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Paul Castro: My name is Paul Castro. I cover alternative energy, applied emerging technologies at J.P. Morgan. I said in an earlier session, I've had good fortune to be in a space that's converging with the auto industry. Ryan Brinkman and his team have been good enough to invite us in this year that we'll perhaps be a member of his team by this time next year given the way the technologies are converging.

Anyway we recently initiated on a company called MTS Systems, ticker MTSC, market capitalization 800 million. Our price target is $54. It's currently trading around about $47.70.

It's my pleasure to have here today with us Dr. Jeff Graves who is the President and CEO of the company and Jeff Oldenkamp who's the CFO.

Welcome gentlemen all the way from Minneapolis region, over to you, Jeff.

Jeff: Thanks, Paul. Thank you all for coming this afternoon at the end of what I'm sure has been an exciting day. It's interesting just catching hallway conversation and some of the other presentations that have been broadcast about the rapid evolution of technology in the automotive industry.

Our business is test and measurement. The question we are most often posed is how do you prove that a technology works? How do you test for it? How do you prove it? How do you guarantee it? How do you stand behind that technology if you are an OEM? That's really our business. That's been our business for 50 years. It's one we enjoy and we are investing in heavily for growth.

What I'm going to do is start describing MTS as the full company, and then I'll drill down into the two business units both test and measurement that we operate in. We've been around as I mentioned for 50 years.

We were founded in Minneapolis, Minnesota by two researchers that were on a quest to test materials and they couldn't find a machine to do the testing, so they invented one. It worked so well they started selling them. Then they broke off from their parent company and founded MTS to design and sell testing systems.

That's the business we've been in for 50 years this year. We are very proud of it. We've developed very deep customer relationships around the world with OEMs, research labs, universities where we sell them services equipment today. We've expanded over time and to the measurement space as well, which for us mean censor technology.

If you look at the company today, as Paul mentioned, we are closing in on $800 million in revenue. The lower two rings on the right hand side breaks that revenue, and then EBITDA by business unit.

Two-thirds of revenue is derived still today from our testing business. I'll tell you what that means in a few moments. A third is derived from our sensor business. If you look at EBITDA generation, sensors is a very strong business from a profitability and cash flow standpoint. While revenue is split two-thirds one-third toward test, EBITDA is evenly split between the two business units. They're highly complementary and both have very nice organic growth projections.

Our mission is very simple. We set out to be the test and measurement leader across a variety of end markets including automotive, aerospace, and other markets. Our mission is very simple. We try to provide sensors to our customers to make their equipment run better, safer, more precise, more reliably. We provide testing equipment in order to get it to market faster. We service our customer both on the product and the enablement, if you will, of getting the product development done quickly.

The primary advantages that MTS brings to market -- and we have worked on these hard for 50 years, we believe we're the leader in them -- is first and foremost the criticality of our technology. We sell into the test and measurement space. These are components that are often on the critical path of either getting a product to market or its performance in the field. Our product can't fail.

We are paid more the more precise, more reliable that our equipment becomes. The better the product performs, the faster it moves to market. That's how we generate our revenue and our profit margins. We set out to be the technology leader on this critical path for our customers.

We have an outstanding customer base. I could name the who's who in automotive, aerospace, energy, and other businesses. Automotive is a big component of ours, also aerospace, infrastructure, and research labs around the world. We've worked very hard at diversifying across

our customer base for 50 years. We have an outstanding global footprint that I'll touch on in a few moments.

We have a large installed equipment base. We have about four and a half billion dollars of equipment installed in the field today. We're moving rapidly into the servicing of that equipment to keep it running for customers. There's ever increasing demands for new product testing. We're working hard on servicing that. It's a big growth initiative for us.

Finally our sensor products. We've recently made a large acquisition in the sensor space with a company called PCB that brings us a much broader sensor portfolio that we sell into both the industrial and the test market space.

If you look at our footprint for a smaller company, we have an outstanding global footprint from a sales and service standpoint, from a customer base standpoint. This map shows the revenue split around the world for us today. About 37 percent of the revenue on a trailing 12-month basis comes out of the Americas, primarily North America. Europe is about 25 percent, and you'll notice Asia is 38 percent today of our revenue that the company generates.

Of that, China is 20 percent of the 38. China is a rapidly growing market. If you think about the nature of our business, we sell products into product development labs, that's our testing equipment, and our sensors to run tests. We provide sensors to emerging new products in the field. China is becoming a very large land of development and sales to consumer. We see a rapidly growing presence in China.

In terms of market sectors, I'll start off with an overview and then I'll drill down each one of our businesses. Again, you can think of our company in two business segments, one is tests and one is sensors. In the test space, we serve as ground vehicles, which includes not only cars, but buses, trucks, anything that rolls on the ground, high speed rail. We service all of the OEMs in those markets around the world.

The German automakers, the American automakers, the Japanese, the Koreans, the emerging Chinese automakers and now the emerging Indian automakers as well. We sell them test equipment in order to test the durability and performance of their new vehicles.

All of the new technology here coming into the automotive space, it all has to be tested and proven before it hits the road. Our equipment is what enables that from a durability and performance standpoint.

On the sensor segment, our mission historically was to provide position sensors, which were

essential to the precision of industrial equipment and hydraulic systems that guide large earth moving, mining, lifting machines around the world.

Through our acquisition of PCB, that's now expanded. Now, we provide acceleration measurement, vibration measurement, pressure measurement in addition to position measurement that go on to new products that are either under test or in the field today.

Now, let me spend some time on our testing business, and then I'll shift gears later to go to our sensor business. From a test standpoint, in demand has been relatively strong in the last several years.

Remember, our revenue stream is driven by our OEM customers and laboratory's investment in new products. The more auto companies, aircraft companies, infrastructure companies are spending on new product development, that money becomes our revenue stream for providing testing equipment and services around that equipment. Demand has been growing quite nicely in the world, and it remains really at near-record levels for us.

We advertise a pipeline of opportunity over the next 12 months. Our business is roughly half a billion dollar business. We have a billion dollars of opportunity in the next 12 months that we're chasing in terms of orders and revenue.

We feel very good about that demand. The demand profile for us is again driven by new product investment. It's much less volatile than investments being made to produce automobiles or produce buses and trucks.

R&D spending is an attribute of the OEM base that they try to maintain because it's long-term focused. For us, it provides a lot more stability and visibility in the outlook for business.

Our orders and backlog have been growing through the last couple of years. We are relatively long cycle business in terms of how long it takes to turn an order into revenue and earnings for our company.

This rise in orders that you see over the '14 to '15 period -- and remember, there was a currency effect in '15, which was about another six percent. These are actual numbers, not currency corrected numbers. It's translating now into revenue growth in '16 for us. We had a very strong quarterly announced yesterday in terms of growth for our test business. It was over 20 percent growth year over year in terms of revenue driven out of backlog because of orders that we took over the last year to year-and-a-half. Again, fairly long cycle time of getting through design and build of our testing machines.

EBITDA generation runs in the mid teams and we have a lot of productivity opportunities in order to drive that higher. If I take it down a level in terms of what markets we serve, about 45 percent of the revenue we generate in our testing business comes out of ground vehicles. That includes cars, trucks, buses, high speed rail. about 80 percent of it is related to automotive industry.

Again, it is new product driven. It's not how much they're spending on current production of cars, it's how much they're spending on R&D and for development of next generation automobiles. Again, it brings stability and some growth to our business that's very exciting right now.

We have about a 27-percent market share, by our estimates, in a market that's about a billion dollars, for ground vehicles. Again, that's equipment related to testing durability and performance of cars, trucks and buses.

Will a car last 200,000 miles on the road or not, from a durability standpoint? Will it provide the aerodynamic effects that the designers intended in order to get the fuel efficiency and emissions requirements that automobiles have today? That's what our equipment tests for.

We provide the machine to do the test. We provide the software and controls around that machine and the data collection system off the new product test.

Another segment that's very exciting for us is materials testing. If you think of the trend in cars and airplanes, they're moving from traditional steels to very specialized aluminum alloys and now onto carbon fiber reinforced composite materials for lightweighting those vehicles and also for enhancing the strength and durability, vibration resistance, those types of attributes.

It drives fuel efficiency, it drives emissions, and it leads to higher durability and performance in the vehicle itself.

Those materials require a great deal of testing. For a designer to design a car or an airplane, they have to collect a lot of data around how the material behaves. In the older days, it was a metal alloy and you basically take the data and you designed a car or multiple cars, multiple trucks, buses.

Today, it's increasingly carbon fiber reinforced composite materials. Every time you change the number of layers, the orientation of the fiber, all that, the material becomes a new material and requires testing. That's why we see a nice growth trajectory now in our materials testing equipment business, and again, the services around that.

From another market standpoint, if you look at our structures market, what we define as structures. That's all inclusive of aerospace, so it's literally the testing of airplanes, components that go into airplanes like landing gear and other components that go inside the aircraft, and also the supporting applied materials for the airplane.

It includes the testing of large buildings and bridges for earthquake resistance, for resistance to seismic effects, resistance to tsunami waves that would wash in shore and destroy buildings and bridges. We sell these massive machines that will test the resistance of that structure to damage from those kind of events. This serves the energy market.

For us, exploration is not a big component of our business, but we do testing machines for wind turbines and oil and gas transmission around the country, so large pipe testing, large blade testing for wind turbines or entire wind turbine testing.

These are massive machines that, again, will cycle an engine or cycle a bridge or building through its entire design life in a matter of weeks or months and test the durability of that structure.

An increasingly exciting part of our business is servicing our install base. As I mentioned, we've been around for 50 years. We have installed and running today about just over $4.5 billion worth of equipment.

Bear in mind, we sold 6 billion in our 50 year history, 4.5 billion is still running today, and our customers spend a billion dollars a year keeping those machines running. They generally run 24/7, about 50 weeks out of the year. They take it down for two weeks for maintenance.

Those machines have to keep running. If they stop in the middle of a test, generally the test is failed, so they have to restart the entire test and remake the prototype car or plane for the testing itself.

Our customers generally will pay for reliability and technology for the testing system to collect a lot of data and do it on a very reliable basis.

To keep that equipment running, we're increasing the launching services around the equipment in our laboratories around the world of our customers. We go in, we offer to provide spare parts, software upgrades, routine maintenance to keep the machines running and make sure they run at the beginning and the end of the test.

That part of our business is growing, it's about 15 percent of our test business today, and it's

growing at strong double digit rates. In the quarter we just announced, we were up about 27 percent in terms of orders year over year on revenue growth of about 20 percent.

Exciting growth in this part of the business, because again, these tests have to be run, customers increasingly want the data from their complex new products.

That's our test business. Again, it's about two-thirds of our revenue today. The other third of our revenue is from sensors.

Those sensors are relatively high ASP sensors. We don't make high volume sensors and sell for dollars apiece. We make relatively low volume, high value added sensors that we sell for thousands of dollars apiece.

These sensors measure vibration, acceleration, pressure, stress loads and position of either a test that's being run on a new product, or they're embedded in the new product itself as it goes to the field. OK?

The acquisition that we did, the PCB, brings sensors that go into our testing environments and test new products, and also onto vehicles when they're in the field for better operation.

The sensor business, from an industrial standpoint, has been relatively flat the last few years. Obviously, there's a proliferation of sensors around the world. The sensors that go into machinery for factories has been relatively sluggish.

We've basically had softness in volume demand, we've been winning designs, so basically offsetting, so it's been relatively flat for the industrial space. Again, those are sensors that go into industrial machinery for production.

In terms of testing, those are sensors that go on the new car or on the new airplane for testing. We've had some nice growth, and through our PCB acquisition, that'll be growing very nicely for the company going forward.

We have broad exposure across tests and industrial applications through our sensor business. As you'll notice on the bottom right, it is a very profitable business. This generates EBITDA margins of 20 to 25 percent. Nicely cash generating.

Both of our businesses, by nature, are low CapEx businesses. We generally spend 3 to 4 percent of sales on capital, because we're basically a design and assembly organization, so very little capital is involved. Most of that operating cash turns into free cash flow that we can use for

whatever purposes we'd like, to return to shareholders directly or for doing further acquisitions.

Breaking the sensor business down into its components, about 35 percent of the sensors are related to measuring position of objects.

Most of this is industrial machinery. So, if you think of how products are made, robotics, other moving industrial machines, to make them intelligent you have to know where the arm of the machine is moving, where the body is swiveling to, all of that's position measurement. We sell sensors into that space and have for over 30 years.

It's inherently growing nicely in terms of penetration. Unfortunately, with GDP where it's at, the volume growth has been relatively low, so it's about offset. It's been relatively flat the last couple of years. But the growth in smart machines is really what fuels this business.

Sensors that go into the testing environment have been doing quite well, and is driven by the same thing that drives our test business itself.

The amount of money our customers are spending on new product development has continued to go up every year, so the number or sensors they consume for conducting tests, either in our machines in the laboratory or even in the field during flight testing or auto testing on the road, those sensors have been growing quite nicely. Again, a very profitable business for us and a high proliferation.

Because when you think of new technologies, for example, in automotive, many of you have an automotive interest, when you think of the new disruptive technologies that are coming into this space through autonomy and through the rising regulatory environment around emissions and fuel consumption, when you think of the proliferation of requirements and the amount of design and testing work that has to go on, it continues to rise rapidly every year. These sensors enable that testing, enable it to be done faster and better than ever before.

Industrial sensors, again, for machinery, monitoring, and also pressure monitoring and combustion chambers of engines. We've shown here a turbine engine where the monitoring of the combustion system is very important, both for performance and for emissions. These sensors have been finding new applications and growing quite nicely over time.

Finally, a component of our business that we're excited about, but it's really in its infancy, is selling systems for calibration of sensors in the field, for noise measurements, some of our vibration sensors can be used for measuring noise basically, turned into microphones and for measuring noise.

Noise regulations around airports, for example, around highways, are going up quite rapidly, so the measurement of those noise levels have become very important. It's a nice incubator business that has great potential for growth in the future.

As I mentioned several times, what fuels our business inherently across the test and measurement space is R&D spending, new product spending by OEMs and the suppliers to those OEMs around the world, and in research labs around the world.

If you go back, the bottom plot is what I'll point your eyes to. From 2005 to 2015, if you just look at the overall R&D spending across our various markets, it's risen by over 70 percent in that 10 year period. I would challenge you to find the recession in that plot from a distance.

What that really means is, in spite of the ebbs and flows of current consumption and current production, R&D spending remains very consistent and on an upward trend. It's driven by the things that you see every day in the newspaper. Emissions, fuel efficiency, autonomy in vehicles, the intelligence of manufacturing in vehicular systems, all of that's driving R&D spending up.

It's true in automotive and it's true in aerospace and all related industrial fields. It's very good for our business. That's what fuels our business -- R&D spend, new product spend.

Sensors, we see it all around us in all of the equipment that's emerging around us that's becoming smart, the processing of the data is becoming a challenge, it's moving to the cloud. Our sensors enable that data to be transmitted to a user in some form.

We put sensors on vehicles for vibration, for acceleration, for pressure measurement. All of that collects the data. It's like the nerves in your fingers. It collects that data and sends it to a brain that the customer picks somewhere for processing.

We enable that, those smart machines by collecting the data from that, be it in a test environment or in applications in the field. Those markets, we believe, are growing at over 10 percent a year.

Why are we excited about the future? The acquisition we just completed, while we added some debt to our balance sheet, is very exciting.

This company called PCB we acquired, they make vibration acceleration pressure measurement sensors that complement our industrial sensors from the past, and complement our test business going forward. They're used both in the laboratory and in industrial equipment worldwide.

They're a very high end manufacturer, a US based manufacturer headquartered out of Buffalo. They'll be integrating our $100 million business into their roughly $200 million business, and operating it going forward. A lovely acquisition for us, it brings a great deal of synergy both on the cost and revenue growth side.

We believe that our markets are growing at about twice GDP if you look at it. That's because the proliferation of smart machines.

While GDP is not exciting today, if you say it's 2 percent in the world today, that means a 4 percent kind of growth number. But we believe that it's growing about twice GDP and as GDP picks up, obviously, that multiplier continues to have effect. With our leading technology and customer presence, we believe our share of that business is going to continue to grow.

Services, servicing our equipment is critically important to our customers. Increasingly, they really don't want to do it themselves. They would like to source it somewhere. Their preference is to source it to the person that designed it and built it in the first place, which is us, in the laboratory setting.

That's the thrust of our work and services. We, again, have a very large installed base. Customers are spending about a billion dollars a year on servicing our equipment in the field. We'd like to capture that work for ourselves and relieve our customers of that. They're very happy to see that whole trend.

We're investing heavily in this. We are certain of its growth, because of the demand on using the capacity that's installed by our customers continues to rise.

The regulatory environment. Many people are frustrated by the size of government and the regulatory environment. For our company, it's actually quite a driver of growth.

When you think about raising standards in the world for pollution, in other words, emission reduction, or you think about raising fuel consumption standards, so you burn less fuel when a vehicle drives. Those all require new testing rounds, so they're new vehicles that are generated, they require more testing and that's really what fuels our business.

From a financial standpoint, there's not many companies in the world today that talk about exciting growth, unless it's a brand new market. In our case, we can legitimately talk about organic growth rates of 6 to 8 percent a year.

As we look at the R&D spending trends in the world today, we look at where GDP levels are at

today, we say, for a GDP that's about 2 percent, we're going to grow, our markets are going to grow about 4 percent.

In terms of our ability to capture share of that market from a technology leadership perspective, we feel very good. While we don't see massive share gains, we see nice incremental share gains over time.

We believe that allows us in this current economic environment to grow 6 to 8 percent a year organically. That's our objective, is to capture that kind of top line growth rate.

It is fueled, in part, by our services, expansion of our customer base, to again, keep our equipment running and the sensor applications to our test business and the synergies from our test business as we integrate PCB going forward.

From a bottom line perspective, we have an improving product mix. We have an increasing presence of sensors which carries a higher margin with it. We have an increasing presence of services within our test business, which brings increasing margin with it.

We have margin expansion potential. We think we will add 3 to 4 points to our bottom line performance over the next few years, both from a mixed perspective and driven by efficiency gains due to volume growth in our facilities and our supply chain -- 3 to 4 percent growth on the bottom line, roughly 7 percent plus growth on the top line as we go forward.

I'll let you look through the projections. We just published new estimates for the end of the year. We'll be putting out FY '17 guidance, which starts in October for us. We'll be putting out that guidance when we announce our year end results. We look forward to an exciting year ahead, both from a profitability, a growth, and a cash performance standpoint.

In terms of our capital allocation priorities, I would tell you three things. Obviously, we have good organic growth potential, so we fund our CapEx as a high priority.

But our CapEx is about 3 to 4 percent of sales, so to support the kind of growth we talked about here that consumes about 3 or 4 percent of sales in terms of capital. That leaves a great deal of cash left over for discretionary purposes.

We want to delever the company. We just did an acquisition, we drove our leverage ratio higher. We want to delever the company over the next few years.

We're also highly committed to our dividends. We yield today about 2.5 percent on the stock. We

want to see that dividend continue. We've paid a dividend now for over 39 years. We're committed to that, so excess cash, we will use for delevering and for continuing our dividend beyond that.

We expect to be down, back down in a 2 times leverage ratio position within the next few years, 2, 2.5 times in the next few years. We feel very good about that. Given our backlog and the outlook we see for our business, we're quite confident in that.

In summary, the reasons that folks should be interested in MTS, we are tied heavily to the product development cycle around the world. If you look at the need for new products, the investment in new products our customers are making, and the changes in the world that we see today, for example, the emergence of China and the emergence of India right on its heels.

China is determined to have a domestic automotive industry, which means not only assembling cars from companies that have moved over and formed JVs, but having domestic Chinese automotive companies that have their own laboratories, designing cars for the Chinese market, and for export.

Those laboratories will consume MTS equipment. They are today, and it's growing very rapidly. It's over 20 percent of our revenue today in our company in total. We expect that to continue to grow as a percentage.

We also see continuing exciting investment in the Western world, so Western Europe, in the United States, in Japan, in Korea. We see exciting investment there. The investments in laboratories there tend to be toward the convergence of testing and simulation, so computer modeling and testing being integrated and being used in a laboratory.

While China is emerging on the stage as a creative designer of new products, we see the Western world combining simulation and test technology to evolve to reduce their product development cycle times. That's the competitive nature and the dynamics that are setting up in the world today.

You see India in its own right, which we're quite excited about. We've been in India for about 15 years. We see India changing, and being now a developer of products for India and for export into Africa. We're very excited about the Indian automotive industry and the Indian aerospace industry going forward.

We believe all that means exciting organic growth opportunities. We see nice profitability and increasing profitability going forward, particularly driven by our sensors and as they apply to both

the test and industrial space. We see strong operating cash flow turning into strong free cash flow, first to delever the business and then to be used at our discretion going forward.

We believe we're in a nice position in a very uncertain world today.

Thank you very much for your attention. Paul, I think that leaves a few minutes for questions.

Paul: It does. Thanks, Jeff. Just so the people get a little color here, when I went into your facility, I saw some of the biggest bits of metal I've ever seen. How much do these systems cost? I mean, what's the average selling price on them and how many of them are you shipping per annum? If you give us some sense there.

Jeff: We are by definition a low volume high mix producer of equipment. Our testing equipment is engineered and produced to order, so we put very little product on the shelf.

Our products range from standard to highly customized. Two-thirds of it is customized to some extent.

They are, to your point, Paul, very large testing machines. While our average ASP is around $100,000, we often sell equipment, and especially today in this world, for millions or tens of millions of dollars per machine.

These machines would go into an automotive testing laboratory to test full scale cars, or they would go into a wind tunnel to test the aerodynamic performance of a car. They would go into a hangar to test the fatigue resistance of a giant airplane.

Marvelous machines, marvelous technology, extremely precise and extremely reliable. The machines we produce will last 20 to 30 years in operation breaking things.

You think about breaking a car. We can simulate 200,000 road miles on a car in one month of continuous testing in a laboratory. They push the button and say, "I want to see how the next new car does on the roads of Pune, in India." Push a button. They can simulate that road condition on the car. They'll get an answer one month later on how durable that car was. Instead of taking the prototype car, shipping it to Pune, and having somebody drive it around the roads for the next many, many months.

They can do the same test for the roads in New York City. They can do the same test for Shanghai, Berlin. Wherever they want to simulate, they can actually simulate those roads. Massive machines, outstanding engineering, I believe, that allowed designers to get data rapidly

and get products to market faster.

Paul: How do you justify the acquisition at the multiple you paid and then issued shares at a single digit EBITDA multiple?

Jeff: If we look at the long term benefits to the PCB being integrated in the company, we believe it brings outstanding benefits to us from both a growth and profitability standpoint. We see our customers everyday in the test space, who we have very deep decades long relationships with, consuming sensors either manufactured by PCB or in theory manufactured by them. We can help them grow. We help them grow faster, both in the US, in Europe, and in Asia.

We believe that top line growth at those kind of EBITDA margins will generate a lot of profits in cash for our shareholders going forward. Reality is, today, acquisitions that have strong organic growth and strong profitability in cash flow are selling for those kind of multiple. We fully expected that kind of multiple as we went through the process.

It was quite an exhaustive process they went through for selling their business. It brings excellent synergies. It brings long term value to our customer base. We believe it will drive both sensor sales, testing equipment, and services sales around the world going forward.

Paul: Have you mapped out how many kind of synergies that would lower that multiple over a go forward period? Is that multiple that you paid for the business applicable under the MTS roof?

Jeff: In terms of talking about synergies, and people do this a number of different ways obviously, what we've talked about are three to seven million dollars worth of cost saving synergies, cost synergies if you will, over the next few years, and $20 to 30 million dollars in terms of revenue synergies. It's extra revenue that's generated over the next few years through cross selling and new relationships, so we can help PCB establish fundamentally and bundling sensor packages into our industrial space.

Those are the short term effects of PCB. I would tell you culturally they're a Buffalo based company. We're Minneapolis based company. Quite similar in terms of execution and integration. I've lived through this with a number of companies where you had cultural misfits. In this case, we have an excellent cultural match. We inherited a very strong leadership team from PCB. We feel very good about realizing the synergies.

Obviously, if we advertise those three year synergies on a trailing basis, we could work the multiple down. It depends on how you want to really look at it. Truly properties that are this nature of growth and profitability are selling for high multiples today. That's the reality.

Paul: You have a fairly significant amount of custom business going into your pipeline. You've got a massive back-load, so tremendous visibility. You had trouble converting some of those projects recently. It weighed on margins this quarter. You seemed to turn the corner. It's part of my thesis that the legacy test business will now start to exhibit stronger margins. Then you overlay it with the PCB and you'll get margin accretion.

What went wrong? What is going right now? Is it something that investors should be concerned about in the future, as well?

Jeff: Thanks, Paul. It's a very good question. If you go back 18 months or two years ago, we had a large influx of interest from customers in terms of custom testing machinery. You could speculate about why that occurred. A lot of it was automotive driven. I really believe what you read about in terms of disruptive technologies in the automotive space.

About a year and a half to two years ago, it manifested itself in terms of customers coming forward to us and saying, "Look guys. We need machines that have never been produced before. We need to test attributes in vehicles that have never been tested before. But we need you to work with us on a machine that will do that." That is MTS' history. We have a history of customers coming to us for new testing challenges and us being able to produce a machine.

Historically, the percentage we talk about of custom work that we do is about 65 percent of our overall test business. Our custom machinery. It's customized from a little bit to a lot. If you go down one level, the number of first of a kind machines, these massive machines, first of a kind machines, you could count on one hand over the course of a year. We had a fairly massive outpouring of interest for those types of machines about two years ago.

These were customers that we have served for decades, and planned to serve for decades to come. The kind of customers that we value, we want to keep, we want to meet their needs.

Our approach is generally, we take fixed priced contracts. We own the IP out of the machine. We proliferate that IP through machinery that we sell around the world. We'll sell it to the first customer. Then if it works well, we'll replicate that machinery around the world to other OEMs and tier one and tier two suppliers. That's our business model. It's worked well for us for years and years.

About a year and a half or two years ago, we had a large influx of interest, I believe driven in large part by the disruptive nature of these new technologies. We tried to respond to that. It put a real constraint on us in terms of engineering resources, manufacturing resources, and planning

capability. That manifested itself in some inefficiencies in our factories ultimately, which really came to a head in our second quarter of this year. You saw a lot of margin suppression.

Also those custom orders carry a lower margin associated with them. We end up owning the IP out of it. It's almost customer funded R&D activity, if you view it that way. It does carry a lower margin with us. There was a lower margin mix compounded by some complexity in getting a few projects through.

That cleared itself in the second quarter. If we analyze our backlog, those first of a kind machines are well taken care of, have come back down now to historic levels. We see an improvement in our backlog. We see reduced risk in our backlog. Obviously, we see improving turns because of the revenue. You can see that manifested in the revenue we generated last quarter.

Yes. We believe that the worst is certainly behind us from a mixed perspective and the challenge of that. We are left a much stronger company with a bigger engineering base, a larger installed based of equipment, and a better suite of IP that we'll now go out and sell around the world.

Paul: Many thanks to the MTS team for making the trip here. Thanks everyone for participating in this session. Thank you.

Jeff: Thanks guys. Thanks for coming in.

[applause]
