

Pioneering the power that matters

Rolls-Royce pioneers cutting-edge technologies that deliver the cleanest, safest and most competitive solutions to meet our planet's vital power needs.

Financial Highlights **

Free cash flow	Order book
£273m	£78,476m
2016: £100m	2016: £80,910m
Underlying revenue	Reported revenue
£15,090m	£16,307m
2016: £13,783m	2016: £14,955m
Underlying operating profit	Reported operating profit
£1,175m	£1,287m
2016: £915m	2016: £44m
Underlying profit before tax	Reported profit/(loss) before tax
£1,071m	£4,897m
2016: £813m	2016: £(4,636)m
Underlying earnings per share	Reported earnings per share
40.5p	229.4p
2016: 30.1p	2016: (220.1)p
Full year payment to shareholders	Net debt
11.7p	£(520)m
2016: 11.7p	2016: £(225)m

* All figures in the narrative of the Strategic Report are underlying unless otherwise stated.
Underlying explanation is in note 2 to the Financial Statements on page 132.
† Unless otherwise stated, all underlying financial data excludes the impact of the acquisition of ITP Aero, completed on 19 December 2017.
‡ All references to organic change are at constant translational currency, excluding M&A.

Forward-looking statements
This Annual Report contains forward-looking statements. Any statements that express forecasts, expectations and projections are not guarantees of future performance and guidance may be updated from time to time. This report is intended to provide information to shareholders, and is not designed to be relied upon by any other party or for any other purpose, and the Company and its Directors accept no liability to any other person other than that required under English law. Latest information will be made available on the Group's website. By their nature, these statements involve risk and uncertainty, and a number of factors could cause material differences to the actual results or developments.

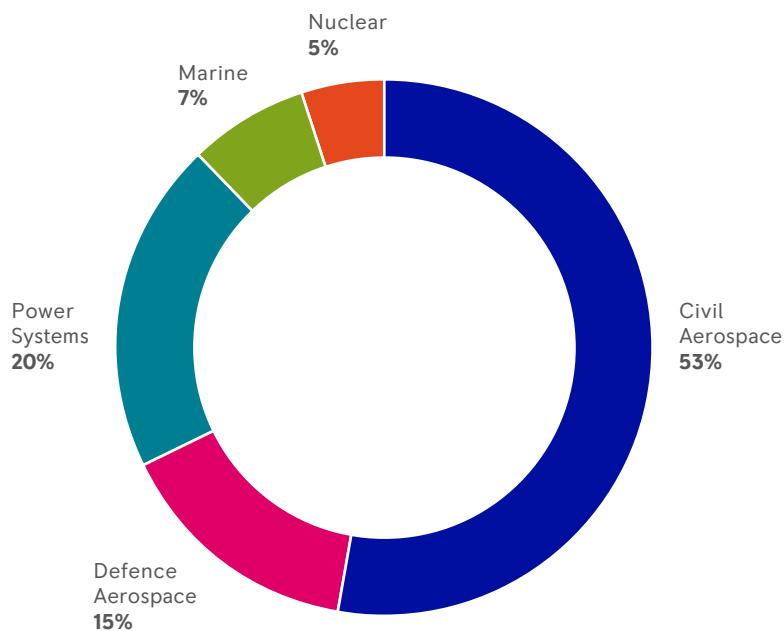
Contents

Strategic Report	
Group at a Glance	02
Chairman's Statement	04
Chief Executive's Review	06
The Trends Shaping our Markets	10
Our Vision and Strategy	11
Business Model	12
Key Performance Indicators	14
Financial Review	16
Business Review	20
Civil Aerospace	20
Defence Aerospace	26
Power Systems	30
Marine	34
Nuclear	38
Technology	42
Sustainability	44
Environment	44
People	46
STEM	48
Ethics	49
Additional Financial Review	50
IFRS 15	55
2018 Outlook	58
Principal Risks	59
Going Concern and Viability Statements	63
Directors' Report	
Chairman's Introduction	64
Board of Directors	66
Corporate Governance	69
Committee Reports	79
Nominations & Governance	79
Remuneration	83
Audit	97
Safety & Ethics	104
Science & Technology	110
Responsibility Statements	114
Other Statutory Information	198
Financial Statements	
Financial Statements Contents	115
Group Financial Statements	116
Company Financial Statements	172
Subsidiaries	175
Joint Ventures and Associates	181
Other Information	
Independent Auditor's Report	183
Sustainability Assurance Statement	195
Other Financial Information	196
Other Statutory Information	198
Shareholder Information	202
Glossary	204

Group at a Glance

We are one of the world's leading industrial technology companies, creating power and propulsion systems for use on land, at sea and in the air.

Underlying revenue mix in 2017



Underlying revenue

£15,090m

Underlying operating profit

£1,175m

Free cash flow

£273m

Gross R&D expenditure

£1.4bn

Patents approved for filing

704

Countries

50

Engineers (year end)

18,245

Employees (year average)

50,000



Read more in our
Business Review
on pages 20 to 41

Our five businesses in 2017

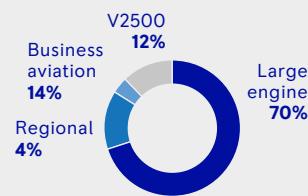
Civil Aerospace See page 20

Civil Aerospace is a major manufacturer of aero engines for the large commercial aircraft, regional jet and business aviation markets. The business uses its engineering expertise, in-depth knowledge and capabilities to provide through-life support solutions for its customers.

Underlying revenue
£8,023m

Underlying operating profit
£520m

Underlying revenue mix

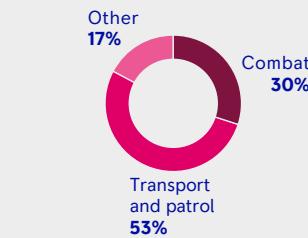
**Defence Aerospace** See page 26

Defence Aerospace is a market leader in defence aero engines for military transport and patrol aircraft and has strong positions in other sectors, including combat, training aircraft and helicopters.

Underlying revenue
£2,275m

Underlying operating profit
£374m

Underlying revenue mix

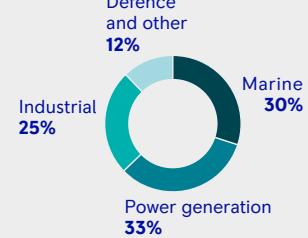
**Power Systems** See page 30

Power Systems is a leading provider of high-speed and medium-speed reciprocating engines, complete propulsion systems and distributed energy solutions. The business serves the marine, defence, power generation and industrial markets.

Underlying revenue
£2,923m

Underlying operating profit
£330m

Underlying revenue mix

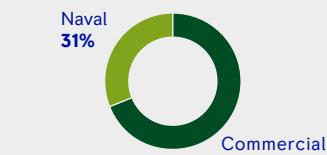
**Marine** See page 34

Marine manufactures and services propulsion and handling solutions for the maritime offshore, merchant and naval markets, ranging from standalone products to complex integrated systems.

Underlying revenue
£1,077m

Underlying operating loss
£(25)m

Underlying revenue mix

**Nuclear** See page 38

Nuclear is the technical authority for the UK nuclear steam raising plant that powers the Royal Navy's nuclear submarine fleet; managing plant design, safety, manufacture and service support. Our civil nuclear operation supplies safety-critical systems to about half the world's nuclear power plants.

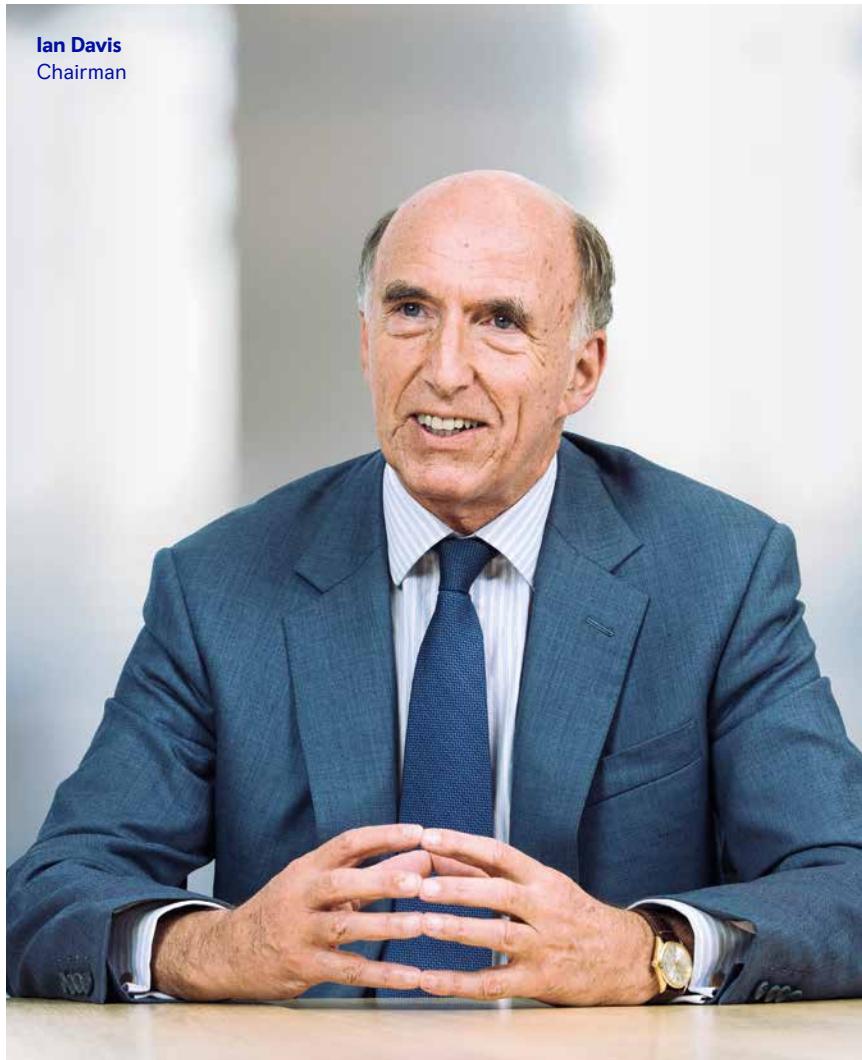
Underlying revenue
£818m

Underlying operating profit
£38m

Underlying revenue mix



Chairman's Statement



Ian Davis
Chairman

Our focus on improving operational and financial performance has been demonstrated in this year's results. Our new vision and refreshed strategy lays a firm foundation for creating long-term shareholder value.

 [Chairman's Introduction to Directors' Report page 64](#)

2017 Overview

After a very challenging few years, I believe that Rolls-Royce is building real and sustainable momentum. Progress will not be smooth, given the nature of the industry and the number of new products we are in the process of introducing into the market, and I do not want to underestimate the risks. But, the medium-term prospects look increasingly bright and the long-term opportunities for us remain significant. Our near to medium-term priorities are: to improve operational performance, with the focus on product reliability for our customers and on cost competitiveness; and cash flow generation for our long-term prosperity. Growth opportunities for us in our core industries are excellent. We have to build customer satisfaction and cash flow and, as a consequence, strengthen investor confidence, to enable us to capitalise on these. That is what we are determined to do.

Warren East, our Chief Executive, gives in his report a full explanation of major milestones and achievements in 2017. I would like to highlight a few key developments. There has been great progress in building the executive leadership team. We have refreshed our strategy and long-term vision. We have refined our capital allocation process. We have delivered financial results ahead of budget and expectations and we have ramped up production in our Civil Aerospace business. We have initiated a simplification of the Group into three businesses and are embarking upon a fundamental restructuring. This will make for a simplified and more focused business.

At the same time, we have had to deal with some significant operational challenges, most notably with some in-service fleet issues on two of our Civil Aerospace large engine programmes. We are acutely aware of the challenge this has created for some of our customers. Our absolute priority is to overcome these. Customer trust and confidence – the bedrock of any business – is, and must be, our number one goal.

We are continually looking to inject pace and simplicity into our business operations, even as we expand production to meet the growth in demand for our products. We are well advanced in the complex process of overhauling our management information systems. Our intent is to provide the data we need, not only to manage the business effectively, but to provide greater clarity on outcomes and progress – progress in real economic, not just accounting, terms.

We are a long-term business with long investment cycles. We have continued

our commitment to, and investment in, next generation technologies and facilities that will be crucial to competitiveness and value creation. We have met our key technology milestones. I would draw attention to the fact that we have sustained investment in capital expenditure and R&D notwithstanding short-term financial pressures.

We are putting increased emphasis on strategic partnerships and collaborations. These collaborations range across electronics, composite materials, gearbox technology, digital technologies and services. We are determined to be at the forefront of the 'next technology revolution' built around artificial intelligence, data analytics, machine learning and digital. This will be crucial to our future competitiveness as well as to our ability to attract and retain exceptional talent.

I would also like to draw attention to the progress we have made on the management of environmental impacts and the increased emphasis we are giving to safety. These are foundational goals and responsibilities that I, and the Board, monitor carefully.

Governance and culture

In January 2017, the Group entered into deferred prosecution agreements with the UK Serious Fraud Office and other authorities. This has been a sobering experience for all concerned. The Board and executive team remain totally committed to always acting with integrity and to ensuring that the appropriate values and behaviours are embedded throughout the Group. This is an ongoing and relentless task and it is an absolute priority for the Board and management.

Culture, as always, is key. There is much to cherish and to protect in the Rolls-Royce culture. But we also have to develop and adapt. We need to be more transparent and open, and to engage more externally. Performance management, cost competitiveness and operational delivery against commitments are as fundamental to our longer-term aspirations and goals as are product innovation and technology.

As a Board, we are determined to role model these cultural ambitions. We have, for example, introduced a Meet the Board initiative where employees have the opportunity to meet with and question the Board at an 'employee AGM' style event. In addition – as part of our focus on a more open, inclusive culture – I asked Irene Dorner, one of our Non-Executive Directors, to take on an employee champion role on the Board.

An additional cultural priority is to build a more diverse organisation. This is a daunting challenge for us, and indeed for the whole sector. Progress to date has been disappointing. We have to do more and this remains high on my agenda and on my list of frustrations. Rolls-Royce has an extraordinary brand and we are exceptionally well-placed to defy the traditional engineering industry norms. I am hugely encouraged by the great work that so many colleagues from Rolls-Royce across the world do to inspire the next generation in science, technology, engineering and maths (STEM) careers. I continue to be inspired by the work done by our support networks and employee resource groups to stimulate and reinforce diversity. I am also very pleased that the proportion of women we recruit as apprentices and graduates increased again in 2017. But there still remains much to be done to improve diversity and inclusion and to accelerate, in particular, the advancement of talented women and high potential younger executives into senior management roles. This is a huge talent opportunity for us.

As part of this focus on diversity in 2017, I introduced a new Board apprentice programme designed to give prospective leaders within the business insights and experience into the working of the Board.

Investor trust and confidence

I am acutely aware that in recent years our credibility with investors has been damaged. We are determined to restore it and we know that it is results, not words, that will be the catalyst. This is a long-term business that needs shareholders with a long-term perspective. That perspective must be based on a long-term confidence in the growth prospects of the industry, in the value creation potential of the Company and in the strength of the management team.

Risk assessment is an important part of the Board's work. This has been important input into our viability statement, which we see as a lot more than a short-term liquidity assessment. There are significant risks – most notably product reliability failure, a disorderly Brexit or an external global shock that would disrupt travel. We have contingency plans to address these risks. We understand the importance of dividends to many of our shareholders, and also the importance of rebuilding a strong balance sheet and credit rating. I do not believe that, in the long term, these are incompatible with our growth aspirations. We will talk more during 2018 about our capital allocation plans and priorities. For the short

term, our focus is on generating cash to meet the investment needs of the business and to strengthen our balance sheet and credit rating.

Delivering on our financial commitments is fundamental to investor confidence and trust. In addition, we are striving to reinforce this with more open engagement with investors. In addition to our regular interactions with investors, we have held a series of governance events, including a seminar in the spring of 2017. We plan to continue this level of engagement.

Improved transparency of financial results plays an important role in investor confidence. We are working hard to make our accounts and, more importantly, our business economics, more intelligible and accessible. The implications of IFRS 15 and IFRS 16 may complicate matters in the short term and we will work to clarify the impact of these new accounting regulations. The accounting regulation changes will, I believe, be beneficial. It is in everyone's interest to better align the recognition of profit and cash. Profitability, and return on capital in particular, are crucial strategic measures but for the short term, cash flow is our dominant financial metric.

Conclusion

I hope the preceding words have been helpful in clarifying where we stand. We are, I believe, building real momentum. Our short-term focus over the next two to three years is on meeting customer commitments and requirements whilst generating substantial increases in cash flow. Longer term, our goal is to build and grow our business so that, in time, we are a world-leading industrial technology company focused on pioneering the power that matters. This is not an industry sector short of growth options. Our long-term aim is to capitalise on them, effectively and responsibly.

I would like to conclude this statement with a big thanks to all my colleagues in Rolls-Royce. It has been another demanding year, but one marked by real progress. The drive, dedication and ingenuity of our people (and, indeed, of our former employees) across the globe is extraordinary and, I believe, the Company's single biggest asset. I continue to be inspired by the dedication and sheer decency of our people and their passion for Rolls-Royce.

Ian Davis
Chairman

Chief Executive's Review



Warren East
Chief Executive

Underlying revenue (£m)

£15,090m

2017		15,090
2016		13,783

Underlying operating profit (£m)

£1,175m

2017		1,175
2016		915

Free cash flow (£m)

£273m

2017		273
2016		100

Review of 2017

Overview

Rolls-Royce made good progress in 2017, achieving a number of important operational and technological milestones, while focusing on managing significant in-service engine issues in Civil Aerospace. Looking forward, sustaining this improvement and delivering increasing cash flow generation will strengthen our position as one of the world's leading industrial technology companies.

Rolls-Royce made good progress in 2017, achieving a number of important operational and technological milestones, while focusing on managing significant in-service engine issues in Civil Aerospace. Looking forward, sustaining this improvement and delivering increasing cash flow generation will strengthen our position as one of the world's leading industrial technology companies.

Civil Aerospace had some notable successes in 2017 with record levels of large engine deliveries, further expanding the installed fleet and generating service revenue growth. We made good progress with our new large engine programmes, achieving the first flight of three new engine designs within a 12-month period. Power Systems delivered a strong performance in its first year with new leadership, streamlining the product portfolio and

making new inroads into the Chinese market. Defence Aerospace had another solid year as we renewed a number of core US contracts and further developed our service delivery capability. We delivered operational improvements in Nuclear, while in Marine we established leadership in ship intelligence and autonomous shipping. We also received regulatory approval for the acquisition of ITP Aero which was completed on 19 December 2017 – see page 9.

The Group faced several challenges in the year. These are not unusual given the nature of the industries in which we operate. In Civil Aerospace, production milestones were achieved against a backdrop of capacity constraints, primarily blade manufacturing and test bed availability, driven by the in-service fleet issues on the Trent 1000 and Trent 900. As these emerged during the year, we increased our estimates of additional maintenance activity required to mitigate problems, to develop longer-term solutions and to support customers through a proactive engine management programme to minimise any disruption. In Marine, with the average Brent crude oil price remaining below US\$55 per barrel for the third consecutive year, our commercial marine operation continued to see substantially reduced activity levels in its historically important offshore market.

Efficiencies from the 2015 transformation programme have achieved run-rate cost savings at the top end of our initial expectations of £200m by the end of 2017. However, costs and complexity within the Group remain too high. The further simplification announced in January 2018 to move from five to three operating businesses will enable us to act with greater pace, to innovate in core technologies and to better take advantage of future opportunities in areas such as electrification and digitalisation. It will help us to undertake a more fundamental restructuring to remove duplicated support and management functions.

Within the Group, we appreciate our talk of simplification must translate into greater enablement for our people if we are to succeed in bringing about lasting change. These efforts must begin with our leaders and during the year I brought in additional talent and experience to the ELT with the appointment of Stephen Daintith as Chief Financial Officer, Paul Stein as Chief Technology Officer and Simon Kirby as Chief Operating Officer. In early 2018, we announced Chris Cholerton would be taking up the post of President – Civil Aerospace, Tom Bell would be returning to Rolls-Royce as President – Defence and Harry Holt took up the post of Group HR Director.

2017 priorities

Strengthen
our focus on
engineering,
operational and
aftermarket
excellence

Sustain
the strong
start to our
transformation
programme

Rebuild
trust and
confidence
in our long-term
growth prospects

Develop
our long-term
vision and
strategy

2017 priorities

At the beginning of the year we set out four key priorities:

Priority 1: Strengthen our focus on engineering, operational and aftermarket excellence

Engineering excellence – our central engineering function was restructured to integrate engineering into the businesses closer to our customers. At the same time, we have created a new technology team led by the Chief Technology Officer to heighten the importance of technology in driving future growth – see pages 42 and 43. We invested over £1bn in self-funded R&D in 2017, part of which supported the installation of digital engineering tools, producing our first all-digital engine design.

'The Trent XWB-84 achieved over 1.2 million flying hours with unprecedented levels of reliability.'

In Civil Aerospace, while we worked to minimise the impact of in-service issues, key milestones were achieved towards entry into service for the new Trent 1000 TEN, Trent XWB-97 and Trent 7000. Testing of our new power gearbox design, a vital component in our new UltraFan demonstrator programme, has proceeded well and the Advance3 demonstrator achieved its first successful ground test. Electrification will play an increasingly important role in all areas of the Group over the coming years and during the year we established a new electrical unit. In November 2017, we announced that we will develop the E-Fan X hybrid electric aircraft demonstrator in collaboration with Airbus and Siemens; reflecting the growing importance of electrification to the long-term future of the aerospace industry.

Operational excellence – a new operating strategy was developed and we invested a further £764m in capital expenditure in 2017. Capitalising on the rapidly advancing digital techniques, our aim is to create an agile, highly productive and cost-competitive manufacturing footprint. Our new plants have already undergone a digital transformation generating an unprecedented insight into our value chain capability. We are also developing industry-leading capabilities in digital manufacturing, through innovative collaboration and partnerships, which will lead to double-digit benefits in productivity and efficiency. All our businesses had significant execution targets and product delivery milestones to achieve. Civil Aerospace delivered a 35% increase in large engine deliveries. In Defence Aerospace, the modernisation programme at the Indianapolis facility progressed well and is on track with its cost saving targets. In Power Systems, the new leadership focused the business on simplifying the product portfolio, achieving around a 20% year-on-year reduction in product variants.

Aftermarket excellence – service focus is driven by customer demand for reliability and availability. This has seen aftermarket support transition from the sale of spare products to a partnership with customers based on predictive maintenance and proactive management of in-service issues. In 2017, the Civil Aerospace team worked hard to minimise customer disruption from in-service fleet issues with our Trent 1000 and Trent 900 engines and to develop longer-term solutions. Concurrently, the Trent XWB-84 achieved over 1.2 million flying hours with unprecedented levels of reliability. In Defence Aerospace, we opened a further two dedicated service delivery centres (SDCs) to support the RAF and the Indian Air Force, accelerating decision-making on engine issues to maximise availability. Power Systems also opened customer care centres in key time zones, replicating the TotalCare service developed in Civil and Defence Aerospace. Power Systems' first availability contract commenced in 2017 with Hitachi Rail to run

for over 20 years, covering support for the UK's intercity programme. Looking forward, a focus on lifecycle costs coupled with the delivery of more digitally enabled engines and systems should support further growth in proactive service management offerings at Power Systems.

Priority 2: Sustain the strong start to our transformation programme

On-target delivery of transformation benefits – since November 2015, we have been pursuing a transformation programme focused on simplifying the organisation, streamlining management, reducing fixed costs and adding greater pace and accountability to decision-making. The benefits are on-target, having achieved run-rate cost savings at the top end of our initial expectations of £200m by the end of 2017.

Priority 3: Rebuild trust and confidence in our long-term growth prospects

Greater financial transparency through further clarity on cash drivers and revenue – as outlined at our half-year 2017 results, our focus is on sustaining stronger cash generation. A stronger finance team, led by Stephen Daintith, is bringing greater financial transparency and clarity both internally and for our investors. In 2018, we plan to introduce new KPIs to align with our refined long-term performance objectives and reflect our focus on free cash flow as a fundamental indicator of performance. See page 17 for more details.

On adopting the new revenue reporting standard IFRS 15, introduced from 1 January 2018, we have selected accounting policies that provide clarity and transparency of our revenue and profit – see page 55. On page 170 we have taken the opportunity to proactively present our 2017 financial results as they would look under the new reporting standard.

Priority 4: Develop our long-term vision and strategy

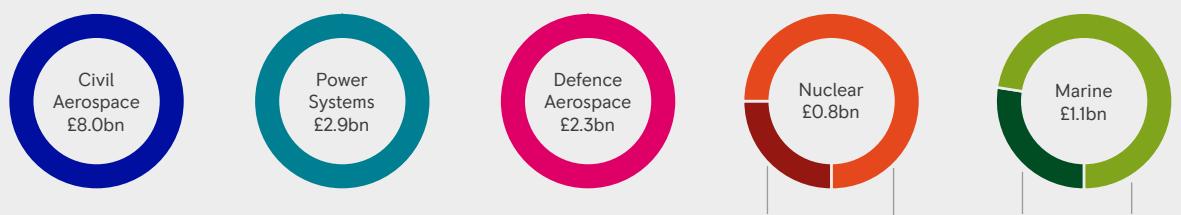
Refreshed vision and strategy for Rolls-Royce – we completed our strategic update in the year and in early January 2018 we announced a simplification from five to three businesses and a review of strategic options for our commercial marine operation. This simplification aligns our business more closely with our customers and with our strategic vision to pioneer cutting-edge technologies that deliver the cleanest, safest and most competitive solutions to meet our planet's vital power needs.

Our ambition is to be the world's leading industrial technology company. We will continue to innovate in our core areas while looking to champion electrification to support the move to a low carbon global economy. Our digital tools and technologies will allow us to create new insights and opportunities across our businesses. The simplification of the Group enables us to focus our capital allocation on projects that support our strategy.

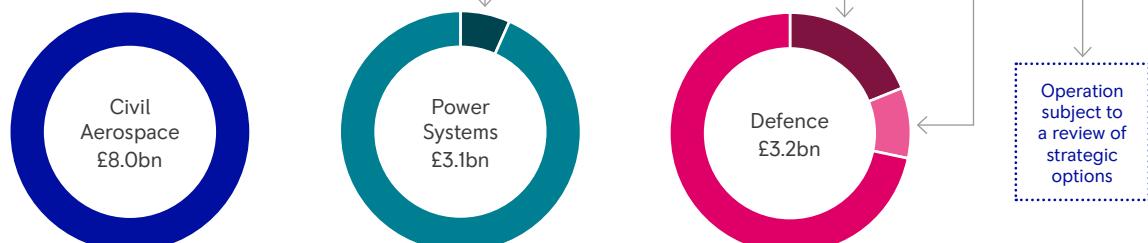
Further details on our vision and strategy can be found on page 11.

Simplification of the business (based on 2017 revenue)

Existing five operating businesses



New core business units*



* Following the acquisition of ITP Aero in December 2017, it will operate and report as a separate business unit.

2018 priorities and outlook

Our people worked hard in 2017 but more remains to be done. Our goal is to make 2018 a breakthrough year in terms of strategic, operational and financial goals.

The simplification of our operating businesses into three focused units will enable the Group to operate at greater pace. We must also address the cost and complexity of the Group in order to improve the service we offer customers and our financial returns. I am confident that with the right management team now in place, a simplified business structure and steps being taken to improve our processes, we will make further meaningful progress in meeting our strategic, operational and financial goals in 2018. Our largest business, Civil Aerospace, will continue to focus on increasing engine deliveries and working with customers to minimise the impact of in-service engine issues. Across the Group there will be new product introductions and continued R&D investment and capital expenditure to revitalise current products and innovate new technologies. We will also look to report progress on the strategic review of our commercial marine operation. This fundamental restructuring, combined with improving cash flow, will strengthen our balance sheet and we will communicate

2018 priorities

Customers

mitigate impact to rectify in-service issues, ramp up large engine production, grow service capabilities

Technology

focus through product digitalisation, electrification and revitalisation

Resilience

through adaptability with a spotlight on safety, diversity & inclusion, and the highest ethical standards

Financial progress

delivering improving free cash flow, strengthening balance sheet, more disciplined capital allocation

the KPIs that underpin a more disciplined approach to capital allocation. While Group underlying revenue and profit before financing will be impacted by the adoption of IFRS 15, free cash flow is unaffected by accounting changes and is expected to increase significantly from 2017 levels.

Longer-term outlook

Our longer-term outlook remains strong and we believe in the transformative potential of our technology. The progressive roll-out of our original equipment into markets with long-term underlying growth will increase our installed base over the next ten years. This, in turn, will drive significant free cash flow as we increase penetration of our

service products. The fundamental restructuring announced in January 2018 shows our willingness to take decisive action now in order to secure and enhance the long-term benefit of the cash flows that will be generated over the years to come. We must become a more agile and adaptable organisation.

Our aim is for our people to have a shared vision while being empowered to act responsively. This will support us as we look to develop innovative power expertise, new digital solutions and advances in electrification that will enable Rolls-Royce technology to lead the world into a low carbon future.

ITP AERO BECOMES A ROLLS-ROYCE COMPANY

In late 2017, Rolls-Royce received approval from the Spanish Government for the acquisition of the 53.1% stake in ITP Aero owned by our partner in the business, SENER. Having taken full ownership of the company, ITP Aero is now a separate business unit within Rolls-Royce. ITP Aero will retain organisational autonomy allowing it to continue serving other original equipment manufacturers (OEM) as customers, while meeting our governance and compliance standards.

Based in Bilbao, Spain, ITP Aero is an aero-engine component designer and manufacturer that offers products and services across the widebody, single-aisle, regional, corporate and defence aviation markets. It has worked with Rolls-Royce as a risk and revenue sharing partner on all members of the Trent engine family, manufacturing low pressure turbines, and is an important partner on the UltraFan engine development programme. ITP Aero also provides essential aerospace products and services to a number of important customers outside of Rolls-Royce. ITP Aero is a partner in the main European Defence aviation consortia and is the Spanish Defence aeronautical engine reference company, supporting existing and future programmes as well as providing in-service support to the Spanish fleet.



The Trends Shaping our Markets

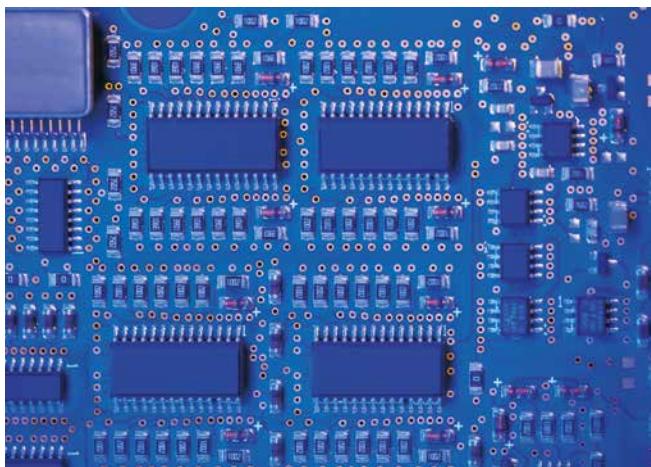
As pioneers, we must continuously innovate to provide the best solutions in the markets we serve. This requires us to anticipate the opportunities and challenges that our customers will face. In the coming years, we believe that three key trends will define the world's future power needs.



Growing demand for cleaner, safer and more competitive power

Global economic power and rising prosperity will lead to increased demand for travel, trade and energy. The growing understanding of the science of climate change is also shaping demand for power.

To provide superior power for our customers, we will continuously develop and apply cutting-edge technologies.



Electrification

As we move to a low carbon global economy, our engines will become part of broader, hybrid systems with lower emissions and lower environmental impact.

To provide solutions for our customers, we will act as a systems integrator, combining our traditional mechanical technology with electrical technology.



Digitalisation

Advances in sensors, communication, data storage, processing power, machine learning, artificial intelligence, robotics and additive layer manufacturing are all combining to create new insights, processes and opportunities.

To provide lifelong performance for our customers, we will use the huge power of digitalisation to transform our activities.

Our Vision and Strategy

To respond to these key trends, we have refreshed our Group vision and strategy.

Our vision

Pioneering the power that matters

Rolls-Royce pioneers cutting-edge technologies that deliver the cleanest, safest and most competitive solutions to meet our planet's vital power needs.

Our strategy

Champion electrification

Vitalise existing capabilities

Reinvent with digital

Transform our business

Build a balanced portfolio

Champion electrification

We will invest in new power solutions for our long-term success.

We are building on our strong heritage in thermo-mechanical engineering to produce state-of-the-art electro-mechanical and hybrid power systems. Today, we already combine our engines in hybrid systems for trains, ships and micro-grids.

Reinvent with digital

We will be Digital First in everything we do to generate new insights, new solutions and new opportunities.

We are renowned as a pioneer in the use of digital solutions for our customer care. We are continuously enhancing the digital twin of our physical activities and seeking new data innovations.

Vitalise existing capabilities

We will develop next generation technologies to sustain and grow our current competitiveness.

We are investing in our existing thermo-mechanical products to ensure that they provide the cleanest, safest and most competitive solutions for our customers. For example, the UltraFan represents a fundamental upgrade of our gas turbines, incorporating 11 breakthrough technologies.

Transform our business

We will fundamentally change the way we do business to generate substantial value for our stakeholders.

We are implementing and improving the Rolls-Royce operating system. Digitalisation allows us to create entirely new ways of engineering, manufacturing and serving our customers across the Group.

Build a balanced portfolio

We will seek new markets and products that bring new technologies and capabilities, and generate scale and synergies.

We are investing to manage the transition towards electrification and digitalisation. We mitigate the risk of long-term investment by increasing our preparedness. For example, by developing activities where electrification is relevant today, such as micro-grids, we will be better placed to benefit in activities where electrification is still some years away, such as aero engines.



We are committed to creating an environment where all our people are able to be at their best. For more information see page 46

Business Model

Our resources



Brand

Our brand enables us to sustain relationships, secure business and attract talent.



People and culture

Our success is a result of the commitment, skills and ingenuity of our employees and their determination to be 'Trusted to Deliver Excellence'.



Technology

Our technology enables us to meet emerging customer needs.



Engineering capability

Our engineering expertise enables us to embed cutting-edge technologies into outstanding products.



Advanced manufacturing capability

Our manufacturing processes enable us to embed advanced technologies in our products quickly and efficiently.



Service capability

Our service orientation enables our customers to focus on their core activities.



Rolls-Royce operating system

Our operating system enables us to drive best practice and value across the Group.



Partners

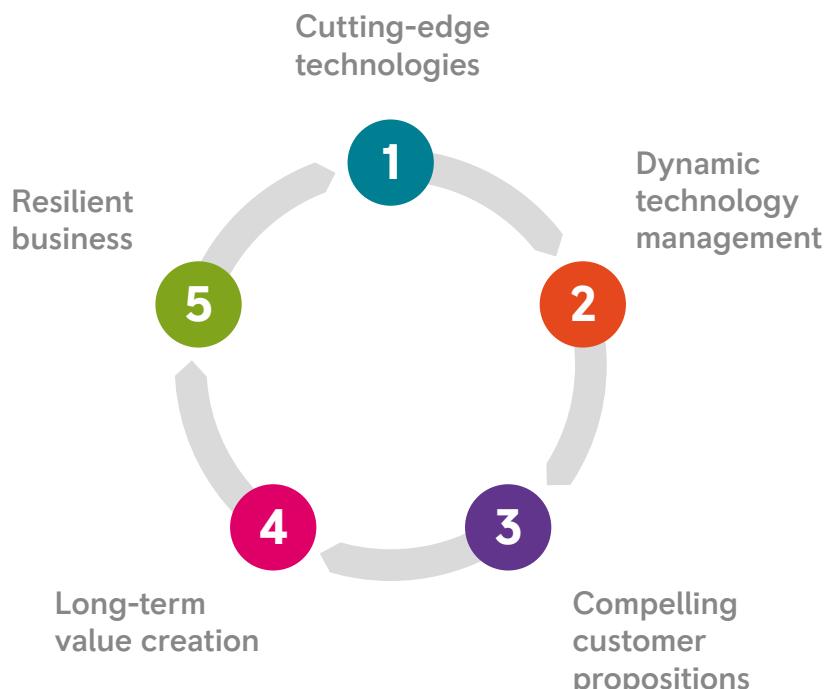
Our partners enable us to collaborate in technology, manufacturing and services.



Financial strength

Our financial strength enables us to pursue long-term cutting-edge technologies and to support our customers throughout the entire product lifecycle.

Rolls-Royce is one of the world's leading industrial technology companies. We provide power solutions for our customers which combine three elements: advanced technologies; system solutions; and system life. These are delivered as part of a virtuous cycle which begins with the development of cutting-edge technologies. We optimise the value of our power solutions throughout their lives.



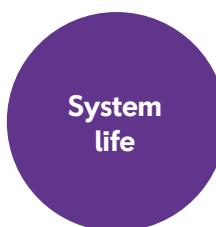
Our competitive advantage comes from:



We apply cutting-edge technologies to provide cleaner, safer and more competitive power. Our technologies ensure that our customers have power that meets their emerging needs.



We package technologies into systems that provide complete solutions for our customers. Our solutions mean that our customers have power from a single, trusted partner.



We care about the performance of our solutions throughout their lives. Our whole-life capabilities maximise availability and enable us to meet changing customer needs.

1 Cutting-edge technologies

Cutting-edge technology allows us to meet emerging customer needs. We instinctively pursue new technologies that will help us deliver cleaner, safer and more competitive solutions.

We identify the key horizon technologies that will generate a competitive advantage for Rolls-Royce in the long term.

Link to risks A B

2 Dynamic technology management

Our future technological world is complex with many exciting new challenges across everything we do. We respond to this with broader and deeper collaboration with others, and with a more dynamic approach to ensure that our technology brings the most value to our customers and our business.

We are inclusive in the pursuit, co-operative in the application and aggressive in the commoditisation of technology.

Link to risks A B

3 Compelling customer propositions

Our customer relationships are our greatest strength. We offer our customers a combination of advanced technology, in a complete systems solution, optimised throughout its life.

We create combinations of technology, systems and aftermarket performance that make our customers more competitive.

See below for details of how we do this.

Link to risks B C D E

4 Long-term value creation

Our activities are complex and global. We share best practice across the Group and assess where and how activities can offer the best value.

We use the Rolls-Royce operating system to generate greater value.

Link to risks E

5 Resilient business

Our activities have a major impact on our planet, the global economy and on communities. To ensure that we are free to operate and invest for the long term, we are thoughtful and careful about the business we undertake, our financial resources and our wider impact.

We build balance in our activities, strength in our balance sheet and behave sustainably.

Link to risks F G H I J

Our power solutions create revenue from:

- original equipment sales
- maintenance, repair and overhaul sales
- secondary or repurposing sales
- additional products and services

Our intimate knowledge of our customers and our products enables us to optimise the value of our power solutions throughout their lives. We share this value with our customers by offering power as a service.



Revenue recognition page 125

Value creation for our stakeholders in 2017

Customers

We develop product solutions that improve our customers' competitiveness.

Gross R&D expenditure

£1.4bn

Investors

We generate attractive returns for investors over the long term.

Total shareholder return

25.4%

Employees

We create an environment where each employee is able to be at their best.

Invested in training and development

£31.2m

Partners

We create partnerships based on collaboration where each partner benefits from the relationship.

Spent with external suppliers

£8.7bn

Communities

We improve the communities that we impact locally, nationally and globally.

Hours of employee time volunteered

93,900

Governing bodies and regulators

We aim to create trusted relationships with governing bodies and regulators, meeting all legal and regulatory commitments and requirements.

Link to principal risks

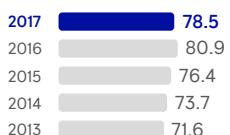
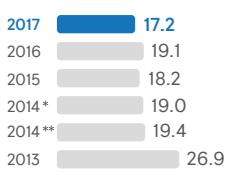
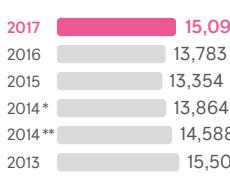
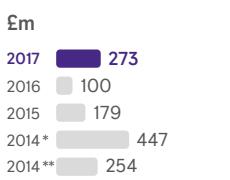
- A Disruptive technologies and business models
- B Competitive position
- C Major product programme delivery
- D Product safety
- E Talent and capability
- F Business continuity
- G IT vulnerability
- H Market and financial shock
- I Political risk
- J Compliance



Principal Risks page 59

Key Performance Indicators

Financial key performance indicators

Description	Why we measure it	How we have performed													
Order book £78.5bn	We measure our order book as an indicator of future business volume; however, its value may not be reflective of future revenue. ¹	The 3% decline principally reflects the current period where Civil Aerospace engine deliveries have outpaced new orders as Civil Aerospace customers focused on delivering against their backlog. Power Systems and Nuclear order books improved, reflecting greater activity.	£bn  <table> <tr> <td>2017</td> <td>78.5</td> </tr> <tr> <td>2016</td> <td>80.9</td> </tr> <tr> <td>2015</td> <td>76.4</td> </tr> <tr> <td>2014</td> <td>73.7</td> </tr> <tr> <td>2013</td> <td>71.6</td> </tr> </table>	2017	78.5	2016	80.9	2015	76.4	2014	73.7	2013	71.6		
2017	78.5														
2016	80.9														
2015	76.4														
2014	73.7														
2013	71.6														
Order intake £17.2bn	Order intake is a measure of new business secured during the year and represents new firm orders, adjusted for the movement in the announced order book between the start and end of the period. ²	Order intake was £1.9bn lower than achieved in 2016 due to Civil Aerospace customers focusing more on delivery of airframes than new sales campaigns. All other business units saw an improvement in their order books, including in Marine from what was a low base.	£bn  <table> <tr> <td>2017</td> <td>17.2</td> </tr> <tr> <td>2016</td> <td>19.1</td> </tr> <tr> <td>2015</td> <td>18.2</td> </tr> <tr> <td>2014*</td> <td>19.0</td> </tr> <tr> <td>2014**</td> <td>19.4</td> </tr> <tr> <td>2013</td> <td>26.9</td> </tr> </table>	2017	17.2	2016	19.1	2015	18.2	2014*	19.0	2014**	19.4	2013	26.9
2017	17.2														
2016	19.1														
2015	18.2														
2014*	19.0														
2014**	19.4														
2013	26.9														
Underlying revenue £15,090m	Monitoring of revenue provides a measure of business growth. ³	Underlying revenue rose 6% organically, ⁸ reflecting increased delivery volumes in both Civil Aerospace and Defence Aerospace plus improved end markets at Power Systems. Service revenue was 7% higher led particularly by growth in Civil Aerospace.	£m  <table> <tr> <td>2017</td> <td>15,090</td> </tr> <tr> <td>2016</td> <td>13,783</td> </tr> <tr> <td>2015</td> <td>13,354</td> </tr> <tr> <td>2014*</td> <td>13,864</td> </tr> <tr> <td>2014**</td> <td>14,588</td> </tr> <tr> <td>2013</td> <td>15,505</td> </tr> </table>	2017	15,090	2016	13,783	2015	13,354	2014*	13,864	2014**	14,588	2013	15,505
2017	15,090														
2016	13,783														
2015	13,354														
2014*	13,864														
2014**	14,588														
2013	15,505														
Self funded R&D as a proportion of underlying revenue 6.9%	This measure reflects the need to generate current returns as well as to invest for the future. ⁴	Disciplined control of spend kept R&D stable as percentage of sales, with self-funded R&D increasing to £1.04bn. This was primarily due to expenditure within Civil Aerospace, focused on new engines coming into service, progress on next generation UltraFan and business jet development programmes.	%  <table> <tr> <td>2017</td> <td>6.9</td> </tr> <tr> <td>2016</td> <td>6.8</td> </tr> <tr> <td>2015</td> <td>6.2</td> </tr> <tr> <td>2014*</td> <td>5.9</td> </tr> <tr> <td>2014**</td> <td>5.8</td> </tr> <tr> <td>2013</td> <td>4.8</td> </tr> </table>	2017	6.9	2016	6.8	2015	6.2	2014*	5.9	2014**	5.8	2013	4.8
2017	6.9														
2016	6.8														
2015	6.2														
2014*	5.9														
2014**	5.8														
2013	4.8														
Capital expenditure as a proportion of underlying revenue 5.1%	To deliver on its commitments to customers, the Group invests significant amounts in its infrastructure. ⁵	Capital expenditure rose as proportion of revenue, and was £764m in absolute terms, reflecting investment in modernising manufacturing processes and facility expansion within Civil Aerospace, upgrading of Defence Aerospace's Indianapolis site and expansion of our spare engine fleet to support the growing installed base of widebody engines.	%  <table> <tr> <td>2017</td> <td>5.1</td> </tr> <tr> <td>2016</td> <td>4.5</td> </tr> <tr> <td>2015</td> <td>3.7</td> </tr> <tr> <td>2014*</td> <td>4.7</td> </tr> <tr> <td>2014**</td> <td>4.6</td> </tr> <tr> <td>2013</td> <td>4.4</td> </tr> </table>	2017	5.1	2016	4.5	2015	3.7	2014*	4.7	2014**	4.6	2013	4.4
2017	5.1														
2016	4.5														
2015	3.7														
2014*	4.7														
2014**	4.6														
2013	4.4														
Underlying operating profit £1,175m	This measure reflects the Group's underlying economic performance taking account of its hedging strategies. ⁶	Organic ⁸ growth of 22% driven by revenue improvement, our focus on reducing fixed costs, higher capitalised R&D and product mix. This was despite higher costs incurred from in-service issues with Trent 1000 and Trent 900 fleets. Transformation programme benefits reached the top end of the targeted £200m run-rate reduction.	£m  <table> <tr> <td>2017</td> <td>1,175</td> </tr> <tr> <td>2016</td> <td>915</td> </tr> <tr> <td>2015</td> <td>1,492</td> </tr> <tr> <td>2014*</td> <td>1,681</td> </tr> <tr> <td>2014**</td> <td>1,678</td> </tr> <tr> <td>2013</td> <td>1,831</td> </tr> </table>	2017	1,175	2016	915	2015	1,492	2014*	1,681	2014**	1,678	2013	1,831
2017	1,175														
2016	915														
2015	1,492														
2014*	1,681														
2014**	1,678														
2013	1,831														
Free cash flow £273m	In a business requiring significant investment, we monitor cash flow to ensure that profitability is converted into cash generation, both for future investment and as a return to shareholders. ⁷	Cash generation was better than expected, notably in Power Systems, driven by improved profitability and strong working capital management which saw a £546m working capital inflow in the year. These more than offset higher capex and R&D and increased costs to resolve Civil Aerospace in-service engine issues.	£m  <table> <tr> <td>2017</td> <td>273</td> </tr> <tr> <td>2016</td> <td>100</td> </tr> <tr> <td>2015</td> <td>179</td> </tr> <tr> <td>2014*</td> <td>447</td> </tr> <tr> <td>2014**</td> <td>254</td> </tr> <tr> <td>2013</td> <td>781</td> </tr> </table>	2017	273	2016	100	2015	179	2014*	447	2014**	254	2013	781
2017	273														
2016	100														
2015	179														
2014*	447														
2014**	254														
2013	781														

* Excluding Energy

** Including Energy

Non-financial key performance indicators [†]

Description	Why we measure it	How we have performed	%
Customer delivery 91%	To deliver on our commitments to our customers we measure the percentage of on-time deliveries to our customers including new equipment, spare parts, equipment repair and overhaul. This is tracked Group-wide in our scheduling and order fulfilment system.	We continued to improve our on-time delivery in a period where we are significantly increasing the output of our Trent engines.	 2017 91% 2016 88%
Employee engagement 75	This is measured through our employee opinion survey which produces a composite sustainable engagement score. The targets are based on absolute scores for six key questions within the overall survey.	We maintained our employee engagement score of 75 in 2017, which was the same as in 2016. However we fell short of our target of 77.	 2017 75 2016 75

[†] These non-financial performance indicators are linked to our remuneration structure.

Notes

- We measure our order book at our long-term planning exchange rate (LTPR) and list prices and include both firm and announced orders. In Civil Aerospace, it is common for a customer to take options for future orders in addition to firm orders placed. Such options are excluded from the order book. In Defence Aerospace, long-term programmes are often ordered for only one year at a time. In such circumstances, even though there may be no alternative engine choice available to the customer, only the contracted business is included in the order book. We only include the first seven years' revenue from long-term aftermarket contracts.
- Any orders which were recorded in previous periods and which are subsequently cancelled, reducing the order book, are included as a reduction to intake. We measure order intake at constant exchange rates and list prices and, consistent with the order book policy of recording the first seven years' revenue from long-term aftermarket contracts, include the addition of the following year of revenue on long-term aftermarket contracts.
- Underlying revenue is used as it reflects the impact of our foreign exchange (FX) hedging policy by valuing foreign currency revenue at the actual exchange rates achieved as a result of settling FX contracts in the year. This provides a clearer measure of the year-on-year performance.
- We measure R&D as the self-funded expenditure before both amounts capitalised in the year and amortisation of previously capitalised balances. We expect to spend approximately 5% of underlying revenue on R&D although this proportion will fluctuate depending on the stage of development of current programmes. We expect this proportion will reduce modestly over the medium-term.
- All proposed investments are subject to rigorous review to ensure that they are consistent with forecast activity and will provide value for money. We measure annual capital expenditure as the cost of property, plant and equipment acquired during the period and, over the medium-term, expect a proportion of around 4%. (Capital expenditure excludes additions arising from TotalCare Flex arrangements).
- In particular: (a) revenue and costs denominated in US dollars and euros are presented on the basis of the exchange rates achieved during the year based on our FX hedge book; (b) similar adjustments are made in respect of commodity derivatives; and (c) consequential adjustments are made to reflect the impact of exchange rates on trading assets and liabilities, and long-term contracts, on a consistent basis.
- We measure free cash flow as the movement in net debt/funds during the year, before movements arising from payments to shareholders, acquisitions and disposals, and FX.
- Organic change is at constant translational currency, excluding M&A.

Financial Review



Stephen Daintith
Chief Financial Officer

Overview 2017

I believe I have joined Rolls-Royce as Chief Financial Officer at a significant point in its history. Over the past five years, we have made substantial investments of almost £8bn in new products and operations, with cumulative tangible capital expenditure of £3.2bn and self-funded R&D investment of £4.4bn. This has allowed Rolls-Royce to develop and bring to market a number of the world's most powerful aero engines. Over a period of 12 months, three new widebody engines achieved first flights. Our active Civil Aerospace in-service engine base stands at 12,966, including 4,409 large engines, an increase of 16% since 2012 and an increase in our large engine installed base of 7% in 2017 alone.

The growth of the installed base highlighted above helped drive a 12% increase in widebody engine flying hours in 2017, delivering 12% growth in Civil Aerospace service revenue. Another solid year in our Defence Aerospace business, together with a strong performance at Power Systems and ongoing cost benefits from our transformation programme, helped us deliver an improved financial performance in the year. Underlying operating profit and free cash flow were both above our expectations.

Overall Group underlying revenue grew organically 6% to £15.1bn. Original equipment (OE) revenue of £7.7bn grew 6%, reflecting increased delivery volumes in Civil Aerospace and Defence Aerospace plus improved end markets for Power Systems. Marine OE revenue fell 15% due to challenging end markets. Nuclear revenue rose by 4%. Service revenue, which accounts for 49% of Group revenue,

rose 7% to £7.4bn in 2017, led by growth in Civil Aerospace.

Underlying operating profit grew 22% organically to £1,175m (reported operating profit of £1,287m) in 2017 which was driven by revenue improvement, our focus on fixed costs and higher capitalised R&D. It was delivered despite higher costs incurred from Civil Aerospace's in-service engine issues with the Trent 1000 and Trent 900 which had a negative £227m impact on profit in the year (2016: £98m). Transformation programme benefits have now reached the top end of our targeted £200m run-rate reduction in fixed costs.

Cash generation was better than expected in 2017, notably in Power Systems, with £273m of Group free cash flow (2016: £100m), driven by improved profitability and strong working capital performance which saw a £546m working capital inflow in the year. These were more than offset by higher capex, R&D and the £170m cash costs incurred on Trent 1000 and Trent 900 in-service issues (2016: £90m). Looking ahead, I believe we are now poised to significantly improve our free cash flow as the business starts to reap the benefits of its previous investment cycle and growing installed engine base.

Our primary objective is to generate strong and growing free cash flow. Several key levers are central to delivering this: improving OE economics within Civil Aerospace; continuing to drive growth in Power Systems; delivering ongoing growth in service revenue; and continuing to reduce our costs. We have considerable visibility of the service revenue streams which form a vital part of the resilience and

longevity of our business model. We will also drive working capital efficiencies throughout the business, seek to reduce overhead costs further through our recently announced restructuring programme, increase utilisation of our facilities and become more disciplined in our spending and investment decisions.

With more financial flexibility and a more disciplined capital allocation approach, our aim is for Rolls-Royce to regain A-grade investment status, putting us in a position to restore shareholder payments to an appropriate level balanced against a disciplined investment programme to capture carefully selected growth opportunities. We have progressed our portfolio strategy, with the decision to review our commercial marine operation. We will continue to review our portfolio and, where appropriate, pursue tactical disposals of non-core assets to further improve our balance sheet.

I am also determined to provide greater financial transparency, both internally and externally. There has been good progress here in 2017, with further significant steps to be made going forward. In 2018, we aim to introduce some new KPIs to align with our focus on cash flow and improved discipline on capital allocation. We are setting ambitious but achievable targets, reflecting our confidence that the business can deliver significantly improved financial performance over the next few years.

2018 outlook

We are confident 2018 will be a year of good progress. Organic revenue should grow mid-single digit, with underlying operating profit of around £400m excluding ITP Aero (around £450m including ITP Aero). Free cash flow should improve to around £450m excluding ITP Aero, (around £400m including ITP Aero). We are making solid progress with longer-term solutions for Trent 1000 and Trent 900 in-service issues, largely through re-designing affected parts, and we expect these to be fully embodied on the Trent 1000 fleet by 2022. On the Trent 900, an extended life turbine blade is already being rolled-out with further re-designs available from 2020. Based on our current estimates, in 2018 the anticipated annual cash impact is expected to broadly double and reach a peak. It is then expected to fall by around £100m in 2019. The majority of this work will be undertaken in 2018 and 2019 and is not expected to complete until 2022. All of these costs are included in our cash flow guidance for 2018 and beyond.

Financial priorities

To build a business that can generate long-term, sustainable value for stakeholders, I have established five financial priorities, focused on better understanding and improving free cash flow. Action has already started and will continue in 2018 and beyond.

1 Improve cash flow generation

Cash is a fundamental indicator of economic performance. Our primary financial objective is to grow free cash flow.

Key drivers of this will be:

- improved OE economics, principally by reducing the deficit per engine sold, with the Trent XWB engine a key indicator of progress; we aim to move the Trent XWB engine to break-even by 2020;
- growth in service cash inflows through growth in the installed engine base and flying hours;
- a focus on improved working capital management;
- reducing our cost base; and
- improved operational performance in Defence Aerospace and Power Systems.

2017 achievements

- Trent XWB OE deficit per engine down 37% year-on-year
- TotalCare engine flying hours up 12%
- Inventory turns improved 4% to 2.9x

2 Continue cost reduction

Our transformation programme which began in 2015 continued to deliver significant benefits in 2017. For 2018 we have launched a new restructuring plan to further improve efficiency around overhead costs.

Key drivers going forward will be:

- reducing product lifecycle costs through targeted re-engineering;
- removal of duplicated support and management functions as we move from five to three businesses;
- reduction in manufacturing footprint and increasing plant productivity;
- improving efficiency and reducing cost and headcount in commercial and administrative (C&A) functions; and
- disciplined R&D investment.

2017 achievements

- Global production footprint reduced by 3.5%
- C&A costs down 80bps as % of sales
- R&D stable as % of sales at 6.9% despite new programme investment

3 Disciplined capital allocation

A disciplined approach to capital allocation and sustaining a healthy balance sheet will play a major part in driving our long-term growth. Through improved free cash flow generation, we aim to maintain a strong investment grade rating and ultimately return to A-grade status. Restoring our shareholder payments to an appropriate level will be a key element of our capital allocation framework. Growing free cash flow will also help sustain our investment in R&D programmes across existing core areas as well as develop new opportunities, notably in pursuing our electrification strategy.

4 Provide greater financial transparency

There will be a continuing focus to improve the understanding and explanation of the financial drivers of our business, both from an internal and external perspective. The introduction of IFRS 15 (see page 55 for more detail) will help provide greater transparency on the performance and financial dynamics of our business, especially around OE. Looking at and presenting our Civil Aerospace business on a cash flow driver basis should also help increase understanding. Finally, moving more of our internal and external performance metrics to be based around free cash flow will help clarity and focus.

5 Strengthen the finance function

We are taking steps to strengthen the finance function, focusing our resources on improving insight and analysis to help drive results and change across Rolls-Royce. With several new appointments already made, we are bringing on board different experiences to support the continued transformation of Rolls-Royce into the world's leading industrial technology company.

Four key initiatives have been launched as part of a change programme within the Rolls-Royce finance function to deliver on our financial priorities. These include the re-engineering of our finance operating model (our finance systems and reporting), establishing value-based modelling (the use of rolling forecasts) and embedding a strong cash-focused culture to improve working capital management. Finally, a Finance Academy is being established to develop and grow our finance professionals across the organisation.

Group trading summary

Underlying revenue up 6%

Group revenue rose 6% to £15,090m, reflecting 6% growth in OE and 7% in services. Civil Aerospace led the progress, with revenue up 12% reflecting strong growth in OE engine delivery volumes (up 5% in total and up 35% for widebody). Service revenue in Civil Aerospace rose 12%, benefiting from the growing installed base of in-service large engines, which rose 7% to 4,409. Power Systems revenue grew 3% driven by growth in commodity-related markets, construction & agriculture and power generation business. Marine revenue was weak, down 9%, reflecting ongoing weakness in the offshore oil & gas markets. Nuclear revenue rose 4%.

Gross profit up 1%

Gross profit rose 1% to £2,973m, with gross margins of 19.7%, down 100bps in the year. This decline was driven by both Civil and Defence Aerospace. Civil Aerospace margins reflected the impact of higher volumes of unlinked OE engines, which carry an OE deficit, allied to lower long-term service agreement (LTSA) margins and other related costs driven by additional maintenance costs on Trent 1000 and Trent 900 engines. Defence Aerospace gross margins were impacted by lower

spares volumes and lower LTSA contract margin improvements. Power Systems saw a strong gross margin improvement of 240bps, principally reflecting improved product mix and pricing discipline.

R&D costs down 18%

Gross R&D expenditure grew 1% to £1,392m. After funding from customers and other third parties, self-funded R&D rose 7% to £1,035m. This was primarily driven by increased investment in Civil Aerospace with the development of a number of new engines plus ongoing investment in existing product improvement, including fuel burn efficiency enhancements. Capitalisation of R&D rose from £99m to £342m due to the stage of development programmes and included £83m from a policy application change. Contributions from risk & revenue sharing partners declined £24m. Overall the underlying expensed R&D charge fell 18% to £737m.

C&A costs down 3%

C&A costs were £1,168m, 3% down on the prior year, reflecting the beneficial effects of transformation actions to reduce overhead costs. Looking ahead to 2018 and beyond, we expect to realise additional benefits from further restructuring of our support and management functions.

Exceptional restructuring charges

£104m of exceptional restructuring charges were taken in 2017 (2016: £129m) primarily due to restructuring in Power Systems and Defence Aerospace, reflecting actions to remove cost and improve operational efficiency.

Underlying operating profit up £260m

Underlying operating profit of £1,175m (2016: £915m) was up 22% reflecting a number of factors:

- Civil Aerospace profit increased to £520m, up 34% with positive margin contribution from higher linked Trent 700 OE sales, increased service revenue and higher sales of spare parts. This was offset by higher costs relating to the Trent 1000 and Trent 900 in-service engine issues, with £227m of costs charged for these. Expensed R&D fell £156m to £412m reflecting increased capitalisation.
- Defence Aerospace profit of £374m was down 7% due to lower demand for engine spares, higher restructuring costs and a £14m reduction in LTSA contract margin improvements taken in 2016. These more than offset the non-repeat of the TP400 charge of £31m in 2016.
- Power Systems made excellent progress in 2017, with profit of £330m up 61%, reflecting 3% revenue growth, a 240bps expansion in gross margin, due to better mix and pricing discipline, and benefits of overhead cost reduction actions which saw C&A costs fall 7%.
- Despite the 9% decline in Marine revenue, restructuring drove a material reduction in overhead costs with C&A costs 13% lower, helping to reduce underlying operating losses to £25m (a £2m improvement versus 2016).
- Nuclear operating profit of £38m was 18% lower versus 2016, primarily reflecting a higher R&D charge of £23m compared with the £6m incurred in 2016 which had benefited from a one-off positive of £7m due to the change in treatment of R&D credits.

Group trading summary

£m	2017	2016	Change	Organic change
Order book *	78,476	80,910	-3%	-3%
Underlying revenue	15,090	13,783	+9%	+6%
Underlying OE revenue	7,687	7,027	+9%	+6%
Underlying services revenue	7,403	6,756	+10%	+7%
Underlying gross profit	2,973	2,818	+6%	+1%
Gross margin %	19.7%	20.4%	-70bps	-100bps
Commercial and administrative costs	(1,168)	(1,158)	+1%	-3%
Research and development costs	(737)	(862)	-15%	-18%
Joint ventures and associates	107	117	-9%	-13%
Underlying operating profit	1,175	915	+28%	+22%
Underlying operating margin	7.8%	6.6%	+120bps	+100bps
Financing costs	(104)	(102)	+2%	
Underlying profit before tax	1,071	813	+32%	
Tax	(328)	(261)	+26%	
Underlying profit for the year	743	552	+35%	
Underlying earnings per share (pence)	40.46	30.13	+34%	
Free cash flow	273	100		n/a

* The 2016 opening order book has been restated by £1.5bn reflecting a methodology change in the exchange rates used to translate order books – moving from long-term planning rates to period spot rates – for overseas subsidiaries, and a restatement of Defence Aerospace's order book opening balance by £(441)m.

Payment to shareholders held flat

For 2017, the final payment to shareholders is held at 7.1 pence giving a full year payment of 11.7 pence (2016 full year: 11.7 pence), a cash cost of £216m. Restoring our shareholder payments to an appropriate level over time as free cash flow grows will be a key capital allocation priority.

Free cash flow**£273m**

* Excluding Energy

** Including Energy

Underlying profit before tax**£1,071m****Reported profit/(loss) before tax****£4,897m****Reported results**

Reported profit before tax was £4.9bn, a material increase over the 2016 loss of £4.6bn. This included £798m of gains resulting from the acquisition of ITP Aero, a positive FX mark-to-market adjustment of our hedge book of £2.6bn (£4.4bn negative in 2016), a charge of £671m for financial penalties from agreements with investigating bodies in 2016, a charge (principally relating to the Vickers Group Pension Scheme) of £306m for the restructuring of the UK pension schemes in 2016 and goodwill/other impairments of £24m versus £219m in 2016. This also includes improvements in other operational performances as highlighted above.

Free cash flow improving

Free cash inflow in the year was better than expected at £273m (2016: £100m), excluding the £14m post-acquisition cash outflow of ITP Aero. The strong cash flow performance was driven by higher profitability in Civil Aerospace, Defence Aerospace and Power Systems and good working capital performance, again principally in receivables, across the Group. This was achieved despite £98m of higher R&D cash spend in 2017, a £188m increase in capital expenditure and the reversal of the £180m working capital management benefit generated in the first half. Trading cash flow in Civil Aerospace of £38m was unchanged year-on-year. This reflected increased flying hour receipts and higher spare parts sales, offset by an increased outflow from higher deliveries of OE widebody engines and the higher Trent 1000 accelerated maintenance activity. Total cash costs incurred in the year on Trent 1000 and Trent 900 in-service issues were £170m (2016: £90m).

Looking ahead, improved Civil Aerospace engine OE economics and increased engine flying hours will drive a further improvement in free cash flow in 2018

and beyond. More details on the movement in trading and free cash flow are included in the funds flow section of the Additional Financial Review – see page 51.

IFRS 15

As highlighted in 2016, the introduction of the new revenue reporting standard, *IFRS 15 Revenue from Contracts with Customers*, will change fundamentally how Rolls-Royce measures its revenue and profit, Civil Aerospace having by far the largest impact. There are three broad implications:

- linked accounting will cease to exist so all OE sales will be treated on the same basis;
- OE engine cash deficits will no longer be capitalised and recorded as contractual aftermarket rights, they will instead be recognised on delivery; and
- revenue and profit for aftermarket services will be recognised on an activity basis as costs are incurred.

Further information on the 2017 results under IFRS 15 can be found on page 55.

Net debt

In 2017, the Group's net debt position rose from £225m to £520m (excluding ITP Aero) largely reflecting the £273m free cash generation offset by shareholder payments of £214m and £286m covering payments due in 2017 for the financial penalties from agreements with investigating bodies. A further £378m of regulatory fines remain due to the SFO, with a payment schedule extending to 2021.

Following the acquisition of ITP Aero, its operating cash outflow of £14m and the consolidation of the net funds of £215m result in Group net debt rising somewhat less to £305m.

Credit rating

The Group is committed to maintaining a robust balance sheet with an investment-grade credit rating. We believe that this is important for our customers given that we deliver high-performance products and support for equipment which will be in operation for decades. Standard & Poor's updated its rating in January 2017 to BBB+ from A-/negative outlook, while Moody's lowered its rating in February 2017 from A3/stable to A3/negative.

Foreign exchange

The Group hedges transactional foreign exchange exposures to reduce volatility of revenue and costs. The most significant exposure is net US dollar income which is converted into GBP (currently approximately \$5bn per year and forecast to increase significantly by 2021). The Group has a hedge book of \$38.5bn (at an average rate of USD:GBP 1.55) covering this exposure. We expect the achieved £/\$ hedge rate to remain unchanged at around USD:GBP 1.54 for the coming three years.

Interest

Interest and other financing costs remained broadly flat year-on-year, up £2m to £104m. Net interest payable reduced by £10m to £53m. Other underlying financing costs increased by £12m to £51m.

Taxation

Underlying taxation was £328m (2016: £261m), an underlying rate of 30.6% compared with 32.1% in 2016. The underlying tax rate remains high due to the continued non-recognition of deferred tax assets on losses in Norway and the mix of profits arising in higher tax rate countries, predominantly the US and Germany.



POWERING GLOBAL AVIATION

At the same time as delivering a significant increase in Civil Aerospace engine production, Rolls-Royce marked the entry into service of the Trent 1000 TEN on the Boeing 787 Dreamliner in November 2017. That milestone followed the first test flight of the Airbus A330neo, powered by the new Trent 7000, in October and the first test flight of the Airbus A350-1000, powered by the new Trent XWB-97 in late 2016. That means Rolls-Royce successfully flew three new civil widebody engines in a period of just 12 months – an unprecedented achievement in the aerospace industry. Each programme has brought together more than 20,000 parts to create engines that have undergone rigorous testing at facilities around the world.

Civil Aerospace

Civil Aerospace is a major manufacturer of aero engines for the large commercial aircraft, regional jet and business aviation markets. The business uses its engineering expertise, in-depth knowledge and capabilities to provide through-life support solutions for its customers.

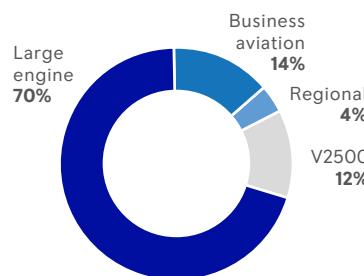
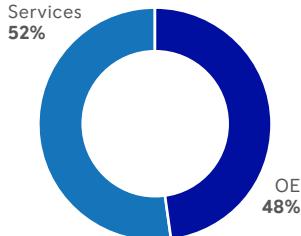
Civil Aerospace | Key financial data *

	2017	Year-on-year change	Organic change [†]
Underlying revenue	£8,023m	+14%	+12%
Underlying gross profit	£1,192m	+1%	-2%
Underlying operating profit	£520m	+42%	+34%
Trading cash flow	£38m	-12%	-12%
Order book	£70.2bn	-3%	-3%

* See note 2 on page 132 for further segmental detail.

[†] Organic change is at constant translational currency, excluding M&A.

Underlying revenue mix



Key facts



35

types of commercial aircraft powered by Rolls-Royce engines



13,000

engines in service around the world



24,600

average number of employees during 2017

Key highlights

- Underlying revenue and underlying operating profit growth of 12% and 34% respectively, driven by 35% increase in large engine delivery volumes and a 12% increase in invoiced flying hours
- Underlying service revenue grew by 12%
- Unit cost reductions and pricing improvements; 37% reduction in Trent XWB-84 cash deficit; and overall OE cash deficit stable at £1.6m, as expected given the change in production mix
- Good progress on new engine programmes during 2017: Trent 1000 TEN entering into service, Trent XWB-97 achieving certification, and Trent 7000 powering Airbus A330neo first flight
- Significant in-service engine issues on Trent 1000 and Trent 900; principally due to lower than expected durability of certain turbine and compressor rotor blade parts (see page 24); and focus to mitigate disruption to customers, current year £227m income statement charge and £170m impact to cash flow
- Change in R&D policy application: £83m of the £243m increase in R&D capitalisation in year

Overview 2017

2017 marked some notable successes for Civil Aerospace, with record levels of widebody engine deliveries, expanding the installed fleet and generating positive service revenue growth. The Trent XWB-97 and the Trent 7000 achieved full flight certification during the year and the Trent 1000 TEN entered into service. The Trent XWB-84 saw much improved OE economics and has achieved over 1.2 million flying hours in service with unprecedented levels of reliability. These milestones have been achieved against a backdrop of capacity constraints, primarily for blade manufacture and test beds, which have been exacerbated by a number of in-service engine issues relating to the serviceable life of a small number of parts on the Trent 1000, which have led to significant customer disruption, and on the Trent 900. Investments have been made in facilities and people to minimise the disruption caused to our customers and to develop longer-term solutions.

Financial overview

Total underlying revenue

Total underlying revenue rose 12% to £8,023m, with both OE revenue of £3,818m (2016: £3,357m) and service revenue of

£4,205m (2016: £3,710m) up 12%. The rise in OE revenue reflected record levels of widebody engine deliveries, with growth in Trent XWB-84 engine sales, to support the Airbus A350 programme ramp-up, a significant contributor.

Higher service revenue was driven by both increased engine flying hours and higher time and material activity. Overall large engine flying hours increased by 12% to 12.6 million. This reflects a 22% increase in flying hours from the in-production Trent engine fleet partially offset by a decrease of 12% from the legacy fleet of engines, the Trent 500 and Trent 800 and RB211s, which are no longer in production.

For business aviation, while OE sales were 26% lower, reflecting a 32% reduction in engine sales as airframe production transitioned to competitor-powered programmes, there was a 10% increase in service revenue from continued fleet growth and consistently high CorporateCare coverage. Overall, V2500 revenue increased 6% driven by higher maintenance, repair and overhaul activity. Service revenue from V2500 increased 13% led by higher maintenance activity. V2500 OE module sales continued to reduce but revenue from flying hours remained stable.

Underlying operating profit

Underlying operating profit increased to £520m, up 34% (2016: £367m). Increased gross margin contributions were generated by higher deliveries of link-accounted Trent 700 engines, increased flying hours in growing widebody and business aviation fleets and increased sales of spare parts. This was partially offset by the decline in business jet engine OE sales.

Given the performance of our in-service fleets continued to evolve, as we do every year, we have updated our forward estimates of revenue and costs across our long-term contracts. While this included some favourable effects, such as increased utilisation and reduced servicing costs across our business aviation fleet, it also required the inclusion of higher costs for additional maintenance activity for the Trent 1000 and Trent 900 fleets and increased customer support to alleviate the impact of limited engine availability. In total, the contract accounting adjustments created an £18m headwind (2016: £90m benefit) which included a £148m charge (2016: £98m charge) for technical cost (including certain costs relating to the Trent 1000 and Trent 900 in-service issues), a £113m (2016: £217m) benefit from lifecycle cost improvements and a £77m benefit from a customer credit rating change, offset by other charges of £60m (2016: £64m charge)



ON TIME, EVERY TIME

In June, Rolls-Royce opened its Airline Aircraft Availability Centre (the Centre), in Derby, UK, combining the latest in digital data management and technology innovation. Using industry-leading data analytics, the Centre plans engine operations and maintenance, driving efficiency in an industry where one per cent fuel savings can be worth \$250,000 per aircraft per year. With a Rolls-Royce powered aircraft taking off or landing every 16 seconds, the business can use data from thousands of aircraft across the world to ensure they are available for service 24/7. The Centre will also be a hub for the introduction of new technologies including real-time collaboration systems which allow engineers working around the world to share live pictures from inside an engine with the team at the Centre and receive advice on what action to take. In addition, 'remote surgery' techniques will enable experts at the Centre to carry out complex engineering tasks by remote control.



THE TRENT XWB – ONE IN A MILLION

In late 2017, the Trent XWB-84 passed an important milestone: one million flying hours. The engine, which powers the Airbus A350 XWB and is the most efficient large aero engine flying in the world today, achieved the milestone while delivering the best ever widebody entry into service performance, with despatch reliability reaching 99.94% in October and zero in-flight disruption. The engine continues to set new standards of performance and popularity in our industry. Not only is it the most efficient large aero engine flying in the world today, it is also the fastest-selling widebody engine ever, with more than 1,600 already sold or on order.

The engine, assembled in Derby, UK, and Dahlewitz, Germany, has a front fan that is just under ten feet across, which draws in up to 1.3 tonnes of air every second at take-off. The high-pressure turbine blades inside the engine rotate at 12,500rpm, with their tips reaching 1,200rpm – twice the speed of sound. At take off, each of the engine's 68 high-pressure turbine blades generates around 900 horsepower per blade – similar to a Formula One racing car – and at full power, air leaves the nozzle at the back of the engine travelling at almost 1,000mph.

largely relating to operational changes. Profit was also impacted by the non-repeat of the £53m release in 2016, following accounting and legal review, of an accrual relating to the termination in prior years of intermediary services. Gross margin from spare engine sales to joint ventures contributed £67m (2016: £97m).

Investment in self-funded R&D rose by £50m largely reflecting increased investment in the development of a number of new engine types which we successfully progressed, plus ongoing investment in product improvements to our existing portfolio. In 2017, this focused on further enhancing in-service durability, with a notable focus on the longer-term solutions to the Trent 900 in-service engine issues, and fuel burn efficiency as we look to deliver on our customer commitments. This was more than offset by an increase in R&D capitalisation which rose to £328m (2016: £85m), largely reflecting the stage of capitalisation of a number of development programmes. It also reflects a change we have made to better align with European peers and best practice, to the point at which we start capitalising development costs to reflect current engine programmes reaching technical maturity earlier in the development cycle than has been the case historically. This resulted in additional development costs of £83m being capitalised. Contributions from risk and revenue partners decreased to £39m (2016: £63m). Overall the expensed R&D charge fell to £412m in 2017 from £568m in 2016. Higher restructuring provisions contributed to the 5% increase in C&A costs.

Trading cash flow

Trading cash flow in Civil Aerospace of £38m was unchanged year-on-year. This reflected increased flying hour receipts from the growing widebody fleet and higher spare parts sales, offset by an increased outflow from higher deliveries of OE widebody engines and the higher Trent 1000 accelerated maintenance activity. The average cash deficit on widebody engines remained flat at £1.6m per engine, reflecting greater volumes of discounted Trent 700 and some temporary pricing headwind on Trent 900, offsetting strong improvement on Trent XWB-84, where the cash deficit per engine reduced by 37%, underpinning our confidence of further cost reduction and economic improvement. Total cash costs incurred in the year for in-service engine issues on the Trent 1000 were £119m (2016: £45m) and £51m (2016: £45m) on the Trent 900.

The increase in self-funded R&D investment mentioned above, together with higher capital expenditure for additional production capacity and for engines to support the growing fleet, were offset by good working capital performance on cash collections from a number of key customers at the end of the year. This benefit helped offset the growth in inventory to support the continuing widebody engine ramp-up in 2018.

Additional financial information and IFRS 15 adoption impact

Further details on revenue, profit and balance sheet for Civil Aerospace results can be found on pages 53 and 54.

A comparison of the 2017 financial results under IFRS 15 to those under the current basis, together with a commentary on the key differences between the two approaches can be found on pages 56 and 57.

Order book

Order intake in 2017 was £10.5bn (2016: £14.1bn including a £2.1bn uplift from a change in the long-term USD planning rate) with orders placed for 185 widebody engines. The closing order book was £70.2bn (2016: £72.0bn) and includes orders for over 2,500 widebody engines. Orders placed during the year included 119 engines for Airbus platforms including the A350 XWB and A330neo as well as 66 engines for Boeing 787 Dreamliners.

Operational and strategic review

The business has made significant progress in the year, despite capacity constraints on parts and test beds, achieving a record level of large engine production and deliveries while also focusing on minimising the impact on customers from in-service issues on the Trent 1000 and Trent 900 fleets.

Engineering and R&D

Significant milestones have been achieved in each of the three new large engine programmes on their progression towards entry into service. Two new engines achieved certification: the Trent 1000 TEN and the Trent XWB-97. The Trent 1000 TEN entered service on the Boeing 787-9 in

November and the Trent XWB-97 powering the Airbus A350-1000 entered into service in early 2018. In October, Trent 7000 engines powered the first test flight of the Airbus A330neo and the programme remains on schedule for entry into service in mid-2018.

The business continues to invest in developing future technologies which will be key to winning positions on next generation platforms for both large engines and for future business jet programmes. Good progress has been made on new engine architecture demonstrator programmes in 2017. The Advance3 demonstrator successfully completed initial ground test runs and the UltraFan power gearbox successfully completed a high power test run to a record 70,000hp.

In November, the business announced that it will be developing the E-Fan X hybrid electric demonstrator in collaboration with Airbus and Siemens. This development reflects the growing importance of electrification to the long-term future of the industry.

Operational progress

Civil Aerospace has invested in both its facilities and in building the skilled workforce necessary to support the continuing ramp-up in widebody engine production. These actions enabled the business to deliver a record 483 widebody engines in 2017 (2016: 357), up 35%, despite challenges caused by in-service issues.

In June, a £150m investment in facilities was announced with the majority going to new testing facilities for large engines in Derby. We also opened a new Trent XWB assembly line in Dahlewitz to complement the existing one in Derby. Together these two facilities will enable us to deliver seven Trent XWB engines a week by mid-2018.

The new fleet support facility in Tyne and Wear, UK, became operational, allowing the early closure of an older facility to take place in 2018. In addition, legacy supply chain facilities in Ansty and Sunderland, UK, were exited during 2017.

In-service fleet performance

Our large engine fleet has continued to grow, with over 4,400 engines in active service at the end of 2017, up 7% on 2016. Invoiced flying hours from in-production Trent engines rose 22% and total invoiced flying hours from service agreements across all our widebody, business aviation and regional jet engines were 16.7 million, an 8% increase on 2016. The Trent 700, which constitutes 36% of our installed widebody engine fleet, continued to perform well in service, achieving a dispatch reliability of 99.9%.

We celebrated a number of milestones in the year, including the Trent XWB-84 achieving over 1.2 million flying hours with unprecedented levels of reliability (99.9% dispatch reliability).

We have, however, experienced an increased level of activity managing in-service issues on two engine programmes in 2017, the Trent 1000 and Trent 900, caused by the lower than expected durability of a small number of parts. In the first half of the year, we took £59m of charges related to technical issues with the in-service fleet, the largest component of which related to the Trent 1000. Since then we have continued to progress our understanding of the technical issues impacting compressor rotor blades, intermediate and high-pressure turbine blades for the Trent 1000 and also high-pressure turbine blades for the Trent 900, together with the consequential operational impact on our customers. This has been a dynamic situation and we are managing these issues through a proactive engine maintenance programme. This has required increased short-term support including both on-wing and shop visit intervention, which has resulted in disruption for some of our customers.

We have grown our Trent 1000 maintenance, repair and overhaul capacity since an issue with the intermediate pressure turbine blade was first identified, including doubling the number of lines available in the UK, developing a dedicated shop in our SAESL facility in Singapore and using lean methods to reduce turn-around times. We continue to make solid progress with longer-term solutions, largely through the re-design of affected parts, and we expect these to be fully embodied in the Trent 1000 fleet by 2022. Reducing disruption to our customers remains our top priority. The Trent 1000 TEN engine, the latest variant of the Trent 1000, includes a variety of improvements that help deliver greater capability, durability and efficiency. It is, however, possible that a population of early Trent 1000 TEN engines may benefit from proactive maintenance to embody re-designed parts that weren't available at the point of production. On the Trent 900, an extended life turbine blade is being rolled out into the current fleet. Further re-designs are underway and will be available in 2020.

Total charges of £227m (2016: £98m) were recognised in the income statement in relation to accelerated maintenance activity for the Trent 1000 and Trent 900 in 2017 and £170m (2016: £90m) in our cash flow. Based on our current estimates, in 2018 the anticipated annual cash impact in respect of both the Trent 1000 and the Trent 900

is expected to broadly double from the total cash cost in 2017 of £170m and reach a peak in 2018, as maintenance activity intensifies. It is then expected to fall by around £100m in 2019. The majority of the work will be undertaken in 2018 and 2019 although it is expected to be fully complete by 2022. All of these costs are included in our cash flow guidance for 2018 and beyond.

Developing the service offerings

As the engine base matures and flying hours continue to grow, the business has broadened its range of long-term service packages to meet the needs of an increasingly diverse customer base.

In June, the Airline Aircraft Availability Centre was opened in Derby. The Centre uses industry-leading data analytics to proactively plan engine operations and maintenance, and complements the existing global network of customer service centres working to provide in-depth expertise in their local markets.

The service network has continued to evolve with Air France/KLM joining the CareNetwork for Trent XWB engines. The global network of Authorised Service Centres for business aviation aircraft now totals 74.

We have sought to develop both physical and digital infrastructure for aftermarket services through a number of initiatives. We introduced the CareStore as a customer gateway to the full range of digitally-enabled services, supporting more informed decisions. Online apps were launched for both commercial and business aviation customers to provide better insight into their engines to help optimise performance and provide real-time service information.

We continued to develop our services for our lessor customers and in January 2018 we launched LessorCare, a pioneering new service tailored to their needs, and successfully signed three customers up in the first wave. Total service revenue of £4.2bn in 2017 now represents 52% of Civil Aerospace revenue and 28% of Group revenue. Over the next few years we expect continued aftermarket revenue growth as we build towards a 50% plus share of the installed widebody passenger market and service revenue from Civil Aerospace become a greater proportion of our Civil Aerospace and Group revenue.

Civil Aerospace outlook

Outlook for the new business structure under IFRS 15 is discussed in the 2018 Outlook on page 58.



CENTRE OF EXCELLENCE FOR POWER GEARBOX TECHNOLOGY

In November, Rolls-Royce officially opened its state-of-the-art power gearbox (PGB) test facility in Dahlewitz, Germany. The facility is part of the new centre of excellence for power gearbox technology, one of the key enabling technologies for the UltraFan engine. Development and testing is already well underway. The facility has already set a new world record for the running of the world's most powerful aerospace gearbox – with the PGB successfully reaching 70,000hp. But it won't stop there: our PGB is designed to run at up to 100,000hp. When running at maximum power, each pair of teeth on the gearbox transmit more power than the whole starting grid of a Formula 1 race.

Operating environment

Rolls-Royce key differentiators

Our continued development of advanced world-leading technology, culture of partnership with customers and innovation in services are attributes that Civil Aerospace customers really value and are difficult to imitate. These differentiators will maintain the business' position at the forefront of the civil aerospace industry.

Market dynamics

- The slow-down in new aircraft orders highlighted in 2016 has continued through 2017 across all regions. These market conditions were to be expected after the high levels of order placement over the past few years, as airlines absorb the increased capacity. It does not imply a slow-down in the growth of air travel, which remains robust.
- Demand growth for air travel in all regions has remained resilient to recent geopolitical uncertainties, and historically growth has recovered quickly following major economic shocks. A broad consensus forecasts that air traffic (revenue passenger kilometres) will grow by approximately 5% compound annual growth rate over the next 20 years.
- The business jet market is recovering slowly in the US (the largest market) and there are tentative signs of growing demand elsewhere.

Opportunities

- The business has a strong and growing market position on widebody aircraft produced by the world's two major aircraft manufacturers: Airbus and Boeing. The current share of the widebody engine market is at 35% of the installed passenger fleet and is expected to exceed 50% early in the next decade.
- The increasing size of the installed base delivers significant service growth opportunities. 90% of the current Rolls-Royce widebody fleet is covered by TotalCare service agreements.
- The business continues to invest in technologies to enhance the existing and near-future product portfolio. In parallel, a number of engine demonstrators with embedded electrical

generators have been successfully run; and work on innovative hybrid aircraft demonstrator projects is ongoing.

- Boeing sees an opportunity for a new aircraft sized between the 737 and 787 families, dubbed the 'New Mid-market Airplane'. Rolls-Royce is engaged in discussions with Boeing to explore this potential prospect.
- China's COMAC and Russia's UAC announced a joint venture in May; the China Russia Commercial Aircraft International Corporation (CRAIC). CRAIC recently unveiled plans to develop the CR929, a long-haul widebody aircraft. Rolls-Royce is actively exploring this opportunity.

Business risks

- If a major product failure in service is experienced, then this could result in loss of life and significant financial and reputational damage.
- If the technical performance of a product falls significantly below customer expectation (e.g. Trent 1000 and Trent 900 time on-wing is less than planned) or fails to deliver the planned business benefits, then this would cause significant financial and reputational damage.
- If an external event or severe economic downturn significantly reduces air travel and thereby reduces engine flying hours and demand for aircraft, then financial performance may be impacted.
- If aircraft manufacturer customers significantly delay their production rates or if the business suffers a major disruption in its supply chain then delivery schedules would be delayed, damaging financial performance and reputation.
- If the business experiences significant pricing pressure from increased competitor challenge in key markets, then financial performance may be impacted.
- If there are significant changes to the regulatory environment for the airline industry, then the market position of the Civil Aerospace business may be impacted.



SERVICE DELIVERY CENTRES BRING ROLLS-ROYCE CLOSER TO DEFENCE CUSTOMERS

The new Defence service delivery centre (SDC) located at RAF Lossiemouth in Scotland, opened in 2017, supports EJ200 engines powering the resident fleet of Typhoon combat aircraft. Established in partnership with the MoD's Defence Infrastructure Organisation, it houses a team of specialist Rolls-Royce engineers, together with their RAF and Serco counterparts, working to deliver tailored support services. SDCs form part of a suite of innovative support solutions that Rolls-Royce is implementing across a global network of over 150 military customers. During 2017 a further site opened in Bangalore, India, supporting over 750 engines in service with the Indian Armed Forces.

Defence Aerospace

Defence Aerospace is a market leader in defence aero engines for military transport and patrol aircraft and has strong positions in other sectors, including combat, training aircraft and helicopters.

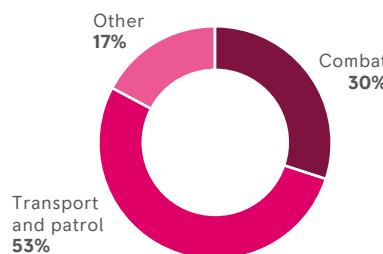
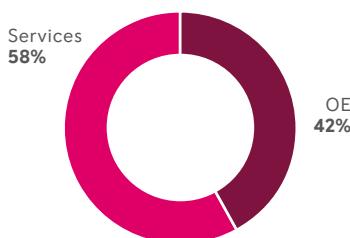
Defence | Key financial data *

	2017	Year-on-year change	Organic change [†]
Underlying revenue	£2,275m	+3%	-1%
Underlying gross profit	£575m	+2%	-2%
Underlying operating profit	£374m	-3%	-7%
Underlying operating margin	16.4%	-100bps	-100bps
Order book	£3.4bn	-18%	-14%

* See note 2 on page 132 for further segmental detail.

[†] Organic change is at constant translational currency, excluding M&A.

Underlying revenue mix



Key facts



16,000

engines in service
around the world



Over 150

customers in over
100 countries



6,100

average number of
employees during 2017

Key highlights

- ▶ Underlying revenue broadly flat with modest decline in both spare parts and LTSA revenue, the latter due to the retirement of the UK Ministry of Defence Gnome-powered Sea King fleet in 2016
- ▶ Underlying operating profit down 7% through product mix and higher R&D spend reflecting ongoing future programme development
- ▶ Order intake of over \$1.4bn secured in the US, including further funding for long-term service contracts with US Department of Defense
- ▶ Expansion of service offerings through the opening of new service delivery centres in Lossiemouth and Bangalore and extended supply agreement signed with Aviall, a Boeing company
- ▶ Joint venture signed with Turkish industrial conglomerate Kale Group to develop an indigenous engine solution for the TF-X combat programme

Overview 2017

The Defence Aerospace business had another solid year. Original equipment (OE) production focused on executing under long-term contracts in transport & patrol as well as delivering technology to improve fuel efficiency for legacy fleets. In combat, as well as increasing production for the LiftSystem, the joint venture announced with Kale in Turkey positioned us well to offer an indigenous engine solution for the TF-X fighter jet.

A number of core US service contracts were renewed, covering over 3,000 engines, and an agreement with Aviall, a Boeing company, significantly improved the spares distribution channel for AE defence engines. There were also additions in the UK and India to further enhance our SDC network. The facility modernisation programme in Indianapolis, US, met all of its 2017 milestones with targeted cost reductions also on track. Finally, we continued to make progress on the development of next generation technologies across our portfolio to ensure we can continue to offer our customers increased performance and capability for their operations.

Financial overview

Underlying revenue

Underlying revenue of £2,275m was broadly flat on the prior year on a constant currency basis. OE revenues increased 4% through higher transport and patrol volumes, partially offset by lower combat sales following the completion of Middle Eastern delivery contracts in early 2017. Service revenue was down 4%, reflecting slightly lower LTSA revenue related to the 2016 retirement of the UK MoD Gnome-powered Sea King fleet and reduced demand for spare parts in India in particular. We did, however, see increased overhaul activity in the US for the F-35B fleet and for the Typhoon fleet in Saudi Arabia.

Underlying operating profit

Gross profit of £575m was 2% lower than prior year reflecting lower LTSA margin improvements of £68m (2016: £82m), largely due to lower cost savings compared with 2016 on the Eurofighter Typhoon contract, and lower spare parts volumes. These were mostly offset by the non-repeat of £31m of one-off costs for the TP400 programme.

Overall the R&D charge of £78m (2016: £71m) was slightly higher and included ongoing future programme development across our portfolio focused on the combat and transport markets. Restructuring costs included within C&A were £14m higher due to the non-repeat of the one-off benefit in 2016 following the closure of the Defence Aerospace facility at Ansty. As a result of these changes, underlying operating profit of £374m was 7% lower than the prior year.

During the year, the Defence Aerospace order book was restated by £(441)m to reflect a number of assumption changes relating to certain historical orders and long-term contracts including revised scope and lower expectations of price escalation and delivery volumes. After order intake of £1.8bn, the order book closed at £3.4bn.

Operational and strategic review

Activity with key customers included major contract renewals with the US Department of Defense supporting engine fleets on aircraft such as the C-130 Hercules, V-22 Osprey and T-45 Goshawk. Together these cover around 3,000 engines and the orders taken in 2017 for over \$1.4bn provide good visibility on a substantial portion of aftermarket revenues for the next five years. Internationally the business signed its first OE export order with the Japanese Self-Defense Force to power its new V-22 Osprey fleet and also secured additional Multi Role Tanker Transport engine contracts.

Operationally, the Defence Aerospace business focused on delivering on its long-term contracts for core transport programmes. In combat, LiftSystem production for the F-35B Lightning II increased, with the current in-service fleet performing well. The aircraft made its first international operational deployment with the US Marine Corps to Japan, and its first UK-based deployment for the MoD is planned for 2018. EJ200 production was lower following completion of the Saudi Typhoon contract in 2016, although there is the expectation of incremental orders from the State of Qatar following the signing of a contract to purchase 24 aircraft in December.

Technology inserts for the C-130 Hercules legacy fleet met operational performance expectations and demonstrated excellent

reliability and fuel efficiency in extended hurricane operations during major US storms in 2017. This helped generate good international interest with a potential first export order currently being evaluated. Defence Aerospace continued with its strategy of moving into adjacent products to deepen relationships with existing customers, identifying an additional platform opportunity for infrared suppressors installed on the MH-47 helicopter to be fitted onto C-130 gunships.

The business continued with the modernisation programme of its manufacturing and technology research plant in Indianapolis with all key 2017 milestones achieved on time. The plant's first turbine production cell came on stream in March and a second is nearing completion. The modernisation will help drive meaningful productivity benefits and reduce operational overheads by 2020. We also announced further rationalisation of our operational footprint with the closure of our repair and overhaul facility in Oakland, California by 2020.

A joint venture agreement with Turkish industrial firm Kale Group positions us well to develop an indigenous combat engine for Turkey targeting the TF-X fighter jet. Development work has also continued on the Anglo-French Future Combat Air System (FCAS) feasibility programme, together with investment in future technologies to position us for new programme opportunities over the next decade.

Strategic aftermarket initiatives looked to deepen customer relationships and distribution capability, including an enhanced spares supply contract with Aviall, a Boeing company, covering all defence variants of the AE engine fleet. This multi-year contract is expected to significantly improve availability and logistics, while broadening international opportunities. In addition, two further SDCs were opened in Lossiemouth and Bangalore as we continue to find ways to enhance our offering with core customers, helping with preventative maintenance and maximising on-wing availability.

Defence Aerospace outlook

Outlook for the new business structure under IFRS 15 is discussed in the 2018 Outlook on page 58.



ROLLS-ROYCE INNOVATES IN THE ENGINE EQUIPMENT MARKET WITH INFRARED SUPPRESSORS

Rolls-Royce continues to demonstrate its engineering excellence and innovation with expansion into adjacent engine equipment markets in Defence Aerospace. Building on the success of the introduction of infrared (IR) suppressor technology on the MH-47 aircraft – protecting the platform from heat-seeking missiles – and a successful flight test of an advanced IR suppressor on the V-22, we were awarded a contract with US Air Force Special Operations Command to outfit its AC-130W Stinger II gunships with advanced IR suppressors to reduce the risk of detection during dangerous operations.

Operating environment

Rolls-Royce key differentiators

Advanced technology and Defence Aerospace's collaboration and innovation, in conjunction with partners and customers, are its unique hallmarks. These differentiators ensure successful delivery of products and services tailored to customers' evolving needs.

Market dynamics

- As threat levels around the globe increase and economies grow, many customers are considering increasing their defence budgets, therefore the business expects to see modest growth across the globe in the coming years.
- Revenue has historically been broadly balanced between OE sales and aftermarket services.
- In Europe, the political environment has resulted in a tendency for large defence programmes to be addressed by consortia of two or more companies. For example, Defence Aerospace has partnered with ITP Aero, MTU and Safran on the TP400 engine programme for the Airbus A400M.
- Barriers to entry are high, the competitive landscape is not envisaged to change significantly in the near future.

Opportunities

- Combat propulsion remains the largest market segment, with opportunities for current products (LiftSystem and EJ200) as well as new international and next generation programmes (Turkey TF-X and Anglo French FCAS).
- In transport, Defence Aerospace is vitalising existing capability with new products (T56 Series 3.5 kit and infrared suppressors) and is well positioned for next generation opportunities.

- There is strong service growth potential via technology insertion and emerging service opportunities using digital technology and data analytics to generate new solutions.
- There is strong interest in electrification and the business is exploring more electric and hybrid electric propulsion technologies and power generation for high energy systems.

Business risks

- If a major product failure in service is experienced, then this may result in loss of life and significant financial and reputational damage.
- If global defence spending experiences a further downturn, then financial performance would be impacted.
- If we do not continue to invest to improve the performance and cost of Rolls-Royce products, then market share may be lost.
- If the business suffers a major disruption in its supply chain, then delivery schedules would be delayed, damaging financial performance and reputation.
- If new applications are not secured, then the business may have to increase investment or accept erosion in capabilities.



HITACHI RAIL EUROPE HONOURS POWER SYSTEMS AS BEST SUPPLIER

In recognition of its outstanding support over the past three years, Hitachi Rail Europe awarded MTU its 2017 Best Supplier accolade for delivery performance. Power Systems has delivered over 200 MTU PowerPacks – a third of the total ordered by the company for rolling stock programmes including GWR's new intercity express trains in the UK – on time and at a consistently high quality. The relationship does not end with the engine deliveries: MTU has secured a ValueCare long-term maintenance contract for the PowerPacks, spanning just over 27 years, that includes preventive maintenance as well as repair and major overhaul.

Power Systems

Power Systems is a leading provider of high-speed and medium-speed reciprocating engines, complete propulsion systems and distributed energy solutions. The business serves the marine, land defence, power generation and industrial markets.

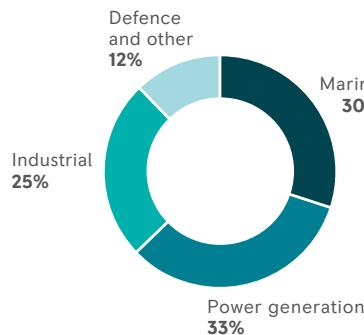
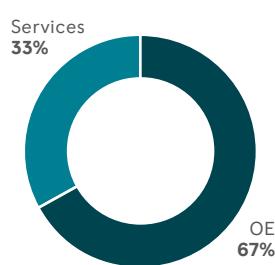
Power Systems | Key financial data *

	2017	Year-on-year change	Organic change†
Underlying revenue	£2,923m	+10%	+3%
Underlying gross profit	£842m	+20%	+12%
Underlying operating profit	£330m	+73%	+61%
Underlying operating margin	11.3%	+410bps	+410bps
Order book	£2.2bn	+8%	+4%

* See note 2 on page 132 for further segmental detail.

† Organic change is at constant translational currency, excluding M&A.

Underlying revenue mix



Key facts



>20,000

reciprocating engines sold per year



>1,200

development, production, service and dealership locations



10,100

average number of employees during 2017

Key highlights

- ▶ New leadership team driving transformation programme to streamline product portfolio, reduce fixed costs and improve cash conversion
- ▶ Improved financial performance with 3% growth in underlying revenue and signs of market recovery
- ▶ Power generation products enjoyed good demand from China and for US data centres
- ▶ 240bp rise in underlying gross margin to 28.8% and material improvement in cash flow
- ▶ Service revenue growth of 6%; recovery in US spares demand and growing interest in a repair/reconditioning solution; and MTU's first long-term availability contract signed with Hitachi Rail in UK
- ▶ Launch of customer care centres and digital solutions reflect focus on customer service initiatives to provide service capability for the installed base of over 100,000 engines

Overview 2017

Power Systems' core business is the design, manufacture and servicing of reciprocating engines including diesel, gas and hybrid/electrical solutions, propulsion systems and distributed power generation plants. It has a significant installed engine base across a diverse range of end markets.

In 2017, strengthening demand in key end markets combined with a clear focus on operational improvements through the RRPS 2018 transformation programme. This enabled the business to deliver a strong performance achieved against the background of greater operational efficiencies and a more balanced annual production cycle. Revenue grew slightly and helped deliver significant profit and cash flow growth.

Under new leadership the business was able to achieve a material reduction in product variants and greater R&D discipline while targeting low-emission technologies. There has also been a move to develop more comprehensive and connected power solutions leveraging digitalisation as an enabler of service penetration and a growing competitive advantage. Power Systems also sought to expand its geographic reach with manufacturing and assembly partnerships in India and in the core growth market of China.

Financial overview

Underlying revenue

Underlying revenue of £2,923m increased by 3%. OE revenue grew 1% while service revenues increased 6%. Commodity-related markets, such as mining and oil & gas saw a strong recovery, as did construction and agriculture. Power generation products enjoyed good demand from China and for US data centres, but was more subdued elsewhere, as was the yacht market for much of the year. The service business broadened its market reach with good interest in our reconditioning service offering and from US customers.

Underlying operating profit

Overall, gross margins increased 240bps to 28.8% reflecting improved product mix, including from service revenue and programme applications, operational gearing and from higher volumes. An improved balance of production between the first and second half of the year also helped to achieve better factory utilisation. The actions taken as part of the RRPS 2018 programme on direct material costs also contributed to the improved gross margin.

A more focused approach to R&D drove a 6% reduction to £177m. C&A costs

reduced 7% to £331m reflecting cost reduction activities in the year. Overall underlying operating profit which increased strongly to £330m (2016: £191m).

Operational and strategic review

Power Systems' customers span a range of end markets providing significant diversity. The strong performance in 2017 reflected growing demand in a number of key end markets as the overall environment improved. Engine production increased principally due to demand for the core Series 4000 products, large engines and rail Power Packs. The business was also successful in greater smoothing of the sales and production cycle over the year, reducing the proportion of sales and production activity in the fourth quarter, which has historically been abnormally high.

There was growing order interest through the year, particularly from naval and government customers with a stronger order book in the second half. The medium-speed business announced two notable power station orders from Bangladesh. Manufacturers active in the construction and agriculture market increased orders in advance of new EU emissions regulations due to come into force at the start of 2019. The first delivery of the new S4000 marine natural gas engine which is IMO Tier III compliant, was made to the Dutch ferry operator Doeksen. Gas systems sales in marine and power generation now make up over 14% of revenue from the S4000 range.

The business entered into new segments such as excavators with products meeting the latest emissions standards driven by orders from market leaders KATO and JCB. A project agreement was signed with agricultural machinery manufacturer Claas for the annual supply of around 5,000 Series 1000-1500 engines.

Power Systems also sought to grow its share of its engine service opportunity. This included the Reman product, where engines are reconditioned and restored to the latest MTU specification and come with an as-new warranty package, and which generated strong interest. Customer Care Centres were established in key time zones to greatly enhance technical support responsiveness to customers' critical requirements and applications were launched to deepen customer service and dialogue. Over time, the business will look to develop more comprehensive power solutions which will offer higher-value and digitally connected products which will deepen the customer experience. An initial step was the business's first long-term availability contract signed with Hitachi Rail

for their UK Intercity programme, covering the period to the early 2040s; and Power Systems sees significant opportunity to develop similar long-term service offerings for other customers.

A reinvigorated leadership team under the new CEO, Andreas Schell, helped drive the RRPS 2018 restructuring programme. This was a key contributor to the strong performance in 2017, delivering significant operational improvements as the business pursued greater efficiencies and focus across both R&D and production. This delivered a 20% reduction in product variants and was combined with actions to improve material costs, quality control, inventory levels and a footprint reduction. Greater digitalisation within the development programmes helped to reduce the time to product launch, including the online monitoring of the ramp-up fleet and greater collaborative working.

Agreements made in India and China are intended to broaden the production capability in lower-cost locations closer to core end markets. These included the official registration of a 50/50 joint venture with Guangxi Yuchai Machinery in China. The agreement will enable localised production of the MTU Series 4000 diesel engines under license, which comes on-stream in early 2018, and is part of the China growth strategy. An agreement was also signed with Garden Reach Shipbuilders & Engineers Ltd for final assembly in India of Series 4000 naval engines, and we are looking to secure additional partnerships for end markets such as power generation.

R&D programmes have focused on the strategic priorities addressing new technologies, alternative fuels and system-based solutions, reflecting the structural shift away from traditional diesel engines expected over the next decade. This included strengthening the gas engine portfolio, reflecting greater demand from better infrastructure and availability within power generation, industrial and marine segments. This complements the investment in electrification to expand our hybrid capabilities and further development of micro-grid solutions. A co-operation agreement with G+L innotec GmbH for electrical-assisted turbo charging technology is part of a programme to build a range of advanced electrical capabilities as a basis for development of future hybrid and electrical drive solutions.

Power Systems outlook

Outlook for the new business structure under IFRS 15 is discussed in the 2018 Outlook on page 58.



MTU SERIES 4000 ENGINES – STILL LEADING THE PACK

When it was introduced more than two decades ago, the Series 4000 engine was ahead of its time. It was the first fast-running, high performance large diesel engine with common rail fuel injectors, technology that was only just debuting in the automotive industry. Today, it still leads the pack. From ships and locomotives, to mining vehicles and electricity generators, it is the all-rounder in the MTU engine range with sales of over 37,000 units. During 2017, the Series 4000 story opened a new chapter with the establishment of MTU Yuchai Power Co, a joint venture with China's Guangxi Yuchai Machinery Company. From spring 2018, it will manufacture up to 1,500 engines a year for the oil & gas and power generation industries.

Operating environment

Rolls-Royce key differentiators

Technology leadership and a reputation for market-leading performance and system approach, new product innovation, full lifecycle service solutions and high levels of customisation in collaboration with customers will maintain a strong market position for Power Systems.

Market dynamics

- Most OE markets started to recover in 2017, with the exception of the offshore marine markets. There is strong demand in onshore oil & gas markets.
- Increased utilisation in resource industries, especially oil & gas and mining, is driving aftermarket service demand after several years of challenging market conditions.
- There continues to be increasingly stringent government regulation in most markets with regards to emissions from diesel engines.
- The industry is increasingly focused on service solutions, electric and hybrid power solutions and digital capabilities; this is stimulating investments in acquisitions, partnerships and in-house digital organisations.
- Power Systems is experiencing increasing competition in its core power range as existing competitors launch new engine series and new players emerge with new technologies, e.g. Tesla.

Opportunities

- Rising energy demand in developing countries in combination with expansion of renewable energy sources will increase the demand for flexible generating sets and products beyond combustion engines (e.g. hybridisation, electrification and gasification).

- There is continued growth forecast in emerging markets, e.g. China and India, where domestic partnerships including local value creation will continue to be important.

- Tightening emission regulations in several regions will require clean diesel solutions where the business is well positioned (e.g. S4000 engine).
- Exponentially growing data usage requires rapid expansion of data centres and infrastructure and therefore corresponding back-up power solutions, Rolls-Royce generators are in particular demand due to their reliability.
- Increased utilisation in recovering resource markets due to wear and tear of existing fleets is leading to emerging services opportunities.

Business risks

- If we fail to develop more innovative products than our competitors, then market share would be lost in our core power ranges and markets.
- If electrical-storage technologies develop faster than anticipated, then these may substitute Rolls-Royce products and/or affect margins.
- If other players in the industry consolidate, then they may generate synergies or capabilities that outpace the ability of the business to get new products and services to market.
- If new disruptive service models, e.g. 3D printing of spare parts or new digital service models are offered by competitors, then we may lose attractiveness and competitive edge.



A WORLD FIRST SETS SAIL

Copenhagen harbour witnessed a world first in 2017 with the demonstration of the first remotely operated commercial vessel. The combination of technical expertise in ship intelligence at Rolls-Royce and global towage operator Svitzer's operational knowledge, ensured a successful maiden voyage for the Svitzer Hermod. The vessel was fitted with a Rolls-Royce dynamic positioning system, which provided data to the Rolls-Royce designed Remote Operating Centre (ROC) where the captain controlled the vessel.

Marine

Marine manufactures and services propulsion and handling solutions for the maritime offshore, merchant and naval markets, ranging from standalone products to complex integrated systems.

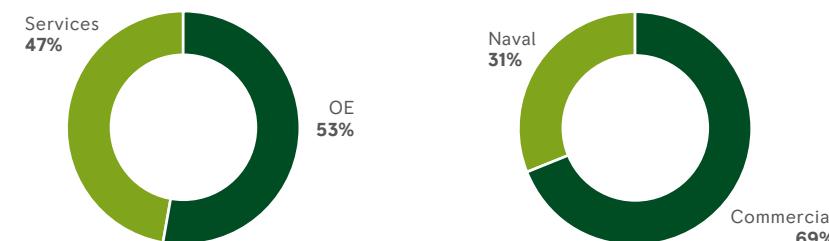
Marine | Key financial data *

	2017	Year-on-year change	Organic change†
Underlying revenue	£1,077m	-3%	-9%
Underlying gross profit	£225m	-5%	-9%
Underlying operating loss	£(25)m	-7%	+15%
Underlying operating margin	-2.3%	-10bps	-10bps
Order book	£0.8bn	-18%	-15%

* See note 2 on page 132 for further segmental detail.

† Organic change is at constant translational currency, excluding M&A.

Underlying revenue mix



Key facts



30,000

commercial vessels using
Rolls-Royce equipment



70

Naval forces using
Rolls-Royce equipment



4,600

average number of
employees during 2017

Key highlights

- ▶ Underlying revenue 9% lower, reflecting ongoing offshore market weakness
- ▶ Underlying operating loss reduced through strong focus on cost control and modest cash outflow
- ▶ Continued investment in Rauma facility, Finland, to create state-of-the-art production and test facilities, together with progress on autonomous shipping programme
- ▶ Strategic review of commercial marine business underway

Overview 2017

With the average Brent crude oil price remaining below US\$55/barrel for the third consecutive year, our commercial marine business continued to see substantially reduced activity levels in its historically important offshore market, but saw opportunities within the merchant sector. The naval business had a successful year with new projects from existing core clients such as the UK and US navies and from new geographies.

As a result of the weak market environment, the business focused on executing its restructuring programmes, reducing its fixed cost base, including significant headcount reduction, and closing non-core facilities. At the same time it is repositioning itself with product development such as permanent magnet thrusters, investing in future technologies as the industry moves to greater electrification and exploring the growing potential for remote vessel operations and autonomous shipping.

It was announced after the year end that our commercial marine operations would be subject to a strategic review in 2018, including the potential for sale, while the naval operations would be integrated into an enlarged Defence business unit.

Financial overview

Underlying revenues

Underlying revenue was down 9% at £1,077m, reflecting declining OE activity, with weakness in both offshore and cargo-related merchant markets. Service revenue was stable, though off a low base in 2016, and there was a notable improvement in naval revenue, particularly in the second half. The 15% decline in OE revenue resulted in service revenue rising to 47% of the total (2016: 43%). By segment, commercial marine was down 14% to £805m (2016: £875m) and naval was up 10% to £272m (2016: £239m).

Underlying operating loss

Despite the 9% decline in underlying revenue there was a £2m reduction in the underlying operating loss for the year to £25m (2016: £27m), helped by the greater proportion of higher margin service revenue and reflecting the positive impact of cost-cutting programmes. R&D spend

was broadly flat at £46m, with the focus on developing ship intelligence capabilities as well as on new product development. C&A costs of £204m were 13% lower, demonstrating the progress made in reducing both headcount and fixed costs, together with a significant reduction in inventory which helped mitigate the scale of cash outflows.

Operational and strategic review

Lower activity within commercial marine reflected the weak market environment as deep water exploration activities remained at depressed levels. While OE activity continued to decline, the business was encouraged by the signing of the first offshore service contract since 2015 and a long-term service agreement reached for azimuth thrusters. There was also activity across the merchant sector including Norwegian ferry operator contracts for new gas engines and thrusters along with further auto-crossing system product sales.

Within the naval business a landmark contract was signed to supply the US coastguard's largest shipbuilding programme, initially covering up to 11 vessels with a range of propulsion and related technologies. In addition, the MT30 gas turbine continued to demonstrate its attractiveness as a naval engine choice with its selection by the Republic of Korea for three Daegu type frigates.

Work continued with a number of customers who had previously selected the MT30 including factory acceptance testing with the Italian Navy's landing helicopter dock vessel and in the UK both on the Royal Navy's Type 26 frigate programme and the two new aircraft carriers. HMS Queen Elizabeth completed successful sea trials and preparation for the first run of the HMS Prince of Wales power plants is scheduled for 2018. The team also announced a concept autonomous defence vessel capable of a range of single role naval missions, drawing on the expertise across power and propulsion and autonomous tools.

The main operational focus across the Marine business was the continued effort to reduce fixed costs to help mitigate the impact of the weaker offshore market. The restructuring programme announced in November 2016 achieved its target of £45-50m of annualised cost savings. This was helped during the year through further rationalisation of back office functions, together with the closure of the Shanghai assembly facility.

Investment of around £20m in the year was made in a state-of-the-art production and test facility in Rauma, Finland, which will deliver significant capabilities for what is a growing market opportunity.

The Marine business has also sought to capitalise on the broader shift from mechanical to electrical and digital technologies, both within its existing product range and also through investment in opportunities for integrated ship systems and remote or autonomous vessels. The launch of a new energy management solution and the first ever Marine availability-based contract reflects the growing potential in this area. Third-party funding was secured to support R&D for land-based control centres and a fleet management centre was established for remote optimisation of ship operations. Rolls-Royce successfully demonstrated this new technology by partnering with global towage operator, Svitzer, including the first trial of a remotely operated commercial vessel that took place in Copenhagen harbour.

Marine outlook

Outlook for the new business structure under IFRS 15 is discussed in the 2018 Outlook on page 58.



HMS QUEEN ELIZABETH TAKES TO THE SEAS

HMS Queen Elizabeth, the largest warship ever built for the UK's Royal Navy, left Rosyth dockyard in Scotland to begin sea trials in June 2017. This was a major landmark for Marine's naval business, having been involved in the project since its launch over a decade ago. The new class of aircraft carrier – weighing in at 70,000 tonnes – features a range of Rolls-Royce equipment including twin MT30 marine gas turbines, propellers and steering gear, stabilisers, reception points and electrical distribution. The MT30 continues to attract customers and is proving to be the gas turbine of choice for modern naval combatants with over 40 engines delivered to customers worldwide.

Operating environment

Rolls-Royce key differentiators

Marine is a leading provider of mission-critical solutions for the commercial and naval maritime markets, a position built on unique domain knowledge, continuous leadership in maritime innovation and digital solutions that allow close partnership with our customers globally across a broad range of ship types.

Market dynamics

- Marine operates in three key markets: merchant, offshore and naval. Growth within these markets is fundamentally driven by GDP, trade, oil price and defence spending.
- Naval budgets and naval shipbuilding are growing across target countries. The US market is stable and remains the largest market, although Asian markets are growing strongly.
- The offshore market broadly continues to be challenging linked to significant oversupply in several vessel segments and financial constraints within the customer base.
- Opportunities continue to be exploited in stable markets including naval, passenger, and tugs where we have also seen growth in interest in autonomous solutions.
- Key competitors continue to seek internal cost savings, whilst developing electrical and digital offerings.

Opportunities

- Historically cyclical marine markets are expected to recover across the range of merchant and offshore segments, but with a new focus on efficiency and cost.

- Continued trend towards hybrid/full-electric propulsion and integrated electric systems with increased adoption of energy storage solutions.

- Increasing interest from vessel owners in remote and autonomous solutions, which Rolls-Royce is pioneering, to improve performance, reduce cost and increase safety.
- Increasing evidence of suppliers partnering with vessel operators to deliver digital solutions to create greater availability and reduce operational risks.

Business risks

- If offshore exploration and production expenditure remains low, then there will be sustained pressure and further delay in market recovery for both new build and aftermarket.
- If competitors react to a depressed market by pricing aggressively on new equipment to protect future aftermarket revenue, then Marine could experience further pressure on near-term margins.
- If continuing market downturn leaves key customers, suppliers and competitors exposed to strain, then there could be further consolidation impacting the competitive landscape.
- If market shifts in technology (e.g. electrification and digitalisation) proceed at a faster rate than expected, then the business may not be positioned to take full advantage of this potential growth.



AUDACIOUS TAKES TO THE SEA

April saw the fourth of seven Rolls-Royce powered Astute submarines lowered into the water for the first time in Barrow-in-Furness, Cumbria, UK. Audacious is undergoing the next phase of its test and commissioning programme ahead of sea trials in 2018. For over 50 years, Rolls-Royce has been the sole technical authority for the UK nuclear steam raising plant that powers the Royal Navy's submarines and is home to the largest population of experienced nuclear design engineers in the UK. To support the current fleet, as well as develop and manufacture the new generation PWR3 reactor plant for the new Dreadnought class submarines, Rolls-Royce is investing in new manufacturing facilities, people and infrastructure at Derby, UK.

Nuclear

Nuclear is the technical authority for the UK nuclear steam raising plant that powers the Royal Navy's nuclear submarine fleet; managing plant design, safety, manufacture and service support. Our civil nuclear operation supplies safety-critical systems to about half the world's nuclear power plants.

Key facts



>50

years' experience developing nuclear technologies



200

reactors in 20 countries where Rolls-Royce nuclear technology is installed



4,400

the average number of employees in 2017

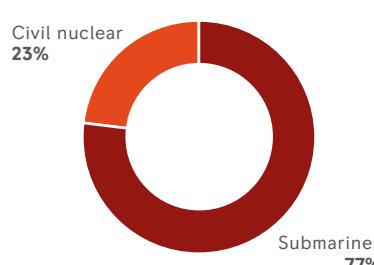
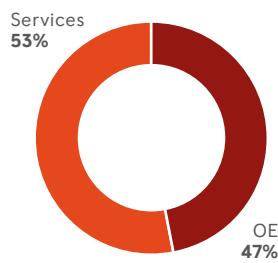
Nuclear | Key financial data *

	2017	Year-on-year change	Organic change†
Underlying revenue	£818m	+5%	+4%
Underlying gross profit	£133m	+10%	+7%
Underlying operating profit	£38m	-16%	-18%
Underlying operating margin	4.6%	-120bps	-120bps
Order book	£2.0bn	+8%	+7%

* See note 2 on page 132 for further segmental detail.

† Organic change is at constant translational currency, excluding M&A.

Underlying revenue mix



Key highlights

- Underlying revenue up 4% on greater submarine activity, but lower underlying operating profit as R&D spend on small modular reactors increased
- Submarines achieves strong improvements in operational delivery; further investment in facilities
- Civil nuclear delivered key milestones as part of the long-term, retrofit contracts in France and Finland

Overview 2017

Nuclear plays a key role in the UK's submarine programme, acting as the technical authority, sole supplier and provider of through-life support for all submarine nuclear propulsion systems (representing over 75% of sales). This year, work principally focused on the Astute and Dreadnought classes, with significant progress made in operational and delivery performance as part of a multi-year improvement programme and increased investment in the Derby manufacturing facilities.

The civil nuclear business achieved key milestones on large retrofit contracts for safety-critical control systems in Finland and France. Service contracts were signed with nuclear utility customers across Europe, Canada and China while additional investment was made into the small modular reactor (SMR) programme where the UK Government announced a viability study covering a number of technologies.

Financial overview

Underlying revenue

Underlying revenue rose by 4% driven mainly by increased production activity in support of the Dreadnought class build programme, together with greater activity in civil nuclear new build contracts and field services. Submarine revenue grew 3% to £633m, while civil nuclear revenue grew 9% to £185m. There was a strong second half performance, reflecting phasing within the submarine programmes.

Underlying operating profit

Gross margin was broadly flat, reflecting a combination of increased activity offset by additional costs incurred to ensure higher levels of delivery performance for the key submarine programmes. The R&D charge was £17m higher than 2016 as the SMR programme moved to concept design activity and did not benefit from the one-off change in treatment of R&D credits (2016: £7m credit). As a result, underlying operating profit was £38m, £7m lower than the previous year.

Operational and strategic review

The Nuclear business focused on improving cost-control, sustainable quality and on-time delivery for the key submarine programmes. As part of an overall regeneration of the submarine business capability, a significant number of new manufacturing technologies and systems were introduced. These have helped to drive significant improvements in delivery of reactor plant components into the Astute programme.

Investment was made into new manufacturing facilities, people and infrastructure at Derby. This includes a planned expansion of the primary component operations factory, principally in support of the new Dreadnought programme, where production work is increasing in support of the build programme. The expanded facilities will help develop and manufacture the new generation PWR3 reactor plant as well as support the current submarine fleet.

In addition, the contract to deliver the nuclear propulsion system for HMS Agamemnon, the sixth of the new Astute class submarines was signed during the year. Steady progress was also made towards the establishment of a delivery alliance for the Dreadnought class which should provide greater programme and cost control benefits to help meet the affordability challenges for our MoD customer.

The civil nuclear business saw good growth during the year and is well positioned on new build projects. In the UK, activity was centred on Hinkley Point C, with a number of projects underway including the successful completion of the early contractor involvement (ECI) phase for the design of heat exchangers. We also signed the main contract to complete detailed design work and begin manufacturing and equipment delivery. There was progress on the supply and delivery of both waste treatments systems and ultimate diesel generators under similar ECI arrangements.

Internationally, the civil nuclear business achieved key milestones on schedule, as part of its long-term contracts to retrofit and upgrade safety-critical control systems at Loviisa, Finland and for EDF's fleet of nuclear reactors in France. The business renewed a contract with EDF to provide long-term support and secured a contract for the partial modernisation of safety-critical control systems on all 34 units of its 900MW French fleet.

At Fennovoima's new build plant at Hanhikivi, Finland, due for completion in 2024, the business was selected as preferred bidder to supply instrumentation and controls. The business strengthened its position in China with new commercial agreements signed with CTEC (CGN) and secured orders for the current new build programme at Tianwan 5 and 6. In Canada, the contract with Bruce Power to help improve through-life operational efficiency will utilise cutting-edge digital analytical tools developed from innovations in the business and based on capability within Civil Aerospace.

Rolls-Royce welcomed the UK Government's decision to set up an expert finance panel to assess the viability of technology options including short-term deployable SMRs and will participate in this review in 2018. The announcement in November of a technical feasibility study with state-owned Jordan Atomic Energy Commission (JAEC) for the construction of a Rolls-Royce SMR highlights the international potential, including growing interest from major markets in the Commonwealth and Middle East.

Nuclear outlook

Outlook for the new business structure under IFRS 15 is discussed in the 2018 Outlook on page 58.



ROLLS-ROYCE PARTNERS TO DELIVER SMRs

In 2017, Rolls-Royce announced it had teamed up with leading UK industrial engineering organisations with a track record of delivery – including Arup, Laing O'Rourke and Nuvia – to champion the potential of SMRs to meet the UK's energy needs. Together the partners in this consortium believe that SMRs represent a unique opportunity for the UK to become a global leader in innovative nuclear technologies, creating up to 40,000 highly skilled jobs, opening up valuable export markets and producing energy for as low as £60/MWh – competitive against wind and solar.

Operating environment

Rolls-Royce key differentiators

Over a 50-year period, Rolls-Royce has developed unique, leading technology capabilities in the defence nuclear market, and is the only company to provide the nuclear propulsion for the UK submarines programme. In the civil nuclear market, Nuclear deploys its offerings globally in partnership with customers across the nuclear lifecycle.

Market dynamics

- Population growth and improved living standards in emerging markets are driving a rise in demand for electricity; within the future energy mix, low-carbon energy is expected to increase, with nuclear energy accounting for a significant share.
- The competitive landscape has been changing in the last 12 months with some OE manufacturers facing significant financial difficulty along with programme delays and predicted overspends; aspirations for SMRs places the business in direct competition with large reactor vendors.
- Internationally, the Chinese and Russian reactor vendors are leading the export market, in part due to their ability to provide full or partial funding to the operating nation.
- Rolls-Royce is the sole custodian of a unique strategic national capability providing nuclear propulsion for UK submarines – Nuclear is therefore restricted from any other defence market.
- The UK submarine market expands and contracts in line with the MoD's acquisition programme. The business operates in a partnership model with Babcock and BAE Systems.

Opportunities

- For large civil nuclear reactor new build in the UK, Nuclear is well positioned with opportunities for engineering and supply chain offerings.
- SMRs provide a complementary alternative to large nuclear power installations for the global market.

- Capturing a higher share of the nuclear services market through extension of services to a larger geographic reach.
- Exploiting digital technology to optimise reactor plant operation and maintenance, thereby maximising the business' ability to access commercial incentives.
- Strengthening the position Nuclear has in the rapidly growing importance of the Chinese and Russian domestic and export markets.

Business risks

- If we experience a major product failure in service, then this could result in loss of life and significant damage to our reputation.
- If the pool of suitably qualified and experienced personnel is insufficient to support all elements of future programmes, then we may not have the ability to deliver to customer requirements.
- If public sentiment turns against further reliance on nuclear power, then there will be less support for the development of new and existing capabilities and markets would be greatly reduced.
- If political tensions prevent trade or co-operation with state-owned potential partner organisations, then access to anticipated nuclear opportunities in the UK and overseas may not be available.
- If the products which we offer are not affordable to customers or are not delivering the required effect, then demand for the products on offer may be greatly reduced.
- If there is a continued lack of clarity regarding governments' long-term energy strategies, then continued investment in technology such as SMRs may be questioned.

Technology

At Rolls-Royce, sustaining significant R&D expenditure is fundamental to our strategy and long-term growth potential.

Rolls-Royce is a technology rich company, delivering world-class products and services for its customers. Technology leadership is integral to maximising our competitive advantage and driving the Group's long-term success. The decision to split the technology and engineering functions in 2017 has allowed the newly formed technology team, led by the Chief Technology Officer, to enhance the pace and agility with which we harness the speed of change in our markets. The engineering team is responsible for design rigour, product safety and ensuring our skills match business needs. It is headed up by a newly appointed group chief engineer. The Science & Technology Committee provides oversight to all our technology investments.

Creating value from new technologies and innovation

The Group needs to balance short, medium and long-term technology needs against market opportunities. During 2017, actions have been taken to:

- establish a single technology organisation with responsibility for current and future technologies;

- maintain momentum on delivery of core technologies to ensure the competitiveness of our products and services;
- drive technology in digital design and manufacture to unlock the productivity benefits of these technologies;
- ensure future skills align with our technology strategy and further develop the Rolls-Royce Fellowship programme;
- ensure continuous improvement of the environmental impact of our products and services; and
- ensure continued focus on products and technology that will enable transition to a low carbon global economy.

Our innovation strategy helps our people contribute great winning ideas and our online innovation portal continues to be successful. The portal connects employees across the globe and has more than 24,000 users.

We are proud of our university partnership network which feeds Rolls-Royce with world-class applied research to underpin the technology in our products. We have 31 University Technology Centres (UTCs)

and seven Advanced Manufacturing Research Centres (AMRCs) which not only provide research that is directly applied in our business, but also gives us access to a rich talent pool.

Technologies for today and tomorrow

The increasingly demanding requirements of civil aviation are driving game-changing innovation in our aerospace gas turbines. The new UltraFan architecture will provide a step change in efficiency and environmental performance for 'middle of the market' up to large widebody aircraft. We are also using our latest technology to meet new performance and customer requirements for our military and business jet engines.

Rolls-Royce gas turbines are underpinned by a range of ever-advancing core technologies and physical models. Research to improve our understanding of the fundamental physics of gas turbines is central to this and is increasingly supported by high-performance computing to model behaviour.

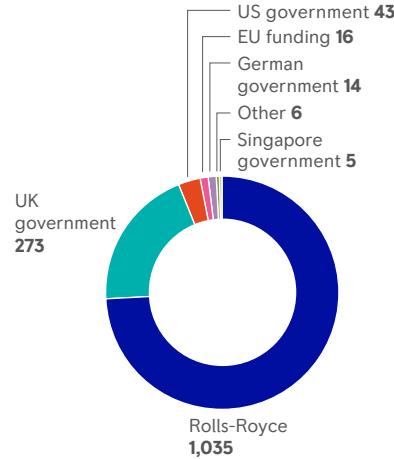
Key facts

 **704**
Patents approved for filing

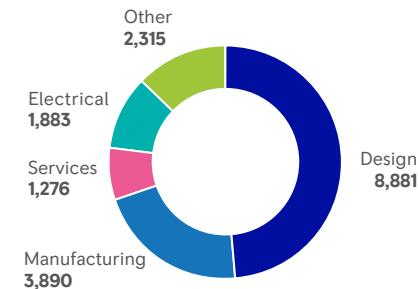
 **18,245 ***
Number of engineers across the Group

 **£1.4bn**
Gross R&D expenditure

2017 Gross R&D expenditure (£m)



Number of engineers (as at 31 Dec 2017)



* The number of engineers across the Group has increased from 16,526 in 2016 to 18,245 in 2017 as at 31 December. We have brought agency engineering contractors who support non-core tasks in new product introduction programmes into our direct headcount following a reinterpretation of export control regulations. For further headcount detail see page 46.

Advances in manufacturing technologies are also helping to improve our operational efficiency across the Group through the use of 3D printing technologies including additive layer manufacturing (ALM); virtual design and manufacturing; and robotics. Advanced materials remain vital to improving weight and performance.

We believe that nuclear technology will play a pivotal role in meeting future energy demands. Our innovative small modular reactor (SMR) design is an economic solution for low carbon power. We are working in cross-industry collaboration, using our extensive experience in the nuclear industry, combined with learning from the broader Group in digital and robotics technologies, to develop this solution (see case study on page 41).

Ship intelligence is an important theme in our Marine business, developing market-shifting system solutions, and improving safety and efficiency in the industry (see case study on page 34).

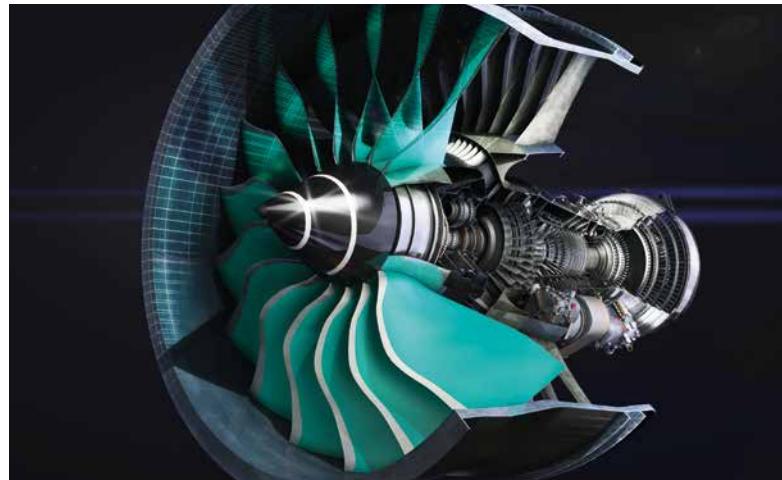
Our refreshed strategy places much greater emphasis on digitalisation and electrification as our business gradually moves from being a thermo-mechanical to a electro-mechanical company.

Electrification is already core to our Marine business where permanent magnet electric thrusters, hybrid ships and battery powered ferries are indicative of this change. In Power Systems, micro-grids are being used for peak load balancing or off-grid power generation, and hybrid technology is also revolutionising the performance of regional trains.

We are now designing, for the first time, electrical propulsion systems for aviation with civil and defence experimental aircraft which can exploit the flexibility in aircraft design brought about by the electrification of aviation. Our recent announcement on the development of a full-scale hybrid electric demonstrator, jointly with Airbus and Siemens, cements our position as a pioneer of this next generation of aviation propulsion.

Digital technology impacts everything we do. Using data analytics and artificial intelligence across design, manufacture and services, we are driving production in our business, efficiency for customers and generating new innovations.

We are at a point of exciting change. Technology is driving core products to ever higher levels of performance while electrification and digitalisation are opening market-shifting new opportunities.



TECHNOLOGY IN ACTION TODAY – ADVANCE3 AND ULTRAFAN

Advance3 is the first major new civil aero-engine architecture for Rolls-Royce in decades and sets new benchmarks in efficiency, environmental performance and precision engineering. The new architecture and advanced technologies within Advance3 are required to meet the pace of change within the industry and remain on track to meet ACARE's FlightPath 2050 goals. Innovations include lean-burn combustion and new manufacturing and material technologies, including 3D printing and ceramic matrix composites. Advance3 is central to the UltraFan demonstrator programme, which will add power gearbox, composite fan and high-speed turbine technology elements. Advance3 will be 20% more fuel efficient than the original Trent 700 engine. When combined with UltraFan from 2025, that efficiency saving will extend to 25%.



FLEXIBLE POWER – MICRO-GRIDS

Rolls-Royce reciprocating engines are increasingly being integrated with multiple power generation assets and storage into micro-grids, able to dynamically manage the supply of power and react to fluctuations in demand. The rapid start-up, fast increase in output and quick shutdown characteristics of MTU engines make them an ideal component of next generation micro-grids. Applications include power provision for large industrial sites and very remote or rural areas. Micro-grids are increasingly being seen as the perfect solution for the problem of providing reliable and optimal power.

Environment

As a leading industrial technology company, our activities have a profound effect on society and the environment. We have an irrefutable role in addressing the risks and opportunities associated with climate change.

Our approach

We have a long-standing commitment to reducing the environmental impact of our products, services and manufacturing activities. This commitment is embedded within our governance framework, including our operating system and production system, and therefore is not a standalone environmental policy. During the year we strengthened our approach to governance and risk management in this area by introducing an executive-level environment & sustainability committee. Our environmental strategy focuses on three core areas:

1

Further reducing the environmental impact of our products and services

2

Developing new technologies and capabilities for low emission products and services

3

Continually reducing the impact of our business operations and facilities

1. Products and services

In 2017, over two-thirds of R&D investment at Rolls-Royce went into improving the environmental performance of our products. Together with our supply chain and research partnerships, we have delivered products that are industry-leading in terms of fuel efficiency, emissions and noise.

Our service capabilities contribute to reducing environmental impact by maintaining our products to the highest standards. Increasingly we are able to repair individual engine components, reducing the manufacture of new parts and minimising customer disruption.

We are also frequently retro-fitting improvements throughout the life of our engines. Our global network of service provider partners is crucial to this.



TRENT XWB

Our Trent XWB engine is the sixth generation of the Trent engine family and is now the most efficient large aero-engine flying today. It delivers 15% better fuel efficiency than the original Trent engine.



PROJECT SUNSHINE

Over 16,700 photovoltaic panels have been installed on the roof and car port of our Seletar campus in Singapore. This became fully operational in June 2017, and currently provides 7% of the site's electricity needs, helping save over 31,000 tonnes of CO₂ across its lifetime. This is one of a series of low carbon energy projects completed during 2017 including; a ground-source heating installation at our Bristol, UK site; a further solar installation at our Aiken, US facilities; and a combined heat and power (CHP) facility at our Friedrichshafen campus, Germany.

2. New technologies and capabilities

The transition to a low carbon global economy is dependent on the development of new technologies and capabilities. We are building on our strong engineering heritage to produce state-of-the-art electro-mechanical and hybrid power systems, combined with digital solutions. This means building on our existing thermo-mechanical products to deliver step changes in emissions performance. In partnership with our global network of University Technology Centres and Advanced Manufacturing Research Centres, Rolls-Royce is able to apply innovations across the product portfolio.

 For more information see Technology, pages 42 and 43

3. Business operations and facilities

We continue to invest in new facilities and manufacturing technologies which will reduce the environmental impacts of our operations even as we increase engine production. We continually monitor performance across our global footprint to set policy, procedures and targets.

Absolute GHG emissions (ktCO ₂ e)	Energy use (MWh/£m)	Total solid and liquid waste (t/£m)	Waste to landfill (000 tonnes)
415 ktCO₂e	81 MWh/£m	3.57 t/£m	3.8 tonnes
2025 TARGET 247	2020 TARGET 81	2025 TARGET 3.33	2020 TARGET 0
2017 415	2017 81	2017 3.57	2017 3.8
2016 424	2016 95	2016 4.48	2016 4.8
2015 455	2015 112	2015 4.31	2015 7.2
2014 BASELINE 494	2014 BASELINE 116	2014 BASELINE 4.43	2014 BASELINE 6.7
Target: Reduce GHG emissions by 50% by 2025 ^{1,2}	Target: Reduce energy use by 30% by 2020 ¹	Target: Reduce solid and liquid waste by 25% by 2025 ^{1,3}	Target: Achieve zero waste to landfill by 2020 ¹
During 2017, we completed several renewable solar installations and low carbon energy schemes as part of our longer-term strategy to reduce the environmental impact of our operations.	We have continued to invest in energy efficiency improvements, including lighting, heating and compressed air systems upgrades, investing a further £8m in 2017. As a result, we have met our energy reduction target three years early.	We have made good progress with reducing the amount of waste we generate, despite increasing engine production. During 2017, we launched a renewed waste programme, focused on key waste streams including machining coolant and process chemicals.	We are progressing well with our target of zero non-hazardous waste to landfill. Over 40 of our manufacturing and office sites have now achieved zero waste to landfill.

¹ External assurance over the STEM, energy, GHG, and TRI rate data provided by Bureau Veritas. See page 195 for their sustainability assurance statement.

² Statutory greenhouse gas (GHG) emissions data details on page 200.

³ Waste data for 2016 and 2017 has been calculated in accordance with our basis of reporting, as set out at www.rolls-royce.com/sustainability. There remains a degree of uncertainty in the accuracy and completeness of waste-related data. We will continue to review historical and source data and if a material impact is identified will seek to restate these reported figures in 2018. As a result of these continued issues with data completeness we have extended our total solid and liquid waste reduction target from 2020 to 2025. The baseline year of 2014 remains unchanged. See pages 107 and 108 for more detail.

People

We are committed to creating an environment where all our people are able to be at their best. We are determined to ensure we have the right values and competencies for the business today, and the right capabilities and behaviours for the future.

Care

Create a working environment where each of us is able to be at our best.

Growing capabilities

Key capabilities needed to secure emerging opportunities:

- systems integration
- electrical engineering
- data sciences

Growing behaviours

Key behaviours needed to secure emerging opportunities:

- pursue collaboration
- seek simplicity
- embrace agility
- be bold

Core competencies

Key competencies needed to safeguard our current competitiveness:

- engineering pre-eminence
- programme management
- business acumen

Core values

Key values needed to safeguard our current competitiveness:

- 'Trusted to Deliver Excellence'
- act with integrity
- operate safely

Our 2017 headcount

Our global employee distribution continued to evolve as we increased production in our Civil Aerospace business and faced continued external pressure on our Marine business. Our total employee turnover rate for 2017 was 9.3%.

Headcount by business unit¹

	2017	2016
Civil Aerospace	24,600	23,800
Defence		
Aerospace	6,100	6,000
Power Systems	10,100	10,300
Marine	4,600	5,300
Nuclear	4,400	4,300
Other businesses and corporate	200	200
Total	50,000	49,900

Headcount by location¹

	2017	2016
UK	22,500	22,300
US	6,200	6,300
Canada	1,000	1,000
Germany	10,600	10,700
Nordic countries	3,000	3,400
Rest of world	6,700	6,200
Total	50,000	49,900

Health and safety

It is with deep regret we report two fatalities, in separate incidents, during the year. One work-related incident resulted in a fatal accident at a customer's site. The other incident was road-traffic related and occurred while commuting to work – a reportable incident in Germany where it occurred.

These tragic incidents reinforce the importance of health and safety across all that we do and led us to strengthen the governance that underpins our HSE policy. We conduct thorough investigations into actual and potential high-consequence incidents and apply lessons learnt across our global operations through risk-based improvement programmes.

Our total reportable injury (TRI) rate for 2017 was 0.55 per 100 employees². This represents a 14% improvement since 2014. In 2017, we initiated focused improvement plans on areas of the Group with the greatest safety challenges. In 2018, we will launch a Group-wide programme focusing on sites considered to have higher HSE risk profiles, to provide a detailed understanding of potential HSE risk and required controls.

Employee wellbeing is a core element of our approach to managing health and safety and to enabling our people to be at their best. We are investing in creating workplaces where employees are encouraged to make healthier choices. Our LiveWell accreditation scheme recognises sites that have taken steps to create environments that support employee wellbeing. To date, 60% of our manufacturing and office facilities have achieved a LiveWell award.

 For more information on our health and safety performance see the Safety & Ethics Committee Report, pages 104 to 109.

Employee engagement

During 2017, we shifted our focus from performance management to performance enablement, encouraging our managers to adopt regular, less formal conversations, feedback and coaching with their teams. Employee performance ratings are now made up of delivery against objectives and performance against our values and behaviours, including those set out in our Global Code of Conduct.

¹ Headcount data is calculated in terms of average full-time employees.

² External assurance over the STEM, energy, GHG, and TRI rate data provided by Bureau Veritas. See page 195 for their sustainability assurance statement.

During 2017, we invested £31.2m in employee learning and development, delivering over a million hours of employee training in subjects ranging from HSE, quality, product safety, export control and ethics.

We provide a variety of channels to communicate with and listen to employees and their representatives and encourage participation and engagement throughout the organisation.

Our annual employee opinion survey helps measure the success of these engagement activities. More than 30,000 employees took part in the survey this year which gave a snap-shot of progress against our key engagement drivers. We maintained our employee engagement score of 75 in 2017, the same as in 2016. The survey highlighted strengths in company values, ethical behaviours, and employee accountability, as well as fairness and inclusiveness. Areas for improvement identified included prompt decision making and establishing priorities.

 For more on the Board's employee engagement activities see page 73.

Diversity and inclusion

We believe that having a culture of inclusion is the foundation for driving diversity. During 2017, we made significant progress, however diversity continues to be a challenge for Rolls-Royce and the engineering sector as a whole.

We have launched a new diversity and inclusion strategy and reviewed our global diversity and inclusion and anti-discrimination policies to ensure all employees, regardless of gender, race,



SUPPORTING OUR LGBT COLLEAGUES

We are committed to building an inclusive culture and diverse workforce. PRISM is our UK employee resource group (ERG) for lesbian, gay, bisexual and trans (LGBT+) people. The PRISM vision is to connect, encourage and develop diverse people to drive innovation, attract and promote talent and to support global growth. We have 14 ERGs globally with a variety of focuses and more planned.

religion or physical ability are treated with respect and are empowered to work without fear of bullying or harassment.

We give full and fair consideration to all employment applications from people with disabilities and support disabled employees, helping them to make the best use of their skills, expertise and potential.

We are recruiting from groups under-represented in the engineering sector, particularly women, those from disadvantaged backgrounds and minority ethnic groups.

We believe it is important to increase the number of women at all levels, as well

as attracting more women and people from diverse backgrounds into science, technology, engineering and maths (STEM) careers. Our work with organisations such as Women in Science and Engineering seeks to boost our visibility amongst potential female employees, and we support initiatives such as the Institution of Engineering and Technology's '#9percentisnotenough' campaign.

 We published our gender pay report for the UK in November 2017. Further details can be found on page 94.

Our diversity and inclusion targets

During 2017, we launched a new diversity and inclusion strategy with global targets to increase female participation at all levels of our organisation by 2020. Our employee population is currently 15% female.

30% female

High potential population

30% female

Graduate population

17% female

All employee population

Our global targets are supported by local targets in key regions where there are specific diversity challenges associated with ethnicity, nationality and age.

We have also introduced a global target around inclusiveness, measured by a subset of our employee opinion survey. We have agreed to improve our performance year-on-year for questions related to fairness and inclusiveness.

 For Board members by gender see Nominations & Governance Committee Report, page 82.

Employees by gender *

	Male	Female	Undeclared
2017	41,600	7,400 (15.1%)	
2016	42,400	7,400 (14.8%)	
2015	42,800	7,700 (15.2%)	
2014	46,100	8,000 (14.8%)	

■ Male ■ Female ■ Undeclared
(2016: 100, 2017: 100)

Senior managers by gender

	Male	Female
2017	114	18 (13.6%)
2016	125	16 (11.4%)
2015	177	14 (7.3%)
2014	168	12 (6.7%)

■ Male ■ Female

* In 2016 we reclassified certain joint ventures as joint operations. As a result, 900 employees are listed in our overall headcount, however we do not currently collect diversity information for these joint operations, therefore they are omitted from this data.

STEM

A strong pipeline of diverse talent and experience is critical to the future success of our business. We are committed to inspiring the next generation into science, technology, engineering and maths (STEM) careers.

We recognise the need to engage young people in STEM at an early age, enabling them to make informed education and early career choices. Our education outreach and community investment programmes particularly focus on activities that demonstrate the lifelong opportunities that careers in STEM can offer. We are actively targeting groups under-represented in STEM sectors to attract more people from diverse backgrounds.

Globally we aim to reach six million people through our STEM activities and programmes by 2020. 1,400 Rolls-Royce employees volunteer their time as STEM ambassadors, helping us to reach 3.8 million¹ people since 2014. This includes one million people in 2017, 48% of whom were actively engaged in our programmes.

We continue to attract high numbers of applicants to our graduate and apprentice development programmes. These provide a pipeline of talent into engineering and other functions.

During 2017, we recruited 313 graduates and 339 apprentices worldwide. 74% of these graduates joined engineering development programmes.

The proportion of women recruited as apprentices in our 2017 intake increased to 21%, and the proportion of female graduates increased to 22%.

We have agreed a global target to increase our female graduate population to 30% by 2020 as part of our diversity and inclusion strategy.



MUSKAAN PROJECT, INDIA

The Rolls-Royce Muskaan project aims to increase young peoples' interest in STEM subjects by demonstrating how fun science and maths can be. Muskaan, which means 'smile' in Hindi, is designed to supplement the school's regular curriculum through guided interactive learning and classroom kits dedicated to STEM topics. The project reached more than 2,100 school children across India in 2017.

SUPPORTING OUR COMMUNITIES

We are committed to having a positive impact in the global and local communities where we operate. We focus our engagement activities on four key areas:

- education and skills, primarily STEM;
- arts, culture and heritage;
- environment; and
- social investment.

Our activities vary from national programmes, such as the Rolls-Royce Science Prize, to local activities with schools and community partners close to our operations. We encourage our people to volunteer their time as part of our employee engagement and development programmes.

We believe there is greater impact in lasting engagement than one-off cash contributions, but do make charitable donations aligned to our strategy. During 2017, this included one-off donations to the Women in Tech Foundation and the Campaign for Science & Engineering.

In total, we invested £7.7m in supporting communities in 2017. This includes £4.3m in cash contributions and 93,900 hours in employee time.



Reach 6 million people by 2020



1,400 STEM ambassadors



£7.7m invested in supporting communities

¹ External assurance over the STEM, energy, GHG, and TRI rate data provided by Bureau Veritas. See page 195 for their sustainability assurance statement.

Ethics

Who we are and how we behave matters to our people and our stakeholders. We have made fundamental changes in recent years to place ethics and compliance at the heart of everything we do.

We have a Global Code of Conduct (the Global Code) that applies to all employees of Rolls-Royce, its subsidiaries and controlled joint ventures, wherever they are located. Breaches of the Global Code are not acceptable and will result in the Company taking action. This may include disciplinary action up to and including dismissal. In 2017, there were 65 employees (2016: 38 employees) whose employment ended for reasons related to breaches of the Global Code.

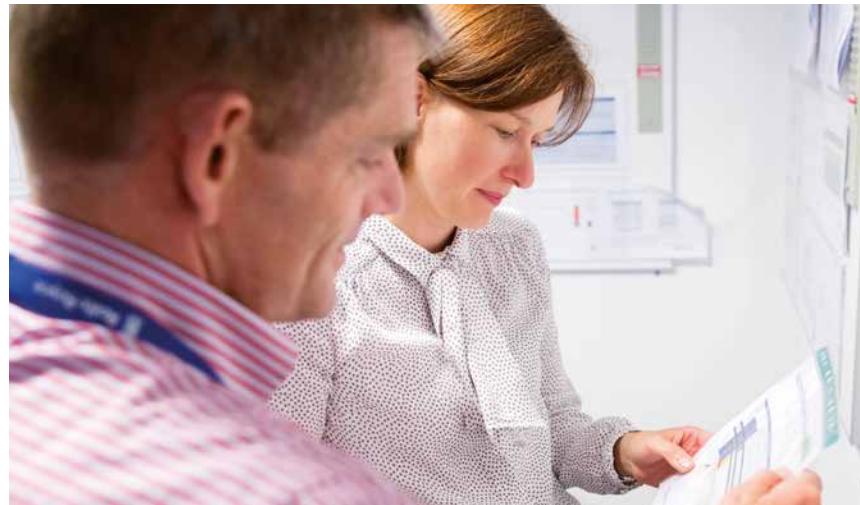
The Global Code sets out principles that underpin our values and the way we do business. It also provides guidance on how to apply these in everything we do. 100% of managers completed a certification exercise during the year, confirming their commitment to the Global Code. We encourage all employees and stakeholders to raise ethical questions or concerns, without fear of retaliation. For employees, we provide four main channels for them to speak up, including a 24hr Ethics Line and network of 84 local ethics advisers around the world.

Anti-bribery and corruption

The Global Code includes clear statements regarding our zero-tolerance approach to bribery and corruption.

This year we revised our anti-bribery and corruption related policies, standards and guidance and brought them together into one comprehensive Global Anti-Bribery and Corruption Manual. This provides a framework for our anti-bribery and corruption programme and clearly sets out the responsibilities that apply to all employees, including requirements to conduct due diligence on customers, suppliers and other business partners.

Our anti-bribery due diligence includes screenings, interviews and obtaining in-depth due diligence reports from



ALL-EMPLOYEE ETHICS TRAINING

Our ethics training programme is designed to bring our Global Code of Conduct to life. This year's all-employee training focused on having conversations about its application and its relevance to individual roles. 98% of employees completed this activity.

specialist providers, depending on the level of risk that a particular third party presents.

In addition to our all-employee ethics training, we have introduced training workshops for senior managers and any other roles that are likely to be exposed to situations where there is a risk of attempted bribery and corruption.

Human rights

We remain committed to protecting and preserving the human rights of our employees, those working in our global supply chain, and those who may be impacted by our business operations.

Our commitment to human rights, including our position on forced labour, involuntary labour, child labour, and human trafficking, is outlined in the Global Code, as well as our Global Supplier Code of Conduct and Global Human Rights policy. We have taken an integrated approach to minimising the risk of slavery and human trafficking taking place in our supply chain or any part of our business. Adherence and due diligence associated with these policies is embedded within our operating system and processes across our global functions, including human resources, ethics and procurement.

More information on our approach can be found in our anti-slavery and human trafficking statement, available at www.rolls-royce.com.

Ethics in our supply chain

We spent over £8.7bn in our external supply chain in 2017. Our suppliers and partners are vital to our success, so we are committed to working collaboratively with them to maintain the highest ethical standards.

At the end of 2017, all our suppliers had agreed to adhere to our Global Supplier Code of Conduct, or a mutually agreed alternative. This sets out the minimum behaviours and practices we expect our suppliers to demonstrate based on our own Global Code and related policies, including our Global Human Rights policy and Global Anti-Bribery and Corruption Manual.

This year, we have introduced further monitoring and assessments prioritised by the potential level of risk the supplier may present. To date, 67% of prioritised suppliers have completed a self-assessment questionnaire which aims to understand how suppliers are adhering to the principles set out in the Global Supplier Code of Conduct within their own operations. We are now working with these suppliers to collaboratively agree plans to address any gaps that may have been identified as part of our supplier management frameworks.

 For more information see Safety & Ethics Committee Report, pages 104 to 109.

Additional Financial Review

In this section we provide additional detail and commentary on key financial areas – Group reported results, funds flow and balance sheet and additional Civil Aerospace detail.

Group – reported results

Reconciliation between underlying and reported results

Year to 31 December £m	Revenue		Profit before financing		Financing		Profit/(loss) before tax	
	2017	2016	2017	2016	2017	2016	2017	2016
Underlying	15,090	13,783	1,175	915	(104)	(102)	1,071	813
Revenue recognised at exchange rate on date of transaction ¹	1,217	1,172	–	–	–	–	–	–
Mark-to-market adjustments on derivatives ⁸	–	–	24	–	2,648	(4,420)	2,672	(4,420)
Related foreign exchange adjustments ¹	–	–	345	570	257	(151)	602	419
Movements on other financial instruments	–	–	–	–	11	(8)	11	(8)
Effects of acquisition accounting ²	–	–	(129)	(115)	–	–	(129)	(115)
Impairments ³	–	–	(24)	(219)	–	–	(24)	(219)
Exceptional restructuring ⁴	–	–	(104)	(129)	–	–	(104)	(129)
Acquisitions and disposals ⁵	–	–	798	(3)	–	–	798	(3)
Financial penalties ⁶	–	–	–	(671)	–	–	–	(671)
Post-retirement schemes ⁷	–	–	–	(306)	1	3	1	(303)
Other	–	–	–	(1)	(1)	1	(1)	–
Reported	16,307	14,955	2,085	41	2,812	(4,677)	4,897	(4,636)

The changes in 2017 resulting from underlying trading are described on page 18.

Consistent with past practice and IFRS, we provide both reported and underlying figures. As the Group does not hedge account in accordance with IAS 39 *Financial Instruments*, we believe underlying figures are more representative of the trading performance by excluding the impact of year-end mark-to-market adjustments. In particular, the USD:GBP hedge book has had a significant impact on the reported results in 2017 as the USD:GBP rate has risen from 1.23 to 1.35 and the EUR:GBP has fallen from 1.17 to 1.13. The adjustments between the underlying income statement and the reported income statement are set out in note 2 to the Consolidated Financial Statements. This basis of presentation has been applied consistently.

The most significant items included in the reported income statement, but not in underlying are summarised below.

Profit before financing

1. The impact of measuring revenue and costs at spot rates rather than rates achieved on hedging transactions increased revenue by £1,217m (2016: £1,172m) and increased profit before financing by £345m (2016: increased £570m).

2. The effects of acquisition accounting £129m (2016: £115m) principally relate to the amortisation of intangible assets arising on the acquisition of Power Systems in 2013.
3. The impairment of goodwill, investments, PPE and inventory of £24m (2016: £219m). In 2017, this includes £12m as a result of consolidating a previously unconsolidated subsidiary and £12m relating to the Marine business. The impairments in 2016 largely related to the Marine business as a result of the weakness in the oil & gas market.
4. Exceptional restructuring costs of £104m (2016: £129m). These are costs associated with the substantial closure or exit of a site, facility or activity related to the significant transformation project that the business is currently undertaking. A number of the projects within the transformation programme are spread over several years.
5. The acquisition of ITP Aero resulted in a gain of £553m from the revaluation of the previous joint venture investment and recognition of a bargain purchase of £245m.
6. In 2016, £671m of penalties from agreements with investigating bodies were recognised.
7. In 2016, the UK pension schemes were restructured resulting in costs of £306m, principally a settlement charge on the transfer of the Vickers Group Pension Scheme to an insurance company.

Financing and taxation

8. The mark-to-market gain on the Group's hedge book of £2,648m (2016: loss of £4,420m). These reflect: the large hedge book held by the Group (circa USD \$38.5bn); and the strengthening of sterling, particularly against the US dollar offset by the weakening of sterling against the euro, as noted above. At each year end, our foreign exchange hedge book is included in the balance sheet at fair value (mark-to-market) and the movement in the year included in reported financing costs.

Appropriate tax rates are applied to these additional items included in the reported results, leading to an additional tax charge of £361m (2016: credit £865m), largely as a result of the mark-to-market adjustments £(463)m and £792m in 2017 and 2016 respectively. In addition, £163m of advance corporation tax credits has been recognised as a result of changes to UK tax laws in 2017.

Group – funds flow

Summary funds flow statement¹

£m		Excluding the impact of ITP Aero	ITP Aero	Total	2016	Change excluding ITP Aero
Opening net (debt)		(225)	–	(225)	(111)	–
Closing net (debt)/funds		(520)	215	(305)	(225)	–
Change in net (debt)/funds		(295)	215	(80)	(114)	–
Underlying profit before tax		1,071	–	1,071	813	+258
Depreciation and amortisation		741	–	741	720	+21
Movement in net working capital		546	(14)	532	(55)	+601
Expenditure on property, plant and equipment and intangible assets		(1,732)	–	(1,732)	(1,201)	-531
Other		(164)	–	(164)	47	-211
Trading cash flow		462	(14)	448	324	+138
Contributions to defined benefit pensions in excess of underlying PBT charge		(9)	–	(9)	(67)	+58
Taxation paid		(180)	–	(180)	(157)	-23
Free cash flow		273	(14)	259	100	+173
Shareholder payments		(214)	–	(214)	(301)	+87
Net funds acquired/acquisitions		(17)	229	212	(153)	+136
Payment of financial penalties		(286)	–	(286)	–	-286
Other		8	–	8	–	+8
Foreign exchange		(59)	–	(59)	240	-299
Change in net funds		(295)	215	(80)	(114)	–

¹ The derivation of the summary funds flow statement above from the reported cash flow statement is included on page 168.

Movement in working capital

The main drivers of the £546m cash inflow from a fall in working capital were increased receipts from airframers in advance of discounts payable to the operator (£460m) in Civil Aerospace together with an increase in payables (£120m) but partly offset by increased inventory (£330m), all linked with the ramp-up of our newer programmes. Other significant contributors to the working capital reduction were improved receivables and deposits (£90m) in Power Systems and the Aviall distribution agreement in Defence Aerospace (£120m) and associated reduced inventory.

Expenditure on property, plant and equipment and intangibles

The major increases are due to: investment in Civil Aerospace operations and manufacturing assembly and test facilities as well as increases to the aero-engine fleet to support the growing installed fleet; and increased capitalisation of development costs in the Civil Aerospace business, reflecting the stage of the new programmes.

Pensions

Cash contributions reduced by £22m to £249m, split evenly between the UK and overseas. The UK contributions are net of a refund of £5m from a wound-up scheme. The UK pension cost increased by £21m in 2017, largely due to changes in discount rates which determine the accounting charge.

Shareholder payments

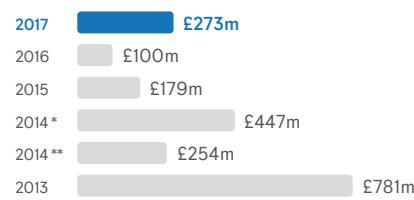
The change in shareholder payments reflects the difference between the 2015 and 2016 payments, which are paid in the following year.

Acquisitions and disposals

The consideration for ITP Aero is payable in eight quarterly instalments from January 2018, no payments were made in 2017. The deferred consideration can be settled in cash or Rolls-Royce Holdings plc shares, at the discretion of Rolls-Royce with a 3% premium to be applied if the consideration is in shares. The net funds of ITP Aero on acquisition were £229m. From the date of acquisition to 31 December 2017, the

Free cash flow

£273m



* Excluding Energy

** Including Energy

net funds outflow in ITP Aero was £14m; excluding the impact of ITP Aero, free cash flow would have been £273m.

In addition, the consolidation of MTU Brazil for the first time resulted in the recognition of net debt of £17m.

Payment of financial penalties

Following the agreements reached with investigating authorities in January 2017, £286m of penalties were paid in the UK, US and Brazil. Further UK payments of £378m (plus interest) will be made in 2019-2021.

Group – balance sheet

Summary balance sheet

At 31 December £m	Excluding the impact of ITP Aero	Impact of ITP Aero	2017	2016
Intangible assets	5,646	1,417	7,063	5,080
Property, plant and equipment	4,356	268	4,624	4,114
Joint ventures and associates	892	(204)	688	844
Net working capital ¹	(1,874)	(444)	(2,318)	(1,553)
Net funds ²	(520)	215	(305)	(225)
Provisions	(815)	(68)	(883)	(759)
Net post-retirement scheme surpluses/ (deficits)	738	–	738	(29)
Net financial assets and liabilities ²	(2,449)	(148)	(2,597)	(5,751)
Other net assets and liabilities ³	(602)	(238)	(840)	143
Net assets	5,372	798	6,170	1,864
Other items				
US\$ hedge book (US\$bn)		38.5	37.8	
TotalCare assets		3,536	3,348	
TotalCare liabilities		(1,033)	(907)	
Net TotalCare assets	2,503	2,441		

¹ Net working capital includes inventories, trade and other receivables, trade and other payables and current tax assets and liabilities.

² Net funds includes £277m (2016: £358m) of the fair value of financial instruments which are held to hedge the fair value of borrowings.

³ Other includes other investments and deferred tax assets and liabilities.

The acquisition of ITP Aero has had a significant impact on the shape of our balance sheet which is described below. Other key changes are as follows:

Intangible assets

Intangible assets (page 142) increased by £566m. Additions of £973m (including £160m of certification and participation fees, £342m of development costs, £286m of contractual aftermarket rights and software of £135m) were offset by amortisation of £430m.

The carrying values of the intangible assets are assessed for impairment against the present value of forecast cash flows generated by the intangible asset. The principal risks remain: reductions in assumed market share; programme timings; increases in unit cost assumptions; and adverse movements in discount rates.

Property, plant and equipment

Property, plant and equipment (page 144) increased by £242m. Additions of £764m were offset by depreciation of £444m. Additions included an increase to the size of the Civil Aerospace engine pool (£136m) driven by fleet support for new programmes, investment in industrial footprint consolidation (£109m) and in manufacturing assembly and test (£68m).

Investments in joint ventures and associates

Investments in joint ventures and associates increased by £48m. The main movements were: additions of £48m, including £28m of investment in joint ventures that finance some of the Civil Aerospace spare engine pool; the Group's share of retained profit of £52m; offset by £44m of exchange differences.

Net funds

Movements in net funds are shown on page 51.

Net working capital

Net working capital reduced by £321m. As well as the cash impact of £546m described above, the movement reflects the payment of penalties of £286m. The remaining movements are primarily driven by movements in foreign exchange rates.

Provisions

Provisions largely relate to warranties and guarantees provided to secure the sale of OE and services. The increase of £56m includes a provision for tax interest and penalties that was previously included in current tax liabilities but reclassified due to guidance issued by the International Financial Reporting Interpretations Committee (IFRIC).

Net post-retirement scheme surpluses

Net post-retirement scheme surpluses (page 159) have increased by £767m.

In the UK (increase in surplus of £772m), changes in actuarial estimates reduced the value of the obligations £515m, principally due to: (i) inclusion of the latest mortality tables; and (ii) the reflection of actual experience as part of the 2017 funding valuation. In addition, there were returns (in excess of those assumed) on the scheme assets of £265m.

The position overseas has remained broadly stable, with in the impact of reduced discount rates in Germany and the US being offset by other actuarial gains in the US.

Net financial assets and liabilities

Net financial assets and liabilities principally relate to the fair value of foreign exchange, commodity and interest rate contracts, set out in detail on page 150. All contracts continue to be held for hedging purposes. The fair value of foreign exchange derivatives is a net financial liability of £2.3bn, a reduction of £3.2bn in the year, mainly a result of the strengthening of sterling against the US dollar.

US\$ hedge book

The US\$ hedge book increased by 2% to US\$38.5bn. This represents around six years of net exposure and has an average book rate of £1 to US\$1.55.

Net TotalCare assets

Net TotalCare assets relate to long-term service agreement (LTSAs) contracts in the Civil Aerospace business, including the flagship services product TotalCare. These assets represent the timing difference between the recognition of income and costs in the income statement and cash receipts and payments.

Impact of the acquisition of ITP Aero

The acquired net assets of ITP Aero are shown on page 167. The most significant intangible assets acquired relate to customer relationships, to technology, patents and licences and to in-process development. In addition, working capital includes an accrual of £648m for the deferred consideration to be paid in 2018 and 2019. The deferred consideration can be settled in cash or Rolls-Royce Holdings plc shares, at the discretion of Rolls-Royce with a 3% premium to be applied if the consideration is in shares.

Civil Aerospace – additional financial information

Civil Aerospace underlying revenue analysis

£m	2017	2016	Change	Organic change
Original equipment	3,818	3,357	+14%	+12%
Large engine: linked and other	1,895	1,604	+18%	+18%
Large engine: unlinked installed	1,103	742	+49%	+49%
Business aviation	598	757	-21%	-26%
V2500	222	254	-13%	-13%
Services	4,205	3,710	+13%	+12%
Large engine	2,626	2,289	+15%	+15%
Business aviation	527	452	+17%	+10%
Regional	343	342	-	-5%
V2500	709	627	+13%	+13%

Revenue

Overall, underlying revenue for Civil Aerospace rose 12% to £8.0bn, with OE revenue of £3.8bn (2016: £3.4bn) up 12% and services revenue of £4.2bn (2016: £3.7bn) also up 12%. The rise in OE revenue reflected record levels of widebody engine deliveries, with growth in Trent XWB-84 engine sales, to support the Airbus A350 XWB programme ramp-up, a significant contributor.

OE revenue from *large engine: linked and other* was up 18% reflecting increased volumes of Trent 700 engines following a relatively low year in 2016 in which a higher proportion of A330s built were powered by competitor engines, combined with higher deliveries of Trent 900 engines for A380s for Emirates. Sales of spare engines to joint ventures, included in *large engine: linked and other*, generated revenue of £362m (2016: £288m).

OE revenue from *large engine: unlinked installed* increased 49%, driven by improved pricing and higher volumes of Trent XWB-84 engines.

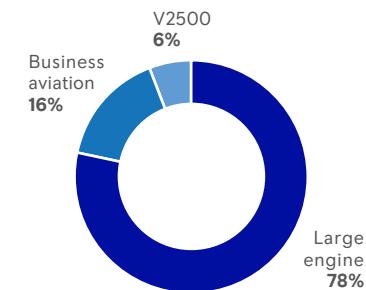
The 15% growth in *large engine service* revenue reflected a 22% increase in invoiced TotalCare flying hours from the growing in-production engine fleet which more than offset the 12% flying hour reduction from mature engine types as older aircraft retired or where customers selected alternative service offerings on transitions. Higher volumes of spare part sales for RB211-535 and Trent 700 engines for time and material overhauls and for TotalCare engines, where not covered by the flying hour payments, also contributed to the revenue increase.

Revenue from *business aviation* OE engine sales declined for a second year, with a fall in unit volumes of 32%, mostly BR710's, reflecting continued weakness at the higher end of the market coupled with the effect of the transition to newer non Rolls-Royce powered platforms. Volumes of the newer BR725 engine, which powers the Gulfstream G650 and G650ER, remained broadly stable. Overall, although business aviation OE revenues declined 26%, service revenue increased by 10% reflecting continued fleet expansion, increased CorporateCare penetration and price escalation.

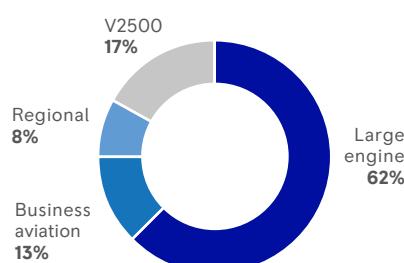
Service revenue from our *regional* jet engines declined 5%, reflecting further retirements and reduced utilisation of our fleets by North American operators in particular.

On the V2500 programme, which powers aircraft including the Airbus A320, revenue from OE modules declined 13% as production slowed down further as Airbus transitions to the A320neo, powered by a competitor engine provider. However, V2500 service revenues of £709m increased by 13% driven by an increased number of overhauls with increased workscope. The contractual payment from International Aero Engines based on flying hours was broadly stable, with a reduction in flying hours flowing from retirements of some older aircraft being mitigated by price escalation.

Underlying revenue mix 2017 – original equipment



Underlying revenue mix 2017 – service



Contract accounting adjustments

The in-year net charge from long-term contract accounting adjustments included within the gross margin totalled £18m (2016: £90m total benefit, including a £35m benefit from a change to our long-term USD:GBP planning rate).

The benefit from lifecycle cost improvements in 2017 of £113m (2016: benefit of £217m) included a £70m benefit across the portfolio of business aviation contracts following

re-assessments of shop visit frequency and costs. Given that the performance of our in-service fleet has evolved over the year, we have increased our estimates for future costs associated with part life limitations, particularly in relation to compressor rotor blades within the Trent 1000 and high-pressure turbine blades within the Trent 900. The resulting contract accounting adjustments associated with these shortfalls in part life, combined with additional customer disruption support costs across

these two engine programmes, represents £114m (2016: £55m) of the total £148m impact (2016: £98m).

The overall benefit in 2017 from other operational changes was £17m (2016: £64m charge). This comprised a £60m charge driven by changes in the utilisation pattern of several customers' Trent 700, Trent 800 and RB211 fleets, offset by a £77m benefit taken in the first half arising from a change to a customer credit rating risk assessment.

Contract accounting adjustments

£m	2017	2016
Lifecycle cost improvements	113	217
Change in estimated long-term USD to GBP planning rate	–	35
Technical costs	(148)	(98)
Operational changes	17	(64)
Total contract accounting adjustments	(18)	90

TotalCare net assets

TotalCare net assets increased in 2017 by £62m (2016: £230m) to £2.5bn. This reflected an increase in the overall cash deficit combined with higher linked profit driven by increased volumes of new linked engines of £612m (2016: £432m), notably the Trent 700.

This increase was offset by adverse contract accounting adjustments taken in the year of £18m (2016: £90m benefit), foreign exchange of £(97)m (2016: £77m) and cash inflows and net other items of £(435)m (2016: £(369)m).

Contractual aftermarket rights (CARs)

The CARs balance increased by £230m (2016: increase of £169m) to £803m reflecting higher sales of unlinked Trent XWB engines partly offset by price increases and engine unit cost improvements.

TotalCare net assets

£m	2017	2016
Cash deficit reversal and profit from new linked engines	612	432
Contract accounting adjustments	(18)	90
Foreign exchange	(97)	77
Cash inflows and net other items	(435)	(369)
Total change in TotalCare net assets	62	230

IFRS 15

Group – impact of adopting IFRS 15

Group underlying results

2017 £m	Current accounting	IFRS 15
Revenue		
Civil Aerospace	8,023	6,613
Defence Aerospace	2,275	2,282
Power Systems	2,923	2,919
Marine	1,077	1,075
Nuclear	818	818
Other	(26)	(25)
Total revenue	15,090	13,682
Operating profit		
Civil Aerospace	520	(330)
Defence Aerospace	374	370
Power Systems	330	331
Marine	(25)	(26)
Nuclear	38	38
Other	(62)	(62)
Total operating profit	1,175	321

IFRS 15 overview

IFRS 15 *Revenue from Contracts with Customers* (effective from 1 January 2018) replaces the separate models for goods, services and construction contracts currently included in IAS 11 *Construction Contracts* and IAS 18 *Revenue*. The Group will present its 2018 results, including 2017 comparatives, on an IFRS 15 basis.

IFRS 15 impact

The impact of IFRS 15 on the 2017 underlying results is shown in the tables on this page with further information provided in notes 1 and 27 to the Consolidated Financial Statements. The cumulative impact on net assets as at 31 December 2017 is £(5.2)bn.

As processes and procedures are further embedded during 2018, it is possible that some changes to the impact may result. The adoption of IFRS 15 has had a significant impact on the measurement and the timing of recognition of revenue, most particularly in the Civil Aerospace business. It has no impact on the timing or measurement of the reported cash flows.

The key impacts of adopting IFRS 15 on our Civil Aerospace business are:

- generally, our contracts with airframers for OE and with operators for aftermarket services will not be linked;
- revenue for OE will be recorded at the net amount of consideration receivable with any profit or loss on sale, after recognition of the costs of producing the OE, recorded on delivery; and
- revenue on LTSAs will be recognised as services are performed rather than as the equipment is used as is frequently the case under the current accounting policy. The stage of completion will be measured using the actual costs incurred to date compared to the estimated costs to complete the performance obligation. As we are generally paid on a monthly basis as engine flying hours occur, whilst overhaul and repair activities happen periodically over the term of the LTSAs, the recognition of revenue and profit will generally be deferred compared to the current accounting policy and to cash receipts.

In addition, the overall net impact on operating profit of the adoption of IFRS 15 within the Defence Aerospace business was £4m. This comprised a £34m LTSAs margin impact which is broadly expected to recur in the short term, but was offset by a £30m favourable timing benefit from a spares distribution contract, which is not expected to repeat in 2018.

Civil Aerospace – impact of adopting IFRS 15

Civil Aerospace underlying income statement summary

2017 £m	Current accounting	IFRS 15	Difference
Underlying revenue	8,023	6,613	(1,410)
Underlying OE revenue	3,818	2,905	(913)
Underlying services revenue	4,205	3,708	(497)
Underlying gross profit	1,192	381	(811)
<i>Gross margin</i>	14.9%	5.8%	
R&D costs	(412)	(451)	(39)
Underlying operating profit/(loss)	520	(330)	(850)
<i>Underlying operating margin %</i>	6.5%	(5.0)%	

The following tables provide more detail on the impact of adopting IFRS 15 in Civil Aerospace. We have provided additional information about this business here as it is most significantly impacted by IFRS 15. A more detailed analysis of the impact of adopting IFRS 15 on the other segments are set out in note 27 to the Consolidated Financial Statements.

The adoption of IFRS 15 reduces Civil Aerospace underlying revenue and underlying operating profit by £1,410m and £850m respectively.

Underlying OE revenue reduces by £913m, primarily from de-linking the OE and service contracts and no longer capitalising cash deficits. In addition, participation fees paid to airframers are treated as a reduction to revenue where previously presented as a cost.

Underlying service revenue reduces by £497m. This reduction is driven by: a timing change to revenue recognition on TotalCare and CorporateCare long-term contracts where stage of completion has been amended from a flying hours basis to a cost incurred or 'input' basis; the de-linking of OE and services contracts; and classification of operator guarantee payments as a reduction to revenue under IFRS 15 where classified as costs under current accounting.

Underlying revenue by market segmentation under IFRS 15

The most significant changes to Civil Aerospace revenue from the adoption of IFRS 15 relate to large engine OE and long-term service contract revenue for both large and business aviation engines.

Large engine service revenue is £299m lower under IFRS 15. Under current

accounting service revenue is recognised on an engine flying hour basis, i.e. as the engines are being used by the airline operators. The move to recognising revenue on an activity basis (i.e. when Civil Aerospace performs the repairs, maintenance and overhauls) changes the point at which revenue is recognised. This change will typically delay the point at which revenue is recognised under IFRS 15 when compared with the treatment under current accounting and as a result lowers service revenues due to the relatively young age of the fleet with many engines yet to reach their first overhaul.

The nature of the change is the same for CorporateCare service packages in business aviation. For business jet engines the timing impact may be more pronounced than for large engines as business jet engines are often on wing for many years before requiring an initial overhaul.

Civil Aerospace underlying revenue analysis

2017 £m	Current accounting	IFRS 15	Difference
Original equipment	3,818	2,905	(913)
Large engine	2,998	2,104	(894)
Business aviation	598	582	(16)
V2500	222	219	(3)
Services	4,205	3,708	(497)
Large engine	2,626	2,327	(299)
Business aviation	527	396	(131)
Regional	343	277	(66)
V2500	709	708	(1)

Contract accounting adjustments under IFRS 15

Under current accounting, the stage of completion of long-term service contracts is assessed based on flying hours. As set out on page 55, this means that the percentage of completion will usually be lower under IFRS 15 than under current accounting. For linked OE and service contracts, the stage of completion takes into account both OE and flying hour revenue. The consequence of this linkage with the services contract means that the difference

between the completion percentage under IFRS 15 and current accounting will be greater. This is because the linked OE revenue is no longer included in assessing the stage of completion. This change in the way the percentage of completion is calculated will impact the level of contract accounting benefit recognised under current accounting in respect of beneficial lifecycle cost margin adjustments by £(96)m from £113m under current accounting to £17m under IFRS 15.

On the other hand, the contract margin adjustment associated with technical costs will be £50m lower under IFRS 15.

The benefit from other operational changes totalled £17m in 2017 under current accounting. This included a £77m benefit arising from a change to a customer credit rating risk assessment on a linked contract where under IFRS 15, with no linkage, there is no benefit in the year.

Contract accounting adjustments under IFRS 15

2017 £m	Current accounting	IFRS 15	Difference
Lifecycle cost improvements	113	17	(96)
Technical costs	(148)	(98)	50
Operational changes	17	(68)	(85)
Total contract accounting adjustments	(18)	(149)	(131)

Balance sheet adjustments under IFRS 15

The impact of adopting IFRS 15 on the Civil Aerospace balance sheet is summarised below.

£(5.1)bn of the £(5.2)bn impact to the Group's opening reserves from the adoption of IFRS 15 is driven by Civil Aerospace.

The transition to IFRS 15 requires de-recognition of the contractual aftermarket rights recorded as intangible assets under current accounting. As this cost will now be recorded at the point of sale of OE the amortisation previously recorded will cease benefiting the gross profit reported on underlying services revenue.

Under IFRS 15 we regard participation fees as payments to customers that are offset against future revenue from those customers. Therefore, they are recognised as contract assets rather than as intangible assets under current accounting.

In assessing the accounting for the participation fee payments we make to our OE customers, we have also assessed the accounting for up-front payments we sometimes receive from the Group's suppliers under RRSAs to allow them to participate in an engine programme. We have concluded that, consistent with changes to how we will account for participation fees noted above, these receipts should be deferred and recognised against cost of sales over the period of supply. This will also require judgement

as to the number of units over which the receipts will be allocated.

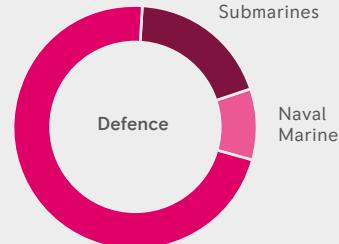
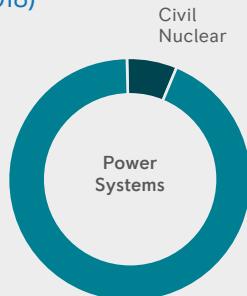
The most significant change is to the net contract balance. Other than the reclassification of participation fees and the transition from revenue recognition on an engine flying hours to a cost input basis, the adjustment also represents £(3.2)bn of reversal of profit from contract linkage. The majority of service contracts are on monthly payment terms based on engine flying hours. As a result, in many cases we will receive cash in advance of incurring costs to support the contract including for overhauls. Under IFRS 15 we will recognise the revenue as costs are incurred, changing the net contract debtor under current GAAP to a net deferred revenue creditor under IFRS 15.

Balance sheet adjustments under IFRS 15

2017 £bn	Current accounting	IFRS 15	Difference
Contractual aftermarket rights	0.8	-	(0.8)
Participation fees - intangible	0.4	-	(0.4)
Participation fees - contract asset	-	0.4	0.4
Net contract debtor/(creditor)	2.5	(2.7)	(5.2)
Other	(0.6)	(0.3)	0.3
Risk and revenue sharing agreements (RRSAs)	(0.3)	(0.8)	(0.5)
Civil Aerospace net assets (pre-tax)	2.8	(3.4)	(6.2)
Tax			1.1
Civil Aerospace reserves impact (post-tax)			(5.1)

2018 Outlook

New core business units (from January 2018)



Civil Aerospace

Underlying revenue

2017 IFRS 15: £6,613m
2018 outlook: High single-digit growth

Underlying operating profit

2017 IFRS 15: £(330)m
2018 outlook: Losses reduce by up to a third

- Revenue growth from higher OE delivery volumes and services activity
- Higher services activity driving profit growth. Around £50m increased R&D capitalisation
- Increased cash flow from continued flying hour growth and further working capital improvements
- But higher deliveries of cash deficit OE engines albeit at lower unit losses
- Higher Trent 1000 and Trent 900 in-service costs

Power Systems

Underlying revenue

2017 IFRS 15: £3,106m
2018 outlook: High single-digit growth

Underlying operating profit

2017 IFRS 15: £319m
2018 outlook: Margins stable

- Continued recovery of naval, oil & gas, and construction & agriculture end markets
- Product mix towards lower margin mining and construction & agricultural products
- Higher R&D spend on alternative fuel solutions

Defence

Underlying revenue

2017 IFRS 15: £3,184m
2018 outlook: Stable

Underlying operating profit

2017 IFRS 15: £451m
2018 outlook: Margins around 250bps lower

- Headwinds from timing changes on export activity and in contract mix, higher investment to support new product development
- Expected non-repeat of £30m favourable timing benefit from the Aviall spares distribution contract

Group *

Underlying revenue

2017 IFRS 15: £13,682m
2018 outlook: Mid single-digit growth

Underlying operating profit

2017 IFRS 15: £321m
2018 outlook: £400m +/- £100m

2018 outlook

We are confident 2018 will be a year of good progress. Organic revenue should grow mid-single digit, with underlying operating profit of around £400m excluding ITP Aero (around £450m including ITP Aero). Free cash flow should improve to around £450m excluding ITP Aero, (around £400m including ITP Aero). We are making solid progress with longer-term solutions for Trent 1000 and Trent 900 in-service issues, largely through re-designing affected parts, and we expect these to be fully embodied on the Trent 1000 fleet by 2022. On the Trent 900, an extended life turbine blade is already being rolled-out with further re-designs available from 2020. Based on our current estimates, in 2018 the anticipated annual cash impact is expected to broadly double and reach a peak. It is then expected to fall by around £100m in 2019. The majority of this work will be undertaken in 2018 and 2019 and is not expected to complete until 2022. All of these costs are included in our cash flow guidance for 2018 and beyond.

Free cash flow (excluding ITP Aero)

2017: £273m
2018 outlook: £450m +/- £100m

ITP Aero

Underlying revenue

2017 IFRS 15: €827m
2018 outlook: Double-digit growth

Underlying operating profit

2017 IFRS 15: €75m
2018 outlook: Modest decline

- Double-digit revenue growth driven by strong increase in delivery volumes on civil programmes
- Margin contraction driven by mix change. Lower volumes of higher margin defence engines with strong growth in less profitable civil engines
- Cash outflow (€70m-80m) as a result of investments and contributions to third party programmes. Cash flow expected to move closer to breakeven in 2019

* Group figures are after inclusion of commercial marine and other eliminations (2017: revenue £779m and loss (£119m)).

Principal Risks

Risk management

The Board is responsible for the Group's risk management system (RMS) and internal control systems.

Our RMS is designed to identify and manage, rather than eliminate, the risk of failure to achieve business objectives and to provide reasonable, but not absolute, assurance against material misstatement or loss.

We continue to build risk management into the way we work to help us to make better decisions. It is implemented through a mandated Group-wide risk management policy, including our process, software tools and governance structures. Our risk policy is supported by training and a team of experts. Businesses and functions are accountable for identifying and managing risks in line with this policy.

Business continuity plans are in place to mitigate continuity risks and there has continued to be regular testing of the adequacy of these plans through exercises at every level of our incident management framework.

Joint ventures constitute a large part of the Group's activities. Responsibility for risk and internal controls in joint ventures lies with the managers of those operations. We seek to exert influence over such joint ventures through board representation. Management and internal audit regularly review the activities of these joint ventures.

Improving our RMS

We have continued to enhance our RMS in 2017, including:

- updating our risk policy and actively communicating it to our employees;
- embedding risk assessment as part of key decision-making activities e.g. allocating capital investment;

- focusing on analysing root causes of risks or incidents and developing standard approaches for managing common risks;
- improving our risk appetite framework;
- conducting progressively more challenging crisis management team exercises based on our principal risks;
- strengthening our risk assurance capability to improve alignment of risk, control and assurance activities; and
- rolling out our risk visualisation tool into the businesses and functions to bring risk discussions to life and help management to focus on the most important risks.

In 2018, we will look to build on these improvements and continue to integrate risk management into the culture change and transformation programmes and key decision-making activities.

Principal risks

Our RMS is designed so that principal risks can be identified from multiple sources. Key bottom-up risks are identified by businesses and functions and the detail of risks that meet the Group threshold are subject to review and challenge by the ELT and the Board during their risk reviews.

The Board, assisted by the ELT, has carried out a robust assessment of the principal risks facing the Group, including undertaking a deep dive into each risk. Deep dives allow the Board to assess the effectiveness of management and mitigation of the risk, including consideration of the effectiveness of material internal controls. These reviews are supported by the ELT risk committee conducting in-depth reviews of related bottom-up key risks and the actions and controls in place to manage them.

Changes in principal risks

These ongoing reviews of risks and understanding of potential root causes has resulted in changes to the following principal risks compared to last year.

Major product programme delivery

Since last year, the level of risk for the major product programme delivery principal risk has increased. This is due to in-service issues that we have experienced with our Trent 1000 and Trent 900 engines (see page 24) and the resources required to mitigate the impact of these issues on our customers. The change in risk level also reflects the importance that successful delivery of major programmes has in generating cash to fund our refreshed strategy.

Product safety

As the Group continues to transform, the product failure principal risk has been re-defined and focuses specifically on the product safety aspects to ensure that ownership of this risk is clearly aligned to the changes in our engineering and technology functions – see page 42.

Political risk

Our Brexit steering group has continued to assess potential impacts of leaving the EU, including uncertainties related to our principal risks. We have briefed the UK Government and other governments on our Brexit-related issues and have made representations through our trade association memberships.

While we wait for political certainty from the Brexit negotiations and details of the final Brexit deal, we have assessed potential additional operational impacts to understand what action Rolls-Royce might need to take before Brexit occurs in 2019.

We could be impacted through a number of routes. For example: our regulatory relationship with the EU (European Aviation Safety Agency; REACH chemical certification programme); our operational relationship (customs union and movement of people); our tax and treasury strategy; our EU R&T funding relationship and other interfaces. We are managing these risks through our operational assessment and applying our business continuity risk management process to Brexit.

Management of principal risks

Our risk framework ensures that risks are identified, managed and communicated throughout the Group.



Other changes

We are aware of the impact our products and operations have on the planet and the impact climate change may have on our business either directly or indirectly. To help readers understand where we see the biggest risks and in line with the Financial Stability Board (FSB) Taskforce on Climate-related Financial Disclosures (TCFD) we have updated our description of two principal risks: i) disruptive technologies and business models and ii) business continuity.

Risk management enables our strategy				Change in risk level
1 Customer focus to rectify in-service issues, ramp up large engine production	2 Technology focus through product revitalisation, electrification and digitalisation	3 Resilience through adaptability with a spotlight on safety, diversity & inclusion, and the highest ethical standards	4 Financial progress delivering improving free cash flow, strengthening balance sheet, more disciplined capital allocation	 Increased  Decreased  Static

 [Priorities for 2018 on page 9](#)

Principal risk or uncertainty and potential impact	How we manage it	Key controls	Change in risk level	2018 priorities
Disruptive technologies and business models Disruptive technologies, new entrants with alternative business models or disruptions to key markets or customers could reduce our ability to sustainably win future business, achieve operating results and realise future growth opportunities.	<ul style="list-style-type: none"> Horizon and emerging technology scanning and understanding our competitors, including patent searches. Investing in innovation and new technologies. Focusing on enhancing our skills and capabilities to maintain our technology leadership. Forming strategic partnerships and conducting joint research programmes. Establishing our digital business. <p>This principal risk is subject to review by the Science & Technology Committee.</p>	<ul style="list-style-type: none"> Strategic planning process Investment review committee Digital governance board Research & technology board Digital business development board 		2
Competitive position The presence of large, financially strong competitors in the majority of our markets means that the Group is susceptible to significant price pressure for original equipment or services even where our markets are mature or the competitors few. Our main competitors have access to significant government funding programmes as well as the ability to invest heavily in technology and industrial capability.	<ul style="list-style-type: none"> Accessing and developing key technologies and service offerings which differentiate us competitively – see page 42. Focusing on being responsive to our customers and improving the quality, delivery and reliability of our products and services. Partnering with others effectively. Driving down cost and improving margins. Protecting credit lines. Investing in innovation, manufacturing and production, and continuing governance of technology programmes – see page 111. Maintaining a healthy balance sheet to enable access to cost-effective sources of third party funding. Understanding our competitors. <p>This principal risk is subject to review by the Board.</p>	<ul style="list-style-type: none"> Financial performance review Strategic planning process Investment review committee Science & Technology Committee Research & technology board 		3 4
Major product programme delivery Failure to deliver a major programme on time, within budget, to specification, or technical performance falling significantly short of customer expectations, or not delivering the planned business benefits, would have potentially significant adverse financial and reputational consequences, including the risk of impairment of the carrying value of the Group's intangible assets and the impact of potential litigation.	<ul style="list-style-type: none"> Major programmes are subject to Board approval. Reviewing major programmes at levels and frequencies appropriate to their criticality and performance, against key financial and non-financial deliverables and potential risks throughout the programmes lifecycle – see page 71. Investing in facilities and people to minimise the level of disruption to our customers from Trent 1000 and Trent 900 in-service issues and developing longer-term solutions to these issues. Conducting technical audits at pre-defined points which are performed by a team that is independent from the programme. Requiring programmes to address the actions arising from reviews and audits and monitoring and controlling progress through to closure. Applying knowledge management principles to provide benefit to current and future programmes. <p>This principal risk is subject to review by the Board.</p>	<ul style="list-style-type: none"> Rolls-Royce management system Operational performance review Project assurance Gated business and technical reviews Quality compliance audit Major quality investigations board 		1 4

Principal risk or uncertainty and potential impact	How we manage it	Key controls	Change in risk level	2018 priorities
Product safety The lives of people that our customers serve depend on the safety of our products wherever and whenever they operate them. Any failure to meet this expectation, or if our product causes significant environmental impact, would adversely affect our reputation and long term sustainability. ¹	<ul style="list-style-type: none"> Ensuring a culture that puts safety first. Applying our engineering design and validation process from initial design, through production and into service. Reviewing the scope and effectiveness of the Group's product safety policies to ensure that they operate to the highest industry standards. Operating a safety management system (SMS), governed by the product safety review board, and subject to continual improvement based on experience and industry best practice. Product safety training is an integral part of our SMS – see pages 104 to 107. Improving our supply chain quality. <p>This principal risk is subject to review by the Safety & Ethics Committee.</p>	<ul style="list-style-type: none"> Company product safety assurance board Quality compliance audit Engineering technical audit Crisis management team Environment and sustainability committee 		
Talent and capability Inability to attract and retain the critical capabilities and skills needed in sufficient numbers to effectively organise, deploy and incentivise our people to deliver our strategies, business plans and projects.	<ul style="list-style-type: none"> Attracting, rewarding and retaining the right people with the right skills globally in a planned and targeted way, including regular benchmarking of remuneration – see pages 46 and 47. Developing and enhancing organisational, leadership, technical and functional capability to deliver global programmes. Continuing a strong focus on individual development and succession planning. Proactively monitoring retirement in key areas and actively managing the development and career paths of our people with a special focus on employees with the highest potential. Embedding a lean, agile, high-performance culture that tightly aligns Group strategy with individual and team objectives. Incentivising and effectively deploying the critical capabilities, skills and people needed to deliver our strategic priorities, plans and projects whilst implementing the Group's major programme to transform its business, to be resilient and to act with pace and simplicity. Tracking engagement through our annual employee opinion survey and a commitment to drive year-on-year improvement to the employee experience and communications – see page 47. <p>This principal risk is subject to review by the Nominations & Governance Committee.</p>	<ul style="list-style-type: none"> Remuneration Committee ELT Senior leadership team HR executive team 		
Business continuity Breakdown of external supply chain or internal facilities that could be caused by destruction of key facilities, natural disaster (including those caused by climate change), regional conflict, financial insolvency of a critical supplier or scarcity of materials which would reduce the ability to meet customer commitments, win future business or achieve operational results.	<ul style="list-style-type: none"> Continuing our investment in adequate capacity and modern equipment and facilities. Identifying and assessing points of weakness in our internal and external supply chain, our IT systems and the skills of our people. Selecting stronger suppliers, developing dual sources or dual capability. Ensuring our suppliers are aware of the 2018 REACH deadline and conducting research on alternative materials. Crisis management exercises and testing site-level incident management and business recovery plans. Providing improved response to supply chain disruption through customer excellence centres. <p>This principal risk is subject to review by the Audit Committee.</p>	<ul style="list-style-type: none"> Crisis management team Major incidents board Quality board and process councils Operations and IT executive Supplier audit Environment & sustainability committee 		
IT vulnerability Breach of cyber security causing controlled or critical data to be lost, made inaccessible, corrupted or accessed by unauthorised users.	<ul style="list-style-type: none"> Implementing 'defence in depth' through deployment of multiple layers of software and processes including web gateways, filtering, firewalls, intrusion, advanced persistent threat detectors and integrated reporting – see page 101. Running security and network operations centres. Actively sharing cyber security information through industry, government and security forums. <p>This principal risk is subject to review by the Audit Committee.</p>	<ul style="list-style-type: none"> Operations and IT executive IT security management Crisis management team 		

¹ Redefined from product failure – see page 59.

Principal risk or uncertainty and potential impact

How we manage it

Key controls

Change in risk level 2018 priorities

Market and financial shock	How we manage it	Key controls	<>	4
<p>Market and financial shock</p> <p>The Group is exposed to a number of market risks, some of which are of a macro-economic nature (e.g. foreign currency, oil price, rates) and some of which are more specific to the Group (e.g. liquidity and credit risks, reduction in air travel or disruption to other customer operations). Significant extraneous market events could also materially damage the Group's competitiveness and/or creditworthiness.</p> <p>This would affect operational results or the outcomes of financial transactions.</p>	<ul style="list-style-type: none"> Maintaining a strong balance sheet, through managing cash balances and debt levels – see page 19. Providing financial flexibility by maintaining high levels of liquidity and an investment grade credit rating. Sustaining a balanced portfolio through earning revenue both from the sale of original equipment and aftermarket services, providing a broad product range and addressing diverse markets that have differing business cycles – see page 11. Deciding where and what currencies to source in, and where and how much credit risk is extended or taken. The Group has a number of treasury policies that are designed to hedge residual risks using financial derivatives (foreign exchange, interest rates and commodity price risk). Review debt financing and hedging in light of volatility in external financial markets caused by external events, such as Brexit or other geopolitical changes. <p>This principal risk is subject to review by the Audit Committee.</p>	<ul style="list-style-type: none"> Financial performance review Financial risk committee Operational performance review Group finance, treasury and tax teams 	<>	4
<p>Political risk</p> <p>Geopolitical factors that lead to an unfavourable business climate and significant tensions between major trading parties or blocs which could impact the Group's operations. Examples include: explicit trade protectionism, differing tax or regulatory regimes, potential for conflict or broader political issues.</p>	<ul style="list-style-type: none"> Where possible, locating our facilities and supply chain in countries with a low level of political risk and/or ensuring that we maintain dual capability. Diversifying global operations to avoid excessive concentration of risks in particular areas. The Group's businesses and its strategic marketing network proactively monitoring local situations. Maintaining a balanced business portfolio with high barriers to entry and a diverse customer base – see page 58. Proactively influencing regulation where it affects us. Steering committee to co-ordinate activities across the Group and minimise the impact of Brexit – see page 59. <p>This principal risk is subject to review by the Board.</p>	<ul style="list-style-type: none"> Government relations and Group tax teams Strategic planning process Supplier audit 	↑	1 2 3 4
<p>Compliance</p> <p>Non-compliance by the Group with legislation, the terms of the deferred prosecution agreements or other regulatory requirements in the heavily regulated environment in which it operates (e.g. export controls; use of controlled chemicals and substances; and anti-bribery and corruption legislation) compromising the ability to conduct business in certain jurisdictions and exposing the Group to potential: reputational damage; financial penalties; debarment from government contracts for a period of time; and/or suspension of export privileges (including export credit financing), each of which could have a material adverse effect.</p>	<ul style="list-style-type: none"> Taking an uncompromising approach to compliance. Operating an extensive compliance programme. This programme and the Global Code of Conduct are disseminated throughout the Group and are updated from time to time to ensure their continued relevance, and to ensure that they are complied with, both in spirit and to the letter. The Global Code of Conduct and the Group's compliance programme are supported by appropriate training – see page 49. Strengthening of the ethics, anti-bribery and corruption, compliance and export control teams. A legal team is in place to manage any ongoing regulatory investigations. Engaging with external regulatory authorities. Implementing a comprehensive REACH compliance programme. This includes ensuring that we and our supply chain are covered by REACH authorisations for a number of chemicals needed for our products, establishing appropriate data systems and processes and working with our suppliers, customers and trade associations. <p>This principal risk is subject to review by the Safety & Ethics Committee.</p>	<ul style="list-style-type: none"> Corporate governance framework Compliance and export control teams Group Secretariat Legal team 	<>	3 4

Going Concern and Viability Statements

Introduction

Rolls-Royce operates an annual planning process. Our plans and risks to their achievement are reviewed by the Board and once approved are cascaded throughout the Group and are used as the basis for monitoring our performance, incentivising employees and providing external guidance to our shareholders.

The processes for identifying and managing the principal risks are described on pages 59 and 60. As also described there, the risk management process, and the going concern and viability statements, are designed to provide reasonable, but not absolute, assurance.

Going concern

The going concern assessment considers whether it is appropriate to prepare the financial statements on a going concern basis.

As described on page 197, the Group meets its funding requirements through a mixture of shareholders' funds, bank borrowings, bonds and notes. At 31 December 2017, the Group had borrowing facilities of £5.4bn and total liquidity of £5.1bn, including cash and cash equivalents of £3.0bn and undrawn facilities of £2.1bn. £82m of the facilities mature in 2018.

The Group's forecasts and projections, taking into account reasonably possible changes in trading performance, show that the Group has sufficient financial resources. The Directors have reasonable expectations that the Company and the Group are well placed to manage business risks and to continue in operational existence for the foreseeable future (which accounting standards require to be at least a year from the date of this report) and have not identified any material uncertainties to the Company's and the Group's ability to do so.

On the basis described above, the Directors consider it appropriate to adopt the going concern basis in preparing the Consolidated Financial Statements (in accordance with the Guidance on Risk Management, Internal Control and Related Financial and Business Reporting published by the FRC in September 2014).

Viability

The viability assessment considers solvency and liquidity over a longer period than the going concern assessment. Consistent with previous years, we have assessed our viability over a five-year period. Inevitably, the degree of certainty reduces over this longer period.

In making the assessment, severe but plausible scenarios have been considered that estimate the potential impact of the principal risks arising over the assessment period, for example: the loss of a key element of the supply chain; the impact on aircraft travel of a global pandemic; worsening or new in-service issues on new Civil Aerospace programmes (the base cash flow forecasts include the estimated future costs resulting from Trent 900 and Trent 1000 in-service issues described on page 24); or, the impact of a political risk such as Brexit on the Group (see page 59 for further information on the process we are taking to manage the risks related to Brexit).

The scenarios assume an appropriate management response to the specific event, but not broader mitigating actions which could be undertaken, which have been considered separately. The cash flow impacts of these scenarios were overlaid on the five-year forecast to assess how the Group's liquidity and solvency would be affected.

The assessment took account of the Group's current funding, forecast requirements and existing committed borrowing facilities. It assumed that existing facilities could be refinanced as they mature.

On the basis described above, the Board confirms that it has a reasonable expectation that the Company will be able to continue in operation and meet its liabilities as they fall due over the next five years.

In making this statement, the Directors have made the following key assumptions:

- that maturing facilities will be refinanced. The Group currently has access to global debt markets and expects to be able to refinance these facilities on commercially acceptable terms. The Group's medium and long-term financing plans are designed to allow for periods of adverse conditions in world capital markets but not a prolonged (e.g. 12 month) period where debt markets were effectively closed to the Group;
- that in the event of one or more risks occurring, which has a particularly severe effect on the Group, all potential actions, such as constraining capital spending and reducing or suspending payments to shareholders, would be taken on a timely basis. The Group believes it has the early warning mechanisms to identify the need for such actions and the ability to implement them on a timely basis if necessary; and
- that implausible scenarios, whether involving multiple risks occurring at the same time or the impact of individual risks occurring that cannot be mitigated by management actions to the degree assumed, do not occur.

Signed on behalf of the Board

Warren East
Chief Executive

06 March 2018