|
| <ul style="list-style-type: none"> information in the Annual Report is: <ul style="list-style-type: none"> - materially inconsistent with the information in the audited financial statements; or - apparently materially incorrect based on, or materially inconsistent with, our knowledge of the Group and Parent Company acquired in the course of performing our audit; or - otherwise misleading. | We have no exceptions to report. |
| <ul style="list-style-type: none"> the statement given by the Directors on page 109, in accordance with provision C.1.1 of the UK Corporate Governance Code (the 'Code'), that they consider the Annual Report taken as a whole to be fair, balanced and understandable and provides the information necessary for members to assess the Group's and Parent Company's position and performance, business model and strategy is materially inconsistent with our knowledge of the Group and Parent Company acquired in the course of performing our audit. | We have no exceptions to report. |
| <ul style="list-style-type: none"> the section of the Annual Report on pages 83 to 87, as required by provision C.3.8 of the Code, describing the work of the Audit Committee does not appropriately address matters communicated by us to the Audit Committee. | We have no exceptions to report. |

The Directors' assessment of the prospects of the Group and of the principal risks that would threaten the solvency or liquidity of the Group

Under ISAs (UK & Ireland) we are required to report to you if we have anything material to add or to draw attention to in relation to:

- | | |
|---|--|
| <ul style="list-style-type: none"> the Directors' confirmation on page 43 of the Annual Report, in accordance with provision C.2.1 of the Code, that they have carried out a robust assessment of the principal risks facing the Group, including those that would threaten its business model, future performance, solvency or liquidity. | We have nothing material to add or to draw attention to. |
| <ul style="list-style-type: none"> the disclosures in the Annual Report that describe those risks and explain how they are being managed or mitigated. | We have nothing material to add or to draw attention to. |

- the Directors' explanation on page 43 of the Annual Report, in accordance with provision C.2.2 of the Code, as to how they have assessed the prospects of the Group, over what period they have done so and why they consider 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 have nothing material to add or to draw attention to.

Under the Listing Rules we are required to review the Directors' statement that they have carried out a robust assessment of the principal risks facing the Group and the Directors' statement in relation to the longer-term viability of the Group. Our review was substantially less in scope than an audit and only consisted of making inquiries and considering the Directors' process supporting their statements; checking that the statements are in alignment with the relevant provisions of the Code; and considering whether the statements are consistent with the knowledge acquired by us in the course of performing our audit. We have nothing to report having performed our review.

Adequacy of accounting records and information and explanations received

Under the Companies Act 2006 we are required to report to you if, in our opinion:

- we have not received all the information and explanations we require for our audit; or
- 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.

We have no exceptions to report arising from this responsibility.

Directors' remuneration

Directors' remuneration report - Companies Act 2006 opinion

In our opinion, the part of the Directors' Remuneration Report to be audited has been properly prepared in accordance with the Companies Act 2006.

Other Companies Act 2006 reporting

Under the Companies Act 2006 we are required to report to you if, in our opinion, certain disclosures of Directors' remuneration specified by law are not made. We have no exceptions to report arising from this responsibility.

Corporate governance statement

Under the Listing Rules we are required to review the part of the Corporate Governance Statement relating to ten further provisions of the Code. We have nothing to report having performed our review.

RESPONSIBILITIES FOR THE FINANCIAL STATEMENTS AND THE AUDIT

Our responsibilities and those of the Directors

As explained more fully in the Statement of Directors' Responsibilities set out on page 109, the Directors are responsible for the preparation of the financial statements and for being satisfied that they give a true and fair view.

Our responsibility is to audit and express an opinion on the financial statements in accordance with applicable law and ISAs (UK & Ireland). Those standards require us to comply with the Auditing Practices Board's Ethical Standards for Auditors.

This report, including the opinions, has been prepared for and only for the Parent Company's members as a body in accordance with Chapter 3 of Part 16 of the Companies Act 2006 and for no other purpose. We do not, in giving these opinions, accept or assume responsibility for any other purpose or to any other person to whom this report is shown or into whose hands it may come save where expressly agreed by our prior consent in writing.

What an audit of financial statements involves

An audit involves obtaining evidence about the amounts and disclosures in the financial statements sufficient to give reasonable assurance that the financial statements are free from material misstatement, whether caused by fraud or error. This includes an assessment of:

- whether the accounting policies are appropriate to the Group's and the Parent Company's circumstances and have been consistently applied and adequately disclosed;
- the reasonableness of significant accounting estimates made by the Directors; and
- the overall presentation of the financial statements.

We primarily focus our work in these areas by assessing the Directors' judgements against available evidence, forming our own judgements, and evaluating the disclosures in the financial statements.

We test and examine information, using sampling and other auditing techniques, to the extent we consider necessary to provide a reasonable basis for us to draw conclusions. We obtain audit evidence through testing the effectiveness of controls, substantive procedures or a combination of both.

In addition, we read all the financial and non-financial information in the Annual Report to identify material inconsistencies with the audited financial statements and to identify any information that is apparently materially incorrect based on, or materially inconsistent with, the knowledge acquired by us in the course of performing the audit. If we become aware of any apparent material misstatements or inconsistencies we consider the implications for our report.



Andrew Paynter (Senior Statutory Auditor)
for and on behalf of PricewaterhouseCoopers LLP
Chartered Accountants and Statutory Auditors
Gatwick
14 September 2016

Consolidated income statement

for the year ended 30 June 2016

	Notes	Year ended 30 June 2016			Year ended 30 June 2015		
		Underlying £m	Specific adjusting items ⁽¹⁾ £m	Total £m	Underlying £m	Specific adjusting items ⁽¹⁾ £m	Total £m
Revenue	2 & 3	332.4	-	332.4	257.5	-	257.5
Cost of sales		(202.6)	-	(202.6)	(155.7)	-	(155.7)
Gross profit		129.8	-	129.8	101.8	-	101.8
Administrative expenses		(90.7)	(6.2)	(96.9)	(74.8)	(3.9)	(78.7)
Other income		0.5	1.5	2.0	0.7	-	0.7
Operating profit	5	39.6	(4.7)	34.9	27.7	(3.9)	23.8
Finance income	8	0.3	-	0.3	0.2	-	0.2
Finance costs	8	(2.2)	-	(2.2)	(1.1)	-	(1.1)
Net finance costs	8	(1.9)	-	(1.9)	(0.9)	-	(0.9)
Profit before taxation		37.7	(4.7)	33.0	26.8	(3.9)	22.9
Taxation	9	(8.6)	1.2	(7.4)	(4.6)	0.3	(4.3)
Profit for the year		29.1	(3.5)	25.6	22.2	(3.6)	18.6
Earnings per ordinary share							
Basic	11			48.6p			35.6p
Diluted	11			48.1p			35.2p

(1) Specific adjusting items comprise amortisation of acquired intangible assets and acquisition-related expenditure. In the current year, non-recurring income for claims under the Research and Development Expenditure Credit ('RDEC') scheme in respect of prior years are also included. Further details are given in Note 4.

Consolidated statement of comprehensive income

for the year ended 30 June 2016

	Notes	Year ended 30 June 2016 £m	Year ended 30 June 2015 £m
Profit for the year		25.6	18.6
Items that will not be reclassified to profit or loss:			
Remeasurements on the defined benefit scheme	24	(4.4)	(4.7)
Deferred tax on items taken directly to equity	25	0.9	1.5
Total items that will not be reclassified to profit or loss		(3.5)	(3.2)
Items that may be subsequently reclassified to profit or loss:			
Currency translation on foreign currency net investments	30	8.7	0.5
Total items that may be subsequently reclassified to profit or loss		8.7	0.5
Total other comprehensive income/(loss) for the year (net of tax)		5.2	(2.7)
Total comprehensive income for the year		30.8	15.9

Consolidated and parent company statements of financial position

at 30 June 2016

	Notes	Group		Company	
		30 June 2016	30 June 2015	30 June 2016	30 June 2015
		£m	£m	£m	£m
Assets					
Non-current assets					
Goodwill	13	57.0	26.0	-	-
Other intangible assets	14	35.3	18.9	3.8	4.6
Property, plant and equipment	15	53.6	49.6	7.3	7.7
Investments	16	-	-	73.9	73.9
Deferred tax assets	25	13.0	13.7	5.7	4.9
		158.9	108.2	90.7	91.1
Current assets					
Inventories	17	11.0	7.8	-	-
Trade and other receivables	18	108.9	78.6	92.0	57.8
Derivative financial assets	22	0.4	0.2	0.4	0.2
Current tax assets		1.2	2.1	-	-
Cash and cash equivalents	33	23.7	59.7	0.1	0.5
		145.2	148.4	92.5	58.5
Total assets		304.1	256.6	183.2	149.6
Liabilities					
Current liabilities					
Borrowings	21	(3.4)	-	(3.4)	-
Trade and other payables	20	(72.5)	(63.8)	(23.5)	(13.7)
Current tax liabilities		(3.6)	(5.8)	(0.2)	(0.6)
Derivative financial liabilities	22	(2.5)	(0.1)	(2.5)	(0.1)
Provisions	26	(1.3)	(0.4)	-	-
		(83.3)	(70.1)	(29.6)	(14.4)
Net current assets		61.9	78.3	62.9	44.1
Non-current liabilities					
Borrowings	21	(54.7)	(45.4)	(14.7)	(5.4)
Retirement benefit obligations	24	(21.5)	(20.7)	(21.5)	(20.7)
Deferred tax liabilities	25	(3.6)	(3.1)	(0.5)	-
Provisions	26	(1.5)	(1.3)	-	-
		(81.3)	(70.5)	(36.7)	(26.1)
Total liabilities		(164.6)	(140.6)	(66.3)	(40.5)
Net assets		139.5	116.0	116.9	109.1
Shareholders' equity					
Share capital	27	13.2	13.1	13.2	13.1
Share premium	28	14.3	14.3	14.3	14.3
Other reserves	30	12.6	3.9	-	-
Retained earnings	31	99.4	84.7	89.4	81.7
Total equity		139.5	116.0	116.9	109.1

The notes on pages 122 to 155 form an integral part of these financial statements.

The financial statements of Ricardo plc (registered number 222915) on pages 118 to 155 were approved by the Board of Directors on 14 September 2016 and signed on its behalf by:



Dave Shemmans
(Chief Executive Officer)



Ian Gibson
(Chief Financial Officer)

Consolidated and parent company statements of changes in equity

for the year ended 30 June 2016

Group	Notes	Share capital £m	Share premium £m	Other reserves £m	Retained earnings £m	Total equity £m
At 1 July 2015		13.1	14.3	3.9	84.7	116.0
Profit for the year		-	-	-	25.6	25.6
Other comprehensive income/(loss) for the year		-	-	8.7	(3.5)	5.2
Total comprehensive income for the year		-	-	8.7	22.1	30.8
Equity-settled transactions	29	-	-	-	1.5	1.5
Proceeds from shares issued	27 & 28	0.1	-	-	-	0.1
Ordinary share dividends	10	-	-	-	(8.9)	(8.9)
At 30 June 2016		13.2	14.3	12.6	99.4	139.5
At 1 July 2014		13.1	14.2	3.4	76.9	107.6
Profit for the year		-	-	-	18.6	18.6
Other comprehensive income/(loss) for the year		-	-	0.5	(3.2)	(2.7)
Total comprehensive income for the year		-	-	0.5	15.4	15.9
Equity-settled transactions	29	-	-	-	1.4	1.4
Proceeds from shares issued	27 & 28	-	0.1	-	-	0.1
Purchases of own shares to settle awards		-	-	-	(0.9)	(0.9)
Ordinary share dividends	10	-	-	-	(8.1)	(8.1)
At 30 June 2015		13.1	14.3	3.9	84.7	116.0

Company		Share capital £m	Share premium £m	Other reserves £m	Retained earnings £m	Total equity £m
At 1 July 2015		13.1	14.3	-	81.7	109.1
Profit for the year		-	-	-	18.6	18.6
Other comprehensive loss for the year		-	-	-	(3.5)	(3.5)
Total comprehensive income for the year		-	-	-	15.1	15.1
Equity-settled transactions	29	-	-	-	1.5	1.5
Proceeds from shares issued	27 & 28	0.1	-	-	-	0.1
Ordinary share dividends	10	-	-	-	(8.9)	(8.9)
At 30 June 2016		13.2	14.3	-	89.4	116.9
At 1 July 2014		13.1	14.2	-	76.4	103.7
Profit for the year		-	-	-	16.1	16.1
Other comprehensive loss for the year		-	-	-	(3.2)	(3.2)
Total comprehensive income for the year		-	-	-	12.9	12.9
Equity-settled transactions	29	-	-	-	1.4	1.4
Proceeds from shares issued	27 & 28	-	0.1	-	-	0.1
Purchases of own shares to settle awards		-	-	-	(0.9)	(0.9)
Ordinary share dividends	10	-	-	-	(8.1)	(8.1)
At 30 June 2015		13.1	14.3	-	81.7	109.1

Consolidated and parent company statements of cash flow

for the year ended 30 June 2016

	Notes	Group		Company	
		Year ended 30 June 2016	Year ended 30 June 2015	Year ended 30 June 2016	Year ended 30 June 2015
		£m	£m	£m	£m
Cash flows from operating activities					
Cash generated from/(used in) operations	32	27.5	28.4	(23.1)	(7.0)
Net finance (costs)/income		(1.1)	(0.1)	1.1	0.9
Tax paid		(3.0)	(1.3)	(0.1)	-
Net cash generated from/(used in) operating activities		23.4	27.0	(22.1)	(6.1)
Cash flows from investing activities					
Acquisitions of subsidiaries, net of cash acquired	12	(45.4)	(2.4)	-	-
Purchases of property, plant and equipment		(8.5)	(10.4)	(0.2)	(0.3)
Government grants received in respect of property, plant and equipment		-	0.1	-	-
Proceeds from sale of property, plant and equipment		-	0.1	-	-
Purchases of intangible assets		(6.2)	(5.5)	(0.5)	(0.8)
Purchases of investments in subsidiary undertakings		-	-	-	(4.9)
Dividends received from subsidiaries		-	-	18.5	15.6
Net cash (used in)/generated from investing activities		(60.1)	(18.1)	17.8	9.6
Cash flows from financing activities					
Proceeds from issuance of ordinary shares		0.1	0.1	0.1	0.1
Purchases of own shares to settle awards		-	(0.9)	-	(0.9)
Net proceeds from borrowings		9.4	48.4	9.4	8.4
Repayments of borrowings		-	(3.0)	-	(3.0)
Dividends paid to shareholders	10	(8.9)	(8.1)	(8.9)	(8.1)
Net cash generated from/(used in) financing activities		0.6	36.5	0.6	(3.5)
Effect of exchange rate changes on cash and cash equivalents		(3.2)	1.7	-	-
Net (decrease)/increase in cash and cash equivalents	33	(39.3)	47.1	(3.7)	-
Cash and cash equivalents at 1 July	33	59.7	12.6	0.5	0.5
Net cash and cash equivalents at 30 June	33	20.4	59.7	(3.2)	0.5
At 1 July					
Cash and cash equivalents		59.7	12.6	0.5	0.5
Bank overdrafts		-	-	-	-
		59.7	12.6	0.5	0.5
At 30 June					
Cash and cash equivalents		23.7	59.7	0.1	0.5
Bank overdrafts		(3.3)	-	(3.3)	-
Net cash and cash equivalents at 30 June		20.4	59.7	(3.2)	0.5

Notes to the financial statements

1 Accounting policies

The principal accounting policies applied in the preparation of these financial statements are set out below. These policies have been consistently applied to the years ended 30 June 2015 and 30 June 2016. Ricardo plc (the 'Company') is a public limited company, which 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, United Kingdom.

(a) Basis of preparation

These financial statements of Ricardo plc have been prepared in accordance with International Financial Reporting Standards ('IFRS'), IFRS Interpretations Committee ('IFRS IC') interpretations adopted by the European Union ('EU') and the Companies Act 2006 applicable to companies reporting under IFRS.

The financial statements have been prepared on a going concern basis under the historical cost convention, as modified by financial assets and financial liabilities (including derivative instruments) which are measured at fair value through profit or loss.

Having assessed the principal risks and the other matters discussed in connection with the Viability Statement on page 43, the Directors considered it appropriate to adopt the going concern basis of accounting in preparing the financial statements.

The preparation of financial statements in conformity with IFRS requires the use of certain critical accounting estimates. It also requires management to exercise its judgement in the process of applying the Group's accounting policies. The areas involving a higher degree of judgement or complexity, or areas where assumptions and estimates are significant to the financial statements are disclosed in Note 1(c).

Changes in accounting policies

There are no new, revised or amended standards and interpretations which are mandatory for the first time for the financial year ended 30 June 2016. New, revised or amended standards and interpretations that are not yet effective have not been early adopted and are disclosed in Note 1(w).

(b) Basis of consolidation

The consolidated financial statements comprise the financial statements of the Company and all of its subsidiaries (together the 'Group') prepared to the end of the financial year. 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 to account 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. Identifiable assets acquired and 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.

(c) Management judgements and key accounting estimates

In preparing the financial statements, management is required to exercise judgement in making estimates and assumptions that affect reported amounts and disclosures. These judgements are continually evaluated and are based on historical experience and other factors, including expectations of future events that are believed to be reasonable under the circumstances. Actual results could differ from those estimates and assumptions. The following accounting policies have been identified as being particularly sensitive to complex or subjective judgements or estimates:

Performance and revenue recognition for fixed price contracts

The Group derives a significant proportion of its revenue from the supply of professional services under contracts, most of which are normally fixed price contracts that may extend for a significant period of time. Where the outcome can be estimated reliably, contract revenue is recognised to the extent that the services have been performed. Performance is measured based on costs incurred to date as a percentage of total expected costs. Management judgement and experience is required to determine the completeness of those forecasts, the recoverability of the costs incurred and the revenue recognised on contracts. Unforeseen future events may adversely impact the accuracy of those forecasts and recoverability judgements. Further details are given in Note 19.

Retirement obligations

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 scheme's assets, discount rates and actuarial assumptions related to mortality. Further details are given in Note 24.

From June 2016, the Company and Trustees have decided to introduce a 'retirement flexibility' option to the Fund, which allows members to transfer out their benefits at retirement. No allowance has been made within the defined benefit obligation as at 30 June 2016 for members who may elect to 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.

Current and deferred taxation

Legislation related to taxation is complex and its impact on the Group may be uncertain. In preparing the Group's financial statements management estimates its taxation, having taken appropriate professional advice. Determination of an agreed amount of taxation payable may take several years, and the final amount paid may differ from the liabilities recorded in these financial statements.

The recognition of assets and liabilities related to deferred taxation also requires management to exercise judgement, in particular the extent to which assets should be recognised. Further details are given in Note 25.

Acquisition accounting

During the year, the Group completed the acquisition of the Lloyd's Register Rail ('LR Rail') business, operating assets and employees from the Lloyd's Register Group. As part of the LR Rail acquisition, the Group also acquired the interests from all partners in a joint venture operation in China. Acquisition accounting is complex and can involve significant accounting judgements. In accordance with IFRS, adjustments have been made to the identifiable assets and liabilities on acquisition to reflect their fair values. Further details are given in Note 12(a).

1 Accounting policies (continued)

(c) Management judgements and key accounting estimates (continued)

Acquisition accounting (continued)

Acquisition-related expenditure for LR Rail has been charged to the Consolidated Income Statement as incurred for the years ended 30 June 2016 and 30 June 2015. Acquisition-related expenditure includes costs incurred to effect the LR Rail acquisition, costs associated with the subsequent integration of the LR Rail businesses, dual-running costs incurred during a transitional services period with Lloyd's Register, as well as amortisation of the acquisition-related intangible assets. These costs have been included within specific adjusting items, details of which are given in Note 4.

Development costs

Certain directly attributable costs which are incurred in the development of an intangible asset are capitalised. These costs are recognised as an asset once the Group has determined that the attributable expenditure can be measured reliably, that it has the intention and the necessary resources to complete the relevant project 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.

Provisions

A provision is required 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 management's best estimate of the expenditure required to settle the Group's liability. These estimates are reviewed each year and updated as necessary.

(d) Segmental reporting

Operating segments are reported in a manner consistent with the discrete financial information that is internally reported and provided to the Chief Operating Decision Maker, who is responsible for allocating resources and assessing performance of the operating segments.

(e) Revenue

The Group principally earns revenue through the supply of professional services and products to customers. Revenue is stated net of value added and other sales taxes.

Technical Consulting

The majority of the Group's revenue is earned from Technical Consulting contracts for professional services.

Technical Consulting contracts are typically awarded on a fixed price basis. Where the outcome can be estimated reliably, contract revenue is recognised to the extent that the services have been performed. Performance is measured based on costs incurred to date as a percentage of total expected costs.

Profit is not recognised on a contract, and revenue is not recognised in excess of recoverable costs, unless its outcome can be estimated reliably. It is deemed possible to reliably estimate the outcome of a contract when the Group is in possession of documentation from a customer that is on terms and conditions acceptable to the Group and, subject to the successful execution of the contract, can be invoiced against and paid for. A loss on a fixed price contract is recognised immediately when it becomes probable that the contract cost will exceed the total contract revenue. 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 recognises expected losses on fixed price contracts immediately.

Revenue from contract variations closely linked to underlying fixed price contracts is recognised based on performance under the contract as a whole, but only to the extent that it can be reliably measured and it is probable that the customer will approve both the variation and the amount of additional revenue. Contract variations not closely linked to underlying fixed price contracts are treated as separate contracts. Groups of separate legal contracts or supplementary contracts received in addition to pre-existing contracts are combined and accounted for as a single contract to the extent that they are negotiated as a single package, performed concurrently or in a continuous sequence and are so closely interrelated that they are, in substance, part of a single project with an overall profit margin.

Assets arising from the recognition of revenue are recorded in trade and other receivables, initially as amounts recoverable on contracts and transferred to trade receivables when invoiced. Amounts received from customers for services not yet recognised as revenue are initially classified as payments received in advance on contracts within trade and other payables.

Certain contracts may be awarded on a time and materials basis. For these contracts, revenue recognition is based on the expected sales value of the time worked and costs incurred to date.

Other contracts relate to the supply of annual subscription services, for which revenue from renewals is recognised on a straight-line basis over the period of subscription. Where significant administrative effort is required for new and upgrading customers to set up the services to be provided, revenue is recognised based on the fair value of the initial work performed. The remainder is recognised on a straight-line basis over the period of subscription.

Performance Products

Within Performance Products, Group revenue is principally derived from the sale of high-performance products produced from assembly operations.

Revenue from the sale of goods is measured at the fair value of the consideration and is recognised when the Group has transferred the significant risks and rewards of ownership of the goods to the buyer, when the amount of revenue can be measured reliably and when it is probable that the economic benefits associated with the transaction will flow to the Group. This is typically on delivery of goods to the customer.

Bill-and-hold sales occur where all performance obligations have been satisfied but the customer requests that the goods are held by the Group until such times as delivery or collection of the goods is required by the customer. Revenue is recognised and billed under usual payment terms when the customer formally agrees to accept the risks of legal title and specifically acknowledges their deferred delivery instructions, provided that the goods have been identified, set aside and made available for delivery to the customer at the time the sale is recognised and it is considered probable that delivery will be made.

Performance Products also includes revenues derived from the sale of software licences. The Group's software products are standard version controlled products available for general sale. Normally there are no substantive obligations to fulfil following sale and revenue is recognised on delivery. Revenue derived from the supply of software-related services is recognised on a straight-line basis over the period during which the service is supplied.

(f) Research and development expenditure

Research and development expenditure is recognised as an expense in the Consolidated Income Statement in the period in which it is incurred as disclosed in Note 5, other than where the activity is performed for customers, in which case it is included within the contract accounting, or when development expenditure meets the criteria for recognition as an intangible asset as described in Note 1(o), and includes all directly attributable costs.

1 Accounting policies (continued)

(g) Government grants

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. A grant is not recognised in the Consolidated Income Statement until there is reasonable assurance that the Group will comply with its conditions and that the grant will be received. Grants are presented in the Consolidated Income Statement as a deduction from the related expenses. Grants contributing to the cost of an asset are deducted from the asset's cost and reflected in the depreciation throughout the useful life of the asset.

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 and other payables either as a payment received in advance on contracts or as accruals and deferred income.

(h) Retirement benefit costs

The Group operates one defined benefit and several defined contribution retirement benefit schemes. The defined retirement benefit scheme is closed to new entrants and the accrual of future benefits for active members ceased at the end of February 2010. Payments to defined contribution schemes are charged as an expense as they fall due. Differences between contributions payable in the year and contributions actually paid are shown as either accruals or prepayments in the Statement of Financial Position. Payments to state-managed schemes are dealt with as payments to defined contribution schemes as the Group's obligations under the schemes are similar in nature.

For the defined benefit retirement scheme, the cost of providing benefits is determined using the projected unit credit method, with actuarial valuations being carried out at each reporting date. Remeasurements are recognised in the Consolidated Statement of Comprehensive Income except where they result from settlements or curtailments, in which case they are reported in the Consolidated Income Statement.

Past service cost is recognised immediately to the extent that the benefits are already vested, and otherwise is amortised on a straight-line basis over the average period until the benefits become vested. The retirement benefit obligations recognised in the Statement of Financial Position represent the present value of the defined benefit obligations as adjusted for unrecognised past service cost, and as reduced by 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 expected return on the scheme's assets and the increase during the year in the present value of the scheme's liabilities arising from the passage of time are included in finance costs.

(i) Share-based payments

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 Consolidated 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 model as explained in Note 29. The expected life used in the model is adjusted for the effects of exercise restrictions and behavioural considerations.

(j) Leases

The costs of operating leases and amortisation of operating lease incentives are charged to the Consolidated Income Statement on a straight-line basis over the period of the lease.

(k) 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 Consolidated 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. Income and expense items are translated at the average exchange rates of the year unless exchange rates fluctuate significantly. All resulting exchange differences are recognised in the Consolidated Statement of Comprehensive Income. Exchange differences arising from 1 July 2004, the date of transition to IFRS, are classified as equity and recognised in the translation reserve. Exchange differences arising before that date are not separately reported. On disposal of an operation, or part thereof, the related cumulative translation differences are recognised in the Consolidated Income Statement as a component of the gain or loss arising on disposal.

(l) Taxation

Tax on the profit or loss for the year comprises current and deferred tax. Tax is recognised in the Consolidated Income Statement, except to the extent that it relates to items recognised in the Consolidated Statement of Comprehensive Income or directly in equity, in which case, the associated tax is also recognised in the Consolidated Statement of Comprehensive Income or equity, respectively.

Current tax is the expected tax payable on the taxable income for the year, calculated using the average enacted rate applicable, and any adjustment to tax payable in respect of previous years. Taxation payable can also be offset against income for claims submitted by the Group in respect of related government-funded schemes, such as the Research and Development Expenditure Credit ('RDEC').

On 2 July 2013, legislation was enacted to allow UK companies to elect for the RDEC on qualifying expenditure incurred since 1 April 2013, instead of the 'super-deduction' rules, which were abolished from 1 April 2016. Management elected to adopt the RDEC regime as of 1 July 2015, which also permitted claims to be made on qualifying expenditure under RDEC in excess of the tax relief received under the legacy scheme since 1 July 2013. Credits relating to the current year are recorded as underlying income included in profit before tax, offset against research and development expenditure incurred. The credits relating to claims made for the excess in RDEC over the tax relief received under the legacy scheme in prior years is recorded as other income since there is no corresponding expenditure against which these credits can be offset. These amounts are also classified as a specific adjusting item on the basis that they are one-off in nature. In previous years the tax relief received under the legacy scheme was recorded as a reduction in the income tax expense.

1 Accounting policies (continued)

(l) Taxation (continued)

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. However, 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.

A deferred tax asset is recognised only to the extent that it is probable that future taxable profits will be available 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.

(m) Dividends

Dividends are recognised as a liability in the year in which they are fully authorised. Interim dividends are recognised when paid.

(n) Goodwill

Goodwill arises on the acquisition of subsidiaries and represents the excess of the consideration transferred over the fair value of the identifiable assets acquired and liabilities assumed. As permitted by IFRS, goodwill arising on acquisitions prior to the date of transition to IFRS of 1 July 2004 has not been restated, but 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 cash-generating units ('CGUs'), or groups 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.

The Group's impairment review compares the carrying value of the goodwill to the recoverable amount of the CGU 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 is able to generate. An impairment is deemed to have occurred where the recoverable amount of a CGU is less than the carrying value of the allocated goodwill. Any impairment is recognised immediately in the Consolidated Income Statement 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.

(o) Other intangible assets

Acquisition-related intangible assets

Acquisition-related 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, trademarks, technology and acquired software. The fair value of acquired intangible assets is determined by use of appropriate valuation techniques, including the excess earnings and royalty relief method.

Software

Purchased software is capitalised on the basis of the purchase price plus any external and internal costs directly attributable to bring the specific software to the condition necessary for it to be capable of operating in the manner intended.

Development costs

Certain directly attributable costs which are incurred in the development of certain products are capitalised. These costs are recognised as an asset once the Group has determined that it has the intention and the necessary resources to complete the relevant project, it is probable that the resulting asset will generate economic benefits for the Group and the attributable expenditure can be measured reliably. Development costs are capitalised where these criteria have been met and amortised over their finite useful lives.

Amortisation

Amortisation is calculated using the straight-line method to allocate the cost of intangible assets over their estimated useful lives, as follows:

- Acquisition-related intangible assets	Between 3 and 8 years
- Software	Between 2 and 10 years
- Development costs	Between 2 and 5 years

(p) Property, plant and equipment

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 bringing 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 asset's cost and reflected in the depreciation throughout the useful life of the asset.

Depreciation is calculated using the straight-line method to allocate their cost to their residual values over their estimated useful lives, as follows:

- Freehold land	Not depreciated
- Freehold buildings	Between 25 and 50 years
- Leasehold property	Over the term of the lease
- Plant and machinery	Between 4 and 10 years
- Fixtures, fittings and equipment	Between 2 and 10 years

The assets' residual values and useful lives are reviewed, and adjusted if appropriate, at the end of each reporting period.

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.

(q) Investments

Investments in subsidiaries are stated at cost less any impairment in value.

(r) Impairment of non-financial assets

Intangible assets that have an indefinite useful life or intangible assets that are not available for use are not subject to amortisation and are tested annually for impairment. Other intangible assets and items of property, plant and equipment with finite useful lives are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount may not be recoverable.

An impairment loss is recognised for the amount by which the asset's carrying amount exceeds its recoverable amount. The recoverable amount is the higher of an asset's fair value less costs of disposal and value in use. In assessing value in use, the estimated future cash flows are discounted to their present value using a pre-tax discount rate that reflects current market assessments of the time value of money and the risks specific to the asset for which the estimates of future cash flows have not been adjusted. Where assets do not generate cash flows independently from other assets, the Group estimates the recoverable amount of the cash-generating unit to which the asset belongs.

Financial statements

Notes to the financial statements

1 Accounting policies (continued)

(r) Impairment of non-financial assets (continued)

If the recoverable amount of an asset or cash-generating unit is estimated to be less than its carrying amount, the carrying amount of the asset or cash-generating unit is reduced to its recoverable amount. Prior impairments of non-financial assets (other than goodwill) are reviewed for possible reversal at each reporting date.

(s) Inventories

Inventories are stated at the lower of cost, including attributable overheads, and net realisable value. Cost is calculated using the weighted average method in Technical Consulting and using the first-in, first-out method in Performance Products. Work in progress is stated at cost, including attributable overheads, less any foreseeable losses and progress payments received and receivable.

(t) Financial instruments

Non-derivative financial instruments

The Group's non-derivative financial instruments comprise trade receivables, trade payables, cash and cash equivalents and borrowings. In the Statements of Cash Flow, cash and cash equivalents comprise cash balances and bank overdrafts repayable on demand. In the Statements of Financial Position, bank overdrafts are shown within borrowings in current liabilities and bank loans are shown within borrowings in non-current liabilities.

Trade receivables and payables are measured initially at fair value, and subsequently at amortised cost. Trade receivables are stated net of allowances for irrecoverable amounts. Evidence of impairment of trade receivables include indications that customers are experiencing significant financial difficulty or have significantly overdue balances.

Borrowings are recognised initially at fair value net of direct issue costs and subsequently at amortised cost using the effective interest rate method. Differences between initial value and redemption value are recorded in the Consolidated Income Statement over the period of the loan.

The fair values of non-derivative financial instruments other than loans due for repayment after more than one year are approximately equal to their book values. The fair value of loans due for repayment after more than one year is estimated by discounting the future contractual cash flows at the current market interest rate available to the Group for similar financial instruments.

Derivative financial instruments

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 and the gain or loss on remeasurement is taken to the Consolidated Income Statement.

The Group employs derivative financial instruments, including foreign exchange contracts, to mitigate currency exposures on trading transactions. The Group does not hedge forecast transactions that will result in the recognition of a non-financial asset or liability. Fair values of derivative financial instruments are based on the market values of similar instruments at the reporting date.

(u) Provisions

A provision is required 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 liability.

Provisions for dilapidations reflects the Directors' best estimate of future obligations relating to the maintenance of leasehold properties arising from past events such as lease renewals or terminations.

These estimates are reviewed each year and updated as necessary.

(v) Specific adjusting items

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 and due to the significance of their nature or amount. These items comprise amortisation of acquired intangible assets and acquisition-related expenditure. Acquisition-related expenditure is incurred by the Group to effect a business combination, including the costs associated with the integration of acquired businesses together with dual-running costs incurred during a transitional services period. In the current year, non-recurring income for claims under the Research & Development Expenditure Credit ('RDEC') scheme in respect of prior years were also included in specific adjusting items.

(w) New standards and interpretations

At 30 June 2016, the International Accounting Standards Board ('IASB') and IFRS IC had issued the standards and amendments, shown below, that subject to adoption by the EU, are effective after the current year-end and have not been early adopted by the Group.

Issued standards and amendments not yet effective	Effective date (periods commencing)	Endorsed by EU
<i>International Financial Reporting Standards</i>		
IFRS 9 'Financial Instruments'	1 Jan 2018	No
IFRS 14 'Regulatory Deferral Accounts'	1 Jan 2016	N/A
IFRS 15 'Revenue from Contracts with Customers'	1 Jan 2018	No
IFRS 16 'Leases'	1 Jan 2019	No
<i>Amendments to International Financial Reporting Standards</i>		
IFRS 2 'Share-based Payment'	1 Jan 2018	No
IFRS 10 'Consolidated Financial Statements'	1 Jan 2016	No
IFRS 11 'Joint Arrangements'	1 Jan 2016	Yes
IFRS 12 'Disclosure of Interests in Other Entities'	1 Jan 2016	No
IFRS 15 'Revenue from Contracts with Customers'	1 Jan 2018	No
IAS 1 'Presentation of Financial Statements'	1 Jan 2016	Yes
IAS 7 'Statement of Cash Flows'	1 Jan 2017	No
IAS 12 'Income Taxes'	1 Jan 2017	No
IAS 16 'Property, Plant and Equipment'	1 Jan 2016	Yes
IAS 27 'Separate Financial Statements'	1 Jan 2016	Yes
IAS 28 'Investments in Associates'	1 Jan 2016	No
IAS 38 'Intangible Assets'	1 Jan 2016	Yes
IAS 41 'Agriculture'	1 Jan 2016	Yes
Annual Improvements 2012-2014 Cycle	1 Jan 2016	Yes

It is not expected that the adoption of the standards and amendments listed above will have a significant impact on the financial statements of the Group in future periods, with the exception of IFRS 15 'Revenue from Contracts with Customers' and IFRS 16 'Leases', which may have a significant impact on revenue recognition and capitalisation of operating leases, respectively, together with the related disclosures. Beyond the information above, it is not practicable to provide a reasonable estimate of the effect of IFRS 15 and IFRS 16 until a detailed review has been undertaken.

2 Operating segments

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 reportable segments are Technical Consulting and Performance Products. These were identified by evaluating the Group's products and services, processes, types of customers and delivery methods.

- Technical Consulting generates income from the delivery of engineering programmes and technology projects, together with environmental and management consultancy services. This operating segment also generates income from independent assurance services provided through our rail business.
- Performance Products generates income from manufacturing, assembly, software sales and related services.

Inter-segment revenue is eliminated on consolidation. Transactions are entered into on an arm's length basis in a manner similar to transactions with third parties.

Management monitors the results of its operating segments separately for the purpose of making decisions about allocating resources and assessing performance. Segment performance is measured based on operating profit. Included within the Head Office column in the following tables are functions managed by a central division, including the costs of running the public limited company, which are recharged to the other operating segments.

Year ended 30 June 2016

	Technical Consulting	Performance Products	Head Office	Total
	£m	£m	£m	£m
Total segment revenue	269.0	65.1	-	334.1
Inter-segment revenue	(1.1)	(0.6)	-	(1.7)
Revenue from external customers	267.9	64.5	-	332.4
Underlying operating profit	32.5	7.1	-	39.6
Specific adjusting items	(4.4)	0.2	(0.5)	(4.7)
Operating profit	28.1	7.3	(0.5)	34.9
Net finance costs	-	-	(1.9)	(1.9)
Profit before taxation	28.1	7.3	(2.4)	33.0
Total assets per financial statements	251.4	35.4	17.3	304.1
Total liabilities per financial statements	52.5	17.2	94.9	164.6
Depreciation and amortisation	10.4	1.7	1.8	13.9
Capital expenditure - other intangible assets	4.5	1.5	0.2	6.2
Capital expenditure - property, plant and equipment	7.8	0.2	0.3	8.3

Revenues from one customer represent approximately £40.0m (2015: £37.2m) of the Group's external revenue, of which £38.0m (2015: £33.7m) is reported in the Performance Products segment and £2.0m (2015: £3.5m) is reported in the Technical Consulting segment.

Revenues from a second customer represent approximately £36.7m (2015: £25.0m) of the Group's external revenue, of which £36.5m (2015: £24.9m) is reported in the Technical Consulting segment and £0.2m (2015: £0.1m) is reported in the Performance Products segment.

Underlying operating profit for the year ended 30 June 2016 includes £5.4m of income in respect of RDEC, which has been allocated between Technical Consulting (£4.7m) and Performance Products (£0.7m) on a basis that is consistent with the segment in which the qualifying expenditure is incurred.

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2 Operating segments (continued)

Year ended 30 June 2015

	Technical Consulting £m	Performance Products £m	Head Office £m	Total £m
Total segment revenue	199.2	62.5	-	261.7
Inter-segment revenue	(2.6)	(1.6)	-	(4.2)
Revenue from external customers	196.6	60.9	-	257.5
Underlying operating profit	20.0	7.7	-	27.7
Specific adjusting items	(1.2)	-	(2.7)	(3.9)
Operating profit	18.8	7.7	(2.7)	23.8
Net finance costs	(0.1)	-	(0.8)	(0.9)
Profit before taxation	18.7	7.7	(3.5)	22.9
Total assets per financial statements	163.5	34.7	58.4	256.6
Total liabilities per financial statements	48.7	18.2	73.7	140.6
Depreciation and amortisation	7.4	1.4	1.7	10.5
Capital expenditure - other intangible assets	3.7	1.0	0.8	5.5
Capital expenditure - property, plant and equipment	4.9	2.9	0.3	8.1

Non-current assets by geographical location (excluding deferred tax assets)

Asset location	2016 £m	2015 £m
United Kingdom	84.8	67.7
Germany	12.6	16.3
Netherlands	21.4	-
United States	18.3	9.8
Rest of the World	8.8	0.7
Total	145.9	94.5

3 Revenue

(a) Revenue by category

	2016	2015
	£m	£m
Rendering of services	274.8	201.4
Sale of goods	57.6	56.1
Total	332.4	257.5

(b) Revenue by customer location

	2016	2015
	£m	£m
United Kingdom	154.2	120.8
Germany	24.7	25.6
Netherlands	18.5	0.5
Rest of Europe	22.7	20.3
Europe total	220.1	167.2
North America	39.2	39.2
China	21.4	20.0
Japan	18.1	17.6
Rest of Asia	26.7	9.9
Asia total	66.2	47.5
Rest of the World	6.9	3.6
Total	332.4	257.5

4 Specific adjusting items

	2016	2015
	£m	£m
Amortisation of acquisition-related intangible assets (Note 14)	3.4	1.3
Acquisition-related expenditure associated with LR Rail (Note 12(a))	1.6	2.1
Other acquisition-related expenditure	1.2	0.5
Non-recurring income for RDEC claims in respect of prior years	(1.5)	-
Total	4.7	3.9

The expenditure associated with the Lloyd's Register Rail ('LR Rail') acquisition comprises expenditure incurred in the years ended 30 June 2016 and 30 June 2015 for services rendered to, and consumed by, the Group to effect the LR Rail acquisition (see Note 12(a)), in addition to costs associated with the subsequent integration of the LR Rail businesses and dual-running costs incurred during a transitional services period with Lloyd's Register.

Other acquisition-related expenditure primarily comprises costs incurred in the years ended 30 June 2016 and 30 June 2015 for services rendered to, and consumed by, the Group to effect the Cascade and Motorcycle Engineering Italia s.r.l. acquisitions (see Notes 12(b) and 38, respectively), in addition to the costs of the associated earn-out arrangements of the Cascade acquisition, together with the Vepro and Power Planning Associates acquisitions completed in the prior year.

On 2 July 2013, legislation was enacted to allow UK companies to elect for the Research and Development Expenditure Credit ('RDEC') on qualifying expenditure incurred since 1 April 2013, instead of the 'super-deduction' rules, which were abolished from 1 April 2016. Management elected to adopt the RDEC regime as of 1 July 2015, which also permitted claims to be made on qualifying expenditure under RDEC in excess of the tax relief received under the legacy scheme since 1 July 2013. The credit relating to claims made for the excess in RDEC over the tax relief received under the legacy scheme in prior years is recorded as other income and classified as a specific adjusting item on the basis that it is non-recurring and there is no corresponding expenditure against which these credits can be offset. In previous years the tax relief received under the legacy scheme was recorded as a reduction in the income tax expense.

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5 Operating profit

	2016	2015
	£m	£m
The following items have been charged/(credited) in arriving at operating profit:		
Amortisation of other intangible assets (Note 14)	7.4	4.2
Depreciation of property, plant and equipment (Note 15)	6.5	6.3
Cost of inventories recognised as expense	31.6	28.7
Research and Development Expenditure Credits ('RDEC')	(6.9)	-
Operating lease rentals payable	7.4	5.6
Repairs and maintenance on property, plant and equipment	3.7	3.5
Redundancy and termination costs	0.9	1.4
Impairment losses on trade receivables (Note 18)	0.8	0.8
	2016	2015
	£m	£m
With respect to the Group's research and development activities, the following items have been charged/(credited) in arriving at operating profit:		
Research and development expenditure in the year	6.2	5.6
Government grant income received in respect of part of this expenditure	(1.3)	(1.1)
Total	4.9	4.5

6 Auditors' remuneration

	2016	2015
	£m	£m
During the year the Group obtained the following services from the Group's auditors and network firms:		
Fees payable to the parent company's auditors for the audit of the parent company and consolidated financial statements	0.2	0.2
Fees payable to the parent company's auditors and its associates for other assurance services:		
The audit of the parent company's subsidiaries, pursuant to legislation	0.2	0.1
Total audit fees	0.4	0.3
Audit-related assurance services	0.1	0.1
Other non-audit services	0.1	0.4
Total non-audit fees	0.2	0.5

Fees payable to the parent company's auditors comprised £236,000 (2015: £204,000) for the audit of the parent company and consolidated financial statements, £193,000 (2015: £127,000) for the audit of the parent company's subsidiaries and £49,000 (2015: £42,000) for audit-related assurance services pursuant to the interim review.

Fees payable to the parent company's auditors for other non-audit services of £117,000 (2015: £446,000) comprised £86,000 (2015: £442,000) for due diligence in respect of completed and proposed acquisitions and £31,000 (2015: £4,000) for other services.

7 Employees

	2016	2015
	£m	£m
Staff costs		
Wages and salaries (including redundancy and termination costs)	135.8	99.6
Social security costs	14.0	11.7
Pension costs (Note 24)	8.7	5.4
Share-based payments (Note 29)	1.5	1.5
Total employee benefit expense	160.0	118.2

	2016	2015
	Number	Number
Average monthly number of employees (including executive directors) during the year		
Technical Consulting	2,389	1,833
Performance Products	249	254
Head Office	45	38
Total average headcount	2,683	2,125

	2016	2015
	£m	£m
Key management compensation		
Short-term employee benefits	3.8	4.2
Share-based payments	1.3	1.1
Post-employment benefits	0.2	0.2
Total key management compensation	5.3	5.5

The key management personnel are the Board of Directors, together with the Managing Directors who report directly to the Chief Executive Officer. The remuneration received by all executive and non-executive directors during the year is disclosed in the Directors' Remuneration Report on page 97.

8 Net finance costs

	2016	2015
	£m	£m
Finance income:		
Bank interest receivable	0.3	0.2
	0.3	0.2
Finance costs:		
Interest payable on bank borrowings	(1.5)	(0.3)
Defined benefit pension financing costs (Note 24)	(0.7)	(0.8)
	(2.2)	(1.1)
Net finance costs	(1.9)	(0.9)

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9 Taxation

	2016 £m	2015 £m
Current income tax:		
UK corporation tax	5.9	2.3
Adjustments in respect of prior years	(0.5)	(0.2)
Total UK tax	5.4	2.1
Foreign corporation tax	2.1	1.2
Adjustments in respect of prior years	-	(0.2)
Total foreign tax	2.1	1.0
Total current tax	7.5	3.1
Deferred tax:		
Charge for year relating to temporary differences	0.5	1.4
Adjustments in respect of prior years	(0.6)	(0.2)
Total deferred tax	(0.1)	1.2
Total taxation	7.4	4.3
Tax on items recognised directly in equity	(0.9)	(1.5)

Tax on items recognised directly in equity relate to the tax impact of remeasurements on the defined benefit scheme and equity-settled share-based payment transactions.

Changes to the UK corporation tax rates were substantively enacted as part of the Finance Bill 2015 on 26 October 2015. These include reductions to the main rate to 19% from 1 April 2017 and to 18% from 1 April 2020. Deferred taxes at the reporting date have been measured and reflected in these financial statements by using the tax rate of 19% which will be applicable in the next financial year.

The tax charge for the year is higher (2015: lower) than the standard rate of corporation tax in the UK. The differences are set out below:

	2016 £m	2015 £m
Profit for the year before tax	33.0	22.9
Profit for the year multiplied by the average enacted rate of corporation tax in the UK of 20% (2015: 20.75%)	6.6	4.8
Effects of:		
Losses not recognised	0.8	1.3
Expenses not deductible for tax purposes	0.5	1.3
Government tax incentives ⁽¹⁾	(0.1)	(3.0)
Irrecoverable overseas tax ⁽²⁾	0.5	0.7
Adjustments in respect of prior years	(1.1)	(0.6)
Changes in corporation tax rates	0.2	(0.2)
Total taxation	7.4	4.3

(1) As of 1 July 2015, the Company elected for the Research and Development Expenditure Credit ('RDEC') on qualifying expenditure incurred, instead of the 'super-deduction' rules, which were abolished from 1 April 2016. Credits relating to the current year are recorded as income included in profit before tax, offset against research and development expenditure incurred. In previous years the tax relief received under the legacy scheme was recorded as a reduction in the income tax expense.

(2) Primarily relates to withholding taxes.

10 Dividends

	2016	2015
	£m	£m
Final dividend for the year ended 30 June 2015 of 11.95p (2014: 10.9p) per share	6.3	5.7
Interim dividend for the year ended 30 June 2016 of 5.07p (2015: 4.65p) per share	2.6	2.4
Equity dividends paid	8.9	8.1

The Directors are proposing a final dividend in respect of the financial year ended 30 June 2016 of 13.03p per share which will utilise £6.9m of retained earnings. It will be paid on 11 November 2016 to shareholders who are on the register of members at the close of business on 21 October 2016, subject to approval at the Annual General Meeting on 3 November 2016.

11 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 where the exercise price is less than the market price of the Company's ordinary shares at year-end.

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 more useful indication of underlying performance and trends over time.

	2016	2015
	£m	£m
Earnings	25.6	18.6
Add back amortisation of acquisition-related intangible assets (net of tax)	2.7	1.1
Add back acquisition-related expenditure associated with LR Rail (net of tax)	1.3	2.1
Add back other acquisition-related expenditure (net of tax)	1.0	0.4
Less non-recurring income for RDEC claims in respect of prior years	(1.5)	-
Underlying earnings	29.1	22.2

	Number of shares millions	Number of shares millions
Basic weighted average number of shares in issue	52.7	52.3
Effect of dilutive potential shares	0.5	0.6
Diluted weighted average number of shares in issue	53.2	52.9

Earnings per share	pence	pence
Basic	48.6	35.6
Diluted	48.1	35.2

Underlying earnings per share	pence	pence
Basic	55.2	42.4
Diluted	54.7	42.0

12 Acquisitions

(a) Lloyd's Register Rail acquisition

On 1 July 2015 the Group materially completed the acquisition of the Lloyd's Register Rail ('LR Rail') business, operating assets and employees of Lloyd's Register Rail Limited and Lloyd's Register Rail Europe B.V., together with various other assets relating to the rail business of Lloyd's Register Group Limited and the group of companies of which it is the ultimate holding company. On 1 March 2016, the Group also acquired the interests of all partners of a related joint venture operation in China. LR Rail is a rail consultancy and assurance business and is a trusted partner to a wide range of international clients. LR Rail uses its understanding of critical and complex technologies and its independent expert advice to provide services ranging from rolling stock design, signalling and train control, intelligent rail systems, operational efficiency improvement, training and independent assurance services.

The following table sets out the consideration paid for LR Rail, together with the fair value of assets acquired and liabilities assumed:

	£m
Cash consideration	46.3
Fair value of identifiable assets acquired and liabilities assumed	
Customer contracts and relationships (Note 14)	13.1
Technology assets (Note 14)	1.3
Property, plant and equipment (Note 15)	0.1
Trade and other receivables	15.6
Cash	3.8
Trade and other payables and provisions	(11.8)
Total fair value of identifiable net assets⁽¹⁾	22.1
Goodwill	24.2
Total	46.3

(1) The total fair value of identifiable net assets acquired includes £1.3m in respect of the Chinese joint venture acquired on 1 March 2016, which is provisional and represents an estimate following a preliminary valuation exercise. This estimate of fair value may be adjusted in future in accordance with the requirements of IFRS 3 'Business Combinations'.

All of the cash consideration of £46.3m was paid in the year.

Adjustments have been made to identifiable assets and liabilities on acquisition to reflect their fair value. These include the recognition of customer-related intangible assets amounting to £13.1m and technology assets of £1.3m. The fair values of net assets acquired were identified following a valuation exercise in accordance with the requirements of IFRS 3 'Business Combinations'.

The goodwill arising on acquisition can be ascribed to the existence of a skilled, active workforce, developed expertise and processes and the opportunities to obtain new contracts and develop the business. None of these meet the criteria for recognition as intangible assets separable from goodwill. An element of the goodwill recognised is deductible for tax purposes in certain jurisdictions.

The provisional fair value of trade and other receivables of £15.6m includes net trade receivables of £10.1m and amounts recoverable on contracts of £3.4m, all of which is expected to be collectible. In the ordinary course of business, LR Rail also has £3.4m of guarantees and counter-indemnities in respect of bonds relating to performance under contracts. These are not recognised in the provisional assessment of net assets acquired.

Acquisition-related expenditure of £1.6m (2015: £2.1m) has been charged to the Consolidated Income Statement for the year ended 30 June 2016 and is disclosed as a specific adjusting item in Note 4. Acquisition-related expenditure comprise costs incurred for services rendered to, and consumed by, the Group to effect the LR Rail acquisition, in addition to costs associated with the subsequent integration of the LR Rail businesses and dual-running costs incurred during a transitional services period with Lloyd's Register.

The revenue included in the Consolidated Income Statement in relation to the acquired businesses was £53.2m. The underlying operating profit over the same period was £3.9m. This is reported in the Technical Consulting segment.

Had the Chinese joint venture acquired on 1 March 2016 been acquired and consolidated from 1 July 2015, the Consolidated Income Statement would show revenue of £334.4m and underlying operating profit of £39.5m based on the management accounts plus the reported results for the post-acquisition period.

12 Acquisitions (continued)

(b) Cascade acquisition

On 18 August 2015 the Group acquired the entire issued share capital of Cascade Consulting Holdings Limited and its subsidiary, Cascade Consulting (Environment & Planning) Limited (together, 'Cascade') for total consideration of £3.2m. Cascade is an environmental consultancy business specialising in the UK water sector, which provides additional capability and reach in water resource management, ecosystem services and environmental impact assessment.

The following table sets out the consideration paid for Cascade, together with the fair value of assets acquired and liabilities assumed:

	£m
Cash consideration	3.2
Fair value of identifiable assets acquired and liabilities assumed	
Customer contracts and relationships (Note 14)	0.9
Trade and other receivables	1.0
Cash	0.3
Trade and other payables and provisions	(1.5)
Total fair value of identifiable net assets	0.7
Goodwill	2.5
Total	3.2

All of the cash consideration of £3.2m was paid in the year.

Adjustments have been made to identifiable assets and liabilities on acquisition to reflect their fair value. These include the recognition of customer-related intangible assets amounting to £0.9m. The fair values of net assets acquired were identified following a valuation exercise in accordance with the requirements of IFRS 3 'Business Combinations'.

The goodwill arising on acquisition can be ascribed to the existence of a skilled, active workforce, developed expertise and processes and the opportunities to obtain new contracts and develop the business. None of these meet the criteria for recognition as intangible assets separable from goodwill. None of the goodwill recognised is expected to be deductible for tax purposes.

The fair value of trade and other receivables of £1.0m includes net trade receivables of £0.8m and amounts recoverable on contracts of £0.1m, all of which is expected to be collectible.

Acquisition-related expenditure of £0.7m has been charged to the Consolidated Income Statement for the year ended 30 June 2016 and is disclosed as a specific adjusting item in Note 4.

The revenue included in the Consolidated Income Statement in relation to the acquired business was £3.4m. The underlying operating profit over the same period was £0.6m. This is reported in the Technical Consulting segment.

Had Cascade been acquired and consolidated from 1 July 2015, the Consolidated Income Statement would show revenue of £332.9m and underlying operating profit of £39.7m based on the management accounts plus the reported results for the post-acquisition period.

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13 Goodwill

Group	£m
At 1 July 2014	25.1
Acquisition of business	2.3
Exchange adjustments	(1.4)
At 30 June 2015	26.0
Acquisition of business (Note 12)	26.7
Exchange adjustments	4.3
At 30 June 2016	57.0

The recoverable amount of each CGU is calculated by assessing its value in use, which is determined by performing discounted future pre-tax cash flow calculations for a five-year period and projected into perpetuity. The five-year cash flow forecasts are based on the budget for the following year (year one), the business plans for years two and three (the three-year plan), and operating profit projections for years four and five, with an 85% operating cash flow conversion rate.

The three-year plan is prepared by management, reviewed and approved by the Board, and 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. Operating profit projections for years four and five, and cash flows beyond year five are projected into perpetuity using a long-term growth rate, which is determined as the lower of the planned growth rate in year three and the external forecast of the economic growth rate for the economies in which the CGU primarily operates.

Apart from operating cash flows and economic growth rates, the other key assumption is the 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.

The carrying value of goodwill and key assumptions used in determining the recoverable amount of each CGU are as follows:

	Goodwill		Pre-tax discount rate		Growth rate into perpetuity	
	2016	2015	2016	2015	2016	2015
	£m	£m	%	%	%	%
Ricardo Rail ⁽¹⁾	26.6	-	9.5	n/a	4.6	n/a
Ricardo Europe Technical Consulting	14.6	12.7	8.9	8.2	3.6	4.0
Ricardo Energy & Environment ⁽²⁾	13.3	10.8	8.7	9.2	3.6	4.3
Ricardo Motorcycle	1.4	1.4	7.0	10.8	3.3	4.3
Ricardo UK Performance Products	1.1	1.1	8.7	9.5	3.6	4.3
At 30 June	57.0	26.0				

- (1) As set out in further detail in Note 12(a), the Group acquired LR Rail during the year for its understanding of critical and complex technologies and its independent expert advice to provide services ranging from rolling stock design, signalling and train control, intelligent rail systems, operational efficiency improvement, training and independent assurance services. This provides the Group with new capability in the Rail consultancy and assurance market and management have determined that the identifiable post-acquisition assets and liabilities for the global Rail business represent the smallest identifiable group of assets that generates independent future cash flows.
- (2) As set out in further detail in Note 12(b), the Group acquired Cascade during the year for its capabilities and expertise in the in the UK water sector, which provides Ricardo Energy & Environment with additional capability and reach in water resource management, ecosystem services and environmental impact assessment. The identifiable post-acquisition assets and liabilities of Cascade, as well as its employees and contracts have since been subsumed and fully integrated into Ricardo Energy & Environment, which continues to represent the smallest identifiable group of assets that generates independent future cash inflows.

The three-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 at 30 June 2016, resulting in no impairment for the year (2015: £Nil). In considering sensitivities, no reasonable change in any of the above key assumptions would cause the value in use of the CGUs to fall below the carrying value of the allocated goodwill. The sensitivities assessed include a 10% reduction in planned operating profit, a 20% reduction in the planned operating cash flow conversion rate and a 1% increase in the pre-tax discount rate, together with a further scenario whereby all sensitivities are combined together.

14 Other intangible assets

Group	Acquisition-related intangible assets				Total £m
	Customer contracts and relationships £m	Other £m	Software £m	Development costs £m	
Cost					
At 1 July 2014	8.5	0.3	16.3	4.9	30.0
Acquisition of business	0.7	-	-	-	0.7
Additions	-	-	1.3	4.2	5.5
Reclassifications	-	-	1.0	(0.5)	0.5
Exchange rate adjustments	-	-	(0.1)	-	(0.1)
At 30 June 2015	9.2	0.3	18.5	8.6	36.6
Acquisition of business (Note 12)	14.0	1.3	-	-	15.3
Additions	-	-	3.0	3.2	6.2
Reclassifications	-	-	0.3	-	0.3
Exchange rate adjustments	1.7	0.2	0.7	0.7	3.3
At 30 June 2016	24.9	1.8	22.5	12.5	61.7
Accumulated amortisation					
At 1 July 2014	1.8	-	10.6	0.9	13.3
Charge for the year	1.2	0.1	1.7	1.2	4.2
Reclassifications	-	-	0.6	(0.3)	0.3
Exchange rate adjustments	-	-	(0.1)	-	(0.1)
At 30 June 2015	3.0	0.1	12.8	1.8	17.7
Charge for the year	3.3	0.1	1.9	2.1	7.4
Reclassifications	-	-	0.3	-	0.3
Exchange rate adjustments	0.2	-	0.6	0.2	1.0
At 30 June 2016	6.5	0.2	15.6	4.1	26.4
Net book value					
At 30 June 2016	18.4	1.6	6.9	8.4	35.3
At 30 June 2015	6.2	0.2	5.7	6.8	18.9
At 30 June 2014	6.7	0.3	5.7	4.0	16.7

Company	Software £m
Cost	
At 1 July 2014	7.3
Additions	0.8
At 30 June 2015	8.1
Additions	0.5
At 30 June 2016	8.6
Accumulated amortisation	
At 1 July 2014	2.4
Charge for the year	1.1
At 30 June 2015	3.5
Charge for the year	1.3
At 30 June 2016	4.8
Net book value	
At 30 June 2016	3.8
At 30 June 2015	4.6
At 30 June 2014	4.9

Software for both the Group and the Company primarily comprises external purchase costs and internal costs that have been capitalised in respect of an ERP system. Software for the Group includes £1.3m (2015: £Nil) and for the Company includes £0.1m (2015: £0.2m) in respect of assets under construction which are not being amortised until the assets are made available for use.

Development costs include £2.7m (2015: £2.9m) in respect of assets under construction which are not being amortised until the assets are made available for use.

The amortisation charge of £7.4m (2015: £4.2m) is comprised of £1.8m (2015: £1.5m) included within cost of sales and £5.6m (2015: £2.7m) included within administrative expenses in the Consolidated Income Statement.

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15 Property, plant and equipment

Group	Land and buildings £m	Leasehold property £m	Plant and machinery £m	Fixtures, fittings and equipment £m	Total £m
Cost					
At 1 July 2014	22.1	7.8	99.0	17.1	146.0
Acquisition of business	-	0.1	-	-	0.1
Additions	2.4	0.1	3.5	2.1	8.1
Disposals	-	-	(1.4)	(0.9)	(2.3)
Reclassifications	(3.0)	-	6.3	1.3	4.6
Exchange rate adjustments	(0.4)	0.1	0.7	(0.1)	0.3
At 30 June 2015	21.1	8.1	108.1	19.5	156.8
Acquisition of business (Note 12)	-	-	-	0.1	0.1
Additions	1.6	0.7	3.2	2.8	8.3
Disposals	-	-	(0.7)	(0.5)	(1.2)
Reclassifications	(0.3)	0.3	-	(0.3)	(0.3)
Exchange rate adjustments	0.5	0.3	6.6	1.2	8.6
At 30 June 2016	22.9	9.4	117.2	22.8	172.3
Accumulated depreciation					
At 1 July 2014	3.5	3.8	77.2	13.2	97.7
Charge for the year	0.4	0.4	3.7	1.8	6.3
Disposals	-	-	(1.3)	(0.9)	(2.2)
Reclassifications	0.4	-	3.0	1.4	4.8
Exchange rate adjustments	-	0.1	0.6	(0.1)	0.6
At 30 June 2015	4.3	4.3	83.2	15.4	107.2
Charge for the year	0.4	0.5	3.6	2.0	6.5
Disposals	-	-	(0.7)	(0.5)	(1.2)
Reclassifications	(0.1)	0.1	-	(0.3)	(0.3)
Exchange rate adjustments	0.2	0.2	5.1	1.0	6.5
At 30 June 2016	4.8	5.1	91.2	17.6	118.7
Net book value					
At 30 June 2016	18.1	4.3	26.0	5.2	53.6
At 30 June 2015	16.8	3.8	24.9	4.1	49.6
At 30 June 2014	18.6	4.0	21.8	3.9	48.3

The carrying value of assets under construction included in property, plant and equipment amounts to £2.8m (2015: £5.0m).

At 30 June 2016, contracts had been placed for future capital expenditure, which have not been provided for in the financial statements, amounting to £2.6m (2015: £1.9m).

Company	Land and buildings £m	Leasehold property £m	Fixtures, fittings and equipment £m	Total £m
Cost				
At 1 July 2014	5.7	6.0	0.5	12.2
Additions	-	-	0.3	0.3
At 30 June 2015	5.7	6.0	0.8	12.5
Additions	-	-	0.2	0.2
At 30 June 2016	5.7	6.0	1.0	12.7
Accumulated depreciation				
At 1 July 2014	1.7	2.6	0.1	4.4
Charge for the year	0.1	0.3	0.1	0.5
At 30 June 2015	1.8	2.9	0.2	4.9
Charge for the year	0.1	0.2	0.2	0.5
At 30 June 2016	1.9	3.1	0.4	5.4
Net book value				
At 30 June 2016	3.8	2.9	0.6	7.3
At 30 June 2015	3.9	3.1	0.6	7.6
At 30 June 2014	4.0	3.4	0.4	7.8

A contingent liability of up to £2.8m which is associated with a guarantee provided to the Ricardo Group Pension Fund in July 2013 (see Note 35) is secured on specific land and buildings.

16 Investments

Company	Shares in subsidiaries £m
At 1 July 2014	68.3
Additions	5.6
At 30 June 2015 and 30 June 2016	73.9

Details of the Company's subsidiaries are shown in Note 37.

The Directors consider that the fair value of investments is not less than the carrying value.

17 Inventories

Group	2016 £m	2015 £m
Raw materials and consumables	7.3	6.3
Work in progress	2.9	1.5
Finished goods	0.8	-
At 30 June	11.0	7.8

During the year £0.2m of inventory was written down (2015: £0.2m) and included in cost of sales in the Consolidated Income Statement.

18 Trade and other receivables

	Group		Company	
	2016 £m	2015 £m	2016 £m	2015 £m
Trade receivables	55.1	41.1	-	-
Less provision for impairment of receivables	(2.1)	(0.6)	-	-
Trade receivables - net	53.0	40.5	-	-
Amounts recoverable on contracts (Note 19)	47.3	31.2	-	-
Amounts owed by Group undertakings	-	-	91.2	57.0
Prepayments and accrued income	6.1	4.5	0.7	0.6
Other receivables	2.5	2.4	0.1	0.2
At 30 June	108.9	78.6	92.0	57.8

	Group		Company	
	2016 £m	2015 £m	2016 £m	2015 £m
Trade and other receivables analysis by category				
Current assets	108.9	78.6	92.0	57.8
At 30 June	108.9	78.6	92.0	57.8

	Group		Company	
	2016 £m	2015 £m	2016 £m	2015 £m
Provision for impairment of trade receivables				
At 1 July	(0.6)	(0.5)	-	-
Arising on acquisition	(0.8)	-	-	-
Income statement charge	(0.8)	(0.8)	-	-
Amounts utilised	0.1	0.7	-	-
At 30 June	(2.1)	(0.6)	-	-

In respect of the Company, £7.0m (2015: £10.2m) of the amounts owed by Group undertakings are due for repayment within the next 12 months and the remaining £84.2m (2015: £46.8m) has no fixed repayment date. £73.2m (2015: £39.9m) of the amounts owed by Group undertakings carry interest at rates between 2.3% and 5.0% (2015: 2.3% and 5.0%) with the remaining £18.0m (2015: £17.1m) being interest-free. All amounts owed by Group undertakings are unsecured.

The provision for impairment of receivables has been calculated based on past experience and is in relation to specific customers.

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19 Contracts in progress

	2016	2015
	£m	£m
Group		
Amounts due from contract customers:		
Amounts expected to be recovered within 12 months (Note 18)	47.3	31.2
Amounts due to contract customers:		
Amounts expected to be settled within 12 months (Note 20)	(16.3)	(15.1)
Net amounts due from contract customers at 30 June	31.0	16.1
Analysed as:		
Contract costs incurred plus recognised profits less recognised losses to date	487.8	368.5
Less progress billings	(456.8)	(352.4)
Contracts in progress at 30 June	31.0	16.1
IAS 11 contract revenue	262.2	189.8

20 Trade and other payables

	Group		Company	
	2016	2015	2016	2015
	£m	£m	£m	£m
Trade payables	18.2	15.6	1.2	0.5
Tax and social security payable	8.4	6.1	1.1	0.4
Amounts owed to Group undertakings	-	-	18.1	8.1
Accruals and deferred income	25.4	23.2	2.3	2.7
Payments received in advance on contracts (Note 19)	16.3	15.1	-	-
Other payables	4.2	3.8	0.8	2.0
At 30 June	72.5	63.8	23.5	13.7

In respect of the Company, £3.2m (2015: £1.6m) of the amounts owed to Group undertakings are due for repayment within the next 12 months and the remaining £14.9m (2015: £6.5m) has no fixed repayment date. £15.1m (2015: £4.3m) of the amounts owed to Group undertakings carry interest at rates between 2.4% and 3.1% (2015: 2.4% and 3.1%) with the remaining £3.0m (2015: £3.8m) being interest-free. All amounts owed to Group undertakings are unsecured.

21 Borrowings

	Group		Company	
	2016	2015	2016	2015
	£m	£m	£m	£m
Bank overdrafts	3.3	-	3.3	-
Current other loans	0.1	-	0.1	-
Non-current bank loans	54.7	45.4	14.7	5.4
At 30 June	58.1	45.4	18.1	5.4

The non-current bank loans are repayable in the year ending 30 June 2020 and are denominated in Pounds Sterling. The non-current bank loans have variable rates of interest which are dependent upon the adjusted leverage of the Group and range from 1.6% to 2.35% above LIBOR. At the reporting date, the Group has an adjusted leverage which attracts the lowest rate of interest, being LIBOR + 1.6%.

The Group has banking facilities for its UK companies which together have a net overdraft limit. The balances are shown gross in the financial statements as cash and cash equivalents and borrowings.

22 Fair value of financial assets and liabilities

There are no differences between the fair value of financial assets and liabilities and their carrying value:

	Group		Company	
	2016	2015	2016	2015
	£m	£m	£m	£m
Assets as per Statements of Financial Position				
Loans and receivables:				
Trade and other receivables ⁽¹⁾ (Note 18)	102.8	74.1	0.1	0.2
Amounts owed by Group undertakings (Note 18)	-	-	91.2	57.0
Cash and cash equivalents (Note 33)	23.7	59.7	0.1	0.5
Assets at fair value through profit and loss:				
Derivative financial assets	0.4	0.2	0.4	0.2
At 30 June	126.9	134.0	91.8	57.9
Liabilities as per Statements of Financial Position				
Other financial liabilities at amortised cost:				
Borrowings (Note 21)	58.1	45.4	18.1	5.4
Trade and other payables ⁽²⁾ (Note 20)	64.1	57.7	4.3	5.2
Amounts owed to Group undertakings (Note 20)	-	-	18.1	8.1
Liabilities at fair value through profit and loss:				
Derivative financial liabilities	2.5	0.1	2.5	0.1
At 30 June	124.7	103.2	43.0	18.8

(1) Excludes prepayments and accrued income of £6.1m (2015: £4.5m) for the Group and £0.7m (2015: £0.6m) for the Company.

(2) Excludes tax and social security payable of £8.4m (2015: £6.1m) for the Group and £1.1m (2015: £0.4m) for the Company.

Net derivative financial liabilities of £2.1m (2015: net derivative financial assets of £0.1m) relate to foreign exchange contracts.

Summary of methods and assumptions

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 value in the Statement of Financial Position 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. 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 under the IFRS 13 fair value hierarchy).

During the year the following foreign exchange differences were credited/(charged) to the Consolidated Income Statement:

	2016	2015
	£m	£m
On loans and receivables	5.6	(2.2)
On other financial assets and liabilities	(4.6)	2.0
At 30 June	1.0	(0.2)

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23 Financial risks

(a) Objectives, policies and strategies

The financial risks faced by the Group and the Company 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 and the Company have no material exposure to commodity price fluctuations and this situation is not expected to change in the foreseeable future.

The Group's financial instruments 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. The Company's financial instruments comprise floating rate borrowings.

(b) Capital risk

The objectives when managing capital are to safeguard the ability to continue as a going concern in order to provide returns for shareholders and 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. 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 as shown in the Statement of Financial Position plus net debt.

	Group		Company	
	2016	2015	2016	2015
	£m	£m	£m	£m
Gearing ratio				
Net debt/(funds) (Note 33)	34.4	(14.3)	18.0	4.9
Total equity	139.4	116.0	116.9	109.1
Total capital	173.8	101.7	134.9	114.0
At 30 June	19.8%	-	13.3%	4.3%

(c) Liquidity risk

The Group and Company policy towards managing their liquidity risks is to maintain a mix of short- and medium-term borrowing facilities with their bankers. Short-term flexibility is provided by bank overdraft facilities. In addition, the Group and Company maintain medium-term borrowing facilities in order to provide the appropriate level of finance to support the current and future requirements. As the cash profile on large contracts can vary significantly, the Group seeks committed facilities that provide substantial headroom against forecast requirements to mitigate its exposure.

At the year-end, the Group held total facilities of £90.9m (2015: £89.4m). This included committed facilities of £75.0m (2015: £75.0m). £54.5m of committed facilities, net of direct issue costs, were drawn at 30 June 2016 (2015: £45.4m) primarily in order to fund the acquisitions of Lloyd's Register Rail on 1 July 2015 and Cascade on 18 August 2015, as disclosed in Notes 12(a) and 12(b), respectively. Of the committed facilities, a £35.0m facility is available for the period to September 2019 and £40.0m is available until April 2020. In addition, the Group has uncommitted facilities including overdrafts of £15.9m at 30 June 2016 (2015: £14.4m), which mature throughout the next financial year and are renewable annually.

	Group		Company	
	2016	2015	2016	2015
	£m	£m	£m	£m
Maturity of borrowings				
Overdrafts repayable on demand	(3.3)	-	(3.3)	-
Maturing:				
After 1 month and within 3 months	(0.1)	-	(0.1)	-
After 12 months and within 5 years	(54.7)	(45.4)	(14.7)	(5.4)
At 30 June	(58.1)	(45.4)	(18.1)	(5.4)

	Group		Company	
	2016	2015	2016	2015
	£m	£m	£m	£m
Maturity of trade payables				
Maturing:				
Within 1 month	(9.9)	(9.2)	(1.2)	(0.5)
After 1 month and within 3 months	(7.6)	(5.7)	-	-
After 3 months and within 12 months	(0.4)	(0.3)	-	-
After more than 12 months	(0.3)	(0.4)	-	-
At 30 June	(18.2)	(15.6)	(1.2)	(0.5)

23 Financial risks (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. 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.

	2016	2015
	£m	£m
Ageing of net trade receivables		
Not overdue and not impaired	39.7	30.8
Overdue but not impaired:		
0 - 90 days overdue	9.0	6.7
91 - 180 days overdue	2.8	1.0
Over 180 days overdue	1.5	2.0
At 30 June	53.0	40.5

Our customers include the world's major transportation original equipment manufacturers and operators, supply chain organisations, energy companies, financial institutions and government agencies. Revenue by customer location is disclosed within Note 3(b) and trade receivables are derived from these customer groups and locations.

Net trade receivables that are neither past due nor impaired of £39.7m (2015: £30.8m) consist of £26.6m (2015: £25.9m) relating to the UK business, £4.6m (2015: £1.3m) relating to the European business, £4.1m (2015: £3.2m) relating to the US business, £4.3m (2015: £0.4m) relating to the Asian business and £0.1m (2015: £Nil) relating to the business in the Middle East. Net trade receivables that are overdue but not impaired of £13.3m (2015: £9.7m) consist of £7.7m (2015: £5.3m) relating to the UK business, £2.6m (2015: £1.5m) relating to the European business, £2.4m (2015: £1.9m) relating to the US business, £0.4m (2015: £1.0m) relating to the Asian business and £0.2m (2015: £Nil) relating to the business in the Middle East.

We have limited experience of bad debts with any of these customers. £22.9m of the total net trade receivables balance was received in July 2016. Due to these factors, the Directors are of the opinion that there is no further credit risk provision required in excess of any existing provision for impairment.

	Group		Company	
	2016	2015	2016	2015
	£m	£m	£m	£m
Maximum exposure to bank counterparty risk				
Cash at bank and in hand	23.7	59.7	0.1	0.5
Derivative financial assets	0.4	0.2	0.4	0.2
At 30 June	24.1	59.9	0.5	0.7

Cash at bank and in hand of £23.7m (2015: £59.7m) consists of £4.1m (2015: £47.0m) held in the UK, £5.0m (2015: £1.8m) held in Europe, £3.3m (2015: £2.2m) held in the US, £8.1m (2015: £8.7m) held in Asia and £3.2m (2015: £Nil) held in the Middle East.

The Group and Company 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 and Company further limits risk in this area by setting an overall credit limit for all transactions with each bank counterparty in accordance the institution's credit standing.

(e) Market risk

Interest rate risk

The Group and Company borrowings and cash balances held at floating interest rates are exposed to cash flow interest rate risk. As set out in further detail in Note 21, 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, which is currently attracting the lowest possible rate of interest. The effect of any foreseen changes in the LIBOR remain unhedged, although the policy is reviewed on an ongoing basis.

	Group		Company	
	2016	2015	2016	2015
	£m	£m	£m	£m
Financial assets and liabilities by interest type				
Floating rate financial assets	8.1	12.8	70.8	57.0
No interest financial assets	118.8	121.2	21.1	0.9
Floating rate financial liabilities	(54.5)	(45.4)	(29.6)	(5.4)
No interest financial liabilities	(70.3)	(57.8)	(13.5)	(13.4)
Net financial assets at 30 June	2.1	30.8	48.8	39.1

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23 Financial risks (continued)

(e) Market risk (continued)

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, Netherlands, Germany and China.

The carrying amounts of the Group's foreign currency denominated monetary assets and liabilities are:

	Assets		Liabilities	
	2016	2015	2016	2015
	£m	£m	£m	£m
US Dollar	9.7	7.3	(1.5)	(1.6)
Euro	11.9	5.0	(5.2)	(3.5)
Chinese Renminbi	8.7	8.8	(0.1)	-

It is the Group's policy not to undertake any speculative currency transactions.

The Group hedges transactional exposures relating to its foreign currency exposures on contracts by taking out foreign exchange contracts or other derivative financial instruments.

The Company hedges currency risk on its US Dollar, Euro and Chinese Renminbi denominated receivables from related parties.

(f) Analysis of sensitivity of financial instruments to market risk

Exchange rate sensitivity

The Group has financial instruments in assets and liabilities in foreign currencies, principally in US Dollars, Euros and Chinese Renminbi, where the financial instruments 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 insignificant impact on the value of financial instruments at the year-end. Given the fluctuations in the Group's principal foreign currencies just prior to and after the year-end as a result of the UK referendum vote to leave the EU, a 20% sensitivity in these exchange rates is deemed to be appropriate.

Interest rate sensitivity

A 1% change in either the US Dollar, Euro, Chinese Renminbi or Sterling interest rates would have an insignificant impact on the value of the Group's floating rate financial instruments at the year-end. A 1% sensitivity is deemed to be appropriate as loans are based on LIBOR and so are unlikely to be subjected to significant fluctuations in interest rates in the foreseeable future.

(g) Cash flow hedges

The Group uses foreign currency contracts designated as cash flow hedges to hedge the exposure arising from orders in foreign currencies that could affect the Consolidated Income Statement. The principal risk being hedged is the Euro/Sterling, US Dollar/Sterling and Chinese Renminbi/Sterling spot and interest rate differential exchange rate risk arising from orders in foreign currencies. The spot and interest rate differential component of the contracts taken out is designated as a hedge of the change in fair value of the cash flows on the firm orders in foreign currencies that are attributable to movements in the Euro/Sterling, US Dollar/Sterling and Chinese Renminbi/Sterling spot and interest rates. Since the Group does not hedge account, the change in the fair value of the instrument (if any) is recognised directly in the Consolidated Income Statement.

	2016	2015
	£m	£m
Cash flows expected to occur and affect the income statement		
Within 3 months	29.3	25.7
After 3 months and within 12 months	1.4	-
After 1 and within 3 years	0.2	-
Total	30.9	25.7

24 Retirement benefit obligations

Group and Company

Defined contribution and defined benefit schemes

The Group operates various defined contribution pension schemes, the assets of which are held in separately administered funds. The Group also 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 lies with the Board of Trustees. The Board of Trustees must be comprised of representatives of the Group and RGPF participants in accordance with the RGPF's regulations.

The last triennial valuation of the RGPF was completed with an effective date of 5 April 2014. At that date, the assets of the fund had a market value of £96.3m and were sufficient to cover 79% of the benefits that had accrued to members when assessed on the Trustees' prudent funding basis. Contributions due to the RGPF during the year ending 30 June 2017 are £4.3m. The Company has agreed with the Trustees that the annual contributions of £4.3m will continue until 31 January 2021, in order to eliminate the Trustees' funding deficit revealed at the 5 April 2014 valuation. The next triennial valuation is due on 5 April 2017, and this process is expected to complete in the year ending 30 June 2018. The results of the 2017 triennial valuation will determine whether the Group's current contribution commitment remains appropriate.

The IAS 19 'Employee Benefits' valuation was completed as at 30 June 2016 and the pension costs relating to the RGPF were assessed using the projected unit credit method in accordance with the advice of Mercer, qualified actuaries. The post-retirement mortality assumptions for the current year are consistent with those of the prior year. The assumptions use a standard baseline by SAPS, known as the 'Series 2' tables, with a 98% multiplier for males and 95% multiplier for females, together with future improvements in line with the Continuous Mortality Investigation ('CMI') 2014 projection model, with 1.25% long-term trend (based upon each member's year of birth). Under these mortality assumptions the expected future lifetime from age 65 is:

Age	2016		2015	
	Males	Females	Males	Females
65 now	23.8	25.2	23.7	25.1
65 in 20 years	25.4	27.1	25.3	27.0

The other significant assumptions made were:

	At 30 June 2016	At 30 June 2015
Discount rate	2.95%	3.80%
Inflation	2.80%	3.25%
Rate of increase in pensions in payment:		
Pre 1 July 2002 accrual	3.45%	3.65%
Post 1 July 2002 accrual	2.75%	3.20%
Rate of increase in pension in deferment	1.80%	2.25%
Percentage of pension to be commuted for a lump sum at retirement	25.00%	25.00%

Scheme assets are comprised as follows:

	2016			2015		
	Quoted £m	Unquoted £m	Total £m	Quoted £m	Unquoted £m	Total £m
Equities	27.8	-	27.8	28.9	-	28.9
Bonds	63.1	-	63.1	54.4	-	54.4
Cash	-	5.8	5.8	-	0.1	0.1
Property	-	6.7	6.7	-	6.3	6.3
Diversified growth funds	19.4	-	19.4	19.7	-	19.7
At 30 June	110.3	12.5	122.8	103.0	6.4	109.4

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24 Retirement benefit obligations (continued)

Movements in the fair value of scheme assets and present value of defined benefit obligations were as follows:

	2016			2015		
	Fair value of plan assets £m	Present value of obligation £m	Net total £m	Fair value of plan assets £m	Present value of obligation £m	Net total £m
At 1 July	109.4	(130.1)	(20.7)	98.2	(117.7)	(19.5)
Interest income/(expense) (Note 8)	4.2	(4.9)	(0.7)	4.3	(5.1)	(0.8)
Credit/(charge) to the income statement	4.2	(4.9)	(0.7)	4.3	(5.1)	(0.8)
Return on plan assets, excluding amounts included in interest income	9.7	-	9.7	7.1	-	7.1
Loss from change in demographic assumptions	-	-	-	-	(1.5)	(1.5)
Loss from change in financial assumptions	-	(14.1)	(14.1)	-	(11.9)	(11.9)
Experience gains	-	-	-	-	1.6	1.6
Total remeasurements in other comprehensive income	9.7	(14.1)	(4.4)	7.1	(11.8)	(4.7)
Contributions from sponsoring companies	4.3	-	4.3	4.3	-	4.3
Benefits paid	(4.8)	4.8	-	(4.5)	4.5	-
Total movements	13.4	(14.2)	(0.8)	11.2	(12.4)	(1.2)
At 30 June	122.8	(144.3)	(21.5)	109.4	(130.1)	(20.7)

The sensitivity of the defined benefit obligation to changes in the principal assumptions is:	Change in assumption	Impact on defined benefit obligation
Decrease in discount rate	0.25%	Increase by £6.8m
Increase in inflation rate	0.25%	Increase by £4.3m
Increase in life expectancy	1 year	Increase by £4.8m

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 the Statement of Financial Position. The methods and types of assumptions used in preparing the sensitivity analysis did not change when compared to the previous year.

The Group is exposed to a number of risks from the RGPF, the most significant of which are described below:

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.
Changes in 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. The UK referendum vote to leave the EU has caused volatility in the market which has, and may continue to, adversely affect corporate bond yields, with a corresponding impact on discount rates as described above.
Inflation risk:	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.
Life expectancy:	The RGPF provides benefits for the life of the members, so increases in the life expectancy will result in an increase in the RGPF's liabilities.

The weighted average duration of the defined benefit obligation is 18.3 years.

	2016 £m	2015 £m
Expected maturity analysis of undiscounted pension benefits		
Less than a year	3.9	3.8
Between 1-2 years	4.0	3.9
Between 2-5 years	12.8	12.5
Next 5 years	24.2	23.8
	2016	2015
Amounts charged in the income statement in respect of pensions	£m	£m
In respect of defined contribution schemes	8.7	5.4
In respect of defined benefit schemes	0.7	0.8
Total	9.4	6.2
Included within:		
Staff costs (Note 7)	8.7	5.4
Finance costs (Note 8)	0.7	0.8
Total	9.4	6.2

25 Deferred tax

(a) Deferred tax analysis by category

	Group		Company	
	2016 £m	2015 £m	2016 £m	2015 £m
Non-current deferred tax assets	13.0	13.7	5.7	4.9
Non-current deferred tax liabilities	(3.6)	(3.1)	(0.5)	-
Net deferred tax asset at 30 June	9.4	10.6	5.2	4.9

(b) Movements in net deferred tax assets and liabilities

Group	Accelerated capital allowances £m	Retirement benefit obligations £m	Tax losses and credits £m	Unrealised capital gains £m	Other £m	Total £m
At 1 July 2014	(3.9)	3.9	9.2	(0.5)	1.7	10.4
Charged to the income statement	(0.1)	(0.7)	(0.4)	-	(0.1)	(1.3)
Credited to statement of comprehensive income	-	0.9	-	-	0.6	1.5
Exchange rate adjustments	(0.1)	-	-	-	0.1	-
At 30 June 2015	(4.1)	4.1	8.8	(0.5)	2.3	10.6
Arising on acquisition	-	-	-	-	(3.3)	(3.3)
(Charged)/credited to the income statement	(0.3)	(0.8)	0.1	-	1.1	0.1
Credited to statement of comprehensive income	-	0.7	-	-	0.2	0.9
Exchange rate adjustments	(0.3)	-	1.5	-	(0.1)	1.1
At 30 June 2016	(4.7)	4.0	10.4	(0.5)	0.2	9.4

At 30 June 2016 and 30 June 2015 there were no temporary differences associated with undistributed earnings of subsidiaries for which deferred tax liabilities have been recognised. No liability would be recognised in respect of these differences because the Group is in a position to control the timing of the reversal of the temporary differences and it is probable that such differences will not reverse in the foreseeable future.

A deferred tax asset has not been recognised for the current year tax losses within the consolidated tax group controlled by Ricardo GmbH, within which Ricardo Deutschland GmbH is the primary trading entity. The deferred tax asset not recognised in respect of these losses at 30 June 2016 amounts to £5.1m (2015: £3.0m). The carrying value at 30 June 2016 for the deferred tax asset in the consolidated tax group controlled by Ricardo GmbH that has been recognised is £3.6m (2015: £3.1m). The Directors are of the view that it is probable that future taxable profits will be available within the consolidated tax group controlled by Ricardo GmbH against which the carrying value of the recognised deferred tax asset can be utilised in the foreseeable future.

A deferred tax asset also continues to be recognised within the consolidated tax group controlled by Ricardo, Inc. in respect of historic research and development claims that can be utilised against future taxable profits. These claims carry a 20-year statute of limitation and must be utilised within that period. The carrying value at 30 June 2016 for the deferred tax asset in the consolidated tax group controlled by Ricardo, Inc. that has been recognised is £4.9m (2015: £4.7m). The Directors are also of the view that it is probable that future taxable profits will be available within the consolidated tax group controlled by Ricardo, Inc. against which the carrying value of the recognised deferred tax asset can be utilised in the foreseeable future.

Company	Retirement benefit obligations £m	Tax losses and credits £m	Unrealised capital gains £m	Other £m	Total £m
At 1 July 2014	3.9	0.3	(0.5)	1.1	4.8
Charged to the income statement	(0.7)	(0.4)	-	(0.3)	(1.4)
Credited to statement of comprehensive income	0.9	-	-	0.6	1.5
At 30 June 2015	4.1	(0.1)	(0.5)	1.4	4.9
(Charged)/credited to the income statement	(0.8)	0.3	-	(0.1)	(0.6)
Credited to statement of comprehensive income	0.7	-	-	0.2	0.9
At 30 June 2016	4.0	0.2	(0.5)	1.5	5.2

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26 Provisions

Group	Warranty £m	Dilapidation £m	Other £m	Total £m
At 1 July 2014	1.9	0.2	-	2.1
Charged to income statement	0.5	0.1	0.2	0.8
Utilised in year	(0.5)	-	-	(0.5)
Released in year	(0.7)	-	-	(0.7)
At 30 June 2015	1.2	0.3	0.2	1.7
Arising on acquisition	-	-	0.5	0.5
Charged to income statement	1.0	-	0.9	1.9
Utilised in year	(0.6)	-	(0.3)	(0.9)
Released in year	(0.3)	(0.1)	(0.1)	(0.5)
Exchange rate adjustments	-	-	0.1	0.1
At 30 June 2016	1.3	0.2	1.3	2.8

The warranty provision reflects the Directors' best estimate of the cost needed to fulfil the Group's warranty obligations within a number of contracts. Subsequent to their initial recognition, warranty provisions unwind over the periods of the warranty obligations, which are expected to be less than five years.

The dilapidation provision reflects the Directors' best estimate of future obligations relating to the maintenance of leasehold properties arising from past events such as lease renewals or terminations. The timing of the cash flows is dependent upon the remaining term of the associated lease.

Other provisions comprise those for claims, litigation, restructuring costs and statutory provisions for employment-related benefits, including long-service awards and termination indemnity schemes. The associated cash outflows for claims, litigation and restructuring costs are primarily less than one year, whilst the cash outflows associated with statutory employment-related benefits are expected to be more than five years.

Analysis of total provisions	2016 £m	2015 £m
Current	1.3	0.4
Non-current	1.5	1.3
At 30 June	2.8	1.7

27 Share capital

Group and Company	2016 Number	2015 Number	2016 £m	2015 £m
Allotted, called-up and fully paid ordinary shares of 25p each				
At 1 July	52,417,047	52,272,885	13.1	13.1
Allotted under share option schemes	-	7,068	-	-
Allotted under the LTIP scheme	325,866	137,094	0.1	-
Allotted under the DBP scheme	111,910	-	-	-
At 30 June	52,854,823	52,417,047	13.2	13.1

The consideration received for shares allotted under the share option schemes, Long-Term Incentive Plan ('LTIP') and Deferred Share Bonus Plan ('DBP') during the year ended 30 June 2016 was £0.1m (2015: £0.1m).

Dividends were paid at the reduced rate of 0.01p per share for interim and final dividends in respect of shares held by an employee benefit trust in relation to the LTIP. There were 2,780 such shares at 30 June 2016 (2015: 3,224 shares).

28 Share premium

Group and Company	£m
At 1 July 2014	14.2
Arising on shares issued	0.1
At 30 June 2015 and 30 June 2016	14.3

29 Share-based payments

The Group operates the following share-based payment schemes: 2004 Ricardo plc Executive Share Option Plan (the '2004 Plan'); Equity- and cash-settled Long-Term Incentive Plan ('LTIP'); Deferred Share Bonus Plan ('DBP'); Equity-settled Share Incentive Plan ('SIP'); and Cash-settled International Notional Share Plan ('INSP').

The general terms and conditions, including vesting requirements and performance conditions for the 2004 Plan, DBP, Equity-settled LTIP, All-Employee Share Plans (SIP and INSP) are described in the Directors' Remuneration Report.

The 2004 Plan, LTIP, SIP and DBP require shareholder approval for the issue of shares

50% 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, this requires that the valuation model used takes into account the anticipated performance outcome. The charge to the Consolidated Income Statement has been calculated using the Monte Carlo model, using the following assumptions for the plan cycles commencing in these years:

	2016	2015
Weighted average share price at date of award	920p	647p
Expected volatility	23.8%	25.0%
Expected life	3 yrs	3 yrs
Risk-free rate	0.8%	1.0%
Dividend yield	2.0%	2.2%
Possibility of ceasing employment before vesting	10%	10%
Weighted average fair value per LTIP as a percentage of a share at date of award	76.6%	75.9%

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 £1.5m (2015: £1.5m) disclosed in Note 7 comprised £1.5m (2015: £1.4m) in respect of equity-settled schemes and £Nil (2015: £0.1m) in respect of cash-settled schemes.

Equity-settled Executive Share Option Plan

	2016		2015	
	Number	Weighted average share price	Number	Weighted average share price
Outstanding at 1 July	2,827	305p	9,895	305p
Exercised	-	305p	(7,068)	305p
Outstanding at 30 June	2,827	305p	2,827	305p
Exercisable at the end of the year	2,827	305p	2,827	305p

The outstanding options had a weighted average contractual life of 2.3 years (2015: 3.3 years). The remaining options are exercisable at 305p. During the years ended 30 June 2016 and 30 June 2015, no equity-settled executive share options were awarded.

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'.

	2016	2015
	Shares allocated ⁽¹⁾	Shares allocated ⁽¹⁾
Outstanding at 1 July	663,718	728,967
Awarded	206,796	216,588
Lapsed	(16,685)	(67,346)
Forfeited	(2,551)	(77,397)
Vested	(265,046)	(137,094)
Outstanding at 30 June	586,232	663,718

(1) Shares allocated excludes dividend roll-up.

The outstanding LTIP awards had a weighted average contractual life of 1.3 years (2015: 1.3 years). The weighted average exercise price in both 2016 and 2015 was £Nil.

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29 Share-based payments (continued)

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 share issue.

	2016	2015
	Number of deferred shares	Number of deferred shares
Outstanding at 1 July	-	-
Awarded	5,898	-
Forfeited	(1,139)	-
Outstanding at 30 June	4,759	-

The outstanding LTIP awards had a weighted average contractual life of 2.3 years (2015: Nil). The weighted average exercise price in both 2016 and 2015 was £Nil.

Deferred Share Bonus Plan

The Deferred Share Bonus Plan is described in the Directors' Remuneration Report.

	2016	2015
	Number of deferred shares	Number of deferred shares
Outstanding at 1 July	343,187	413,587
Awarded	89,600	76,059
Forfeited	(3,744)	(23,184)
Dividend shares awarded in the year	4,247	4,762
Vested	(173,174)	(128,037)
Outstanding at 30 June	260,116	343,187

The outstanding deferred bonus plans had a weighted average contractual life of 1.1 years (2015: 1.1 years). The weighted average exercise price in both 2016 and 2015 was £Nil.

Equity-settled Share Incentive Plan

The Share Incentive Plan is described in the Directors' Remuneration Report.

	2016	2015
	Number of deferred shares	Number of deferred shares
Outstanding at 1 July	-	195,505
Forfeited	-	(3,660)
Vested	-	(191,845)
Outstanding at 30 June	-	-

The outstanding SIP had no weighted average contractual life. The weighted average exercise price in both 2016 and 2015 was £Nil.

Cash-settled International Notional Share Plan

The International Notional Share Plan is described in the Directors' Remuneration Report.

	2016	2015
	Number of deferred shares	Number of deferred shares
Outstanding at 1 July	-	143,655
Forfeited	-	(8,845)
Vested	-	(134,810)
Outstanding at 30 June	-	-

The outstanding INSP had no weighted average contractual life. The weighted average exercise price in both 2016 and 2015 was £Nil.

30 Other reserves

Group	Merger	Translation	Total
	reserve	reserve	
	£m	£m	£m
At 1 July 2014	1.0	2.4	3.4
Exchange rate adjustments	-	0.5	0.5
At 30 June 2015	1.0	2.9	3.9
Exchange rate adjustments	-	8.7	8.7
At 30 June 2016	1.0	11.6	12.6

The merger reserve represents the amount by which the fair value of the shares issued as consideration for acquisitions exceeded their nominal value, offset by the goodwill on these acquisitions.

The translation reserve comprises foreign currency differences arising from the translation of financial statements of foreign operations.

31 Retained earnings

	Group	Company
	£m	£m
At 1 July 2014	76.9	76.4
Profit for the year	18.6	16.1
Remeasurements on the defined benefit scheme	(4.7)	(4.7)
Tax on items recognised directly in equity	1.5	1.5
Dividends paid	(8.1)	(8.1)
Purchases of own shares to settle awards	(0.9)	(0.9)
Equity-settled transactions	1.4	1.4
At 30 June 2015	84.7	81.7
Profit for the year	25.6	18.6
Remeasurements on the defined benefit scheme	(4.4)	(4.4)
Tax on items recognised directly in equity	0.9	0.9
Dividends paid	(8.9)	(8.9)
Equity-settled transactions	1.5	1.5
At 30 June 2016	99.4	89.4

The Company has not presented its own Income Statement and Statement of Comprehensive Income as permitted by Section 408 of the Companies Act 2006.

32 Cash generated from/(used in) operations

	Notes	Group		Company	
		2016	2015	2016	2015
		£m	£m	£m	£m
Profit before tax		33.0	22.9	19.1	17.7
Adjustments for:					
RDEC income		(6.9)	-	-	-
Share-based payments	29	1.5	1.4	1.5	1.4
Cash flow hedges		2.3	(0.1)	2.3	(0.1)
Dividends received from subsidiaries		-	-	(18.5)	(15.6)
Net finance costs/(income)	8	1.9	0.9	(0.2)	(0.2)
Depreciation and amortisation	14 & 15	13.9	10.5	1.8	1.5
Operating cash flows before movements in working capital		45.7	35.6	6.0	4.7
(Increase)/decrease in inventories		(3.2)	0.2	-	-
Increase in trade and other receivables		(7.7)	(10.6)	-	-
Increase in intercompany balances		-	-	(24.4)	(6.3)
(Decrease)/increase in payables		(4.0)	8.0	(0.3)	(1.0)
Increase/(decrease) in provisions		1.1	(0.4)	-	-
Defined benefit payments		(4.4)	(4.4)	(4.4)	(4.4)
Cash generated from/(used in) operations		27.5	28.4	(23.1)	(7.0)

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33 Net (debt)/funds

Net (debt)/funds is defined by the Group as net cash and cash equivalents less borrowings.

	Group		Company	
	2016	2015	2016	2015
Analysis of net (debt)/funds	£m	£m	£m	£m
Cash and cash equivalents (current assets)	23.7	59.7	0.1	0.5
Bank overdrafts (current liabilities)	(3.3)	-	(3.3)	-
Net cash and cash equivalents	20.4	59.7	(3.2)	0.5
Borrowings maturing within one year	(0.1)	-	(0.1)	-
Borrowings maturing after one year	(54.7)	(45.4)	(14.7)	(5.4)
At 30 June	(34.4)	14.3	(18.0)	(4.9)

	Group		Company	
	2016	2015	2016	2015
Movement in net (debt)/funds	£m	£m	£m	£m
Net funds/(debt) at start of year	14.3	12.6	(4.9)	0.5
Net (decrease)/increase in cash and cash equivalents	(39.3)	47.1	(3.7)	-
Net proceeds from borrowings	(9.4)	(45.4)	(9.4)	(5.4)
At 30 June	(34.4)	14.3	(18.0)	(4.9)

34 Operating lease commitments

By date of commitments:		2016	2015
Group		£m	£m
Future aggregate minimum lease payments under non-cancellable operating leases falling due:			
Within one year		7.2	4.6
Between one and five years		22.2	16.8
After five years		30.2	13.0
At 30 June		59.6	34.4
By nature of commitments:		2016	2015
Group		£m	£m
Future aggregate minimum lease payments under non-cancellable operating leases:			
Land and buildings		58.3	33.1
Other		1.3	1.3
At 30 June		59.6	34.4

35 Contingent liabilities

In the ordinary course of business, the Group has £6.3m (2015: £0.7m) of guarantees and counter-indemnities in respect of bonds relating to performance under contracts. 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 Directors of the Company believe that the ultimate resolution of these disputes will not 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 of £2.8m in respect of certain contingent liabilities that may arise, which have been secured on specific land and buildings (see Note 15). In the Directors' opinion, after taking appropriate legal advice, the outcome of this matter is not expected to give rise to any material cost to the Group.

36 Related party transactions

	2016 £m	2015 £m
The Company had the following transactions with Group undertakings:		
Sale of services	14.4	13.4
Finance income	1.5	1.2
Finance costs	(0.2)	(0.2)
Dividend income	18.5	15.6
The Company had the following year-end balances with Group undertakings:		
Amounts owed by Group undertakings	91.2	57.0
Amounts owed to Group undertakings	(18.1)	(8.1)

The Chairman of Ricardo plc, Sir Terry Morgan, is also a statutory director of Crossrail Limited, which is deemed to be a related party.

	2016 £m	2015 £m
The Group had the following transactions with Crossrail Limited:		
Sale of services	1.7	-
The Group had the following year-end balances with Crossrail Limited:		
Trade receivables	0.3	-

All transactions with Group undertakings, which are disclosed in Note 37, and other related parties as disclosed above, occurred on an arm's length basis. Transactions with the Ricardo Group Pension Fund are disclosed in Note 24. Contributions to the Fund of £0.4m (2015: £0.4m) were owed by the Company as at the year-end.

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37 Subsidiaries

The Company owns, directly or indirectly(*), 100% of the issued share capital, unless otherwise noted, of the following subsidiaries at 30 June 2016. All subsidiaries are deemed to be controlled by the Group and are therefore consolidated within these financial statements:

Subsidiary	Principal activities	Country of incorporation
Ricardo Investments Limited	Holding Company and Management Services	United Kingdom†
Ricardo UK Limited	Technical, Strategic Consulting and Performance Products	United Kingdom†
Ricardo-AEA Limited	Environmental Consulting	United Kingdom†
Ricardo Vepro Limited	Technical Consulting	United Kingdom†
Power Planning Associates Limited	Environmental Consulting	United Kingdom†
Ricardo Asia Limited	Technical Consulting and Business Development	United Kingdom†
Ricardo Russia Limited	Business Development	United Kingdom†
Ricardo, Inc.	Technical, Strategic Consulting and Software	United States
Ricardo Defense Systems LLC*	Technical Consulting	United States
Ricardo GmbH*	Holding Company	Germany
Ricardo Deutschland GmbH*	Technical Consulting	Germany
Ricardo Strategic Consulting GmbH*	Strategic Consulting	Germany
Ricardo Italia s.r.l.	Technical Consulting and Business Development	Italy
Ricardo Prague s.r.o.	Technical Consulting	Czech Republic
PPA Energy (Pty) Limited*	Environmental Consulting	South Africa
Ricardo India Private Limited*(1)	Business Development	India
Ricardo Shanghai Company Limited	Technical Consulting and Business Development	China
Ricardo Japan K.K.	Technical Consulting and Business Development	Japan
Cascade Consulting Holdings Limited*	Holding Company	United Kingdom†
Cascade Consulting (Environment & Planning) Limited*	Environmental Consulting	United Kingdom†
Ricardo EMEA Limited*	Technical Consulting	United Kingdom†
Ricardo Rail Limited (formerly Lloyd's Register Rail Limited)*	Technical Consulting	United Kingdom†
Ricardo Nederland B.V. (formerly Lloyd's Register Rail Europe B.V.)*	Technical Consulting	Netherlands
Ricardo Singapore Pte Limited (formerly Lloyd's Register Rail (S) Pte Limited)*	Technical Consulting	Singapore
Ricardo Hong Kong Limited (formerly Lloyd's Register Rail (Asia) Limited)*	Technical Consulting	Hong Kong
Ricardo Beijing Company Limited (formerly CCS LR Technical Services Limited)*	Technical Consulting	China
Ricardo Technical Consultancy LLC* (49%)(2)	Technical Consulting	Qatar
Ricardo Gulf Technical Consultancy LLC* (49%)(3)	Technical Consulting	United Arab Emirates
Chongqing Transportation Railway Safety Assessment Center* (60%)(4)	Technical Consulting	China
Nanjing Delta Win Transportation Technical Services Limited* (65%)(5)	Technical Consulting	China
Ricardo Certification Limited*	Independent Assurance	United Kingdom†
Ricardo Certification B.V. (formerly Ricardo Certificering B.V.)*	Independent Assurance	Netherlands
Ricardo Certification Denmark ApS (formerly Ricardo Danmark ApS)*	Independent Assurance	Denmark
Ricardo Certification Iberia SL (formerly Ricardo Iberia SL)*	Independent Assurance	Spain
Ricardo Consulting Engineers Limited*	Dormant	United Kingdom†
Ricardo Technology Limited	Dormant	United Kingdom†
Ricardo Transmissions Limited	Dormant	United Kingdom†
Ricardo Pension Scheme (Trustees) Limited	Dormant	United Kingdom†
Ricardo Mayfly Limited	Dormant	Bailiwick of Jersey
Ricardo Certificacion SL*	Dormant	Spain
B&R Taylor Limited	Liquidation	United Kingdom†
Fenton Technology Design Limited	Liquidation	United Kingdom†
PPA Energy Developments Limited*	Liquidation	United Kingdom†
Ricardo Special Vehicles Limited	Liquidation	United Kingdom†
Ricardo Test Services Limited	Liquidation	United Kingdom†
Ricardo Certificering ApS*	Liquidation	Denmark

37 Subsidiaries (continued)

† Registered in England and Wales.

(1) 99% owned by Ricardo plc and 1% owned by Ricardo UK Limited.

(2) 49% owned by Ricardo Rail Limited and 51% owned by Pro-Partnership LLC.

(3) 49% owned by Ricardo Rail Limited and 51% owned by SSD Commercial Investment.

(4) 60% owned by Ricardo Beijing Company Limited and 40% owned by Chongqing Science & Technology Testing Center.

(5) 40% owned by Ricardo Beijing Company Limited, 25% owned by Ricardo Hong Kong Limited and 35% owned by Jiangsu Urban Mass Transit Research & Design Institute Company Limited.

The comprehensive income for the year and equity at the reporting date which is attributable to non-controlling interests is not considered to be significant.

38 Events after the reporting date

Motorcycle Engineering Italia s.r.l. acquisition

On 29 July 2016 the Group acquired the entire issued share capital of Motorcycle Engineering Italia s.r.l. for initial cash consideration of £2.1m (€2.5m). This business was formed from the operating assets and employees of Exnovo s.r.l., a leading vehicle design house, which creates class-leading aesthetics for global motorcycle and scooter brands.

The following table sets out the consideration paid for Motorcycle Engineering Italia s.r.l., together with the provisional assessment of the net assets acquired:

	£m
Initial cash consideration	2.1
Provisional assessment of identifiable net assets acquired	0.1
Provisional goodwill and other acquisition-related intangible assets	2.0
Total	2.1

All of the initial cash consideration of £2.1m (€2.5m) was paid after the year-end in July 2016. The acquisition was completed on a cash-free and debt-free basis, subject to normal levels of working capital.

Adjustments have not yet been made to identifiable net assets on acquisition to reflect their fair value, including the recognition of customer-related intangible assets separable from the goodwill arising on acquisition. It is expected that the remaining value of goodwill will be ascribed to the existence of a skilled, active workforce, developed expertise and processes and the opportunities to obtain new contracts and develop the business. None of the goodwill recognised is expected to be deductible for tax purposes.

Given the proximity of the completed acquisition of Motorcycle Engineering Italia s.r.l. to the date of approval of these financial statements, the provisional assessment of net assets acquired is based upon available financial information.

The provisional value for initial consideration and provisional assessment of net assets acquired may be adjusted in future in accordance with the requirements of IFRS 3 'Business Combinations' and the sale and purchase agreement.

The provisional assessment of net assets of £0.1m includes net trade receivables of £0.1m, all of which is expected to be collectible.

Acquisition-related expenditure of £0.1m has been charged to the Consolidated Income Statement for the year ended 30 June 2016 and is disclosed as a specific adjusting item in Note 4.

Corporate information

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Website: www.ricardo.com

A PDF version of this Annual Report & Accounts can be downloaded from the Investors page of our website.



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Key dates

Final dividend record date	21 October 2016
Annual General Meeting	3 November 2016
Final dividend payment date	11 November 2016

Shareholder services

Capita Registrars 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 Capita to take advantage of this service should visit www.capitaregistrars.com/shareholders.

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Emissions legislation

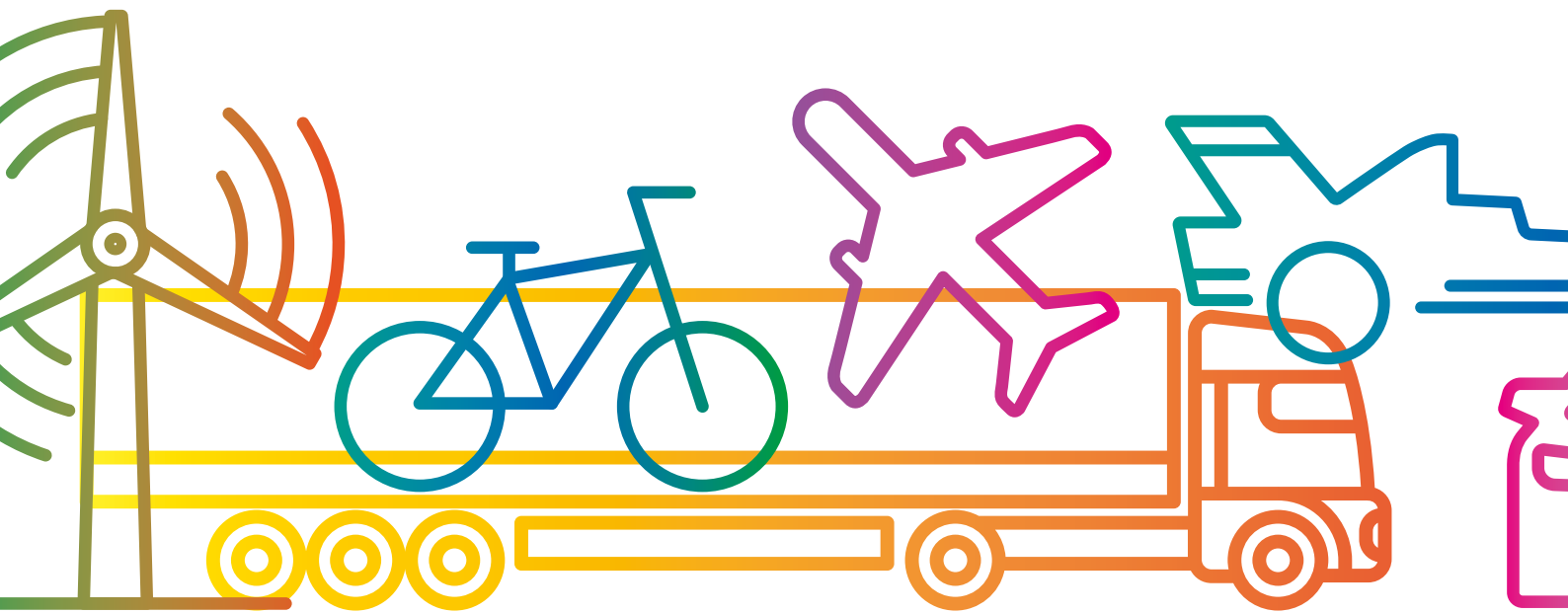
Global tailpipe and CO₂ emissions legislation adherence are 'must haves' in the development budget of many of our clients

	2010	2015	2020	2025
Automotive & LCV	Europe	Euro 5 Passenger Cars 130 g/km	Euro 6a Passenger Cars 130 g/km	Euro 6d - WLTP & RDE Passenger Cars 95 g/km
	US (49 States)	Tier 2 8.55 l/100km Cars & LCV	Tier 3 6.2 l/100km Cars & LCV	Passenger Cars 68 - 78 g/km
	California	LEV II (2009)	LEV III	4.3 l/100km Fleet Average
	China	27.6/20.3 mpg Fleet/Trucks	CNS (Euro 5)	5.1 l/100km Fleet Average
	India	Phase 2 (6.2-13.9/100km) Phase 3 (5.2-11.5 l/100km)	Phase 4 (4.3-7.3 l/100km Fleet Average)	China 6a - WLTP & RDE
	India	Bharat Stage IV (Euro 4 Equivalent)	CAFE Based on Vehicle Mass-Based Formula	Bharat Stage VI (Euro 6 Equivalent)
	Japan	Post New Long-Term	4.4-11.5 l/100km Mass-Based	4.5 l/100km CAFE Target
	Europe	Euro 3	Euro 4	4-9.4 l/100km Mass-Based
	US (49 States)	Classes I, II & III	Harmonisation with California	Euro 5
	California	California Motorcycle Limits		
Motorcycle & Personal Transportation	China	Stage III	Bharat Stage IV	WMTC Adoption with Euro 4 Limits
	India	Bharat Stage III		Bharat Stage VI (Proposed)
	Japan	ISO 6460 Limits 0-125cc / >125 cc	ISO 6460 & WMTC	Euro 4
	Taiwan	Euro 3	Euro 4	Euro 4
	Europe	Euro V	Euro VI	Euro VII
	US (49 States)	EPA 07	Federal CO ₂ Emissions Standards	
	California	EPA 07	Optional Low NOx limits	
	California	Federal CO ₂ Emissions Standards		
	China	Euro IV	Euro V	Euro VI
	India	Bharat Stage IV	Mass-Based Limits for Semi-Trailer and Tow Truck, Auto-Dumper, Bus and City Bus	Bharat Stage VI
Commercial Vehicles (Medium- & Heavy-Duty Trucks)	Japan	Post New Long Term	Mass based limits for Non-Articulated Vehicle, Articulated vehicle Tractor Units, Route Bus and Ordinary Bus	
	Europe	Stage IIB	Stage IV	Stage V
	US	Tier 4 Interim	Tier 4 Final	
	China	Stage II	Stage III (Nationwide) - Stage IV (Beijing)	
	India	Bharat (Tractors and CEV) Stage III	2014 Non-Road Special Vehicle Standards	
	Japan	2011 Non-Road Special Vehicle Standards	2014 Non-Road Special Vehicle Standards	
	Europe	Stage IIIA	Stage IIIB	Stage V
	US	Tier 2	Tier 4 Switch & Line Locomotives	
	India	Not Yet Regulated	Under Discussion	
	Australia	Not Yet Regulated	Studies Ongoing to Adopt US Legislation	
Off-Highway	Europe	Stage IIB	Stage IV	Stage V
	US	Tier 4 Interim	Tier 4 Final	
	China	Stage II	Stage III (Nationwide) - Stage IV (Beijing)	
	India	Bharat (Tractors and CEV) Stage III	2014 Non-Road Special Vehicle Standards	
	Japan	2011 Non-Road Special Vehicle Standards	2014 Non-Road Special Vehicle Standards	
	Europe	Stage IIIA	Stage IIIB	Stage V
	US	Tier 2	Tier 4 Switch & Line Locomotives	
	India	Not Yet Regulated	Under Discussion	
	Australia	Not Yet Regulated	Studies Ongoing to Adopt US Legislation	
	Rail	Europe	Stage IIB	Stage IV
US		Tier 4 Interim	Tier 4 Final	
China		Stage II	Stage III (Nationwide) - Stage IV (Beijing)	
India		Bharat (Tractors and CEV) Stage III	2014 Non-Road Special Vehicle Standards	
Japan		2011 Non-Road Special Vehicle Standards	2014 Non-Road Special Vehicle Standards	
Europe		Stage IIIA	Stage IIIB	Stage V
US		Tier 2	Tier 4 Switch & Line Locomotives	
India		Not Yet Regulated	Under Discussion	
Australia		Not Yet Regulated	Studies Ongoing to Adopt US Legislation	

■ Pollutant Emissions Legislation ■ Available Fuel economy or CO₂ Emissions Legislation

Glossary

CAFE	Corporate Average Fuel Economy	EPA	Environmental Protection Authority of the United States	I/100km	litres per 100 kilometres	RDE	Real-world Driving Emissions
cc	Engine displacement in Cubic Centimetres	g/km	grams per kilometre	LCV	Light Commercial Vehicle	WLTP	Worldwide harmonised Light vehicles Test Procedures
CEV	Construction Equipment Vehicles	ISO	International Organisation for Standardisation	LEV	Low-Emission Vehicle	WMTC	World Motorcycle Test Cycle
CO₂	Carbon dioxide			NOx	Oxides of Nitrogen		



Delivering Excellence Through Innovation & Technology