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EDITED TRANSCRIPT

RTX.N - Raytheon Technologies Corp Investor Day

EVENT DATE/TIME: MAY 18, 2021 / 2:30PM GMT

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PRESENTATION

Unidentified Company Representative

Ladies and gentlemen, please welcome Raytheon Technologies Vice President of Investor Relations, Jennifer Reed.

Jennifer Reed - *Raytheon Technologies Corporation - Vice President of Investor Relations*

Good morning, everyone. It's my pleasure to welcome you here, Raytheon Technologies 2021 Investor Day, being first held here at Raytheon Technologies Research Center and streaming live on the Internet. I'm excited for all of you to join us today, both in person and virtually.

Please note, during the Q&A, we'll be taking questions here in person as well as online. For those here in person, if you could please raise your hand during Q&A, we'll bring you a mic so that you can ask a question. And please make sure you say your name as well as your company. For those on the webcast, questions will be submitted through the online chat function at the bottom left of your screen.

I would first like to remind you, today's presentation may contain forward-looking statements such as comments on future plans, objectives and expected performance. These are subject to risks and uncertainties that could cause our actual actions or results to differ greatly. You should consult our SEC filings for a description of those risks and uncertainties.

Now with that, I am excited to kick off the 2021 Raytheon Technologies Investors Day.

(presentation)

Unidentified Company Representative

And now, please welcome Raytheon Technologies' Chief Executive Officer, Greg Hayes.

Gregory J. Hayes - Raytheon Technologies Corporation - CEO

Thank you, [David]. Good morning, everyone. It is so nice to be here today in front of a live audience. I also recognize we're streaming this live. So for those of you that couldn't join us, welcome as well. This is the Raytheon Technologies Research Center. This research center was actually founded in 1929 to solve the emerging aerospace industry's most difficult challenges. The mission remains the same in 2021. And it's interesting that we have about 300 employees here, engineers and scientists. Over 70% or about 70% of them are actually PhDs. Across the entire enterprise over 2,000 PhDs, again working to solve some of the most difficult technical challenges that we face.

So the portfolio transformation that we've been talking about for the last 6 years, I would tell you, is essentially complete, and thank goodness for that. What I want talked about today, which you're going to hear about today, though, is the operational transformation of Raytheon is really just beginning. And that is the opportunity that we have in front of us over these next few years. It's going to be a transformation that's going to be focused on technology and innovation, transformation that's going to drive our margins higher and drive top line higher.

So I probably should have grabbed one of these things. I'm a little out of practice from Zoom too much.

So today's agenda, you're going to hear from each of the business unit's presidents, starting out with Steve Timm, followed by Roy. You get a chance to ask each of them questions at the end of their presentation. We'll take a short break for lunch. Then Mike Dumais is going to come up and talk about transformation, what's going on across the enterprise, followed by Wes and Chris, again covering their businesses. And then finally, Neil is going to come up and go through the financials, and then Neil and I will come back at the end and take Q&A from the group as well as from those listening from home.

I would just point out each of these businesses, if you think about it, Raytheon Technologies' 4 industry-leading businesses, each with revenue of more than \$15 billion each, again a leader in their marketplace, whether it's avionics or aircraft systems, which Mr. Timm leads; whether it's Pratt & Whitney and propulsion, Chris' business; space-based and intelligence solution, Wes' business; or next-generation radars and effectors, I'm not sure of that effectors things, but missiles mostly, but we'd like to use effectors. It sounds nicer. Regardless 4 very large businesses, all of whom would be a top 10 A&D business on their own with more than \$15 billion of revenue.

If you think about it, \$65 billion in pro forma revenue this past year, more growth to come; \$150 billion of backlog; a portfolio of over 46,000 patents and 60,000 engineers and scientists.

We also, of course, have a very strong balance sheet and a well-balanced sales mix. And you can see, 38% of our business is international; 62%, domestic; and 35% commercial; 65%, defense. Now in '19, that would have been 55%, defense; 45%, commercial. It will get back there over time, but it will be a while.

So we're confident in the future of the business, really because of the resiliency of the markets in which we operate. And you can see here, this is what we believe to be the trajectory of defense spending, both in the U.S. as well as internationally, in the markets that we operate in the coming

5 years. And what you can see, of course, is slow but steady growth. We do not anticipate a drop in U.S. Defense spending. We don't anticipate a spike in U.S. spending either. What we hope to see, though, is slow, steady growth. But where we do see the spending and we see the opportunities is in the markets where we have a competitive advantage, whether it's in space-based systems, whether it's in joint command, control, sensing systems and propulsion. We think we're in the right markets. And again, we will see growth, but it will be relatively slow.

Of course, where the real growth is going to come, it's the recovery on the commercial side. I think this morning, we saw -- or I guess it was yesterday roughly 1.85 million people across the TSA turnstiles yesterday. That's back to about 70% of where we were in 2019, so getting back. Internationally, of course, markets are still very, very depressed. We hope to see a recovery in international markets, but probably not until the end of '23 are we going to get back to 2019 levels.

The good news is once we get back to that 2019 level, we still expect commercial air traffic to grow at about a 5% CAGR annually thereafter as it did pre-pandemic. So the markets, they are resilient. They continue to grow. And the opportunity for us, of course, is to drive innovation across those markets. We invest about \$8 billion a year in research and development: \$3 billion of our money, \$5 billion of our customers' money. We also spend roughly \$3 billion on capital.

Our 4 key areas of focus: secure and connected ecosystems, right? Aerospace modernization; connected commercial operations; the connected battle space, which we'll talk about; cyber services. You can see all these. Autonomy and artificial intelligence: unmanned aircraft systems, machine learning; power and propulsion: next-gen, more sustainable aircraft, air mobility; precision sensing and effects: space-based intelligence, surveillance, reconnaissance, missiles and defense, directed energy and more. You can see from space to the air to land and undersea, we offer solutions across all domains and all markets.

Bringing these technologies together was, of course, the rationale for the merger. Over the last year, we have identified roughly \$10 billion of revenue synergy opportunities over 300 separate projects. To date, over the last year, we've gotten about \$150 million of that. What I would tell you is there is more to come beyond that \$10 billion.

The team works across the enterprise to identify these solutions. Some of the current examples are, of course, the FAA Enterprise Network Services, the FENS system, combining what Roy does with what Steve does on the comms side. There are some opportunities in integrated solutions, Future Vertical Lift, right? Each one of our businesses, all 4 of them have opportunities there, and we're collaborating across that. Cross-selling is, of course, Survivable Air Operations Center, the presidential transport. Again, comms systems, sensors, effects, all of those things come into play in all of these markets.

The biggest opportunity, the one that's not even listed on here, though, is something called JADC2, or Joint All-Domain Command and Control. This is the necessity of the future of how you command and get information in the battle space. Right now, there's a lot of systems out there. They are not connected. The DoD knows they need to have these systems connected so that you can take space-based, land-based, air-based, comms, sensing, put it all together, get it to the combat and commander to take action in real time. You'll hear a lot about JADC2 in the coming years. It is a single biggest opportunity that we see. And again, we have a team working across all the businesses to do that.

So as I mentioned, the portfolio transformation was essentially complete. It's probably never over. You can see here, commercially focused businesses. We actually sold Forcepoint earlier this year, a good business but one that really didn't fit in terms of what we saw as opportunities for growth in our space. You'll see here on the defense-based businesses, we are looking to divest our global training and logistics business. This is about \$1 billion of business. It's part of Roy Azevedo's business, again, not a bad business but not a growth business.

And so if we think about what makes a good strategic fit for us, well, first of all, it's the ability to differentiate technologically. It's going to be aligned with our customers' priorities, and we've got to see synergy opportunities across the portfolio. It's also got to have good growth and good margin and cash-generation opportunities. And you can see, we've got most things up in the -- moving to the upper right. There's still a few things to look at, but I would tell you the portfolio transformation is essentially complete today.

What that means, though, is the opportunity to drive operational transformation. Last year, we attacked cost and did a lot of things to drive cash into the business. The guys did a great job. We took out over \$2 billion of cost, but the opportunity is still in front of us. We need to start attacking

structural costs because structural cost reduction will drive margin improvement. We need to attack high-cost footprint. We need to attack the supply chain, both the direct and indirect; logistics; and factory waste. If you think about it, we spent \$24.5 billion in the supply chain on product-related costs. We spent another \$12.5 billion on indirect with 41,000 suppliers. As you'll see later from Mike, that represents a big opportunity for us over these next 5 years to combine supply chain to get synergies and drive margins across those businesses.

The other opportunity that we have is our operating system. So many of you who have followed UTC or followed Raytheon knew we had our own operating systems. For UTC, it was called ACE, Achieving Competitive Excellence. For Raytheon, it was R6 SIGMA. We have combined both of those programs, along with industry best practices, to something called CORE, right? This is our new operating system. It's Customer Oriented Results and Excellence. We're going to roll it out across all 178 factories in the next couple of years. And again, this will drive productivity in the supply chain as well as in the factories.

We also have a major effort underway at digital. We call it the digital thread. What that means is combining everything that we do into a single digital platform, from the time we do the design development through DevSecOps, which is the software portion of the development, through the operations, through supply chain, and finally, through sustainment. It's the ability to put all of that into a single digital footprint that will allow us to cut development time in half. It will allow us to cut costs and allow us to reduce customer cost. I think that probably the best example of this that you'll hear about in Wes' business when we had the requirements for the new LTAMDS system, which is the Patriot replacement or upgrade, 9 months from requirements to working model, because if you're employing digital tools. We need to do that across the enterprise, and that is underway. So the single digital thread reduced factory waste, including scrap rework and repair, where we spent almost \$700 million a year on scrap rework and repair. We can cut that in half. It can also significantly improve customer satisfaction.

The key of this, of course, operational transformation, also we keep in mind our responsibility from an ESG standpoint. Obviously, on the environment, we've been working for a long time to reduce greenhouse gases, to reduce water consumption, hazardous wastes. We've got a further commitment by 2025 to reduce all these by another 10% beyond these reductions already. So the environment, we take this seriously, and we've committed to improve all of these metrics.

We're also focused on the community, right? We made a commitment a couple of months ago to invest \$500 million over the next 10 years in community efforts, community efforts around education, around DE&I and STEM and how to best support our military service members. This is a big commitment but one I think is absolutely necessary for us to step up. It's called Connect Up.

And lastly, I would say on governance. We have a very strong Board of Directors. If you think about the Board, we've got great commercial aero experience between Marshall Larsen, Kelly Ortberg, Denise Ramos and George Oliver, all people with long service in commercial aerospace markets. On the defense side, Admiral Sandy Winnefeld, former Vice Chair of the Joint Chiefs; Ellen Pawlikowski; Bob Work; Meghan O'Sullivan; and Bernard Harris, again solid defense credentials. And on the operational side, Dinesh Paliwal, who's our Lead Director; along with Fred; Tracy; and Brian, solid Board. And again, this governance, the focus is on one thing, that is making sure that we have the right talent and the right leadership for the business over the long haul.

This is our leadership team. You're going to see -- you're going to hear from Roy and Chris, Wes and Steve, as well as -- where is he? Let me see here. Mike and Neil. Also here, for those of you that are -- good chance, I'll introduce Mark Russell, our Chief Technology Officer. Mark, could you please stand up so the cameras can see you? Frank Jimenez, our General Counsel; Pam Erickson, our Head of Communications; Dantaya Williams, our Head of HR, hiding back there. Again, this is a great leadership team. And I would tell you that we, as a Board, spend a great deal of time making sure that we have the right talent in the organization.

It was interesting when Kelly Ortberg came to me a year ago and said he wanted to retire at the end of the year, I said, "Do you really want to go?" And Kelly said, "Yes. I really want to go." The good news is, even though he has retired, Kelly remains an active member of the Board. He remains an active mentor and coach to many of our senior executives. Not just Kelly, but Marshall and Dinesh, all of the Board members take this extremely seriously. The idea of succession and talent development, not a Board meeting goes by where we don't discuss that.

So again, I would tell you, we've got a great leadership team, and we've got the leaders behind them who spent the last year looking at the top 100-or-so executives in the organization to make sure that we had the right talent pipeline for the next generation because, again, these jobs are transitory, but the products last 30, 40, 50 years. And so ensuring that we have the right pipeline of talent is absolutely essential.

So because of that, I'm very confident in the future. We've got strong franchises. We operate in resilient markets. We've got great technology. We're going to focus on operational excellence in these next 5 years to drive margins, and we've got an experienced leadership team. So you can see, this is our goal: to return \$20 billion plus to share owners in the first 4 years after the merger.

Sales growth, we think, will be 6% to 7% on a compound basis from 2020 through 2025. We're going to drive margin expansion of 550 to 650 basis points with more than \$10 billion of annual free cash flow. All of that while still investing more than \$6 billion a year in R&D and CapEx. Clearly, a great future ahead of us.

And with that, let me turn it over to Steve Timm to talk to you about Collins Aerospace and the journey that they have been on. Steve?

Stephen J. Timm - *Raytheon Technologies Corporation - President of Collins Aerospace*

Good morning. I'm Steve Timm from Collins Aerospace, and I can tell you, I'm happy to be here to share our plan and overview of our business, which having been at this business for the last 25 years, I can tell you, we have a fantastic leadership team, great business. And of course, you know it. You know it as a historic business of 17 heritage businesses that have come together with a pioneering spirit that helped shape aerospace and defense but also the capabilities to go forward and really revolutionize, redefine aerospace.

Let's back up a moment. Here we are today focused on how we navigate COVID. It's really the start of our plan. How do we help move commercial aerospace forward? But I'll tell you, at Collins, there's a silver lining. The silver lining for us has been a catalyst, a catalyst actually to regroup and rethink how we're going to emerge stronger. In fact, I've witnessed our employees. Fantastic employees learn to operate differently, not only operate differently, but help each other be healthy and safe. I've watched our leaders support really difficult decisions as we've resized, commitments to actually emerge stronger. But most importantly, the emergence of a plan, a plan to go optimize top line and bottom line and one that this team is poised to deliver. And that's what I'll focus on today.

So let me begin right upfront with the essentials, the things I think you're interested in talking about right away. It's also the way that I think about shaping this business as we go forward, and I'm going to talk about 4 key points, starting with the numerator side.

First of all, growth through differentiation. What's that mean? It means Collins is going to lead, not lag, commercial aerospace recovery ahead of growth, ahead of segment growth. And how do you do that? You do that with really strong OEM positions as well as a robust installed base. But in addition to that, it also means expanding beyond the aircraft. Our industry is very tempered on waiting for that Halley's Comet to come around, that next clean-sheet aircraft to gain share and add content. Collins has done that fantastically well as I'll show you, but the full potential of Collins resides beyond the next-generation aircraft. It's putting capabilities together across Collins, across RTX; putting more challenging opportunities in front of us across the airspace, how that aircraft operates, whether that's commercial aerospace or the battle space.

Point number two, industry-leading performance. This starts and ends with the customer. It's innovating to differentiate, to win. But then in this industry, do what you say you're going to do. This is where I spend most of my time, understanding how customers think, what it takes to win. That's a -- in fact, that's how I think about shaping our business, our culture, our business and how we actually optimize on behalf of the customer. In fact, that's how we've structured our business through customer-focused value streams to optimize not only performance but to put P&L pressure on top of cost, on top of overhead.

Number three, on the denominator side, structural cost optimization. When you bring 17 business together, there's still opportunity to continue to drive cost in this business, cost down. We'll bring a disciplined approach to optimize this business into an efficient machine.

And point four, delivering margin expansion, that top line I talked about, that cost optimization bringing margin expansion, which I'll get into in more detail.

But first, let me give you a little overview of Collins Aerospace, snapshot of this business. And I should start with the 68,000 fantastic employees we have, strong expertise, new ways of working this last year and a commitment to the customer to continue to deliver, which we did this past year, improve operations and keep each other safe. Within that, 15,000 engineers focused on innovation and collaboration. Sales of \$19.4 billion, roughly 25% below where we were in 2019. And we invest. We win and we invest, \$3.5 billion, focused on 3 things: product leadership, strong returns and cross-business opportunities. We operate a relatively balanced portfolio, 60% commercial today. As Greg said, for Collins, pre-pandemic, that would have been 75% commercial. Now what you're going to see is we actually return, expand our defense business, expand even faster, leading the growth of commercial, you're going to see us get back to that 70%, 75% commercial. Internationally, very strong business, both commercial and defense.

And one other key point here, we have relatively balanced OE and aftermarket as it contributes both to sales and profitability. Since the coming together of Rockwell Collins and United Technologies, much more balanced contribution to both OE sales and profitability. We operate as 6 SBUs, as you can see on the chart, each relatively balanced \$3 billion, \$5 billion in size, fantastic deep market knowledge expertise across these businesses. Moreover, fantastic leadership teams, 20-plus years of experience, having been experienced both in all market segments, mostly across the value stream in different roles, very poised to lead this business forward.

A little bit more on the businesses. Today, these are 6 that are portfolio-leading franchises. You know the range of capabilities that we have: aero-structures and mechanical systems, interiors and mission systems, power and controls and avionics. We've structured these businesses as we came together in the merger, moving parts around so that we had focus on channel, technology but also operational efficiency, putting this business together. And here's the key point. Today, we have 150 market-leading product lines across 100,000 airplanes. In fact, today, right now, there's 2.5 million Collins components flying in the air. And in the next second, another aircraft is going to take off loaded with Collins equipment.

But here's what I think about, independently strong, but don't miss this, the full value of Collins actually is in the complementary capabilities that exist across this business, especially when you think about more connected systems, more digital systems, more integrated systems.

We also benefit from synergistic technology investment. What's that mean? It means we can invest in one market segment. Think about a BizAv cockpit. We actually take that architecture into commercial systems, and then we take it in the military. Today, it's on helicopters. It's on tanker transport.

At the end of the day, Collins is more than the sum of the parts. Think about strategic focus beyond the aircraft for us like connectivity as a strategic asset. You think about enhancing the aircraft as a node on a broader network where the full efficiency of it means interacting with solutions that are across that network. And for us, we uniquely have those pieces as part of our business today. The intelligent systems, the resilient network, the connections in the airports and airlines commercially, bringing those full new solutions to bear.

So now I'll review a little bit of each of the market segments: commercial OE, aftermarket and defense. Each of these charts has a key discriminator I want to make sure comes out. First, we're well positioned on key platforms. Today, we have twice the content on a current aircraft and a legacy aircraft. What's that mean? Today, you might go to Boeing, you'll see that we're the next-generation cockpit. As we transition from Airbus, CEO to NEO, 45% increase in shipset content. And that's boosted even more as you think about the recovery. If you look about capacity and production rates going forward, that's going to be driven by single aisle, whether that's domestic, in region, international, 75% of that capacity, looking forward, is single aisle. So we're very strongly positioned on those aircraft.

While we don't see a major new clean sheet on the immediate horizon, I will tell you we're very active with the OEMs on our technical road maps to make sure if our systems can contribute to that incremental 10 to 15 points of efficiency gain, we're surely there. But I don't want to stop there. If there's no immediate clean sheet on the horizon, the thing we focus on also is bringing those tech inserts back to airlines who are taking today's production aircraft and also retrofits.

Let me give you a couple of really powerful examples. Today, I will tell you very proudly that we are the market leader in segment capture from a BFE perspective, airline selectable buyer furnished equipment, whether you think avionics, interiors, wheels and brakes. In the last 3 years, we've captured 1.3 billion contracts for wheels and brakes.

Let's think tech inserts. When you get a chance to go to the demo area, you're going to see a touchless lavatory, something we actually started pre-pandemic. We're getting a lot of interest from airlines to talk about how to bring that into the OEMs and to get those on their airplanes.

Another great example, enhanced vision systems. Think about increased operational performance, enhanced safety across all market segments, whether that be BizAV, commercial or military. We just recently secured that enhanced vision system on Airbus' single aisle already at Boeing, a great option. You think about each of these in the \$100 million plus range.

So strong content, 2x, favorable high-volume positions, BFE capture, attractive tech inserts, feel really good about our commercial OE positions.

Let's talk aftermarket. Obviously, key, both to our growth and our profitability, building off the OE gains I just talked about. I think the key here is Collins has the largest installed base in the industry, \$80 billion of equipment, 500,000 part numbers and 60,000 commercial aircraft. And the key discriminator here is that for every aircraft that's coming off a warranty has twice the Collins content as something that's being retired, so favorable positions as well as you think about growth and utilization.

If you look at flight hours, RPKs, you'll see as we expect to be 30% to 40% below 2019 levels by the end of the year, which tracks, as you can see on this chart, to our out-of-warranty flight hours. Just anecdotally, I'll tell you, we're seeing repair volumes where we need them to be. And we're seeing some nice provisioning this year as airlines are ramping up for summer flying.

I'm increasingly encouraged by mods and upgrades as well. One question I get a lot is about our Interiors business. Oh, you must track the widebody recovery, as analysts would say 2025 and beyond. But I'll tell you, our Interiors business has a tighter profile and recover at least a year ahead of that. And there's a few reasons, but one of the reasons is what we're already seeing in the market this year. For example, year-to-date, \$0.25 billion of opportunity that were already under contract by 5 airlines to upgrade twin aisles because of the 24- to 36-month lead time it takes to upgrade those aircraft, fantastic momentum early here.

Active bizjet, front of the aircraft, back of the aircraft retrofits, upgrades. And what I'm excited about is where I came from, information management. We're watching large airlines equip their aircraft with digitalization, I'll call it. More ability to go optimize their aircraft in the airspace, both from a maintenance perspective, think prognostics and health maintenance or think connected ecosystem, trajectory-based operations. In fact, this emerging segment is where I think Collins begins to transform the aftermarket.

I've been in our services business in the past, and it's all about MRO, provisioning and parts. But the next generation should be about these software solutions. The way I think about it, you've got this infrastructure, this infrastructure of the network, the aircraft systems. But on top of that, the software solutions you can put on top.

Let me give you a flavor. Today, we do \$1 billion of revenue in this segment. We expect it to grow double digit as an emerging segment. There's over 6,000 aircraft with Collins equipment today, and our ARINC network transmits 25 million messages -- 30 million, excuse me, messages per day. So you take that infrastructure and you add software on top of it, the things you can do, and you'll see it in our demo area, flight profile optimizer. This is exciting to me. Think about the value proposition.

In 2019, airlines spent 96 billion gallons of fuel. We've done trials with airlines to demonstrate a 1% to 2% savings. What's fantastic about that isn't just the fuel savings and the money that goes with it. It's the fact that they can be more on time and the sustainability benefits, which increasingly is the value proposition. You could save 4.6 million metric tons of carbon per year with this kind of a solution. It really comes together. So I'll tell you, with our robust installed base, favorable warranty profile, our mods and upgrades and these kind of connectivity solutions I just talked about, we're really excited about our aftermarket momentum.

Okay, transit to defense. Defense, I will tell you, is -- got numerous expansion opportunities, especially now as part of RTX. Today, we're made up of both airborne and mission solutions. Roughly 60% airborne on 40,000 military and allied aircraft. Think fighters, tanker transport, helicopters, even UAS, on all generations of aircraft, F-35, KC-46. But the one I'm excited about is how we're seeing the extension of these aircraft even go longer. Think modernization. In fact, we've seen appropriations targeting Collins types of upgrades on C-130, prop upgrades for more efficiency, wheels and brakes. We just had a big takeaway on B-52 on wheels and brakes that will take this aircraft out to 2050. Nuclear modernization like

E-6A GBSD. Future programs like Future Vertical Lift that Greg referenced will not only bring our key suite of products but also future capabilities like mission systems integration.

We have a growing footprint on the mission side as well. But I should tell you first, on the airborne side for communications, our systems transmit nearly 70% of all allied and U.S. military airborne communications, just to give you a flavor of the pedigree. On the mission side, I'm increasingly excited. I think Greg referenced some revenue synergies. Collins is a key incubator there. Those high- and medium-profile opportunities, we're involved in 90% of them, bringing a key ingredient or a key partner to all the Raytheon businesses. And of course, that's the \$10 billion across RTX we talked about.

And then there's an equivalent to connected ecosystem on the defense side. It's connected battle space. Think about the connection of space, airborne and ground. It's part of the national defense strategy on multi-domain interoperability. And of course, we have those capabilities, whether it's the resilient networks, the intelligent sensing systems, command and control, all part of that JADC2 or Joint All-Domain Command and Control, working with Roy's business on things like advanced battle management systems, bringing those capabilities together with recent wins like Assured PNT.

But I'm going to transition from the standard OE on commercial, aftermarket and defense to something a lot of other companies aren't talking about. It's really the promise of Collins building beyond the aircraft. It's solving our customers' most difficult challenges. It's building into new emerging segments. And the way that you do that is you do that with your strong product base by portfolio investing in the right things that have extensibility into these emerging segments. Let me give you a couple of examples.

Autonomy is one I'd like to talk about. We have the pedigree already in the baseline of core products, whether that's flight control systems, auto pilots, surveillance, fly-by-wire systems. But you know how autonomy is going to generate maturity. First, reduce crew operations, building on those systems I just talked about. Then single-pilot operations, full autonomy, and 1 day, advanced their mobility. We're active in all those segments. Another is power, electrical power. World leader in electrical power across aircraft, both in power generation, power distribution. But today now, working with Chris' team at Pratt on a hybrid electric aircraft, a 1-megawatt motor increasing 30% fuel efficiency, sustainability benefits. I think they're creating great opportunities there.

One more example, advanced structures. We have fantastic expertise in what I'd call as thermal aero-structures in the harshest thermal environments and how we work with now Wes' team on hypersonics to bring those kind of structure, intelligence and expertise to bear. And as I said, growing beyond the platform. It's not just about the aircraft and waiting for that next-generation clean sheet. It's about bringing these capabilities together now in the connected ecosystem, the connected battle space. So you can see why we're pretty excited about bringing all this together as part of RTX, where our full potential can really be realized.

Okay. Let me take a moment to talk to you about how I think about investment. I got asked this question a lot. I'm a big advocate of portfolio management. And today, this is how we split it. About 50% are our market-leading products. Think about products that are focused on share gains through selectable capture, value-driven retrofits, tech inserts, some of those that I just talked about. We parsed another 20% into what I'll call skating to where the puck is going to be, the 20% on the existing platform leadership but moving beyond the aircraft platform.

And then lastly, but not least, we invest to save. Bringing these businesses together, we continue to have opportunities to drive investment into savings. First, we're delivering on the Rockwell Collins \$600 million, which we're on track for. Then we're going to take our structured approach we've been using for synergies and move those resources and those experts into cost reduction. So today, I'm expanding our cost road map, our cost-reduction road map to a full \$1 billion. It's the \$600 million from Rockwell Collins, the incremental \$400 million that's part RTX and part structural optimization to get to the full \$1 billion.

Just to give you a flavor of how much activity there is in Collins in some of these areas, 2 areas. First, footprint. We have 36 active projects today that have an average payback of 2 to 4 years. It means we've still got opportunities to continue to optimize this cost structure. We've got over 27 ERP systems that grew up in these independent systems. That digital thread Greg talked about, putting those systems together to really drive cost optimization and better operational performance in our businesses. So we're investing to save.

And if you do portfolio management right, takes focus and commitment, I believe we'll continue to find differentiation with the tough consumption choices that drive both competitiveness but margin expansion, which is where I'll go next. Let's look at the numbers.

Starting with our 2025 margin expansion road map. I know it's a key question on all your minds, so I'll get there right away. First, sales over the period, 6% to 7% CAGR. That's margin expand -- excuse me, that's defense expansion as well as the quick growth we talked about in commercial. The operating margin expansion is 27% to 30%. The key here for you, and I know you'll do the math quickly, is that this is actually consistent with the 20% operating margin expectation that I have for the business by 2025.

So let me walk you through how you get there. Today, we're 8%, you know that. How do you get to 20%? It's 3 things. Number one, it's top line growth. That volume fuels 600 to 700 basis points. Number two, structural cost improvements I just talked about, 200 to 300 basis points. And number three, I'll call it mix portfolio shaping, another 2 to 300 basis points, delivering the margin expansion but don't forget the cash flow, which I expect this business to consistently be in that 100% conversion range. So I like the financial outlook for this business. More near term, you may -- we remain on track for 2021. You've seen where we are as part of our upgrade to our outlook in April. You can see the numbers here.

Okay. I'm going to finish where I started. 2020 was an incredible challenging year of resiliency, adaptability by our employees and our teams to deliver but was a catalyst for us to develop a plan forward to optimize this business, one that drives growth through differentiation, means you innovate, you win. Customer industry-leading performance. You do what you say you're going to do. And then you drive that portfolio improvement. You drive that cost reduction and deliver margin expansion.

Okay. With that, I'm happy to take any questions you might have.

QUESTIONS AND ANSWERS

Jennifer Reed - Raytheon Technologies Corporation - Vice President of Investor Relations

Thank you, Steve. All right. We'll take our first question from Carter. We'll bring a mic down to you.

Carter Copeland - Melius Research LLC - Founding Partner, President and Research Analyst of Aerospace and Defense

Carter Copeland with Melius Research. Two questions. One, just looking at the production rate chart that you have there on narrowbodies implies 1,200-or-so narrowbodies in 2025, which is where we were in '18, but the traffic chart is sort of 13% higher. So is the view -- you could have some conservatism there. It might be a little bit better. I realize that the recovery is still in its somewhat nascent stages, but comment on that, please?

And then secondly, on the margin front, When you look across the 6 SBUs and where each of those stand relative to the aggregate segment margin today, can you give us some color on that and where the opportunities are, probably more rather than less across the SBUs?

Stephen J. Timm - Raytheon Technologies Corporation - President of Collins Aerospace

Sure. Thanks, Carter. Okay. Starting back to the production rates. I'll first tell you we're very aligned with what the OEMs are saying today about the production rates. Here's how I think of it working backwards: wide-body, 2025 plus; narrowbody, end of 2024; and business and regional, actually more 2023. So that's the rough recovery trajectory that we're seeing in those segments, Carter, as we've broken it down.

Carter Copeland - Melius Research LLC - Founding Partner, President and Research Analyst of Aerospace and Defense

And is that what the plan is built on? Or does it match the chart?

Stephen J. Timm - Raytheon Technologies Corporation - President of Collins Aerospace

No. That is what the plan is built on.

The second part of your question with respect to margin and the business. Here's the way I think about it. First of all, we've got a portfolio that's really unlike any other in the industry. In fact, when we compare ourselves to other peers, we often have to go segment ourselves to really understand how to think about our margin performance. But I will tell you that the rough way to think about it is on the front end of the recovery as well as the margin performance. You'll see businesses like avionics. Aero-structure is more single-aisle dependent, as an example. Our Interiors business and Power & Controls, which is more dependent on 787, make towards the back half of that average that you asked about.

And so the businesses, as they come together, obviously aggregate into that profile of 20%. But obviously, we have some on both sides. And I think that's important, Carter, what you're asking because that's the portfolio management message I'm trying to deliver here. As we look at both investments and composition of our portfolio, we really want to drive as we recover how to optimize that. And so that's a key focus going forward.

Jennifer Reed - Raytheon Technologies Corporation - Vice President of Investor Relations

Okay. Great. Let's take one from you.

David Egon Strauss - Barclays Bank PLC, Research Division - Research Analyst

David Strauss from Barclays. Steve, a couple of questions around the aftermarket. Can you talk about the potential risk of used spare parts as the market comes back in each of the, I guess, 6 SBUs? And then you talked about the out-of-warranty trend being your friend. Can you give us a sense of how much of the business is truly still today exposed out of warranty versus beyond flight hour arrangements where just flight hours coming back will drive the upside?

Stephen J. Timm - Raytheon Technologies Corporation - President of Collins Aerospace

Good question. So your first question is about USM. In fact, we just went through a deep analysis on this. We actually have a business called Intertrade, which you might be familiar with. We're pretty familiar with the use parts. The other thing that's important about that analysis is only 20% of systems are part of the USM exposure. And in that, what we've looked at overall is that as they start to take aircraft out, there is a capacity for how many parts can be consumed off aircraft in a year. About 1,000 aircraft is what we've come to the conclusion of. But in that, it represents less than 0.5% of aftermarket exposure for the Collins businesses.

Your second question?

David Egon Strauss - Barclays Bank PLC, Research Division - Research Analyst

Power by the hour.

Stephen J. Timm - Raytheon Technologies Corporation - President of Collins Aerospace

Power by the hour. So I don't know the split here of how much power by the hour, say, time and materials. Obviously, we've continued to see more and more power-by-the-hour contracts even through COVID as airlines are really focused on trying to get a predictable maintenance profile for their aircraft. I would tell you, that's grown significantly, even in this past year, over \$1 billion of orders have been at play, and we've continued to secure more flight sense as you -- contracts.

Jennifer Reed - Raytheon Technologies Corporation - Vice President of Investor Relations

Peter?

Peter J. Arment - Robert W. Baird & Co. Incorporated, Research Division - Senior Research Analyst

Peter Arment with Baird. Can you maybe just talk about incrementals of what we should expect as kind of volume comes back, how to think about -- I know we've talked a lot about the decrements. Nice to talk about the incrementals as you just highlighted the big margin expansion story.

Stephen J. Timm - Raytheon Technologies Corporation - President of Collins Aerospace

Yes. Peter, you took the words out my mouth. It'd be nice to talk about incrementals. So -- and the reason why is because we have a great incremental story, right? I think Neil talked about this in the Q1 earnings call that we've got 75% incrementals planned in our year. So while we're a little heavier on the decrements coming down, I think it's really -- you got to net the 2 out as you're thinking about how to move forward here. In fact, I'll tell you, in Q2, we'll be over 100%. And so as we work through the incremental story, I feel really good about how the decisions we made are really playing through now in Q1 for the remainder of the year.

Jennifer Reed - Raytheon Technologies Corporation - Vice President of Investor Relations

Great. Steve, let's take one from online, if that's okay. So this comes from Rob at Credit Suisse. Hi, Steve. Can you talk a bit about the electric taxi opportunity and the timing on adoption? Can it be retrofitted? Or must it be introduced with a new platform?

Stephen J. Timm - Raytheon Technologies Corporation - President of Collins Aerospace

Well, I wish I had an answer. I know we do an electric taxi solution. I didn't talk about it here. I don't know that I can tell you much more about it in terms of timing to market. So I would have to follow up on that.

Jennifer Reed - Raytheon Technologies Corporation - Vice President of Investor Relations

Okay. We can follow up with Rob. Okay. Coming down. Yes. Right here.

Noah Poponak - Goldman Sachs Group, Inc., Research Division - Equity Analyst

Not to ask a repeat question from Peter's question, but can you maybe put some numbers on what you think the incrementals are in the business? Just because Collins used to have 40% incrementals and BEAV had high incrementals. So it seems like a high incremental margin business. And if I take the margin guidance you're giving here, it kind of looks like a 30-something percent incremental is implied by the guidance, which looks like just what the core business does as opposed to having this cost-out opportunity on top of it? And then specifically to the cost out, can you just clarify if the \$600 million to \$1 billion, is that just incremental Rockwell Collins synergies? Or is that quantifying what the cost out is?

Stephen J. Timm - Raytheon Technologies Corporation - President of Collins Aerospace

Let me start with the back side of your question. So the \$1 billion commitment is inclusive of the \$600 million, but the incremental \$400 million is across all of Collins as well as the contribution of Collins Aerospace to the RTX, \$1.3 billion.

Noah Poponak - Goldman Sachs Group, Inc., Research Division - Equity Analyst

Is that what you're calling your structural cost out?

Stephen J. Timm - Raytheon Technologies Corporation - President of Collins Aerospace

Yes. And then the delta of those is actually the structural cost, the footprint, the digital, the things that I'm talking about to continue to drive cost out of our overhead and our cost basis.

Noah Poponak - Goldman Sachs Group, Inc., Research Division - Equity Analyst

Okay. And then with the incrementals, I mean, is there a number you can -- that you all think about as incremental margin for the segment? Or any quantification you can put around that?

Stephen J. Timm - Raytheon Technologies Corporation - President of Collins Aerospace

Not beyond 2021. I think you can see the 75% that we're talking about for 2021. Beyond that, as we do the road map for the full 20% and drive the cost out, I don't have a number I'd share with you Noah on that yet today.

Jennifer Reed - Raytheon Technologies Corporation - Vice President of Investor Relations

Great. Let's take one more question from Ron.

Ronald Jay Epstein - BofA Securities, Research Division - Industry Analyst

Ron Epstein, Bank of America. So as you ramp back up, how are you managing your supply chains? One of the things we've seen across other industrial spaces and shortages of everything from chips to inflation on metals prices, all that kind of stuff. So as you think about this ramp, good news ramp, how are you thinking about managing your supply chain?

Stephen J. Timm - Raytheon Technologies Corporation - President of Collins Aerospace

Yes. It's a great question. In fact, I think COVID taught us a few things. So we have 8,000 suppliers in Collins Aerospace. We're very active with them, especially as we were modifying demand to make sure we can deliver our commitments in 2020 and this year. We just did another analysis run on this. And I'll tell you that from my perspective, I feel good with cautious optimism. We're not seeing commodity issues, and we're building ahead to make sure we're okay in the near term from a commitment perspective. So we're monitoring it extremely closely, very active with our suppliers to understand risks they may have but staying ahead of it so far. And I think we're -- we feel good about our ability to stay ahead of it.

Ronald Jay Epstein - BofA Securities, Research Division - Industry Analyst

And then on the inflation side, can you pass that through to the OEs? Can you pass that through to your customers on the aftermarket side?

Stephen J. Timm - Raytheon Technologies Corporation - President of Collins Aerospace

I think we stay focused on making sure we can drive our cost out of the business. If we can have opportunities with our supply base or our OEs, we certainly will, but we don't bank on that to continue to deliver the expansion.

Jennifer Reed - *Raytheon Technologies Corporation - Vice President of Investor Relations*

Okay. Well, okay. Thank you, Steve.

And I would now like to welcome Roy to the stage, President of Raytheon Intelligence & Space.

PRESENTATION

Roy A. Azevedo - *Raytheon Technologies Corporation - President of Raytheon Intelligence & Space*

Good morning. As you all know, a little more than a year ago, we consolidated 2 heritage Raytheon businesses: Space and Airborne Systems, Intelligence, Information and Services. And we formed a new business, Raytheon Intelligence & Space. We're 37,000 strong, a team that's innovative and dedicated to our mission, and our mission is straightforward. It's to deliver the disruptive technologies that our customers need to succeed in any domain against any challenge. Our collective history is rooted in innovation, so is our future.

On the right side of the chart, you see 2020 results: \$15 billion in revenue, strong cash conversion. The contract mix for that revenue is roughly 60-40, 60% cost type, 40% fixed. And we finished the year with \$19 billion in backlog, and we carried that through Q1. We had a good 2020, and it gave us some momentum into 2021.

Bottom line, up first. First, We have a diverse business. Our customers are as diverse as the products and services that we deliver. We have 5,500 programs in this portfolio. Not a single program accounts for more than 2% of revenue, and we see this diversity as a strength in the business in that it provides a layer of protection against potential fluctuations in the defense budget.

And I'd like to point out a couple of things from the customer diversity. First, Raytheon Intelligence & Space is 80% pure-play defense. We serve the civil and federal sector, about 20% of the business. And roughly 1/3 of this business is classified, which means that I'm not at freedom to talk to you about the programs, customers or products.

Second, we're a balanced business. We show one view of balance using the product life cycle. We're roughly 1/3 in development programs, production and operations and maintenance, slightly tilted towards development, which contributes to the contract mix of cost plus.

And third, we're growing. Our technologically differentiated products and services deliver to our customers what they need, and we're aligned with their priorities in all domains. That's why we're growing faster than our market segments.

Our strategy is proven and our priorities are clear, and we're seeing the benefits of that in several key segments of this business. That's a bit of who we are. Let me tell you a little bit about what we do.

I mentioned the 5,500 programs. We've parsed those into 3 broad capabilities. Sensing and effects. That's roughly half of our business, and we're showing the relative revenue mix, showing the missions and domains in each of those capabilities. So this is where the majority of the hardware solutions reside. So whether it's an EO/IR system, locating a terrorist; or an airborne ISR radar, hunting submarines from 40,000 feet in the air; to space payloads, finding a needle in a haystack, that's in this capability.

In command, control and communications, that's roughly 30% of the business. This is where we have the protected satellite communications terminals, including the nuclear command and control. So if the President is on Air Force One, wants to have a secure communication with the Pentagon, that's our products. We command and control entire constellation systems with unmatched resiliency in cybersecurity. In fact, just this month, we secured a \$230 million contract for a follow-on for GPS OCX.

The remaining 20% of the business, cyber, training and services, we support cyber missions all over the globe. We prepare pilots, soldiers and astronauts to succeed in their mission, whatever that might be. And we provide the services that maintain the systems that Raytheon Technologies fields.

We're also showing the projected growth outlook for each of these capabilities. In each category, we're growing faster than our addressable market segment. This gives you a picture of the diverse solutions we provide, so from fire-control radars on fighter jets to precision approach in landing systems, from the most secure GPS constellation command and control ground segment to space payloads and processing for climate monitoring. We connect subs and ships to satellites using our communications terminals. We plan, collect, process and disseminate more imagery than anybody on this planet. We are the eyes and ears of our customers.

We're also balanced across our subsegments, and why that's important to us is because it's enabling us to grow on multiple fronts. On the right side of the chart, we show the 3 core principles that guide our business beyond the technology. We solve our customers' hardest problems. We meet our commitments, and we're true to our values. We get results for our customers and our stakeholders and we get those results the right way.

So earlier, I stated that our strategy is proven. These are the 3 imperatives that drive our strategy and our plan. We're market leaders in airborne, fire control and ISR radars, in protected satellite communications, EO/IR sensors and ground segment command and control and processing. We're protecting and strengthening our core.

We have a strong and diverse installed base on a variety of platforms. We have content on every fourth and fifth-generation fighter, F-15, 16, 18, F-22 F-35. We're on ISR platforms, UAVs, tankers, bombers, helicopters. We're on tanks, ships, submarines. We have been and will continue to invest to offer the innovative solutions that our customers need so that we are effectively expanding our position on current and future platforms.

Non-kinetic effects: high-energy lasers, electronic warfare and cyber. This is an area that gets classified quickly, but I can highlight one program, Next Generation Jammer. It's a multibillion-dollar program over many years for the Navy's Growler, and we're on the verge of entering production. And we're working with the Navy and the appropriate authorities to gain export release and make this technology available to our international partners.

Those are the strategic imperatives. How we're going to carry out these imperatives, we think is important, too. Of course, there's the technology, but there's also the business culture. We know that to grow, we need to focus on disruption. We strive to disrupt ourselves before others do, and I'll give you an example of that later. Then there's the unwritten imperative: flawless execution. We know that the best way to grow this business is to execute the business we have on the books today.

We also know that growing the top line is important, but we need to improve the bottom line, too. In this first year, we reduced cost almost \$200 million: \$70 million from the consolidation, \$120 million from the structural costs in the business. These actions impact our bottom line and improves our competitiveness. Now as you all know, for the last 20 years, the United States and its allies have been fighting a counterinsurgency, counterterrorism mission. While we've been doing that, our near-peer adversaries have been investing in technology. They've been narrowing the gap.

In response, we need to accelerate. Raytheon Intelligence & Space has to deliver solutions to our customers faster and better than we've ever done before. We need to help our customers widen that technology gap because, today, we find ourselves contested in every domain as we've depicted on this chart.

I'm setting this context because it informs our business strategy. In growing this business, we focus on multi-domain solutions, technologies that are as relevant in space as they are on the ground, as relevant at sea as they are in the air. Technologies that connect domains, delivering decision-makers the right data, the right information at the right time, so they can make the right decision.

Our approach and our solutions are aligned with our customers' priorities. It's the main reason this business is growing. A good example, and you've already heard both Greg and Steve bring it up, is JADC2, Joint All-Domain Command and Control. It is a major thrust of the Department of Defense.

The DoD's objective is simple. It's around command decisions. It's around making decisions in seconds and minutes that today take hours or even days.

Don't think of this as a single program. This is architectures. This is data flow. This is a new way of making decisions. It's a new way of fighting wars. Given our multi-domain footprint, as you see here on this chart and our market leadership in protected satellite communications and the fact that we're integrated on dozens of existing and likely future platforms, we're well positioned to bring JADC2 vision to life for our customers, in partnership with our customers. And this is a prime example of our alignment to our customers' needs. The bottom line is that our program and product portfolio touches all domains, and our market position is growing faster and stronger each quarter.

One area where we see growth is space. Raytheon Intelligence & Space cuts across all elements of the value stream. Captured on the upper half of this chart, showing some of the work that's done prior to launch, up to launch, on the ground and then in operations. We design and produce focal plane arrays. It's a component. It starts with raw materials, a component that captures imagery. The better the focal plane array, the better the image. And in our business, that's a discriminating advantage. And we use them in multiple products across multiple domains. It's one of the reasons that we're market leaders in EO/IR space payloads and airborne and land-based EO/IR sensors.

And as you look across the bottom of the value stream, up until December, I couldn't tell you that we had an element all the way across that value stream. We didn't have a bus. The Blue Canyon Technologies, or BCT, acquisition now gives us the capability to be in a better competitive position in the small satellite market space. The BCT integration is going well, and we continue to identify revenue synergies opportunities. I'm pretty excited that they're part of this business.

We manage key launch ranges, the ranges where almost all of the Department of Defense launches take flight. So from raw materials to actionable information, we provide the decision-makers what they need to make decisions when it matters most. We provide end-to-end solutions. We have the revenue mix on the right side of the chart. Earlier, I stated that our subsegments were balanced. This is one example. Within the Space segment, you can see that we're not dependent on any one program, any one customer, any one mission, multiple fronts on which to grow.

Let me take you to the federal civil part of the business, which, as you recall, is 20%. I'll use what was once routine to now being a little unusual to describe it. Before last year, traveling was typical, check-ins, checkouts, rental cars, tollways. We're known for defense, but what we bring to the civil and federal sector is noteworthy. Let me tell you what I mean.

If you use GPS to get here or you check the weather before you left, we had something to do with that. If you took a commercial flight, know that it's our software that enable the air traffic controllers to provide a safe takeoff and landing. And if you miss those friendly toll booth operators, you can blame us. We pioneered automated tolling.

I referenced revenue synergies earlier. It's worth noting. Raytheon Intelligence & Space partnering with Collins developed and delivered a proposal to the FAA for the Next Generation Network Systems. If we're selected, this is a multibillion-dollar opportunity over 10-plus years, and we're just getting started with the revenue synergies.

We have been and will continue to invest in areas that improve our competitiveness. Each year, through internal and customer research and development, we invest roughly \$2 billion advancing our signature technologies and our transformative projects. There's 3 areas that we're focusing on: digital transformation, operational efficiencies and signature technologies. You're going to hear from all of us about digital transformation. We all have pilot programs that are going on. Now remember before, I talked about we need to accelerate to widen the technology gap. We have a program in Raytheon Intelligence & Space where we are demonstrating a space capability from design, delivery, launch and operations where we're using digital principles to be able to provide that in half the time of what's been done in the past.

So here's how I think of digital transformation and our ongoing activities and investments. We have pockets of excellence across the business, and we have pockets of excellence across the corporation. And what we're doing is we're developing these examples, taking our lessons learned and sharing them with the other 3 business units, just like they're doing with us, to have an integrated digital transformation.

Our signature technology investments are aimed at developing new capabilities and products, but these same technologies provide a benefit to our existing installed base. Here, we show the product life cycle. From left, development, through production, to operations and maintenance. As products mature in the field and get into operations and maintenance, we use these signature technologies to renew these designs and start the cycle all over again. This is why we put the value in having a balanced portfolio. It brings consistency, predictability and expansion of revenue in that particular technology. It's not a new formula, but it's effective.

I'd like to give you an example from our fire-control radar product family. In the early 1990s, we developed the fire-control radar for the F/A-18 Navy Super Hornet. It was the first active electronically scanned array radar, or as we like to call it, the AESA radar. It replaced mechanically scanned radars. It was a disruptive technology insertion. It changed the way pilots defended themselves and carried out missions. We and our customers continue to invest to improve capabilities, reliability and affordability. In fact, over the last few years, we've reduced the acquisition cost by more than 75%. So while this radar still has its 1990s military designator, APG-79, its capabilities have grown exponentially.

Today's APG-79 performs in the harshest environments in the toughest missions. And beyond that, we've been able to tailor that design, a new radar variant for the Marines. So I mentioned earlier that we focus on disrupting ourselves. Guess whose mechanically scanned radar that was? That was ours. We disrupted ourselves. We replaced our own product, and this marine variant is going to expand the APG-79 revenue stream for years to come. We have many examples like this. Over the years, we've proven in our ability to enhance and to sustain our signature technologies, driving down costs while increasing capabilities and resulting in profitable growth.

Let's go to the financial summary. We're reaffirming the guidance that was provided, issuing into 2021. We've gotten off to a good start, a strong Q1 where we've exceeded all financial metrics. And while we had a good quarter and we feel good about the total year, we know there's still a lot of work to do. The resulting Q1 backlog is a tailwind. We had a 1.08 book-to-bill in the first quarter. So projecting 5 years out, we're going to grow faster than our addressable market segments at double-digit margins and robust cash conversion. Our margin improvements are primarily driven by 2 things: the operational efficiencies in which we're investing and a higher percentage of production programs in the out-years.

So what are the things I hope you take away from this meeting with Raytheon Intelligence & Space? I hope what you'll take away is we're a diverse business. We have a balanced portfolio, and we're growing faster than our addressable market segments. With that, I'll take any questions you may have.

QUESTIONS AND ANSWERS

Jennifer Reed - *Raytheon Technologies Corporation - Vice President of Investor Relations*

Thank you, Roy. All right. Mike?

Michael James Maugeri - *Wolfe Research, LLC - Analyst*

Mike Maugeri, Wolfe Research. Can you just talk a little bit about your exposure to systems for studying climate change? And in the future, if the budget DoD or otherwise for studying climate change were to grow, what's your ability and your appetite to go after some of that growth?

Roy A. Azevedo - *Raytheon Technologies Corporation - President of Raytheon Intelligence & Space*

The way I'd like to answer that question is the fact that we're already in that space, both on the commercial side and on the military side. In fact, if you go and look at our displays, we have a VR satellite, a payload, which is for climate monitoring. It's -- when you take a look at some of these pictures where you see these tornadoes and hurricanes forming, that's our payload. It's our processing. We've recently just won some programs with NASA and NOAA to take a look at climate monitoring. And so the thing that I would tell you in terms of our appetite is like everything else that we do in our investments. If it's aligned with the rest of the business, if that investment can then be transitioned to other parts of that segment, we absolutely are going to continue to look at. What we're not going to do is change in one-off.

Jennifer Reed - Raytheon Technologies Corporation - Vice President of Investor Relations

Okay. Let's take one from -- in the back.

George D. Shapiro - Shapiro Research - CEO and Managing Partner

Yes. George Shapiro with Shapiro Research. You say you're going to grow faster than the addressable market. But like the first quarter, you grew organically 2%, which was the least in the industry. And all of last year, you grew 3.5% and in a faster growth environment. So why did you grow slower? Why are you going to start to grow faster now?

Roy A. Azevedo - Raytheon Technologies Corporation - President of Raytheon Intelligence & Space

We actually grew over 4% last year. And the way that I'll answer that question is, when we look at our addressable markets, we have all the data available to us, mostly budget documents. And the way that I would put it to you is this, especially as you're looking at the '21 through '25. And I'll refer you back to the capabilities chart that I had. In sensing and effects, our addressable market is growing roughly 5.5%. We're growing at 6.5%. In command, control and communications, the market is growing at 2.5%. We're growing at 4%. In cyber training and services, the market is either flat or slightly shrinking, and we're growing at 3%.

George D. Shapiro - Shapiro Research - CEO and Managing Partner

Okay. I guess we'll see it in the numbers eventually.

Roy A. Azevedo - Raytheon Technologies Corporation - President of Raytheon Intelligence & Space

That's the projection. Yes, sir.

Jennifer Reed - Raytheon Technologies Corporation - Vice President of Investor Relations

All right. Cai?

Cai von Rumohr - Cowen and Company, LLC, Research Division - MD & Senior Research Analyst

Yes. Cai von Rumohr from Cowen. So could you give us a little color on the training and logistics business that you're divesting? Roughly, where are its margins?

And secondly, both of your competitors, Northrop and Lockheed, have been very aggressive in the space area. You've made a move with Blue Canyon. Do you see additional moves that you need to make to be competitive?

Roy A. Azevedo - Raytheon Technologies Corporation - President of Raytheon Intelligence & Space

Let me answer from the beginning to back. We're in a process in terms of the divestiture ruled by nondisclosure agreements. So I don't want to get too much into what's in the perimeter because we are in the process, and that's being developed as we sit here. In terms of the space part of the business, I think like every good business, we're always evaluating the portfolio and always looking for strategic opportunities. We really like what we did with Blue Canyon Technologies. It puts us in a great position for the small satellites, and we believe it's a good move for multiple reasons, not the least of which is the space modernization trend that we're seeing. If the trend continues, the trend is toward a proliferated Low

Earth orbit or middle Earth orbit as opposed to these large programs that have done in the past. And so a small satellite market looks like a good place to be, and we're in there with BCT.

Cai von Rumohr - *Cowen and Company, LLC, Research Division - MD & Senior Research Analyst*

Do you feel that you need launch capability because both of your 2 competitors have made various initiatives to bolster their capability and launch?

Roy A. Azevedo - *Raytheon Technologies Corporation - President of Raytheon Intelligence & Space*

I have a hard time seeing a circumstance in which I'd go to Greg and tell him to get a launch capability. I think that that's a very long-term view, and I think we like what the space segment looks like today.

Jennifer Reed - *Raytheon Technologies Corporation - Vice President of Investor Relations*

With that, can we take one upfront here with Doug?

Douglas Stuart Harned - *Sanford C. Bernstein & Co., LLC., Research Division - SVP and Senior Analyst*

I wanted to follow on that because when you look at Blue Canyon, I mean, Blue Canyon does buses for Northrop, Lockheed, L3Harris. At the same time, you've got Aerojet Rocketdyne that Lockheed Martin is arguing they can use and vertically integrate. They do motors for you, for Boeing. So when you look at these 2 situations, how do you think of these? Because these sort of were kind of merchant suppliers in a sense to all of you. Why does Blue Canyon make sense for you but Aerojet Rocketdyne perhaps not, if Lockheed Martin owns it?

Roy A. Azevedo - *Raytheon Technologies Corporation - President of Raytheon Intelligence & Space*

What made Blue Canyon Technologies attractive to us is the capabilities of their small bus. Yes, there are a lot of small buses, but what Blue Canyon Technologies has is a capability for very accurate stability of their small bus. And our specialty is electro-optical/infrared payloads, EO/IR. And one of the things that you need for those buses, those small sats, is stability, being able to point and being able to point very directly and being able to hold that. Blue Canyon Technologies has those technologies. That's what they've brought to the table in the market, and that's what made it attractive to us and still is attractive to us.

Douglas Stuart Harned - *Sanford C. Bernstein & Co., LLC., Research Division - SVP and Senior Analyst*

But do you expect that in the future, Blue Canyon would be building buses for, in a sense, your competitors in the space?

Roy A. Azevedo - *Raytheon Technologies Corporation - President of Raytheon Intelligence & Space*

Yes. I see no reason why we wouldn't sell to our competitors. I think it's good business. As long as we have their capabilities for what we need, that's why we bought them. And growing the business by providing to other suppliers, I don't see any reason why we would stop doing that.

Jennifer Reed - *Raytheon Technologies Corporation - Vice President of Investor Relations*

Great. Let's take a question online, Roy. This is from Rob from Vertical Research. Over the next 5 years, are you anticipating more competition from new entries into the tech sector, especially as the DoD evolve JADC2?

Roy A. Azevedo - *Raytheon Technologies Corporation - President of Raytheon Intelligence & Space*

There is no doubt about it that we're going to have new entrants. We already are seeing new entrants. It's an opportunity because it's also a partnership opportunity, and we're going to be looking for partners as we move along. As I talked about for JADC2, it's not a thing. It's going to be many things. It's an architecture. We already have the sensors with the data. We already have communications. We're in all domains, but we're not going to be able to solve it all just within our 4 walls. We're going to need partners. There are companies that are investing in areas that we're going to take advantage of, so no doubt about that there's going to be new entrants.

Jennifer Reed - *Raytheon Technologies Corporation - Vice President of Investor Relations*

Okay. Let's take one more question. Kristine?

Kristine Tan Liwag - *Morgan Stanley, Research Division - Equity Analyst*

Thank you. There's a surge of demand in commercial space and commercial space capabilities like mega constellations. With your capability with Blue Canyon, do you identify that small satellite business as a potential revenue synergy with Collins to commercialize?

Roy A. Azevedo - *Raytheon Technologies Corporation - President of Raytheon Intelligence & Space*

Absolutely, we do. And it doesn't hurt that Blue Canyon Technologies is already serving that market sector. And so taking a look at payloads, modified payloads that Collins brings to the table, we're already looking at those. Yes.

Kristine Tan Liwag - *Morgan Stanley, Research Division - Equity Analyst*

And how significant could this business be in the long run?

Roy A. Azevedo - *Raytheon Technologies Corporation - President of Raytheon Intelligence & Space*

I'm not ready to give you a number, but the bottom line is it's going to be completely dependent on how the budgets come out and whether the space modernization truly ends up being a proliferated constellation. That's what's going to drive it, and we're waiting for this new budget. The new budget is going to tell us a lot, and obviously following budgets and that's where we get our data and our projections.

Jennifer Reed - *Raytheon Technologies Corporation - Vice President of Investor Relations*

Great. Thank you, Roy.

So with that, we're going to take a short break. We'll be back about 12:30. We'll hear Mike Dumais, our Chief Transformation Officer, speak.

(Break)

(video presentation)

PRESENTATION

Michael R. Dumais - Raytheon Technologies Corporation - Executive VP & Chief Transformation Officer

Good afternoon. I'm Mike Dumais, and I'm Raytheon Technologies' Chief Transformation Officer. Before we get back to the BU Presidents' presentations, I'm just going to spend a little bit of time talking about how we're using the merger as a vehicle to transform the company and sharpen our focus on operational execution.

When you look at our history, we have a long track record of doing integration. I think I first met Greg about 20 years ago, we were working on the integration of Sundstrand. About 10 years ago, a number of us worked on the integration of Goodrich. 3 years ago, it was Rockwell Collins. In every case, we exceeded our projected synergy numbers, we added key capabilities to the company, and we use those capabilities to go out and win new business. Now it's the Raytheon merger. And really, the only difference is the opportunity is that much larger. We're just a little more than 1 year in, and the integration is going extremely well. We're exceeding our projections, both for cost synergies and for revenue synergies. So let's talk a little bit about how we're making that happen.

We really started back in middle of 2019 as soon as we announced the deal. We put merger integration teams in place, and they're really focused on 2 things: one, to make sure we have a successful day 1; and then to develop the detailed integration plans. Immediately after close, we moved quickly. We began to rationalize the corporate office and get after the cost synergies. We began to drive procurement savings. We started to develop our longer-term footprint plans in our Office of the Future strategy.

Now this year, about 6 months ago, we've pivoted a little bit. We've increased our focus on some of the more transformational opportunities. That includes rolling out our core operating system, implementing digital thread across the enterprise and really amping up the way we share technology across our 4 BUs. So I'm going to take each of these and just go into a little bit more detail.

And I'm going to start with the cost synergies. Our teams understand the commitments we've made to investors, and that really starts with the cost synergies. As we announced on our recent earnings call, we now have visibility to \$1.3 billion of savings, and we're still developing new ideas. So I don't think the tank is out of gas. This will require some investment, a net of investment of about \$750 million, but we really like the payback around that. And the increased savings are coming really from all areas. We're seeing it in procurement, we're seeing it in footprint, in our corporate office and areas like IT.

Now some of our early success has been in eliminating redundancies in the corporate office, harmonizing benefit plans and the Raytheon 4 business unit to 2 business unit consolidation. So that's going to drive a majority of the \$850 million savings run rate we see by the end of this year.

When you think about cost reduction, in the long run, probably the most exciting area is really in the supply chain, as Greg touched on earlier. In procurement, scale and capabilities matter, and we have both. We see a total opportunity for savings of \$2.5 billion by 2024. Now about 20%, 25% of this is synergy. That's an action that's the direct result of the merger. The rest is really what our supply chain professionals do over every day. A little over half the \$2.5 billion is coming from product procurement. So areas like machining, where we're building bigger part families going to larger suppliers, using that volume and scale to reduce cost. We're also seeing opportunities in electronics. We use our technical capability and scale to go direct to component OEMs and not just rely on distributors for our pricing and cost.

We see about \$1.2 billion of savings from indirect procurement, areas like logistics, where we're using managed transportation software to optimize distribution routes. And we're using our scale and our global factory footprint to drive best pricing in areas like shop MRO supplies. So procurement is going to continue to be a big focus. The team is really driving the execution of those opportunities.

But we're going to be equally aggressive within our own four walls. And we've really made a major effort to go attack overheads. Now that has to start with the corporate office. We believe that our corporate office has to be just as lean and hopefully, leaner than our BUs. So even before the merger closed and both companies had hiring freeze in place, costs started to come down. Immediately after April 3, 2020, we eliminated any remaining redundancies in the corporate office. But we didn't stop there.

So about 5 months ago, we decided to go back at it. And we used a zero-based budgeting approach where we went and we inventoried all the activities in the corporate office. We eliminated the low-value activities. We looked at our spans and layers, rationalized the organizational structure, and we also tried to automate processes. So by the time we were done, we found another \$100 million-plus savings out of the corporate office.

A second focus area has been our office space. Now moving forward, when you think about our office staff, less than half are going to be on-site full time. Most people either work remotely or some type of hybrid mode. That really gives us the opportunity to eliminate square footage and also reconfigure where we can work more effectively. We've launched over 50 projects to date, many of which are focused on our highest cost sites. And we see that generating \$80 million in annual synergy. And that's just about halfway on our plan to reduce 25% of all the office space across the company.

In addition to driving out cost, we're also very much focused on building capability. And that really starts with our One RTX CORE operating system. It's really our program to drive operational excellence. As Greg said, CORE stands for customer-oriented results and excellence, and that's really appropriate because it is customer-centric. It takes the best elements of ACE, Raytheon R Six Sigma as well as industry best practices and it provides a toolkit where we're more effective in the way we do planning, the way we ensure we have visual and lean work environments and then tools that solve customer problems. Now we've added in elements and increased focus in areas like Industry 4.0, Lean, agile software development and SecDevOps because we need a toolkit solving the business problems of today and not the business problems from 10 years ago.

We're deploying the CORE operating system across the company this year. So we'll soon be all speaking the same language. And this will allow us to drive productivity, but also go after the roughly \$1 billion we have when you consider our cost of poor quality and other inefficiencies in the business.

Now with the operating system, we're making sure that's highly aligned with what we're doing with our digital strategy. We see digital thread as the ability to connect engineering, manufacturing, supply chain and aftermarket support, and it allows us to better support our customers. But we have teams in place developing a company-wide data strategy to facilitate the way we share information across our 4 BUs and across our value streams. So this is going to be a multiyear effort, still a lot of work to do. However, there are a number of areas where we believe we're already best-in-class. We have the capability to do model-based design, have used it on programs like Optionally Manned Fighting Vehicle and Next-Generation Interceptor. It allows you to carry fewer requirements and dramatically increase development cycle time.

Before we build a new factory, we're using a digital twin of that factory. You can optimize the flow and you can generate savings even before you break ground on the project. As Pratt & Whitney introduces new engines, they're developing digital twins that will carry data associated with that engine from the initial design, manufacturing, to its history in the field.

And we're developing prognostic algorithms. And this is where it really helps to have expertise in the products. We take our knowledge of the products and physics-based models, combine that with AI and predictive models, and in many cases, we're able to predict failures before they occur. And that allows us to take preventative maintenance actions and improve aircraft dispatch reliability.

Now as we've hit many things, when you think about the digital strategy, you're only as strong as your foundation. And we've been making great progress modernizing our digital infrastructure. We have plans and teams in place to reduce our number of networks, data centers and applications. We're moving from being about 25% cloud-based with our data to more than 50%. Now you always have some data on site for security reasons, but we're moving to cloud. We're also adopting a single enterprise collaboration solution with Microsoft Teams. So these actions will make us more effective. They'll make us more cyber secure. They'll also generate \$175 million of annual cost savings.

So now I'm going to switch gears a little bit. I want to talk about what I believe is the most transformative opportunity for the company. And that's really around technology synergies. I'll tell you something special happens when you put engineers in a room together. They like to talk, and they like to collaborate. And we have over 60,000 engineers, 2,300 with PhDs and 30,000 with security clearances. And we're really the only company that has that technical depth, both in aerospace and defense. So the teams are working really well together. When I sit in meetings, I can't tell which BU someone is from. They're just focused on advancing the technology and solving customer problems.

Now our teams have identified 4 areas where we believe we can truly differentiate ourselves with technology. And as Greg reviewed earlier, it's autonomy in AI; power and propulsion; secure and connected ecosystems; and precision sensing and effects. But there are so many exciting examples where you can take the Collins communication capability and high assurance network capability, along with their power capability, from Raytheon Missiles & Defense, the vehicle integration, the expertise in RF and aperture design, from Roy's business with Raytheon Intelligence and Space, the cyber capability, the sensor tech capability, the face presence, and with Pratt, a world leader in propulsion, high-temperature materials, and low observability.

Now because we have multiple business units, all with technologies in these areas, we decided to drive these technology road maps centrally to ensure that the capabilities can be shared across the enterprise. And these are really the capabilities that are going to allow us to win on the largest aerospace and defense opportunities in the future. And there are many. Maybe I'll start with the defense side.

We see these technologies helping us win next-generation military aircraft platform content. One example is sixth-gen fighter. If you're truly going to make a leap from fifth gen to sixth gen, you're going to need to use most of these technologies. There are opportunities in autonomous vehicles and attritables. You combine AI, advanced sensors, communication capabilities. A number of the presenters have touched on the joint all-domain command and control, where you really connect all elements of the battle space.

We're seeing synergies in areas like hypersonics, where you take advanced heat resistance materials, you need low observability, you need integrated vehicle propulsion systems. In areas like directed energy, where you have to have the capability both to design the aperture but also to do the power electronics. So all large market opportunities, all directly aligned with the national defense strategy and all leveraging multiple technologies from multiple business units.

Now the great thing is these same technologies are equally applicable to commercial aerospace. There are a number of exciting commercial opportunities on the horizon. Obviously, it includes next-generation aircraft, where you're going to need very efficient engines and integrated systems. And some of these programs can have hundreds of billions of dollars of content. There's an opportunity for national airspace modernization. It's not only defense program, it's all the elements of air traffic control. And it's not just the U.S., it's around the world.

And that's an area where we're uniquely positioned because we have expertise in communications and navigation, both on the aircraft, from Collins, and on the ground through RIS. There are solutions that are in development, where we're collaborating across business units to connect airport operations and airlines and really improve the flying passenger experience. And Steve touched on some of the systems to reduce pilot workload, eventually leading to more autonomous aircraft. Again, all large opportunities, all areas where we believe we're uniquely positioned given the breadth and depth of our technology portfolio.

So let me sum it up. We've never been more positive on the merger and for the prospects of the business overall. We have a great team in place. You'll hear from the rest of the team this afternoon. And we have tremendous cost reduction, efficiency and new business opportunities directly in front of us. So over the next year, we're laser-focused on delivering revenue synergies, cost synergies, driving efficiency in the supply chain. We're going to rationalize our facility footprint and reduce structural costs. We're going to implement our core operating system and build digital thread across the enterprise, so we're a more efficient, connected capable company. And we're going to leverage our unmatched technical capabilities to develop next-generation solutions for our customers and capture the largest A&D market opportunities.

So for me, having the opportunity to work with this team and lead our integration and transformation effort is humbling, but it's been a heck of a ride for the company. I think the journey is just beginning.

So with that, I believe our next speaker is Wes Kremer, President of Raytheon Missiles & Defense.

Wesley D. Kremer - *Raytheon Technologies Corporation - President of Raytheon Missiles and Defense*

Good afternoon. Now we get to talk about some really fun stuff here. So I'm excited to be here today and to be able to talk to you about what we do in Raytheon Missiles & Defense. We are an end-to-end defense solutions provider. Unlike the other 3 businesses within Raytheon Technologies, we're the only one that's 100% in the defense space.

A little over a year ago, when we put together Raytheon Missiles & Defense, I have to tell you I was extremely excited. I had been associated with both the legacy Integrated Defense Systems where we have the Patriot system, where we have the large early warning radars, the SPY-6 radars that go on ships, the whole sensing side of the business. And I'd also spent a significant amount of time in Raytheon Missile Systems on the effector side. And I was super excited to be able to bring together, under one business, the whole fire control loop to go from sensing to tracking, to putting an effect on a target. And so that's what we did is when we brought this together, we were focused on that.

We also reorganized the front end of our business, our SBUs or as we call them, mission areas. And we took this opportunity to align with our customers. And as you can see here, we have 4 primary mission areas. The first one is air power. This is aligned to the U.S. Air Force and to international air forces, our customer based around the world. It's primarily both our air-to-air and air-to-surface munitions are all in this. So think AMRAAM, think Paveway. Those kinds of things are in this portfolio.

The second portfolio is around land warfare and air defense. So this aligns largely to the U.S. Army. This is our largest mission area. It's home to Patriot and our future system, LTAMDS. We also included in this the air defense piece, because many of our customers around the world primarily are Patriot users are actually in the air defense forces, and that comes back then and ties, obviously, the foreign military sales contracts through the U.S. Army. So that's why we aligned in that area.

Strategic Missile Defense aligns to the Missile Defense Agency. Think TPY-2 radar and the SM-3, Standard Missile 3, that goes against incoming ballistic missiles. Those are the things in this portfolio.

And finally, Naval Power. Naval Power connects the entire sensing of the surface Navy, think SPY-6 with SM-6, enhanced Sea Sparrow missile, all the way down to the close-in weapon system, Phalanx. So we get to see that whole thing of the ship self-defense. Also in this portfolio is one of the emerging areas of a new domain, which is undersea. So I think Roy and others, we've talked today about space and air and land, but we haven't talked much about undersea, and that's also in its portfolio. And clearly, this is an area where we see emerging business opportunities.

You can see from the right-hand side of the chart here, kind of how we're balanced. About 40% of the business is international. So we're about 60-40 right now, varies a little bit from year-to-year. We have an incredible backlog of \$29 billion. So about 22 months of backlog. And we usually look generally in this, I think, around an 18 to 20 months kind of backlog. So we're sitting in a very good position because of the large multiyear contracts that we have booked over the last several years. And as those start to play out, that gives us a little bit of a tailwind going forward, and we'll talk about that when we get into the mix section.

We also have an advanced programs part of the business. So this is our technology incubator, where we spend significant amounts of our IRAD and put that against the CRAD type things that we get from the government to really look at next-generation solutions, and I'll talk a little bit about that as we go further on.

So the bottom line for Raytheon Missiles & Defense is we take on and solve our customers' hardest problems. We have the ability to detect, track and defeat threats in all domains. And that's the bottom line of what we really do.

There's been talk earlier today about the defense budget, international budgets, and I will talk a little bit more about those on a future chart. But I think an important thing to remember is that defense budgets, not only in the U.S. but around the world, one of the big drivers is the threat. And we like to say the threat gets a vote in what happens? And so what I have here on the left are some of those emerging trends that we're seeing in threats. This is independent of budgets, independent of politics, this is the direction things are headed.

One of the things that you see in here is hypersonics. It's natural, the evolution that we would want to go faster, to go from the speeds of rocket motors today, to go to things that travel more than 5x the speed of sound, to eventually some of the concepts that we talked about of directed energy and traveling at the speed of light. So that's a trend that we have to go faster. We also have to go farther. We have to be able to detect threats at longer distances. We have to be able to target at longer distances. We have to be able to close kill chains at longer distances. We have to be able to do that across multiple domains. Those are things that really play to the strength of Raytheon Technologies. How we work across domains and how we solve those types of problems is one of the true synergies that we have in this business.

The other trend that's dominating right now is return to a peer threat. So we've been fighting for the last 20 years, a war of insurgency, a low conflict -- a low type, low intensity type of conflict. But what we're seeing now is clearly the focus is on the emerging threat in China and Russia. And you see some of the trends here of a naval peer. For decades now, we've had the largest, most powerful Navy in the world. We now see that being challenged on fronts. We see advances in technology that go against our airborne platforms, longer-range weapons and their ability to have to be able to overcome that. So those are areas that we see as are kind of fixed. And that's why it comes to what we've been investing in for the past several years is to really address those threat trends.

So let me walk you through why LTAMDS is so important. So LTAMDS is the chosen replacement by the U.S. Army for the Patriot missile systems, lower-tier air and missile defense systems. What's unique about LTAMDS is it has a 360-degree sensing capability. So you think back to Patriot when it was developed back in the '80s, we knew where the threat was coming from. We could point a sensor in that sector. But now we don't know where the threat is coming from, whether it's the U.S. or our allies around the world, the threat can approach from 360 degrees. Things like hypersonic weapons fly so fast and have so much energy, they can be going over this direction last minute, make a divert of several hundred miles. They can actually fly all the way around and attack from behind. That's on the high end of the threat.

On the low end, you also have things now like UAVs or swarming UAVs that can come out of target from all directions in a near to simultaneous attack. And you think about this is why LTAMDS is so important. Not only do we have a 360-degree capability, it's significantly more powerful than a Patriot system so we can see at a much longer range. So whether it's the high-end threat posed by hypersonic weapons and ballistic missiles or a low-end threat caused by UAVs and cruise missiles, LTAMDS is a solution for that. And you can see how important this is in our portfolio going forward.

We're also a leader in missile defense. And whether it's the Exoatmospheric Kill Vehicle that is able to target a ballistic and an incoming ballistic missile outside of the atmosphere, and what's kind of interesting about EKV is it doesn't actually have a warhead. What we do is it's kinetic energy, we intercept something flying so fast that the pure collision of those two objects coming together in outer space vaporizes the target. That technology that we have in EKV and in SM-3, we're now taking that to the next iteration for the Next-Generation Interceptor, a recent win that was just announced here. So as we apply those kinds of things, we see a great future that we're operating in the right areas. We also see hypersonics and long-range air-to-air weapons as other areas of importance going forward.

So I thought what I would do here is many of you have asked questions, and I know one of the things on your mind is how does LTAMDS fit into our future and what does our mix look like? So when you think about RMD from an investor perspective, whether it's top line or bottom line, it really comes down to mix. And I'll try to walk you through and provide some clarity on how we think about this, both the budget aspects of it, where we're positioned in the market and how some of these programs play out over time.

So first, let me just give you a quick status update on where we are with LTAMDS. So as Greg mentioned in his pitch, this was a great win for us because the Army consistently change requirements, and we were able to react in the final 9 months and basically build a new radar from scratch and demonstrate that in the sense off that occurred. We have now built the first operational -- full operational unit of that. It's currently undergoing test and tracking targets at one of our ranges here in the Northeast. We are under contract with the U.S. Army. Right now, it's about a 50-50 funding between company investment and contract funding. The peak of that is this year, the company funding will start to decline next year and going forward. We expect to deliver what we call the production representative units. There are 6 of those to be delivered. The first 3 of those will be delivered in the fourth quarter of this year, will be handed over to the Army for them to do their operational test and evaluation of that.

We expect to be under contract for low rate initial production in 2023. We've also worked through all of the regulatory processes and release authorities. We also anticipate that we'll be able to see the first foreign military sales contracts issued in the '24-'25 time frame. And so when you look at it from a top line thing, you'll see that significant revenue really doesn't start to appear on LTAMDS until 2025. And so that's why we put the line out here to show you a little bit going beyond that. So that's when we'll really start to see the significant top line growth associated with LTAMDS.

So that brings us to the next part of the question is what are we doing between now and 2025? Because obviously, that does create some headwinds for us. The first thing here that's important is that Patriot sales remain strong. We had originally anticipated that Patriot sales would start to drop off once the LTAMDS competition was completed, and that was selected. But what we're seeing is because of the threat environment around the

world, and the continual upgrades that have been done to Patriot, it remains a very viable weapon system. And in fact, almost all of the 18 Patriot nations have committed to keeping Patriot and their inventory through 2035. So that gives us a pretty significant tail yet that we're still working on the Patriot side.

The second piece of this puzzle from a mix perspective and a bottom line perspective is that we've been successful in winning a lot of very important programs over the last 4 or 5 years. And we've listed some of them here. So things like LRSO, SPY-6, StormBreaker, SM-3 IIA, the newest variant of that. All of those programs are moving from initial production into full rate production. And so there's incremental margin associated with moving from development to production, and that helps fill in things.

And finally, what's sometimes not very obvious is that many of our just traditional programs, Standard Missile 2 is a great example. Standard Missile 2 has been around for almost 60 years and we're just finishing a technology refresh for a newer variant of that, that will go into production over the next 2 years. So many of the things, the Rolling Airframe Missile, the enhanced Sea Sparrow missile, the Block 2 variant of that, continued new variants of the SM-6 program give us the capabilities and the programs that our customers in the U.S. and around the world want.

So what we really look at here is that it's all of those things. It's a bunch of little pieces that will give us that incremental margin growth on several programs to backfill for the hole left by Patriot here and to get us to where we go into LTAMDS into larger numbers in the post-2025 time frame.

The final piece on this chart is the yellow, the emerging programs. Again, based on the threat environment that we see that our customers are operating in, we anticipate that the R&D parts of the budget will continue to be strong. That, coupled with our internal investments, gives us a big slice moving forward of working on development programs that, albeit they're at lower margins, they again contribute to the long-term growth and the market position that we play in this arena. So the bottom line here is the combination of sustained Patriot sales, early FMS sales for LTAMDS, coupled with our strong base of transition to production programs of key wins from a few years ago will offset the incremental margin impact of Patriot sales.

So I'm going to switch here and talk a little bit about investments and new technology. You can see here the ratio of our IRAD to CRAD about a 5:1 ratio. What this really means is that we're doing a good job of taking the company investment and matching that with CRAD contracts that show where our customers are putting money, where their challenges are, and we're able to leverage those 2 things together. This is an important part of our portfolio. I know Roy talked about this, too, how important it is. But as we see trends going in directions, this is where we invest. And here's just a couple of the things that we're seeing a lot of.

We talked about model-based systems engineering. Let me give you a great example, Greg talked about how quickly we were able to develop the LTAMDS radar. Right now, today, on LRSO, the long-range standoff weapon, every single night, this code is compiled, the updates are made, the inputs from our vendors are made and we fly that missile 6 million miles in the highest threat environments in the world in a completely virtual environment. The next morning, our engineers can review that data and see how we did against key metrics of survivability, range, whatever the probability of kill, as can our customer. The Air Force has full access to that every day. This, I think, is a great demonstration of the power of digital technology and a digital thread and what it means for the future. It means we can not only go faster in development, but because of the high fidelity of the environments that we fly in, we can reduce test times and we can better predict failures in the future. All of those things lead to lower operating costs, faster development times and the ability to keep pace with the threat.

The second area here is probably one of the greatest areas of synergy and the thing that excites me the most about Raytheon Technologies, something like ceramic matrix composites. And you'll see this on the tour today, a low weight, high-temperature material. So it's being developed by Pratt for the hot engine section of a jet engine. But you know what? When hypersonic weapons fly through the atmosphere, the heating that is caused on the leading-edge surfaces is very similar to the types of temperatures that you would see in a jet engine. The need to have heat-resistant materials, but also lightweight materials, many of the same things. So we're seeing incredible synergies when we get our engineers together to solve some of these tough problems like that. And that's just one.

The other thing that we're doing is making our things, our weapons and our sensors multimission. Standard Missile 6 is a great example. Standard Missile 6 does 3 missions. It not only is a counter air capability, it has a surface-to-surface capability to go against other surface ships at long range and it has a terminal ballistic missile, an antiterminal ballistic missile capability. So think of that from a ship's commander to be able to, in one cell

on his ship, to be able to have a missile that does 3 different missions. That's why things like that is why we believe we are positioned that even in a flat budget, that we will be able to capture a good portion of the budget because we're delivering the capabilities that our war fighters need.

On the radar front, The SPY-6 radar can actually change between being a radar and a communications device on a pulse-to-pulse basis, something that was impossible years ago just because of the architecture. But we're doing what we call a software-defined architecture, where we can actually change the mode of a sensor from a pulse-to-pulse kind of basis, all things that give flexibility to our customers.

I talked a little bit about hypersonics and why that's important. But one piece I'd like to add here is that we believe that the counter hypersonics market will exceed the hypersonic market. We also believe we are very well positioned to capture that. There's a program coming up pretty soon called Glide Phase Interceptor. It will be the first program competitive in that space. But if you think about it, in missile defense, right, the missile defense, the defense capability has been a hallmark of legacy Raytheon for decades.

And hypersonics are really that same kind of thing, right? You have to be able to detect when one is launched, you have to be able to track it through a very dynamic flight path, and at the end, you have to be able to engage it. The difference is, is that it doesn't always fly a predictable path like a ballistic missile does. It can dynamically change that path during flight, which makes the problem even more challenging, which is why we believe that our advanced sensors, the different capability in Roy's area and the synergy of Raytheon Technologies puts us in a good position to lead in the counter hypersonic arena.

So this slide has been focused on our technology investments. But equally important to driving bottom line growth is our other investments. So we're investing to grow and to grow in a profitable manner. And you can see here across our IRAD, our infrastructure and our automation, what we spent over the last 3 years. I can tell you that our plan going forward is very similar. We plan to spend about the same amount of IRAD from year-to-year going forward. When we look at infrastructure productivity, what you'll see is a shift. We've spent a lot of capital in the last several years on demonstrators in order to win competitions to put hardware on the table, to assert and to be able to win. You'll see less of that. And now as we go into many of the programs I talked about earlier into the production phase, what we expect to see is that we'll be spending more on our infrastructure, consolidating our footprint and driving automation in our factories to drive bottom line. And that's our focus area for the next few years.

And finally, if I kind of draw us to where this all brings us together from a financial perspective, we believe that we're very well positioned to grow slightly above our addressable market in the 3% to 4% CAGR range. Some of this is backed up by where we are on our bookings. We, as Neil mentioned during the call a few weeks ago, our outlook for R&D now is that we will be at a 1.0 book-to-bill for this year for 2021. As we look at '22 through '25, because of a large portion of our portfolio is international, we expect to see some lumpiness in that. But overall, we expect to be greater than a 1.0 book-to-bill. That gives us confidence in where we are for our overall top line growth.

As I said, we're focused on driving bottom line growth. We show here a 4% to 6% CAGR on the bottom line, largely driven by the pieces that I talked about, the refresh of our portfolio, the incremental margin increase of many of our development wins from 3 or 4 years ago going into production, coupled with the efficiencies that we're driving in our factories and the overall things that Mike talked about that we're doing across RTX to drive cost out of the business, especially with overhead and infrastructure.

And finally, from an RMD perspective, I feel like we're very well positioned to address the evolving threats. We're aligned with DoD priorities. We've had several recent franchise wins that put us in a strong position to focus, as Greg said, on execution going forward. One of our mantras is program execution. No surprises, driving that day over day. We will continue to target our investments in areas where we see opportunity and aligns with our customers' needs to solve their hardest problems. And what excites me the most is we're going to continue to find those synergies across Raytheon Technologies. I think that although we've already seen a lot of those synergies, we're just touching the surface. Let's face it. COVID has made it hard to have that face-to-face contact and to discuss classified programs. I know that when we get all of our engineers together and we put the power of those 60,000 engineers together, that we're going to see synergies beyond what we've even been able to talk about here today looking into the future.

And so with that, I would like to take your questions.

QUESTIONS AND ANSWERS

Jennifer Reed - Raytheon Technologies Corporation - Vice President of Investor Relations

Right. Well, all right. Let's see here. Myles?

Myles Alexander Walton - UBS Investment Bank, Research Division - MD & Senior Analyst

Wes, could you talk about LTAMDS and its contract structure relative to Patriot? And if it has the potential to be as profitable when it gets to maturity and about when that timing is? And you mentioned it peaks out in R&D this year. I think it's going through corporate. Could you just size that? Is it a couple of hundred million dollars that goes to zero?

Wesley D. Kremer - Raytheon Technologies Corporation - President of Raytheon Missiles and Defense

Yes. So Myles, that's what it is. It's in the couple hundred million dollar range this year. That's the corporate investment that peaks out this year. It's less than 1/3 of that next year and going forward. The amount of contract funding that we're getting from the Army is just slightly more than that. So it's probably about a 60-40 split on that.

As you know, what we show here in the first 5 years out to 2025 will be largely U.S. Army and FMS, which will be at those typical margins on that. We believe then that being able to do commercial contracts on that is probably out closer to the 2030 time frame. But at the end of the day, we're confident that we should be in a similar position to where we've been with Patriot for the last several years when we get out to the fully mature point.

Jennifer Reed - Raytheon Technologies Corporation - Vice President of Investor Relations

Seth?

Seth Michael Seifman - JPMorgan Chase & Co, Research Division - Senior Equity Research Analyst

So I thought it was interesting on the slide where you kind of break the portfolio out into the legacy, the growth in the next gen. You mentioned the durability of Patriot, but even from '25 -- 2025 to 2020, '30, it looks like that contribution from the legacy portfolio doesn't really come down that much. And it comes down even less than it does between 2020 and 2025. Is that because you have -- where do you have visibility on Patriot going out kind of into the second half of the decade? And then I remember back at Raytheon, there was going to be kind of a second stage of Poland with the Patriot that was going to be quite significant. Is that still something that's in front of you?

Wesley D. Kremer - Raytheon Technologies Corporation - President of Raytheon Missiles and Defense

Yes. Well, great questions. Let's see, kind of walking through that. The first part is, obviously, we didn't put specific numbers on that bar chart there. It's a little bit of trying to have the crystal ball into the future. But I think the key point was something that I touched on and why the core piece remains so strong even out to 2030 is, like I said, many of our existing programs, Standard Missile 2, ESSM, Rolling Airframe Missile, all of those just recently went through technology refreshes. And we haven't even really started the whole production piece of that of the newest variant. And as we would typically see, we'll see the U.S. buy and then we'll see foreign military buys of that because it's compatible with all of the systems that our allies already have. So that's why that core piece holds up really strong on that.

On the Patriot piece, there -- all of the partner nations in Patriot pay into a pool each year to upgrade the system. I think that's been one of the great things about the Patriot model is that we're always updating the software and the hardware to make it more reliable, cheaper to operate

and more capability to address the emerging threats, right? Remember, Patriot was originally designed to be a counter-air thing. But in the last 20 years, it's primarily been a ballistic missile defense. So it shows the flexibility adaptation of that. So I think you'll see those same trends continue going forward. And I think you're absolutely right on where we see the incremental margin pace contributed by LTAMDS is in the post 2025.

Jennifer Reed - Raytheon Technologies Corporation - Vice President of Investor Relations

Doug?

Douglas Stuart Harned - Sanford C. Bernstein & Co., LLC., Research Division - SVP and Senior Analyst

Yes, just kind of more broadly on that topic. So when you divide the business up into the 3 sort of established products, the growth excitement seems to be very heavily with LRSO and NGI, LTAMDS all of this coming on. But then when I look at what you're saying on margin, I would expect you've got great potential for top line growth in those programs, but you've got shrinkage of that legacy core. How do you get margin expansion over time if you got that mix shift?

Wesley D. Kremer - Raytheon Technologies Corporation - President of Raytheon Missiles and Defense

Yes. Yes. I guess -- and I think you hit on -- that's our challenge, right? And let me maybe give a little more color on that and why we have the forecast that we do here, is some of those programs that are coming into production in the near term, when they were competitively bid a few years ago, we had to build -- or we had to bid first few years of production in that. And there were certainly challenges as there are in any development program. And so those are at very, very low to, in some cases, negative margins. So when we go from a very, very low, even lower than typical development to normal production margins, that incremental margin increase that we see in that is actually very favorable to our mix.

Douglas Stuart Harned - Sanford C. Bernstein & Co., LLC., Research Division - SVP and Senior Analyst

But is there -- and there you mentioned international sum. I always find international hard to predict when you're going out a few years. Obviously, it can be very helpful on margins. I mean what kind of assumptions in thinking about those margins did you make with respect to international?

Wesley D. Kremer - Raytheon Technologies Corporation - President of Raytheon Missiles and Defense

Yes. That's the -- that's one of the hardest pieces. And I thought that Neil did a really good job of talking about that 3 weeks ago on the earnings call, is that we certainly have a pipeline. We have plans for when we think those things will occur. But most of our international sales, on average, it takes about 4 years from really kind of first discussions on that to actually getting a signed contract. So we have to wait and factor those things and look at when they're going to come in. I thought Neil did a really good job of talking about some of the puts and takes. And I think we will see here over the next probably 6 to 12 months, how much of this is going to be threat-driven and how much some of our international customers are going to be caught up in funding their versions of COVID relief and things like that.

So we tried really hard to bound it and put what we think is a reasonable baseline in there based on what we've seen in the past and what we know is being threat-driven and what's in our pipeline today. So that's what you see reflected in there. I'll stop right there.

Jennifer Reed - Raytheon Technologies Corporation - Vice President of Investor Relations

So let's take our last question from online.

Wesley D. Kremer - Raytheon Technologies Corporation - President of Raytheon Missiles and Defense

Sure.

Jennifer Reed - Raytheon Technologies Corporation - Vice President of Investor Relations

So John from Citi. The 80-20 IRAD-CRAD split for '19 through 2021, how does this look going forward? How has that looked in the past? And what does the mix say about customer priorities in your business model?

Wesley D. Kremer - Raytheon Technologies Corporation - President of Raytheon Missiles and Defense

The 5:1 ratio there on IRAD to CRAD is pretty typical of what we have seen in the past. The overall IRAD investment over the last 3 years is indicative of what we anticipate spending in the next 5 years. One thing that's a little bit tricky right now, and you guys are defense sector analysts, so you know this, is that the budget that's going to be released here in late May, early June is only going to be FY '22. They're not going to include the typical FYDP. So that's going to create a challenge for us because we typically look at that FYDP to get an idea of where the customer is headed because clearly, where they plan on putting their money is the best evidence you have of where they're headed. So that we can focus our IRAD out there on those early nascent opportunities so that we're well positioned when those competitions or request for proposal come down.

So that's going to be a near-term challenge for us is understanding that. And especially with it being a new administration, the reality is we're probably not going to get a real good signal as to where the department is going until next February when they release the '23 budget with the FYDP.

Obviously, we work with our customers every day. We understand what their challenges are. We understand where the threats are headed, so we can make a, I think, a very educated assessment of where to put our money, but we will be -- there will be a little trepidation going into next year and it's really the second half of this year that we plan our investments, IRAD investments for next year and on.

Jennifer Reed - Raytheon Technologies Corporation - Vice President of Investor Relations

Great. Thank you, Wes.

Wesley D. Kremer - Raytheon Technologies Corporation - President of Raytheon Missiles and Defense

Okay.

Jennifer Reed - Raytheon Technologies Corporation - Vice President of Investor Relations

And now I'd like to welcome Chris Calio to the stage, the President of Pratt & Whitney.

PRESENTATION

Christopher T. Calio - Raytheon Technologies Corporation - President of Pratt & Whitney

Okay. Welcome, everybody. And I'm Chris Calio from Pratt & Whitney, the propulsion provider in the portfolio, as described by Mr. Hayes. For those of you in the room, welcome to East Hartford, Connecticut, the home of Pratt & Whitney for the better part of the last 95 years. Got a big anniversary coming up soon.

So I want to leave you with 3 key messages today about Pratt & Whitney. Number one, we've got a very strong portfolio. It's well balanced between OE and aftermarket, military and commercial. You can see that on the pies behind me. In each of our business segments, military, Pratt & Whitney Canada, large commercial engines are well positioned in each of their market spaces for growth.

Two, we're going to continue to invest in this business. What we're going to do in a disciplined way and it's going to be focused on structural cost reduction and things to strengthen the portfolio and make it more competitive. These aren't guessing where the puck is going and making big bets. These are responsible bets with responsible paybacks, mainly focused on structural cost reduction. Being a part of RTX enables us to continue to invest even in these tough times.

And the third and final point is that when you take our strong portfolio, you marry it with the investment discipline I just talked about, that's going to enable us to deliver strong top line growth, margin expansion and cash generation. So we're going to see improvement in these areas in each year through the middle of the decade.

All right. Why don't I take you through each of these businesses in some detail, give you a little bit of a midterm outlook and how we see things transpiring.

Start with our military engine business, for our money, the best-positioned military engine portfolio in the industry. Sole source on the top priority programs, bomber, mobility, fighter. You heard Greg and Wes, Roy, Steve talk about kind of flat budget environment that we're all operating in. But these programs, B-21, the tanker, F135, our development programs, they are critical to the growing threats and critical to the fleet refreshment plans that are out there today. So we can continue to see these as a priority as do our customers.

Installed base is roughly 7,000 engines. That's going to continue to grow, largely on the back of the F135. Got 625 in operation today, 3 services and multiple international partners. When we look at our long-term planning horizon, we see delivering about 150 of these a year plus power modules. We're in the process today of negotiating our F-15 through 17, and that will firm up production through 2025. That will be worth around \$11 billion in sales, '21 through '25.

I want to pause here for just a minute and kind of give you our perspective on the F135 program. There's been a lot reported. I want to focus on a few things that maybe haven't been as well reported. Number one, it's incredibly capable. It's the most capable fighter engine in production today, generates the most thrust, it's got the best low observable technologies. It's got the ability to manage the most thermal capacity, incredibly capable. It's reliable. It is exceeding its reliability specifications. And lastly, it's got room to grow. If you've been outside and had a cup of coffee, you had lunch, you may have seen the engine enhancement program. That's our looking ahead, realizing the propulsion system may need to be modernized. These are concepts that we think are low risk, spiral in technology to help meet the evolving threats, continue to have the Warfighter be able to fight the high-end fight. We think this can provide additions to range, thrust and fuel burn. We think it's an incredibly capable package, something that we think needs more focus.

So how does this translate into sustainment? Well, first of all, our legacy here on the right -- in the grey, provides a very solid base, F100, F119, F117. But really, the big growth driver here is going to be in that light blue. That's the F135. Scheduled maintenance begins in 2022. It will grow during this planned period. We see about 380 overhauls in 2025. We're going to double power module output here in '21, almost double it again in '23. So sustainment from that '22 to '25 time period worth about \$1.5 billion in sales.

And to enable that growth, we're focusing on the depots, making sure they have the support they need, to support equipment, improving turnaround time on technical data and on all the engineering support needed for this output. Clearly a huge area of focus for us, working very closely with Tanker to make sure they're able to turn the power mods, support the Warfighter.

Now of course, cost is absolutely critical in this budget environment, in particular, on this program. And we are very committed to meeting the cost affordability targets on the program. Take a look at production and working with the JPL on the war on cost. We've taken the unit cost down about 50% since LRIP 1. So it's transitioned to low-cost suppliers. It's part upgrades and changes and a number of things. So 50% since LRIP 1, and we continue to develop a pipeline of ideas to continue to bring that cost down.

On the sustainment side, obviously, a lot of focus on the cost -- on the operating cost. We're about 10% of that operating cost. Again, some heavy costs upfront as we continue to stand up these depots, but that should recede a bit as those get into place. We've got a strong pipeline of projects to continue to take cost out of sustainment. We've done it on the F119. We know the playbook, very focused about doing it again here on the F135. So that's our military engine business.

Let me turn to Pratt Canada. In the UTC days, Greg used to call Pratt & Whitney, Canada, one of the crown jewels of the portfolio. He used to drive me crazy when I was in the large commercial engine business, but he was right, he was 100% right. It is the premier small engine franchise in the industry, and it's really not even close. Its fundamental business attributes are really phenomenal. Sole source on over 200 platforms. The top-selling platform in business aviation, general aviation, regional turboprop and helicopter. That's led it to become a #1 or #2 player in each of its segments. It's now got an installed base of 65,000 engines with 16,000 customers operating in 195 countries around the world, truly unmatched breadth and scale. It's got unbelievable mission diversity as well. Passenger, of course, cargo, charter, EMS, agricultural, security and defense, 40 different mission sets within this business. And just to put that into context, every second of every day, a Pratt & Whitney Canada powered airplane takes off or lands somewhere in the world. It's pretty amazing.

This success is borne out of continuous innovation. It's making an investment in a new center line design, establishing a beachhead in a market in a leadership position and then continuing to spiral in technology to either maintain that leadership position or go into a new market and establish a leadership position there. Over the last 10 years, Pratt Canada has certified over 25 engines across multiple segments. About 85% of those have been derivatives. So not a big centerline engine design investment, but derivatives.

Great example of this, and there's 2 of them here. First is the PT6. If you go back and look at its genealogy, it's really fascinating. Started 50 years ago as a 500-shaft horsepower engine on a Beech King Air turboprop. Pratt Canada then invested in 3 core variants, going up in size and each one both for a twin turboprop and single turboprop. It then leveraged those cores to break into the helicopter market, where today, it is #1 in the civil aerospace market. It also recently launched the PT6 E. You may have seen the model of it out there in the lobby, the first dual-channel integrated propeller and engine control in general aviation. Winner of the Laureate awards for innovation a couple of years ago. Rave customer reviews. All in PT6, 30,000 engines now in service.

PW800, as I said, another great example. Leverage the GTF core developed in the large commercial engine business, used that to displace Rolls-Royce on the Gulfstream G500, G600. It's also on the Dassault 6x, which had a very successful first flight earlier this year. So continuous innovation, growing and protecting that installed base. And of course, that leads to a long and profitable aftermarket stream. Because of the mission diversity, Pratt Canada has some very, very customized aftermarket plans, a worldwide award-winning service network. That enables it to capture about 70% of the aftermarket revenues coming out of this installed base. And there's a ton of runway in this installed base. 60% of that installed base hasn't yet had a shop visit. And only 9% to 10% get a shop visit each year. So a long profitable aftermarket tail. Great business, great business model.

Large commercial engines. As you guys know, it is a very narrow-body-focused business, fastest recovering segment we've got right now coming out of the pandemic. 10,000 engines in its base today, 80% of those serve the narrow-body segment, led, of course, by the V2500 on the CEO, the GTF dual source on the NEO and then sole source on the A220 and the Embraer E2 platform. The demographics of this installed base are very favorable. It's a very young fleet. 50% is less than 10 years old. So a long aftermarket tail ahead of it. And we're going to continue to add to this fleet with the GTF backlog. We've got about 10,000 engines in our order book today, and we're going to continue to remain aggressive. Order share over the last 18 months close to 65%. We hope to have some more announcements later in the year.

When you think about the GTF, both in operation today and the backlog, a very resilient operator base. 80% of those planes are operating today. I think utilization is about 90% of pre-pandemic. So it has actually been a workhorse during the pandemic and has been the first to lead out of the recovery. First of all, a very quality operator base and in the order book, 40% low-cost carriers, those that have actually really well positioned themselves coming out of this pandemic and another 30%, what I would call traditional network like the Lufthansas and the Deltas of the world.

So what does this all mean to the aftermarket? How does it translate? So threshold sort of answer here, we get back to 2019 levels in 2022. But we need to break down the mix a little bit, because there are some dynamics at play, I think, that are important. So I'll start in the yellow. This bar chart is 2023. So start with the yellow, the V2500. Again, young fleet, average 10 years old. 40% have not had a shop visit yet, very, very strong fleet presence, North America, China, 2 areas recovering the fastest.

And you've got what I would call our legacy in the blue top hat there. Again, kind of a wide-body exposure there, but many of those, about 1/3, serve the cargo market. In fact, we've seen many of the PW2000 and 4000 operators approach us about extending the life of those. I think there's durable strength in the cargo market, given the structural changes we're seeing in the economy in the 2000 and 4000, we're well positioned to capitalize on that.

Then that leaves us with the GTF, which is in the middle of that bar. And of course, the key question is, when does the GTF aftermarket turn the corner? When does it become margin contributing? So let's step back and talk about this for a minute. So we've had a lot of shop visits since EIS. Those have been some of the early configuration, the launch deals with very aggressive contracts, operating in many cases, in severe environments. That's going to start to recede over the next 3 or 4 years. In fact, we've got an operator today, launch customer, harsh environment, some might argue the harshest. They're going to go from about 25% of the shop visits in this portfolio, down to a single-digit percent at the end of this plan period, so mid-decade.

We also continue to implement time on wing upgrades. We've added a new combustor and some other things to increase the durability of the engine. And so those will continue to provide some tailwind to this as well as we retrofit that into the fleet. One thing I'll say that we did during the pandemic, didn't take our foot off the accelerator on GTF, MRO, continued to put engines to the shop. Those are investments, as you know, because they're not margin contributing. But we continue to invest in that fleet, wanted to make sure that it was in the best shape possible for the recovery.

So with all those things playing in, we see this turning the corner in about that 24-month time frame. And then from there, it's off to the races as we accelerate, to try to bring it up to V2500 historic levels, narrow-body levels.

Okay. So that's the portfolio, strong, well-positioned. Now I'd like to turn to how we're going to continue to deploy capital in a responsible way to make this portfolio even more competitive and cost competitive and -- from an innovation perspective.

So let me start with innovation. And the title sort of says it all, disciplined investment in advanced technologies. Kind of putting these into 3 buckets, okay? And again, these are really focused on customer needs. These are not us trying to figure out the customer wants. These are in-depth conversations with our customers, what do they need? And also, what do we need as a business? How do we need to modernize the way we do things to be more cost competitive.

First category here is efficiency. And that's all about building on our leadership in propulsive efficiency with the GTF. We think it's the architecture of future. I think the backlog I just showed you backs that up. As I said, we continue to put in time on wing upgrades, continue to develop those to increase the profitability of the aftermarket. We're working on packages to increase the fuel burn to improve it, also working on a way to maybe just scale it up to the extent that engine bypass ratios get larger, applications get larger, we're in a position to be able to offer the GTF. At the end of the day, we're going to continue to leverage what we believe is a 10 million hour advantage on the gear.

Okay. So what's next in the efficiency space? It's thermal efficiency. It's developing materials to make engines even more capable, high temp composites like CMCs. Wes stole my thunder a little bit there, but it's good, because I'm glad he's so excited about it. So we have our negotiation about how we're going to price it. We've got a little bit of leverage. We've established a center of excellence, Carlsbad, California, to help develop the next-generation of CMC. North of that 2,400 degree Fahrenheit and, to Wes's point, a lighter material. This will enable us to both retrofit the existing fleet when it's ready. And then we can also, in the future, design around it for those applications, we need to drive more heat through the core.

Second category, sustainability. I think everybody knows here, the demand for reducing carbon and reducing the carbon footprint, not only from regulators, of course, and governments, but from customers. You can't have a customer meeting today where this isn't on the agenda. And it's beyond just how well do you burn or how efficiently do you burn kerosene-based jet fuel. So there are 2 sort of near-term opportunities I'd like to talk to you about here. One is hybrid electric. You heard Steve talk about that. We see that as an opportunity in the short to medium range, general aviation, regional turboprop, helicopter segments.

Steve mentioned about a 1 megawatt that the electric component can bring in. The remaining, we'll call it, 1 megawatt that thrust equivalent, how do we optimize missions using the engine, using electrification to drive efficiency. He mentioned 30% mission efficiency. I agree with that. I think that's where this can go, working with Collins and then working with governments in terms of funding these applications. There's a lot of demand out there. And there's a lot of governments who want a partner to make this happen.

Second opportunity is sustainable aviation fuels. Probably heard a lot about that. That's biofuels effectively. There are several, I think, 7 sustainable aviation fuels that are certified today. Up to like a 50% blend, okay? We're working on a spec with the airframers, with the regulators to get it to 100%. We think that can reduce emissions up to 80%. And we don't think it will cause us to have to do tremendous modifications to the engine. And so why is this important? Well, it will take some time for the infrastructure to build up, to be able to support sustainable aviation fuels, but it's a great retrofit opportunity. A lot of folks rightly so are out talking about the prospects and the potential of hydrogen. I think there's absolutely potential there. But that's a 2035 prospect. By 2035, you're going to have roughly 40,000 airplanes out there operating today. How do we get them to operate in the most efficient way possible? This is a key initiative to make that happen.

And the last, we're calling digital. You've heard a lot about that today. And we've talked about digital in the past, it's been about the value that we bring to the customer, engine health prognostics. We are still all in on that, make no mistake. But we have an opportunity to improve the way we do things, to optimize productivity within our own offices, within our own footprint, our own factories. A couple of examples here. And you heard Mike talk about 1 of them. Model-based definition on manufacturing and inspection. Today, we rely on 2D drawings, right, from our engineering organization that then have to get consumed and translated either by our shops or our supply chain. So this is about eliminating our reliance on 2D drawings, enhancing 3D CAD with dimensions and tolerance and other sort of 3D characteristics. It eliminates the manual work of having to translate those. It can improve cycle time. It can improve cost. It can improve productivity. Today, we've got pilots on 30-part families in this regard. We think we can get the full capability by the middle of the decade, a huge cost and efficiency play.

And the second is digital twin. Mike also mentioned that one. It's the digital representation of a physical asset. It's taking information from the field. It's taking information we gather from MRO, taking information we gather from production and putting it into 1 place, allows us to run detailed sophisticated simulations much faster than we ever could, allows us to tailor maintenance, allows us to manage inventory better, allows us to manage our spare assets better when we know where the needs are based upon the simulations that we're running. And the opportunity is there. Today, we've only got two, I'll say, in service. We're trying to expand this across our current product portfolio, again, by 2025, leveraging a lot of the synergies Mike talked about in his digital presentation. So that's innovation.

Let me talk about cost and the need for us to continue to drive significant structural cost reduction. So on the left-hand side, let's talk cost structure. And when you think back to 2020, we did a combination of what I would call, offense and defense, took some very, very difficult headcount action. No one wants to have to do that. That said, we've been very, very clear with our organization. When we get back to 2019 sales levels, we are not going back to 2019 headcount levels. And that's borne out of some of the productivity I'm just talking about here, some of the automation I'm going to talk about and some of the digital initiatives that we've got. It will be a big driver of margin expansion.

Reducing our footprint. So we're going to reduce about 1.4 million in square feet. It's about 7% of our footprint. That's been teed up already. We're now executing that. And we are aggressively looking for more opportunities based upon what we see in our business.

And then lastly, realigning investments. We took out about \$300 million in E&D last year, \$500 million in capital. Now some of that has been just deferred. That just kind of moves out in timing with demand. But some of it actually has just been either eliminated or reallocated to other higher priority type of investments. And that's really what you see here in the second column on automation. It's a -- we have a robust road map to modernize our footprint via automation and connected machines. Common thread that goes through each one of these projects, better cycle time, better speed, better efficiency, better quality, ultimately, better cost and ultimately, less CapEx. When your existing machines can operate more efficiently, you don't have to spend more on new machines.

Projects you see here in the middle, which span, frankly, the globe in terms of our footprint, Georgia, Poland, Singapore. These represent a \$65 million investment with roughly 3 year paybacks. That'll allow capacity to increase by 80% and labor to decrease by 30%. We've got about 75 projects in the pipeline like this one. Things that are manageable investments with paybacks in that 2 to 3-year range, and we're in the process of profiling those out for the plan period.

And on the right, was probably our most transformative move, and I'm sure many of you have read about this initiative. This is our new facility in Asheville, North Carolina, vertically integrated advanced airfoils. It will provide the airfoils for the GTF and the F135. As many of you are all too aware, this is a very constrained, very expensive value stream. So with this facility, we will do soup to nuts. We'll do the core production, leveraging the micro acquisition we did in 2017, their ceramic cores, their innovative technology. We'll do the part casting, and we'll do the coating and finishing. And just to kind of give you a sense of what this mean for us. Today, a part has to travel 2,500 miles with 8 handoffs. When this is ready to go, we'll all produce this in 1 factory. It's all said and done, it will produce about \$180 million in annual savings and be a huge driver of margin expansion and help us secure, as I said, a very constrained value stream.

Okay. How does this all translate into performance? I'll just start with very quickly the 2021 outlook. As Neil has said in the earnings call, Greg as well, environment consistent with our expectations, though, the recovery is a little choppy based on the geography, continue to feel good about the resilience of our portfolio. Pratt & Whitney Canada, GA, business aviation, helicopter, those are largely recovered within spitting distance of pre-pandemic levels. And we're continuing to see some green shoots in the large commercial engine business in terms of utilization. And then the cost actions we took in '20 are fully planned through this year. So while the environment is still dynamic, we're confident here and, of course, affirm the guidance.

So longer term, I talked about strong top line growth on the back of the portfolio strength. We've got OE and aftermarket both ramping back up, so strong top line growth. And solid margin expansion in the range of 700 to 800 basis points during this period. Let me just kind of walk you through some of the key components of that. One is the, of course, legacy aftermarket recovery, okay? V2500, we think, will grow about 50% during this period in terms of shop visits, one of our most profitable aftermarket segments. I mentioned to you before, the GTF aftermarket is going to turn the corner in that 2023 time frame. And so that will be a contributor going forward to the margin expansion story. I've mentioned a couple of times now, we're going to be disciplined about E&D, CapEx and adding G&A. Each one of those will decrease as a percentage of sales during this plan period. And then we're going to see the other cost reductions and the other synergies that Mike talked about also play through during this period.

Now I know that we've been on record in the past about talking about teens -- margins in the teens for Pratt & Whitney and when are we going to get there. Obviously, the pandemic has moved some of those key factors to the right. There's also been -- there's a mix shift going on in our business. GTF is becoming a larger proportion of our sales and in our aftermarket portfolio. And while that's great, as we move into the back half of this decade, provide some near-term headwind. But make no mistake, we are incredibly focused on getting back to our historic level of margins. And frankly, we think the playbook that gets us to these numbers, as they fully take hold, will help us get to those historic margins as well.

And so with that, I'll just close with the following. Again, strong portfolio, well positioned to deliver growth and a disciplined investment strategy with a focus on productivity and structural cost reduction.

With that, I'll be happy to take your questions.

QUESTIONS AND ANSWERS

Jennifer Reed - Raytheon Technologies Corporation - Vice President of Investor Relations

All right. Let's go with right there.

Ronald Jay Epstein - BofA Securities, Research Division - Industry Analyst

Ron Epstein, Bank of America. One thing you didn't really talk about was the potential for a new airplane and investments that you'd be making there. How are you thinking about that and your co-patriot over at Collins Aerospace said there's no new airplane going on? So just curious how you think about that?

Christopher T. Calio - Raytheon Technologies Corporation - President of Pratt & Whitney

Well, I would never get up here and contradict my co-patriot. So that won't happen here. Here's what I'll say. Steve was right. The airframers are always doing scenario planning, right? They're always looking at where the market is going. And we engage with them heavily, what can we provide and what time frame? What will the technology look like at various periods and what can we offer? So we're continuing to do that. If a new program gets launched, this is the business we chose. And we will want to engage with them on those, but the business model will have to work, the timing will have to work. And the market is going to have to really be there. It's going to need to be high volume. And so really, what we're focused on right now, and I mentioned it during the GTF presentation. It's controlling what we can control, instituting the time on wing upgrades, getting that fleet as healthy as possible and accelerating the GTF aftermarket. It's been a headwind. We want to turn it into a tailwind, and then we want to accelerate. And so that's kind of where our focus is right now.

Ronald Jay Epstein - BofA Securities, Research Division - Industry Analyst

And maybe just 1 follow- on that. In the event of a new airplane, do you think in the narrow-body market, you guys could eventually supplant CFM?

Christopher T. Calio - Raytheon Technologies Corporation - President of Pratt & Whitney

When you say -- I mean, on a new program or just...

Ronald Jay Epstein - BofA Securities, Research Division - Industry Analyst

On a new program in the long run.

Christopher T. Calio - Raytheon Technologies Corporation - President of Pratt & Whitney

Absolutely. I mean, we're a huge believer in the technology. We think the GTF is the architecture of the future. We're going to continue to invest in those upgrades. I think it offers a ton of benefit. So we absolutely could do that.

Jennifer Reed - Raytheon Technologies Corporation - Vice President of Investor Relations

Over here. David?

David Egon Strauss - Barclays Bank PLC, Research Division - Research Analyst

Yes. Chris, could you just clarify the margin comment around mid-teens? So are you seeing GTF hold you back in the near-term, because you've got legacy engines, 4000, 2000 rolling off, and that's more of a headwind? And then once you get out, that kind of rolls off, that's what allows you beyond kind of 2025 with the GTF ramping up? And then the second part of the question, can you just touch on GTF working capital kind of where you are in terms of the inventory ramp? And when do you start to unlock some of, what I believe, has been a pretty big inventory headwind? I know you got help with volumes coming down, but ultimately, how do you see the inventory side for GTF playing out?

Christopher T. Calio - Raytheon Technologies Corporation - President of Pratt & Whitney

Sure. So let's talk about the margin story. And I never like to talk -- use the words GTF and headwind in the same sentence, right? Because I don't think it does a justice. It is going to be the huge driver of growth in this business. But yes, near term, I'll just give you a statistic that I think helps explain it. In 2019, the GTF was, I don't know, 15%, 20%, a little north of 20% of our sales in the large commercial engine business, okay? It will be

close to 60% when we get to 2025, right? So it's displacing V visits and some of the other things, which are higher margin. And so look, continuing to add to the backlog, continuing to have visits and upgrade the fleet. It will serve us well in the long term, back end of this decade. But until then, that mix shift in this business does provide kind of a natural governor.

GTF inventory was your second question? Yes. So look, I think we've done a good job here in 2020 in reducing lead times, working with our supply chain on making sure we're not carrying excess GTF inventory. Now I will tell you that we had to ramp up the inventory story, a, for the actual production ramp; and b, because we had a lot of earlier visits than we thought, right? So we needed to bring in that inventory as well. As these time on wing upgrades take hold, time on wing and the maintenance interval grows, that will recede. So I see it improving on the aftermarket.

On the OE, again, we've got opportunities for improvement there. For sure, it's been a choppy sort of 1.5 years as we've worked to take out demand in MRP. I think we've learned some pretty good lessons, developed some muscles in that area that will serve us well, as we move out -- and as this starts to ramp up and hopefully starts to get steady in the sort of the mid part of this decade in terms of volumes.

Jennifer Reed - Raytheon Technologies Corporation - Vice President of Investor Relations

Great. Chris, let's take 1 online, if you don't mind? This comes from Sheila from Jefferies. Hi, Chris. If we look at Pratt's incrementals in the 25% range, how do we think about the drop-through aftermarket and OE mix headwinds or tailwinds and the drop-through from military?

Christopher T. Calio - Raytheon Technologies Corporation - President of Pratt & Whitney

Sheila, yes, you're right. You heard Neil talk about decrements for Q1 in that 37%, 38% range. Q2 to Q4 incrementals in that 25% range. And that's on the back of strong drop-through in the legacy aftermarket, strong drop-through in military, and then our cost actions really sort of playing through. When I think about it beyond '21, I could see incrementals sustaining in the low 20s, maybe some acceleration there towards the end.

Jennifer Reed - Raytheon Technologies Corporation - Vice President of Investor Relations

Great. Can we get Matt? Is that possible?

Matthew Carl Akers - Wells Fargo Securities, LLC, Research Division - Senior Equity Analyst

Matt Akers from Wells Fargo. I guess just going back to GTF. Could you -- is it possible to say how big the negative engine margin at this point? And how that will trend over the next couple of years as production volumes ramp up and maybe you sort of work down the learning curve at the same time? And then I guess the other question is kind of what are you seeing now in terms of shop visits? I think obviously, a lot of -- on the large commercial side, some delays of work during COVID. Is that starting to come back as we get kind of into the summer travel season?

Christopher T. Calio - Raytheon Technologies Corporation - President of Pratt & Whitney

Yes. So your first question was on GTF negative engine margin. Of course. How could I forget? Negative engine margin. So peak NEM, I think Greg has put a stake in the ground, that it was going to occur a little bit earlier. I think some of the factors that went into that have clearly moved to the right with the pandemic. Again, that's going to depend on airframer production rates. You've seen what I've seen sort of in the news. It's also going to depend on the delivery profile over the next few years. I see us getting to sort of like peak NEM, middle of the decade, 2025-ish is what I would sort of prognosticate today.

Your second question on the GTF was overall large engine shop visits. Sure. So our plan for this year, slight uptick on V. We continue to see strength in the 4000 and 2000, as I mentioned. I think the strength in the 4000 and 2000, as I said, remains pretty durable. I think cargo is going to continue to be a large part of that story. People are talking to us about what will it take to extend the life, people setting up shop visits because they want to send these out -- or keep these out for the next 5, 6, 7 years. So that's good.

V2500. Again, we're in that 500, 550 sort of shop visit range this year. We see a 50% increase through 2025. We're going to push to try to get it back to 1,000. You may have heard a few years ago, it was going to be 1,000 shop visits a year for the next 7 years. Pandemic obviously has done a little bit of an impact there. But we're going to try to push to get back to that number. But right now, we see it as more of a 50% increase by the end of this plan period.

Jennifer Reed - Raytheon Technologies Corporation - Vice President of Investor Relations

Yes. Let's take 1 more question. Cai?

Cai von Rumohr - Cowen and Company, LLC, Research Division - MD & Senior Research Analyst

Cai von Rumohr from Cowen. Can you update us on the F135. I guess, the Air Force is saying that you guys are behind. They're complaining pretty loudly about \$33,000 per hour, and they've delayed negotiation of Lot 15. What do you -- when do you think you can be back on schedule and when do you see them finalizing Lot 15?

Christopher T. Calio - Raytheon Technologies Corporation - President of Pratt & Whitney

Yes. Well, thanks. Thanks, Cai. The second part first, I won't predict when they'll finalize Lot 15, sort of I'll get myself in trouble doing that. But let me just talk just about deliveries. Thank you for the question, because there's been a lot on that. We were an average of 18 days late to contract on our deliveries last year. But by the end of the year, we had delivered 1 more than we were contracted to do. Now no one here likes an 18-day to contract delay. But in a COVID environment to deliver what we said we were going to deliver, I think, is pretty impressive. Again, '21, we think you've got a number of engines that are ahead delivered at the final assembly line. So we're certainly not holding up Lockheed, believe we'll continue on the improvements that we made last year to try to close that gap on the days late to PO. But I feel good about meeting our production requirements.

Your point on cost, on operating cost, okay. Well, it's not all of us. But again, we are very focused on meeting the cost affordability targets in the program. As I said, on the F119 through usage-based lifing to through part redesign, we brought that cost down substantially. We're going to go take that playbook and apply it to the F135. We know we need to do it in order to protect that program of record.

Jennifer Reed - Raytheon Technologies Corporation - Vice President of Investor Relations

Okay. Thank you, Chris. All right. With that, I'd now like to welcome Neil Mitchell, our Chief Financial Officer.

PRESENTATION

Neil G. Mitchell - Raytheon Technologies Corporation - CFO

Great videos today, aren't they? Welcome, nice to be here with you all today. We're going to try to wrap things up soon. I'm going to try to pull together everything you heard from all your presidents today and Mike and Greg's opening remarks and tell you a little bit about what that means for us financially, both in the near term, as you've heard everyone reaffirm our 2021 outlook today, as well as over the next 5 years.

But before I do that, I do want to take a quick look back at what we've accomplished since the merger. And I think it's set it up very nicely for what we see over the next 5 years. So just quickly, clearly, you've heard today, 2020 was a really challenging year. But at RTX, we got on that very quickly. We took some very aggressive and decisive actions. We made some difficult decisions. Some of it was timing, as you've heard everyone talk about today, we did delay a little bit at E&D, about \$500 million. We saved about \$500 million in discretionary spending as well. We also saved about \$1

billion on employee-related actions. Some of that is temporary, but some of it is permanent, and I'll talk a little bit about that in a few minutes. But all difficult, but necessary actions, positioning us to emerge stronger as we come through the pandemic.

Those cost savings, combined with disciplined inventory management, where we saved about \$1.2 billion in cash last year, just from managing our inventory better, \$800 million of deferred CapEx combined to get almost \$5 billion worth of cash conservation. So really good exercise last year positioned us well, enabled us to deliver \$2.3 billion of cash, and that was after prefunding our pension plans by \$800 million. So good cash performance last year.

We've talked a lot today. You've heard Mike talk about merger synergies. You heard all the business unit presidents talk about that. I feel really good about the \$1.3 billion of synergies that we have today. We've got great plans in place, very detailed actions. And frankly, as Greg said, on the earnings call about a month ago, we're probably not done there yet either. So very good work there, positioning us well. We'll have almost 800 -- north of \$800 million of those savings in the bank even as we exit 2021.

Portfolio actions, you've heard us talk about it. Strengthened our balance sheet. We put a little over \$1 billion in the bank this year, closing the Forcepoint transaction. So we'll have more opportunities to do that, as Greg alluded to early on today.

And I think really importantly, we committed to returning a lot of cash to shareowners. And even in the midst of the pandemic, we preserved our dividend. Not a lot of companies can say that. So very proud to say that we're able to do that through the pandemic. Not only do that, but just recently, we increased our dividend by over 7%, and we'll be doing more of that as earnings grow in the future. To date, we've returned almost \$3.2 billion to shareowners. We've resumed our share buyback in the first quarter, having completed about \$375 million. And we took our target up as well to \$2 billion of buyback for this year. So also in a good position.

All of that creating a lot of flexibility. Our balance sheet is very robust. We ended the quarter with almost \$9 billion of cash, so puts us in a great position. So a challenging year, but a very strong finish.

So now let me kind of transition and talk about how we see the top line. Again, you heard all the business unit presidents today talk about the key drivers to the top line. We're really well positioned. We've got nearly \$150 billion backlog today. And as you saw and heard, many of our key technologies are well aligned with the National Defense Strategy, with our customers' priorities, and are differentiated. So I feel really good about the backlog that we have and the ability to deliver on this kind of sales growth over the next 5 years.

So to put some numbers to it, you can see over the next 5 years, we see our top line growing on a cumulative -- on a CAGR basis of 6% to 7%. In the near term, the commercial aero recovery is going to be a key driver of that, no doubt about it. The large installed base, as airlines get back up in the air. That's going to come with very strong sales. We'll talk about profit in a minute.

Defense backlog execution. You heard us talk about it today. Clearly, a lot of stuff in the pipeline already, and execution is key. And you heard our presidents talk about their focus on making sure that we execute on that backlog, so we can deliver to our customers. So that's the near term. A little bit longer, as Greg talked about earlier today as well, we see the top line continuing to grow, even after we get to 2019 levels at the end of 2023 and through 2024. History says that RPMs will continue to grow in that 5% to 6% range annually. And we still see that the underlying macroeconomic factors that drive that demand, they're still here. So once people get back to traveling, heard Chris talk about cargo, I think all of those factors remain in place and position us for even longer-term growth.

Next-gen technology is really important. That will be a key driver on the development side, as you heard on the defense side as well today. And those things will just add to the top line as we go. And then revenue synergies. What I would say about revenue synergies is very little of what we talked about today actually hits in the 5-year period. And so if we're able to be successful on a number of those pursuits, that will be upside to the numbers that we're talking about and certainly will drive even longer-term goal -- revenue rather in the next half of the decade. So as the top line accelerates through the recovery, which I'm confident that it will, we're going to continue to execute on our cost initiatives.

So let me spend a couple of minutes on operating profit. Over the next 5 years, we'll see the segment operating profit grow on an 18% to 20% CAGR basis, a huge amount of incremental profit coming through, largely on volume but also on cost. And that will translate to 550 to 650 basis

points of margin expansion over that time period. So we'll get back into that near 14% margin by the time we get to 2025. So in addition to the volume, in addition to the drop-through of the synergies and execution on the backlog -- backlog rather, we're going to see productivity. We're laser-focused on driving productivity. We're going to put core to work in our factories and our back offices. So across the entire company.

So let me spend a couple of minutes on cost reduction. It's been a huge topic with all of our investors. All of you are very interested in it. And we've got a number of initiatives. So I've tried to summarize them all together here into 1 chart. You can see we've got over \$5 billion of cost reduction that we plan to drive on a gross basis by 2025. Now we get the question a lot, how much of that is going to drop through. So I have a chart in the backup that you can take a look at that kind of walks from the \$5 billion down to about \$2 billion, which is what we think will drop through by the time 2025 comes around. And let me explain why. \$2 billion of the \$5 billion will kind of just get passed back to our government customer, because we have a lot of government contracting and over this period of time, we'll get to realize some of that cost for ourselves, but as we reprice contracts in the future, we'll be able to give that back to our customers. And that's a good thing. It makes us more competitive, and it makes our products more attractive to our customers. It makes their dollars go a little bit further. So that's a big piece of it.

There's also some other headwinds that we have to deal with. This is why we do base cost reduction every single day, because we've got wage and other product inflation ahead of us. So you'll see some of that get chewed up by that, as well as some other customer concessions that we've agreed to over the last several years, that will bring that down to about a net \$2 billion, but we're not done. There's plenty more to do on cost reduction. And we'll get to talking more about that as the pipeline of projects matures over time.

So accelerating top line growth, coupled with this margin expansion, is going to clearly result in a significant ramp in our cash flow. So as you look at free cash flow, let me just pause for a second here to make sure you can see what we're doing. We've been talking a lot about getting back to \$8 billion to \$9 billion of free cash flow when we get back to 2019 levels of air travel. And we absolutely will do that. And as we've talked about today, we think that's going to happen by the end of 2023. So when you get into 2024, you'll see that \$8 billion to \$9 billion of free cash flow. But as you look out a little further, another year, we see free cash flow above \$10 billion. And that's after investing \$6 billion of our own money between E&D and CapEx. So that we make sure that we prioritize those key technologies and the differentiators that we bring to our customers, so that we can keep the long-term sustainable, profitable growth of this company alive. We do not want to starve the business over the next 5 years.

Because we've talked a lot today about next-generation platforms, what we really want to do is be platform-agnostic and have these technology insertions and be able to capitalize on retrofits and upgrades and things that keep the fleet flying and keep our war fighters with the greatest technology they can have in their hands. So a lot of cash is going to be delivered over the next 5 years. Again, we see north of \$10 billion, and it will grow beyond then. We're not going to get too far ahead of ourselves today, but I do see a lot of growth potential in our free cash flow.

So what are we going to do with all that cash? So we're going to prioritize 3 areas. I already talked about investing in growth and innovation. Clearly, R&D, CapEx, we need to make smart investments. We have a very disciplined process here at RTX to make sure that all those great ideas that you heard about earlier today go through a rigorous process to make sure they're aligned with our strategy, they're aligned with our customers and they have the right paybacks, and they generate the right returns. We'll go through a very rigorous process here. They come up through me, through Greg, up to our Board, depending on the various sizes. So I'm confident that we'll be able to allocate those resources to the highest return areas.

Most importantly, we're going to return that cash to shareholders. So I talked a minute ago about sustaining and growing the dividend. As earnings grow, it's our intention to grow the dividend. So you can count on that. And today, I feel confident in saying that instead of just \$18 billion to \$20 billion of cash return in the first 4 years, we're now seeing \$20 billion-plus of capital return to shareholders in the 4 years following the merger. So as we've talked about, about \$12 billion of that will come from dividends and \$8 billion from share buyback. So feel very good about that today. Of course, as you get into the latter part of '24 and '25, there will be more cash. And that cash will allow us to be very flexible in our balance sheet, maintain our investment-grade credit rating. We can use that cash for additional share buyback, debt repayment, bolt-on M&A to support the technology we have and other important investments that we see coming in the next several years.

So again, really strong, very confident about the top line that's going to expand, both in absolute dollars, our gross margins, significant margin expansion as a percentage of sales and generate a robust amount of free cash flow.

So let me pivot a little bit here and just talk about our 2021 expectations. So as you've heard from each of the businesses today, no change to our 2021 outlook. We're just about 1 quarter and a month into the year. And as we talked about a month ago, there's still a few things we're monitoring. We're expecting a significant ramp in the back half of the year. And we want to make sure that we balance all of those, the international travel, the pace of the vaccine rollout and a number of other factors, but no change today.

Sales, we see still strong between \$63.9 billion and \$65.4 billion. We already took the bottom end of the range up by \$500 million. That will give us organic sales in the range of 1% to 3% for the year. Q1 was obviously a very challenging year. That's the last quarter of -- not a challenging year, a challenging quarter, very challenging quarter compare, but it's the last one. It will get considerably easier going forward. For the last 3 quarters of the year, we see organic sales between 7% and 10% growing.

On the adjusted EPS front, we now see a range of \$3.50 to \$3.70. Again, we just raised the low end of that range about a month ago by \$0.10. Still see free cash flow of about \$4.5 billion, following a pretty good start to the year. I'm not going to declare a victory yet. We have ways to go. But again, as I mentioned earlier, that allowed us to take up the share repo commitment by \$500 million.

So with that, let me just reaffirm, really solid outlook for RTX financially. The backlog is robust. Our margins are going to expand, and we'll be able to generate billions of dollars of free cash flow over the next 5 years.

So with that, Greg, I'm going to invite you back to the stage to wrap things up, and then we can get into Q&A.

Gregory J. Hayes - *Raytheon Technologies Corporation - CEO*

Thank you, Neil. So I'm reminded back in December of 2014, right, shortly after I took over as CEO at UTC, I stood in front of the investors in New York, and I said that I was going to be the activist in the stock. And it's been a hell of a 6-year period. I think we have done a lot of things that were very difficult to do. I think we've taken that to heart and tried to do with the things that were right for the business to create shareowner value across all the businesses. I would tell you, as I stand here today, if I was an activist, I would say, now, you've got the portfolio. Now you've got to make it work, which means you've got to find these revenue synergies. You've got to drive operational efficiencies. You have to transform the operations. And I would tell you that each and every one of the presidents here, I think, is absolutely committed, as is the staff, to doing exactly that. We have to transform this business digitally. We have to take structural cost out, but we can do it. We've got the franchises. We've got great markets. We've got differentiating technology.

So I would just tell you, I am highly confident in these numbers that Neil just shared with you, and I think we can do better. But we'll only do better if we continue to, I would say, heed the words of an old boss of mine, who had a way of motivating people. His favorite saying was, why don't you save us both some time and do what your successor would do? So what I'm telling you is we're going to do those hard things, right? That is our job up here. That's why we have such a great team, because they know what has to be done.

So with that, thank you for showing up today in person. I know this was a hardship for many of you, but it's great to actually see everybody. So Jennifer, why don't you come up, we'll take a few questions.

QUESTIONS AND ANSWERS

Jennifer Reed - *Raytheon Technologies Corporation - Vice President of Investor Relations*

All right. Let's take our first one from Carter.

Carter Copeland - *Melius Research LLC - Founding Partner, President and Research Analyst of Aerospace and Defense*

Greg, Harry Stonecipher had a way with words, didn't he?

Gregory J. Hayes - *Raytheon Technologies Corporation - CEO*

Gotta love, Harry.

Carter Copeland - *Melius Research LLC - Founding Partner, President and Research Analyst of Aerospace and Defense*

Neil, maybe my math is off, but I'm just going through your numbers, trying to bridge. When you look to that 2025 free cash flow number and the lower CAS, net of pension contributions and the \$3 billion of CapEx and just the incremental EBIT that's outlined by each of the segment plans, it sort of implies quite a bit of working capital improvement between here and there. Maybe you can help us bridge where that comes from, how we should think about it, just as we try to put the numbers together?

Neil G. Mitchell - *Raytheon Technologies Corporation - CFO*

Sure. Yes. So let me try to walk from 2020 to 2025. So over that period, you'll see operating profit at the segment level, increase in the neighborhood of \$7.3 billion or so. You'll also see a headwind, as you pointed out, of pension about \$450 million or so. That does, I'd say, higher operating tax -- cash tax will be offset by some savings at corporate over that period. So we've got some investments we're making today that when you get out into 2025, are not there. So those sort of net -- and you're right, the rest is working capital. I didn't comment on it, but if you look at your Pratt and Collins inventory turns today, those are in the neighborhood of 3, 3.5, somewhere between there today. We're targeting an improvement of 1 point to 1.5 points of turns there by 2025. So you'll see, I think, some real velocity improvement on the working capital front, as you're kind of going from 2020 to where we get to in 2025. We'll be managing payables, as we always do, collections as well, but I think our real opportunity does lie in the commercial aerospace inventory area.

Jennifer Reed - *Raytheon Technologies Corporation - Vice President of Investor Relations*

Let me take Noah.

Noah Poponak - *Goldman Sachs Group, Inc., Research Division - Equity Analyst*

Similar question, Neil. I think the margin -- the segment margin guidance for 2025 while up a lot from 2020 is pretty similar margins to 2019 or pre pandemic, and that's despite the revenue guidance being about 20% higher. And then just a ton of discussion today on operational improvements and a pretty big cost out number. So how do I square similar margins with better revenue and a lot of cost out?

Neil G. Mitchell - *Raytheon Technologies Corporation - CFO*

Good question. So you got to start, let's ground ourselves in 2019. About 13.6%, about 40 basis points of that performance in 2019, I'd split it evenly between some of the defense businesses that we sold at Collins, as a result of the merger. So that brings it down a little bit, and the ADS-B mandate that we talked a lot about in 2019, and as we headed into the start of 2020, and then stopped talking about it, because it was dwarfed by the pandemic impact. So if you take about 40 basis points, your base is about 13.2 points of margin is kind of what I see the base as.

If you go to 2025, you'll see us in that 13.9%. About 200 basis points of improvement comes from the cost reduction that I talked about, the net cost reduction. Remember, about \$300 million of the \$2 billion net cost reduction had already happened in 2019. So it's about \$1.7 billion. And the offset to that is largely mix. So you heard Chris Calio talk a lot today about the OE aftermarket mix of GTF. So that becomes a headwind. And also, you have some of our lower-margin businesses growing at a faster rate than our higher-margin businesses between '19 and '25. And so if you put all that together, you'll see about 150 basis points of mix headwind, and you'll see a remainder of about 20 basis of kind of, what I'll call, operational productivity improvement that comes from across all of our businesses, just generating more productivity in the factories.

Noah Poponak - Goldman Sachs Group, Inc., Research Division - Equity Analyst

Okay. And if I could just ask 1 follow-up a layer down within that. With GTF profitability, I had always thought of it as OE versus aftermarket, having very different margins. It sounded like from Chris' discussion that the aftermarket margins will be maybe lower than I was thinking with favorable terms for new customers and early shop visits and things like that, and that then accelerate significantly further out into the future. Is that correct? And is that part of the overall margin?

Neil G. Mitchell - Raytheon Technologies Corporation - CFO

So I think what I would say is that in the near term, you have a different mix of customers, right? So as Chris talked about, we have some of the launch customers, they got better pricing. But as you get further out beyond 2025, I see the GTF aftermarket margins being at/or near what the V2500 is today. It's really -- the V is at a different point in its life today, right? It's a relatively young fleet, but it's coming in for its second shop visit, in some cases. Those are heavy with LLPs. And those drive a different kind of margin profile. You've got a lot of these GTF contracts that are under power-by-the-hour contracts, and they drive a little bit lower margin in the near term. But very confident that as those engines get to the second shop visits of their lives, they will carry the same kinds of margins that we enjoy today in the legacy fleet.

Jennifer Reed - Raytheon Technologies Corporation - Vice President of Investor Relations

We have 1 from Myles.

Myles Alexander Walton - UBS Investment Bank, Research Division - MD & Senior Analyst

Greg, can I ask you a question around the portfolio, now that it's a combined one of the largest, if not the largest, aerospace systems and defense company in the world? You've got a third player in the aerospace industry emerging in China over the next decade, you're a defense company in the U.S. How do you go to market on the third leg of the triopoly when you are a strategic adversary?

Gregory J. Hayes - Raytheon Technologies Corporation - CEO

Yes, that is a great question, Myles. And I think it was one of the things when Dr. Kennedy and I were first talking about the merger. One of the things that we insisted on was that we keep the brand identities of Pratt & Whitney and Collins Aerospace separate, so that when Chris or Steve goes to Beijing or Shanghai to visit AVIC or COMAC, they're coming as Collins Aerospace or Pratt & Whitney. Recognizing, we've always been in the defense business, right? Even at UTC, we were a defense business with commercial businesses.

So I think we respect the fact that there is -- the Chinese commercial aerospace market is the fastest-growing in the world. And we have to play there. We have thousands of employees there. They are key parts of our commercial supply chain. And so we're going to continue to engage with COMAC and AVIC and the Chinese operators, I think, as we should as a commercial aerospace business. And so we're just going to try and make sure that we maintain that kind of wall between Raytheon Technologies and our commercial assets.

Myles Alexander Walton - UBS Investment Bank, Research Division - MD & Senior Analyst

And in the recent landscape last year and going forward in the next 6 months, are you seeing any cooling tides between the China-U.S. relations on the commercial side in particular?

Gregory J. Hayes - Raytheon Technologies Corporation - CEO

I have not -- well, first of all, none of us have traveled over there.

Myles Alexander Walton - *UBS Investment Bank, Research Division - MD & Senior Analyst*

It's the power of Zoom.

Gregory J. Hayes - *Raytheon Technologies Corporation - CEO*

I don't think I've done at Zoom with anybody in China. I might throw that to Steve or to Chris, I don't know if you guys have seen any issues since the merger in terms of -- or pull back by our Chinese partners?

Christopher T. Calio - *Raytheon Technologies Corporation - President of Pratt & Whitney*

No, I would -- you said it well, Greg, I think our customers have had questions. We've explained it the way Greg has done it. They want us to focus on improving our product, bringing costs down and being as competitive as we can in the market. And so that's what I've seen over this last, we'll call it, 14 months or so.

Gregory J. Hayes - *Raytheon Technologies Corporation - CEO*

Go ahead, Steve?

Stephen J. Timm - *Raytheon Technologies Corporation - President of Collins Aerospace*

Yes, I would agree with that. The only thing I would add to that is, I would say, in meeting with COMAC and others, they're concerned about source of supply, largely from recent licensing types of concerns from geological perspective. So we continue to obviously follow the guidance, but as we can, we'll continue to support the programs.

Jennifer Reed - *Raytheon Technologies Corporation - Vice President of Investor Relations*

Okay. Can we take questions from Kristine?

Kristine Tan Liwag - *Morgan Stanley, Research Division - Equity Analyst*

Kristine Liwag from Morgan Stanley. When you guys look at the defense portfolio today, it seems like that the increasing capabilities of our adversaries is a common theme across. Is there an opportunity to bring the commercial mindset from Collins and Pratt and invest more in IRAD upfront, so that you could bring forward some of these next-generation solutions and accelerate revenue through 2025, more than you already planned that is?

Gregory J. Hayes - *Raytheon Technologies Corporation - CEO*

Yes. I'm not sure I would say more than we've already planned to do, but I think that's exactly the idea here is we need to advance some of these technologies. And Wes touched that, and I think one of the critical ones is some of these directed energy, as we think about the emerging threat from hypersonics from some of these other new threats that have emerged. We have to put our money where our mouth is in terms of trying to put our foot forward to invest in those technologies, just like Raytheon did with LTAMDS. I think we will co-invest in some of these things to get them off the ground. We'll do the same thing, I think, in JADC2, right, this Joint All-Domain Command & Control. We're going out there and help them develop the architecture necessary to deal with that intractable problem of battlefield communication. So I think we're at -- I think we've planned it adequately, but you're exactly right in terms of what we need to do differently.

Kristine Tan Liwag - *Morgan Stanley, Research Division - Equity Analyst*

I see. And a follow-up to that would be, if we start seeing more clarity for the budget beyond fiscal year 2022, and we start seeing the DoD really put more focus on these advanced capabilities. Could we see your IRAD in defense increase to capture more of that?

Gregory J. Hayes - *Raytheon Technologies Corporation - CEO*

I think what I would tell you is I believe that we've got a pretty good understanding in terms of what those emerging threats are and what technologies we need to invest in, in the medium-term here. I think as we think about the '23 and out budget, I think the DoD is going to be forced to make some choices in terms of legacy programs versus future programs. And that's why I feel very confident. We have got a really good understanding of the technology necessary between Roy, Wes, Chris, Steve. We have an idea of what needs to get done, and probably where that budget will morph. The good news is we don't have a single program out there that is more than 3% of our total revenue, right? It's not like we've got the JSF as 25% of the foundation. I think some of those old legacy platforms will probably be cut to fund some of this newer technology that's emerging.

Jennifer Reed - *Raytheon Technologies Corporation - Vice President of Investor Relations*

Let's take a question online. So Rob from Credit Suisse. Neil, does your '23 to '25 cash flow outlook change if a new aircraft gets launched sooner, rather than later, and a new version of the GTF is selected to power it?

Neil G. Mitchell - *Raytheon Technologies Corporation - CFO*

It would. I mean, clearly, the outlook we provided today does not contemplate a new centerline engine. However, it does contemplate, as Chris talked about, enhancements to the gear and the geared turbofan engine performance improvements. We do think that is the architecture of the future. It's scalable. So we're confident that we'll keep that technology highly relevant during the 5-year period. But a wholesale new centerline engine is clearly not contemplated in sort of the outlook that we provided today.

Gregory J. Hayes - *Raytheon Technologies Corporation - CEO*

I think to be very clear, too, I think, and Chris said it very well, the business case has to make sense for a new engine. And if it's not a sole source selection, I think it makes it very, very difficult with the volumes that we're talking about to have any new engine make sense of anything other than a sole source basis. So we're out there, as Chris said, we're going to continue to improve the technology, but we're not going to do anything dumb in terms of investment.

Jennifer Reed - *Raytheon Technologies Corporation - Vice President of Investor Relations*

Yes. Let's take one from Ron.

Ronald Jay Epstein - *BofA Securities, Research Division - Industry Analyst*

There was a lot of talk today about structural cost. Basic question, how do you guys define that? Because structural costs have a funny way of creeping back into the picture when volumes pick up. So I guess I'm asking how can we believe that the structural costs that you're taking out will actually stay out when things come back?

Gregory J. Hayes - *Raytheon Technologies Corporation - CEO*

You start by tearing down the factories after you exit them. I think -- so last year, we took out over \$2 billion of cost. I would say most of that was not structural. There was some indirect that went out with the direct. There was a number of other things that we did with furlough days and pay deferral and all that. None of that is structural. I mean, those things will come back, right? We have to give people raises and all that. The real structural stuff, though, is things where we're centralizing things and eliminating tasks across the business. This -- when Mike talked about zero-based budgeting at corporate. Again, the idea is to shrink down the footprint. But the other thing is, even with office of the future, we're trying to take out 8 million square feet. We've already started to exit those buildings.

We've also got 178 factories, I think, Mike, is that right? Something like that. We've got to exit that footprint as well. We've got to get out of high cost, we got to go to low cost. And again, the only way you get rid of that cost is the bulldozer has to follow you out the door, to take down those monuments. And if you get a chance to tour around some of the East Hartford campus, you'll see we've done exactly that as we have exited some locations here, and there's more to come.

Jennifer Reed - *Raytheon Technologies Corporation - Vice President of Investor Relations*

Can we take George in the back?

George D. Shapiro - *Shapiro Research - CEO and Managing Partner*

Yes. This is probably for Greg as well as Steve. If you -- Steve, you compare like Honeywell's margin to your margin, obviously, dramatically different. Is that mainly mechanical, interiors? And then the question for you, Greg, is there stuff in there that such a low margin, it makes sense to try and get rid of to be somewhat more competitive where -- as to where Honeywell is?

Gregory J. Hayes - *Raytheon Technologies Corporation - CEO*

Steve, go ahead and take that first part and I'll...?

Stephen J. Timm - *Raytheon Technologies Corporation - President of Collins Aerospace*

Sure. Sure. I'll tell you right away, I compare a lot our portfolio to other aerospace companies, including Honeywell. Our composition certainly is different than theirs for a variety of reasons. Think about product mix, more defense, more bizav. But I will tell you the thing that I also look at is from an investment perspective and a cost reduction perspective. We haven't had the privilege of being more than 30 months together. And with 300 locations, like you heard me say, a lot of our focus to go expand margin, which is structural, whoever asked it, is really about footprint reduction, 27 ERPs. That chance to get that infrastructure really tightened up and optimized as 1 of the key drivers -- probably 1 of the differences. So I'll tell you that.

The other is investment. When we win, when I compare investment, we're investing pretty well now even after those recent wins, and we're about that 5% of sales is the way I think about our investment. I don't see us going below that, even as we go forward here to stay competitive. Those are those key differences, I would say, look into, and you'll understand where some of that gap is as we go forward.

Jennifer Reed - *Raytheon Technologies Corporation - Vice President of Investor Relations*

Great. Let's take another one online.

Gregory J. Hayes - *Raytheon Technologies Corporation - CEO*

I'm sorry.

George D. Shapiro - *Shapiro Research - CEO and Managing Partner*

Is there anything that you'll look at to try and change the portfolio? I mean, does keeping the interiors business makes sense as an example?

Gregory J. Hayes - *Raytheon Technologies Corporation - CEO*

Look, I think the interiors business is actually quite a good business, and we've actually seen that business start to pick back up. And look, that every piece of selling galleys is actually a pretty good, selling first-class seats, it's a pretty good business, right? I think, again, right now, that business suffers, because there's no long-haul business out there. But given the lead times, we're starting to already see a pickup there.

There's some other, I would say, structurally lower-margin businesses within Steve's portfolio that we're talking about. Whether or not that fits, this is not the year to be disposing of those types of assets. But I think, clearly, if we don't see a path to keeping those businesses moving up in the attractiveness standpoint, we may look to divest of a few things over the next couple of years.

Jennifer Reed - *Raytheon Technologies Corporation - Vice President of Investor Relations*

Okay. So online, Sheila from Jefferies. How come Collins implied incrementals are 20% lower than Pratt, which is a bit surprising? Why are Collins implied margins only 20% in 2025 versus peers at the levels today? What is the mix drag?

Neil G. Mitchell - *Raytheon Technologies Corporation - CFO*

So yes, thanks, Sheila. I wish you were here, but we'll get you next time. So on the incremental question, I think I just want to check the math a little bit here. As I look out over the next 5 years, Collins' incrementals, on average, will be north of 40%. They will ramp up over the 5-year period, so they'll become higher and higher as you go from '22 to '23 to '24, '25, but we should see north of 40% incrementals at Collins. And while we're talking about that, I'd say Pratt would be about half of that. So again, as Chris said earlier, we'll see pretty strong incrementals at Pratt & Whitney as well. Of course, they've got a different mix there, because the negative engine margin will be ramping during that period as well. So hopefully, that clarifies that for you and everyone else.

Jennifer Reed - *Raytheon Technologies Corporation - Vice President of Investor Relations*

Okay. Last question, Peter?

Peter J. Arment - *Robert W. Baird & Co. Incorporated, Research Division - Senior Research Analyst*

Peter Arment from Baird. Neil, maybe you can just wrap it up here, because there's a lot of questions on free cash. So what do you kind of characterize as maybe the biggest risk to kind of pathway that you described? I mean, is it just the commercial recovery? Or -- because it seems like you have a line of sight on costs and the working capital management. Maybe you could just wrap it up with that.

Neil G. Mitchell - *Raytheon Technologies Corporation - CFO*

Yes, absolutely. I think as you look at that path, about 80% of that profit growth comes from the commercial businesses. We're saying that we get back to 2019 levels at the end of '23. So that puts '24 sort of on a full year, at least as high as 2019. If that were to shift for some reason, then that would be a risk, but it seems far enough out, Peter, that, that risk is not very high at this point. So I feel pretty good about the '25 number. Now

how are we going to call a '23, '24. There'll be a little bit of gyration there, I think, as we monitor the pace of this recovery, how narrow-body and wide-body interplay, different countries and the like, but I feel very good about '25.

Jennifer Reed - *Raytheon Technologies Corporation - Vice President of Investor Relations*

Okay. Great.

Gregory J. Hayes - *Raytheon Technologies Corporation - CEO*

All right. So thank you, everyone, for listening in today. For those of you that weren't able to attend, we hope to see you next time. For those of you who made the journey to East Hartford, thank you for coming on up or down, as the case may be. We're going to have some tours, I guess, next?

Jennifer Reed - *Raytheon Technologies Corporation - Vice President of Investor Relations*

Yes. Yes. That concludes the webcast version.

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