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PRESENTATION

Craig Matthew Hettenbach - *Morgan Stanley, Research Division - VP*

Great. Well, good morning, everyone. My name is Craig Hettenbach, one of the semiconductor analysts here at Morgan Stanley. We have TI dialed in here for this webcast. It's CFO, Rafael Lizardi; and Investor Relations, Dave Pahl. Guys, are you on the line? Can you hear me, okay?

Rafael R. Lizardi - *Texas Instruments Incorporated - Senior VP of Finance & Operations, CFO and CAO*

Yes, we can hear you. Hello, everyone. It's Rafael.

Craig Matthew Hettenbach - *Morgan Stanley, Research Division - VP*

Great. Excellent. Well, just before we kick off, I just have to read some disclosures, including personal holding disclosures and Morgan Stanley disclosures appear on the Morgan Stanley public website at www.morganstanley.com/researchdisclosures, or you can see this at the registration desk.

QUESTIONS AND ANSWERS

Craig Matthew Hettenbach - *Morgan Stanley, Research Division - VP*

So Rafael and Dave, thanks for joining us today. I guess if we can just kick off with the topic that's been very prevalent at the conference around coronavirus, and if you can just give us a sense of what you're seeing in your markets from a supply chain perspective and demand, if we can start there?

Rafael R. Lizardi - *Texas Instruments Incorporated - Senior VP of Finance & Operations, CFO and CAO*

Yes, sure. So of course, we're only talking about everything as of our last earnings release that we had in January. So we'll talk mainly about fourth quarters and actuals but I'll tell you that, certainly, we have a broader product portfolio and diverse customer base that we have. We want to see any broad-based trends, and we believe that is well understood with what's been in the press on this front that's related to the virus. We did see to some things come back a little slower from Chinese New Year, but we're just going to have to wait and see how things play it out over this quarter and the rest of the year.

Craig Matthew Hettenbach - *Morgan Stanley, Research Division - VP*

Got it. And then prior to this issue in the last few weeks, as it relates to the semiconductor cycle, you guys, I think, were appropriately cautious last year around the business environment, and the tone was a little bit more constructive on earnings. And so if you can just talk about from a cyclical perspective? And again, understanding this is prior to some of the latest impacts, just what you are seeing from kind of a supply-demand perspective, and your view of where we are in the semi-cycle?

Rafael R. Lizardi - *Texas Instruments Incorporated - Senior VP of Finance & Operations, CFO and CAO*

Yes. Sure, I'll give you my perspective, and then, Dave, you could chime in with more specifics. But at a high level, just like we thought in January, we saw most markets showing signs of stabilizing, and they were a little better than expected. And signs of stabilizing, that means the year-on-year declines were less than they were in the previous quarter, right? So that's kind of the inflection point, so to speak. And we saw that, as we said, in most markets, but then specifically industrial and automotive were key in that decrease in year-on-year declines in -- what that implies from a historical standpoint is that then the inventory and channel inventory and customer inventory that has been built up over a year plus, would now be mostly depleted, which would then suggest that demand for the rest of the year will be more of a function of the macro economy and customers end demand.

Craig Matthew Hettenbach - *Morgan Stanley, Research Division - VP*

Got it. I want to talk about R&D. I think it's a topic that comes up when we speak with investors in terms of, clearly, you spend the most on absolute basis, but there are some questions as a percent of sales. How much TI spends versus the peers? And if you can just speak to -- I know you talked about the benefits of scale, and just how you frame that debate in terms of what you're spending? And is it the right amount relative to some of your

competitors?

Rafael R. Lizardi - *Texas Instruments Incorporated - Senior VP of Finance & Operations, CFO and CAO*

Sure. Of course, R&D is the fuel that drives our long-term growth in revenue and, ultimately, free cash flow. We focus that on Analog and Embedded, the best products in industrial automotive, the best end markets because this is -- that's where the content growth is happening. So that's our focus and the payoff on R&D happens over many, many years. So it's

it's almost not appropriate to look at R&D as a percent of revenue because we really are comparing apples and oranges, right? Different time periods. But I understand that people do look at that.

What I would tell you on your question on why maybe we look different than peers. The kind of 3 buckets where we spend the R&D, the number one, where the majority, more than half, well over half of our R&D goes into the products that we release every year.

And again, Analog and Embedded, industrial automotive. But then we also have a couple of other buckets. One is process technology, package technology. And then we have Kilby Labs where we -- kind of have -- that last bucket is -- doesn't have a revenue path -- an immediate revenue path. So that's going to look in a long, longer term. But on the process technology and package technology buckets, there's some scale advantages there because almost no matter how big you are, you need a certain amount of R&D there.

So of course, since we have that scale as a percent of revenue, it looks -- those pieces look smaller.

Dave Pahl - *Texas Instruments Incorporated - Head of IR & VP*

And Craig, maybe I'll just add that, as Rafael said, the majority of the spend is going to actually developing products. We probably release anywhere from 300 to 400 products in a given calendar year. And if we felt taking that number up, that spend up specifically would make a difference on the growth rate. Certainly, we would make that allocation decision. But it's really more about trying to find the right 300 to 400 products to do, ones that are going to find diverse revenue basis with a differentiated position that will generate a lot of cash for a long period of time. So that's -- we're probably pretty disciplined on that front. And -- but again, if we felt spending more money will change the top line, we do it.

Craig Matthew Hettenbach - *Morgan Stanley, Research Division - VP*

Understood. 300-millimeter manufacturing, I think that's also pretty topical for TI. Can you talk about perhaps where you are today from a percentage of output and then also kind of the time line for your new fab, how you see that coming online in the next few years?

Rafael R. Lizardi - *Texas Instruments Incorporated - Senior VP of Finance & Operations, CFO and CAO*

Sure. I'm happy to. So last year, in 2019, we generated close to $5 billion of revenue that came out of 300-millimeter. That's all Analog revenue. So that was out of $10-point-some billion in the Analog business, but more importantly, that was out of $8 billion capacity that we have for -- sorry, give me a second.

Yes, that was $8 billion capacity that we have for 300-millimeter. So that leaves, of course, $3 billion left of capacity there.

But if you -- and we've announced that we're -- we've broken ground, and we're moving forward. We planned for another 300-millimeter factory. RFAB 2, also located in Richardson, next to RFAB 1. That will add another $5 billion of revenue per year capacity. So that $8 billion will become $13 billion in terms of total potential 300-millimeter revenue that we can generate.

Your next question would be, well, if you have $3 billion level of capacity, why are you going to add $5 billion?

Well, if we want to -- this business is so good that Analog business going into industrial automotive, that we just don't want to leave any revenue on the table if it were to materialize. So Analog business, again, it was $10.2 billion last year. If that were to grow at 10% for 3 years, just to pick a number, and I'm not predicting, this is -- that would be really good 3 years if we were to grow that way. But if it did, we would consume that $3 billion capacity in 3 years, and then we would need that additional RFAB 2 building. So that's why if I want to be ahead of things when it comes to adding capacity for that business in 300-millimeter.

Craig Matthew Hettenbach - *Morgan Stanley, Research Division - VP*

Got it. And then just as a thought, I mean some of your competitors outsourced the 300-millimeter, but there is also a lot of 200-millimeter capacity in place. And so how do you view that in terms of how you're set up versus competitors from a cost perspective?

Rafael R. Lizardi - *Texas Instruments Incorporated - Senior VP of Finance & Operations, CFO and CAO*

Yes. So it's 1 of our 4 competitive advantages that we've talked about a lot. In fact, the first one that we should be talking about is the manufacturing technology, specifically 300-millimeter. One, we own the technology, but more importantly, it has a cost -- a structural cost advantage because 300-millimeter, you obviously -- you [cut] some little bit more upper wafer basis, but you get a lot more output per wafer because of the dimensions of the wafer and the economies of scale, their production translates into a 40% cheaper at the die level on per unit basis. And we take full advantage of having that lower cost. You can -- in some places, it makes sense to translate that into lower prices. In other places, it just makes sense to pocket that additional free cash flow, then you can reinvest in a bit of return to the owners of the company. Many of our competitors will tell you, well, we also do 300-millimeter with TSMC. Well, the TSMC is not doing it for free. So it's not the same thing.

Craig Matthew Hettenbach - *Morgan Stanley, Research Division - VP*

Got it. I also want to address just the distribution strategy. Certainly, this has been something that's been in the works for many years. But more recently, as you've been vocal about pulling back from distribution, and you said the Avnet announcement at the end of last year. Why is it the right thing to do for TI? And then again, also competitively, how has it set you up versus your peers?

Dave Pahl - *Texas Instruments Incorporated - Head of IR & VP*

Yes. I'll take that one, Craig. I'd say, as you know, we've been evolving our strategy -- distribution strategy really with the overarching thing and having a closer, more direct relationship with our customer. And that -- those investments in that direction started 6, 7, 8 years ago, with redeploying our sales force, increasing the mix of application engineers, investment in ti.com, investment in our distribution centers internally and the ability to be able to ship any quantity of products around the world. And the overarching objective of being closer to customers is -- what we want to do with that is just to win more business. And I think the broader-brushed theme is that having the internet just makes the need for an intermediary just less relevant. And I think because of our competitive advantages and because of our investments, we're just able to push that probably farther and faster than many of our peers.

Craig Matthew Hettenbach - *Morgan Stanley, Research Division - VP*

Got it. And then I know when you made the move a number of years back more towards consignment. You've talked about kind of some adjustments that are made through that. Anything we should be mindful of here in terms of disruptions in the channel? Or just how is it playing out so far? What's your expectations?

Rafael R. Lizardi - *Texas Instruments Incorporated - Senior VP of Finance & Operations, CFO and CAO*

Yes. No disruptions in the channel that have happened or that we expect to happen. And as far as the financials, nothing expected from a working capital or OpEx. At least, nothing material or anything significant that I would to highlight. Most of those investments have been baked in. So we've been investing in that in this over the years, and we just expect to continue investment at about the same level. The one thing I would mention, which we've mentioned before, I think, in January, at the earnings call was, last year, in 2019, we had about a $200 million revenue headwind with this transition -- the transition to more consignment on the distribution channel. And now as we're moving to having more customers direct, we expect another $200 million revenue headwind as we bring those customers direct, and then we hold more of the inventory that serve those customers on our balance sheet, sort of as a pseudo-consignment, you may want to think of it that way. I just want to stress that this is not market share losses, this is not end demand losses, this is purely transition on the timing where we would hold more of that inventory on our balance sheet, and therefore, it delays the revenue recognition on both of those events in 2019 and then 2020. It's about $200 million each year.

Craig Matthew Hettenbach - *Morgan Stanley, Research Division - VP*

Understood. Appreciate the color there. I wanted to switch gears just to the end markets, particularly, a lot of focus on the longer-term growth in autos and industrial. Maybe we can start in autos, just what are some of the growth drivers that are most important to think about for TI?

Rafael R. Lizardi - *Texas Instruments Incorporated - Senior VP of Finance & Operations, CFO and CAO*

Yes. I think that when we look at automotive as well as industrial, and I almost go back to our 4 competitive advantages, one of them is diversity and longevity. And automotive and industrial will give both of those to us and part of the reason why we like those markets. There are 5 sectors. So think of the automotive market underneath that. We describe those sectors, and we're investing in all 5 of them. And really the first 4 that I'll describe are really the ones that will provide the most growth for us and are getting the outsized investments and the things that you've heard before, like ADAS and infotainment, powertrain systems, which will include EVs and hybrids, body electronics and lighting, and then passive safety system. So really, those first 4 are the ones that are going to drive growth. And when you look at that diversity, you can look at it by those 5 sectors, but you could also look at it by product. And we've got about 65 product lines at the company, think of that as the smallest unit that we've rolled up the P&L and have managers running those as product teams. And about 45, so maybe a little bit more than that, of those 65 product lines actually sell into automotive. So pretty diverse from a product standpoint. And then a customer standpoint, we'll have -- we're pushing about 1,000 different automotive OEMs and certainly, that's a number that's higher than I expected when I first saw it. Of course, the revenue will be dominated by the Tier 1 suppliers, but even with the Tier 1 supplier, we'll have -- we'll ship them 2,000 to 3,000 different products or different SKUs to them So again, trying to build that diversity.

Craig Matthew Hettenbach - *Morgan Stanley, Research Division - VP*

Got it. And then 2019 was certainly a challenging year. You had global automotive production down about 5% year-on-year. Along with that comes inventory drawdowns. How are you feeling about the market backdrop for this year in terms of inventory and any views on production?

Rafael R. Lizardi - *Texas Instruments Incorporated - Senior VP of Finance & Operations, CFO and CAO*

Yes. And I won't try to pick what the automotive market would be in the near term, but certainly, when we look at 3 and 5 years from now, the investments that we have, the engagements we have with customers, we remain very positive of what that looks like. And as we've gone through this cycle, those investments have stayed steady and it really speaks to the point that we believe that there is this secular content being added. So again, if you have a downturn in the automotive market, can our revenues be down in the short term? Certainly. But long term, there's going to be more content than cars, and we'll be positioned to be able to take advantage of that trend.

Craig Matthew Hettenbach - *Morgan Stanley, Research Division - VP*

Got it. And then just switching over to industrial, and certainly, it's a broad based market. Are there any particular applications that you would highlight from a secular perspective that you see a real good growth opportunity?

Rafael R. Lizardi - *Texas Instruments Incorporated - Senior VP of Finance & Operations, CFO and CAO*

Yes. The exciting thing about industrial is, it isn't one thing. And as I mentioned to you, there is 5 sectors in automotive. There is actually 13 in industrial, and we board would want to go through all of them. But if you take one, even like medical, as an example, there will be hundreds, thousands of end equipments inside of each sector and certainly, across industrial, there's tens of thousands of customers that we're servicing. And I think the overarching theme is that customers want to make their products more capable, more precise, more power, perhaps portable, add more intelligence to it, have new use cases. And because of that, they tend to want to be connected and everyone gets excited about wireless connectivity. That's important. We've got a great portfolio there, but we also have a great portfolio to support wired connectivity, should that be the right solution for the customers. So -- and when you look at our portfolio in Analog or Sensors and Power Management, Signal Chain and our embedded products, including wireless and wireline communications, we've got a great portfolio to be able to service that market, which coincides with one of our competitive advantages, coupled very closely with the reach of our market channels, which is the Other. So we're just -- we're positioned very well to take advantage of that opportunity.

Craig Matthew Hettenbach - *Morgan Stanley, Research Division - VP*

Got it. And then can you maybe discuss just -- as you've shifted gears, over the last number of years, more towards auto and industrial, what that means in terms of priorities for investment in the other end markets? I know comm equipment, in some areas, you pulled back a little bit. But just how do you really prioritize the investments in -- particularly as it relates to the end market?

Rafael R. Lizardi - *Texas Instruments Incorporated - Senior VP of Finance & Operations, CFO and CAO*

Sure. I'll just give you a few comments on that, and we've talked about this for a number of years. So it's nothing new. But on the personal electronics space, for example, that's close to 1/4 of our revenue. So that's still a significant amount, and we continue to invest there. It's just less than before. It's certainly less than industrial automotive because as I've said a couple of times already, industrial automotive's where the growth is, so you want to invest for that. In the comm equipment space, embedded, we took that investment down a long time ago. We started that and that's because the growth is nonexistent there. In fact, it's negative because going forward where the growth is happening, site comms equipment is Analog instead of the 5G base stations. So on Analog -- on the Analog comms equipment, we're still investing there. But again, it's not nearly what it is with industrial automotive because, again, that's where that's not always where the real growth is happening. So we'll just continue biasing our R&D towards those 2.

Craig Matthew Hettenbach - *Morgan Stanley, Research Division - VP*

Got it. And maybe just keying off of that in terms of -- for comm infrastructure, some opportunity in Analog versus Embedded. More broadly, what's your view on kind of the growth profile and margin profile between Analog and Embedded for you in the next number of years?

Rafael R. Lizardi - *Texas Instruments Incorporated - Senior VP of Finance & Operations, CFO and CAO*

Well, you mean beyond consequently, just more broadly speaking?

Craig Matthew Hettenbach - *Morgan Stanley, Research Division - VP*

Yes.

Rafael R. Lizardi - *Texas Instruments Incorporated - Senior VP of Finance & Operations, CFO and CAO*

Yes, we feel very good about both. They both have great potential and a history of growth, gaining share over a long time in generating free cash flow, which ultimately is the key measure. If we could pick one metric to highlight, that would be the one. It's free cash flow per share long-term growth of that. So that is what ultimately, we believe, drives value for the owners of the company.

Craig Matthew Hettenbach - *Morgan Stanley, Research Division - VP*

Got it. Maybe talking about cash flow, and you recently had another capital management update call. Certainly, you've returned a lot of cash, more recently through the wave of M&A., you haven't been active there. If you can just remind us, how you approach M&A, and how you look at it from a returns perspective versus buybacks?

Rafael R. Lizardi - *Texas Instruments Incorporated - Senior VP of Finance & Operations, CFO and CAO*

Sure. First, let me piggyback on the comment on your preamble there just to highlight the point that our objective is to return all free cash flow to the owners of the company through dividends and buyback, and we've been doing that for a number of years. So last year, we returned 103% of our free cash flow through both of those metrics. But yes, we also consider M&A, which I think your question was specific. It was M&A, wasn't it? Yes. Okay. So on M&A, we -- that is one use of cash that we take into account, and when the circumstances have been right, and the numbers have been right, we have done that. Of course, it's been since 2011, since the last time we've done any of that. And on an M&A, the criteria is twofold: One, it needs to be an Analog. We look at Analog companies with differentiated products, focused on industrial, automotive, for the reasons I've talked about earlier, but then the numbers have to be right. And broadly speaking, think of -- you're going to invest $100 on day one, can I get my cost of capital within 3 or 4 years? So if -- just for argument's sake, if cost of capital were 10%, I think that's $100, can I get $9, $10 near 3 or 4, and then can I grow that to $11, $12, $15, $20 per year, beyond that. That's what would fit our criteria for M&A.

Craig Matthew Hettenbach - *Morgan Stanley, Research Division - VP*

Got it. I wanted to touch on just margin. You've seen significant expansion in the last decade. As you move forward, how important is just product mix and market mix? And then, of course, the 300-millimeter as you -- that becomes a bigger percentage?

Rafael R. Lizardi - *Texas Instruments Incorporated - Senior VP of Finance & Operations, CFO and CAO*

Yes. Sure. So first, our -- and I answered the question on margin, but just to give everyone the bigger picture, our focus is on the long-term growth of free cash flow per share. So if we can get to that -- and in dollar terms, we're talking about dollars per share, right? So if we can get to that with lower margins, with higher margins, with the same margins, we do it, right, just to optimize that metric. But yes, more broadly baking, we have increased margins over the last 5, 10 years or so. And that happens, one, driving revenue growth; two, with more 300-millimeter, which as I alluded to before, has just a structural cost advantage, right? Sometimes mix helps you when you go from less personal electronics, where the customers are more sensitive to other end markets where they're less so. So that can help. And then to get back to free cash flow per share as we deploy that capital back to the rest of the company to buyback, in particular, decreasing that denominator so that -- of the shares outstanding and that helps with -- it takes free cash flow to free cash flow per share and gives it an extra fuel for that long-term growth.

Craig Matthew Hettenbach - *Morgan Stanley, Research Division - VP*

Got it. I want to touch on just Connectivity for a minute. I mean last year, there was a flurry of deal activity for Connectivity assets. And if you can just talk about the technology that you have and kind of how important that is in terms of leveraging your exposure in both Analog and Microcontrollers.

Rafael R. Lizardi - *Texas Instruments Incorporated - Senior VP of Finance & Operations, CFO and CAO*

Yes. I think that, again, I would touch on 2 of our competitive advantages. One is the breadth of our product portfolio, and second is diversity and longevity. So as I kind of talked about before, the broader customer base wanting to improve their products in multiple different ways, Connectivity is 1/2 for them to do that. Certainly, having a complementary products of Sensors and Analog, Signal Chain and Power Management, whether you're plugging stuff into the wall or running it off the battery to charge and discharge those systems, and then connectivity in both wired and wireless. So we support about a dozen different wireless topologies and standards today, and we've got several dozen wired standards that we support. So yes, we've seen some of our peers go and pick up some assets that help them in one or two of those particular areas. I think that's just a confirmation that those technologies are important to have.

Craig Matthew Hettenbach - *Morgan Stanley, Research Division - VP*

Got it. And then just last question. I wanted to touch on just kind of U.S.-China, really from the perspective of kind of a secondary impact of the trade war where you hear things of China looking to do kind of more in-sourcing. Bigger picture, how do you feel in terms of what the implications could be for TI longer term? Are you seeing or hearing discussions like that from your customer base in China yet?

Rafael R. Lizardi - *Texas Instruments Incorporated - Senior VP of Finance & Operations, CFO and CAO*

Yes. I think, certainly, we've heard and had those discussions with customers. And generally, I would describe that they want to have alternatives so that they're never in a position that they can't ship a product. So with our products, oftentimes, there can be other choices to implement the design. They may be larger in size, consume more power, more costly and other trade-offs that you can make to ensure that you've got multiple ways that you can build something. So I think our customers around the world are pragmatic, obviously, so they're going to make those decisions in their best interest. But because of the breadth of our portfolio, that's not a world in which we fear, we can participate in those types of markets, too. So -- but yes, that is a growing concern.

Craig Matthew Hettenbach - *Morgan Stanley, Research Division - VP*

Okay. I think we're going to wrap up there. So really appreciate your time, both Rafael and Dave. So thank you.

Rafael R. Lizardi - *Texas Instruments Incorporated - Senior VP of Finance & Operations, CFO and CAO*

Okay. Thank you all. Bye-bye.

Dave Pahl - *Texas Instruments Incorporated - Head of IR & VP*

Thank you.