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MANAGEMENT DISCUSSION SECTION

Ronald J. Epstein
Analyst, Bank of America Merrill Lynch

So, our next speaker is here from the Boeing Company, Randy Tinseth. Randy is the Vice President of Marketing. And I think if I've got this right, you've been at Boeing for 38 years.

Randy Tinseth
Vice President-Marketing, Boeing Commercial Airplanes, Inc.

Almost 38 years.

Ronald J. Epstein
Analyst, Bank of America Merrill Lynch

Almost 38 years. And I've known you from maybe 20 of them. So, thank you, Randy, for coming. And our goal today is just to have a fireside chat and talk about some of the opportunities, challenges, so on and so forth. So, why don't I just kick it off with kind of the elephant in the room? What can you tell us about the 737 MAX program? And I'll go from there.

Randy Tinseth
Vice President-Marketing, Boeing Commercial Airplanes, Inc.

Well, Ron, thank you very much for the opportunity to come here today. Good morning, everyone. As you can imagine, Boeing is deeply saddened by the tragedy that happened in Ethiopia last week. We send our heartfelt sympathies and condolences to the family and loved ones that were aboard Ethiopian Airlines Flight 302. We have a team on the ground, today, in Ethiopia. They are working with the investigators. And their focus is to support our great customer in Ethiopian Airlines. We're doing everything we can to understand the causes of the accident as well as the Lion Air accident that happened last year. And we're working in partnership with investigators.

We're also working hard to deploy product and training updates to the 737 MAX to further improve the safety that ensures that this will not happen again. We are in constant contact with the authorities and our customers. At this point, it's really too early to speculate on how the investigations will turn out.

I just want to emphasize, safety has always been at the core of who we are at Boeing. The safety of our airplanes, our customers, passengers, and their crews is really our top priority. The 737 MAX builds on a legacy of delivery

of more than 10,000 737s, an airplane that's been in operation now close to 50 years. We know that it has the capability to delight passengers and connect people with where they are to where they want to go.

Frankly, I have great confidence in 737 MAX for good reasons. I know the discipline and rigor of our design process; I know the integrity of our production process; and most importantly, I know that the people that have their hearts and souls that are built in this airplane into creating the best possible airplane.

From my career perspective, I actually spent eight years as a flight test engineer, and I see firsthand the thoroughness of our testing and certification process, a process that ensures we meet the toughest safety standards in the world and our high expectations.

Just finally, every life lost on a Boeing airplane is felt deeply throughout the organization. We design, build, test, and support these airplanes with the sole intention of getting people safely from where they are to where they want to be.

QUESTION AND ANSWER SECTION

Ronald J. Epstein

Analyst, Bank of America Merrill Lynch

Q

Thank you for that. If I can, and maybe just one last quick follow-on, is there anything at this point or is it too soon to say about maybe the updates that are going on and so on and so forth?

Randy Tinseth

Vice President-Marketing, Boeing Commercial Airplanes, Inc.

A

So, as I mentioned, as a result of the Lion Air incident, we're in the process of working with the regulatory authorities on a software training enhancement to the 737 MAX. And that includes changes in the control laws of the airplane; update of the displays, the flight manual as well as the training. So that proceeds and we're working closely with the FAA on that. We've gone through steps such as working with it in a simulator. We flight tested the improvements and of course we're working closely with the FAA towards certification and we believe that will happen in the coming weeks.

In terms of the Ethiopian situation, I think it's very clear that the data is now just coming in to the process. And so we'll just have to wait and see what that data says.

Ronald J. Epstein

Analyst, Bank of America Merrill Lynch

Q

Okay, great. Thank you. Maybe shifting subjects just a little bit, in over say over the last 15 or 20 years, particularly when you've been in the marketing role and looking at markets and how have you noticed air travel trends change? What insight can you offer on that kind of over your career?

Randy Tinseth

Vice President-Marketing, Boeing Commercial Airplanes, Inc.

A

I guess when I take a look at the trends in the market, I think first and foremost, we see a better balance in the market than we've ever seen before. Just 10 years ago, we were in an environment where airlines in the developed economies really had a significant share of the market. They were about 60% to 70% of where

passengers were going. Today, that balance between the developing and emerging economies is just about a 50/50 split. So again, a more balanced marketplace.

I think the second thing we've seen is from a customer perspective, the business models today are much more diverse. And as a result, they help drive the system going forward. The rise of the low-cost carrier business model has helped broaden and help stimulate growth in the market. Now, we're seeing airlines focusing on long haul low cost. So I think we're seeing a better balance of customers and business models, which I think is healthy for our business.

The other thing that I would say, at least from a demand perspective, for a long, long time, most of the demand in the market was for growth. And now, we're closer to a 60% growth model and a 40% replacement model. So, when you think about a 40% replacement model, that means anywhere from 2%, 3% or 4% of the fleet is retired each year. And that's a big number when you consider there's 24,000 airplanes flying. So, that retirement, replacement demand provides a very strong base for our production moving forward.

And I'd also say, I think that there's been some changes in buying habits of our customers. I think – especially on the wide-body side today, we're seeing more consistent orders over time as opposed to a big order, and then a number of years and then another big order. In fact, I think the 787 is a great example of that. We launched the 787 now 14 years ago. We've sold 1,400 of those airplanes, so it's been very consistent, about 100 airplanes per year in terms of order. Last year, I think we were about 109.

And what also is interesting there, if you look at the 787, of the 73 customers that we have, 41 have come back and repurchased the airplane. They've been repeat customers. So, I think that that has shown a change in the market over the last several years. So, a better balanced market, more diverse business models, higher replacement demand, and then I think changes in the buying structure or the buying habits of our customers have changed.

Ronald J. Epstein
Analyst, Bank of America Merrill Lynch

Q

When you look at the long-term outlook for the market, I mean, correct me if I'm wrong, you're in charge of the market outlook, right, you have a 20-year outlook. It seems like the relationship between GDP and air travel has changed a little bit. That some people argue that maybe the multiplier between GDP and air travel is a little bit higher. Is that the case? I mean, how do you think about it because we're going around what, 12 years, of above trend traffic or something like that?

Randy Tinseth
Vice President-Marketing, Boeing Commercial Airplanes, Inc.

A

Well, it's like nine years of above trend traffic, and a lot of that has been built, I think, by the growth that we've seen in the low cost carriers around the world as well as the emerging and developing economies. I got to tell you, it's not just as simple as taking a look at GDP, multiplying it by some factor and getting air traffic growth. What we do is we actually look at each and every individual market. We look at something like I think 80-plus traffic flows. We look at about 180 different airline and airline groups in order to develop our forecast. We look at GDP growth, as you might add.

So it's a lot more detailed than taking a look at where we are today and just multiply it by a factor. So it's built up step by step by step, country by country, route by route, airline by airline. But I'll have to say that our long term forecast is that growth will be around 4.7% per year. But without question, in early part of our 20-year forecast, that number is higher than that and then it tends to moderate over time.

So I'm not surprised that we've seen 6-plus percent growth over the last nine years. We're expecting about 6% growth this year. And over the next 10 years, that number is probably going to be, on average, around 5.5%. So it's a good, strong market.

Ronald J. Epstein

Analyst, Bank of America Merrill Lynch

Q

Got you. When we look at the single-aisle market, can you offer some commentary on supply and demand because that segment of the market for both 737 and your competitor's airplane, A320, has been exceedingly strong, right? And how should we think about that?

Randy Tinseth

Vice President-Marketing, Boeing Commercial Airplanes, Inc.

A

So I think that one thing that we've seen over the last 15 years is that the single-aisle airplanes are getting more capable. We've seen the rise of the low-cost carriers that's helped driven that. So, if you have airplanes that are carrying more passengers, that have lower cost to operate and they could fly further and further that's really been a formula for really stimulation in the single-aisle market. And as we look forward over the next 20 years, we expect the single-aisle market to actually grow faster than the rest of the market. So, I think that there is no surprise.

But also I have to say when you take a look at the single-aisle market, there is no question that we're in a place now where demand is greater than supply and that's why we've been going up in rates, that's why our competitors been going up in rate. And frankly, that's why we see a upward pressure in the market.

Again, it's about airplanes that are becoming more capable over time. One of the things I find really interesting in taking a look at what has happened over the last 10 years, that if you take a look at the growth in the market, about 60% of the growth in the market has been accommodated by incremental airplanes. The remaining 40% of the growth has been a result of increased productivity. So, more seats per airplane, longer stage lengths, higher load factors as well as higher utilization to our customers because I think that these new business models are becoming better and better and more capable – are using those aircraft more efficiently over time. So, I think that that's been the driver in that single-aisle market as well.

Ronald J. Epstein

Analyst, Bank of America Merrill Lynch

Q

Maybe just to dovetail on to that question. Where does NMA fit into all this? So, just to everybody here, NMA is the New Market Airplane, it's sort of the 797 if it were to be launched. So, how do we think about that in the context of narrow-bodies, wide-bodies and where is kind of...?

Randy Tinseth

Vice President-Marketing, Boeing Commercial Airplanes, Inc.

A

Something in between.

Ronald J. Epstein

Analyst, Bank of America Merrill Lynch

Q

Yeah.

Randy Tinseth

Vice President-Marketing, Boeing Commercial Airplanes, Inc.

A

So, if you think about the single-aisle market today and you look at airplanes in that segment and you take a look at wide-bodies today, clearly, there are airplanes that are designed to do two different things. And what we do is when we take a look at the space in between, we see an opportunity probably somewhere between 4,000 and 5,000 airplanes in terms of opportunity, and that's simply because single-aisle airplanes today are either too small or don't have the range to address that market efficiently or wide-body aircraft are too big and overdesigned to address that market. So, there's about 130-seat gap between today's largest single-aisle airplanes and the smallest wide bodies. And those wide-body aircraft actually have about 3,000 nautical miles more range than the single aisle, so they're overdesigned.

So, the question is, is there a market in the middle? And that's what we're working on. So, the NMA is all about an airplane that could address that issue. We've been working with our customers. But now, we're in that stage where our heads are down. We're focusing on what our production system would look like for that airplane. We're focused on the business case.

And as our Chairman has said, we're looking to make a decision to offer or not offer the airplane this year. And then based on that decision, we would make a decision next year whether to launch or not launch the aircraft. Very similar to what we've done on airplanes like the 787 where we actually made the decision to operate the airplane in December of 2003 and then we launched the airplane about six months later.

Ronald J. Epstein

Analyst, Bank of America Merrill Lynch

Q

And just to be clear, if you could specify for folks who maybe aren't as close to it as others, what's the difference between a decision to offer versus the decision to launch?

Randy Tinseth

Vice President-Marketing, Boeing Commercial Airplanes, Inc.

A

Well, I think the decision to offer is really about putting a real business offer in front of our customers and asking ourselves the question, are they willing to buy or are they willing to pay a price that makes sense for us. If they're willing to do those things, later on, you make the decision to launch and that gives you the authority to go forward with the production, et cetera. If you test the market and they're not there, you choose not to go forward. And we've made decisions over the past, sometimes to go forward and sometimes not to go forward. It is part of, I think, of a thoughtful, disciplined process that we go through in developing new airplanes.

Ronald J. Epstein

Analyst, Bank of America Merrill Lynch

Q

Got you. And how critical or not is it for that aircraft to be enter into service in that 2025 timeframe? And the reason I ask is, I think, your competitor would argue that maybe that's too late, it's too long. I mean, how do you think about that?

Randy Tinseth

Vice President-Marketing, Boeing Commercial Airplanes, Inc.

A

Well, I can tell you that any new airplane customers will tell you that you're not fast enough. But what we believe in working with our customers is that 2025 timeframe works and we're holding that timeframe as we move forward.

Ronald J. Epstein

Analyst, Bank of America Merrill Lynch

Q

Got you. Got you. Maybe sticking on wide-bodies, when we think about the market for wide-bodies, maybe kind of two questions. So, the first one, can you just speak to the dynamics you're seeing in the market today? For the really large airplanes, it's been kind of soft. For 787, it's actually been quite good. And how are you thinking about the dynamics and then what are you seeing?

Randy Tinseth

Vice President-Marketing, Boeing Commercial Airplanes, Inc.

A

Well, for the last five or six years, this is without question we've seen a strong wide-body market. We've done well in terms of orders. But more importantly, for the last seven years, we've delivered about 62% of the wide-bodies in the marketplace, so we're doing well. I'd add that we delivered 48% of the single aisle, so we're doing well there as well. But we've seen particular strength of our product lineup in terms of the wide-bodies, and that's been led by the 787. 1,400 orders, as I mentioned, in 14 years, a high number of repeat customers.

The other thing, I think, that helps separate that airplane from our competition is the family. It is essentially one airplane in three different sizes, so it provides commonality and efficiencies that our competition can't do. I mean, we had some key wins last year, places like American and Hawaiian where that family concept really played strongly to what they wanted to do.

And, of course, we're very excited in light of all the challenges it was very quiet that last week Lufthansa also committed to the 787. So, I think it's the right airplane at the right time in this market. It is really at the heart of the market. Over the next 20 years, we see a demand for about 8,000 wide-body aircraft and the 787 addresses somewhere between 5,000 and maybe 5,500 of that potential demand. So it's in a good place, it's a great family, it seems like our competition is struggling to provide an answer in that segment.

On the 777X side or the 777 side, again, that's a market of that 2,500 to 3,000 on the upper end. But I would make the argument that we're doing pretty well. To-date, with the recent British Airways commitment, we stand at 358 orders and commitments for the 777X. By comparison, when we looked at where we were on the 777-300ER when it went into service, we had 157 orders there and now the airplane has sold more than 800, so I think we're in a good place. That airplane rolled out of the factory last week. It will go into its flight test program later this year and the objective is for that airplane to deliver next year.

The other thing I would say about that big segment of the market is that in the 2022-2023 timeframe, we're really going to step into a significant replacement cycle on wide-bodies where 747s will be moved out of the fleet. A380s will be moving out of the fleet. We have substantial – we've got the beginning of the replacement cycle for 777-300ER. So I think in that timeframe, we should start to see that airplane even take off faster.

Ronald J. Epstein

Analyst, Bank of America Merrill Lynch

Q

So, does the 777-9, 777-9X...

Randy Tinseth

Vice President-Marketing, Boeing Commercial Airplanes, Inc.

A

777-9.

Ronald J. Epstein

Analyst, Bank of America Merrill Lynch

Q

777-9, will it be the sort of the new queen of the skies? Meaning...

Randy Tinseth

Vice President-Marketing, Boeing Commercial Airplanes, Inc.

A

So, the 777X family is two airplanes, the 777-8 and 777-9. The 777-8, in every way, is a head-to-head competitor with the A350-1000. The airplanes are about the same size. Our airplane is slightly more efficient, but it has the ability to fly further and carry more cargo if you need it. The 777-9 is about 56 seats larger, so it has no direct competitor. So, I believe it will be the next 747 or the next A380 in the market, but it's going to do those things more efficiently than these big four-engine airplanes could.

Ronald J. Epstein

Analyst, Bank of America Merrill Lynch

Q

Maybe shifting gears a little bit, if you could speak to the company's approaching this finalizing the JV with Embraer. How do you think about the value that it brings to Boeing? And then maybe as a follow-on question, how do you think about the market for the E2?

Randy Tinseth

Vice President-Marketing, Boeing Commercial Airplanes, Inc.

A

Yeah.

Ronald J. Epstein

Analyst, Bank of America Merrill Lynch

Q

Right? Because it's a segment that Boeing really hasn't played at before, right?

Randy Tinseth

Vice President-Marketing, Boeing Commercial Airplanes, Inc.

A

Yeah. So, let's take the market first and then, I'll talk about how it fits in. If we take a look at the market from, say, the 737 MAX 7 or 700 now, it's a market about 5,000 airplanes. So, it's a big market moving forward. Over half of that market can be addressed by the E2 family, so that's in a pretty good place. I would say what makes this market a little bit different is it doesn't tend to be a growth market, but more of a replacement market. So, we pretty much understand the opportunities for that airplane, moving forward. So, again, 2,500, 3,000 airplanes on the lower end, 5,000 airplanes in total. So, I think it's a healthy market.

In terms of the way things sit, first and foremost, the E2 family really complements our product line in terms of size and capability. It's not about acquiring an airplane that competes directly against yourself. So, it complements what we do. I think the second – I think the other important parts of this joint venture is what we can do in terms of engineering and engineering talent, what it means for us in terms of production and learning across both ways. And then, of course, it is a significant opportunity for our services business. Embraer has a thriving services business. This helps complement what we do on the services side. So, airplanes that complement each other, a great engineering team, a great production team, and a strong services business. And of course, I'm here from a commercial perspective. I know it also adds synergies on the defense side.

Ronald J. Epstein

Analyst, Bank of America Merrill Lynch

Q

Okay. That's good. Last week was ISTAT. For those of you who do not know, that's International Society of Transport Air Trading, big conference of largely aircraft lessors. So, kind of next question, what's your sense on the aircraft financing market? I know there's been some – maybe some jitters in that market. Can you give us your perspectives and updates on that?

Randy Tinseth

Vice President-Marketing, Boeing Commercial Airplanes, Inc.

A

Well, I think as you mentioned, lessors are becoming a more and more important part of the financing of single-aisle airplanes. I think we're fast approaching that path of the single-aisle airplanes in the market that'll either directly or indirectly be controlled by lessors. And I think that that actually brings a lot of value because lessors have the ability to move airplanes around quickly. They can help address shortfalls in capacity that we can't. Right now, for example, whether it be Boeing or Airbus, our single-aisle aircraft are pretty much sold out through the 2022-2023 timeframe. So, our lessors are there to help bridge until we can have production, so I think that's good for them.

In general, I would say that the finance market is healthy. There's a lot of capital coming in. There's a lot of opportunities for our customers. Frankly, our customers are making record profits so actually more and more airplanes are being purchased by cash. So I think we're in a healthy marketplace there. We're seeing lot of competition which is good for our customers. Of course, we would like to see EXIM Bank back online because we believe for a certain part of our customer base that's important

Ronald J. Epstein

Analyst, Bank of America Merrill Lynch

Q

And kind of transitioning maybe into another area. One of the big focuses currently in the current political environment is global trade. So how is that impacted or not and how's Boeing been able to navigate that, particularly when you think about there's the big trade negotiation going on with China and China is an important customer? Kind of what kind of framework can you layer on that?

Randy Tinseth

Vice President-Marketing, Boeing Commercial Airplanes, Inc.

A

I kind of think of trade in two different ways: one is how does it impact our freighter customers because when we see global trade flourishing, we see increases in industrial production, we see increases in package carriage, we see e-commerce flourishing. And I can tell you, if you take a look at last year and the last few years, air traffic, cargo traffic has been strong. It's come back. As a result, last year, we actually had a record number of freighter in conversion orders that we sold. I think it was 83 production freighters which really did help in the process.

The other thing that we have seen in the cargo market – the air cargo market is the market hasn't been growing the last few months as it has in the 18 months before that. But yields are very strong which tells us in a lot of ways that probably we're in that place where capacity is constrained and I think that's why we've seen our customers buying new airplanes.

On the other part of the trade front, it is – we are the largest exporter in the United States. So, trade is incredibly important to us in what we do. About 80% of what we deliver goes to companies outside of the United States. So, we encourage a healthy trade market and trade situation.

China is critical to that. Over the last several years, one out of four airplanes we delivered went to a customer in China. One out of three 737s went to the Chinese customers. And so, we're very encouraged that both sides are talking again and that we're making progress around the world in terms of trade.

And our message is that trade is beneficial. We've always been this way, especially in China. It's good for us as a company. It generates economic growth. The United States generates jobs. The United States every airplane that we build has parts and assemblies for China. So, it creates jobs in China which is good. And there is this significant demand for air travel in China. And we need to be part of that in order to help them grow. So, the airlines need to lift and we can help provide that. So, we think it's a win-win situation to trade.

And just to emphasize again, China is a big market over 7,000 airplanes. Over the next 20 years, the majority of those airplanes will be single-aisle airplane. This is a market that's been growing internationally and domestically at 10-plus percent now per year over the last decade. So, there's an opportunity. They are now focusing more and more on long range operations out of China. It's interesting only 10% – less than 10% of the Chinese population has a passport. So, there's great opportunity and that's a growing middle class. So, again, a good opportunity for us and our partners in China to grow.

Ronald J. Epstein

Analyst, Bank of America Merrill Lynch

Q

And I'm not sure if you can answer this or not because of competitive reasons, but has there been any change in the Chinese ordering behavior over the last year, too? I mean, given that there's the stress in broader environments?

Randy Tinseth

Vice President-Marketing, Boeing Commercial Airplanes, Inc.

A

I think it's fair to say that our customers, like us, are all watching what's happening in Beijing and Washington. So we have to focus on what we control and one of the things that we can control is that relationship that we have with our customers, making sure that we're there to solve problems for them. And of course, it is incredibly important that we work with them to deliver the airplanes that are in backlog and that we're working. So that's where our focus has been.

Ronald J. Epstein

Analyst, Bank of America Merrill Lynch

Q

Got you. Got you. And then maybe one more thing and then we'll kind of wrap it up, so two more questions. We'd be kind of remised not to talk about services, right, because there's been a big push in the company in terms of services and service offering. Can you just speak about that from specifically maybe from the perspective of the commercial business and how you market planes and how you think about it?

Randy Tinseth

Vice President-Marketing, Boeing Commercial Airplanes, Inc.

A

Well, it's been a little while now but in the last year and a half, we stood up Boeing Global Services, and it allows us to really focus on this growing and important services market. My numbers are a little bit different than my Chairman's numbers because I focus on the commercial market. But if you think about it, over the next 20 years, we see demand for about 43,000 airplanes, and that's a value of about \$6.3 trillion.

But if you think about the services that we've wrapped around those aircraft, we see even a bigger market. It's about \$8-plus trillion over the next 20 years. So it's a \$15 trillion market between services and products.

And when you look at services, we are a high single digit – we have a high-single digit in terms of market share but we're one of the leaders. When you take a look at our portfolio of products, it's extensive, but we can only address about 35% of that potential opportunity. So, without question, as we stood up BGS, it allows us to be really focused on that services market in ways that we can grow.

So, by having that focus, it allows us to, number one, put that extra emphasis in how we market and sell the services. Number two, put in place by truly defined and focused process and developing new products for that marketplace, so how can we grow. And then three is we've put in place an organization that we can lower our cost structure. So, it makes us more affordable and allows us to grow. And I think those things are paying off.

Last year, our business grew by 17%. And I can tell you our customers like what they see. Our core areas of focus in terms of services, we call it supply chain, but that's about parts and parts logistics. We're focused on maintenance, engineering and modification of our programs. We have a platform focused around digital aviation and analytics which is \$1 billion-plus program today. And then we're focused on training and professional services.

So, at the end of the day, if we can provide support services to our customers that bring them value, we're going to win and clearly by the growth that you see, we're doing the right things.

Ronald J. Epstein

Analyst, Bank of America Merrill Lynch

Q

Great. And then maybe just to kind of wrap it up with this, I mean kind of beyond the obvious with the 737, what are the areas of focus for the company?

Randy Tinseth

Vice President-Marketing, Boeing Commercial Airplanes, Inc.

A

Well, I'll start with the obvious. Our focus is to work with the authorities as best we can to get the 737 flying again and working closely with their customers. I think the second thing that we have to be – continue to focus on is our development programs to make sure that whether it be the 737 MAX program we have today or the 777X with those development programs continue to be on track and on schedule.

We have a lot of things going on in terms of production. We're going up in rate this year on the 787 from 12 to 14 airplanes a month. We're going up on rate next year on the 767. So, we have to be focused on making sure that those increases in rate are seamless as we possibly can.

And I guess I would add, we want to make sure that we continue to hold that strong position we have in the wide-bodies. So, we're focused on that from a sales perspective. And then finally, having spent all that time in the marketing organization, our job is to monitor and to watch and to understand what's happening in the market so we're prepared for any opportunities and challenges we have moving forward.

Ronald J. Epstein

Analyst, Bank of America Merrill Lynch

Thank you.

Randy Tinseth

Vice President-Marketing, Boeing Commercial Airplanes, Inc.

Thank you.

Ronald J. Epstein

Analyst, Bank of America Merrill Lynch

Thanks.

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