Moog Inc. (MOGA/MOGB)
Event Transcript: Moog Virtual Investor Day
Date: August 6, 2020

Safe Harbor Statement

Good morning and thank you for joining us. My name is Ann Luhr, and I'm Moog's Investor Relations manager. This morning, you'll hear from John Scannell, Moog's Chairman and CEO, and members of our leadership team. As a reminder, this event will be available for replay by 6:00 p.m. today on our investor webcast page. After our presentations, we will host 2 moderated panels for Q&A. The first Q&A session will include our segment presidents, and the second will feature John Scannell; and Jennifer Walter, our CFO. [Operator Instructions]

During the course of this meeting and in our presentations occurring in connection with this meeting, we may make written and oral statements that are forward-looking statements, including forecasts, projections and estimates of future performance, some of which statements can be identified by the use of terms such as project, forecast, estimate, 2020E or variations thereon or comparable terminology. And all of which are forward-looking statements made pursuant to the safe harbor provisions of the Private Securities Litigation Reform Act of 1995.

Several factors described under the heading Risk Factors in Moog's most recent 10-Q filed with the SEC on August 05, 2020 could cause actual results to differ materially from the results referred to in the forward-looking statements. We present non-GAAP adjusted operating margin, which is reconciled in the table on Page 13 (presentation slides). We also present free cash flow, which is defined as cash flow from operations less capital expenditures. Management believes these non-GAAP financial measures provide investors important insights and measurements into the company's ongoing operational performance. The company does not intend for the information to be considered in isolation or a substitute to the most closely related GAAP measures.

Now I'd like to introduce John Scannell, Chairman and CEO. John.

<<John R. Scannell, Chairman and Chief Executive Officer>>

Thanks, Ann. Good morning, and welcome to the Moog Virtual Investor Day. My name is John Scannell. I'm the Chairman and CEO. Before we begin, I'd like to recognize the uncertain times in which we live and the difficulties that all of us, family friends are having in this pandemic situation. Therefore, I hope that all our viewers and listeners are safe and healthy. And we thank you for taking the time to join us today.

I am joined here in our facilities in East Aurora with five of the management's team who will provide some of the presentations today. Also joining us from our facilities in Ireland is Pat Roche, who is the President of our Industrial business. Some folks have asked why we decided to do an Investor Day in these times when we are not able to provide future guidance for our investors. And the reason for doing that is because we believe in uncertain times, communication is actually more important than ever.

And we hope today that as you meet the management, the senior leadership of the company, it will give you confidence in both the presence our management through this crisis and the future of our company. Let me start with an overview of the agenda for the day.

In total, we'll take 2.5 hours and we've divided the day into 3 sections. During the course of the day, you will meet all 6 of the senior managers of the company. The first section, you'll hear from me; from our Chief Financial Officer, Jennifer Walter, on our financial performance; and from our Chief HR Officer, Paul Wilkinson, who will talk about the culture and talent in the company. We'll then take a short break. And return with the presentations from the operating group presidents.

However, today, we're going to do this a little bit different from how we've done it in the past. Normally, we speak about our operating groups, but today, we're going to take a market-based approach to our presentations. And so we will start with our largest market, which is the defense market, then we walk through our industrial markets, our medical market. And then we'll move to the third section where we will have two Q&A panels. We'll start with questions from the audience for our 3 operating group presidents, and then we'll switch to a final panel with myself and Jennifer Walter. Then I will offer some closing remarks.

As Ann mentioned at the opening, Ann Luhr, our Director of IR, will be able to ask questions through the On24 tool. And this recording will be available for later viewing on our website. One of our key objectives in our presentation today is to change the market perception of Moog as primarily a commercial aircraft company. We found over the years that most of our investors and many of the financial community believe that we're primarily a commercial aircraft company. And while commercial aircraft is a very important part of our business, we'd like to give you a perspective today that says it's actually less than 20% of our business in total, and most of our other businesses are actually very strong at the moment. So we hope as we go through the presentations today, we'll get that understanding.

We have a couple of key messages that I hope you will leave the presentation with today. The key is that our company is strong, and we believe that it's an attractive investment opportunity in these challenging times. Strength comes from the five elements that I've listed here. We have a very experienced leadership team that's dedicated to leading us through this crisis and on to the future. We're diversified across markets, which gives us tremendous strength, and we have a strong balance sheet, as Jennifer Walter will describe.

As the presidents walk through their businesses, you'll see that we have clear strategies for each of our businesses, both for today and for future growth. Paul Wilkinson, our Chief HR Officer, will describe the culture of our company, and we believe the culture is actually our greatest asset. And finally, we hope you are – get the clear message that we are focused on creating shareholder value. In the short term, I think it's shareholder value preservation. In the long term, it's continuing to create value for the future.

So let me start by introducing our leadership team. These are the six leaders of our company. They're all highly experienced individuals with deep knowledge of the markets we participate in and the customers. And as you'll notice, we're all long-tenured with the company. And that means this team of folks have invested their lives in making this company a success and are completely committed to the success as we go forward. It's 6 individual pictures, but it's one team. Because we believe at Moog that success is a team sport. And this team all has the same incentives and reward systems. It's all based on the overall performance of the corporation in total.

And therefore, as we make decisions about where to invest our money, where the growth opportunities are and how best to create value for our shareholders in the future, we are completely aligned with the interest of our shareholders. The pie chart on this slide shows how we are organized. In fiscal 2019, we had sales just short of $3 billion, 44% in aircraft controls, 30% industrial, and 26% in Space and Defense. In aircraft controls, we provide flight controls. These are actuators that move the surfaces on airplanes, on the wings and the tail and control the flight of the airplane.

About half of the business is military aircraft and the other half is Commercial. On the military side, 1/3 of the business is in the aftermarket. And on the Commercial side, it's just over 1/5 of the business is in the aftermarket. Our next largest market, Industrial Systems, about 30% of our business. We provide a range of components and systems that are used in large industrial equipment of various types. They're both electric and hydraulic solutions for motion control problems. We serve 4 different markets in this area, including industrial automation, energy, both exploration and generation, simulation and tests. We are the leading supplier of flight simulation, motion systems. And then finally, Medical Devices, which is part of our Industrial Systems business.

And then a 26% of our sales we have our Space and Defense Controls business. And we provide motion control products that are used for space applications both on launch vehicles, satellites and for deep exploration missions. We provide fin controls that are used for steering missiles. We do a range of products that are used on ground vehicles or turret applications. And finally, we have products that are used in a variety of naval applications, both for surface ships and for submarines.

If we take our operating groups and we switch to – we divide them up into markets, we get the pie chart that's shown here. On the left-hand – on the right-hand side, you'll see that 50% of our business is in markets that we code as defense. Under defense, we have military aircraft. That's half of the military – of the aircraft group that I mentioned. We have space and missiles, land and sea. Space, missiles, land and sea, are all part of our Space and Defense group. In total, this 50% of our business is very strong at the moment and as the word than it has been prior to the pandemic.

If I shift over to the left it has been prior to the pandemic. If I shift over to the left and talk about our medical business, we – our medical business is also strong. It's about 10% of our business in total. Here, we provide pumps that are used for both intravenous and enteral feeding and a range of components that are used on medical end equipment. This business was already doing well before the pandemic hit and the advent of COVID has actually strengthened this business further as it has driven increased needs and surge requirements for several of our products.

Next I'll move to our industrial business, which is 22% of our business, and we describe this as pressured. As I mentioned in the previous slide, we're in a range of applications, including industrial automation, simulation test and energy. And we were already seeing a slowing in this business prior to the advent of COVID. And with the arrival of the COVID-19 pandemic, we've seen this business slow further. However, it continues to be a good business, which we believe will recover as we head into next year.

Finally, we have our commercial aircraft business, which is 19% of our business. This is where we provide flight controls on the commercial airplanes and where our real strength is in the wide-bodies. And our description here is that this business has been severely impacted. And Mark Trabert later will talk about what we're seeing for that business, but we believe that, that business will take 3 to 5 years before it recovers to the levels that we saw prior to 2020.

Across the company, we have three company-wide initiatives. We've had these same three initiatives for the last decade. They are talent, lean and innovation. Let me say a few words about each of these. And then later, each of my colleagues will talk a little bit more about them. On the talent front, we believe business is all about people. We believe business starts with the culture of the company. At Moog, we try to build a culture of trust and confidence in each other. We believe the strong culture allows us to recruit and retain the very best people. And our approach is very simple. We want to make Moog a great place to work. We want to make it the best place that the folks that work for Moog have ever worked. And our belief is the best people, over time, produce the very best results. Paul Wilkinson will talk more about this when he speaks in a few minutes.

Second, lean. We view lean as a way of thinking. It's not a set of processes. It's a way of thinking across the company. It extends well beyond the factory floor to all aspects of our business. It's about processes, systems, tools and the people culture that drives continuous improvement on a daily basis. We see it as the journey of a lifetime and not a destination. And each of the presidents will talk a little bit more about the initiatives going on in their segments.

Finally, innovation. As I mentioned, innovation is also something that the presidents will talk about specifically within their groups. But we also have innovation that we're doing beyond the core. And I'd like to say a few words about that. But first, let me define innovation as we think of it. We believe innovation is a new way of doing something that creates value for the customer. And that's key. It's creating value for the customer. Innovation is core to who we are. It's how the company started back in 1951 when Bill Moog developed several valves to control the flight of a surface to air missile. It continues today as we are investing in the next-generation of hypersonic missiles that Maureen Athoe will talk a little bit more about. It's what fuels our organic growth. And over time, it has been shown to be the very best use of capital.

As I mentioned, each of the operating groups has their own innovation plans, we call this the core innovation. It's continuing to invest in new products and technologies, which continue to allow us to capture share. But we're also investing beyond the core. And in that area, we look at macro trends that drive future requirements, enablers, and then I've described here a very broad opportunity. The macro trends include productivity, the change in demographics, the fact that people are no longer interested in doing dull, tedious and dangerous work and sustainability. And it's clear that the world is shifting more and more into a condition where the future emissions, climate change are becoming a bigger and bigger topic. We already see this, of course, in the shift to electric vehicles in the automotive market.

Enablers include the increasing power of computing, sensors that you can get at very low cost, big data and AI. And very broad opportunity over the past 50, 100 years, automation has been very much within the factory, where machines and robots were clearly separated from people. The huge opportunity we see for the future is to take that automation out of the factory into unstructured environments, but automation interacts safely with individuals.

As we've been exploring these areas, we focus on three major areas: electrification going from gasoline- or diesel-powered to electric solutions, connectivity, making sure all of our products are connected to the internet to provide data feedback and better diagnostics and autonomy and robotics, allowing higher levels of autonomy so that machines in people. We believe we have a unique offering because we have very deep component expertise coupled with highly safe and critical integration capabilities from our aircraft business. Examples from across our business include small aircraft systems which are using electric propulsion, autonomous rovers that are used in agricultural data collection and all-electric excavators used in the construction industry with semi-autonomous driving capability.

Let me give one specific example of the work that our team has done. Last year, we had – we developed a relationship with a customer who had spent three years and several million dollars trying to convert one of their small excavators into an all-electric solution. They tried to put all of the components together. And unfortunately, were not successful in delivering the prototype they wanted. They worked with the Moog team, where we brought engineers from across all our operating groups together. And then about one fifth of the time and at one fifth of the cost, we delivered a fully operational prototype, which was then displayed at a construction show.

I would say these are innovations for the future. There are not innovations that will have an impact this year or next year or perhaps not for the next two or three years. But they do demonstrate our ongoing commitment to the next-generation of products and technologies, which will fuel our growth in the future.

So in summary, we believe our diversity across markets is a key element of who we are and our ability to sustain through the present crisis. Despite the fact that we are highly diverse across markets, we are highly concentrated in our technology. Sometimes folks think of us as a conglomerate. It's a word we would never use because all of our products are around high-end motion and fluid control. We have a strategy that's built around solving customer problems. At Moog everything starts and finishes with the customer.

We have a dominant position in the niche applications in which we choose to participate. And in all our applications, we are a technology leader. We believe our unique culture is our largest asset. And as I've said many times in the past, we play for the long term, investing for future shareholder value creation.

And with that, I'd like to hand you over to our Chief Financial Officer, Jennifer Walter.

<<Jennifer Walter, Chief Financial Officer>>

Thank you, John. Good morning, everyone. Today, I'm going to talk about our financial performance. And as John mentioned, I'm Moog's Chief Financial Officer. I've been with the company for about 20 years at this point and have served in a variety of corporate finance roles here.

So as we talk about financial performance, we are talking about creating value for our stakeholders. And one way that we look at it is through the lens of financial objectives. We've had the same financial objectives for many years, and we have those today as well. Those are sales growth, margin expansion and free cash flow generation.

So for sales growth, what we look to do is outpace the market as far as growth in our consolidated sales. So for us, in normal times, we can expect to have sales growth organically of in the mid single digits. We also complement that organic growth with growth through acquisitions. And acquisitions are not a strategy in and of themselves, rather they complement our existing business strategies. For margin expansion, we believe that each of our businesses has the opportunity to reach the mid-teens from an operating margin perspective.

From a free cash flow generation, on average, we expect that we will be able to achieve 100% free cash flow generation.

In all times, we are looking at these financial objectives. And in today's environment, we have an additional lens, and that's really in ensuring that we've got adequate liquidity during this crisis. In doing so, we've put a number of actions in place to ensure that we do have that adequate liquidity. But even while we've been making sure that we're making the appropriate investments for the long term, and those investments are ensuring that we've got an appropriate platform for growth. We're building out efficiencies, and we're doing innovative activities, as John has mentioned. Doing all of this will allow us to emerge financially strong and capable and taking advantage of opportunities as the situation further stabilizes.

So we succeed through focus and discipline. This is something that we're always thinking about, and it's especially important in these particular times. So I'll cover some highlights of our financials as we look at the quarterly averages for 2019, what the numbers look like in the first half of 2020, as well as how we performed in the most recently completed quarter. On a sales basis, you can see that we had an increase from last year to the first half of this year. It was largely driven by our defense businesses military aircraft and our Space and Defense Controls segment. In military aircraft, we increased from last year's run rate of about 12%. That was largely driven by the ramp up of the F-35 program, as well as related aftermarket on that program, in addition to higher level of foreign military sales. On the Space and Defense side, we did have an increase in funded development work and NASA work also was driving that increase.

Coming into the third quarter, though, that's where you can see the pressure on our sales. So as John has referenced, we've got the pressure on our sales. The biggest part of that is our commercial aircraft business. We're down about 50% from the run rate in the first half of the year. The other area that we've got pressure is in our Industrial business.

From an operating margin standpoint, we have an increase from last year to the first half of this year. But we're seeing the pressure in Q3 of 2020, largely again due to commercial aircraft and to our industrial businesses. The adjusted operating margin does include restructuring and impairment charges of about $56 million. We previously reported, based on a provisional amount, a $58 million number. That has been since refined and is now captured in our 10-Q at the $56 million referenced here.

Looking at free cash flow, you can see the levels that we had in 2019 and the first half of 2020. Then when we moved to the third quarter of 2020. This is where we had really, really strong performance. So, we made a concerted effort to make sure that we would weather the storm through this level of uncertainty and take the appropriate actions to ensure we had adequate liquidity to manage through the business impacts and the range of uncertainties that existed. In working through that, we had an excellent quarter for free cash flow.

Net debt and leverage both increased from last year to the first half of this year. That was due to the level of share repurchase activity that we had, in addition to our acquisition of GAT. However, both net debt and leverage decreased into the 3rd quarter. And again, that's due to the very strong free cash flow that we had this most recent quarter.

Leverage and liquidity. Long-term financial flexibility is something that’s really important to us. So before we even got into the pandemic situation, earlier in this fiscal year, we had a number of actions that we had taken to essentially work through the debt capital structure on our balance sheet.

So we had done an amend and extend on our revolving credit facility, in addition to calling our existing senior notes and replacing them with a larger issue of senior notes, that helped us out from ensuring that we’ve got long-term financial flexibility, but it also positioned us very nicely coming into the pandemic situation.

On the left-hand side, you can see our leverage. We typically and historically have looked at target leverage being in the 2x to 2.5x range. And you can see over the last several years, we’ve largely been within that range. But even if we were to go above or below, it doesn’t necessarily mean that we’d make an adjustment at that particular time. It just means that we’re mindful of where we are from a leverage standpoint and looking at the specific opportunities in front of us for taking other actions.

On the right-hand side, you can see the maturities. So for instance, I referenced the revolving facility. So that matures out in 2024 and our senior notes mature out in 2027. So again, we’re positioned nicely from a long-term position, and that gives us liquidity of over $600 million.

From a capital deployment standpoint, you can see the variety of things that we have done over the years. Looking at 2012 and 2013, it was largely done through acquisitions. And then in 2014 and 2015, it shifts to share repurchases. It doesn’t mean that we weren’t looking at acquisitions. We were looking at acquisitions during that period of time. However, none of them actually crossed over the finish line.

In 2016 and 2017, we did have a blend of those couple of capital deployment options. And then in 2018, this is the year that we had the most variety in our activity. This was our year of tax reform. So tax reform gave us the opportunity to bring cash back, repatriate it to the U.S. And part of what we did with that cash was accelerate our pension funding into our U.S. defined-benefit pension plan.

In addition, we had, again, share repurchases and acquisitions, but we also put a dividend policy in place. So that continued into 2019. And you can again see the activity that we had in 2020 as well.

So our long-term approach to capital deployment, it’s really balancing the returns to shareholders and growth. So when we look at that, we are looking at growth, again, from an organic standpoint and complementing that with acquisitions as well. Our return to shareholder activities has included dividends and share repurchases. In these uncertain times, we are focused also on ensuring that we’ve got adequate liquidity.

So we’re prioritizing our capital deployment objectives. We’ve also taken measures to reduce discretionary expenses and manage through our cash flows. And in doing so, we did take a temporary pause on our dividend, but we have reinstated that. And so I think that’s a credit to the capital and cash flow management that we’ve done. That our hiatus on the dividend policy is over, and we have reinstated that.

So we look to achieve our financial objectives looking towards the future, and you’re going to hear from each of our operating group presidents on the ways that we’re going to achieve that. It’s going to again come through the measures that we look at for sales growth, margin expansion and free cash flow generation. On the sales growth side, you’ll hear about our major programs and platforms.

You'll also hear about funded development opportunities and follow-up production work. In certain areas, we do have new products, and we are having market growth in parts of our business as well. For margin expansion, we do have lean and operational efficiencies throughout the organization, and that does include the Operations 2.0 that you'll hear about in aircraft as well. Parts of our business also have improved sales mixes. And we're taking actions in certain areas on portfolio shaping as well and will benefit from scale.

On free cash flow generation, our benefits are largely going to come from earnings growth and working capital management. So in summary, as we look at our financials, we are really looking at focusing on creating value for our shareholders. We do have a strong financial position, and we look to make our decision so that we can continue to have a strong financial position. We take a balanced approach to deploying our capital, and we are investing in our future.

With that, I do want to turn it over to Paul Wilkinson, our Chief Human Resources Officer.

<<Paul Wilkinson, Vice President & Chief Human Resources Officer>>

Thank you, Jennifer, and good morning, everyone. My name is Paul Wilkinson, Moog's Chief HR Officer. And as you saw in an earlier chart, I've been with the organization for 10 years with the first quarter of those spent over in the UK and our UK offices, and the last six have been here working at our global headquarters just outside of Buffalo, New York. So my job here at Moog is to lead the HR function and to do everything possible to deliver our HR mission of enabling the success of Moog and its employees.

This morning, I'm going to talk to you about our core values and culture, our employment proposition and our leadership talent, all of which we believe are truly differentiating allows us to create real stakeholder value. I'll also say a few words around our management compensation systems.

I'd like to start by framing what you're about to hear by saying a few words around our talent philosophy. I think it will explain a lot about why we put so much focus on creating a great place to work and why we get so much focus on being an employer of choice. And our belief is that our employees are our greatest asset and competitive advantage, and we believe that we can't win in the long run without engaged employees.

And I know there's many organizations that espouse these types of sentiments and many leaders test these type of sentiments. And sometimes there may be empty sentiments or lip service paid to them. But here, we truly believe that we create the right environment and take care of our employees, they will take care of our customers and stakeholders. And I think you'll see some of the unique things that we have within our organization and have done within our organization over the next few minutes.

So I'm going to start by talking about our Moog culture and values, and John mentioned it a few times. So here at Moog, we have 13,000 people across the world that are highly engaged, highly motivated and highly productive. An average land tenure for our 13,000 employees is over 11 years, which is extremely high in this day and age. It's even more impressive when you take into account the thousands of new people that we've hired over the last few years.

If you were to pull our employees and ask, so why is it you've chosen to have a career here? Why is it that you've chosen to spend your life at this organization? And many people do. The number one answer would be our culture and our values. And actually, personally, when I first started had the opportunity at Moog had some conversations with some folks here, the culture and the value of that unique proposition that Moog has was the thing that really hooked me.

And when I made the decision to move myself and my family over to the U.S. six years ago, it was the culture and the values that was that main point that said to me, I want to spend my career here working for this great organization. So what is our – what is this Moog culture and values? Well, the culture is the way things are around here. It's our – it's the essence of who we are, and we have a culture of trust. We have a culture of respect. We have a culture of collaboration. We have a culture of empowerment.

And that culture is informed by the values, which provides that foundation for the culture, and it's been around one way or another since the company was formed back in 1951. These values that you see on the screen are something well-known by all of our employees. We have a culture and values booklet that everyone has a copy of, and this is what sort of drives our behavior. It encapsulates who we are, encapsulates how we operate and encapsulates how we treat one another. And I can't overstate the importance of these values on attracting and retaining and engaging top talent into this organization and ensuring the ongoing success of Moog.

And actually, as I think about what we're facing right now with COVID-19 and the global pandemic, the culture and values have really come to the fore as our employees and our leaders have stepped up to support one another through this period and stepped up to keep our business going, keep our business productive. So what do our employees to think about our culture and values.

Well, here are some comments that I pulled from the Glassdoor site, which is – many of you may be familiar, it's like a Tripadvisor for companies. But these are comments I actually pulled out of our people survey, there are comments that I could have taken from social media comments that we receive all the time an employee stand-up meetings. These show the passion and engagement that our employees have with our organization.

Great people, great culture, highly collaborative, teamwork is a big part of our culture. I'm hugely proud to work for this organization. And their sentiments that are right through our organization set us up for success. So I don't think there's any doubt that we are an employer of choice. I mentioned Glassdoor just a moment ago, our rating on Glassdoor is exceptionally high, and we're one of the highest-rated companies on that site. We have an organization rating of 4.2, and our CEO rating is actually 96%. These are exceptionally high scores.

And the fact that people take the time to go and rate our company whether they are our present or past employees just is a testament to the passion that our employees feel are working here. So we absolutely have a long-standing differentiating culture and values, and they are a part of being an employer of choice. But we've also done a number of things that are forward-thinking and cutting-edge around our employment proposition, and that's with our benefits to the environment that we create, which then allows us to attract and retain some world-class talent.

Some examples over the last few years is we overhauled our vacation plan, it was a little old-fashioned, and we put in place an unlimited vacation plan across all levels of our organization within the U.S. Now it's fairly rare to have an unlimited vacation plan, it's even more rare to have a vacation plan across all levels. But with our culture of trust, it works, and it's been a real benefit to us from a hiring perspective. It's a huge benefit to our employees in terms of being able to have the flexibility they acquire to get that

– strike that right balance between work and life. And what we've found is people have taken back the same or slightly more than they took previously. It's absolutely not been abused and it's been a real step forward.

We've overhauled our retirement savings plan, so our employees can have a good successful retirement. We amended our approach – old fashion approach to performance management, which was the annual process with rating. We moved away from that, moved to a performance dialogue approach. And we're booking some wellness centers in some of our larger sites in the U.S. where employees can go to see the doctor, physical therapists, have their blood work taken, all at no charge, all at no co-pay. It's a real benefit to our employees and their families, it's also has also been a real benefit to us as an organization as we've seen our medical costs come down.

We've also launched some employee stock purchase plans across the U.S., across Germany, across the UK, because our employees want to be more of a part of our organization and be a shareholder in our company. So we've rolled out those plans over the last few years. The result of that is we have highly engaged, highly committed workforce that are passionately focused on both short- and long-term success. But to remain an employer of choice, you have to keep challenging the status quo, you have to keep pushing the boundaries. And over the last few years, we've spent some time looking at corporate social…

So let's say a few words about our leadership talent. So earlier on, I mentioned that the overall tenure of our 13,000 employees is over 11 years. The tenure of our leadership team, so it's the top 400, is actually over 18 years. That gives us such a strong foundation for which – for us to be successful. And you're seeing today the leadership team who are leading, talented partner, not unique to the people you're seeing, that is done through our organization. We have a fantastic team that hits the field every single day. And – but that doesn't just happen by accident.

Over the last few years, we've spent some time building our bench. We have – we do a lot of talks on succession planning. We've had a healthy mix of internal promotions to external hiring. And we have some really best-in-class leadership development programs that is getting the next-generation leader ready to run this company in the future. And talent development has been an ongoing organizational priority for some time, and it will continue to be an ongoing organizational priority.

So just a few words on our management reward systems. The real takeaway from this is that our compensation systems are tied to shareholder value. And for our executive team, the short-term incentive is paid out in either cash, a mix of cash and equity. And the measures for our STI is annual EPS and free cash flow generation. For our long-term incentive, it's split 50-50 between our stock appreciation rights and performance stock units. The stock appreciation rights is obviously depending on the appreciation of the share price, and the performance stock units is a mix of sales and operating profit. And even our employee bonus is linked to shareholder value, is paid and employee profit share, which is 10% of net earnings split across all the employees that aren't in overall executive team.

So in summary, our people are our most valuable asset. We have unbelievably strong foundational values and culture. We are absolutely an employer of choice and a great place to work. We are filled with highly engaged, highly talented employees and leaders and our compensation systems are linked to shareholder value. Moog is just a wonderful place to work, and that's not just a sentiment from me, it's a sentiment felt throughout our organization.

So that's our story. That's our story from a culture and talent perspective. I hope some of it resonated with you. And with that, we're going to take a break until 10:45 when we'll return with our operating group presidents talking through their various businesses. So 10:45. Thank you.

<<John R. Scannell, Chairman and Chief Executive Officer>>

Welcome back. We'd now like to move to the second section of our presentation today, where each of our operating presidents will describe their businesses. However, as I mentioned earlier, we're going to do this by market rather than by organizational structure. But before we begin, I would remind our listeners and our viewers, if you have a question, please type that into the ON24 and we will attempt to answer it when we come to our Q&A panel after the following presentations.

So we're going to start with our defense business, and this is our largest market, representing 50% of our sales. Defense has four major elements to it; military aircraft, military aftermarket, space, missiles, land and sea applications. And we'll start with the space and missiles, land and sea applications and to introduce that, here's Maureen Athoe.

<<Maureen Athoe, Vice President and President-Space and Defense Group>>

Thank you, John. Good morning, everyone. My name is Maureen Athoe. I'm the President of the Moog's Space and Defense Group. I joined Moog 36 years ago. I've been an executive in the Space and Defense business for 25 here at Moog. And I've had a great good fortune to lead our Space and Defense operating group for the last five. As John said, defense at Moog is a big deal. It's 50% of our revenue. And after I'm done with my presentation here, I'm going to pass over to Mark Trabert, who's the Aircraft President. Mark is going to talk about the military aircraft part of that 50%.

The military applications that fall under Space and Defense group, or as John said, space and missiles, land and sea, and those make up 26% of the company's revenue. We have built a very successful business in Space and Defense over the last 10 years. I would call your attention to our mission, which you see on top of the slide. We do equip those who defend freedom, and that is the purpose for what we do, and it is important to the employees who work on our programs. We remember who we work for every day, and that is the warfighter.

So let me start with the segment we call Space and Missiles. And first up is the satellite market. We have a rich history in supplying satellite components to the military and commercial satellite markets. We supply rocket engines, propulsion systems, vibration control elements, structures and mechanisms. I would say that though, our largest growth area for the satellite business is in an area of avionics. Avionics are electronics for the spacecraft as well as for payloads, and that is an area of good growth for us at this point.

Pictured up in the left upper-hand point on the screen is a picture of Moog's Orbital Maneuvering Vehicle, or OMV. The OMV is an innovative low-cost approach to launching and dispersing multiple satellites and their payloads in proper orbit. It is a complete spacecraft, including propulsion and avionics. It's really what we call it a little space tug. And the first Moog OMV will be launched on a mission. We're in partnership with the UK Space Agency to launch a mission in 2022, from a space port, a newly constructed space port in the northern part of Scotland. And it will carry a combination of government, academic and commercial small satellites.

Next let's move to missions, and there's a lot going on in missions these days. First and foremost, it includes a segment of our business that we do on manned space programs with NASA. The space launch system in Orion, which is the mega rocket and the crew capsule that will take Americans back to the lunar surface. Moog has significant content on both the rocket and the capsule. We have a tremendous growing business in the area of launch vehicles, control systems for launch vehicles. And in the large government commercial launcher market, we dominate with our actuation solutions. We have control systems on almost every large rocket that's being developed and produced in the United States today.

And then there are the special missions. Special missions, we have participated on for decades, starting back with Apollo, the space shuttle, International Space Station and now with the Artemis program. In addition, the Mars mission that I'm sure you're aware, launched last week with the rover, Perseverance, Moog had a significant content on that. Of course, we have control solutions on the launch vehicle, the Atlas V. But in addition to that, we have systems that will help control the cruise stage of that mission, the decent stage and actually on the rover itself.

Next here, we talk about missiles. Bill Moog, one of his very first contracts when he started the company back in the 1950s, was for a valve. He supplied to Bendix on a guided missile program. That shows the long legacy we have in missile controls at Moog. Today, our missile fin steering systems our premier system and on our – a host of military platforms has become a hugely successful business for us. One of the key programs, of course, is the Hellfire missile.

Our production facility in Salt Lake City, where we have produced over 100,000 units of the Hellfire Control Actuation System. We have achieved something that I think is even more important than the quantity of missile steering systems, but that we've achieved for the 47 consecutive months, 100% delivery on time, 100% quality. That's really what matters to us as we equip those who defend freedom, for the warfighter, that he or she can count on the health fire missile working every time.

Included in this area of missiles is, of course, our hypersonic projects, and we are working on a number of hypersonic applications. Depending on the type of application or the type of projectile, you may have an air breathing engine, which stays in the atmosphere, it flies like a plane or a cruise missile. Or you may have a rocket propelled projectile that arcs outside of the atmosphere, and that will determine the technology that's required for the mission.

Moog is currently working on multiple programs, and our technology is absolutely perfect for the hypersonic missile market. We have boost vehicle control systems, the legacy coming from our space business. And we are now supplying the steering mechanism for the common hypersonic glide body that will be used by a number of U.S. military services.

Let's move now to land and sea. In the area of ground vehicles or defense controls, as we call it, we, for decades, have had a solid business in Control Actuation Systems, including the control electronics for tanks, for other vehicles and for armed services in the U.S. as well as in Europe. But the most important development in our defense controls business is our development of the RIwP turret. The RIwP turret, and RIwP stands for Reconfigurable Integrated-weapons Platform, on the top left-hand corner, you can see a picture of the turret that's mounted on an armored vehicle.

The RIwP is a flexible, remote and scalable turret, tailored to provide survivability for the warfighter. It's unique in that it is light enough to be mounted on a technical vehicle, but it provides extensive firepower. And it will accommodate any variety of missiles, machine guns or cannons. Currently, we have – we're supplying RIwP to the Army for the SHORAD, Short-Range Air Defense program, and we have opportunities for other programs in the future for the RIwP. We see a bright future for that solution.

Moving to security, which is not a very large business for us at this point. But I want to mention it because it is focused on pursuing opportunities in an area that's very important for some of our military customers and the three letter agencies in the U.S. and that is counter UAS or counter-unmanned aerial systems, basically counter drone systems. And our Gauntlet System, which we've developed, is an innovation that fuses together data from a number of sensors to be able to detect, identify and track incoming small drones. It's a technology that we believe has applications for military bases and for border protection.

Finally, the work we do for the U.S. Navy. For over 50 years, our facility in Orville, Ohio has been providing quiet actuation and other equipment to the U.S. Nuclear Navy. We supply for the Ohio-class and Virginia-class submarines and in the future for the Columbia-class. The Navy is also interested in technology for very large unmanned underwater vehicles, and we are participating on programs with the Navy.

The Navy sees this as a way to build up its fleet at a fraction of the cost of adding man to surface ships. So we see this as another area of growth for our business. This gives you a sense then missiles, space, land and sea, of the diversity of our products and solutions portfolio in space and defense. But what really ties it all together is our technology, both our mechanical actuation solutions, along with the control of electronics.

Let's consider now the market trends that may impact our business. We have focused in this country away from asymmetric warfare, basically the war on terror, and now we are focused on countering the threats from Russia and China. It has become the highest priority for the U.S. DOD. The push to gain dominance in the military space domain is really advancing quite briskly. In fact, I would say in my – all my many years in this industry, I've never seen quite the urgency associated with the programs we now are encountering to make sure that those who would harm our space assets, those who would threaten us that we are able to defend against that in the space domain.

President Trump's call to land the first woman and the next man on the moon by 2024, has really reinvigorated human space and deep space exploration in the U.S. and our Space and Defense group. And the Army and Navy have announced plans for modernization. The question is, how will they pay for that? Clearly, they need – their stated need is they need to modernize the way that they fight and the equipment that they fight with. So obviously, something we're going to have to give in terms of paying for that. And the Pentagon will likely have to make cuts to some legacy programs in order to be able to afford that.

Of course, we must acknowledge the pressures of the current distressed economic situations around the world, especially in the U.S. and Europe as it affects our business. And what might have changed in administration in November mean in our country. But as in the past, I believe the diversity of our product portfolio and the programs that we are participating on for the U.S. government will insulate us from a significant negative. So how are we reacting to the market dynamics? What are our strategies and our initiatives?

It makes complete sense that we advance as a complex defense solutions provider. We have all of the deep component and control systems expertise in our company. We have moved forward with system solutions, and we talked already today about three of them. The RIwP, the OMV and the Gauntlet counter drone system. Complex, complete defense solutions. John talked about playing for the long-term, and that's why it's important for us to continue to participate in the U.S. human and deep space exploration programs.

As you can well imagine, we have many competing demands for our research and development dollars. I wanted to point out here that, again, electronics – radiation-hardened electronics is playing a real key for our – the missions that we supply in the space domain. And so we are putting investment dollars into making sure that our electronics are radiation-hardened and can survive not only the harsh environment of space, but the nuclear events.

And the idea for becoming an agile prime really came to us as the RIwP turret was being launched. It's the concept that we can provide complete solutions to our defense or space customers in a way that allows for flexibility and responsiveness. The speed with which we can respond to these customers is really important, especially when there are urgent missions and requires solutions be developed quickly.

So moving over to where do we see growth. Of course, the hypersonic missile area, both the boost and glide technology that we have in our portfolio, a range of opportunities on spacecraft for DOD, NASA and Commercial. In fact, we do see commercial – large commercial geosynchronous satellite market, which we had experienced a downturn in over the last decade, is really starting to get reinvigorated as some of the older telecommunication satellites need replacing.

More applications for RIwP, and that is our innovative turret that while we're providing the turret right now for the SHORAD program, there's a lighter version actually that we're working on for the Marine Corps MADIS program. And there's future opportunities for foreign military sales in this area.

And the last area of growth, I would be remiss if we didn't talk about our components, our Space and Defense components, that is a great business for us. And as you just heard from John, our component expertise sets us apart is – we're unique in the industry in that we not only bring our solutions and our systems and our complex problem solving to our customers. But we understand – we still understand the components that we have developed and that we supply into these larger complex systems. We always have our eyes on creating a better financial outcome for our business.

And I would say the two areas that we need to focus on, and we are currently focused on is how do we manufacture? Can we make process improvements and how we do that? And can we make process improvements in how we design and develop new products? There are three areas there that we have specified for improvements in value streams. The launch vehicle actuation, which I just talked about, is more quantity and flow going through that because of the good business that's coming in, spacecraft propulsion and turrets.

All three of those will benefit from some of the lean efforts we're putting in where those products are manufactured. And the lean product development idea is really putting some structure around the design process.

In summary then, even in uncertain times, our Space and Defense business is strong. We are well positioned on important and strategic programs for our country. And really, it is all about our customers.

We have an incredibly loyal set of old customers, and new customers are coming to us every day because we are a valued defense industry partner. And the people that work for us, we have an incredibly talented team of technologists and support staff in Space and Defense group and at Moog, as Paul indicated, they are the ones that continue to innovate they are the ones that make our success possible.

I will turn the presentation over now to Mark Trabert, our Space and – sorry, our Aircraft Group President to talk about the aircraft defense business.

<<Mark J. Trabert, Vice President, Aircraft Controls Group President>>

Thanks. Maureen. Good morning, everyone. As Maureen said, I'm Mark Trabert, I'm the President of the Aircraft Group. I've been at Moog 36 years, and nearly all of my time at the company has been spent in the aircraft business. As you can see from the pie chart, we're about 24%. The military aircraft piece of our business is about 24% of the company's overall revenue, and we're about half of our defense business. When you think about Moog's aircraft business, it really starts, and our heritage really is in the military aircraft business.

Back in the late '60s and early '70s, and as military aircraft performance became more and more important. That really played into the strengths of Moog's, complex and technically sophisticated control systems. You can see by the pie chart about one-third of our business is in the Commercial – as far as in the military aftermarket piece. And the OE piece, that's the product that we sell to Northrop Grumman, Lockheed Martin, Boeing military. That's about two-thirds of the business.

And as you look at the OE piece of our business, you ought to be thinking, and you ought to understand, we have an expansive portfolio of aircraft that we provide. And that's due to the 50-year heritage of this business. And when you think of this business, you should think of it in two pieces. We have our legacy business and then new programs for the future. On the fixed-wing side, our legacy business starts with the F-35 program. It is the biggest military program in our company, certainly the biggest military aircraft program in our company.

We do complete systems on that airplane, the primary flight control system, the Leading Edge Flap System and on the Wingfold system on the Navy version of the airplane and substantial amount of list system hardware on the Marine Corp airplane. So the F-35 really is a foundational program around which we will continue to build the business as we go to the future. But our legacy business isn't just about F-35. As I said, we started supporting and becoming a supplier in the military aircraft business for 50 years. And there are some airplanes line [indiscernible] (0:58:16)

The programs are still good programs that are continuing to support the military in the U.S., but many of those programs are also very strong programs in the foreign military sales part of the business. As you move into the rotorcraft, the helicopter business, it's the same story. We have a very, very strong legacy business in the helicopter business. The V-22, the UH-60 Blackhawk businesses. Those have been around for decades. And they will continue to support our business on the military side, that'll continue to support our military and militaries abroad for the decades into the future.

As we look at new aircraft though and back on the fixed-wing aircraft, we've already been selected on some of the key programs going forward, the KC-46 Tanker program. We're a very big supplier in that program. The MQ-25 in new program, new unmanned vehicle program. And there are a number of proprietary programs, classified programs, we've already been selective, we're working, we're in the midst of development programs. And we're really building that portfolio of aircraft that 50-plus years from now, the person standing here talking about this business will be talking about what we're doing in that business on these aircraft that we're working on today.

And it's the same thing for the future with regard to rotorcraft. The U.S. Army, as many of you may know, the U.S. Army, really hasn't had a new clean sheet helicopter since the 1980s, really. And they have a very important initiative right now called the Future Vertical Lift. And there are two aircraft as a part of that. There's a FLRAA, they call FLRAA, the future long-range assault aircraft. And there are two candidate aircraft on that airplane. One of them, the V-280 Valor, we've already been selected to do all the primary flight controls on that airplane.

The FARA is the other aircraft in the Future Vertical Lift regime, it's a Future Attack and Reconnaissance airplane. And again, there are two candidate aircraft competing for that program. Moog has already been selected with substantial content on both of those candidates.

So as you look at our business and our military business, our – you can see that we've got a long history in the business. We still have a strong legacy business. Maureen talked about a number of her programs. And her business that maybe would be coming to an end, and there's a trade-off between modernization and legacy programs.

In the military aircraft business, the legacy programs have a tail that's much longer. And we'll continue out because many of them are also used by foreign militaries, and we're well positioned on the OE side of the military aircraft business. And around all of that is our aftermarket.

Of course, you do the traditional aftermarket repair and overhaul of our hardware. And that's all over the world. It's not just a U.S. business but it's a global business. But over the last half a decade or so, there's been a number of innovative business solutions that we've been working with our customers on to really bring more value to those customers, as an example, depot partnerships where we work in partnerships with the U.S. military to support their aircraft.

We've begun to expand that now into the global market outside the U.S. military and are working on depot partnerships with some of our foreign military customers as well. As a part of that because our customers understand the value that we bring to those, they are beginning to approach Moog about supporting non-Moog product, which we've already been doing in the last few years, but they'd like to expand that scope. And that is another good growth opportunity for us in our business.

When we talk about market dynamics, some are very similar to what Maureen talked about for her business, of course, the strong defense environment right now. With potential midterm pressures. We talked about the asymmetric – the move away from asymmetric warfare to the near peer, which really is even further supportive of our aircraft business as we go forward.

Modernization I already talked about, that will continue on. It won't – but it won't continue on at the expense of the legacy business. While some of that business is sunsetting, a lot of it will continue on for the long-term. There are a lot of new programs in both the U.S. and foreign militaries. That we're very well positioned. Our market – we have a very strong market position. We're the industry leader in military aircraft flight control actuation systems.

In addition to the airplanes that are kind of in our view right now, there is also a lot of work happening in the industry around what the future next-generation aircraft will look like? And there's really been an emerging trend of a smaller set of programs with purpose build aircraft, lower quantity, but integrating new technologies. John talked about electrification and autonomy, unmanned and autonomy. Those programs are – those technologies are already being widely talked about as we move into the future. And we're in the middle working with all of our customers and their initiatives so that we're – continue to be a relevant player as we move to the next generation.

We talk about pressures, of course, the government pressures, both in the U.S. and internationally, I think the world is feeling the impacts of COVID-19 and the budget impacts of COVID-19, of course, as countries need to be making decisions as we move forward on financial priorities, and we'll continue to watch that as we go. One important thing for you to understand in the aircraft business, though, right now, there's about an 18 to 24 month lag between the government budgets and when they really get to our level, when they really affect Moog. So as we go through the election next year and as we begin to deal with the financial pressures of the pandemic and the government begins working on the FY2022 budget. You ought to think of the FY – whatever is decided for the FY2022 budget, we really won't see the impact of that until about 18 or 24 months after that.

So what are the things that we're doing as we understand the macro trends, what's happening in the marketplace, what our position is in the marketplace? Our strategies going forward, again, is to leverage our very, very strong market position in military. We'll continue growing our aftermarket. It is an area we think there are growth opportunities both in the U.S. and internationally. And we're putting our focus there and looking for and enhancing some of the opportunities that we've already been capitalizing on. And we'll be investing – as I said earlier, we'll be continue to invest in maturing the technologies and the relationships we need to be a player for the next generation aircraft.

From a growth standpoint, the first five bullets under growth really are things that are – you should expect would be happening over the next five years or so. The F-35 production ramp will continue. F-35 sustainment. While we've been working on F-35 aftermarket, it's just now beginning to grow. And that really long aftermarket tail that we all enjoy that are in this business at 40, 50-year aftermarket tail, most of that is in front of us and a real growth opportunity for us as a company. I talked about proprietary programs and international programs continue to grow and the opportunities there.

And as we look to the future, John talked about we are in this for the really long term, and I think that our heritage is an example of that, 50-plus years of heritage. And we're working for the next 50 years as well. In the U.S. Army, we're well positioned to be on their next generation aircraft, a number of next-generation aircraft in the U.S. Air Force and globally. And we're working the technologies that will be important for us to be a relevant player going forward in the marketplace.

On the operating margin side, improve program and business mix over the coming five years will really help us improve our operation – our operating margins. Growth in the military aftermarket, I talked about that as we move forward, you saw that about third of the business – of our military business was military aftermarket. By the time we get through the next five years, we think – we believe that, that number will be more in the high 30s range, 38%, 39% of our overall aircraft pie.

Growth, I talked about growth in proprietary programs. But right now, we've been working on a number of those programs, and they're funded development programs, which is nice because the government pays for you to develop – pays your development costs as you design and qualify our systems for the airplanes. But those programs will begin – but there's very low-margin in those development programs, very low margin. A number of those programs over the coming five years and beyond, of course, will then be transitioning from development into production, we would expect more traditional type of production margins as those businesses transition. And lastly, international program growth. We're expecting continued growth in the international market, which is very profitable for us, and we expect it to continue to be profitable.

And you've heard, if you've been following our company at all, you'll understand that in the aircraft business, we've been working quite a bit on operations and supply chain performance improvements. And those have largely been talked about in the context of our commercial aircraft business. But really, that also will be across all of our manufacturing facilities and the military business will be seeing the benefits of those activities as well.

So in summary, our military aircraft business in the military aircraft market is really in a robust stage right now. We expect that to continue. Even if there are budget reductions going forward, we feel like we're really on all of the major platforms for the future. And maybe some of those will be scaled back some because of budgets, we don't anticipate at all any type of cancellations of our major programs as we go forward. We'll continue to leverage our really strong market position and our heritage in this business. As we seek new wins in the marketplace. And aftermarket growth, we believe there are good opportunities for aftermarket growth continuing, both in the U.S. and globally.

With that, I'll turn it over to Pat Roche. Pat is the President of our Industrial Group, and he's going to talk to you about his business. Pat?

<<Patrick J. Roche, Vice President, Industrial Systems Group President>>

Thanks very much, Mark. Good morning, everybody. Let me first introduce myself. As Mark said, I'm Pat Roche. I'm – had the privilege to be the President of the Moog Industrial Group. I've been with company for 20 years of which the last five years have – I've been involved in running this group and I have the opportunity to run a globally dispersed team and as I describe the business, you'll get some sense of the type of business we're involved in. The Industrial Systems Group has of course faces out both to the industrial markets and also to the medical markets. And in this section, I'm just going to describe the industrial markets.

As you can see, the industrial markets are an important element of Moog's business. Moog established subsidiaries outside of the U.S. and particularly in Germany where there's a lot of industrial machine building going on back in the mid-60s. So that long heritage that both Maureen and Mark has referred to, is also present in the industrial businesses, which are about a tenth of our business overall within Moog. So let me describe those businesses in a little bit more detail.

Our vision in the industrial group is to make the impossible possible in motion control and that's really taking that technical heritage that we have and the breadth of products and components that we offer and solving problems for our customers that they would not otherwise be able to solve. The business model we have involves close collaboration with those customers where we work to understand what they're trying to achieve on their machine. That could be to increase its productivity, to reduce the energy consumption, to improve the quality of the product produced. But through that dialogue and engagement and Paul described the culture, where we're really interested in respectful relationships and collaborative relationships, we get really a thorough understanding of what the customer is trying to do, then we customize our products to meet their needs, to give them the best performance they can get in their machine so that they can add value for their end users and customers.

The journey continues with that customer once we've produced prototype, demonstrated it can work. We typically have relationships that last up to 20 years with those customers where we are meeting our commitments week after week in delivering products to them. So the business model is all around collaboration, customization and confidence that we build with the customer. And that's what sets us apart from catalog suppliers who are involved in the industrial market.

If you characterize the size of the business, it's roughly just under $700 million of revenue, over 4,000 staff operating in 20 countries globally. About 40% of the business is in the U.S. and the rest is all outside of the U.S. That's for the Industrial Systems group. So we work with the machine builders who are trying to optimize the performance of their machine. And then we describe a few applications, you can see this on the left-hand side, plastic injection and molding, could be machines that produce automobile vendors. And you're obviously interested in throughput, you're interested in quality of the materials, the quantity of materials used and the quality of the finished product. It could be a press machine used on an automotive production line, pressing out door panels. Or it could be a flight simulation system.

Moog took a leadership position in this market to produce an all-electric platform for flight training which we got FAA certification for ahead of anyone else in that market, and we have a leadership position within that market. In the energy field, we're involved in oil exploration and oil production. So we're supplying equipment and tools to companies involved in those sectors. And in gas and steam turbines, we're producing actuation systems that can control the flow of fuel and the air vents within those machines to control their operation. So it's a diverse range of end applications that we satisfy, but it's a consistent business model across them, and it's a shared set of technologies and components that we bring to the market. If you look at the overall breakdown of the business on the right-hand side, about 65%, 64% is industrial automation, 20% energy and simulation and test at about 16%, which is roughly split between both of those markets equally.

So if I go to the next slide on the markets and what we're experiencing. Obviously, the industrial business over the last year or so has gone through a bit of a slowdown in our organization. We've seen the market conditions in Europe weakening over the course of the last 12 to 18 months, and particularly in the automotive sector, which have an impact on some of our end-use applications. So that slowdown was continuing through into the start of this year. We were beginning to see the sentiment changing slightly, a little bit of a pickup in the Purchasing Managers' Index indicating that sentiment was improving. We saw orders improving as well. And then COVID-19 hit. And COVID-19 has obviously been a disruption to the market. It has caused direct effects on customers being able to receive goods, but we – I think we're through those transient effects, and now it's looking at the end – the effect on end demand on our businesses.

So let me describe the short-term pressures a little bit. Obviously, companies such as our company and others have tried to conserve their cash through the onset of COVID-19. We've seen that same effect as well in our markets and some held back on capital expenditure that they would otherwise have made. Oil prices have gone through huge volatility over the last number of months. They've begun to settle down now, but they're at a lower level than they were previously. And that's a market that is looking to establish equilibrium again. Power demand has changed during the course of the crisis, briefly, of course, as the growth in energy demand globally continues to increase. We are involved in power generation and provide the pace loading on networks through the gas turbines and steam turbines.

Like Mark's business, we've seen impacts on passenger numbers traveling around the world, which has an impact on the number of flight crew needed. The number of flight crew training sessions needed on simulators. So that has changed the demand for some of our customers and changed the rate at which they need to take on new platforms. So that slowed down our simulation business and will have an impact on that business for a number of years. We do have the benefit that many of our simulation platforms are also sold into military applications as well, about 25% of that business is military platforms.

And automotive has gone through an interesting transition at the moment. John earlier in his presentation mentioned the move to electrification for our automobiles. That has resulted in some slowdown in capital investment in capacity in the automotive manufacturing plants, but also on the other hand, an increase in investment in R&D to try and improve and create electric drivetrains and energy-efficient vehicles. And so we have some upside potential with automotive test as that new drivetrain is put into place and tested. So we have high-frequency testing of batteries, for instance. So the various end markets that we serve are all experiencing slightly different dynamics, which I've tried to summarize there.

For our business overall, we expect to see a recovery beginning to come from a low point, which we think is the first quarter of fiscal 2021. And then we expect a progressive improvement from that point forward. In the long term, I believe in the markets we serve, we have a very strong position, driven by some clear underlying drivers. Environmental sustainability is driving the requirement for increased efficiency, reduced use of electricity in many of the end machines that we supply.

Productivity improvements have been driven in the factory for the last 50 years, but outside the factory, on construction site and farms and other areas of activity, those productivity gains have been much less, and we see opportunities there to add value. That's compounded by aging populations and constraints in the labor force that mean we have to try and do things with fewer people in some cases, and again, I think these underlying drivers help support the activities that we're doing. And overall, everything is moving to the cloud and digital, and we see that opportunity with every component that we ship. So over time, we begin to move over towards connected products, as John mentioned.

So on sustainability, waste reduction and energy efficiency are the keys with a range of products on our Hydraulics business, which recognizes that trend and moves to electro hypothetic actuation. And I'll talk a little bit more about that on the next slide. We're focused on autonomy, electrification and connectivity and are uncovering real opportunities and working with multiple lead customers in that area. So we know that we have value to offer, and we have found, I believe, a route to exploit that. And we're already working with several customers who are specifically in the construction industry. So short term, a lot of volatility, differences between some of the end markets we serve. We see a recovery coming in 2021, and we have good long-term prospects in our industrial businesses.

So we're going to move on to the next slide about our strategies. So we have, and it's been mentioned by Maureen and John, a strong underlying technology base and strong components in our organization. So in the industrial businesses, we have electrohydraulic, electromechanical and fluid rotary unions and electrical transmission through slip rings. So a range of products which are integral to motion control. We also have some sensor products that are produced within our organization as well. So it's a strong heritage, grown out of a capability and an investment in R&D and some acquisitions over time that have helped us build this portfolio of products. And we know that we can design and reliably produce systems based on these component parts because we have the opportunity to maximize the performance at a system-level through the deep understanding of what we have at a component level.

So that's how we leverage our core competencies and products. We're also looking to optimize our structures and our portfolio. So we've gone through acquisitive growth over the past 20, 30 years. And we have an ever-changing market dynamic, just as I've described on the prior slide, markets are changing all the time. And if we review where we are, we need to ensure that we have the right infrastructure and right people in place in the right places in the world to best match our customer needs, and that's all part of the work we're doing on structure and portfolio. And finally, on electrification. This is about investing in the capabilities and the technologies and the end application areas that we believe have – we have a potential to offer a difference and we've identified electrification in the construction equipment sector as an ideal starting point there.

So let me now move over to specific growth opportunities. I mentioned electro-hydrostatic actuation. This is basically where you go from having a big pump and an oil reservoir somewhere centrally in a machine or in a factory and you put it into a closed system where you want to use it, so reduce the size, the weight, the cost of these overall systems, but it's also much more energy efficient. So these energy-efficient electro-hydrostatic actuators are going into more and more applications where you need extreme forces. We have joined forces with a company in Germany called Voith so that we can more quickly bring together their complementary technologies with ours to exploit that growth opportunity.

We also have a new range of servo valves which is developed – which is aiming to capture a bigger share of the customer's machine. So today, we may sell the high-performance access onto the customers' machine and miss the opportunity to win several other access on that same machine. We have the customer access. We have a good reputation with the customer, but we extend our offering to capture more of the available scope. We are ramping up production of what we call a seal-less pump, which is used in data centers globally – cloud – with all the growth in cloud computing, we have a lot of servers running. We need to keep them cool. We have a technology that's highly reliable and doesn't allow leaks, and we have a number of customers with whom we're growing that business. So that's on the electromagnetic side.

And finally, Jennifer mentioned that we acquired a company called GAT. That company has a product called fluid rotary union that allows you to move oil or liquids through a rotating member inside the machine, and we acquired that technology so that we could combine it with our slip ring technology and increase our scope of offering. So we're certainly expanding our product portfolio as we develop growth. We're also leveraging our global presence. We're bringing proven products and technologies that was exploited in one geographic market into another geographic market.

I'll give you one example of that being construction equipment where we have a strong base in Europe with some of the leading machine builders. We are now looking to expand that into the U.S. We are also looking to increase our use of our own direct channel. Our business model, as I described, involves working closely with our customers. That's why we have operations in 20 countries. We want to make a better job of selling all of our products through that channel and fully exploit the direct channel that we own.

And finally, I'm mentioning disruptive technology under growth. Again, let me come back to that example offered by John earlier. Within about six months and for about fifth of the cost, we managed to convert an entire light construction machine to deliver the same level of performance that the prior version or flagship product had delivered in the past. That's a testimony to the collaboration across the organization to get it done and our agility as an organization in using some of these technologies that we have at our fingertips to solve problems.

On that vehicle, we were involved not just in the traction, the movement of the vehicle back and forth, but the actuation, all of the moving parts on the machine are controlled, energy management within the machine, advanced real-time control to make the job easier for the machine operator, which would lead in the future to semi-autonomy and autonomy in such vehicles. And above all, safety. Safety is one of our trump cards in Moog given the heritage on commercial light. So we believe this is really what's underpinning, making the impossible, possible in motion control. And acquisitions is an ongoing process in our group. I mentioned GAT. We continue to look for opportunities to consolidate our market position for the product areas we're in and to add new capabilities.

Now, let me turn the focus over to improving margins. Lean is, as John said, it's a mindset, it has to become a part of the fabric of who you are as a company. We are systematically building that new capability throughout our businesses. We have a motors manufacturing plant in India that has demonstrated over the years, extremely high levels of on-time total delivery and quality through their work that they have done on lean. And they're setting a path for us within the industrial businesses with their application over the next two years to apply for the Shingo award. The Shingo award maybe a slightly normal price for lean, but it sets – it defines the level at which they're operating and it's a continual progression, as John mentioned earlier, to be better than you were the day before.

So, we're working to extend also years long pilots that we've done in Japan and China to our other manufacturing sites. And over the next three years, we expect to have lean firmly embedded in our major operations. Business process standardization is about bringing improvement that we have at one site to all of the sites within our business as rapidly as we can. When we're running common process and systems, we have that ability. If you're fragmented, you can't do it. So that's another key driver that we have. And structural simplification is around responding to the changes that we've see in the business today. As I said, simulation platforms may be slightly lower in scale in the future, and we're adjusting the organizations accordingly and our management structures around them.

And portfolio shaping is, for us, a regular ongoing process. Our businesses – if we discovered that some of our businesses are under challenge, perhaps their market conditions have changed, we respond by seeing how we can fix it, how we can improve the margins and financial performance of that business. And if we don't think that's possible, by end-of-life, selling on that business. And that's a continuous process for us within Industrial.

So in summary, if I move to the final slide, we're certainly in challenging times, and we are continuing to adjust all the time in response to the changes in our market. COVID has created an unprecedented situation for us, but I believe that through the culture we have as an organization, our teams have come together to do remarkably well through these tough times. We've continued to satisfy our customers' needs throughout this crisis with very little impact on our ability to supply them, and we've adjusted our workforce and managed our cash tightly over the last number of months. So I believe we're making the right strategic decisions for the industrial business for protecting our investment in core growth and in exciting disruptive opportunities. We're structurally adjusting the business to match the anticipated demand that we see in the future, and we're focusing on ongoing continuous improvement.

And with that, I'd like to hand back to Mark, who's going to describe the commercial aircraft business.

<<Mark J. Trabert, Vice President, Aircraft Controls Group President>>

Thanks, Pat. I'd like to take a few minutes now to talk about the other half of our aircraft business, and that's the commercial aircraft piece of the business. As you can see, that business is about 19 % of the company's revenues. And like all of our other programs and all of our other history in the aircraft business, flight safety is one of the most critical things that we like to think of. One of our most important things, our most important thing is making sure we bring home travelers safely every single day. So as we talk about the business, the commercial aircraft business, I talked earlier about the 50-year legacy or so in our military business. We've been able – over the last decade, a couple of decades, we've been able to take the technologies that we developed under the military business and bring them to the commercial market.

I have to rewind you for a bit into the 1990s, as we are beginning to manage our way, we're faced with managing our way through the peace dividend. It became clear at that time that we needed to diversify our company's aircraft business beyond just the military business. And we needed to expand our portfolio greatly into the commercial side of the business. Now we had some commercial business back then, but not much. We're largely a military company. At the same time, our customers, the people that build airplanes, Lockheed, Boeing, those customers were beginning to look to the supply base – the Tier 1 supply base to bring more systems for the next generation airplane as opposed to just components.

So we did our work in the 1990s, a combination of acquisitions and internal technology work, to position ourselves to really be an industry leader as we went into the 2000s. And that – the first part of that I talked about in the last presentation that really played itself out at first with our win in the F-35 in our multiple systems. Our experience and our industry legacy then put us in a position to be – to win a similar kind of content on the 787 program. We could bring the technology and bring our experience to the commercial marketplace. And we have similar large systems as the F-35 with the 787 primary flight control actuation system and the high lift system there. We were then able to put – to continue to build on that experience on the A350 program, Airbus' new wide-body aircraft, and we have similar content on their airplane.

We're then able to then build that experience together into the E2 program. We had never really had any work at Embraer prior to the E2 program, but Embraer decided that they were going to have their first airplane with a three-axis fly-by-wire flight control system on that. And so they looked at Moog as a company who had that experience, had that legacy, and they awarded us that contract. We had a really proud moment a couple of years ago when we were awarded Supplier of the Year at Embraer for development programs. Now Embraer at the time told us that they had never given that award to a flight control supplier. So it was really an affirmation of the position we had gotten ourselves to in the commercial side of our business, building off of our legacy in the military.

So the 787, I talked about A350 and E2 Those are really the primary programs as we go forward. So we do have – quite like the military business, we have a portfolio of legacy aircraft as well, the seven series airplanes with Boeing and the A320, A330. As you look at the pie, you can see that about – only about 22% of our business with the commercial business today is in the aftermarket. And you might look at that and say, "Wow, that's kind of an unusual situation for a supplier and your position in the industry." Really, that's a function of the portfolio that we have right now.

As I said, a lot of the legacy programs that we have presence on, those are sunsetting right now. And very little of the 787, A250 and new aircraft the E2 and some of our Gulfstream airplanes, very, very few of those have actually come out of warranty. So we expect over the coming couple of decades for that business to have natural growth. And we expect, really, over the next five years for that 22% aftermarket really will grow into the high 20s ,28%, 29% as we get through the next five years and a number of aircraft in the fleet begin to come out of warranty.

And when you look at the aftermarket, it is, as I said, on the military side of the business, we do the traditional repair and overhaul services and spares, but there's innovative business models that we put together, partnerships that we have, with airlines, with large MRO companies, and we bring different types of business models to tailor those to what the needs are for each of those customers and those provide real growth opportunities. And in addition to that, they see the same value that they saw on the military side of the business. There's more and more of discussion with them, and we've already begun work with them on supporting non-Moog product that is in their inventory.

As we move forward and talk about market dynamics, there's no way to talk about the talk about the commercial market without talking about COVID-19. And COVID-19 has severely impacted that marketplace. We don't view that as we're going through an industry cycle, we're going to have a downturn. This is really an industry reset, and we think it will be at least three years more like three to five years for us to recover to pre-COVID levels. The other big item in the commercial space is the return to service of the 737 MAX, well that's really an important issue for the industry, from a Moog standpoint, we have very modest content on the 737 MAX program. While the volumes are good, and it's a good program for us, relative to the wide-bodies, it really has a modest impact, all of what's going on with the 737 program. The softening wide-body demand really prior to COVID-19 was beginning to provide some headwinds for the wide-body market. And we think that COVID really has exacerbated that situation. As we look at new platforms, we don't see any new platforms of substance being launched anytime before the mid- to late 2020s. And so we would expect those would be airplanes that would go into service in the late 2020s or early 2030s.

And overall, when we come out of COVID, we believe that there'll be fewer aircraft in the global fleet as airlines around the world are accelerating the retirement of their aircraft. So return – so in the aftermarket piece of our business, really low passenger traffic is clearly impacting it. At one point, traffic was down over 90% in some markets around the world. There have been over 16,000 airplanes parked. So that all affects our aftermarket business. We do have expected – we expect a relatively slow return. And given our – we expect narrow bodies, which really support domestic flight, we expect those to return to service first. The wide-body market, which we're more of a player in the wide-body side of the business, we expect that will take even longer. Those airplanes are really mainly used for flights between North America and Europe, into and out of Asia Pacific. Potential – there will be potentially fewer airlines. And again, I talked about accelerated retirements.

So potentially, fewer airlines and MROs, while that will provide headwind to our aftermarket business, it also provides opportunity. We view – I talked about the aftermarket business models on the previous page. And we view that there will be opportunities there. Some airlines, some MRO companies are looking outside their company, looking at companies like Moog to provide some of the services that they've been doing, either inside their company or with other companies that are having financial struggles. So some of the initiatives, the investments, what are we doing? I talked about there being no new real starts in the commercial aircraft business over the next five years.

So, our focus is around maximizing performance on our existing platforms. And I'll talk about that a little bit later. And then expanding – of course, expanding our strategic partnerships and positioning ourselves to broaden our support in the commercial aftermarket business. We believe there are real opportunities there. Like in the military, there are opportunities in the – with U.S. airlines and outside the U.S. From a growth standpoint, we – I talked earlier about the aftermarket really becoming a bigger piece of the pie. We expect that will continue as time goes on over the coming decade. And maturing our technologies, the same technologies, same as the military, the technology and innovation maturity really positions us well for what we think are the next-generation aircraft, the next-generation flight as we head into the 2030s, things like urban air taxis and the like, and those require the same kind of electrification and unmanned/autonomous type of technologies to be relevant for the aircraft of the future.

On an operating margin standpoint, really, the improvement – the growing presence of aftermarket as a part of our commercial portfolio will naturally drive margins higher in that business. In the operational side of the business, John, in previous discussions, has introduced the idea of Operations 2.0. You ought to think of that as both focused on our internal operations and our supply chain. And that's really a long journey that we're on. It is a journey that has involved people. It involves processes, it involves technology insertion around our factories around the aircraft group. Our expectation, and we've done a lot of good work on that. We're already starting to see very positive response from our customer. Our commercial business, which was troubled over the last year on a performance standpoint, has really recovered. We've gotten very positive feedback from our customers. And that continues to grow there. We expect the next place to see improvement will be on our balance sheet as we work inventories down. And that will be followed 12 months to 18 months from now by – we expect there will be a continuous, more incremental type of margin improvement over a longer period of time. This is not a big bang, where there'll be one big or one or two big things that happen in one quarter, then next, all of a sudden, margins will explode.

So in summary, in our commercial business, COVID-19 has really driven the industry. It's – we think it's a three to five-year recovery in the wide-body market, which is a market that is largely impacting to Moog. We believe that's been exacerbated and probably closer to the five-year recovery, though we believe our aftermarket through its natural growth and through return to flight and support of nominal product, we believe that will recover a little bit sooner than that. We don't see any new airplane starts till at least the mid-2020s. We're focused on continuing to improve our operations and continuing to focus on investing and growing our aftermarket.

So with that, I'll turn it back over to Pat Roche. He's going to talk to you about the medical business. Pat?

<<Patrick J. Roche, Vice President, Industrial Systems Group President>>

Thanks very much, Mark. Now, let's a have a look at the medical markets that we serve, which generate about 10% of Moog's overall business. Focus here is on enhancing healthcare and enriching lives. And we do that through the product and service offering that we bring to the market, which makes life easier for the caregiver, for the dispensing pharmacist, for everyone involved along that supply chain, but ultimately, it can be life-changing for the customers that we are supporting, those patients who now depend upon our product for the quality of their life.

And we move on to the next slide and describe the business. We have about $250 million of business, which is split into three segments. About three eighth of it is in what we call Enteral. This is all around delivering specialized clinical nutrition to the patient. The focus is on post acute care. So, this is where you come out of the hospital environment and you're in a care home or a long-term convalescent facility. The products are sold both in the U.S. and in Europe. About three quarters of that business is in the U.S. with one quarter being in Europe, and that we believe it has the largest growth opportunities for us as a market.

If I move on to intravenous, this is about a quarter of our business. We make, again, we focus on post acute care. This is the sweet spot we have. So this is homes, hospice and nursing homes. The product delivers therapeutic drugs to the patient with precision and reliability, and we're a market leader in the space for IV in the U.S. These and the Enteral feeding pumps themselves are all regulated under the Food and Drug Administration. So our design processes, our manufacturing facilities are all accredited to the FDA.

And then the components sector, which makes up about three eighth of the business as well, is focused on a number of different technologies, which we bring into other medical device equipment makers. So for instance, care handling through the use of electric motors, driving blowers or impellers are used to move air in products such as ventilators, oxygen concentrators or sleep apnea devices.

In CT scan, we use slip rings. Admittedly much larger than many of our other applications, these are two-meter in diameter, and they can transmit data rates of up to a gigahertz to take the imaging signals that are being collected as your body is being scanned and send them back to the processing computers. And sensors and handpieces is a unique technology we have in the area of ultrasonics which is used both to sense the flow of fluid in, for instance, our intravenous pumps or to be used in tools that are used in orthopedic surgery. So we have quite a niche business in that area.

Next slide, please, and I'll talk a little bit about the market dynamics. So we have a surge of business arising from COVID-19 in all of these medical end markets. It had a dramatic and immediate impact as governments around the world have tried to quickly put in place the necessary infrastructure that they need and the equipment required to support patients. This has created a shift, where patients have moved out of the hospital into post-acute care to free up the critical care infrastructure within hospitals. And so that has driven demand for all of our products. The demand increase for our infusion pumps and medical components, especially going into simulators, has been quite dramatic during the course of this year. If I give you some indication, our staffing within our medical device business has increased from around 800 to 1,000 people as we've added internally capacity to supply and also through our supply chain, added additional capacity to keep up with the demand.

In the midterm, we expect that the surge will pass. We think we'll have to find a new equilibrium in pre vaccination times where inventory levels adjust; demand adjusts as governments work out how to be prepared for the potential of a second wave. And so we expect that citizens will demand that from their governments. And in the longer term, we believe the market will get back to the steady rates of growth that it has demonstrated in the past. Health care spending continues to rise around the world. And that is roughly at single – or mid-single-digit levels, and we expect that, that's going to continue in the long haul.

So the next slide, please. And I'd try and describe how we take advantage of that market. So we have a strategy, which I think is reasonably straightforward. We want to continue to grow our market for the

Enteral products. We've been winning market share. So we're growing at above the market rate, both in the U.S. and Europe, and we have a track record of success there. Part of that has to do with the products that we offer, but it's also the way in which we operate as a business and the reliability and dependability that our customers have in us, and that is winning share against our competitors out there.

We also have, as I said, a leadership position in intravenous care in the U.S. post-acute segment. We want to maintain that position in the market. We are launching our next-generation of pump, which will be the first new pump launched in 15 years in our company, the CURLIN 800, will hold our leadership position within that market space. And we intend to take that product and expand into the European market.

And finally, our medical components products, I mentioned air handling blowers, ultrasonic tools and CT scan. We have opportunity to build some more of that business within the European market. We already sell CT scan to European manufacturers, both the air handling blow motors and ultrasonics potentially can find new customers within the European market. That's another access of growth. So the growth itself that we see – as I mentioned earlier, we foresee that the demand for our products will grow at a rate, which is mid-single digits, so 5% or 6% over the next number of years. We obviously benefit from the market growth itself. The new products which we introduced, the CURLIN 8000, the intravenous pump I just mentioned, has just gone through all of its verification and validation. It has been certified by TUV in Germany, and we are in the process of making our submission to the FDA of the 510(k) application to launch that product within the next 30 days.

We're also working on the next-generation of Enteral feeding pump, which we'd expect to have in the market within two years. Finally, we're looking at new applications for the existing products that we have. And we're taking the CURLIN 6000 product, which is an intravenous pump, and now beginning to use that in oncology suites. So again, cancer care has moved out of the main hospitals and into the community. And in those locations, our product is eminently suitable.

So let me think a little bit about margin growth now. I mentioned lean and the lean journey within the industrial businesses, that journey is well underway in our medical device businesses. We have a manufacturing plant in Costa Rica, which makes the sets that are used in combination with our Enteral feeding pumps and our intravenous pumps. That facility started on a journey six years ago of driving the majority of its lean capabilities. And part of the reference point they took was to enter a competition in Costa Rica organized by the Costa Rican Chamber of Commerce, which started 22 years ago. And over 600 companies have joined this competition down through the years. And each year that the facility in Costa Rica entered the competition, they improved their results overall to the point where last year, they won the top award, which has only been given to seven companies out of 600 that have participated in that over the last 22 years.

So we believe that the capabilities we've developed there are critical to the success of that business and continually improving the margins that we have at that facility. Their next step is the Shingo Award, which I mentioned earlier as well, and they're well on the way to pass to that within the next two years. As an illustration, we're putting twice the volume of products through that plant that we did at the beginning through that continuous improvement. If I look at the economies of scale, we also have more fielded population of pumps now and therefore, greater demands for sets. So specifically, in our Costa Rican side, we've invested in parallel lines, additional radio frequency welders that allow us to create more of the consumable parts more quickly.

We've invested in automation. Some of the processes which were manual in the past, such as cutting of vinyl sheets to make up the dispensing bags, is now done automatically. We've vertically integrated, we've invested in extrusion, so the piping that we were buying from outside in the past is now being made internally at lower cost. And we've moved to a different logistics model where we're direct shipping to both Miami and Los Angeles to our main distributor. All of these drive margin improvement in our medical business.

If I move on to the summary, we're experiencing an unprecedented surge in demand due to COVID-19 in our medical businesses, and we could be up over 20% in business relative to 2019 as a result. We expect the growth to moderate post pandemic, but returning to longer-term growth rates, which are mid-single digits, and we expect to be able to deliver higher than that as a result of the products and offerings that we have. So we're investing in the facilities and tooling to allow us to do that. So with that, I'd like to hand over to Ann Luhr, who's going to chair the next segment of the question and answers.

Q&A

<A – Ann Marie Luhr>: This morning, we'll host two panels for audience questions. The first panel features Mark Trabert, Aircraft Controls President; Maureen Athoe, Space and Defense President; and Pat Roche, Industrial Systems President.

Q–: Our first question is for Mark Trabert. Mark, what progress has been achieved on your Operations 2.0 initiative? And when can we expect to see that contribute to aircraft operating margins?

<A — Mark J. Trabert>: As I talked about in the commercial part of my presentation, Operations 2.0 is really not just an internal thing. It's – we're working on our internal operations as well as developing the right processes to be a global supply chain management company, improved global supply chain management company across the world. There's a lot of work has gone into that over the past year. And we've already begun to see some of the results of that with our customers. We always expected that, that would really be the first things we see our customer result, which we think is extremely important. Our customers are always first.

And as I said in my presentation before, we expect the next improvement to show up in our balance sheet. We expect that to happen over the next 12 months. And then margins, we expect, as I said, this will be a long-range, a long road that we are on of continuing margins improvement – incremental margin improvements, which should start over the next 12 to 18 months. That is our expectation.

<A – Ann Marie Luhr>: Thank you. Next, for Maureen Athoe on space and growth. Over the past year or two, your space business has grown significantly. What's allowed you to take advantage of this industry growth?

<A – Maureen Athoe>: Thanks. And I feel really good about the position that we're in. And it was a deliberate reimagination of our space business. About five ago, we decided that – as we saw the large geo-telecommunications market starting to diminish, we wanted to – our intent was to focus more on the military space side of the business. At the same time, we had decided to divest ourselves of three sites we had in our European space business and to focus – and to be able to focus solely on the U.S. market or principally on the U.S. market.

In addition, we've made four space acquisitions from 2000 to 2013 and we wanted to optimize those. So put all that together, we transformed our space business into a position where, I think, we are really ideally positioned to take advantage of the growth now that we see in the U.S. space market, especially on the military side.

<A – Ann Marie Luhr>: And we're going to move to Pat Roche now. Pat, I'm going to combine two similar related questions here. How deep are the current pressures on your industrial businesses? And given those pressures, when do you expect to see a recovery?

<A – Patrick J. Roche>: Okay. Ann, thanks for the question. I think the best way to answer it is to think about the different end markets that we're engaged in. So if I start first with industrial automation, that was on a glide path of reductions for about 12, 18 months. As I said, prior to COVID-19, we were beginning, I think, to see the bottom of that. Then the COVID-19 impact came, and we've been in lots of conversations with our customers to understand how they're seeing the end markets they serve and the demand levels. So we're adjusting to that as we get their updates.

Our expectation is that the bottom is around the first quarter of 2021, and then we'll begin to progressively rebuild again. We're already seeing PMI data for most of the developed markets that we operate in has improved for the last two months, admittedly from a low during the depth of the COVID-19 impact. So there are signs of things beginning to turn. We think that's going to come through to us in about the second quarter of 2021. So that's industrial automation.

If I think about energy, we've been through fluctuations in oil price in the past. Oil prices were $110, $120 in 2010, 2011, 2012 timeframes, and we had a fairly significant business in exploration and production. Then as oil prices dropped in 2015, we adjusted our business to a lower level of exploration. And that business now is experiencing some volatility with oil prices having collapsed earlier in the year. I think I've seen numbers from Total, the French company that says they expect average oil price for 2020 to be about $35, this is Brent crude, $40 in 2021 and then progressively going up in 2022 to $50 and $60 in 2023.

So their expectation is that capacity rebalances and that the oil price recovers slowly over that time period. We expect that, that would bring back a lot of our production and oil business. Simulation, affected by the dynamics Mark mentioned, will be down until flight training picks up again on the commercial side. We have been talking to our customers. We understand where they are at the moment and their forecast and have adjusted accordingly.

And again, there's a military section to that as well, which continues to be robust. So I hope that answers the question. And back to you.

<A – Ann Marie Luhr>: Great. Thank you. Let's go back to Mark Trabert on commercial aero. Mark, when do you expect the commercial aircraft OEM and aftermarket to recover? And if you could add some comments on the E2 program?

<A – Mark J. Trabert>: The commercial aircraft market, as I said in my presentation, we think that's about a three- to five-year recovery. As we look at it, and we're talking to our customers all the time, some customers are more open than others in our discussions. And from a – so in the aftermarket – in the OE business, the business with Boeing, Airbus, we expect that business to really be closer to four to five years out since the preponderance of our hardware is on wide-body aircraft.

In the aftermarket, we're planning right now, our expectation is that it will be two to 2.5 years before that recovers to 90% of pre-COVID levels. And then we expect kind of standard, whatever the industry growth rate is after that. And this is the million-dollar question that everybody in our industry is trying to figure out how quickly will we recover, but we talk with our airlines, literally, every week, we're talking with our major airline customers. We look at industry data, with regard to flight hours, flight traffic across different regions and different airlines on different platforms.

So we're looking at all the data. What we're focusing now is on the OE side, it's a four- to five-year journey. On the aftermarket side, we get back to about 90%, 2.5-or-so years out from now. With regard to Embraer, I'm not sure if the question is around Embraer's recovery or the – around the E2 recovery, right. The E2 program, has been a little bit slow out of the gates with regard to customers. And as they come off, now that the joint venture between Boeing and Embraer is not going to happen, and we expect Embraer to begin – they're kind of – what they're doing right now is they're reevaluating where they are in the marketplace and the quality of backlog. We're working with them on quality of backlog of their customers. We expect that recovery to be pretty slow for the next couple of years.

And then begin – as the industry begins to recover, domestic flights, we think, will be the first flights that will recover in the industry, and the E2 program is perfectly positioned to support that recovery. So that's – we're a few years away. It's going to be a little slower recovery than we thought maybe a quarter or so ago. I just learned – we just learned this morning, the E175 has been pushed out a year. So it's going to be slow. We're going to keep working the program. We'll keep in touch with Embraer. We have very good relationships there. And we expect that to take a little time.

<A – Ann Marie Luhr>: Great. Thank you. Also, Mark, can you give us an estimate of how much of your military aircraft sales are classified?

<A – Mark J. Trabert>: We can't even talk about how much our sales are because if we talk about sales, that might give people that aren't clear on programs, indications. This is not avoiding the question. These are the rules that we have to follow. If we even give size of programs or size of sales, anything like that out to the public, we really run the risk of exposing what the programs are, which we could get us in trouble being that they're classified programs. So I can't really answer that question.

<A – Ann Marie Luhr>: Okay. Maureen, on the same question, but for space?

<A – Maureen Athoe>: Yeah. By contract stipulations, we are unable to divulge the information of our classified programs.

<A – Ann Marie Luhr>: Okay. Let's go to Pat for medical business. Pat, do you feel you'll be able to grow the business in medical markets beyond just market growth?

<A – Patrick J. Roche>: Yeah, we are pretty confident of that. And we've had a track record over the last number of years where we've exceeded the level of market growth. As I mentioned earlier, market growth over the last five years has been around 5%. We expect that the market is going to continue to grow at roughly that level. In the prior five years, we've exceeded market growth. As I said, it's partially – it's our business model. It's the products that we offer, but we are taking share away from the main competitors in the market. And we expect that, that will continue. And I mentioned why. We have

several new products coming to the market that's going to sustain us. So yes, we're pretty confident we can deliver above the market rate of growth.

<A – Ann Marie Luhr>: We'll stay with you, Pat, and go to industrial for a minute. What's the nature and extent of the portfolio shaping you've been looking at in your industrial businesses?

<A – Patrick J. Roche>: Okay. Maybe I can set some of the context for the portfolio shaping. If I go back a few years ago, I think, if you've followed the company, you would have noticed that we exited pitch control system business in wind energy in 2018. That was a painful experience for us. We lost staff. We had to shut some facilities as a consequence of that decision, but we believe it was the right thing to do for the company. The market we have been operating in have changed pretty significantly since we joined it.

What we were offering as a product wasn't being recognized for the differentiation, for the extra functionality that it delivered, and the market has become much more commoditized. So at that stage, we recognized that it wasn't a market in which our model was adding value, and we weren't getting the premium we needed. So we decided to exit that business. So you're talking about more than $60 million worth of annual revenues. So a big decision, a portfolio decision. I would regard portfolio management now is more of a process within our business. We continue to look at it across all of the businesses.

We're looking at businesses that are not performing financially well enough to meet our expectations are businesses which no longer fit with our strategy. If I give a simple example on the strategic fit, when we sold or shutdown the wind business, we had a small part of that business left over in the UK., which we continue to operate for a couple of years, which is making a unique sensor that was testing the stress in wind turbine blades. We sold that business which was about $3 million of revenue last – at the end of last year. So we continue to go through our businesses if you don't see whether they are appropriate to maintain or whether we should end-of-life or divest them. In the case of

In the case of assets that aren't performing sufficiently financially, we work out is there a way in which we can improve the performance over the next couple of years. And if not, decide then to end-of-life or exit that business or sell the business. You asked about how expensive is the work? I think I'd characterize it by saying that there's probably between 10%, 20% of our businesses that we're in deeper view of to see whether they're meeting our expectations or will be able to meet our expectations, and we would expect over the next two years to have made decisions on several of those, if not most of them.

<A – Ann Marie Luhr>: Great. Thank you. The next question applies to each of your businesses, and I'll ask Mark to comment first. How has your supply chain responded during the past few months? And have you been impacted by any supplier shutdowns?

<A – Mark J. Trabert>: Our supply chain, this is a really important question from COVID, okay? In our supply chain, we've been in touch with every single day. Our team meets every morning, talks about troubled suppliers, and we really have very open communication and great relationship with our suppliers, which is a key for us really understanding where they are. We had some problems early on, but we were able to work our way through those problems, but one of the real benefits that we've got, given the portfolio mix that we have of both commercial and military, is many of our suppliers support our military business as well as our commercial business.

So while there's a downturn in a piece of their business, the other part of their business with us has been very strong. So they're stressed. Some of them are stressed, especially the smaller ones have been stressed. But we continue to work with them. We continue to look for other sources as need be, if we are getting worried about a supplier that might be – that might be in trouble down the road. But so far, we haven't had any major disruptions of our supply chain as a result of COVID.

<A – Ann Marie Luhr>: And Maureen, do you have anything to add relative to your businesses?

<A – Maureen Athoe>: No. Our experience was very similar to Mark's. I would say that we did make sure we paid attention to the financial situation for our suppliers; especially for our key suppliers and that we paid them on a timely basis to make sure that they have the capital they needed to keep going.

<A – Ann Marie Luhr>: Great. And Pat, your businesses have a significant global presence. So you may have a slightly different take on this. Would you like to comment too?

<A – Patrick J. Roche>: Yes. Thanks for the question, Ann. I'd like to think about our own manufacturing capability and the supply chain as well in answer to that question. There was significant disruption. Our first interest was protecting the health and well-being of our employees, and we took a lot of precautions around our facilities globally, but we managed to keep our facilities, for the most part, all open and functioning during the course of COVID-19. We had some shutdowns for a couple of weeks or more in Italy and in India at various times. But for the most part, as I said, we kept operating.

Our suppliers, we had some challenges in the early days of COVID-19, difficulties in getting magnets, bearings. If I think about the medical side of the business, I've talked about the significant growth. And I mentioned the figure of staffing increases going on. We've added over 250 staff in medical. So a business that have 800 in medical devices in a very short period of time. It goes back a little bit to parsing about the culture of the company. We had people queuing along the sidewalk to join the company on a Saturday in January when we announced hiring in the Costa Rica facility. So we've been able to respond very quickly to get along with us as well on the medical device side. So overall, we managed our way through that very well, and we were meeting the needs of our…

<A – Ann Marie Luhr>: We have time for one more question in this first session. I'll ask for comments for both Mark and Maureen because the question is on defense and your thoughts on the defense budget in the next couple of years. So Mark, can you offer some thoughts first just briefly, please?

<A – Mark J. Trabert>: Yes. Defense budgets, we talk about how robust it is right now. Our expectation is that there will be pressure as we go forward, and the election could have even a further impact on that depending on the priorities of the incoming administration. That being said, we feel really good about the big programs that we're on, the strong growth platforms that we're on. And while maybe, say, the F-35 program is going to be just under 200 airplanes a month right now, a couple of years out, that may get scaled back maybe to 180 aircraft from 200 aircraft. So there'll be an impact, but not a material impact, we don't believe on our business. And remember, whatever happens in the government for the aircraft business, you really won't see that for a couple of years, 18 to 24 months after the budgets come out for the U.S. government.

<A – Ann Marie Luhr>: And Maureen, your defense business is currently very busy with funded development work. So maybe you can comment on that work as well as some of your long-standing production programs on the defense side?

<A – Maureen Athoe>: Well, I agree with Mark on the timeframe. I think there will be not much impact in our – close in, in 2021. We know there's good bipartisan support in the Congress for the space – for defense and space funding, and I think that will – and who knows what a Biden presidency will bring in terms of defense funding support. It's not likely he's going to want to appear weak to our adversaries, but this is all speculation at this point in time. But again, I agree with Mark, I don't think there's significant impact to our businesses in space and defense for maybe not until the latter part of 2022.

<A – Ann Marie Luhr>: Great. Thank you all for your answers.

Our final panel features John Scannell, CEO; and Jennifer Walter, CFO.

We'll start with John. John, do you see a benefit to reintroducing guidance? And what would it take for you to resume the practice?

<A – John R. Scannell>: We provided pretty detailed guidance for our investors, which we think is helpful in you creating your models and getting a sense of what we're seeing for the business. We suspended that guidance just over 90 days ago. And we continued with that suspension as we went through our third quarter, although we did provide what we called insights, which is trying to give you a sense of what we're seeing in our businesses broadly.

I think the question of resuming guidance is more a question of a set of conditions rather than when we would actually resume guidance. And really the set of conditions that we will need is a level of stability in our end markets that would allow us to be reasonably confident that we could provide the market with the type of guidance that we've done in the past. As I stand here today, I think that's probably not until there is clarity around probably a vaccine and that we can see the end of the COVID crisis in sight.

And unfortunately, I don't know that any of us know what that is today. But given the level of uncertainty that they talk about second waves, all of the things that may yet happen, I think it will be difficult to reinstate guidance before we understand what that future really looks like. And so I think it's more a question and of a set of circumstances that would allow us to reintroduce guidance rather than actually a timeline that I would like to commit to today.

<A – Ann Marie Luhr>: Staying with John. John, you described a focus on diversity in your end markets. How do you see that changing in the coming years?

<A – John R. Scannell>: Yes, diversity is something that we have enjoyed, I would say, for probably the best part of 50 years. I think the company originally started in the military business and got into the industrial businesses back in the late 1960s and early 1970s as Bill Moog expanded into Europe. And since then, we've had a pretty diverse portfolio across the company. And of course, in times like these, diversity is a wonderful thing to have.

In other times, 12 months ago, two years ago, there was a real focus across our industries on being more of a commercial aircraft supplier, but we like diversity. If you're running a company, diversity is absolutely critical to manage your way through the ups and downs and as we look to the future, we charge each of our businesses, each of our end markets and each of our business units with the opportunity to grow their business, find opportunities to grow and because diversity will continue into the future, but as I said in my opening remarks, diversity for us is across end markets. It's not across the technologies. It's not across the capabilities and it's not across the culture of the company.

So we're very focused on the technologies that we've got, motion, fluid control, used in applications where performance rules, that we take that through. We take that, too. So I could imagine in the future, perhaps we will have a new set of end customers in some new market. We talked a little bit about construction as an opportunity for us, perhaps in the future, but there'll be construction customers that are using hydraulic, electric, motion-controlled systems like our other products. So diversity is key. We anticipate that we will continue with that diversity for many years to come.

<A – Ann Marie Luhr>: We'll move to Jennifer on the financial side. Jennifer, can you comment on liquidity and do you see any need to raise additional capital at this time?

<A – Jennifer Walter>: Sure. Thanks, Ann. From a liquidity standpoint, as of the end of our third quarter, we had over $600 million of available borrowing capacity on our existing facilities. So when I think about the availability on our facilities and when we look out at the level of uncertainties that still remain as well as our projected cash flows in and out during the coming quarters, we feel confident that we do have the existing facilities in place to finance our needs. I think this helps us from a short-term and a long-term perspective. So at this point, I don't feel like we need to raise additional capital or do any modifications or amendments to our existing facilities.

<A – Ann Marie Luhr>: Great. And regarding accounts receivable, Jennifer, have you ever had any issues with receivables and collections activity in specifically the past four months?

<A – Jennifer Walter>: Actually, collections have been very good in the past several months for receivables. We've made a concerted effort on our activities in order to make sure that we're doing collections but we've also benefited from some of the programs that are out there. For instance, for the U.S. DoD progress payments, we were able to collect some receivables from when we had a shift from the 80% to 90% of progress payments, and we had a onetime catch up essentially in our third quarter associated with that. That was about $25 million that we collected. However, some of that actually goes and flows through our supply chain as well, but in addition to the collections that we had on receivables, we actually had some nice collections against some defense programs that came in the form of customer advances. So actually, that worked out really nice for us and contributed to the strong quarter we recently had.

<A – Ann Marie Luhr>: Great. Jennifer, we'll just stay with you and ask you how you feel about the various measures that you announced in April. You recently reestablished the dividend, but can you offer some color on M&A and capital expenditures?

<A – Jennifer Walter>: Sure. Yes. When we look at those activities for M&A, there's certainly not a lot of activity that's happening on in the market right now. Companies have a hard time getting around with the travel restrictions in order to do due diligence and things like that. So M&A longer term is certainly, a priority for us to complement our existing growth. However, there's just seeming like a little bit of a pause on some – on the overall market for M&A.

I think you also asked about capital expenditures. So capital expenditures. We did put a pause on some activities that were not deemed critical or necessary at that particular point in time, about 1 quarter, 1.5 quarter ago. So we did put those measures in place, and we actually reduced our capital expenditures in

Q3 a pretty decent amount. I think in Q1, we had – Q1 and Q2, we averaged $26 million or $27 million of capital expenditures, and that dropped down to about $17 million in Q3. So we did put a pause on that. However, we are looking at opportunities to selectively start investing in some of the programs that we had put on temporary hold.

<A – Ann Marie Luhr>: Great. And we're going to swing to John here. Staying on M&A, can you describe the process you use for looking for potential acquisitions?

<A – John R. Scannell>: Yeah. We have – our process, we have a very small team, a couple of folks at corporate that help build relationships with bankers to make sure we're involved in deal flow. But really, the essence of our M&A strategy is in the business units, at the operating group level, where folks identify opportunities, maybe suppliers, maybe customers, maybe competitors, maybe adjacent technologies that they believe would be – help them build future capability and expand their business.

From there, once we have opportunities, whether they've come in through corporate or the groups have found the opportunities, the work is really done in the operating groups, with support from the corporate team, but the idea is that it's the operating group's interest to buy the business. It's the operating group's then ownership of the business, and they're vested, of course, in the long-term success of that business. I would say our M&A strategy, though, is focused primarily on bolt-on acquisitions. It's not transformational acquisitions.

We believe that adding to our present portfolio with strategic acquisitions, where we don't see acquisitions as a strategy, we see acquisitions as an addendum to strategy, as a support of an underlying strategy and as such, we believe smaller bolt-on acquisitions that add to our portfolio are the way we will continue to go in the years to come.

<A – Ann Marie Luhr>: And John, again, what do you feel is the most misunderstood aspect of the company's strategy or value proposition by investors?

<A – John R. Scannell>: I think I'd refer to what I started our conversation with today and actually what we tried to emphasize in the course of the presentations, which is if you look at our stock and the correlation with the commercial aircraft stocks out there, it seems that we are classified both by the market, but also by bankers and investors as a primarily somehow being lumped in with the commercial aircraft suppliers. While commercial aircraft is a great business, and it's an important business for us, Boeing and Airbus are major customers for us, it's not the majority of our business, it's not half our business. As we said, it's under 20% of our business.

And we believe that if we look at the other piece of the business 50% of it is U.S. government-related defense space applications where we see tremendous strength. 10% of it is medical, where we see strength. And so that, I think, is perhaps the biggest misunderstanding of the community is that we get easily classified into a commercial aircraft company. And as I said, while that's very important for us, it is less than 20% of our business overall.

<A – Ann Marie Luhr>: So John, we heard from Mark and Maureen previously, commenting on the defense budget trends that we might see in the next couple of years. Maybe you have some thoughts on that as well?

<A – John R. Scannell>: Yeah. I think, Mark and Maureen, of course, captured all the major thoughts. I think it's four buckets. It's threats, it's deficits, it's politics, and it's programs. Clearly, the threats, China and Russia, they're not going to change, independent of deficits or independent of political motivations. And so I think that's a strong basis for the U.S. defense budget for many, many years to come. Deficits, of course, will be a huge challenge. All countries around the world, the U.S. as well, are spending enormous amounts of money to combat the pandemic. And at some point, we got to believe that, that money has to be paid back. So I think that's – there will be pressure on future budgets.

Politics, always hard to know how that will play out, but really, an election in November in the U.S., which is not just presidential, but we got the two houses as well, could have an impact, but very hard to say at this stage, whether that would be a headwind or a tailwind and finally, it's the programs that we're on. And of course, all of it, we believe we are on very sound programs for the future. And perhaps they won't make 195 JSFs, perhaps they'll make 175 or 160, it will still be an enormous program. Space is identified as a next frontier, a lot of our growth is in space. And hypersonics is seen as one of the key strategic requirements for the U.S., another area that we see growth.

So overall, I think we're realistic. But as we – as Mark and Maureen also said, it's probably a couple of years out. And therefore, we will have time to see it coming. Unlike the change in the commercial aircraft business, where we saw a precipitous drop in demand literally in the space of weeks where some of our customers halved or more their demand for our products, if there's a change in the defense budget, if there's a change in programs, we'd be able to anticipate that. And like we're doing today, we will manage our way through it to preserve value through the downturn and create value in the long-term.

<A – Ann Marie Luhr>: Great. I think we have time for one more question. John, this one's for you. John, in the 2008, 2009 timeframe, you were in a slightly different leadership role in the company, but you helped lead Moog through the recession and some difficult times. Fast forward to 2020, and you're the seasoned CEO. During the past three to four months, you've probably connected with and spoken to many of your employees around the globe. Is there anything that you had addressed or discussed with employees that you would like to share with investors?

<A – John R. Scannell>: This has been a very challenging time, I think, for management teams across the globe and definitely within our company. None of us had a playbook for this and yet, as Paul pointed out at the start, the culture of our company helps dictate for us and provide us with the guidelines that were obvious in terms of what was important through a crisis situation. And so right at the outset, we established two priorities: first and foremost, the health and safety of our employees and their families. And second was to continue to service our customers and thereby secure the long-term financial health of the company.

I'm glad to say, that as we stand here four, five months into the crisis, we have managed to succeed in both of those objectives, but they continue to be a daily challenge, and they continue to stand in front of us at the start of all communications with employees. I have been amazed at the response of our employee base around the world. I've described to people that if somebody suggested to me a year ago, why don't you send 60% of your employees home so that they can all work from home, it would have been a project that would have taken us three years to execute.

Instead of which, in three days, 60% of our people went home. Our IT folks made sure that the network continued to work. And a quarter later, when we reported our third quarter earnings, we demonstrated

that the company had continued to function successfully through that period of time. It's humbling to be the leader of a company where that level of dedication and commitment across the company from all our employees has helped to keep us moving forward, servicing our customers and, of course, preserving value for our shareholders. So it has been extremely challenging. On the other hand, it's been extremely natural because of the cultural base that we have across the company.
<A – Ann Marie Luhr>: Great. That concludes the second Q&A panel. Thanks to both of you, John and Jennifer, for your detailed answers. It also concludes all of the Q&A panels, and John has a few closing remarks. John?

<<John R. Scannell, Chairman and Chief Executive Officer>>

Thank you, Ann. Thank you for moderating our Q&A session. I'd like to finish with my closing remarks, which are the same as my opening remarks. As I said in my opening, I hope through the course of the presentation, you'll come to the understanding that our company is strong and that it's an attractive investment opportunity in today's challenging times. That strength comes through these five elements. It's an experienced leadership team. You've met them all today. Many of us were here for the peace dividend in the early 1990s, for 9/11 in the early 2000s, for the Great Recession in 2008-2009, and we're here managing our way through the COVID pandemic.

This bunch of folks knows what they're doing. They're responding to the crisis, and we're leading the company, we believe, in the right direction. We're diversified across end markets, which gives us tremendous strength. 50% of our business is defense, 10% is medical. 60% of our business is strong. 20% is industrial, and that's what we describe as impacted or pressured. And then, of course, the commercial aircraft business has got some significant challenges, but we also have a strong balance sheet, as Jennifer Walter described. I believe each of our groups have described the strategies for their businesses and their end markets which show short-term actions to make sure the business continues to function effectively and investments for the longer-term.

Our culture is our greatest asset. Paul Wilkinson described it, is something that we all live on a daily basis. And finally, I hope our story today has helped you understand that all of these actions are focused around creating value for our shareholders. And I would describe it as in the short-term, it's preservation of value through the crisis, but it's continuing to invest to create long-term value for our shareholders.

And with that, I'd like to thank you for your time, I'd like to thank you for your questions. This video will be available for replay on our website later today, and we look forward to meeting you, hopefully, in person. We would have liked to do this Investor Day, of course in person. We look forward to be able to get back with all of our investors and colleagues and friends around the world in person, as soon as possible. Thank you for your time.

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