Civil Aerospace Investor Day

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Rachel Walker

SVP Services Systems – Civil Aerospace

Good morning everyone and welcome to our Civil Airspace Investor Day here in Derby. We are delighted to have so many of you here in the room with us in person today and also joining us online, on our webcast. My name is Rachel Walker, I'm the Senior Vice-President for Services Systems and what that basically means is I'm in charge of delivering a world-class operating system for Services business. Being things like our intelligent engine, which I'll be telling you a bit more about this afternoon. But, for now, I'm going to let you know what's in store for you all today.

So we're going to start in the morning with a presentation of our key value drivers and we'll explain how we expect those to translate into improved performance over the next couple of years. We have around 40 minutes for Q&A following the presentation and, at that point, we will need to draw the live feed online to a close but, for those of you still in the room, there will be plenty of opportunity for further discussion with our colleagues, both through the lunch and throughout the afternoon.

This afternoon we're going to be taking you on a tour of our Civil business; there will be four tours in total: one with my team and I, of our Services business; we'll have one with our Finance team, with our Civil CFO, Arvind Balan, and his team, to get the opportunity to delve further into some of the financial details; and we'll have two tours of Operations: one of our production test facility, which will be hosted by our EVP for Civil Operations, Andy Greasely, and one of our turbine blade facility, which will be hosted by our EVP for turbines, Gareth Hedicker.

So we'll aim to get you back from the tours at 3.30 so that you can collect all your belongings. Unfortunately, we won't be able to do a livestream of the tours today, but we will be videoing some of the best bits and make sure that's available online for any of you joining us virtually today. So, I will be giving you some more details of the tours just before we break for lunch, so enjoy the presentation but, just before I hand over to our CEO, Warren East, I need to tell you that there are forward-looking statements in our presentations today that have some risk and uncertainties so, as such, our actual results may differ from our expectations but you will find all the usual full disclaimers in the presentation packs today.
So that's it from me for now. I'm going to hand you over to Warren East. Thank you.

Warren East

Chief Executive Officer, Rolls-Royce Holdings Plc

Thanks very much, Rachel, and thank you very much, everybody, for making the journey this morning and you're in for a good day, I promise you. You're quite used to hearing from me and from Panos about the great market position and opportunity that we have in our Civil Aerospace business. You're used to hearing from me about the great engineering and technology that sits behind it, and you're probably bored silly with hearing from me about the efforts that we've been making to improve our business, the resilience and the operational leverage and so on that is leading to increased profit as we look forward. We want you to go away from today having met the people behind all that, understanding why our business is more resilient, understanding the quality of that operational gearing and the strength and resilience of the team behind that.

And so, if I nip forward … you're *not* actually going to hear any of that from me; you're going to hear it from the people that actually do the business. So, the team is led by Chris and Chris will be up here in a moment and he runs our Civil Aerospace business. You'll be hearing from Arvind, our CFO in Civil; you'll be hearing from Dominic, who runs our Services business; and Sebastian, who masterminds the Operation. Now, those four presenters are a balanced team in themselves: both Dominic and Chris have been with Rolls Royce for many years and so they bring a huge amount of experience, customer knowledge, customer relationships and a deep understanding of the products that they're dealing with. And that's balanced with Arvind and Sebastian, who are relatively new and bring a wealth of outside-in experience, outside-in perspective to this team.

Of course, you're only going to hear from four presenters this morning, but the rest of the Civil leadership team, as shown here on the bottom of the slide and the team – I'm not going to make them stand up now because we'll be here all morning on introductions – but the Civil leadership team are scattered amongst the room; and you'll also be hearing (if we move on to the next slide) … as you go on the tours you'll be meeting a bunch of the people that sit behind that leadership team and make it happen. So, I hope you have a good day and I hope you go away with a real feeling and understanding of the strength of our Civil business. Over to Chris.

Chris Cholerton

President – Civil Aerospace, Rolls-Royce Holdings Plc

Thank you, Warren, and good morning everyone and welcome to the heart of our Civil Aerospace business. I too am delighted you're here to join us today. On the tours people will be sharing with you all that's been done to drive change in the business and to make the business stronger, leaner, more simple and more efficient, and, after a few very challenging years, I believe now very well placed to prosper, as our market recovers.

So, when you go around the facilities, you will, of course, see the drivers of value in action but I also hope that you feel their pride, the passion, the care for the company and see the expertise of the people who are doing the work because we do have great people. And they do important work; just a thought to have in your minds through the day: a Rolls Royce Civil Aerospace-powered aircraft takes off about every 20 seconds and those trips are connecting societies, connecting businesses, driving economic growth – so what we do has real purpose and importance.

So, as mentioned by Rachel, you're going to hear about Services, about Operations and about the financial outlook – a bit more detail that we gave yesterday – but let me start with a summary of our strengths and priorities.

So why am I confident in our ability to deliver results? Really, four key strengths I want you to have in your minds. We have leading products in growing markets. Clearly, our core markets are the wide-body aircraft market and the top end of the business aviation market. Both are attractive, both are growing and we have a large share in both. And consistent investment over many years, in growing that installed base has delivered a large, embedded value and now is the time, and the actions we'll describe, to release that value.

And a few of the levers there … when we put an engine on an aircraft, we capture, through its life, about 90% of the Services value. We have deep customer relationships, with great longevity and, as the engines mature, both industrially and technically, tremendous opportunity to take out cost and increase margins.

We've had intense focus, both before the pandemic and accelerated through the pandemic, in driving cost reduction, efficiency and focus on margin, and you're going to hear a lot about

that, as has already been described, but let me just say here that I'm confident that the cost reductions we've achieved will be substantially sustainable as our load returns and we get that gearing that Warren mentioned.

And, finally and importantly, very few companies can do what we do and we continue to invest in the technologies which will both enable us to get greater value from our existing products but also to shape the future in aviation.

Let's just take a look at our journey to this point. I think it's important context for the day and there are three distinct phases. In the decade prior to 2018 we were investing heavily in bringing new products to market, developing those products and all the enabling technologies. We were investing in ramping up our industrial capacity, with industrial output peaking in 2019, and we were growing our installed base. That actually doubled, when you take the large engines and our Business Aviation market into consideration, and you can see the market shares: there's large market shares, which I mentioned.

I started this role at the start of 2018 and, as well as the operational ramp-up we were focussed on, we were also driving and focussed on productivity and efficiency, which has been a good start for when the pandemic hit but, of course, there were two key headwinds to our financial performance. One was the disruption we were causing with the durability issues on the Trent 1000; that disruption is now behind us and we've made very good progress in validating and implementing permanent fixes to those issues.

And secondly, of course, the pandemic, which caused the biggest restructuring in our history. We took out some £1.3 bn of costs at the group level, that value dominated by the savings we'll describe in Civil Aerospace.

So, with that now behind us, I look forward with optimism because, as our market recovers, the better operational gearing from the costs reductions we've made were focussed on sustainable cash generation and margin expansion and five key levers of value, which I will describe. And our [medium term] outlook, which we gave yesterday, is a reflection of that. But, of course, it's not the destination; it's the next step in the journey. We will continue to improve beyond that.

Very briefly, let me just start talking about our products and its embedded value. This is a quick reminder – it's in your pre-read packs – it just shows our product portfolio. We have a very strong position at the top end of Business Aviation, we are powering the flagship products, with Gulfstream, with Bombardier and with Dassault, with our new Pearl engine taking those positions. It's an attractive market, a buoyant market and a resilient market.

In our wide-body portfolio, we power four of the five of the new wide bodies; all four of those which are actually in service, with three sole-source positions with Airbus. And we also have the leading product of the old ranges, on the A330, the Trent 700, which remains a very important product for us. This portfolio, I believe, is very well placed to perform strongly and allow us to release significant value.

Our legacy large engines are relatively young and the most important of those, the Trent 700, is only 11 years old. It's the market-leading product on the A330, it's the most attractive to our customers, it'll be the first to transition and the last to retire. And, remarkably, considering it entered service in 1995, we believe still over 40% of the flying hours of that programme still to come in the future.

On our modern wide bodies, a very much higher market share, powering those leading products which I spoke about and over 90% of the flying hours still ahead of us and, as we mature industrially and technically and pull those value drivers I described, that's the great opportunity to release value. And, in Business Aviation, this very strong position at the top end of the market, the most valuable part of the market, still 70% of those flying hours ahead of us.

Looking now at market recovery, which will drive our profitable Services growth, the freighter market has been very strong for us and is way above where we were in 2019: a very buoyant market. And some opportunities we have to keep our fleet flying – a good example being the passenger to freighter conversions that we're seeing on the A330s – where over 85% of the available capacity for conversions is taken by Trent 700-powerd A330s. And of course, beyond this timeframe, the fantastic new opportunity that we're powering the A350 freighter – a real growth opportunity for us.

Business Aviation I've spoken about; it's already recovered in terms of flying hours and very strong market indicators. The number of billionaires continues to grow at about 8% a year, very little used aircraft available, very high book-to-bills of the air framers. But, of course, the most important sector to us is the large passenger aircraft and here we've had some stumbles in the recovery and some differences around the world. Long-term, that is linked to GDP growth. If we look around the world, very strong recovery so far in Europe and the US; encouraging indicators now in Asia Pacific but China currently lagging, with the lockdowns, which is having a near-term impact.

Growth going forward correlates, as I said, to GDP but the fundamentals are strong. When you consider that, in 2018, only 4% of the world's population actually took an international flight, there is plenty of growth ahead of us. We anticipate, like most market commentators, and based on our own fleet-by-fleet, customer-by-customer analysis, that flying hours on the passenger market will recover in 2024.

Turning now to our focus on cost and the value drivers. When the pandemic started, we took tough decisions at pace and executed the largest restructuring in our history and completed ahead of schedule. And I'm proud of what we achieved in that time because it sets us up to grow again, from a far stronger base. The numbers here show what we've achieved. If you compare 2019 to 2021, we took about a third of the business cost base out, in operating costs, in headcount, including about a third of management. We reduced footprint in both our OE facilities and in Services footprint, and reduced investment – some from the natural investment cycle and some from choices made.

But, importantly, I was also determined that it's not just about cutting costs. We need to emerge with a fundamentally more efficient operating system and so, to that end, we've tackled organisational structure, reviewed what we make ourselves and what we buy, what we do ourselves in transactional areas and what we buy. We've driven process simplification and we've driven digital enablement and digital toolsets, which have matured after many years' investment to help drive efficiency.

Importantly, we've also focussed on leadership and a shift in mindset and behaviours of the organisation, and I think this has been a real accelerator for some of that mindset. In particular, I pick out a far deeper cost-consciousness in the organisation, having relentlessly

reviewed every flavour of cost in the business, that has stuck deeply, so far higher commerciality and cost-consciousness. Very clear accountability for ownership of connecting activity to results and financial results and improvement results in the business. And, after challenging norms so hard through our restructuring and achieving those results, a greater belief that ambitious targets can be met and exceeded. That will stick with us and be very valuable. So: more to do, certainly, but a deeper culture of that continuous improvement drive.

So what are the drivers of value in the business? What really matters in the business? Five themes and the next presentations will give more colour to these. The first is maximising customer receipts. The most dominant driver there is the recovery of the market, recovery of flying hours, but there are also actions we can take in keeping our fleet flying, in managing the contract extensions, the aircraft transitions that Dominic will speak a little bit more about, maximising our flying hours. And, importantly, as we look through the life-cycle, adapting our Services scope and making sure pricing truly reflects the value we bring. We're out of launch pricing phase so, frankly, we're also looking to operate with greater commercial edge.

Secondly: Services cost reduction. Dominic will talk about this and you'll see more of this in the tours, but making sure engines last longer on wing and, when they do come off wing, spending less money on them. Sebastian will talk about our improvements in OE margin, so driving operational efficiency, costs reductions on the product, purchasing strategy to drive reductions in what we buy. I pick out Business Aviation growth because we're at a point of transition from our very successful BR series of engines to the Pearl family of engines, so we'll see a growth with those three new platforms, as I described, and driving cost reduction on that product is an important driver.

And, finally: the investment cycle. We're entering a less intense period of new product introduction, a greater proportion of our engineering talent and horsepower being applied to engineering maturity and cost reductions and also driving a more capital-light approach, utilising partnerships … facilitated by partnerships, where applicable. So they are the key value drivers and you're going to see and hear a lot more about those.

So now looking to the future. This chart shows the market segments of our industry and below the technologies which we're investing in to position ourselves to win in those market

segments when opportunities arise, as we've done in wide-body and in Business Aviation and, more recently, in commuter and eVTOL.

So, if I look at the technology strategy: three key pillars. Firstly, we continue to drive a step change in the efficiency of gas turbines. Gas turbines will remain hugely important in aviation; they're going to be powering long-range aircraft for decades to come. We pursue this technology over a range of sizes. At the smaller size, we're investing in technology, which we're going to bid on the Embraer (or are bidding) on the Embraer turboprop and believe there we have a compelling proposition. At the larger size, our Ultrafan technology demonstrator, which is at the heart of our strategy for future wide-body and, indeed, any future narrow-body opportunities.

Sustainable aviation fuel is key to decarbonising aviation. We've been running ground tests and flight tests to show compatibility of our engines and making very good progress, and also some of the thought leadership: we had to encourage and promote the ramp-up of SAF in the industry.

And, finally, investing in the demonstration of some of the more disruptive technologies, like electrification, hybrid-electric and, indeed, hydrogen, and you will see now at world speed record with the all-electric aircraft, you'll see now our wins with vertical and others. We've also run the world's most powerful hybrid-electric demonstrator and our aims here are to capture key IP, which will position ourselves for future commercial opportunities. So we all play a vital role in the decarbonisation of our industry and see it very much as an opportunity for us.

And, very briefly, because we like exciting pictures: here in Derby the world's most advanced gas turbine is in its final stages of build and we hope to test that in the coming months. So showing here just some of the pictures: the world's most powerful gearbox, a composite fan blade, enormous composite fan case and the core of the engine being built. I should stress that the Ultrafan technology demonstrator … yes, it positions all the technology for future large engine applications, but also has technology which can add value to our existing engines, an example being the sonic matrix composites and high-temperature technology shown in the top corner. More to come on this on Farnborough but we believe absolutely that we have a world-leading capability.

So, to summarise, the four key strengths of our business: we have great products on the right aircraft; huge embedded value, created from many years of investment and now is the time to release that value; intense focus on cost and efficiency and expanding margins – as Warren pointed out, I've been in the business a long time and I can very genuinely say to you that our focus and traction on cost-reduction in all its flavours and the engagement of our teams in making money is the best I've seen. We've always had great engineering talent, which leads in the future of aviation, and we're investing the technologies which will position us to win. So, overall, I'm confident that we have a stronger business, a business that will get even better and with some exciting growth opportunities ahead of us.

And, with that, I'll pass over to Dominic, who will talk to us about Services. Thank you.

Dominic Horwood

Services Director – Civil Aerospace, Rolls-Royce Holdings Plc

Good morning, everybody! It's great to be with you today; thank you for coming to see us. I'm going to be speaking about how we're driving improvement in our Services business. We fully recognise the need to improve our financial performance; the Services team is completely committed to doing this. You'll meet some of them later, in the tours; you'll hear from them, you'll feel their passion, their excitement and their commitment to driving improvement in our business. Together we all really do believe that this is a time for releasing, for delivering the potential of our installed fleets, as Chris has described.

I'm going to be talking about the three drivers of Services improvement that you saw in Chris's presentation. We're going to start with maximising Services receipts, securing the value that every engine represents and driving improvement and driving growth. We're then going to talk about how we attack cost in Services and improve margins under LTSAs. There are two big drivers. The first is to extend time on wing, reduce the shop visit frequency, lower the cost under the curve. The second is to reduce the cost of those shop visits when, of course, they have to occur.

So let's start with maximising Services receipts. It all begins, of course, with having great engines on the right aeroplanes, as Chris said, and we're confident that we're going to see continuous growth of our fleet as Ewan, who's here, continues to sell with Airbus and Boeing into the future, and we see significant growth in the Trent family fleets and in the Business

Aviation family fleets; both will grow fast in the market because of the respective position we have on the right aeroplanes and our market share.
Now, these fleets are still young; ahead of us is so much opportunity, so much flying. You can see here that the vast majority of the flying hours for these engine programmes are in the future. Now, we've always had a goal of getting as much value from the engine as every engine represents in service. Building out from our TotalCare and Corporate Care services, we've now established our Care Store, which is the leading industry menu of services for customers, offering choice and flexibility. This has allowed us to capture an unparalleled quantity of flying hours across our plans, with long-term service agreements.

Now, it is not enough to grow fleets, it's not enough to grow market share. We want to deliver a better financial performance so, as Christ said, the Services team and Ewan's Customer team are absolutely, totally focussed on getting better commercial outcomes and driving the right pricing solutions. As our fleets mature, as we move decisively beyond the launch phases, as we reach the first renewals of some of those early contracts, we see opportunity to drive that together.

Of course, all of this has to be done whilst supporting our customers; that, in the end, is the core of any Services business. Now, it may surprise some of you to see that our expectation is to see 40% of the future of the Trent 700 fleet is ahead of us, as Chris described. I'd like to talk a little bit more about that. I would hope, if you ask anybody in our industry, they will say the best engine on the A330 is the Trent 700. It is also the youngest engine on that aircraft; that's because of the market share we had towards the latter stages of the production of the aircraft. Airlines still like A330s. We are being successful at extending Total Care contracts. The A330 represents a different economic solution to a new aeroplane but it is still one that works, particularly for young aeroplanes.

Of course, we reach the point where we need to work with the airline to transition an aeroplane, often when the aeroplane is a leased aeroplane reaching the end of the lease, and we are getting better and better at working with our leasing partners at transitioning aeroplanes and we've transitioned more than 200 A330s so far. What's new in this market is passenger to freighter conversions. We've seen a significant increase in the available slots to convert A330s and they make good freighters. We expect to see 300 slots made available by the end of this decade. So far, of the aircraft that have been selected to put into a slot, the

Trent 700 powers 80% of those aircraft. Again, the Trent 700 is the engine people want on their future A330s. This is why we believe the Trent 700 will remain a strong foundation for the large engine business and this is why the shop visit quantities of Trent 700s, the revenue and the profitability will continue for us.

Now, of course, all of this effort, growing fleets and keeping engines earning, it's all about getting aeroplanes to fly. Our business model relies on aeroplanes flying; it's driven, of course, by engine flying hours. Engine flying hours drive our Services receipts. We know that, as the Covid restrictions reduce, we will see increasing flying hours across the world; we see that today in Asia, in Europe and in the US. The China, of course, is a notable exception at the moment, given the restrictions they're still under. We would expect to see progressive growth of flying hours out into the medium term. Now, when routes open up we are seeing pent-up demand, which gives us even more confidence that we will see the flying hours return.

Flying hours drives engines to shop visits and it is the new generation Trent engines reaching their first refurb that will drive the growth in shop visits and the recovery and, by 2023, we expect to get back to the same amount of shop visits in large engines as we had in 2019. Business Aviation: reasonably stable. We are going to see a drop in regional aircraft shop visits but, actually, we knew that before Covid. It's driven by retirements of the US regional fleets, most notably the Embraer 145. This is the fuel of the growth of our business that Arvind will be talking about later.

So that gives you a view of what we're doing to drive maximised Service receipts but top-line growth is not enough; we've got to drive to improve margins through attacking cost. The very best way of attacking cost in long-term service agreements is to push the time on wing, extend the period where the engine stays on the aeroplane, reduce the frequency of shop visit costs. Time on wing is improving across all of the new generation Trent engines. If we take the Trent XWB-84 as our example, we've already achieved the level that we set ourselves in our business. We have plans to go beyond that level and we won't stop; as we're showing on the Trent 700 over its life, we will continuously improve; every day is truly a learning opportunity to get more from these engines and they remain very, very young.

The Trent XWB-84 is a much more reliable engine as well, whether it's delays and cancellations that you, as passengers, may experience or it's in-flight shut-downs – of course,

more severe – we see a dramatic improvement in reliability. Bring all this together and the average time on wing improvement across the new generation of Trent fleet is going to be 40% by 2025 and that is what the whole of the Services team is driving for.

So how do we drive time on wing? Well, it starts with product improvements: improving the design of the components, working with Simon Burr, making the engines fundamentally better. The most notable example, of course, is the HP turbine blade and you'll hear more about that in the tour. We can also do analysis, work with our regulators and push out the relatively conservative positions we took at the beginning of the programmes on life-limited parts. We can also test engines beyond the point they were tested in the original certification, explore the boundaries of the capability of the engine and demonstrate again, to ourselves first, our customers and our regulators, that the engine can tolerate higher temperatures for longer.

Lastly, we need to work with our customers, work with the pilots of the airlines and make sure they're operating the engine as well as possible to get the best possible time on wing. The great thing about our Services: Total Care, Corporate Care, is that airlines want the same as us. They want the engine to stay on wing; we are aligned in our incentives, it's a very powerful part of our Service business model. It may surprise you, perhaps, to know that it's really important to keep engines clean. A clean engine is an efficient engine; an efficient engine runs cooler, a cool engine will last longer on wing. You're going to see some of this new technology in the tour.

So these are four things we're doing to drive time on wing. Perhaps the most exciting development of technology is the use of new digital capabilities, analytics, big data, twins, artificial intelligence to drive our thinking, to give us insights on how to improve time on wing. Imagine, if you like, that, when we deliver an engine, we're not just delivering a physical product, we're rolling out a digital connection, a thread between us and the airline, us and the aeroplane. Down that thread is flowing terabytes of data and it's getting more rich in its use all the time. We're using this data to give us unique insight to life a particular engine, to life a specific part within the engine. This is advancing at a tremendous pace; we haven't been able to do these things before, it is definitely giving us an advantage on these new-generation Trent engines. We call this "the intelligent engine". Rachel leads that work and you'll be hearing more about that on the tour, later.

Now, once you've really driven time on wing as much as possible, you do reach shop visit, you've got to get the cost out of that shop visit. Taking our example, again, of the Trent XWB-84, we've taken 40% out of the shop visit cost in two years. We've gone fast down that maturity curve, we've done just over 100 of these first refurbs. Now we won't keep up that pace, of course, but we will keep learning. The fleet remains young; 80% of the Trent XWB-84s we've delivered have not even reached first shop visit, let alone the ones to be delivered in the future. Every shop visit we do truly is a learning opportunity and we're applying this to all of the new-generation Trent engines.

Again, we know the levers to pull. It starts with working out how to overhaul the engine, how to apply the lean thinking that Sebastian will be talking about to get the labour cost out, to speed up the overhaul and there are new techniques that we're using to do that that, again, you're going to hear more about from the team; they're really excited about what they're doing.

You do ultimately get to the point [where] you must focus on the parts and the materials that we're using. The best thing to do is simply to re-use the parts. As we learn more about the engines, we can re-use parts more often. Ultimately, you can't just re-use the part; you have to do something but, before you throw it away, you really should strive to repair it as much as possible; repair, generally, is economically more effective and we can apply a lot of learning from the Trent programme to these new engines, to accelerate and drive repairs.

What's also exciting is new technology, like additive manufacturing, 3-D printing to bring new types of repairs into the business. All of this is helping us drive down the cost of the shop visit. The "intelligent engine" comes in here too: all of that data coming from the aeroplane helping us to predict what we need to do when the engine reaches the shop. But it's also the data from the shop itself – everything we're seeing, feeling inside the engine, pictures, information – helping us to judge how to improve shop visit costs in the future.

So we're absolutely determined to pull on these levers, but we must also work closely with Sebastian because, ultimately, we do have new parts going into these refurbs and we need Sebastian to drive down the cost of those, as he's going to talk about later.

So I hope this gives you a quick but powerful feeling that we're really trying to pull on these drivers that Chris described: maximise Services receipts to capture the Services value that an engine represents and to drive the growth, fuel the growth that Arvind will be taking about in our outlook. Then driving margin improvement by extending time on wing, reducing the number of shop visits but, when they occur, really driving down the shop visit cost. The Services team are excited, passionate, committed to do this and we really have got a relentless focus. And I share what Chris said: I've been here a long time too, I think what we've created as a culture and a focus is really the best it's ever been in this regard. Thank you.

Sebastian Resch

Operations Director – Civil Aerospace, Rolls-Royce Holdings Plc

Thanks, Dominic! A great energy in the room, by the way, and I'm looking forward to seeing the shiny eyes as soon as you see the engines. I'm certainly energised to talk about Operations and more energised, even, to talk about the improvements which we have done.

So, Operations in Rolls Royce, what is Operations? It's basically make and buy of parts, modules and whole engines, and it's basically both for the OE customer, for the airframer and it's for the after-market. What you might not appreciate: the majority of the make parts in Defence is also done by Civil Aerospace. So the ratio between make and buy is very important for us and, to continuously improve it. If you look at an engine, roughly 30,000 parts need to come all together in the assembly and test line and, from a value perspective, 25% we are making in our own footprint and 75% we are buying in our supply chain or with our risk- and revenue-sharing partners.

One of the core make commodities is turbines. It's quite exciting. I was running that business for some of our peers, five years long, and this turbine technology, this is a 97K turbine blade HP1, very, very important and it's cutting edge technology. When I say "cutting edge technology", this blade is running constantly at a temperature above melting point of the metal. It's producing energy and power – more horsepower than a Formula 1 car. And it's only possible because of cutting edge technology. That means single crystal, casting, advanced cooling, advanced coating – that's what we are doing in turbines and it's very important, as Dominic said, it's very important for Service, for shop visit costs, for time on wing. Very important. And it's a very challenging supply chain, by the way, I can tell.

You might have read a Bloomberg article about shortfalls, a recent article about shortfalls in delivery on the narrow body and on the Rolls-Royce engine. But the root cause of that article? Casting of metal, right? And we are very proud and very privileged that we have invested heavily into that capability, end to end, which only can do a handful of people in the past and now harvesting that in the future and having more resilience in our supply chain.

So that's quickly an overview about what Operations is. More importantly, let's talk about what we have done and, even more importantly, the appetite going forward to do more. And, basically, I will divide my section again in make and buy. On the make side, it's a structural cost out, a sustainable cost out. Cost out on the make side, when you're making parts, costs which are not coming back when volume is rising. And the second piece will be all about buying and getting the well-deserved value as a company out of our supply chain. I hope that makes sense so far.

So let's have a look where it all and a lot comes together. It's the OE margin of wide body engines which we are building. And, clearly, it's in our industry one of our business models that we are losing money at the beginning and then generating cash and make money in the after-market. We will and we are changing that game and that's actually what you see on that slide. Because, despite the fact that the volumes on the OE side have been reduced by roughly 50% the last two to three years, we have reduced the OE losses by more than 30%. It's very powerful, more than 30%, if you're losing 50% of the volume.

If you add spare parts to that basket, we will break even, even in this year. And that is super-important and was only possible with rigorous cost management and unit cost management in the whole organisation. But it's not only important for OE margins, it's also really, really the foundation that Dominic and his team in Service can be successful because a lot of that cost out also contributes in the after-market. So how have we done that?

Let's go first of all into the make side of the business, so making parts. The best way to describe how we have improved efficiency and effectiveness but also productivity in Operations is this chart and, what it basically is, is you take your operating cost and divide operating cost by volume. That's what this is. We talk about cost rate. That's basically the average cost rate in our domestic footprint. And what you see here is quite an amazing

picture. What you can see here is that we have already achieved pre-Covid cost rates in our factories, despite the fact that we have still 30% less load. So what we have done is we have broken the link between volumes and costs.

So you might wonder: okay, Sebastian, how have we done that? We have done this through a new operating model, more centralised, leaner and being able to be more agile in our decision-making. We have done that through a rigorous focus on indirect variable costs. We also have invested heavily in lean. I started my career as a lean consultant, so I'm really passionate about lean and I can say we have invested in lean and see now the great results, results which you see on the slide and results which you can see, feel, during the shop tour. Because shiny eyes because we have the greatest engines is nice, but now we have people getting shiny eyes because of cost-out, because things are leaner, because things are working in a different way.

And last but not least, the whole consolidation, which Chris already mentioned, was a significant contributor to this slide I showed you, breaking the link between volumes and costs. Let me give you two evidence points and you will see much more evidence points during the tour. First one is on the indirect variable costs: you see 2 x 15% cost-out. The first one is consumables. That's very important, one of the cost drivers in Operations is consumables and, formerly, we thought that 100-200, depending on the commodity suppliers. And now we are using integrators, integrators who help us to consolidate that volume and so we can leverage buying power through different industries.

The second example is: I talked about the small turbine blade, right? Let's talk about the big blade, the fan blade at the front of the engine you will see later. And shipping these fan blades is very, very expensive. Very expensive. And what we have done is, basically, we have applied a better planning for our logistics and we have developed new transport solutions and, frankly, we have just copied with pride because, in Service, we have done that for years. And now this new transport solution gives us five million benefit; only this transport solution gives us five million benefit *per year* going forward. Also, that shows the new cost culture – getting things scaled up, copy with pride, using the power of the group.

And the last example: I think the most powerful way of telling that story is just to do the tour afterwards because it's about the consolidation. Formerly, we had three assembly and test

sites: one in Germany, in Dahlewitz, one in Singapore and one in Derby, in the UK. Now we have one centre of excellence – we will visit that centre of excellence in the afternoon – and this centre of excellence gives us a lot of operating cost benefits because of that consolidation.

So I talked about make, let's now come to the buy part. The best way to describe how we are getting more value out of our supply chain is simply that we are now using the best suppliers in the world. We started three years ago a journey which is called "high performance supplier group" – the best suppliers in their commodity. And these class-leading suppliers, they are best with regard to quality, cost and delivery. And we have more than doubled that sourcing of class-leading suppliers over the course of the last three years. This will give us a lot of benefits commercially but also, frankly, will give us more resilience, which is really important.

You can see some of that is externally recognised, with *The Financial Times* headline. For me it's important that sometimes this is misunderstood: "Ah, okay, Rolls-Royce is stopping collaborating with suppliers?" No. It's more the other way round. Working with high-performance suppliers, what it really means is a next level of collaborations and a next level of trust between a supplier and a customer because it is a partnership. I think that is really important.

So how have we done that? Again, a couple of evidence points and more on the tour; first of all, through consolidation, as I mentioned; rigorous digitalisation and investment into our people – procurement excellence; and last but not least, I want to talk about resilience. So let me give you, again, two evidence points. The first evidence point is, again, the consolidation. At each conference, the Pearl 700 precision machining conference – that is a nice example of describing how we are doing that. So we entered that conference with 14 suppliers and we ended up in that conference with four suppliers, four *leading* suppliers, class-leading suppliers, who are giving us, going forward, a lot of benefits and you see 3.2 billions is now the sourcing volume with these class-leading suppliers.

The second example is the digitalisation of supply chain, end to end, which really means, in this example, more than 4,000 contracts are now digitalised and, with intelligent tools, we avoid contract leakage. Basically, understanding what the fair value is that we deserve. I can't talk about supply chain management and procurement in these days without covering resilience. We all know, these days, there is quite some supply chain disruption and this

supply chain disruption, we believe, with consolidating to the high-performance suppliers, we are managing quite well and discuss this with resilience, but also our financial exposure is something we have done our homework [on]. We have put several long-term agreements in place. The majority of our contracts have flat pricing – of our top-value contracts have flat pricing. Of the remaining contracts, we are using indices and the majority of these indices are kept and they are using the same indices we are using on the customer side and they flex quite nicely and give us even an advantage.

Also, on the hedging of material I think we have done our homework. The majority of our material, we hedge and we not only hedge for ourselves, we also hedge it for our suppliers because we are having it directed by model, which is using the Rolls Royce buying power.

Let me summarise quickly what I said. I talked about the changing game on the OE margin, how we have reduced the OE losses by 30% despite the fact of 50% reduction of load. I talked about how we have broken the link between volumes and load and, last but not least, I talked about, on the buy side, how we have restructured the supply chain. And with this new civil and new civil operations and having the appetite for improving, improving and improving – that's the lean mindset which we now have – I'm very, very confident that we are ready for the ramp-up which is ahead of us.

And, with that, I hand over to Arvind to give us more details on the financial outlook.

Arvind Balan

Chief Financial Officer – Civil Aerospace, Rolls-Royce Holdings Plc

Thank you, Sebastian. Hi everyone, my name is Arvind, I'm the CFO for Civil Aerospace. I've been in the role for five fascinating months so, with that immense depth of experience, I'll be telling you the financial story today.

I try to think of our business in value drivers, in metrics, as blocks of value. It helps to understand it better, it helps to manage it better and explain it better. So I'm going to use a framework but I'll maybe just take you through the framework to start with. On the top we have operational inputs. These matter to us; we track them. OE delivery is where we spend our money and we create assets and these assets, we put them in the sky and they fly around and they're backed by engine flying hours: the longer they fly, the more flying hours we have,

the greater our cash is. You put enough flying hours behind that asset, you get a shop visit and that's where all this cash turns into profit for us, roughly speaking.
I think of my business as in value drivers of OE, services and investments. OE is about cost management, productivity, efficiency. We spend money there, we break even on OE. And then services is about time on wing. It's also about cost; it's about collecting that cash in at the right time and turning that cash into profit. So we are an after-market business, that's where we make our money. And the third value driver is investments. As a CFO, you'd expect me to talk about that. That's how we spend our capital and how we make sure that we spend it really wisely.

These value drivers manifest themselves in what you see in the last line and that's the outlook we put out: revenue, operating margin and cash flow. So I'll be talking about revenue, operating margin and cash flow as building blocks today and I'll be dipping into the value drivers. So let's get on with it.

The first one: revenue OE. We see OE growth at mid-teens CAGR over the medium term. Most of that is driven by the Airbus programmes and by some return of the 787 production. We see really good growth on Business Aviation. Business Aviation OE growth, especially with the new Pearl family, is expected to grow faster than wide body. And so our outlook on revenue on OE is low-teens CAGR and most of that is because of the mix which you see on the little doughnuts; there's a higher proportion of Business Aviation in that mix.

The second building block: revenue Services. We see Services volume over the mid-term grow at low double-digit CAGR. We're seeing a lot of engines come back into the shop after Covid and we're seeing a greater proportion of major refurbs, in the region of about 20%, a third in the medium term, in the outlook period. And so what we see on Services revenue is a growth of high single-digit CAGR. You put the two together and overall on revenue, driven by volume growth, driven by grown in wide body and Business Aviation, our outlook is low double-digit CAGR on revenue. There's an impact of mix, there are headwinds, there are tailwinds as well, but that's where we expect to be in the next few years.

The next building block we spoke about is margin. Now, I admit, when I came into Civil Aerospace, we were very much, as a business, on a journey; over the last few years our focus was on market share, we were a market share business and Chris has talked about, on the

segments that we are in, how high our market share is. But we've made a conscious change to focus on profitability as well because that matters too. That's normal; many businesses go through this evolution. And so we haven't been great on margins and on profit in the past, but that's definitely not where we want to be in the future. Our outlook is that, in the medium-term, we'll be at high single-digit margins in our business. And we will try to show you the breakup of where that comes.

A big chunk of it, of course, comes from shop visits, shop volumes – Dominic talked about all the amazing things that are being done in that space. You see a little blue sliver and that's a great story. We make some money, we make some margin on OE. We don't lose money on OE – that's OE with spare engines. So OE and the spare engines contributes to our profit picture.

We've also reduced our overheads since 2019; we spent about a billion in 2019. We've reduced it by a third. I've spent a lot of my time in large industrial companies; to take overheads out by a third, I have very, very rarely seen. We need to take a step … we need a pause … and just think about it. That is a huge chunk of change to take out of a business and it comes with discipline, it comes with management focus because that's structural take-out, that cost won't come back, that's footprint that's gone out, people that's gone out.

And then the last driver is lower R&D spend. R&D spend will be in the region of 5% of sales, going forward, and the combination of these factors makes our margin where it is, high single-digit. If you said "Is that enough, Arvind?" I'd say it's definitely *not* enough. We have much greater ambitions than that. But I'm very happy that, in the medium term, we'd be at this point but there's a lot more juice, there's a lot more things to squeeze. The cost journey is very much in its evolution. We know how to take costs out; we've got the governance, the infrastructure, the metrics, the KPIs, the internal cadence and it's about keeping that focus and growing on that journey. The same with OE margin. Dominic talked about shop visits. This is a good place to be: we're in the foothills of much better profitability and, in the medium term, single high digit.

And then we go into the last block, which is cash flow. And the first bit on cash flow is how we spend our investments. I joined Rolls Royce from Shell, which is a company that used to spend a lot of money, and there's one thing that I've learned – two things actually – that I've learned about investments. 1: always get your capital allocation right; (that's the hard one) 2: don't

spend money at the bottom of the cycle, when you shouldn't. It's very, very important for us as a business that we're disciplined about our capital and that we sweat the capital that we've already spent. We need to make sure it returns. So we've come off a peak, as you see there in the slide, and we've come off a peak of very large capital spend and it's important that we're disciplined now and focussed on getting the value from that capital. So I believe our investments are at the right level today and they ought to be at this place.

When I looked at where our investments are going, back in 2019 half – more than half – of our investments would be called NPI: new product introductions. New stuff. And maybe a quarter on time on wing. In the medium term, we're looking at more than 60% of our capital spent on time on wing. And what that means is: our capital allocation now is well aligned with our corporate strategy, which is our capital allocation will drive and maximise value from our installed base. And I think this is a great story, going forward.

The other part of cash: engine flying hours. Now I don't have a crystal ball but we believe that, in the next couple of years, flying hours should be back at 2019 levels. So our outlook says high teens CAGR in the medium term. Some of the flying receipts will go into after-market revenue and, through Dominic's costs management, will turn into margin, and the other part of it will sit on our balance sheet as a LTSA balance. Now I see LTSA balance as accrued revenue. It's cash that we've got in and we're waiting for a trigger event, a shop visit, to turn that into revenue. It's a good thing. Now it can vary, based on the ratio between shop visits and flying hours, and we expect, through the medium term and beyond, that we'll be approximately at half a billion dollars per annum of flying receipts on the balance sheet.

This is my last slide, so I'm going to recap before I get to it. There's a story here but we're very much on a journey, and the story is good cost takeout, there's volume growth, there's discipline on investments, there's a better understanding of LTSA balances but, most importantly, there's a business that's gone through a very difficult time, through the Trent 1000 issues, through Covid, through restructuring to cost takeout, that has learned and has developed the muscle to manage its finances in a better way. We have the internal processes, we have the internal mindsets, we have the internal drive to win to get even more out of this.

And so what this means, from a cash point of view, is we go from £1.7 bn cash out in 2021 to a position in the medium term which will comfortably exceed our operating profit. We'll break

even this year, maybe a bit more, but we'll be in a very comfortable cash position in the medium term and that won't be the point at which we plateau; there'll be a lot more beyond that. And there's one thing that I must say, as a CFO, when I look at this business: it's not just the quantity of cash that matters, it's the quality of that cash and it's very important that we develop good-quality cash so what I've been telling you today as an outlook does not include concession slips, does not include deals, doesn't include invoice discounting; this is good old, clean cash. And, in the teach-ins today in the tours, we'll explain to you how we work from profit to cash. Our commitment to you is that we will keep our focus on cash generation but it will be good quality cash over the next few years.

Thank you for listening, and I'd like to invite my colleagues back on stage for Q&A.

Isabel Green

Head of Investor Relations, Rolls-Royce Holdings Plc

Thank you very much Arvind, Chris, Dominic and Sebastian. So, just whilst we get ready for the Q&A, a reminder for people on the webcast that, if you want to send us any questions for Q&A, if you could send them to the Investor Relations e-mail address, which is investor.relations@rolls-royce.com, one of my colleagues is monitoring that inbox and will hopefully let me know near the end if we have any questions from you.

Just for the etiquette in the room, we've got relatively short Q&A time – I know we could probably spend all day in this room, taking your questions, but I'd much prefer to get you out and see things – so we're going to have a relatively short session. Please give the microphone back to one of my colleagues when they pass it to you to ask your question, after you've asked it. If we can get as many questions in, I think it will benefit everybody we can. So, in the room, does anybody want to put their hand up to ask a question?

I think probably table 6 was quickest on the buzzers, if someone can get a microphone to table 6.

Nick Cunningham – Agency Partners

Hi, thanks, Nick Cunningham, Agency Partners. You've taken your charts out to 2024, when you've looked at overhauls and volumes; clearly, what's happened in the last couple of years

is that you've had low utilisation of the installed base and you've extended the time on wing by the work that you've done. But doesn't that mean it's a timing issue; there's still going to be a wave of overhauls to come, though, just after 2024 now? So that's question 1.
Question 2 really arises from having paid £7 for a coffee and a bun at St Pancras this morning; inflation is clearly a big issue and so I think there's a lot of interest in the industry, from our side in how the pricing formulas work, both on the supply side and the customer side: how much of it you have to take, particularly as it goes through different levels of inflation. That's basically it.

Chris Cholerton

Okay, thanks. Well, let me start on the second questions first, then I'll ask Dominic to talk about the shop visits question. Inflation: clearly, we're not immune, obviously. But we do think, overall, we have reasonable protection. Clearly, we can break it down into a few pieces: one on the operating costs and pay and benefits, energy and such like. Secondly, on the supplier contracts, as you mentioned, both OE and MRO, and the customer contracts, both OE, LTSA and some time and material. And, as was mentioned, we have escalation formulae in those supply contracts and customer contracts. On the supplier side, as Sebastian said, a lot of flat pricing and some capped pricing; on the customer side, also escalation – both on OE and LTSA – and I think our pricing escalation is always at least as good as the cost escalation. Perhaps, Sebastian, you want to say a little bit more about our hedging as well because that's another aspect of the elementals and how it protects against inflation there.

I think, actually, our biggest exposure, if anything, is on pay inflation but, of course, the guidance and outlook we've given, we made that with full consideration of the inflation environment we're in.

Sebastian Resch

I start maybe with hedging. So hedging is, for us, important because roughly 30% of our spend is raw material so elements, metal elements, are very important for us to protect. The majority of our material spend, on the raw material side, we have hedged for this year. We have hedged, basically, nearly every material over the five-year plan. Nevertheless, over the years it clearly also goes down. There's a tight governance. In this tight governance what I really mean is we have a Hedging Committee, where we discuss what we hedge because hedging is not coming for free, when we invest. Maybe I give you one specific example: Nickel,

for example, is important for us and Nickel, I think, today is $28,000 per metric tonne and what we have done is this year 70% is hedged. 70%, so significant hedging, and we have hedged – because that is important – with pre-war levels and that story is true through our whole portfolio.

Chris Cholerton

Okay, thank you. And Dominic on the Services future.

Dominic Horwood

Yes, thanks for the question. I think, as we described, the shop visit growth over the period I was discussing is driven by the new generation Trent engines reaching their first refurb. That will continue, the fleets continue to grow, that fleet will continue to age. It will be tempered, to a degree, as we look forward, by improving time on wing; that is a good thing. We will continue to see shop visit growth well into the next decade and, indeed, we'll have to keep expanding our MRO and network to support that and you'll see future announcements from us with partners to do that. So, yes, some tempering of the shop visit growth because of that time on wing improvement but it is fundamentally the growth of the fleet, the growth of flying hours that continues that journey.

Isabel Green

Thank you. Sorry, we'll move back to table 4 – I know table 6 kept the microphone but I'm getting it to move around a little bit – good try! Table 4, next question please.

David Perry - J P Morgan

Hello, it's David Perry at J P Morgan. Thanks for the presentations. I guess my questions are both for Arvind. The first one is: the journey to high single-digit EBITA margin – can you just talk us through it? Is it linear, is it back-end loaded? And then the second one, just following the question Nick just asked: this LTSA cash flow £500m a year, I think, not dollars – so where does the TotalCare creditor peak on your balance sheet and in what year? Thank you.

Arvind Balan

I can answer the first one relatively easily: it is pretty linear from now, with the high single-digit growth. Where does the creditor balance peak? Again, this is subject to the shape of the curve, the curve on engine flying hours, but we expect it to peak a little after the medium-

term outlook that we've given. I must disclaimer - it's subject to the shape of the EFH recovery curve. *[Addendum: The LTSA balance growing reflects the growth in our fleet, and by minimising costs we can convert more of it into profit. The key driver of LTSA balance is the age of the fleet, as the fleet ages the growth in balance moderates. While the balance related to a contract or an engine programme ultimately unwinds, this is replaced by new engine deliveries and new engine programmes. As such we don't expect an unwind of the balance in the foreseeable future.]*

Isabel Green

And just for those of us in the room and to remind you, we do have Finance as one of our tours later, so we can talk about it – we've got quite a lot more on LTSA. For those on the web, there'll be some appendices slides that go up at the end of the day with a little bit more detail there and, obviously, happy to take any extra questions in to the Investor Relations team for follow-ups. Hands up again for the next question. I'd like to come forward to table 7, please.

Hassan Ashraf – Morgan Stanley

Hi there, Hassan Ashraf from Morgan Stanley. You guys have talked about increasing the receipts you get from your customers and reducing costs from suppliers, but some of them have been saying, taking the opposite side of the coin and suggesting that they might spend less on some of their maintenance costs. What makes you think that you can take this value? Has something changed in your supplier power or bargaining power in general?

Chris Cholerton

Sorry, just repeat the crux of the question.

Hassan Ashraf

The crux of the question is: you're trying to get more money in your invoices and less on your suppliers. Has something changed in your bargaining power in general?

Chris Cholerton

As Sebastian described the work we've done on getting the class lean suppliers and the contracts we're putting in place and the purchasing strategy, and we've done a good job on securing flat pricing in a high proportion – not all – of those highest-spending contracts and

they're ones we don't have escalation caps or, as articulated, in our pricing caps. They are at least as good as that.

Sebastian Resch

In general, because we have no narrow body, we have some disadvantage on buying power and we only can compensate that with consolidating our volume. That's exactly what we did and I described, and we have more than doubled that consolidation of volume and we are using the best suppliers and we are partnering with them and also have installed long-term agreements. And that gives us, then, the advantage and this is the way which we are now seeing.

Isabel Green

Thank you. Hands are up again. I'm going to go back to table 6 because I do feel like I slighted them slightly by stealing the microphone away.

Rob Stallard – Vertical Research

Thanks; I thought you'd blacklisted me Isabel! Rob Stallard from Vertical Research. Couple of questions. First of all, Arvind: this is hopefully quite a simple question. Normally, when an aerospace supplier sees OEM growing ahead of after-market, the margin goes down, not up, so I was wondering what I'm missing there – is that something to do with is biz jet OEM or spare engines in there that are making that slightly different? And then, secondly, to follow up with Sebastian on the whole inflation thing that Nick mentioned: isn't there a risk that, if you're not allowing your suppliers to pass on inflation, you're financially damaging them and that you could be ending up with supplier stress down the line? Thank you.

Arvind Balan

Rob, it is Business Aviation. Business Aviation growth – Chris talked about the number of billionaires – Business Aviation growth is really, really strong and that's changing the skew and the mix.

Sebastian Resch

To get to the second question: so we take it, clearly, serious and we are monitoring the risks which we are seeing in the supply chain continuously. We call it Watchtower; we have five criteria how we are mapping and monitoring and controlling our suppliers continuously. We

are doing that with external available data but we also have third party support. We have roughly 600 suppliers and, in that Watchtower, we have 24 suppliers and four in treatment. So, if I look back in the last two/three years, that financial risk coming from the supply chain is manageable but, clearly, we are not immune and our suppliers are not immune, so it is a watch area. And, even more, it is important to work with the class-leading suppliers because they are much better able to deal with the headwinds which we are seeing these days.

Isabel Green

And I think table 4 were next in the queue.

Charles Armitage - Citi

Thank you. Charles Armitage at Citi. Extending the time on wing is clearly massively positive but, equally, you've also got some assumptions when you started signing up those LTSAs that you were going to extend the time on the wing. So how, from an external viewpoint, can we be comfortable that you are extending the time on the wing faster than you thought you were going to when you first signed those LTSAs?

Dominic Horwood

Thank you for the question. I think there's obviously a spectrum of time on wing across the products. We talked about the Trent XWB-84 and the confidence we have in that and that has actually got the capability of exceeding the levels that we were targeting, as I showed. You know about the situation we've had on the Trent 1000; that would obviously be an example of an engine that hasn't managed to achieve the time on wing we initially wanted. We continue to improve that to get it back to where it needs to be, so I don't want to get into individual programmes but I understand your point, and our goal is to drive all of the programmes to a time on wing that meets our business requirement or exceeds it.

Isabel Green

Thank you. Any more questions in the room, and then we'll check on the lines – oh, sorry, one over here; thank you very much.

Andrew Evans – Sanlam Investments

Hi. Andrew Evans from Sanlam Investments. What are the prospects on the 787 and what does that programme look like, going forward, for you because you've clearly got a lower market share there?

Chris Cholerton

Yes. Thanks. Clearly the 787 has currently got its own delivery challenges and we continue to work very closely with Boeing and helping where we can to get that moving. Clearly, our reputation took a knock – understatement – on the 787. We've worked very closely with those customers through that period – awful disruption – but the way we handled it through the disruption has now at least got some credit in the way we treated customers through that period and our customer focus through that period. We're now in good shape. The engine – take out the particular issues we have – is no different in its reliability statistics and durability statistics – or reliability statistics – than any other Trent. So we've put a lot of money into making this engine as it should be and we have those close customer relationships so we intend to keep pushing. Our share is low, we're not going to do anything silly, of course, on pricing to do so, but we think, with the engine performing as it now does, we have opportunity still to make wins. The last win there was in Lufthansa, which is a flagship customer, and we believe we'll win again in the future.

Isabel Green

Thank you. Table 7 has a question.

Vardan Malkhasyan - Spinecap:

Vardan Malkhasyan from Spinecap. I'd just like to come back to a point Arvind mentioned about Rolls-Royce being previously market share-focussed. Businesses are also focussing on margins so I'd just like to get a sense of the profitability of the old programmes versus the new ones and just try to understand if you guys have been very aggressive in pricing purposely and therefore if we should expect structurally lower margins in the long run and also just to clarify what timeframe they mentioned by medium term; you talk about the engines being 2030 – should we understand the medium term as being 2030 as well? Thank you.

Arvind Balan

So I'm not going to get drawn into by engine programme, what this means on profitability and margin. This is a mindset that I'm talking about, which in the past was about trying to get more of our engines out there at any cost. I'm not suggesting we didn't focus on profit, but it was on market share. Today we're seeing a lot more focus. If I look at the way – Ewan's in the room – I look at the way we do our business evaluation when we bid for deals, there's a very clear focus on profit. It's a question of "Does this make sense? What's our return on sales?", etc. And that's what I meant by the shift; it's become very important for us to recognise the value of our product and help our customers understand the value we provide and have them pay for it as well, in the most collaborative way. So it's that mindset and I wouldn't want to go into specific engine programmes at this stage.

Now, on your second one, I think this is a question I expect: what is medium term? The bigger question is "Why don't you just put a number there and make our lives easier?" The reason is because we want to stand here today as a business and tell you that we've been on this journey and we're really proud of where we are today and we recognise there's a lot more to go, so we want to be transparent to you. But we also recognise that – I don't want to make commitments to you that I can't meet; that's not what we're about. And we live in such a volatile world, I really can't tell you where EFH will go. Dominic's talked about some of the geopolitical events in front of us. So the reason why it sounds ambiguous there is that it's intended, it's because we want to tell you the journey we're on but we can't tell you when we'll get there. I'm assuming two/three years, but that's as far as we can go in terms of certainty and I'm sure you appreciate that as well.

Chris Cholerton

I'll just add, as a leadership team, clearly, that two to three years, of course, intensely focus us and making that as early as we can and it's around when some of the uncertainties are a little more stable.

Isabel Green

And I think we have … back to table 6 again.

Aymeric Poulain – Kepler Cheuvreu:

Thank you, it's Aymeric Poulain from Kepler Cheuvreux. Just to understand: if you back to 2019 peak engine flying hours of 50m+, do I understand correctly that you're targeting EBIT of more than £500m and something that is of the same magnitude for free cash flow – operating free cash flow, I mean? Is that a reasonable assumption?

Chris Cholerton

Our outlook is the medium term, which we've just answered as the order of two to three years, of which one of the factors is that we anticipate also then flying hours being back at 2019 levels, high single-digit margin and cash flow comfortably exceeding profit.

Isabel Green

Sorry, I can see one at the back – table 4, I think, got their hand up first; we'll come back to table 6 again afterwards.

David Perry

It's David Perry again, if you don't mind. Just so we can understand because this whole thing of medium term, it's a bit arbitrary, I think. Is it medium term and then you cruise at that level or is it medium term and then this excess cash flow versus EBIT falls away? And then the second one, Arvind – I know you said you didn't want to comment on programmes but maybe if I make it more high-level – we're in the home of the wide body business here; where's the wide body business in the medium term? Is it break-even, is it profitable?

Arvind Balan

David, I feel like you're asking me to tell you something I don't want to tell you. We've guided in the medium term and you've said "what happens after the medium term?" The whole point of being ambiguous about the medium term was because we're not sure of when we'll get there – like I said, two or three years, we hope it will be at the shorter end of it – so I really don't want to be drawn about what happens to the world after that. I still maintain we want to be transparent but we want to make commitments that we can meet.

What happens to the wide body? We expect volume growth but, in the medium term, given it's a few years, we don't expect significant change from the current portfolio mix that we have today. So it will be fairly constant.

Chris Cholerton

But profitability better.

Arvind Balan

Yeah, profitability better, of course.

Chris Cholerton

This point beyond medium term: as I said when I spoke, it's not the destination, clearly. We know we need to further improve the terms and our ambition will be to approach the returns enjoyed by our competitors as our engines further mature.

Isabel Green

Thank you very much. There are two questions waiting from table 6 and I'm going to try and keep us on time so that's probably going to be the last two questions.

George Zhao - Bernstein

Hi, George Zhao from Bernstein. On the Ultrafan, what kind of assumptions on future aircraft programmes – when do you need to make the business case for that programme to work? You talked about, when we get onto the narrow body competition but what is the realistic path to get there, considering the competition and exclusivity we've seen over the other programmes there?

Chris Cholerton

Yeah, I'll take that. So the Ultrafan is a technology demonstrator, as I described, to service the future opportunities that we'll see in wide body or narrow body and, of course, the wide body being our absolute core market. So we've chosen to invest well ahead of a market need because you need to prove demonstration of technology, showing you've got a ticket to the game with customers is absolutely critical. So we're pursuing the technology demonstrator and then we'll adjust the phasing depending on the actual reality of any market opportunity, which is going to be well into the 2030s, we anticipate, on wide body and into the 2030s on narrow body too. But we have to invest now and demonstrate it; 1 to feed the technology to our existing engines but also because this is complex stuff and we need to understand our risks early so we can then better adjust the phasing of investment.

The question on narrow body: when you've got that technology and have put so much money into it, you want to optimise it across the biggest possible market opportunity and it is highly relevant to the narrow future, narrow body engines. So our ambition would be to aim into narrow body to better utilise over a wider [base] that technology. The opportunity isn't there just yet, so that'll be when that opportunity arises I'd anticipate well into next decade and we'll no doubt execute as we have with all our Trent programmes, actually, in partnership. So we start to think of the sort of partnerships that might be valuable to us for that opportunity, in our strategic planning. But it's not sat in front of us just yet.

Isabel Green

Thank you. Our final question of the main Q&A, just to reminder you, we do have the full Civil leadership team with us today, scattered on the tables, they'll be around at lunch so, if you didn't get a chance to ask you question … one more; we'll take the last one on table 6 and that will be our last question for you to wrap up then, Chris.

Harry Breach - Stife:

Thank you, it's Harry Breach from Stifel. Two very simple ones; maybe the first one for Arvind. Arvind: just on the last Civil engines, just to be super-clear, were you saying presently large Civil engine OE, including spare engine, is break-even at the operating profit level or the gross profit level? And then, next one is a kind of conundrum that I think I'm probably not the only one that's wrestled with over time, which is trying to understand the mean time between refurbishment shop visits on large engines. Historically, Rolls used to say "well, it's between four to six years" and I could never get that to correlate with what we knew about the deliveries of large Civil engines historically. Can you give us some idea of where we are now in terms of mean time between refurbishment shop visits and how you see that moving?

Arvind Balan

First one: yes, Harry – did I get your name right? Yes, we expect, in the medium term for large wide-body engines, OE to be break-even, including spare engines.

Harry Breach

But not at the moment?

Arvind Balan

I'm giving you an outlook, including spare engines at operating profit levels. Dominic.
*[Addendum: OE produced a small **gross** profit in 2021 including spare engines and business aviation, this is before overheads, R&D and other costs and is expected to continue to be profitable at **gross** profit in the medium term]*

Dominic Horwood

Okay, thanks for the question. So we spoke earlier about the work we're doing on improving time on wing. Obviously, there's a range of operations with the airlines, different airlines flying different ways. I think your estimation of four to six years time on wing is broadly in the correct space as an average of the fleet and where we're driving to get the engines to in the timescale that we discussed. Obviously, on the Trent 1000, we're not at that point today, as you know; we're rolling out the modifications very successfully that will get us back to that location. So four to six years time on wing is where we want these engines to be.

Chris Cholerton

Okay, thank you for your questions and your interest. I recognise there's no doubt many, many more if we could have another half hour so, of course, we are around with you over lunch and on the tours this afternoon. It will, no doubt, prompt even more questions and follow-up beyond. Thanks for your attention and we'll just break for lunch.

Rachel Walker

Okay. Thank you all again for your questions. If we didn't quite manage to get to your question today, you also have the option to post an e-mail in to Isabel Green and her team and we'll provide the contact details at the end of the presentation as well.

Now we've come to the point where we now need to end our live feed so, for all of you who have joined us virtually today, I want to thank you all for listening. Please do look out for the videos of the tours that you'll be able to view on our website online next week but, for now, thank you very much.