

MTS

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Rich Kwas: Good morning. I'm Rich Kwas (ph). I cover the electrical and industrial space here at Wells Fargo Securities and pleased to present MTS Systems. MTS is a manufacturer of test equipment as well as sensors. They just reported their fiscal Q2 results yesterday. Had a very strong quarter and had some recovery, starting to see some recovery in their test business. The Company's focused on various different verticals including automotive, commercial truck, machinery and other industrial applications.

So we have Jeff Graves, Chairman and CEO, with us today, and Brian Ross, who's the newly-minted CFO. And I'm going to turn it over to Dr. Jeff Graves to give a quick overview of the Company and we'll get into Q&A. Jeff?

Jeffrey Graves: Thanks, Rich. And thanks for coming this morning, guys. I'm going to keep this short and very informal so we save time for as much Q&A as possible so I'm just going to give you a very quick overview of the charts. We actually have books that go into a lot more detail on each of our markets that we play in, competitive landscape, things like that, so I would refer you to that. But let me just give you a quick overview of who we are.

So MTS Systems was founded just over 50 years ago, last year was our 50th anniversary, in Minneapolis, Minnesota. And we spun out of another company called Materials Research. And our lot in life was to make testing equipment. So we make testing equipment. We started out making testing equipment for testing new materials. We sell into research and development labs and new product labs. So we started out 50 years ago developing systems to test things like advanced steels, aluminums, and then it evolved into composites. Then we went upstream and started making machines to test components that go into cars, planes and trains, and then we went up another step a few decades ago to test full-scale vehicles. So now we're very volatility integrated, materials, components and full-scale vehicles, and we sell to all the leading OEMs in-- that make cars, planes and trains around the world. So very geographically distributed, especially for a smaller company. Very nice geographic footprint. And all the car manufacturers, aircraft manufacturers, materials and component manufacturers that support those industries we sell testing equipment to.

Last year-- well, along the way, about 35 years ago, we acquired a very small sensor business for use of sensors in our testing machines. Those were sensors to measure the position of the testing equipment as it operated. That business grew in its own right, selling sensors outside. So last year we had now proceeded to acquire a sensor company

called PCB to greatly expand our measurement business, if you will. So now we are a full-fledged test and measurement company.

Again, we make testing equipment and we make sensors that go into the vehicles that are being tested. So these sensors would go onto a car, new car, new plane, new train to measure the vibration, the durability of the vehicle. But they're also sold into the industrial equipment space, so they go into factory equipment for automation. So when you reference to the Internet of Things, everybody points to the cloud and all of the wonderful things they do with the data. We sell sensors to generate the data. So our sensors go onto equipment to generate that data that's used by end-- either the end user or the equipment manufacturer to automate the machine, analyze the machines, understand the health of the machines, control the machines, all of that.

So a lot of synergy between our two operating businesses. We operate a test business and a sensor business. There's a lot of overlap in terms of customer base because, again, our testing equipment is sold into an automotive research lab, for example. They're also buying sensors to go the vehicles they're developing to measure the performance of the vehicle.

So when people talk about test it can mean a lot of different things. For us, for 50 years, testing has meant measuring-- selling a piece of equipment to measure the durability of a material or a full-scale vehicle, okay? So we either-- their machines been-- in simplest terms, they bend the material to measure fatigue strength, which in real life is how things fail, or it could shake an entire vehicle to simulate 200,000 road miles in one month in the laboratory.

So our business-- the most important thing I'll tell you today, our business is fueled by R&D spending around the world. We truly don't care how many cars - except in an extreme case - how many cars are sold around the world. We care about how many new cars are being developed. So when you read about autonomous vehicles, you read about electric vehicles, hybrid electric vehicles, those are all music to our ears because that means more and more new product developments. So R&D spending has climbed very, very consistently over the last several decades; in spite of recessions, the tops and the bottoms in the automotive production cycle, our-- the fuel for our business has continued almost unabated, except at the very, very most severe limits of a recession.

So we get a lot of questions around the automotive cycle and are we concerned. There's more vehicles under development now than there's ever been in the history of our world and we see no end to that.

The other piece that's driving that-- I would tell you there's two other pieces. One is geography. So you've got a lot of new consumers in China and a growing customer base in India that want to buy cars. And again, they may be lower priced automobiles. We don't care. It doesn't matter to us. A car is a car is a car. If it's new and being developed it requires our testing equipment and it requires our sensors to measure the performance of that vehicle. So electrification, hybridization, new geographies are great for us.

Also great for us are regulations. And I tend to be a small government guy by nature, but in this case regulations are very good for our company because, as the safety, emissions, fuel efficiency standards are raised in the world-- so you read about pollution problems in China now, for example. So all of the growing emissions standards that are being applied in China, it's great for us because it means more new cars that are going to be lower-

emitting cars being developed for the Chinese market, for example. So all of those regulations that are wrapped around the world are great for our business.

So regulations, geography, technology changes are really what fuel R&D spending and that fuels our business, okay?

Similarly with factory automation. There's a lot of talk about moving factories around the world and setting up-- reinvestment in the United States, obviously continued growth in China and in India. Those new factories are going to be more and more highly automated not only for up time and reliability of equipment, but for precision and control of the equipment to control the quality and the throughput of the product. So as you read about multi-billion dollar investments in the United States for new factories, there's going to be highly-automated factories requiring record amounts of sensor technology to control that equipment. Those are the types of sensors that we manufacture.

We also have a growing business with the Department of Defense in the United States. It's a new market for us. We've not traditionally been a big seller into the military, but it is a growing market for us with our sensor technology today.

So in broad terms, financially where you can think of us as a roughly \$800 million company, revenue company. We do-- and you can see in the lower right-hand, if you divide that between our business units, about 65% last year would have come from test and about 35% would have come from the sensor business. Those are our two operating units. If you look at our profitability split, in case the EBITDA split, it's much more uniform across the two business units. Sensors is smaller for us but more profitable and faster growing organically.

So with the spending on R&D and investment in factory automation around the world, from an organic growth standpoint the quarter we reported yesterday had 10% organic growth. In addition, we completed a big sensor acquisition last year. But if you take that out-- that was another 30%. If you take that out we grew 10% organically. Those are the kind of growth rates that we would like to see going forward on a compounded annual rate in our sensor business. In our test business probably mid-single digits to upper single digits. We often refer to growing at about twice GDP because that's about what R&D spending grows at, about twice GDP.

So that defines the test business. The sensor business is approaching double-digit growth on a compounded annual basis. Both are nicely profitable, sensors a little more than test. Both are strong cash generating businesses and nicely-- we're largely an engineering company and assembly of products. We don't require a lot of CapEx. So we spend historically about 2% to 3% of sales on CapEx to support our organic growth and we expect that to continue.

That leaves a lot of free cash afterwards. We have a 39-year-- coming up on 40-year history of paying a dividend. We yield today about 2% - 2.5% on the stock. We-- our target's to pay out a quarter of our net income in terms of dividends and with our cash projections that's very comfortable for us.

We took on some leverage last year for the acquisition of the sensor company, PCB, so a priority for us right now is delevering. We've never been a high-levered company and we'd like to see our leverage be down in that 2 - 2.5 times EBITDA range over time and we expect to be there in the next couple of years and then we'll be back in the decision

making more about what to do with the rest of our cash. So historically we've done a lot of share buybacks over time periodically so that would be on the list.

Sensors is also a very fragmented business so eventually there may be other sensor acquisitions to do as well. But I would be wrong in stating we're a highly acquisitive company. We're not. We like organic growth. We have a lot of organic growth ahead of us and it takes very little capital to fuel that growth. Outside of working capital it takes very little CapEx to fuel it so we like that model and that's what our plan to continue would be.

In terms of revenue splits, another important thing for us. About a quarter of our revenue comes out of the US. I'm sorry, about a third comes out of the US. About a quarter comes out of Western Europe in rough math. That leaves about 40%, a little more, that comes out of Asia. Half of that is China today. So China for us is about 20% of our revenue stream. It's a vibrant market in terms of R&D spending. The Chinese government's very aggressive about encouraging domestic Chinese companies to invest in R&D, become a more creative and design-driven country and it's very good for our business. So we export a lot of testing equipment that's built in the great state of Minnesota to China and they're using it in their laboratories.

Similarly with the sensor technology. There's a lot of sensors going into labs over there for measuring new product development. And even the Chinese economy, in spite of a large labor force, care a lot about the precision of manufacturing and making a more precise and more automated manufacturing equipment as well so it's great for our sensor business as well.

So we have a great global customer base. All the leading OEM automotive manufacturers, aircraft manufacturers and all of their key suppliers virtually around the world. It's very much an engineering-rich sale process, engineer to engineer, so we treasure our engineers and we tend to try to hold and retain them and keep them for their entire careers because that's what our customers do. And that relationship is very, very strong, not only on a personal level but because of the technology each OEM uses in their lab is different. It pays great dividends to understand how each company develops their new products and to make testing and sensors that go effectively on those products for demonstration.

So what we said yesterday is we had a great first half of our fiscal year here. 10% organic growth plus the add-on of the sensor acquisition, so we were up over 40% in terms of revenue performance. Strengthening margin performance with volume and with a good management of large, complex custom projects in our test business.

The second half what we've said is, because test is a backlog-driven business, orders were a little light in the second half of 2016 and in early 2017. So the second half of the year we're advertising as being-- for our test business actually probably slightly down in revenue. The sensors business will continue to grow. So kind of a modest second half of the year with relatively flat top-line performance. But as we move into 2018 we have a record opportunity pipeline we're bidding on right now and we're very bullish on our order rates moving forward. We believe in terms of orders for the Company we hit our low point in the second quarter, which is the quarter just ended, and orders will tick up.

What we said yesterday specifically, which is a little rare for us, but we said we expect orders in the third quarter to be up on a sequential quarterly basis 5% and at-- which would be year-over-year growth of about 15% so it's nice year-over-year growth. And

then going into our fourth quarter-- again, our fiscal year ends at the end of September - we would expect moving to double-digit order rates which should replenish our backlog in the test business. So the market responded well to that message. I think people are looking ahead to which companies are going to be growing organically and we're very pleased with our outlook as we move into our fiscal 2018 which starts in October.

So, we're bullish there. We've got some integration work to do with our acquisition last year. That's coming along nicely. We expect some meaningful synergies to come out over the next four to five years, more on the revenue side than the cost side, quite frankly, but both are exciting to us and the customer reception has been terrific.

So with that, Rich, maybe I'd open it up to--

Rich Kwas: Sure.

Jeffrey Graves: Open it up to questions?

Rich Kwas: On the-- on your comments around test orders, and if you go back to the last quarter, which you reported a few weeks prior to yesterday--

Jeffrey Graves: Right.

Rich Kwas: You talked about the auto being-- some projects being pushed and oil and gas being somewhat tepid. Can you just run through what has changed here in the last 60, 90 days around verticals that have improved on the test front?

Jeffrey Graves: Yeah, it's really-- it's fascinating, Rich. So we have-- and Rich asked two different questions there. Let me talk about the energy space for us a little bit first then I'll come back on automotive because it's a subject of a lot of questioning.

The energy space is interesting. We make-- in the test side of our business we make fantastic machines to measure the way in which rocks crush deep underground, okay? And if you ask why is that important, well, when you're fracking or you're drilling for oil in deep underground areas, the way in which the rock cracks depends on how efficiently they can get the oil and gas out. So we make the best machines in the world at simulating those pressure conditions to allow the study of rocks.

When oil gets into this range of \$50 and above, exploration gets a little more exciting and you start seeing reinvestment. So our oil and gas business, it's never a large business for us. You could say it's probably 10% of sales or less. But it's been completely in the doldrums from an exploration standpoint for at least a couple of years and those feel like dog years. It's been a long time. But we see a lot more interest in quoting machines now that oil's back in that \$50 range again. So I view that as kind of a threshold. If we're-- if people envision \$50 and above oil there's going to be more exploration, more fracking going on and we should sell more of that equipment.

We have moved into the energy generation space somewhat from testing, and also from sensors, which is really an exciting business for us. So there was a drag the first half of the year. We have one very large energy generation customer that was really down on their orders, but we expect that to rebound here so we're a little more excited about that coming back in the second half of the year, but predominantly in fiscal 2018.

The automotive industry is fascinating. While everybody's talking about peak automotive production, and the numbers support that, if you look at the change in technology it's unbelievable. You look at the pace at which companies are launching autonomous vehicles or moving toward autonomy in cars, so driver assist systems that are more and more sophisticated; more and more drive-by-wire systems. So the computers are actually controlling the car and the driver is sending an electric signal when he turns the wheel or hits the gas or brake. So that kind of environment requires enormous amounts of testing because the ability of computers to predict the interaction of these computers within a vehicle is very limited. And you want the drive to continue to feel like they're actually driving the car, they're actually turning the wheel like the old-fashioned way and hitting the brakes. So that driver simulation, that driver experience, if you will, is one that's much more the subject of OEMs today than ever before because, in reality, drivers are removed from the road predominantly these days. Electrically isolated and driven more and more by autonomy, but consumers want the driving experience. So that's leading to enormous investments in the future in the human vehicle interaction, if you will, and how the vehicle responds on the road.

So Rich, we see record amounts of money in our pipeline being spent from the automotive industry fueled by-- the new things are autonomy and electrification. So you've got new customers. And you read about the name brand people in the newspaper every day, new guys getting in the car business to make electric vehicles and autonomous vehicles. And you have a regulatory environment that, in spite of all the discussion, is harder than ever for emissions and for fuel efficiency. So the use of electric motors to reduce emissions, the use of more and more sophisticated fuel-burning systems to lower pollution is an incredible need in the world. So we see a record pipeline of opportunities for automotive.

R&D investment. I don't know where car production is going to go. I mean over time it'll climb because we're very excited about geographies like India which are now seeing some really strong growth in terms of investment for the future for their consumers in vehicles of all kinds, three-wheel vehicles, four-wheel vehicles. But the environment is just more and more challenging for our OEM customers around the world. So while the automotive production may have peaked or plateaued-- frankly speaking, I don't even follow that all that closely. Unless there's a tremendous recession it doesn't affect our R&D plans at all.

The projects we're bidding on today were planned two or three years ago and we're seeing renewed interest now and a lot of interest for things that are three and four years out. So we actually quote a 12-month opportunity pipeline and today that's over \$1 billion of stuff that we're going to be bidding on in the next 12 months. In reality, our discussions go out two, three, four years with customers in terms of planned R&D spending and projects. So I would tell you I'm very bullish on automotive and remain so all the way through the supply chain; for example, down to tire manufacturers and things. A great business for us.

Rich Kwass: What other verticals would you call out as incrementally improving here versus the earlier part of the fiscal year?

Jeffrey Graves: So we're seeing-- we're seeing renewed signs of life. This wouldn't surprise you, but we're seeing much more demand for heavy over the road and off-road vehicle consumption for sensors. So things like earthmoving, mining. Mining's coming back a bit. Earthmoving machinery, agriculture machinery that incorporate position sensors for steering. So those are starting to show some signs of life. They're not where they were

three or four years ago, maybe four or five years ago, but they are coming back for the first time in several years, which is really nice to see.

The basic materials industry - steel, aluminum - those industries are seeing reinvestment in plants. So we're selling sensors into those kind of basic materials plants now for the first time in probably three or four years. That's coming back not only in the States but in China and elsewhere as they see-- as they're projecting an uptick in consumption of steel and aluminum for infrastructure and other applications.

Infrastructure for us remains very strong. We make massive machines for testing bridges and roads and other-- buildings. For example, critical infrastructure like hospital buildings or nuclear power plants, things like this that have to withstand seismic activity and unplanned events, tsunamis, other unplanned events that have to maintain their structural integrity. We sell massive machines to test those designs around the world and that's going very well as well. So infrastructure for us is a nice add-on benefit. Again, not a huge business for us but a very nice business for us that we've been in for a long, long time.

Rich Kwas: Great. That's a great overview. On the infrastructure piece, interesting. We have a new administration and there's been a lot of discussion around infrastructure plan. There's been some concern that as it goes longer in terms of a lack of a spending bill or a lack of an investment plan that demand will get pushed out and activity will-- I don't want to say halt, but--

Jeffrey Graves: Right, right.

Rich Kwas: Slow down ahead of whatever is going to come from the new administration. It doesn't sound like you've seen that and so could you just-- if you take a step back, look at--

Jeffrey Graves: Sure.

Rich Kwas: The broader market, what's driving the incremental? What's happening in your business that's driving the growth?

Jeffrey Graves: Well, it's-- that's a great question. So again, because our business is fueled by R&D and-- we care more about bridge designs than old bridges that are in service right now. We care more about new building designs for the future and testing those. So what's changed in the world importantly is people believe that somebody soon is going to spend some money on infrastructure because the bridges are falling down. I flew into LaGuardia yesterday. It's all under construction and it probably will be through generations here. But you look at the aging infrastructure in the United States, somebody's going to spend an awful lot of money regenerating that. We don't care if it's next year or three years from now, or four years from now quite frankly, because the R&D goes on right now. So if they're going to build a new bridge out of some new sophisticated material, they're going to design a new building, people are spending R&D money on that right now. They don't need to know exactly when the demand for replacing bridges is going to happen. So again, because we're pegged to R&D spending our spending happens in advance of a lot of the buildout. And it's-- about to use a pun, but they've already crossed that bridge. They know it's going to happen so they're doing the research and development work right now.

Rich Kwas: So it's the preparation ahead of--

Jeffrey Graves: Correct.

Rich Kwas: When the product is actually--

Jeffrey Graves: Correct.

Rich Kwas: Going to be built and manufactured, etc.

Jeffrey Graves: You got it--

Rich Kwas: Okay. Okay.

Jeffrey Graves: You got it, Rich. Exactly.

Rich Kwas: Okay. And then on the sensor side, I know you've talked about with PCB the opportunity to cross-sell and you're in the midst of integrating that transaction. As you mentioned, it's more of a measurement product versus the position--

Jeffrey Graves: Right.

Rich Kwas: A legacy positioning product. What are the-- could you remind us around the-- you alluded to revenue synergies over a period of time. Is there a target out there that you'd like to achieve over a long period of time on revenue synergies? And then what's the go-to-market strategy with the customers?

Jeffrey Graves: Yep.

Rich Kwas: I assume there's a fair amount of overlap with the customer base but you'll be able to, for lack of a better term, increase your share of wallet with those customers, correct?

Jeffrey Graves: You got it. Two good questions. And Brian, I want to make sure I get the numbers consistent with what we've said. So we've talked about revenue synergies over the next five years of 20 to 25--

Brian Ross: \$20 million to \$28 million.

Jeffrey Graves: \$20 million to \$28 million of revenue synergies that'll come out. And those are primarily driven, Rich, between synergies between our sensors and test business, okay? And that means selling sensors into test labs that PCB was just too small to reach before. So for example, in China and elsewhere. And cost synergies, Brian--

Brian Ross: \$5 million to \$10 million.

Jeffrey Graves: \$5 million to \$10 million?

Brian Ross: Yeah.

Jeffrey Graves: In cost synergies. So on the cost side the origin of the synergies is, when we put these businesses together last year we clearly had one extra manufacturing plant than we needed so we could immediately move into shutdown mode. We chose to shut a plant that we have in Japan and bring that production back-- largely back to the United States. So that's well underway. That'll be completed this year and we'll realize those cost synergies next year.

We're also able now, because PCB has a very large machining capability, to insource some of our more complex testing componentry that goes into our machines. So we're doing some insourcing of manufacturing for machining, cable manufacture, supply chain work in general that we'll realize those cost synergies over the next four to five years. So very modest in 2017, in fiscal 2017 here, but they should be ramping up nicely and in that three- to five-year kind of timeframe.

Rich Kwas: Okay. Is that-- they got to be more balanced across-- I would imagine the cost synergies are probably going to be sooner than later in terms of the ability to achieve--

Jeffrey Graves: Yeah. It's--

Rich Kwas: Versus the revenue synergies, correct?

Jeffrey Graves: Yes, exactly. So like this plant closure. We'll feel that effect next year. The insourcing of machining is a little bit frustratingly slow because there's a lot of first article inspection and things-- practical things you have to get through. We had to expand their capacity a little bit. But large, sophisticated machine shops in the US these days are fairly rare. We have a great asset in PCB. So we've invested the capital this year to buildout some extra machinery there and we'll be doing a lot of that insourcing beginning next year and beyond. So I'm excited about that.

What really excites me though, Rich, is when I go to our customers. Every-- and I'm on the road a lot with our customers. So I'm in every major automotive manufacturer's development labs every year. I'm in every aircraft manufacturer's development labs around the year-- throughout the year. When I walk into any of them they say while we've been buying any of the major ones in the Western World, they say while we've been buying PCB sensors for decades, we've been buying MTS test equipment for decades. I love you guys. Now I have an opportunity to optimize both. And we have a growing service business on equipment that we can now leverage into our sensor space.

So for our Western customers they've had the experience of both companies for some time and say, well, now I can grow with you even faster. If I take that model and then say, okay, in China, where we're penetrating for example the Chinese automotive OEMs largely for the first time in the last few years in a big way, we're introducing them to PCB sensors along the way. So now they're testing more and more sophisticated vehicles that are of Chinese design and they can use PCB sensors from the very first.

So we're not trying to display current incumbents there. We're introducing them for the first time and it can grow. A lot of the revenue synergies comes out of the hard work we've done in China from the test business and I'm really excited. Our customers absolutely get this acquisition. When you walk in they say I understand this one. This works really well because you have two leading technology companies that are focused on customer service coming together and that provide them products that are essential to demonstrating vehicles.

All an engineer cares-- well, I shouldn't say all, but I always think through how does somebody get fired, right? If you're a test engineer, a development engineer in an automotive company or an aircraft company, the first way you get fired is for your test to fail, right? If you're the guy running the test your objective is to get the data. Because often-- that guy didn't design the airplane, he didn't design the car, but he designed the test. So the testing equipment has to work and the sensors have to work on that test. So

they want first and foremost the demonstrated technology and quality of MTS and PCB to come together to fulfill that test, because these will often run seven days a week for a whole month in a row to simulate 200,000 road miles, for example, in a car. If you fail that test because the machine breaks or the sensors let go on day 29, the test is invalid and that guy loses his job. So what we tell the engineers is you can sleep well at night with our machines, with our sensors. They will never fail you. They will never fail you, okay?

Yes.

Unidentified Audience Member: (Inaudible) for testing and sensor side. And while you're doing it, I think maybe touch on the barriers to entry in your business.

Jeffrey Graves: Yeah.

Unidentified Audience Member: And then second, let me just throw that out there.

Jeffrey Graves: Sure.

Unidentified Audience Member: How much of each one of your businesses would you categorize as consumables?

Jeffrey Graves: Yep. A great question. So the simple-- and I love simple business models. The simple barrier to entry in our business is profound and it is the understanding of the customer laboratory. Because the way each company designs a car is different. The way each aircraft company-- if you look at Boeing and Airbus, the way they design aircraft, the philosophy, the aggressiveness, the technology utilization, completely different cultures and companies. So the biggest competitive asset we have against people are the engineers we employ. And many of our many of our engineers are employed for three or four decades we have the same engineers. As do our customers. They don't get rid of these guys. So we hang onto these engineers because that, at the end of the day, is why we don't get new entrants in this marketplace.

What we compete with are smaller regional companies that will focus on Japan or focus on Germany or focus on a certain part of the United States and try to do a really great job servicing one customer or two customers. More and more these OEMs are very global and they want to standardize their equipment globally so that they can analyze the data from Germany that's being generated in China, for example, if you are a German automotive manufacturer. Same with an American company. They want to analyze it from Detroit. So standardizing the equipment, the trust that comes from doing business with these guys for 50 or-- it's our number one competitive advantage.

Right behind that is software. We do all of our own software development to control the machinery and it's absolutely essential. On the sensor side of the business we're highly vertically integrated. And there are some key art to manufacturing a sensor, which is trade secret kind of things that we've been working at for 50 years from a PCB standpoint. So it's-- we value that IP very much. We protect it very much. In the test world we take fixed-price contracts in order to never give away our IP. So the IP for machinery, that's our deal. We will quote a new machine that's never been built before, we'll quote that to a customer. We'll take the risk on the cost side, but we own all of the IP so we can then turn around and make that a standard product across the industry.

In terms of competitiveness I would refer you to the investor book. Each market has its own distinct competitors. We're one of the few guys that cover multiple markets and we list them explicitly in the back of our investor deck. So it would take me forever to go through the whole list, but you can see them very clearly there. Many of them are small-- either private companies or they're embedded in a much larger organization somewhere. Very few standalone competitors.

Yeah.

Unidentified Audience Member: (Inaudible) who owns the data?

Jeffrey Graves: The customer does, our customer does. We don't own the data. And that's part of our deal is, look, we-- now, what we've offered to customers is we will take data on the health of our equipment and we will offer to maintain that for you, okay? So just like your car now when you buy a car. It broadcasts-- whether you know it or not it broadcasts the health data back to the dealership. So I got a note two weeks ago my car needs an oil change, a standard oil change. They sent me a note and said your car just told us it's ready to come in. I drive in and it has my name up on the sign because the sensors told them I was there. We offer that to customers for testing equipment, that we will monitor the machines for you and we'll take care of them. More and more customers are taking us up on that. That's how our services is growing in double-digits right now. But from-- for testing their new products customers are extremely sensitive to that data. They own it, they take it and they use it. So we just try to make it easier for them to get the data. That's our mission. Do a test faster, do it more reliably, do it more predictably than anybody else and get you the data you need to design your car or your airplane.

Yeah. Let me-- I'll tell you what. He's got the mic so let me hit that and then we'll come right back to you.

Unidentified Audience Member: Thanks. Just piggybacking off his question on consumables--

Jeffrey Graves: Yeah, I missed that one. I'm sorry.

Unidentified Audience Member: Yeah. No problem. So I guess what is the catalyst for a sale of a new testing equipment? Is an OE adding new capacity? Is it a new platform, or can they cap it-- like in a more capital-light way repurpose existing equipment for a new platform?

Jeffrey Graves: Yeah. So it's a little of both. If the wheel base of the car stays largely the same they can often tune and tweak the equipment they have, but what gets old is the software and controls. So these often-- eventually run on a PC of some type. So Microsoft's our best friend because they keep outdating the Windows programs. So when a customer has to go to a new Windows generation they'll often need to upgrade our software to run on those machines. But providing new upgraded software not only because of the Microsoft platform gets out of date, but because the precision that you can get off a new set of software, the integration with other tools, that's a good service for us to offer for upgrading. So customers like to upgrade old equipment if they can. Obviously, it's a little less expensive for them and we're turning that into a good service revenue stream.

But often, these new tests that are being done on cars, I would tell you probably 20% of the testing equipment we sold last year was novel, first of a kind. And some quarters, if you invest enough, some quarters we're going to take some cost hits for those because we will have underestimated the pain of getting a new machine to market. It hit us last year in the second quarter. We had a couple of machines we were finishing for an automotive

OEM that were just fantastic pieces of machinery and they cost more than we had planned so our margins took a hit. Now in return I would tell you today we're out selling that, those-- we learned from that and we're out selling those pieces of machinery to other people because, again, we own the IP out of those. But that's the risk you take with us. We are managing that process much better right now than we ever have in our history, being sure we fully assess our risks and we understand, because these are fixed-price contracts.

The consumable question is very interesting. Very little in our test machine wears out. So for our service business, which is approaching \$100 million now on testing equipment, we are selling spare parts and software upgrades and very routine maintenance. There's very little consumable there. But in the sensor space, sensors do eventually wear out and need to be replaced. And it's-- you can think of it a little bit more as a consumable. Now consumable means they can last a few years, but eventually you-- they do need to be replaced. They also need to be calibrated routinely, which we offer a calibration service.

Unidentified Audience Member: And on the regulatory side is there any(inaudible)?

Jeffrey Graves: We're really excited about the tire world these days. People don't think about tires very much. But the tires determine the safety and performance of your car as much as anything else does. And the standards that were adopted in the United States-- if you remember back years and years ago the Ford Explorer issue with the turn-- the SUV turning over, that was attributed to tires back then and that led to a lot of upgrading of standards or establishment of standards in the United States for tire manufacturing. We were first to market with machines that were used to do those measurements and we ran the filed on it and it was great. It was a great business for us; still is. Those kind of regulations are spreading not only to Western Europe now, but to China and India. India, for example, we're probably most excited about right now for tires. Because if you've ever been to India and you've ever driven on Indian roads they are a challenge for a tire manufacturer. So how do you actually say you're going to have a high-quality tire in India? You have to do a lot of testing. So we're really excited. So in general, regulations are great for our business and they never go backwards. They virtually never go backwards.

Rich Kwas: Okay. We have to end it there. Thanks so much, Dr. Graves.

Jeffrey Graves: We missed your question, didn't we--

Rich Kwas: Appreciate the time.

Jeffrey Graves: So I'll be happy to catch you.

Rich Kwas: Great. Thanks, Jeff.

Jeffrey Graves: Thanks so much. I appreciate it.

Rich Kwas: Appreciate it, definitely. Thanks.