

Delivering Excellence Through
Innovation & Technology



Ricardo plc Interim Results Presentation

Half year ended 31 December 2017
Presented February 2018

www.ricardo.com

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HIGHLIGHTS – for the half year ended 31 December 2017



- Record order book at £302m, up £54m on June 2017
- Strong order intake at £238m, up £57m on HY 2016/17
- Revenue up 9% to £183m and underlying PBT up 8% to £16.3m on HY 2016/17
- Net debt reduced from £38m at June 2017 to £32m (after £6m acquisition of Control Point)
- A good mix of orders in terms of geography, sector and size with increased orders in hybrid/EV activity at 24% of total Group order intake, up from 17% for FY 2016/17
- Acquisition of Control Point completed in the period and performing well
- Outlook remains positive with a good pipeline



	Half year ended 31 December		Year ended 30 June
	2017	2016	2017
Order intake (£m)	£238m	£181m	£366m
Order book (£m)	£302m	£244m	£248m
Operating profit margin ⁽¹⁾ (%)	9.5%	9.8%	11.6%
Underlying effective tax rate ^{(1) (2) (3)} (%)	22.7%	21.9%	23.0%
Basic earnings per share (pence) ^{(1) (2)}	23.6p	22.3p	55.7p
Dividend (pence)	5.75p	5.42p	19.3p
Net (debt)/funds (£m)	£(32)m	£(47)m	£(38)m
FCFe ⁽⁴⁾	£22m	£(1)m	£10m
Pre-tax pension deficit (£m)	£12m	£30m	£22m
Closing headcount incl. subcontractors (no.)	3,156	2,909	2,927

(1) excluding specific adjusting items, which comprise amortisation of acquired intangible assets, acquisition-related expenditure and reorganisation costs.

(2) in the current period, a non-recurring tax charge arising from the reduction in the US federal tax rate was also classified as a specific adjusting item.

(3) reported effective tax rate is 28.8%.

(4) calculated as net cashflow less dividends, FX, proceeds from share issue and acquisition and restructuring related costs

£m	Half year ended 31 December		H1 2017/18 v H1 2016/17
	2017 Underlying ⁽¹⁾	2016 Underlying ⁽¹⁾	% change
Revenue	182.6	167.0	9%
Gross profit	66.8	62.6	7%
Administration costs	(49.4)	(46.3)	7%
Operating profit	17.4	16.3	7%
Net finance costs	(1.1)	(1.2)	(8)%
Profit before tax	16.3	15.1	8%
Taxation charge ⁽²⁾	(3.7)	(3.3)	12%
Profit for the period	12.6	11.8	7%

(1) excluding specific adjusting items, which comprise amortisation of acquired intangible assets, acquisition-related expenditure and reorganisation costs.

(2) in the current period, a non-recurring tax charge arising from the reduction in the US federal tax rate was also classified as a specific adjusting item.

A full income statement including these items is included in the Appendix.

Revenue by customer location



External Revenue £m	Half year ended 31 December		Year ended 30 June
	2017	2016	2017
UK	68.0	70.0	144.5
Rest of Europe	50.2	41.0	93.3
Europe total	118.2	111.0	237.8
US	20.2	19.6	38.6
China	21.4	13.7	32.7
Japan	11.9	8.2	16.3
Rest of Asia	6.6	10.4	17.9
Asia total	39.9	32.3	66.9
Rest of the World	4.3	4.1	8.8
Total	182.6	167.0	352.1

Half year ended 31 December

£m	Revenue earned		Underlying operating profit ⁽¹⁾		Underlying operating profit ⁽¹⁾ margin	
	2017	2016	2017	2016	2017	2016
Technical Consulting	142.0	133.6	13.5	12.9	9.5%	9.7%
Performance Products	40.6	33.4	3.9	3.4	9.6%	10.2%
Total	182.6	167.0	17.4	16.3	9.5%	9.8%

(1) excluding specific adjusting items, which comprise amortisation of acquired intangible assets, acquisition-related expenditure and reorganisation costs.

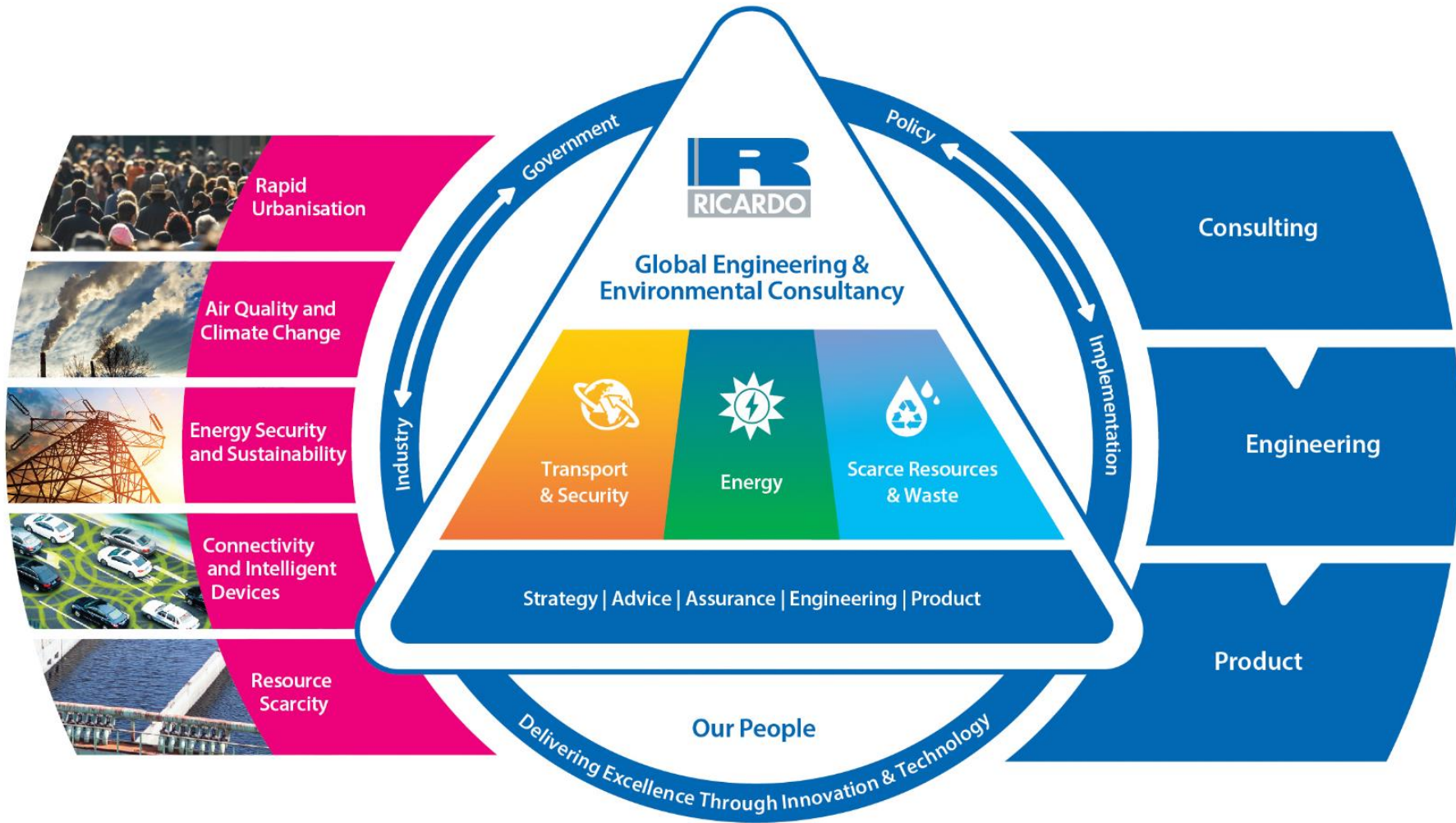
£m	Half year ended 31 December		Year ended 30 June
	2017	2016	2017
Underlying operating profit	17.4	16.3	40.8
Depreciation and amortisation	6.0	5.9	12.3
Working capital decrease/(increase)	10.1	(7.6)	(19.6)
Dividends	(7.4)	(6.9)	(9.8)
Tax paid	(4.7)	(4.0)	(7.6)
Capital expenditure	(5.1)	(6.4)	(11.9)
Proceeds from sale of PPE	0.3	0.1	4.0
Pension charge and funding	(2.2)	(2.2)	(4.4)
Cash flow hedges, FX, interest/other	0.0	(4.1)	(2.9)
Cash inflow/(outflow) before acq'n & restructuring related costs	14.4	(8.9)	0.9
Acquisition and restructuring related costs	(8.0)	(3.7)	(4.4)
Cash inflow/(outflow) ⁽¹⁾	6.4	(12.6)	(3.5)
Opening Cash Balance	(37.9)	(34.4)	(34.4)
Closing Cash Balance	(31.5)	(47.0)	(37.9)

(1) Cash inflow/(outflow) net of movement in borrowings

£m	31 December		30 June
	2017	2016	2017
Tangible non-current assets	47.9	54.1	48.0
Intangible non-current assets	95.9	95.9	94.4
Inventories, trade and other receivables	155.7	151.2	151.5
Assets held for sale	2.7	-	2.8
Net (debt)/funds	(31.5)	(47.0)	(37.9)
Trade and other payables	(94.3)	(89.4)	(82.1)
Pension deficit (net of tax)	(10.2)	(24.2)	(18.1)
Other ⁽¹⁾	(1.9)	(2.5)	(2.9)
Net assets	164.3	138.1	155.7

(1) Other includes provisions, deferred tax and current tax liabilities

Our strategic mission is to be the world's leading organisation for engineering, technical and environmental consultancy within Transport & Security, Energy, and Scarce Resources & Waste



3,150+ people

76 Nationalities

50 Sites

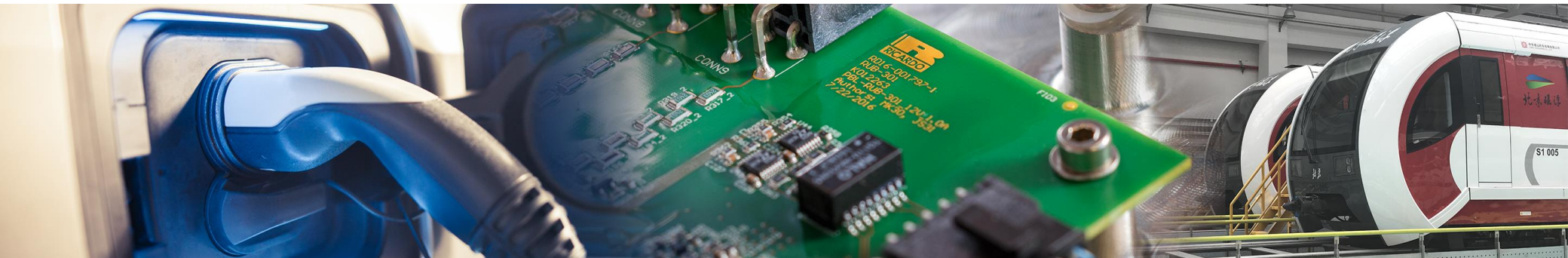
20 Countries

- Back to business environment
- Active automotive market driven by improved combustion engines and new EV powertrains
- New entrants seeing a “new dawn” of opportunity to break into Automotive market with EVs
- Global infrastructure spend, particularly in Asia, driving metro and rail investment
- CO₂ and environmental responsibility (recycling, packaging) becoming popular agenda



A busy half for Ricardo customer activity

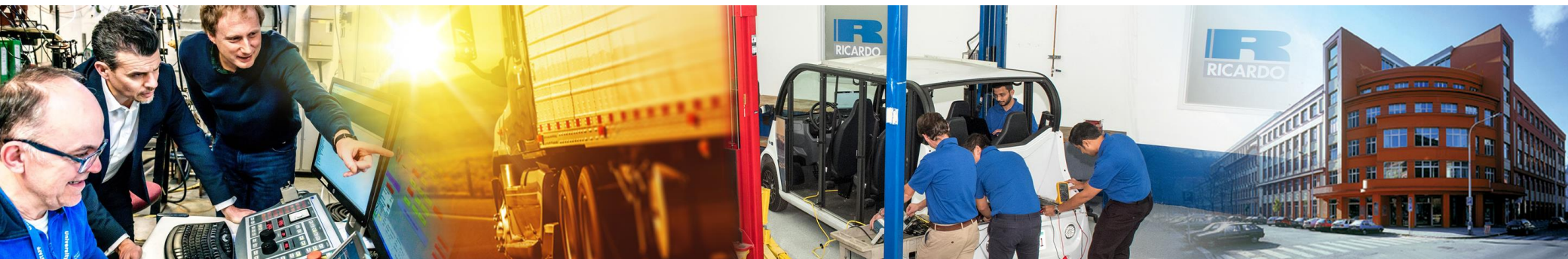
- Record order intake spread across the Group
- A good number of new large multiyear technical consulting programmes
- Strong order intake in EV (24% of total order intake)
- China and Japan performing strongly
- Rail showing significant growth in order intake
- Increased interest in PP programmes
- Pipeline remains good



Reorganising to be efficient for today and fit for the future



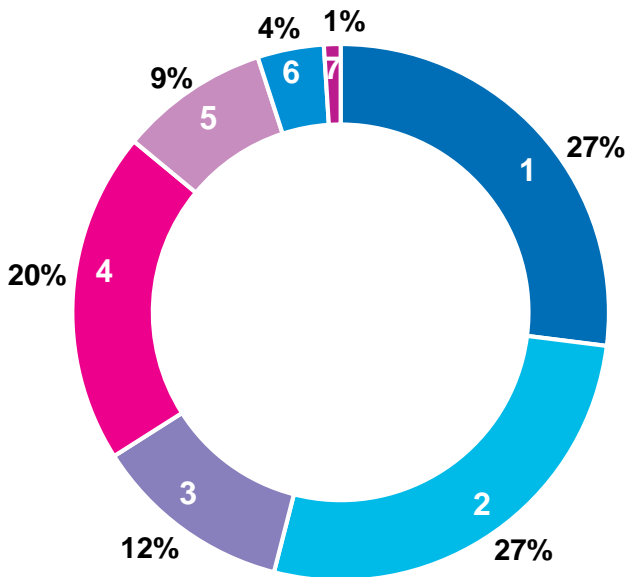
- Automotive moving towards an agile test asset base
- Consolidation of European engineering base and maximisation of Prague lower cost base
 - Restructuring in Germany
 - “Doubling of Prague” underway – engineering and back office services
- Expansion of California – facility capability and personnel
- Increased M&A resource to assist with non organic growth options



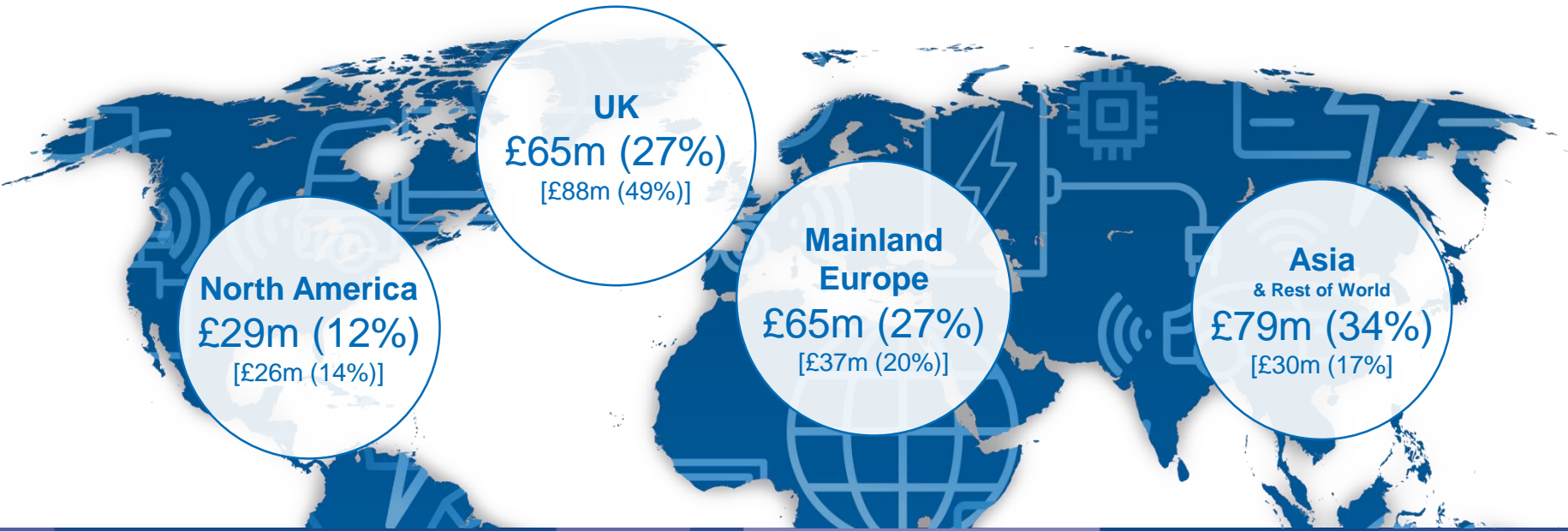
A continued good balance of order intake and pipeline from across the globe



- 1. UK
- 2. Mainland Europe
- 3. North America
- 4. China
- 5. Japan
- 6. Rest of Asia
- 7. Rest of World



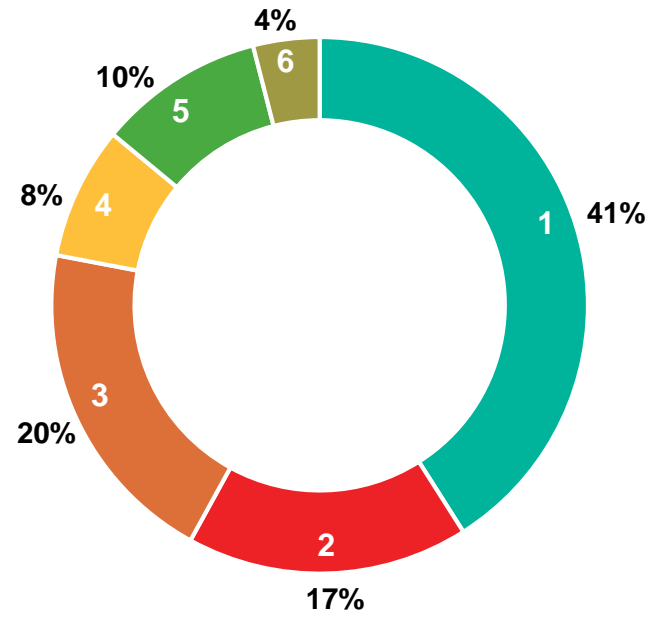
HY 2017/18
 Order Intake £238m
 [HY 2016/17
 Order Intake £181m]



Well balanced market sector order intake with strong performance from Automotive and Rail



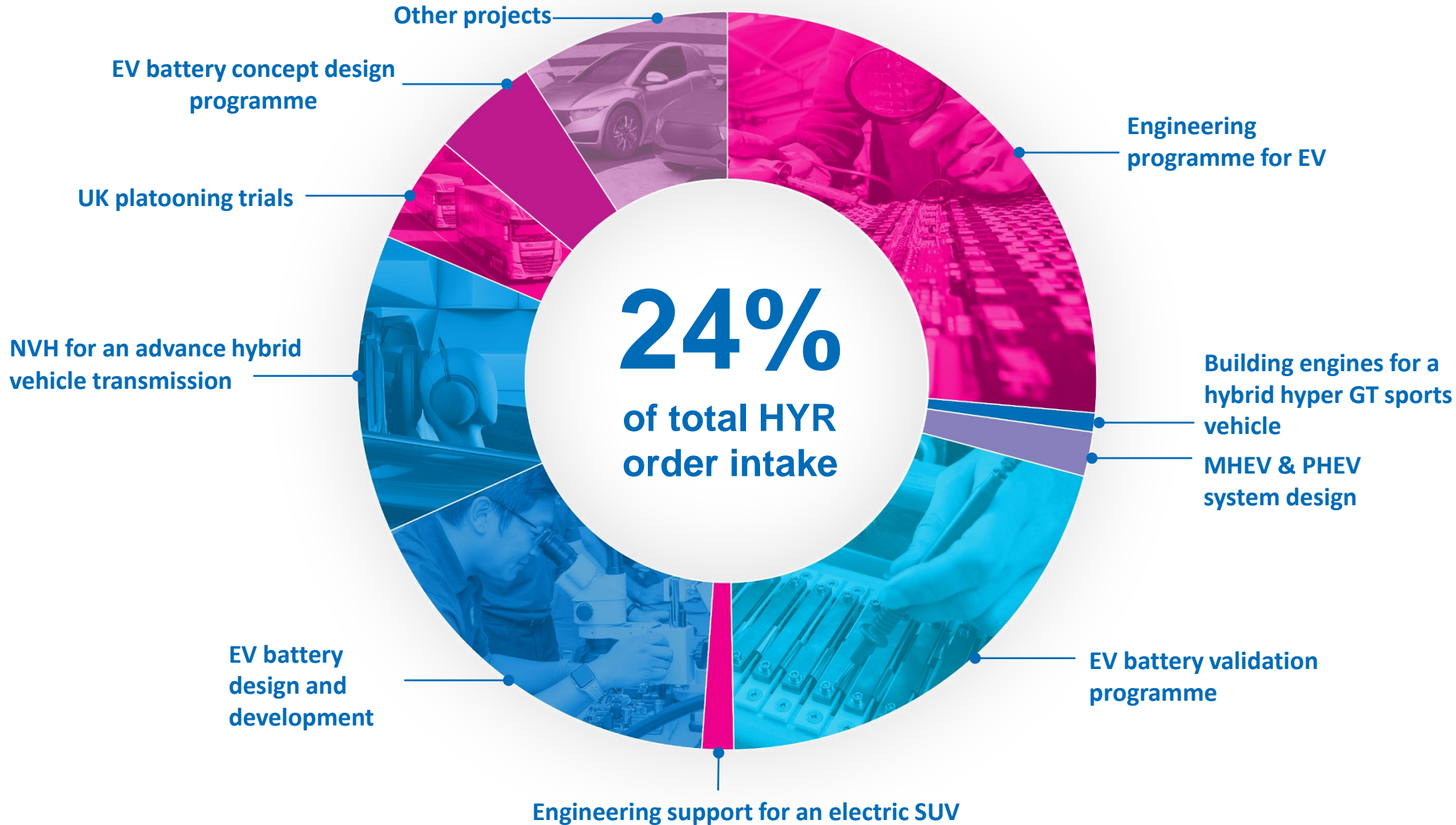
1. Automotive
2. High Performance Vehicles & Motorsport
3. Rail
4. Off Highway & Commercial Vehicles
5. Energy & Environment
6. Defence



HY 2017/18
 Order Intake £238m
 [HY 2016/17
 Order Intake £181m]

Automotive	Rail	Off-Highway & CV	Defence	HPV&M	E&E
£98m [£57m]	£47m [£30m]	£19m [£16m]	£9m [£6m]	£41m [£44m]	£24m [£28m]

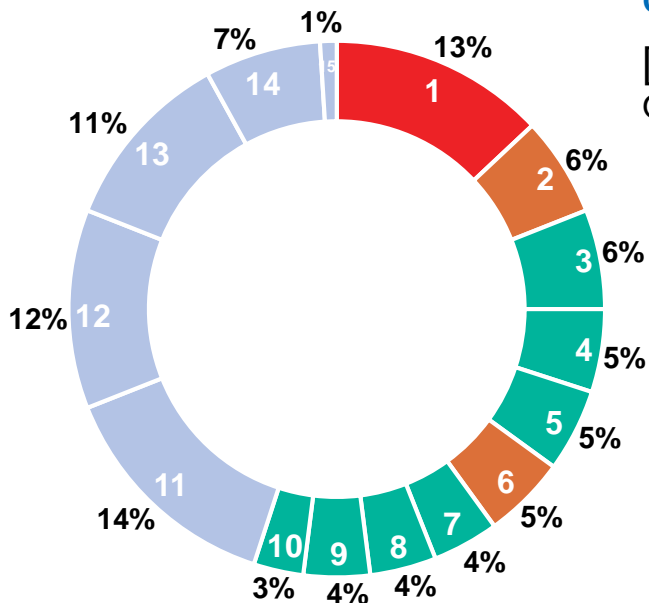
Electrification – order intake relating to electric or hybrid vehicles is £57m or 24% of Group order intake



Diverse customer mix, with a good level of multi-year business

Our top 3 customers are spread across Performance Products, Rail and Automotive

Ricardo External Order Intake by Customer for the six months ended 31 December 2017

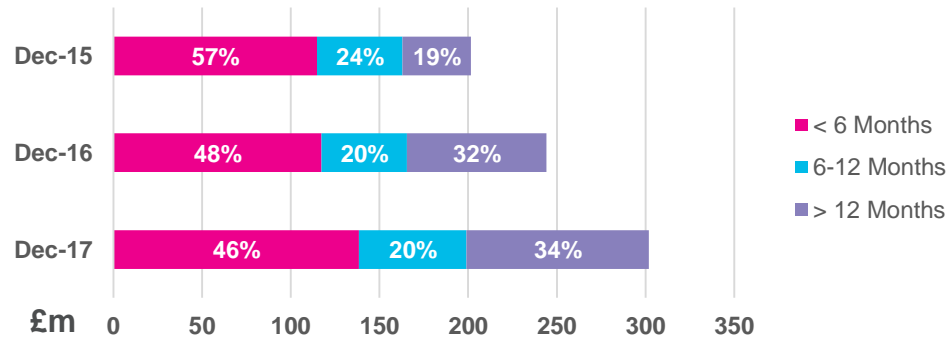


HY 2017/18
Order Intake £238m
 [HY 2016/17
 Order Intake £181m]

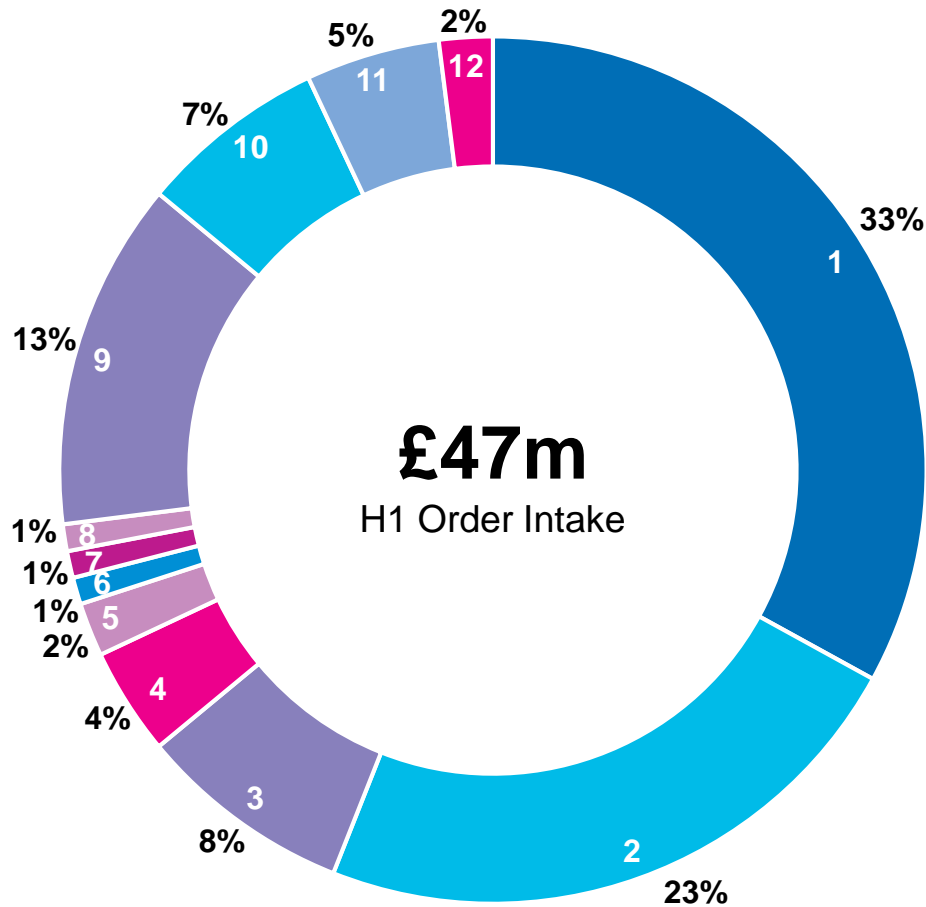


- | | | |
|-----------------|--------------------|---------------------------|
| 1. Key Client 1 | 7. Key Client 7 | 13. Rest of Asia |
| 2. Key Client 2 | 8. Key Client 8 | 14. Rest of North America |
| 3. Key Client 3 | 9. Key Client 9 | 15. Rest of World |
| 4. Key Client 4 | 10. Key Client 10 | |
| 5. Key Client 5 | 11. Rest of UK | |
| 6. Key Client 6 | 12. Rest of Europe | |

Order Book Ageing

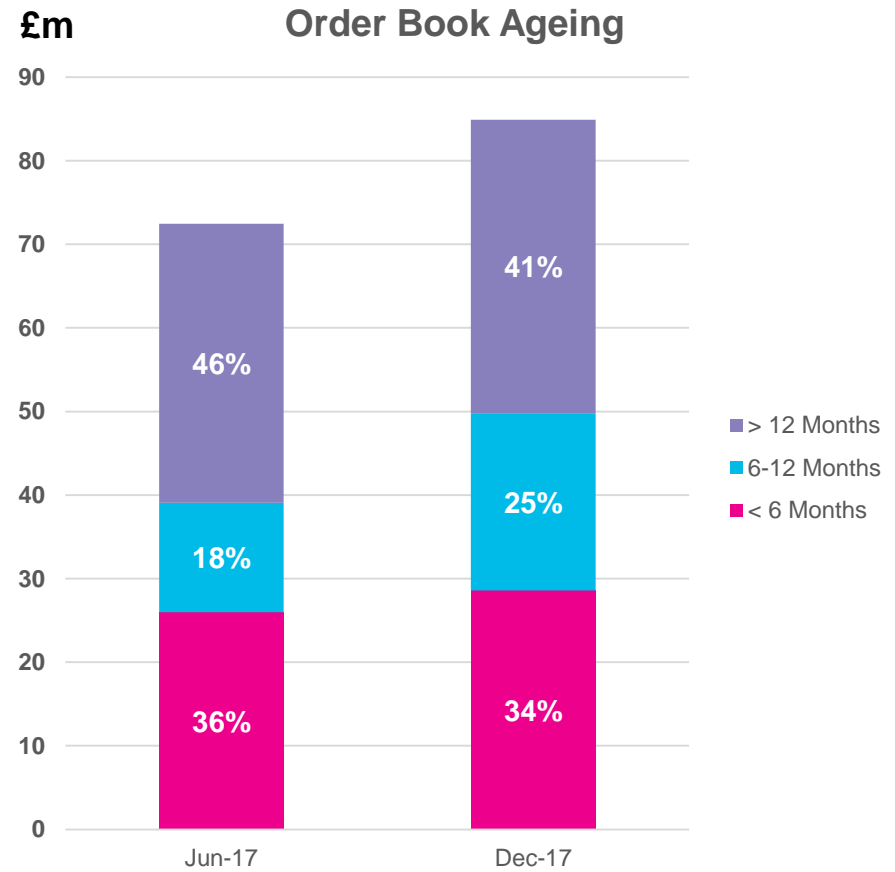


Focus on Rail – Technical Consulting



- | | |
|-----------------|--------------------|
| 1. Key Client 1 | 7. Key Client 7 |
| 2. Key Client 2 | 8. Key Client 8 |
| 3. Key Client 3 | 9. Rest of Asia |
| 4. Key Client 4 | 10. Rest of Europe |
| 5. Key Client 5 | 11. Rest of UK |
| 6. Key Client 6 | 12. Rest of World |

- Over 800 live projects
- No of people – 600
- H1 Revenue of c. £30m





Delivering Excellence Through Innovation and Technology

Aarhus Light Rail - ISA role for new urban tram system

In 2012, Denmark's second city, Aarhus, announced plans for a new light rail system for the region. It was to use a mix of new street-level track (12km) and surrounding regional rail routes. Ricardo Certification provided safety assessments and audits of the plans, processes and documentation through the design, manufacture, testing and trial operations, ahead of the December 2017 launch.



Image: Leif Jørgensen



Delivering Excellence Through Innovation and Technology

Hitachi Rail Europe – Engineering Consultancy

Ricardo provided specialist engineering expertise for the design, manufacture and delivery of Hitachi Rail Europe's Intercity Express Train, a new vehicle for the UK's East Coast and Great Western Main Lines. Services provided includes safety case and risk assessments, infrastructure compatibility, RAM assessments, EMC consultancy, Human Factors and Fire Safety.



Delivering Excellence Through Innovation and Technology

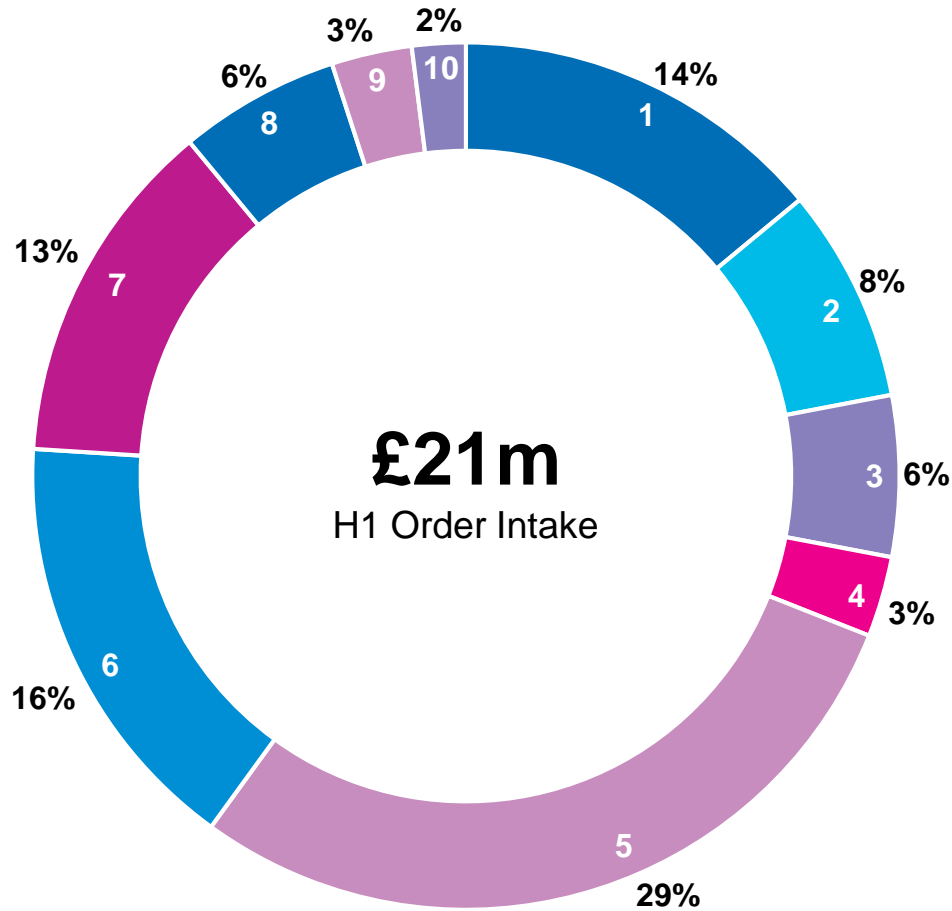
Taiwan Metro Independent Validation & Verification

Taoyuan City, Taiwan, has commissioned a new 27km metro line to integrate with Taipei's existing urban transit and also serve the nearby international airport. Ricardo teams will closely monitor the system's construction, providing independent assessments of rolling stock, signalling, track, power supply, stations and maintenance depots through to its opening in 2025.

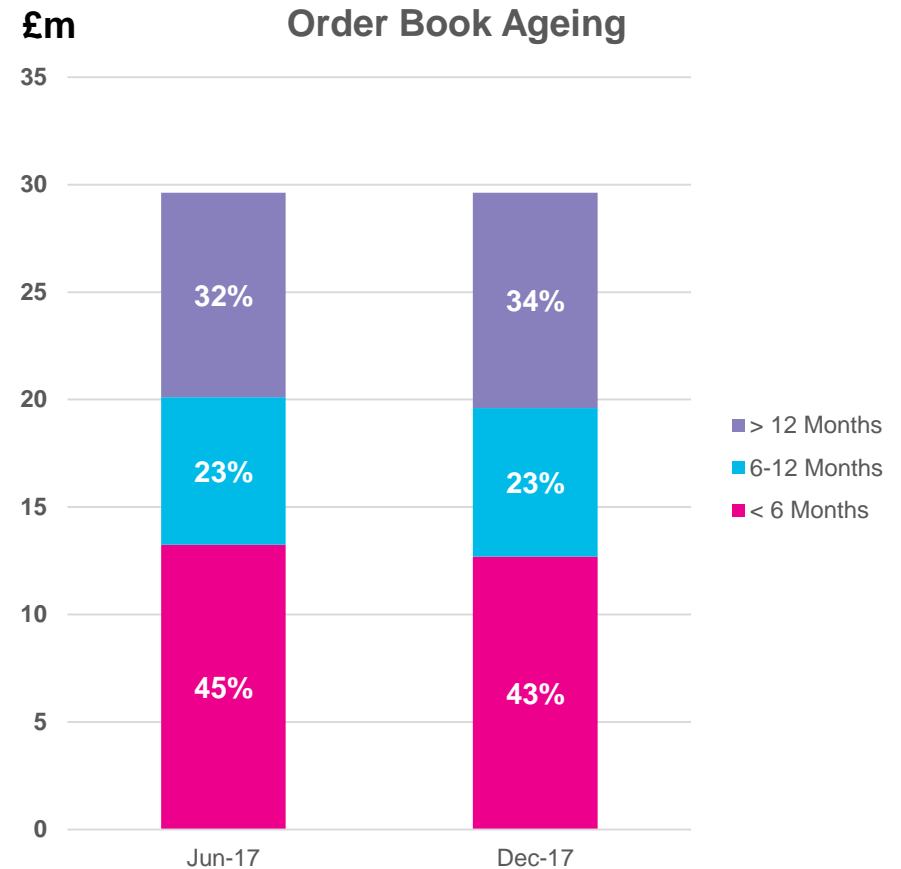
Focus on Energy and Environment – Technical Consulting



- Over 700 live projects
- No of people – 500
- H1 Revenue of c. £20m



- | | |
|-----------------|--------------------------|
| 1. Key Client 1 | 6. Rest of UK Gov |
| 2. Key Client 2 | 7. Rest of Europe |
| 3. Key Client 3 | 8. Rest of North America |
| 4. Key Client 4 | 9. Rest of Asia |
| 5. Rest of UK | 10. Rest of World |



Ricardo Energy & Environment – National bioresource mapping

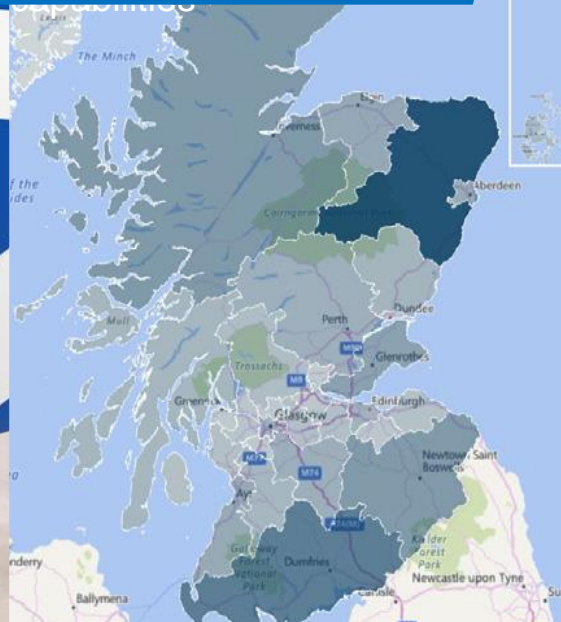
Zero Waste Scotland



Supporting Zero Waste Scotland in the quantification of the bioresource arising across Scotland.

Assess the biorefining opportunities to generate revenue from key bioresource streams.

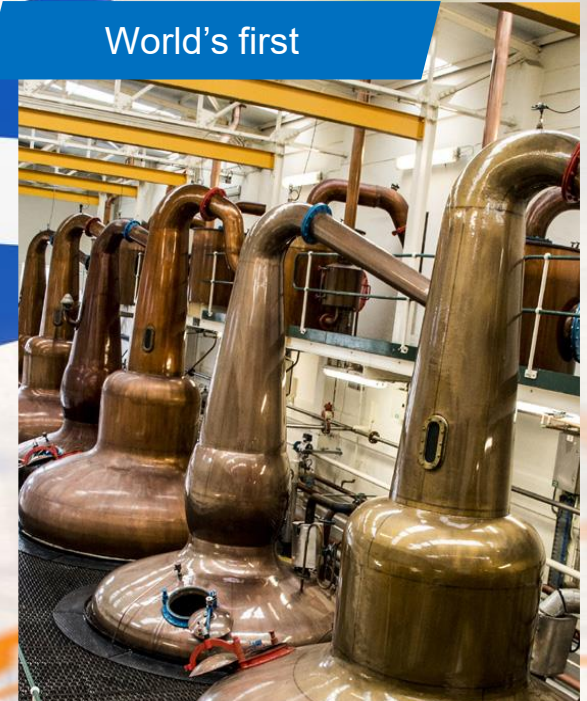
Bioresource mapping



Over 27 million tonnes of Scottish bioresources mapped.

Developed bespoke model to quantify and characterise materials from various waste and resource streams.

World's first



A minimum £500-£800m p.a. benefits identified for the Scottish Economy through better utilisation of waste and by-products.

Scotch whisky industry is a key area.

Ricardo Energy & Environment— Supporting Irish fire fighters

Irish fire services

Ricardo has supported Irish fire services with a team of emergency responders who are all qualified chemists. This team has been working with the UK emergency services for 45 years

Chemical response

Key technical advice, over the phone, during a chemical incident, in order to assist the fire service team at the incident with diagnostic support and advice on appropriate action to take

Protecting lives

The Irish fire services will be confident of an improved level of safety for their frontline firefighters, and their incident response capability will be enhanced by Ricardo's input

Ricardo Energy & Environment – Tackling Waste Crime

Environment Agency



Ricardo is supporting the Environment Agency to fulfil its regulatory function in tackling waste crime and enforcing environmental responsibility within the waste sector.

Economic evaluation



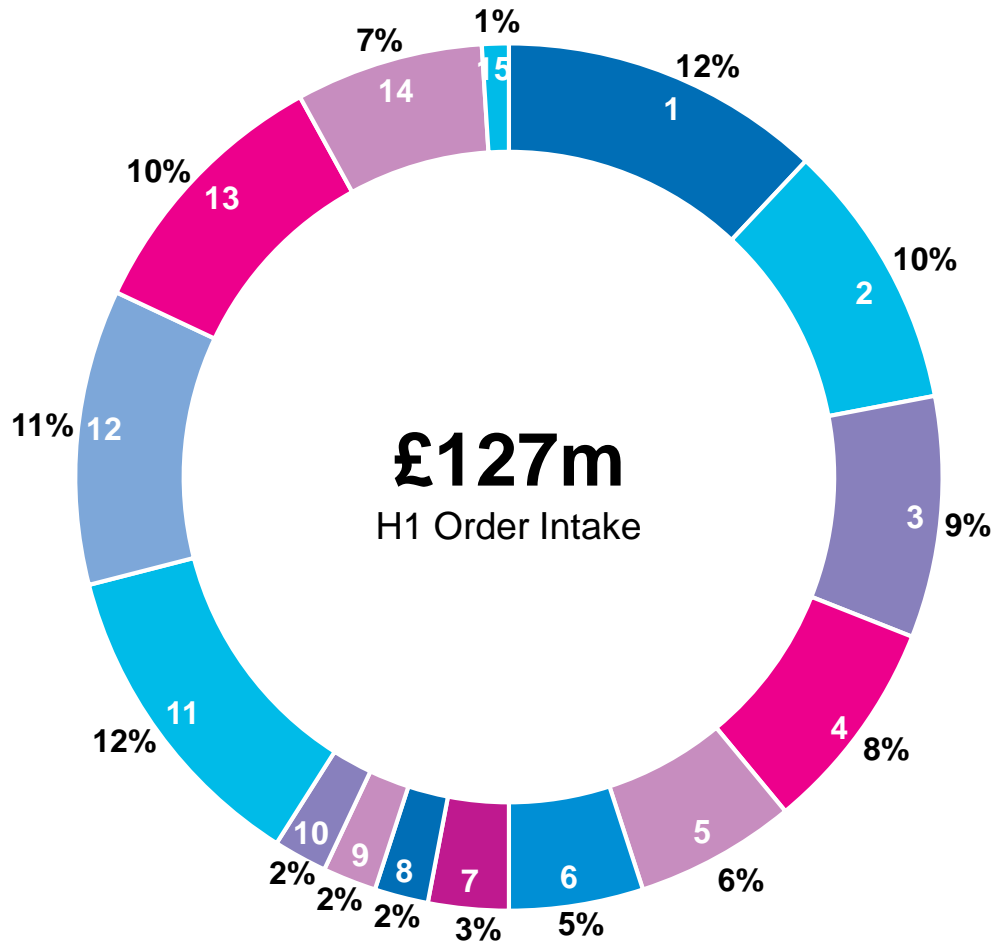
Ricardo evaluated how the Environment Agency used £5 million of additional funding to tackle waste crime, identifying savings of over £29 million for the UK, through environmental and social improvements and landfill tax recovery.

Safeguarding environmental protection



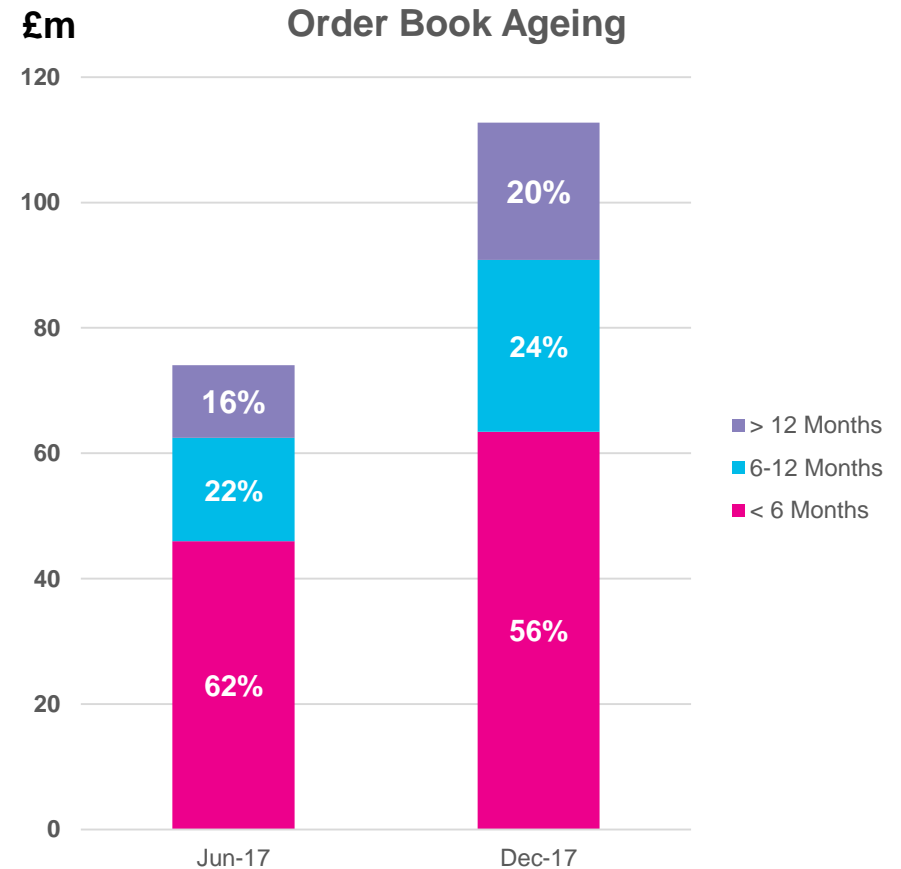
Results of Ricardo's evaluation have been utilised to secure an additional £30 million funding stream from Defra and led to multiple refinements in the Environment Agency's approach to efficiently tackling illegal waste activity.

Focus on Global Automotive – Technical Consulting



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|-----------------|-------------------|---------------------------|
| 1. Key Client 1 | 6. Key Client 6 | 11. Rest of North America |
| 2. Key Client 2 | 7. Key Client 7 | 12. Rest of Asia |
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| 4. Key Client 4 | 9. Key Client 9 | 14. Rest of Europe |
| 5. Key Client 5 | 10. Key Client 10 | 15. Rest of World |

- Over 600 live projects
- No of people – 1,700
- H1 Revenue of c. £90m



Delivering Excellence Through Innovation and Technology

Anhui Jianghuai Automobile Group (JAC)

Ricardo and JAC are collaborating on a 48V mild hybrid engineering programme for a downsized TGDI engine, from concept to start of production. Ricardo is responsible for Mule vehicle build, test and procurement, noise, vibration and harshness (NVH) optimisation, DVP management, key hybrid system development and integration, functional safety, and extensive software and calibration development.



Delivering Excellence Through Innovation and Technology

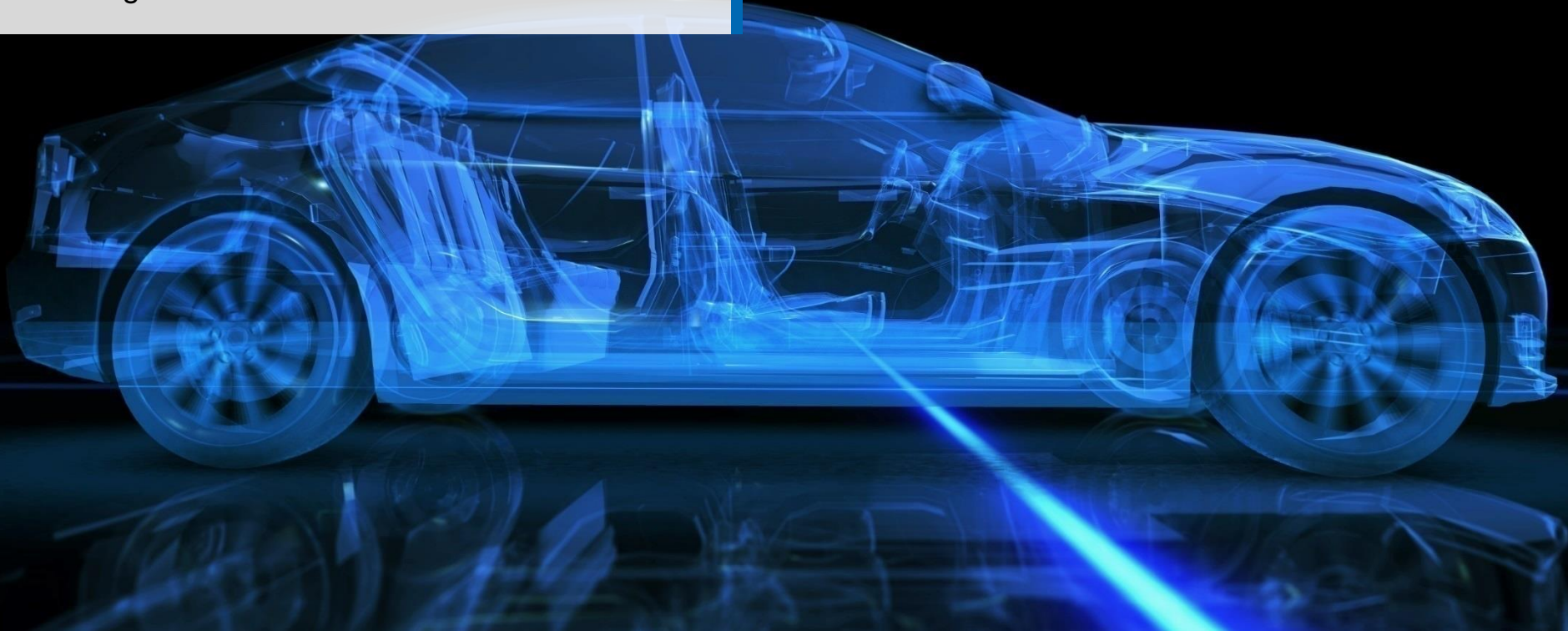
Electra Meccanica

Ricardo was contracted by Canadian-based electric vehicle designer and manufacturer Electra Meccanica, to integrate Qualcomm Halo™ wireless charging technology on its SOLO product

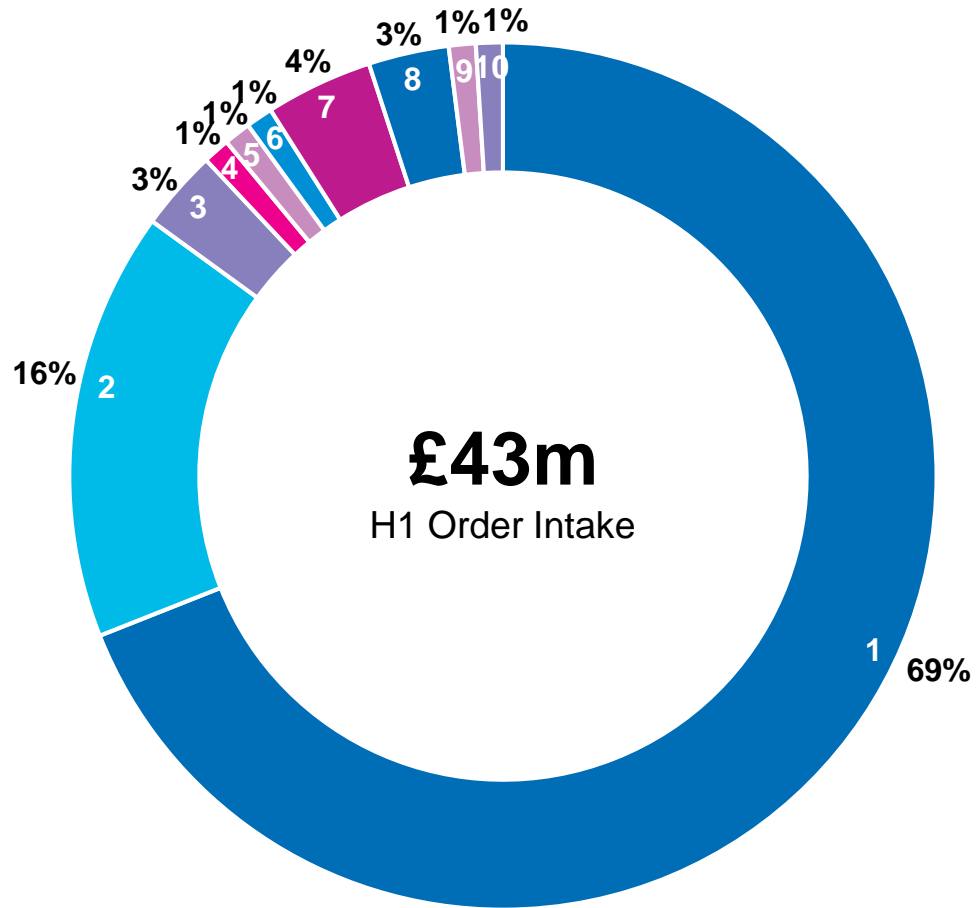
Delivering Excellence Through Innovation and Technology

A2Mac1 partnership

Ricardo Strategic Consulting and A2Mac1 have partnered to develop innovative benchmarking services, including the first ever web-based electric and hybrid electric vehicle (EV & HEV) benchmarking and competitive analysis online database, EV/Hybrid Analysis. Coupling Ricardo's significant work in the EV/HEV sector with A2Mac1 - the industry's most recognized provider of web-accessible automotive benchmarking services.

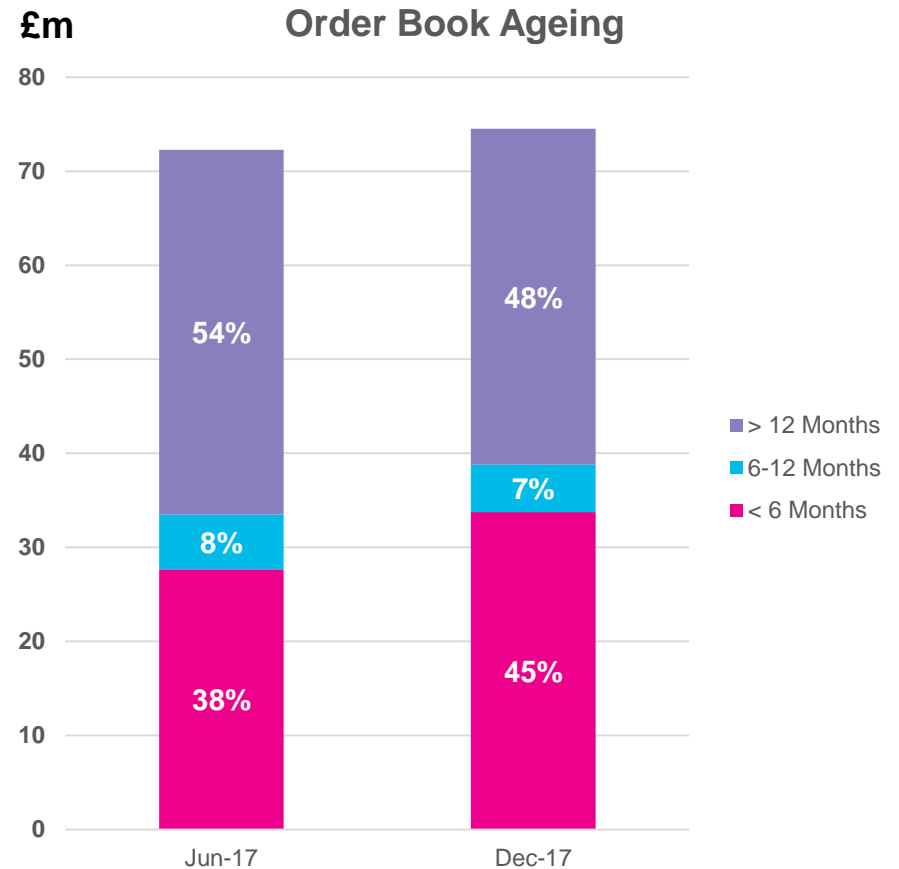


Focus on Performance Products



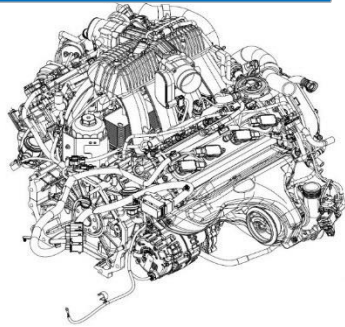
- Over 20 live projects
- Contracts outside of order book is > £100m
- No of people – 400
- H1 Revenue of c. £40m

- | | |
|-----------------|--------------------------|
| 1. Key Client 1 | 6. Key Client 6 |
| 2. Key Client 2 | 7. Rest of Asia |
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Performance Products – High Performance Automotive

McLaren 570GT-R



Urgent customer requirement to deliver a special derivative of the 570 GT engine

Project kick off was in October and required the integration of 4 changed subcomponents over the standard engine

The first engine was required for delivery to McLaren before the end of 2017

This very limited edition vehicle will be produced in 2018

In production in 8 weeks



While being a unique and very low volume production engine, it was critical that the units were produced on the assembly line to ensure quality

Ricardo worked with the supply chain to coordinate the specification and delivery of the changed components while planning their integration into the production assembly process

With production output increasing on existing engine derivatives, it was critical day to day production was not disrupted

Delivered exactly to plan



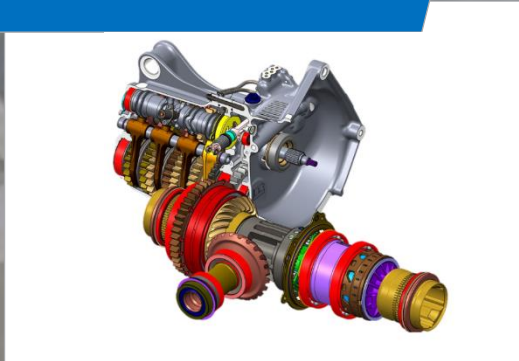
Close client engagement ensured a detailed understanding of the changed components

Long standing relationships with the supply chain ensured stock was already in plant at Ricardo early in December and ahead of the first build

First engine loaded into Ricardo's build line ahead of schedule

Performance Products – Motorsport

Ford Fiesta WRC transmission



M Sport were looking for a partner to support them in delivering the new Ford Fiesta WRC transmission

M Sport had not previously worked with Ricardo since the highly successful Ford Focus over 10 years ago

Transmission needed to be compliant with the new FIA rules to support the launch of the revised WRC class (the pinnacle of the rally motorsport division)

Engineering through to production



Ricardo designed the transmission in house, closely collaborating with the requirements of M Sport and the complete vehicle package

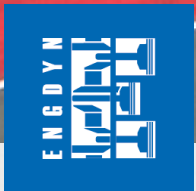
A significant proportion of the transmission components were machined in house at Ricardo MTC

Development and assembly of the transmissions was within Ricardo's Motorsport workshops and validated on its development rigs

World Championship secured



First constructor's world championship secured by M Sport since the last Ricardo collaboration and in its first season with the 2017 Ford Fiesta WRC



Delivering Excellence Through Innovation and Technology

Development of 2018 MotoGP Engine

A number of Ricardo Software's MECH products have been used to develop a 2018 MotoGP motorcycle engine

ENG DYN and VALDYN have been used to optimize the dynamics of the high speed V4 engine, whilst FEARCE has been used to map engine forces and to perform stress and fatigue analysis to optimize the durability of the engine structure

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- Revenue up 9% to £183m and underlying PBT up 8% to £16.3m on HY 2016/17
- Net debt reduced from £38m at June 2017 to £32m (after £6m acquisition of Control Point)
- A good mix of orders in terms of geography, sector and size with increased orders in hybrid/EV activity at 24% of total Group order intake, up from 17% for FY 2016/17
- Acquisition of Control Point completed in the period and performing well
- Outlook remains positive with a good pipeline





Income Statement – Underlying and total Group



Half year ended 31 December

£m	2017			2016			Year on Year growth	
	Underlying ⁽¹⁾	Specific adjusting items	Total	Underlying ⁽¹⁾	Specific adjusting items	Total	Underlying ⁽¹⁾	Total
Revenue	182.6	-	182.6	167.0	-	167.0	9%	9%
Gross profit	66.8	-	66.8	62.6	-	62.6	7%	7%
Administration costs	(49.4)	(3.8)	(53.2)	(46.3)	(3.0)	(49.3)	7%	8%
Operating profit	17.4	(3.8)	13.6	16.3	(3.0)	13.3	7%	2%
Net finance costs	(1.1)	-	(1.1)	(1.2)	-	(1.2)	(8)%	(8)%
Profit before tax	16.3	(3.8)	12.5	15.1	(3.0)	12.1	8%	3%
Taxation charge ⁽²⁾	(3.7)	0.1	(3.6)	(3.3)	0.6	(2.7)	12%	33%
Profit for the period	12.6	(3.7)	8.9	11.8	(2.4)	9.4	7%	(5)%

(1) excluding specific adjusting items, which comprise amortisation of acquired intangible assets, acquisition-related expenditure and reorganisation costs.

(2) in the current period, a non-recurring tax charge arising from the reduction in the US federal tax rate was also classified as a specific adjusting item.

£m	Half year ended 31 December		Year ended 30 June
	2017	2016	2017
Amortisation of acquisition-related intangible assets	2.2	1.9	4.0
Acquisition-related expenditure	0.5	1.1	1.7
Reorganisation costs	1.1	0.0	0.4
Total included in profit before tax	3.8	3.0	6.1
Non-recurring impact of change in US federal tax rate ⁽¹⁾	1.1	-	-
Total included in profit after tax	4.9	3.0	6.1

(1) Tax reform legislation in the US was enacted on 22 December 2017, which became effective from 1 January 2018 and reduced the federal taxation rate to 21%. These changes are substantively enacted for accounting purposes at the reporting date and resulted in a £1.1m (\$1.5m) non-recurring deferred tax charge which reduced the carrying value of net deferred tax assets held in the US.

Global tailpipe and CO₂ emissions legislation adherence are “must haves” in the development budget of many of our clients



Vehicle Type	Region	2010	2015	2020	2025
Automotive & LCV	EU	Euro 5	Euro 6a Euro 6b	Euro 6d-TEMP - WLTP & RDE	Euro 6d - WLTP & RDE
		Passenger cars: 130 gCO ₂ /km		Passenger cars: 95 gCO ₂ /km	
	US (49 States)	Tier 2 2012-2016 standards		Tier 3 2017-2025 standards	
	California	LEV II LEV II standards (2009-2016)		LEV III LEV III (2017-2025, consistent with EPA standards)	
	China	China IV (Euro 4)	China 5 (Euro 5)	China 6a - WLTP & RDE	China 6b - WLTP & RDE
	India	Bharat Stage IV (Euro 4 equivalent)		Bharat Stage VI (Euro 6 equivalent)	
	Japan	Post New Long Term		WLTP based standards	
Motorcycle & Personal Transportation	EU	Euro 3		Euro 4	Euro 5
	US (49 States)	Tier 2 for Class III; Tier 1 for classes I and II (harmonised with California)			
	California	California Motorcycle limits: Tier 2 for Class III; Tier 1 for classes I and II			
	China	China III		China IV - WMTC	
	India	Bharat Stage III		Bharat Stage IV	Bharat Stage VI
	Japan	2010 standards		Euro 4 based standards	
Commercial Vehicles (Medium- & Heavy-Duty Trucks)	EU	Euro V	Euro VI	Monitoring and reporting CO ₂ emissions (proposed)	
	US (49 States)	EPA 10		Phase 1 federal standards	Phase 2 (2018-2027) federal standards
	California	EPA 10		Compliance of older vehicles to EPA 10 - Optional low NOx limits	
	China	China IV	China V	China VI (proposed)	
	India	Bharat Stage IV		Bharat Stage VI	
	Japan	Post New Long Term		2016 standards	
Off-Highway	EU	Stage IIIB	Stage IV	Stage V	
	US	Tier 4 Interim			
	China	Stage II		Stage III (Nationwide)	Stage IV (Beijing)
	India	Bharat Stage III - Tractors and CEV		Bharat Stage IV (proposed)	
	Japan	2006 Non-road standards	2011 Non-road standards	2014 Non-road standards	
Rail	EU	Stage IIIA	Stage IIIB	Stage V (Locomotives and railcars)	
	US	Tier 2	Tier 3	Tier 4 Switch & line locomotives	
	India	Not yet regulated		Proposed standards under consideration	
	Australia	Not yet regulated		Studies ongoing to adopt US legislation	