Operator

Good day, and welcome to the Texas Instruments Capital Management Strategy Conference Call. Today's conference is being recorded.

At this time, I would like to turn the conference over to Dave Pahl. Please go ahead, sir.

Dave Pahl Texas Instruments Incorporated - Head of IR & VP

Good morning, and thank you for joining our 2020 capital management call. This call is being broadcast live over the web and can be accessed through our website at ti.com/ir. A replay will be available through the web.

This call will include forward-looking statements that involve risks and uncertainties that could cause TI's results to differ materially from management's current expectations. We encourage you to review the notice regarding forward-looking statements contained in the most recent earnings release as well as our most recent SEC filings for a more complete description.

During today's presentation, we'll begin with a quick recap of our capital management strategy and our scorecard for 2019. Then we'll provide a historical summary of our capital allocation and take a deeper look into specific areas of investment, including 300-millimeter Analog. We'll also discuss our free cash flow per share performance. And finally, we'll wrap up with a review of our cash returns.

We believe the key points that investors can take away from our discussions today are: first, we remain focused on consistent execution of our capital management strategy; second, our business model is designed around four sustainable competitive advantages, and we continue to strengthen and leverage those advantages with a view towards the long term; third, our disciplined allocation of R&D and investments in our initiatives are delivering growth from the best products, analog and embedded, and the best markets, industrial and automotive; fourth, our 300-millimeter Analog manufacturing strategy is a unique advantage and will provide benefits for a long time; and then lastly, we remain committed to returning all free cash flow to our owners. These key points are consistent with past capital management presentations.

For many years, we've run our business with three overarching ambitions in mind: first of all, we act like owners who will own the company for decades; the second is to adapt and succeed in a world that's ever changing; and third, we want to be a company that we're personally proud to be a part of and that we would want as a neighbor. When we're successful at these three things, our employees, customers, communities and shareholders all win.

We have articulated our capital management strategy now for many years, and you'll continue to see that our actions will be consistent with these ambitions. With that as our framework, our objective for capital management is to maximize the long-term growth of free cash flow per share, which we believe is the best metric to judge our performance and to drive higher intrinsic value for the owners of the company.
Our strategy to achieve this objective has three elements: first, a great business model that is built on four competitive advantages, advantages in which we are continuing to invest and make even stronger; second, discipline in how we allocate our resources, focusing on the best product opportunities as well as areas that strengthen and leverage our competitive advantages; and third, striving to constantly increase our efficiency, which is about achieving more output for every dollar of input.

As a reminder, we believe TI is in a unique class of companies that can grow, generate and return significant cash.

We're focused on the best products and the best markets in the semiconductor industry. We believe analog and embedded are the best products. They are large categories of products that are used across a diverse set of applications and customers and also have a fragmented competitor base. In addition, over the decades, these products have generated profitable returns and significant amounts of cash. We believe industrial and automotive are the best markets and will drive growth in our industry and for TI. These markets are the fastest growing due to their increasing semiconductor content, a trend that's fueled by products becoming more intelligent, more connected, safer and more efficient, especially as mechanical and electromechanical features are replaced with solid-state electronics.

Later in this presentation, we'll also provide insight into the opportunities we see within the industrial market.

Our strategy is designed around four sustainable competitive advantages that, in combination, provide tangible benefits that are difficult to replicate: first, we have manufacturing and differentiated technology; second, is the broadest portfolio of analog and embedded products; third, the reach of our market channel, including our field sales force and TI.com; and lastly, we have diverse and long-lived positions, which results in a high terminal value.

With that, I'll turn it over to Rafael, and he'll review our capital management strategy and scorecard.

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

Thanks, Dave. Our capital management scorecard is one that we have shared with you every year since 2013. Consistent with prior years, in 2019, we again met our multiple metrics. We are pleased with the consistency of the results that have been enabled by our business model and strategic decisions.

You can see that the scorecard continues to include descriptions of our long-term objectives for each metric as well as the target range. The long-term objective provides insight into how we make decisions and run the business, as opposed to only a number that reflects a single data point.

In summary, our capital management strategy continues to serve the owners well. Free cash flow per share continues to be strong, while we strengthen and leverage our long-term competitive advantages.

Now I would like to provide additional insight into how we allocate our capital, and I will give you updates on several key investment areas.

Over the last 10 years, we have allocated about $81 billion of capital. Given that magnitude, you can quickly appreciate why capital allocation is a job we take quite seriously and one that has significant impact on our owners' returns.

Our largest category of capital allocation is investment in critical areas that drive organic growth such as R&D, sales and marketing, capital expenditures and inventory. With our approach of funding strategies, not projects, we spend significant time ensuring these investments are delivering long-term competitiveness and generating returns greater than our cost of capital.

The second largest category is share repurchases. Here, our objective is the accretive capture of future free cash flow for long-term owners. We focus on consistent repurchases when the present stock price is below the intrinsic value, using reasonable growth assumptions.
Next is dividends, where our objective is to appeal to a broader set of investors, and we focus on their sustainability and growth for obvious reasons.

And finally, potential acquisitions are evaluated through two primary factors that have remained unchanged. It must be a strategic match, meaning catalog, analog focused with high exposure to industrial and automotive. And additionally, we must meet certain financial metrics, such as generating a return greater than our weighted average cost of capital within about four years.

For simplicity, we have not included changes in net debt, which over this period, increased $2.7 billion.

With that framework set, let me ask Dave to comment on our investments in several specific areas.

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

Thanks, Rafael. I'll first focus our R&D investments that we allocate to higher value, growth opportunities.

In column 2, we summarize the direction of our R&D investments across end markets from 2013 through 2019. This directional bias of our R&D investments has been consistent over this period of time.

As you may recall, our broad portfolio of analog and embedded products is an important competitive advantage. This breadth of portfolio allows TI to identify more customer projects, win more sockets and revenue on those projects and bring significantly more visitors to TI.com each year.

It's also critical that we continually grow and strengthen this portfolio with differentiated products that are developed with an eye on the best market opportunities over the next 10 years. At the highest level, we see good opportunities in all markets, but we believe that industrial and automotive will be the best opportunities over the next decade. As we mentioned earlier, this is primarily because the semiconductor content in industrial and automotive applications will significantly increase as companies make their equipment smarter, more connected, safer and more efficient.

In industrial and automotive, we continue to increase investments broadly across sectors and product categories. We're excited to see the continued progress as these markets comprise about 57% of TI revenue, up from 42% in 2013.

Personal electronics is an important market, and while investment level in total is down, we do invest, but do so selectively.

In communications equipment, we announced several years ago that we were reducing our Embedded investments, but we continue our investments in the expanding Analog growth opportunity, primarily products for 5G macro base stations. This is playing out as we expected.

Our investments in enterprise systems and "other" have been flat and at low levels.

Given the importance of the industrial market, and it's harder to understand, we want to again include insight this year for investors. As you recall from the prior slide, industrial is our largest market at 36% of TI's revenue in 2019. Industrial is also our most diverse market. We break the industrial market into 13 sectors that are shown at the right side of this slide. Within each of these sectors, there are typically hundreds of end equipments and thousands of customers. Almost all offer a unique semiconductor content expansion opportunity as intelligence is added to all types of end products, from those we interact with on a daily basis to those in a more heavy industrial category.

Illustrations of this broader trend are everywhere. A ubiquitous example is as simple as a door lock. Door locks have existed for hundreds of years, but just recently have semiconductors been added to them to integrate new features. If you've been to a hardware store recently, you could easily see locks with digital key pads, Bluetooth or WiFi connectivity, fingerprint recognition and electronic server motors, all powered by a long-lasting battery.
In this example, semiconductor growth does not rely on increasing sales of door locks. It’s the expanding semiconductor content that will drive growth. This example of expanding semiconductor content repeats across all sectors in industrial, from grid infrastructure to non-automotive transportation. So think airplanes and high-speed trains, to power delivery, to medical electronics, to factory automation, building automation, digital signage and more. For customers who want to make their products smarter, more connected, safer, more energy efficient, the only way is to add intelligence, and adding intelligence requires semiconductors. This is the heart of the semiconductor content story we refer to. The unit growth of our customers’ equipment is compounded by the growing semiconductor content in each product.

Finally, connecting back to our competitive advantages, when you think about the industrial market, it highlights the importance of our broad product portfolio as well as the reach of our channel. Our product portfolio, including power management, signal chain, low power processors, wired and wireless connectivity and sensors, all help our customers design and improve their systems. Our channel, which includes our direct sales and applications team and our website, enables us to efficiently and effectively reach tens of thousands of customers around the world.

These advantages have translated into results with broad-based growth over the last several years across our 13 industrial sectors and hundreds of end equipments. Looking ahead, we believe that the industrial market is one of our best opportunities, given the content opportunity and our ability to address the needs of this large and diverse market.

We’ll now talk through our manufacturing advantage. As a reminder, for those not familiar with the semiconductor industry, a chip, meaning an unpackaged product, made on a 300-millimeter wafer, costs about 40% less than a chip built on a 200-millimeter wafer, the size used by most of our peers. This translates into a great competitive advantage.

The source of this advantage is the area of the wafer. That 300-millimeter wafer has 2.25x more area, which in turn, means we can get about 2.3x more chips, but it doesn't cost 2.3x more to process that larger wafer. This translates into a structural cost advantage.

To understand how a 40% less expensive chip impacts gross margins, it's easiest to use an example shown on this slide of a part built on 200-millimeter wafer, compared to one built on a 300-millimeter wafer. This example shows a theoretical part that sells for $1 with gross margins of 60%. The chip itself would cost about $0.20 if built on a 200-millimeter wafer, and this will be reduced to about $0.12 on a 300-millimeter wafer. In this example, the remaining costs of assembly and tests are the same, regardless of the size of the wafer. The net result is that gross margin improves by 8 percentage points. As this example illustrates, our 300-millimeter manufacturing capability and the resulting cost structure provides a unique competitive advantage for TI.

As we said in the past, we put our 300-millimeter capacity in place to support growth. In 2019, our 300-millimeter Analog revenue did not change much. Together, with two 300-millimeter facilities, we were about 60% utilized, so we have plenty of room for growth. Moving forward, the majority of our incremental Analog revenue will continue to be built on 300 millimeter. We remain committed to strengthening and leveraging this competitive advantage over the long term.

As we’ve discussed before, we currently have two 300-millimeter factories, our Richardson fab and DMOS6, both located in the Dallas area.

Last year about this time, we announced our plans to expand our 300-millimeter footprint by building the next factory in Richardson, Texas. Since that time, we’ve started on the employee parking garage pictured here in the lower right corner of this rendering of the future site. The new factory is in the upper left portion of the picture. Our plans for the new factory are underway, and we expect it to be completed around late 2021. We can then equip the factory with tooling, depending on market demand. This new facility is expected to support an additional $5 billion of 300-millimeter analog revenue.

With that, I'll turn it back to Rafael to talk about free cash flow growth and outlook.
Rafael R. Lizardi Texas Instruments Incorporated - Senior VP of Finance & Operations, CFO and CAO

As we described at the beginning, our overall objective is to maximize long-term free cash flow per share. We believe this is not only the best metric to judge our performance, but it is also the one that owners ultimately care about.

Even though the macro environment in 2019 showed some weakness, our long-term trend of growing free cash flow per share, adjusting for tax reform, was 11%. Specifically, in 2019, revenue declined 9%, and operating cash flow was down about 8%, while free cash flow was down 4%. We reduced share count, 1.4%. Taken together, this resulted in free cash flow per share decreasing 1% over 2018.

We believe we will continue to have three drivers of free cash flow per share growth well into the future. Top line growth, margin expansion and share count reduction.

Over time, through market cycles, our Analog and Embedded segments have a proven track record of growth. Combined, they have recorded a 10-year revenue growth trend of 6% and a five-year growth rate of also 6%. Throughout this period, we have maintained consistency of investment and strategy in the best products and best markets. And this will allow us to continue to grow share over time.

Now let me change gears and talk about cash and returns. It may be helpful to frame our performance versus others in the S&P 500. Our free cash flow generation, cash returns and return on invested capital puts us above the 90th percentile when compared to the S&P 500.

We believe our strong relative performance versus the S&P 500 is a reflection of our focus on growing free cash flow per share over the long term and the three elements of our strategy: first, a great business model that is built on four competitive advantages -- advantages in which we are continuing to invest and make even stronger; second, discipline in how we allocate our resources, focusing on the best product opportunities as well as areas that strengthen and leverage our competitive advantages; and third, striving to constantly increase our efficiency, which is about achieving more output for every dollar of input. We believe that if we can continue to do these three things well, we should be able to grow free cash flow per share for a long time into the future.

As our cash returned to owners has grown, so too has our dividend. We continue to believe a sustainable growing dividend is an important element of our capital management strategy.

Our objective in repurchasing shares is the accretive capture of free cash flow for long-term investors. We focus on consistently repurchasing shares when intrinsic value of the company exceeds its market value. By using realistic discount factors and reasonable growth assumptions to calculate the intrinsic stock value, we are aiming for confidence that investments made in stock repurchases are, in fact, earning rates of return greater than our cost of capital.

While the ultimate assessment of return on investment depends on the future cash flow stream, the track record of this approach is encouraging. We have reduced shares outstanding 46% since 2004, including the 1.4% reduction in 2019. We ended 2019 with $13.2 billion in open authorizations, having bought back $3 billion worth of stock in 2019.

As we said earlier, our objective with dividends is to appeal to a broader set of investors, and our focus is on both sustainability and growth. We have now raised the dividend for 16 consecutive years, including a 17% increase in the fourth quarter of 2019. We have increased the dividend at a compounded annual growth rate of about 20% over the last five and 10 years.

Our consistent growth of free cash flow resulted in our dividend in 2019 consuming only 52% of free cash flow, supporting our objectives of sustainability and growth of dividends.

Let me now wrap up my prepared remarks with a few summary comments. TI is in a unique class of companies that can grow, generate and return cash. Our business model is designed around four competitive advantages that deliver tangible benefits unique to TI and are difficult to replicate. Those competitive advantages are: first, manufacturing and differentiated technology; second, breadth of products; third, broad reach of our channels; and fourth, diversity and longevity of our products, markets and customer positions.
We will continue to focus on growing free cash flow per share. It is the ultimate objective, and we believe focusing on it will deliver the highest growth in the value of the company. In the coming years, we believe that we will have three drivers contributing to free cash flow per share growth: top-line revenue growth, free cash flow margin expansion and share count reduction.

Top line revenue growth will be driven by our position in the best products, analog and embedded, and in the best markets, industrial and automotive.

Our 300-millimeter analog manufacturing strategy is a unique advantage and will provide benefits for a long time.

And finally, owner returns will continue to be driven by dividends and share repurchases.

We have a disciplined culture and processes to ensure that we are strengthening our competitive advantages and generating the maximum return for the investments we make. Thank you.

With that, I will turn it back to Dave.

Dave Pahl  Texas Instruments Incorporated - Head of IR & VP

Thanks, Rafael. Operator, you can now open the lines up for questions. (Operator Instructions) Operator?

QUESTIONS AND ANSWERS

Operator

(Operator Instructions) We'll take our first question from John Pitzer with Crédit Suisse.

John William Pitzer  Crédit Suisse AG, Research Division - MD, Global Technology Strategist and Global Technology Sector Head

Dave and Rafael, I wonder if you could just spend a little bit more time diving into the embedded business and the competitive advantage you have there. As you know, calendar year '19 was an unusual year for you on embedded because I think it was the first time in a long time you actually lost some market share. I was wondering to get -- I was hoping to get a better understanding of what the end market breakout is in embedded versus the overall business. Is that an area that's just more levered to comms, and that's what you suffered through in calendar year '19? In addition, your manufacturing strategy is great for analog, but a lot of the embedded is outsourced, so I'm just trying to get a sense of how we should think longer term about the competitive moats in the embedded business for you.

Dave Pahl  Texas Instruments Incorporated - Head of IR & VP

Sure, John. I'll start off, and Rafael, if you want to add something to it. As you know, we've got microcontrollers and processors, the two categories that we break those into, about 56% of the revenue is connected microcontrollers, and the balance is in processors. And we've long invested, as we've talked about before, of finding areas that we can invest in that have differentiation. So in microcontrollers, that means, as the name would imply, that we're finding areas of differentiation and connectivity. There's a lot of excitement and energy and time spent around wireless connectivity. If you remember, more than a decade ago or maybe eight years ago or so, we took our wireless assets that we used in our legacy wireless business and repurposed those into microcontrollers. And so we support today about a dozen different wireless standards. So those include WiFi and Bluetooth and ZigBee and 6LoWPAN and a whole alphabet soup of wireless standards. So very broad-based connectivity portfolio as well as on the wired side. So things like Ethernet or within the industrial market, EtherCAT and automotive standards. And then on the processor side, as we repurpose those wireless assets. We also repurposed our OMAP application processor assets. And those things are pointed at both industrial applications, any application that needs to have a screen and connectivity, we'll be running some level of operating system. And so that screen may control the equipment, or it could be in automotive and things like infotainment or in ADAS processors. So those are the areas of investment, again, because of the diversity of that investment, it -- it's tens of thousands of customers that we support there.
Rafael R. Lizardi **Texas Instruments Incorporated - Senior VP of Finance & Operations, CFO and CAO**

Yes, I'll just add a few things. First, on market share, you want to judge that over a long period of time, right? And if you go back to 2017, 2018, we gained quite a bit of share in Embedded. The second, as Dave was mentioning, we're allocating our capital in all of our businesses, but also in Embedded, to just the best opportunities. And that means auto and industrial, and that's because that's where the content is growing. And again, that applies to Embedded, just like it does to Analog.

The final point you asked about competitive advantage as well, when it comes to the broadest portfolio, that applies to Embedded just like Analog. In fact, that is very synergistic because that portfolio is combined, right, and we have the full breadth of that portfolio across both of those businesses. Reach of market channels, same thing. We can leverage our -- not just our sales force, but now, more and more TI.com, and that having that broad portfolio that works very well with that reach of channels as -- with those two competitive advantages. And then that results in diverse and long-lived positions, which again applies to both Analog and Embedded, particularly as we focus on industrial and automotive, where when we release a part, we design a part in, that tends to last for many years, in some cases, decades, and particularly when it comes to industrial.

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

Do you have a follow-on, John?

**John William Pitzer** **Crédit Suisse AG, Research Division - MD, Global Technology Strategist and Global Technology Sector Head**

Yes. David, another sort of successful use of cash for you guys over a multiyear period, has been kind of investing in working capital and kind of sidestepping the distribution channel and going more direct. I'm wondering if you could just update us on where you are in that strategy of committing cash to working capital? And more importantly, what are the benefits you're seeing? It's yet to show up in sort of accelerated market share gains, but is that something we should expect going forward?

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

Yes, I'll give you a few angles on that. When it comes to whether it's working capital or operating expenses, a lot of the changes in -- that we've been talking about, so bringing -- establishing more direct relationships with customers, TI.com, the changes in distribution strategy, a lot of that is already baked in from an operating expenses standpoint, also from a working capital standpoint, we don't expect a significant change when it comes to those. The one exception to that is on the revenue front. As you'll recall, we mentioned it sometime last year. In 2019, we had a headwind of about $200 million because of the change in distribution consignment. Well, we expect to have another headwind of about the same amount, of about $200 million as we change, as we bring more customers direct, just the way that the dynamics of that change work. So that should be about the same in 2019 and 2020.

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

Yes. And maybe I'll just add. And when we see that transition in the first quarter, as Rafael noted, that is baked in, meaning the sequential and year-on-year compares is not really visible even though it's there because it was about the same amount. So thank you for those questions, John. We'll go to the next caller, please.

**Operator**

Our next question comes from Vivek Arya with Bank of America Securities.

**Vivek Arya** **BofA Merrill Lynch, Research Division - Director**

Congratulations on this strong record of free cash flow generation and returns. For my first one, free cash flow last year was 40% of sales in what would hardly be described as stable markets, so it was above your 25% to 35% range. So if the 2020 demand environment is more stable, can free cash flow continue to exceed your targets?

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

Yes. What I would tell you on that, Vivek, and you've known us for a long time, and know our objective when it comes to free cash flow generation is maximizing long-term growth of free cash flow per share. So the dollars per share that we generate, not the percent, because we think that is what ultimately drives higher value for the owners of the company. So if we can maximize that long-term growth at 25% of revenue, we would do that. But if it wants to go to 40%, like it did in 2019, we do that as well. I would also remind you, in
periods of growth, you also have some working capital needs. So it doesn't all immediately flow through cash, right? So you shouldn't necessarily expect that 40% to drift higher in a growth environment.

Dave Pahl Texas Instruments Incorporated - Head of IR & VP
Do you have a follow-on, Vivek?

Vivek Arya BofA Merrill Lynch, Research Division - Director
Yes. So the question on gross margins, when I look at the last three years, so '17, '18 and '19, gross margins have kind of stayed in the 64% plus/minus band; obviously revenue has been volatile during that period, but gross margins have kind of stayed in this band even though the mix has moved more to industrial and automotive, and I assume that 300 millimeter has been increasing as a percentage of your production. And I think you mentioned that last year 300-millimeter was kind of flattish in terms of the amount of production coming from it. So the question is, when will we start to see more of that 8 percentage points of gross margin benefit you mentioned before from that move to 300-millimeter?

Rafael R. Lizardi Texas Instruments Incorporated - Senior VP of Finance & Operations, CFO and CAO
Yes. So first, let me step back and remind you, it's related to the first question, but our focus is on free cash flow per share growth; it's not on gross margins. So whatever we end up doing at the gross margin level, it's incidental to what we want to do when it comes to free cash flow per share growth.

Now having said that, just to give you some things to think about. Well, one, of course, and you alluded to, 300 millimeter is the key here. And as we keep increasing 300-millimeter revenue and we expand that capacity, we're going to see significant benefits to the free cash flow per share growth. And most likely, on the gross margin line as well. And the one tactical comment I would give you is that you mentioned that it's been -- gross margin has been flat during that time. But of course, utilization hasn't, so that has an impact underneath that even if inside you're having better mix and even if you're having more 300 millimeter.

Dave Pahl Texas Instruments Incorporated - Head of IR & VP
Yes. And maybe I'll just add. We've talked about that what you should expect to see over time is, as we grow revenue, that incrementally, that revenue will fall through to gross margins and then obviously, to free cash flow, at about a rate of 70 to 75 points incrementally -- decrementally, that's also true, and you'd see it. So as we grow, analog revenue on 300 millimeter, that will be a benefit. There's other benefits that we're working hard to -- that gives us confidence that we'll be able to continue to deliver that at that level.

Operator
Our next question comes from Stacy Rasgon with Bernstein Research.

Stacy Aaron Rasgon Sanford C. Bernstein & Co., LLC., Research Division - Senior Analyst
Maybe a follow-up on that. If I look at your three drivers of free cash flow per share, both top line margin expansion and share count reduction. I get all of those, and I get the statements on margins, but at the same time, your margins have gone up 1,500 basis points, maybe more, over the last five or six years. Your OpEx is running kind of close to the bottom end of your model. I mean if I sort of take out a lot of weight, does that by necessity imply that growth has to be a bigger portion of the formula going forward than maybe it has been in the past? I guess how do you feel about that statement? And if that's the case, how do we think about the drivers of growth going forward versus what we've seen?

Rafael R. Lizardi Texas Instruments Incorporated - Senior VP of Finance & Operations, CFO and CAO
Stacy, to your point, it's easier to go from 50 to 60, than from 60 to 70, right? I mean, at some point, asymptotically, it gets to a certain point, right? So from that standpoint, the revenue becomes a key driver, top line revenue to drive additional growth of free cash flow per share, but margin continues to -- will continue to be a factor, and we've talked about how we're expanding 300 millimeter, not just with the factories that we have in place, that still have some room, but then the new factory that we -- where we broke ground and we're moving with our forward plans to have that ready by the end of next year.

And then the third one, as you alluded to, is the denominator on the shares, which we continue to -- as we continue to allocate capital
wisely and returning all free cash flow to the owners of the company. Part of the way we do that is buying back shares, which decreases that denominator and helps with that free cash flow per share metric.

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

Yes. And maybe I'll add that when we think of growth longer term, I'd say that because of the breadth of our portfolio, the diversity of the product and the customer engagements that we have, we'll be sensitive to GDP. And so if we're in a world that's growing somewhere around 3% GDP, like most industry analysts will have the semiconductor market growing 4% or 5%, maybe some at 6%, but everyone can pick their favorite number. Some -- it usually lands somewhere inside of that. Our belief is Analog and Embedded will grow about at those rates. And if we're able to continue to gain share, we'll grow slightly above that a point or two. So that's how we think of longer-term growth overall.

You have a follow-on, Stacy?

**Stacy Aaron Rasgon Sanford C. Bernstein & Co., LLC., Research Division - Senior Analyst**

I do. I wanted to ask a little bit about 300 millimeter. So you currently have a little more than half of your Analog revenues on 200 millimeter. You still got 40% empty capacity in the existing 300 millimeter and then you're building more, obviously. I guess, at what point or why doesn't it make sense to maybe try to requalify some of that 200-millimeter revenue moving into the 300 millimeter, maybe be a little more aggressive on the fab shutdowns? I know you're shutting down some of the 6 and stuff, but at what point does the 200-millimeter just become not the right way to go in terms of cost structure versus the existing capacity and the new capacity that you've got on 300?

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

Yes, no, sure. Let me start, and Dave, if you want to chime in, but it's all at the end of the day, it all comes down to free cash flow, right? So if -- we don't so much look at the gross margin percent, for example, that would happen on day one after you move a part, you look at the investment that it takes to move parts from 200 to 300. And you look at the payback that you will get from that investment, right? And in some cases, that payback is too long because the 200-millimeter factory, it's actually operating pretty nicely, and it's generating good free cash flow, so it may take -- it may take 30 years to pay back or just a hypothetical example, in some scenarios because that -- those factories are operating so well. Now new parts, of course, since you've got to spend the same amount of money to release the part, no matter what factor you release it, you're releasing in the most efficient factory, so you go right for 300. The other comment I would make is, obviously, we just announced that we're shutting down those two factories that are 150-millimeter. So of course, that is less efficient than 200. So then the payback comparison is different, right, and you can get a better payback. But even then, we're doing it over a relatively long amount of time, three to five years before that is complete because we do it in a way that makes sense, that ultimately maximizes that residual free cash flow that the owners -- that we generate and then return to owners.

**Operator**

Our next question comes from Timothy Arcuri with UBS.

**Timothy Michael Arcuri UBS Investment Bank, Research Division - MD and Head of Semiconductors & Semiconductor Equipment**

I guess my first question is just a follow-on to that, Rafael. So is, as you basically have to requalify these designs that you're moving from 150 to 300, does that present any kind of a revenue headwind as you look in 2020 and 2021?

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

No, not at all. We do that very carefully, very thoughtfully, working with customers. In some cases, we do need to announce it to customers, depending on the particular change. In other cases, it's not required. And during that entire time, we're fully supporting the customers and the revenue, and we do it with no disruption. In fact -- and the fact that we're doing it over three to five years, that gives us ample room to do in a way that results in zero disruptions.

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

Follow-on, Tim?
Yes, good question. Let me first step back and remind everybody the objective of inventory is to maintain high levels of customer service, minimize obsolescence, and kind of as a side benefit, we can also improve manufacturing and asset utilization. So that's the objective. That's the goal. It's not to run 115 to 145, right? That's kind of incidental. It's -- that target is more of a guidance where, all else being equal, we want to be somewhere in that range. But we don't want to do it at the expense of accomplishing the objectives, the customer service, etc. And in the current environment, obviously, things have been a little uncertain over the last three or four, five quarters, as we go through this cycle. And when we're in that situation, we are better off making sure that we have inventory available than not, right? So that we can support growth. And remember, this is all predicated on the idea that we are in the best -- with the best products and the best markets and in order -- with catalog products. So that when we build that inventory to the ninety-ninth degree, if we have a little excess inventory, the inventory doesn't go bad. We just put in stores, and then we can sell it later. We can sell it years later, right? So when you have that -- those dynamics, you're better off having, being on the high end of the inventory if you're uncertain, which is kind of where we've been.

Now everything else being equal, it may drift down, the inventory days over time. But again, it's not something that is primary consideration on our mind.
our customers, and that's why we're making the change.

Do you have a follow-on question?

**William Stein SunTrust Robinson Humphrey, Inc., Research Division - MD**

Yes. First, I assume that some of that is not through the channel, but it's consignment with large OEMS, assuming that's right. The next question is just maybe to remind us, what is the anticipated effect on the financials from this change? We understand that the sort of strategic goal is to get closer to customers. But should we expect this to influence the P&L or the balance sheet or the cash flows?

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

Yes, sure. So we already talked about the $200 million in revenue, so that's covered. Besides that, all the other changes are, to the largest degree, they're baked in already, meaning we've already been incurring some of these expenses over the last few years, just getting ready for this transition. So while there are some costs involved, you shouldn't see any significant increase in cost or working capital going from 2019 to 2020.

**Operator**

Our next question comes from Ross Seymore with Deutsche Bank.

**Ross Clark Seymore Deutsche Bank AG, Research Division - MD**

Just one question for me, and it's on capital efficiency. You guys do a great job explaining the benefits of the 300-millimeter side of things. But it seems to me on your last earnings call, you guys actually got more efficient with the capital needed to accomplish the next fab being built out. So can you give us an idea of what you think CapEx as a percentage of revenues will be going forward? And if indeed, the incremental $600 million or $700 million you plan to spend on that doesn't change that capital intensity number, how are you offsetting that incremental spending?

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

Yes. No, good question, Ross. So let me step back. CapEx as everybody -- as we talked about earlier during the prepared remarks, our objective there is to support new technology development and revenue growth. So -- and extend our low-cost manufacturing advantage, specifically 300-millimeter. So that's what CapEx is for, that's the main thing. Now we give you a guidance of 6% of revenue, and that's what we gave this year, what we gave last year, to be helpful so that you can model that. Now -- but the objective is the key thing.

Now to your point, Ross, yes, we did have a bit of a change that you're pointing out there. We had -- before we had talked about that 6% to be without the buildings, meaning on top of the 6%, we would spend a couple of hundred million per year. Well, total $600 million to $700 million over a couple of years to build the building. What we're now saying is that we can build that building inside of that 6%. And as we've gotten closer to the spend timeline, a lot of things have happened over the last year or so as we've gone through this cycle, and now we're breaking ground on the building, so we get closer to it. We have better information. So now we're -- we've adjusted the guidance as such.

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

You have a follow-on, Ross?

**Ross Clark Seymore Deutsche Bank AG, Research Division - MD**

Yes. I guess just to fill the fab, once it's done, Rafael or Dave, roughly speaking, how do you think about the cost to fill that fab and fully equip it with tools?

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

And is that back on CapEx or -- yes. So we would -- our guidance would continue to be 6% for the time being, even beyond completing that. And we'll update that over time as needed.
Dave Pahl Texas Instruments Incorporated - Head of IR & VP
And just rough numbers of actual spend. It will depend on how much used equipment we're able to buy in the future, of course, but that will be, what, anywhere from $3 billion to $5 billion over time.

Rafael R. Lizardi Texas Instruments Incorporated - Senior VP of Finance & Operations, CFO and CAO
Right. The total -- the grand total cost for the factory when it's fully, fully equipped, which is many years from now, depending on demand, would be $3 billion to $5 billion, depending on a bunch of assumptions. The key thing here is we always want to be ahead of demand. This market is just too good -- auto and industrial and analog and embedded -- that we never want to miss the opportunity to grow revenue and generate free cash flow. So we want to stay ahead of demand.

Dave Pahl Texas Instruments Incorporated - Head of IR & VP
Yes. And I'll say, we've also talked about, that we expect to, at this point going forward, to buy mostly new equipment. Now there's still some used 300-millimeter equipment available on the market, but not like we've seen in the past. So -- but certainly, if that were to change, we would take advantage of that opportunity and buy the equipment when it was available, even if it was ahead of what we needed.

Operator
Our next question comes from David Wong with Instinet.

David Michael Wong Nomura Securities Co. Ltd., Research Division - MD
As a percentage of revenue, is your R&D spending in Embedded comparable to that of Analog. And am I correct that your CapEx is primarily for Analog and not for Embedded. Is that right?

Rafael R. Lizardi Texas Instruments Incorporated - Senior VP of Finance & Operations, CFO and CAO
That is in the ballpark, yes. The CapEx certainly -- a disproportionate amount of it is for Analog since all the factory, 300-millimeter that we've been talking about, that's only for Analog. Now we also have the back end, the assembly/test, and that we do about the same degree internal and external, with Analog and Embedded. So we -- from that standpoint, we do spend CapEx on Embedded, just a much smaller portion versus Analog.

Dave Pahl Texas Instruments Incorporated - Head of IR & VP
Do you have a follow-on, David?

David Michael Wong Nomura Securities Co. Ltd., Research Division - MD
No, I'm good.

Operator
Our next question comes from Ambrish Srivastava with BMO.

Ambrish Srivastava BMO Capital Markets Equity Research - MD of Semiconductor Research & Senior Research Analyst
Dave, since you opened the curtain on the industrial business, I was just wondering, how did this look five years before in terms of the relative mix? And then how should we think about it? How is the mix going to look five years from now? And then I had a quick follow-up.

Dave Pahl Texas Instruments Incorporated - Head of IR & VP
Sure. Yes, we're -- Ambrish, we're intentionally investing across all 13 of those sectors. We literally have teams that are focused on those -- each of those sectors, working with our product teams to identify new opportunities for us, understanding the customer demands in each one of those sectors and improve our learning as we go. So all of them have given us growth over the last five years. Of course, we've had some that are faster growers than others, like factory automation or building automation and certainly aerospace, have all been very, very strong growers, but we've got growth coming from all 13 sectors.

You have a follow-on?
Ambrish Srivastava  
**BMO Capital Markets Equity Research - MD of Semiconductor Research & Senior Research Analyst**  
I did. And for both of you, for Rafael as well. If you think about investments in China Inc. and plan 2025, when I think about Analog, you've got deep moats, especially in the industrial and the automotive? And maybe I'm answering my own question, but wanted your perspective. Certain areas such as consumer should be susceptible to China Inc., China 2025, as well as comms and maybe discussions on your part that you decided to deemphasize comms five, six years ago when you did. So just kind of wanted TI's perspective on how should investors think about the threat of more indigenous China-based semiconductors coming into the marketplace?

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Dave Pahl  
**Texas Instruments Incorporated - Head of IR & VP**  
Yes, certainly, our life today is different than it was five or 10 years ago in China as it relates to trade tensions. And our belief is that even if we get a full agreement signed that we're likely to have trade tensions in the coming decades. So it's not something that we're just getting over it emotionally and focusing on serving our customers in that region. And certainly, we've heard from Chinese customers that really want to have alternatives to supply, and ultimately, all of our customers are very pragmatic. And they're really -- they want the best products, they want high quality, they want the best price, they want the best delivery, and those are all things that we're very competitive on. So if we just focus on those customer needs, we will do well there.

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Operator  
Our next question comes from Tore Svanberg with Stifel.

Tore Egil Svanberg  
**Stifel, Nicolaus & Company, Incorporated, Research Division - MD**  
Yes. First question is on M&A. I know you're very disciplined there, especially when it comes to your weighted average cost of capital and return of a four-year period. But maybe my perception is wrong here, but it does seem like valuation in semiconductors have structurally changed. So why not perhaps change that from perhaps four years to five years. Just want your thought on that?

Rafael R. Lizardi  
**Texas Instruments Incorporated - Senior VP of Finance & Operations, CFO and CAO**  
Yes, sure. So first, let me step back and remind everyone on M&A, how we think about it, as you say, we're very disciplined. And first, it's got to be a strategic fit. So that means analog companies focused on industrial and automotive with differentiated parts, catalog parts that matches where our strategy. And the other one, the numbers need to make sense, right? And we have talked about meeting our weighted average cost of capital in a certain time frame, three to four years is what we talked about. Frankly, it's not -- that's similar to our other targets, those are guidelines. Those are not hard targets, right? But the point is from -- almost from a cash and cash, right? So if it's going to cost me $100 to make that acquisition, how much am I going to get, day one, you never get a lot because you have a lot of upfront costs and different things. But by year two, three, four, five, how much am I getting on those $100? And if that compares favorably versus my cost of capital, versus my alternatives, then we would -- we could consider that acquisition.

Also, I'll point out that speaking of alternatives, one great alternative is to buy back our own shares, right, which we have high confidence on the -- on performance of those shares. We have a nice free cash flow yield starting point to begin with. So it's not a bad place to start. And then we've been growing that, as we pointed out earlier, about 11% compounded over the last 15 years or so. So that's always a good alternative for deploying cash.

Dave Pahl  
**Texas Instruments Incorporated - Head of IR & VP**  
And maybe I'll just add. When we think of that allocation of capital and cash, it's really informed from an owner's view. So as we think like owners, a lot of those decisions become very clear of what you're doing to create value. So Tore, you have a follow-on?

Tore Egil Svanberg  
**Stifel, Nicolaus & Company, Incorporated, Research Division - MD**  
Yes. So I think the last number I got from you guys on brick and mortar capacity was $22 billion. With that $5 billion now coming online next few years, should we think of that then totaling $27 billion that you'll have?

Dave Pahl  
**Texas Instruments Incorporated - Head of IR & VP**  
Yes, Tore, we've -- the number floats in that area. I'd say that we're taking some capacity off-line with the transition of the 150 millimeter. I think since the last time we gave you that number, we've closed other 150-millimeter...
Rafael R. Lizardi Texas Instruments Incorporated - Senior VP of Finance & Operations, CFO and CAO

Yes. So it's probably around that $20 billion overall -- $18 billion overall. So we'll be in the low 20s with the addition of the capacity.

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

Just before...

Operator

Our next question comes from Chris Danely with Citi.

Christopher Brett Danely Citigroup Inc, Research Division - MD

So longer-term question on Embedded. Rafael, in response to an earlier question, you said, "Hey, give us a little more time or look at the longer-term picture on Embedded." So if you look at the last two years of results for '18 and '19, it's still substantially undergrown both TI and the overall market. So I mean, should we expect, should investors expect the performance there to bounce back? And if it doesn't bounce back, why wouldn't you consider a spin? Because I remember when you guys spun out sensor and control, that was because, hey, the returns weren't as good, and the margins weren't as good and the growth wasn't as good. And I think Embedded is still roughly 10 points below your sort of corporate average margin. So I guess, what should investors -- what should we expect longer term from the Embedded side? And if it doesn't work out for another year, why not, like, consider spending it?

Dave Pahl Texas Instruments Incorporated - Head of IR & VP

Yes, let me -- I'll take the first part of the question. And just when we look at that business longer term, it has the attributes that we like in diversity. We're continuing to invest for that business to grow. And the first step with getting that business performing like we would like it, is getting the revenue to stabilize. And as we mentioned earlier, what we saw in that business, comms equipment overall at the company level, so on Analog and Embedded sides, has not found stabilization. But all the other markets through -- across Embedded, just like in Analog and at the company level, have -- are showing that signs of stabilization. So that, obviously, is the first step. And we do want that business to be performing above the market long term. Rafael?

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

Yes. I'll just add a few things. First, the key to evaluating, assessing any of our businesses and any component inside of our businesses, is the ability of the business to contribute to the long-term growth of free cash flow per share, okay? So it's not, is it below or above corporate average or margins or different things, it's contributing or can it contribute for -- to the long-term growth of free cash flow per share. And we believe that Embedded can because it has some of the similar characteristics as Analog. And we talked earlier, there was a question on competitive advantages and I mentioned that Embedded contributes with the broad portfolio, the reach of market channels, the diverse and long-lived positions, particularly with the focus there, just like as it's in Analog, is industrial automotive. And those are just great markets for those products to go into. Having said that, we don't have any sacred cows here. So we always evaluate any strategic opportunity on the free cash flow -- long-term growth of free cash flow per share. And there are many ways to skin that cat, right? So if there are other ways to get better returns for the owners of the company, we'll -- we assess that.

Dave Pahl Texas Instruments Incorporated - Head of IR & VP

Do you have a follow-on, Chris?

Christopher Brett Danely Citigroup Inc, Research Division - MD

Yes, just a quick one on the changing distribution strategy. I think you guys mentioned that those additional expenses are already baked into the model. So over the next year, two or three years as the change is done, could we expect or could there be a little bit of positive leverage on the spending side since you've already taken care of all that?
Rafael R. Lizardi  Texas Instruments Incorporated - Senior VP of Finance & Operations, CFO and CAO

That may be, but that would be relatively minor. I think the bigger impact, the bigger benefit of this is once you have a closer direct relationship with your customer, you have one less intermediary in between you and the end customer, which can only bring bad things, right, because that intermediary is not aligned with your interest. So we think we can do just a much better job, particularly with our scale and our size and our competitive advantages. Of course, smaller semiconductor company would not be able to do this. But in our case, we can do this and take advantage of that. And ultimately, serve our customers better, bring them better value on a whole host of factors. So that is what's going to help us. That should lead to us continuing to support our ability to grow our market share and ultimately deliver faster or growth of free cash flow per share.

Dave Pahl  Texas Instruments Incorporated - Head of IR & VP

Yes. And I'd also add that, that spend is strategically, it's strengthening one of the four competitive advantages in this case, the reach of our channels. So that is something that -- investing in and strengthening those competitive advantages is something we expect to do, obviously, for a long time.

So with that, I'd like to wrap up the call. Thank you for attending. I'll turn it over to Rafael to have a few closing remarks.

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

Yes. Thanks, Dave. To finish the call, I want to thank all of you for taking time today to go through our capital management strategy. Let me just emphasize a few points. First, we remain focused on consistent execution of our capital management strategy. Second, our disciplined allocation of R&D is delivering growth from the best products, Analog and Embedded, in the best markets, industrial and automotive. We have great diversity across all sectors within this market. Third, our 300-millimeter analog manufacturing strategy is a unique advantage and will continue to benefit TI for a long time to come, and we remain committed to returning all free cash flow to the owners of the company, Dave?

Dave Pahl  Texas Instruments Incorporated - Head of IR & VP

Okay. So thank you again for joining the call. Just as a reminder, a replay of the call will be available on the website as well as the slides we used today. Have a good day.

Operator

Thank you. Ladies and gentlemen, this concludes today's call. We thank you for your attendance and participation, and you may now disconnect.