# Tech Center News®

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**MARCH 27, 2017** 



A Duramax employee assembles a diesel engine in Moraine, Ohio.

# **Chevy's New Trucks Use Duramax Tech**

General Motors' new Chevrolet Class 4/5 commercial truck will be powered by a Duramax engine and Allison transmission - a combination that has powered close to two million trucks, said GM spokeswoman Rita Kass-

Chevrolet made the announcement on March 14 at The Work Truck Show 2017 in Farmington Hills. The brand also announced that the truck is on track to launch in 2018. It is being jointly developed by Chevrolet and Nav-

"Our new Chevrolet medium-

duty will be the flagship of our truck portfolio for fleet and commercial customers, and we believe the strength of Duramax/Allison powertrain combination will be able to tackle various jobs - from general contracting to urban delivery to bucket loaders wreckers," John said Schwegman, U.S. director of Commercial Product and Medium Duty for GM Fleet. "To win customers, we're marshalling the best diesel and heavy-duty transmission engineers in the world and offering more choices than any other manufacturer.'

Allison Transmission, based in Indianapolis, is the largest designer, developer, manufacturer and distributor of medium- and heavy-duty fully automatic transmissions, and is a leader in hybrid-propulsion systems, Kass-Shamoun said.

"Their designs have been used in a variety of applications, including refuse, construction, fire, distribution, bus, motorhomes, defense and energy. They have helped drive Chevrolet's trucks since the 1950s," she said.

**CONTINUED ON PAGE 2** 

# Mound Road Proposal Sees New Progress

The executive committee of the Innovate Mound public-private partnership has been named between local governments and business executives.

Commitee members are looking to work together to ensure the success of Innovate Mound.

The Mound infrastructure project calls for the transformation of nine miles of Mound Road into a state-of-the-art corridor, said Macomb County spokesman John Paul Rea.

estimated investment needed for this project is \$217 million, a large portion of which will be sought through federal funding, Rea said. A critical com-

funding is demonstrated stakeholder support.

"The team behind Innovate Mound is a great model for intergovernment and public-private partnership," said County Executive Mark A. Hackel. "The cities of Warren and Sterling Heights, together with Macomb County, are thrilled to have such an impressive list of professionals representing many of the leading companies located along Mound Road."

Having an established relationship with these representatives also allows the project to collect company-specific input on the

ponent of competing for federal design and build of the project, Rea said. For example, engineers from the U.S. Army Detroit Arsenal, home of the TACOM Life Cycle Management Command, will provide input related to current entrance and exit challenges.

"The collaborative shown with Innovate Mound by including the Army in this dialogue ensures we remain relevant to our mission while participating in positive changes here in Warren and Macomb County," said Alan Parks, garrison manager for the Arsenal.

Here is a list of the current

CONTINUED ON PAGE 3



Local businesses and governments want to upgrade Mound Road.

# **AAM's New Quantum Axle Technology** Reduces Weight, Increases Power

A major auto supplier has thrown out the bath water and kept the baby - well, actually, reinvented the baby.

In this case, the "baby" is American Axle & Manufacturing's Quantum system, introduced at a media demonstration at its Detroit headquarters on March

"We realized we had to make our systems lighter and more power dense as vehicles become smaller," said Phil Guys, AAM vice president and chief technology officer.

In response to the needs of its OEM clients, Guys said, AAM developed the Quantum family of packaging, all while reducing sys- several years - technology that tem weight.

"To do this, we threw out the blueprint for axle design and started over.'

Guys said AAM has developed completely new, significantly improved axle technology with its Quantum driveline system.

It is scalable across a wide range of vehicle segments, he said, and provides substantial advantages regardless of vehicle size - reduced mass, increased power density, improved noise vibration and harshness, and efficiency gains in a more compact system package.

AAM CEO Mike Simonte said axles that "yield significant gains the company has been developin efficiency, performance and ing this technology for the past

will shift AAM from a traditional Tier I auto supplier of the past to a tech company of the future.

Guys said after several years of benchmarking non-automotive products, spending countless development hours, running arduous hardware tests and securing more than a dozen patents, AAM engineers redesigned virtually every component of the traditional axle. What resulted is the Quantum family of axles that yield significant gains in efficiency, performance and packaging, all while reducing system weight.

'The numbers are amazing," said Guys. "Quantum's 20 percent

**CONTINUED ON PAGE 6** 



Ana Wagner

# Dow Automotive Manager Values Career Mentoring

by Jim Stickford

Networking and seeking a mentor can be very important factors in moving up in the auto industry, said Ana Wagner, Global Strategic Marketing manager for Dow Automotive in Auburn

Wagner was one of the "Latina Leadership" panelists at the recent Society of Hispanic Professional Engineers conference held last week in Detroit.

A few women from other companies, as well as herself, talked about their experiences and the role Latina women can play in the engineering field, Wagner said. Questions revolved around issues such as how women can progress in the auto industry.

"My answer is that I didn't have a super formal process," Wagner said. "Mentors have played a big role in my career and I tell people that mentors

don't always have to come from rently employed. A mentor doesn't have to be a boss. The mentor can be a colleague who gives you a very different perspective.'

Wagner said networking is also important. That's why she speaks at conferences put on by organizations such as the Society of Hispanic Professional Engineers. It's a way for her to meet others in her field and to net-

Getting to her position at Dow Automotive began in her home country of Colombia, Wagner

"I've always found engineering fascinating," Wagner said. "Industrial engineering in particular. I love the way things are put together. I went to school in Bogata at Xavier University. It's a Jesuit

**CONTINUED ON PAGE 5** 



From left: 2014 Jeep Trailhawk, 2015 Ford Escape, 2016 Jeep Cherokee tested EcoTrac in Upper Peninsula.

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#### Auburn Hills Firm Sells Some New Robot Technology

ABB has sold its first robot manufactured in the United States.

The IRB 2600 robot is the first to be produced at the ABB Auburn Hills facility, and was sold by ABB Value Provider, CIM SYSTEMS, INC. to Hitachi Powdered Metals USA, said ABB spokeswoman Melissa London.

The compact robot, which is painted with special commemorative red, white and blue paint, will be used for material handling of in-process engine component parts at the Hitachi Greensburg, Ind. facility, London said.

It's the 180th ABB robot at the Hitachi plant, which installed its first ABB robot in 2005.

"The sale of ABB's first robot produced in the U.S. to Hitachi is a tremendous milestone in the development of our manufacturing presence in the Americas," said Sami Atiya, president of ABB's Robotics and Motion division.

"It's a major step toward our goal of providing local customers with delivery schedules and technical support that are far superior to other robot manufacturers."

"Hitachi is honored to receive U.S.-manufactured ABB robot," said "James Adams, the Chief Engineer of robots and automation at Hitachi. "It will be prominently positioned on our plant floor to showcase the essential role ABB robots have in our operation, and our passion to keep production in the U.S. "For a company of our size, the volume of robots we have is unprecedented. I truly believe that if we didn't have robots in our facility, we wouldn't be in business today."

London said that in May 2015, ABB announced that it would begin producing robots at its Auburn Hills facility, making it the first of the major industrial robot companies to fully commit to an American manufacturing footprint.

The delivery of the first U.S.manufactured robot is consistent with the production schedule announced at the factory opening, London said.

In addition to the IRB 2600, ABB will begin manufacturing other popular robot models in Auburn Hills later this year, he said.

By 2018, it's planned that 75 percent of all the models delivered to North American endusers will be manufactured in the United States, he said. Previously, ABB robots sold in the Americas were made in Sweden and in China.

"We are proud to be involved in the placement of the first ABB robot manufactured in the United States," said Dave Fox, president of CIM Systems Inc.

"We have already seen a reduction in lead times since the Auburn Hills plant opened, and it has helped us get some business that was directly related to improved delivery turnaround."

# **Chevrolet Duramax Truck Engine Goes Diesel**

CONTINUED FROM PAGE 1

The first Duramax diesel engines were introduced in Chevrolet and GMC trucks in 2001, and they have accumulated more than 100 billion miles of real-world experience, Kass-Shamoun said. Since then, the engines have been continually refined, introducing first-in-class technologies such as aluminum cylinder heads, the quick-start system and the Venturi Jet Drive Oil separator.

Technical specifications for Chevrolet's new medium-duty truck, including cab and frame dimensions, horsepower and torque, Gross Axle Weight Rating (GAWR), Gross Vehicle Weight Rating (GVWR), payload and other ratings, will be released close to launch, Kass-Shamoun said.

Chevrolet's portfolio of dieselpowered vehicles also includes:

- The 2017 Silverado HD offers a newly redesigned Duramax 6.6liter V8 turbo-diesel, the most powerful engine ever installed in a GM pickup truck with 910 lb.-ft. of torque and a class-leading 445 hp.
- The Cruze sedan and hatchback, which offer up to an EPAestimated highway mileage of 52 mpg – the highest highway fuel economy of any non-hybrid/non-EV in North America and an estimated range of up to 702 highway miles.
- The Equinox compact crossover, available this summer, is expected to achieve a GM-estimated 40 mpg on the highway (EPA estimates are not yet available).
- The Colorado mid-size pickup, which is the industry's most fuel-efficient pickup, according to the EPA's fueleconomy.gov website
  - The Express full-size van,

which is available in both passenger and cargo variants, with either the short or long wheel-

• The Low Cab Forward commercial truck, which offers two turbodiesel engines.

A 3.0-liter engine paired with a 6-speed double overdrive transmission is available in 3500HD models.

Larger 4500HD, 4500XD, 5500HD and 6500XD models are available with a 5.2L engine.

Chevrolet announced a return to the medium-duty commercial vehicle segment in June of 2015, with sales of six new Chevrolet-badged trucks to begin in the year 2016.

The vehicles are to be built by Japan-based Isuzu Motors. Chevrolet dealers will offer the

Chevrolet 3500, 3500HD, 4500, 4500HD, 5500, and 5500HD models, all based on the Isuzu N-Series. Each truck will be offered only in regular-cab and crew-cab body styles.

In a statement made in 2015, Ed Peper, U.S. vice president of General Motors fleet and commercial sales, said, "Bringing low-cab-forward trucks back to our portfolio strengthens Chevrolet's commitment to providing commercial customers with more choices and provides customers with a versatile lineup of trucks, vans and crossovers.

"This addition helps our dealers satisfy their commercial customers' needs all in one place."

The trucks will be offered with 6.0-litre V8 gasoline engines with

6-speed automatic transmissions, a powertrain that Isuzu sources through GM and will continue to do so, or Isuzusourced 3.0-litre and 5.2-litre turbo-diesel engines.

The Chevrolets will be the only low-cab-forward trucks on the North American market to offer a gasoline-powered powertrain, Peper said.

Isuzu has truck production facilities in Charlotte, Mich., where the trucks fitted with gasoline engines will be built.

The others will be imported from Isuzu's facility in Fujisawa, Japan.

The trucks will have chassis lengths of 109-212 inches, with body-type compatibility that include refrigerated boxes, stake/flatbed and service bodies.

# Global Supplier Honored for Local Hires

Global Tier I supplier Magna International Inc. was recognized with a Michigan Works! Association Impact Award for its commitment to hiring Michigan talent for its \$56 million assembly plant in Lyon Township, said Oakland County spokesman Steve Huber.

The award was given to Magna International and its wholly owned subsidiary, Cosma Body Assembly of Michigan, by the Michigan Works! Association last month.

"I congratulate Magna on receiving this recognition," Oakland County Executive L. Brooks Patterson said.

"The company has long been an industry leader and remains an important employer and valuable corporate citizen in Oakland County."

Magna, which has its United States headquarters in Troy, has

received more than \$845,000 in Skilled Trade Training Funds from the state since 2014 to train existing and new workers for the Lyon Township and other facilities.

The company partnered with the Oakland County Michigan Works! to recruit employees using social media and shared postings with Pure Michigan Talent Connect and its regional partners including colleges, universities, nonprofit organizations and the Michigan Works! system, Huber said.

"Magna is proud of its partnership with Oakland County Michigan Works! and the entire Michigan Works! system," said Paul Myles, Magna senior manager, government workforce development and training programs. "We are working together to solve some of the most important workforce development

received more than \$845,000 in challenges facing our industry."

Magna engineer Michael Potempa was also honored with an Impact Award, Huber said, as were Oakland County Michigan Works!, the Oakland County Department of Economic Development & Community Affairs and the Michigan Economic Development Corp. for the Lyon Township project.

Oakland County Michigan Works! has eight service centers in the county: Ferndale, Highland, Novi, Oak Park, Pontiac, Southfield, Troy and Waterford, Huber said.

Magna is an automotive supplier that operates on a global level, Huber said. It currently has 317 manufacturing operations around the world, as well as 102 different centers that do things such product development, engineering and sales in 29 different counties.

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TIME: 11:45 a.m. - 12:30 p.m. (lunch included)

LOCATION: Courtyard Downtown Detroit 333 E. Jefferson Ave., Detroit, MI 48226 (Room: Cascade Ballroom D)

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TIME: 4:00 p.m. - 4:45 p.m. (refreshments included)

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**COVERS THE TECH CENTER AND THE IMMEDIATE AREA** 



GPS engineers show off some of the bikes they built or restored last year for kids in the Pontiac area.

# GM Engineers Put Skills to Charitable Use

by Jim Stickford

Some engineers at GM's Global Propulsion Systems (GPS) in Pontiac are getting their hands dirty building bicycles for kids in the greater Pontiac area through the "Bikes for Kids 2017" pro-

"This is the third year we've done this," said Elizabeth Dallacqua, a Design Release engineer at GPS, who organized the event.

'We get volunteers from GPS and they donate their time and their money building and restoring bikes for kids in the area. This is a team building and networking exercise that fosters relationships between GPS engineers and the local Pontiac com-

The way it works, Dallacqua said, is that volunteers donate \$30 to the project and in late April get together and restore and build bicycles.

"We go out and solicit people to donate bicycles," Dallacqua said. "Families who give us their bikes range from people whose kids have grown up to folks who have really good bikes that have been put away in a garage for 20

The engineers get together and restore the bikes so that they are as good as new, Dallacqua said.

"I put together this event beginning two years ago when I was trying to find an event that was local and could use the skills of engineers and give back to the local community.

"I heard about other bike tally by donations of participants. There are no matching funds from the GM Foundation or other groups. It's all us.

"And the engineers like it because they get to get their hands dirty building bikes and they get to use their critical thinking

On Thursday, May 4, the bikes volved should contact me," said will be given out to children who need them.

The kids are affiliated with three organizations - Dream Center of Pontiac, The Baldwin Center of Pontiac and Micah 6.

These groups focus on helping at-risk youths, Dallacqua said. Dream Center has several chapters around Detroit, and the GPS engineers will be building and restoring bikes for the kids affiliated with the group's Pontiac chapter.

Dallacqua said they will use the \$30 participation donations to purchase bike kits from KLM Bike & Fitness in Rochester Hills.

"These guys are great," said Dallacqua. "They will also be lending their expertise in putting the bikes together from the kits we purchase.

"Auto engineers do like to get their hands dirty, but it really helps to have advice from people who are experts in putting bike kits together.'

The bikes will be restored and built at the GPS' gym facility the week before they are given out, Dallacqua said.

The event has become more popular every year, she said. Her records show that in 2015, 31 engineers participated. In 2016, the number was 60. This year, she is hoping to get between 75 and

In 2015, they assembled nine bikes and restored four. In 2016. they built 12 new bikes and restored 20.

This year, Dallacqua said, they builds, but this one is funded to- are aiming to build between 20 and 30 bikes and restore 30, for a grand total of between 60 and 70

> They have managed to get more GPS staff involved in the bike project every year, Dallacqua said.

"This is a good cause and any engineers interested in getting in-

# **Mound Project Progresses**

CONTINUED FROM PAGE 1

- executive committee members: • AM Specialties, Inc. – Ron Klinger;
- BAE Systems, Angela Lommen:
- · Casadei Steel, Inc., Bruno Casadei;
- Chardam Gear Company, Mike Brzoska;
- City of Sterling Heights; City of Warren;
- Conti Corporation, Warren Wintermantel;
- Defense Corridor Center for Collaboration and Synergy, Ron Lamparter;
- Fiat Chrysler, Thomas Lindquist;
- Ford Motor Company, Brad Simmons:
- General Dynamics Land Systems, Gary Whited;
- General Motors, Kenneth L. Kelzer;
- Macomb County;
- Metro Wire & Cable Corp., Nate Tallman;
- Sterling Heights Regional Chamber of Commerce & Industry, Melanie Davis;
- U.S. Army at Detroit Arsenal, Samuel Hillhouse.

Innovate Mound officially kicked off in December 2016, Rea

said. The design considerations tentatively in place for this project include complete roadway surface reconstruction, widening north of 17 Mile Road, landscaping, lighting, signs, driveway controls, additions of non-motorized facilities, 10-foot-wide safety path along the bike trail or corridor, connections to trail network and improvements to transit stops.

This corridor could also be equipped with smart-street technology to include computerized traffic signal systems, real-time traffic speed monitoring, cameras, communications to signals and more, Rea said. This technology would be able to increase emergency management and enhance safety and mobility, he said.



# Motor City Chorale to Sing

The Motor City Chorale, previously known as the GM Chorus, will have a busy spring concert schedule, said group spokeswoman Mary Presti.

"I also want to thank my fellow

GPS engineer Louis Begin. He has

been my right hand for the past

two years. He's the one who co-

ordinates how many bikes we

have and the donations we re-

ceive. He deserves a big shout-

out for helping make this project

Dallacqua.

The chorus will be performing songs such musicals as "Hamilton" and "Wicked," as well as "Cats" and "Rent" and "Fiddler on the Roof."

The first concert of the spring season is scheduled to take place at the First Presbyterian Church of Warren, 3000 East 12 Mile, on Friday, March 31, beginning at 7:30 p.m.

This will be followed by two performances on Sunday, April 2, Presti said. The first concert will be at Erin Presbyterian Church, 30000 Gratiot in Roseville at 3 p.m.

The second performance will be held in St. Margaret of Scotland Catholic Church, 21201 East 13 Mile Road in St. Clair Shores at 7:30 p.m.

The next performance will be held Friday, April 7, at 7:30 p.m. in Northminster Presbyterian Church, 33633 West Big Beaver Road, in Troy.

After that, they'll sing Friday, April 21, at 7 p.m. in Warren's Lincoln High School Auditori-There will be a \$4 admission

for this performance, with all the money going to benefit the Lincoln High School choirs. The final two concerts are set

for Sunday, April 23. The first one starts at 3 p.m. in American Lutheran Church, 38795 Mulberry, in Clinton Township. The final concert of the

Lutheran Church, 2119 Catalpa, in Berkley.

For more information about the concerts and choir, visit motorcitychorale.org.

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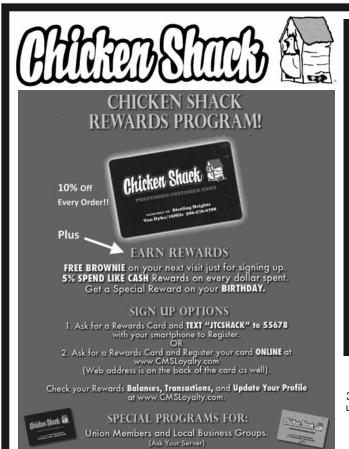
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# Chrysler Has Dog-gone Way For Providing Needed Aid

Fiat Chrysler is going to the dogs. And that's not a bad thing.

Chrysler brand is launching a new online social initiative in partnership with Canine Companions for Independence, the largest nonprofit organization for assistance dogs in the U.S., said Fiat Chrysler spokeswoman Diane Morgan.

The initiative will help raise awareness and support for the training and placement of Canine Companions for Independence assistance dogs under the organization's "Give a Dog a Job" campaign, a fundraising and awareness initiative that helps place them with adults, children and veterans with disabilities.

Consumers first had the chance to meet Canine Companions puppy Foley, a Golden Retriever/Labrador cross (and the Chrysler brand's first official PacifiPuppy!) through various social media outlets on March 13, Morgan said.

They will be able to follow him as he goes through his formal training with his recently assigned puppy raiser. Fans can engage with Foley with the #RaisingFoley and #FoleyFriday hashtags on Facebook, Twitter and In-

Through our partnership with Canine Companions for Independence, the Chrysler brand is able to help bring awareness to its 'Give a Dog a Job' program through our new online social initiative," said Tim Kuniskis, head of Passenger Cars, Dodge, SRT, Chrysler and Fiat - FCA North America.

"As we follow Foley through his journey, fans will get a firsthand look at watching him grow and learn, from puppy training to becoming a fully trained assistance dog, and also gain an understanding of the huge amount of time and resources it takes to train these amazing dogs.'

partnership "Our Chrysler Pacifica, BraunAbility and our 'Give a Dog a Job' campaign brings our mission, the stories of our remarkable graduates and the adventures of Canine Companions puppy Foley to a whole new audience across the country," says Paul Mundell, CEO of Canine Companions for Independence

"We are deeply grateful for the commitment made to us by these two leaders in adapted vehicles. The upfitted Chrysler Pacifica provides greatly enhanced independence for people with disabilities, especially those who utilize wheelchairs.'

Fans will be able to follow Foley (named in honor of actor Scott Foley, an ardent supporter of Canine Companions for Independence) as he starts his path in life to being matched with a person with a disability, includ-

- · Getting acclimated to the puppy raiser's home, including new sights and sounds.
- Grooming, cradling, playing with feet, ignoring food on the ground.
- Celebrating important days like #NationalPuppyDay (March 23), Veterans Day (Nov. 11), and Canine Companions National

Fremont Insurance



Foley and friends will be busy learning new skills to provide help to those who need it.

Graduation Days (May 5, Aug. 4 and Nov. 3).

• Learning early commands, including "shake," tracking his growth (against a growth chart in the new 2017 Chrysler Pacifica minivan).

Adventures to the park and

play dates with other Canine Companions puppies.

· Visits to the vet and vaccina-

# Trump's Auto Proposals Face Difficulties

DEARBORN, Mich. (AP) – Just and longer-range electric and hybecause President Trump may weaken U.S. fuel economy requirements, don't expect gas guzzlers like the giant 13 mpg Hummer H1 to make a comeback.

Executives from automakers and suppliers who gathered at a conference outside of Detroit March 16 said looser fuel economy standards might allow for sales of more trucks in areas where they're popular. But otherwise, the pursuit of fuel-efficiency technologies will proceed unabated.

Trump came to the Detroit area earlier that week to announce that his Environmental Protection Agency will re-examine gas mileage requirements that were affirmed in the Obama administration's last days. Those regulations require the fleet of new cars and trucks to average 36 mpg in real-world driving by 2025, about 10 mpg over the current standard. Environmentalists warned Trump's decision could reverse years of reduced tailpipe emissions.

Executives at the Fuel Economy Detroit conference said the billions of dollars already invested in efficient vehicles makes reversing course impractical. And while the U.S. may relax rules, other countries are toughening them, leaving the industry no choice but to keep researching ways to make gas engines more efficient and develop cheaper

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drogen fuel cell vehicles.

We're all global companies. We have to design our vehicles to be fuel-efficient not only in the U.S., but in Europe and Asia," said John Juriga, director of powertrain at the Hyundai-Kia technical center near Ann Arbor.

Automakers lobbied Trump hard to get the government to reopen a "midterm review" of the standards for 2022-2025. They say the EPA under Obama rushed out the review just seven days before Trump took office, reneging on promises to get industry input. The agency also didn't place enough weight on the pronounced consumer shift to SUVs and trucks, the automakers claim.

The EPA decided the standards are flexible enough to account for the market shift, and that automakers have the technology to meet them. The agency calculated that higher standards would raise vehicle costs by \$875, but that would be offset by \$1,620 in savings at the gas pump.

Given Trump's promises to auto CEOs about easing regulations, it's likely the requirements will be weakened when the new review is finished by April of next year. Here's what that means for new vehicles:

• What will change - Truck and SUV sales likely will keep rising. Auto companies don't expect a major cut in the 36 mpg require-

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ment. But they're hoping for standards that are flexible enough for them to sell more trucks and SUVs without penalties. Those high-profit, bigger vehicles made up over 60 percent of new vehicle sales last year, up from less than 50 percent five years ago.

Lower mileage requirements will let the industry sell more trucks and SUVs in areas like the Southwest, where they are popular. Profits from those sales will help pay for low-margin electric and other efficient cars sold on the West Coast, says Sam Abuelsamid, a senior analyst for the market research firm Navigant. If the standards remain the same and gas prices stay low, the industry contends it would lose money trying to sell efficient cars to people who don't want them.

Like other automakers. Hyundai and Kia have the technology to meet the standards, but the cost has to be weighed against consumer demand, Juriga says.

• What won't change - The push by automakers and parts companies to make more efficient vehicles. Paul Nahra, director of the Advanced Engine Group for parts maker BorgWarner, says his company sells to automakers worldwide including regions with stricter gas mileage standards. "We need to be pushing the right technology that's going to get broad acceptance," he says.

For instance, China, Europe and Japan will all require fleets to average 47 miles per gallon or higher by 2020.

Work continues on downsizing engines, shedding weight and on new engine technology that makes a gas engine perform like a more efficient diesel. "So far, there's no indication there's going to be any backtracking on this stuff," says Abuelsamid.

• The fallout - Proponents of the Obama standards aren't happy. Environmental groups and the states of California and New York took legal action after Trump's announcement and warned that higher pollution could harm children and senior citizens. California Gov. Jerry Brown denounced the move as a "gift to polluters."

Juriga acknowledged some drawbacks if standards are relaxed. He says it's possible that automakers would delay rolling out new fuel-efficient vehicles in some markets if demand is low.

California and more than a dozen other states have the power to set stricter fuel economy standards than the federal government and likely would if Trump rolls back federal standards. This almost certainly will bring a court fight.

Environmental groups say weakening the standards will dirty the air when multiplied by millions of vehicles. "Carbon dioxide stays in the atmosphere for hundreds of years," said Andrew Linhardt, associate director for federal policy for the Sierra Club.





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# Recent Studies Show Just How Much New Technology is Driving Auto Innovations

Connected cars and the Internet of things are driving automakers to invest in digital Modernization, said the CEO of Troybased Syntel, a multinational provider of integrated technology and business services.

Rakesh Khanna, CEO and president of Syntel says tomorrow's smarter, connected auto industry requires investments

The automotive industry is being shaken up by technology advancements, which are impacting the future of the business, Khanna said. A PwC study revealed that electronics systems today contribute to more than 90 percent of innovations and new features in modern vehicles.

Manufacturers are increasingly partnering with non-traditional players, such as software companies, in order to integrate innovative digital technologies into their products.

Research by McKinsey, the global management consulting firm that serves leading businesses, governments, non-governmental organizations, and not-for-profits, asserts that the vehicle of the future will be connected, Khanna said. Manufacturers will not only be able to monitor data in real-time for safety and reliability purposes, but vehicles themselves will communicate with other vehicles and an increasingly smart roadway infrastructure.

The convergence of the Internet of Things (IoT), sophisticated new sensor and telematics systems, Cloud computing networks and Big Data analytics give automakers access to new streams of real-time data from vehicles, which can provide valuable insight into both their products and their consumers, Khanna said.

The continuing shift to more digital cars is being driven by "digital native" customers who expect vehicles to act like smart devices, as well as mandates from the U.S. Department of Transportation, which recently proposed new requirements for vehicle-to-vehicle (V2V) communication by the year 2020.

Khanna said manufacturers are still scratching the surface of the potential for this technology, and the ability to efficiently handle, store and interpret massive amounts of vehicle data is the key to success.

the various 'Throughout stages of a vehicle's life span, from production through to the consumer, there is valuable data," said Khanna. "Traditionally, most enterprises have stored their data in inflexible, isolated or 'siloed' systems that are a big hassle to maintain and make it hard to collaborate and analyze this valuable information to improve product and business performance.

"Just pouring loads of new data into old storage systems is a recipe for disaster, as old database technology is unable to perform the type of analytics needed to provide the really valuable insight that creates advantage."

Khanna said manufacturers need to convert and migrate their legacy data to modern platforms, where it can be unified and integrated with new data for analysis.

By leveraging tools provided companies like Syntel, Khanna said manufacturers will be able to quickly move from outdated mainframe data storage to more efficient, scalable Big Data systems, which has the potential to improve performance while reducing mainte-nance and support costs by as much as 30 percent.

The results, according to Khanna, are higher quality products, greater customer satisfaction and the ability to create real value from this data.

"More and more, cars are becoming mobile technology hubs, and digital features are no longer just a fancy option, but a vital part of the vehicle itself," he said. "Connected cars can send manufacturers important performance data that enables them to identify patterns and apply predictive analytics to detect faults or breakdowns before they happen."

Khanna says the benefits of this type of analysis are greater efficiency, better customer service, reduced warranty costs, improved vehicle safety, and the ability to apply real-time insights about vehicle performance to the design and engineering of future models.

Khanna said, according to McKinsey, new technology-driven automotive features could add as much as \$1.5 trillion in new revenue potential to the industry by 2030, even while the growth rate in vehicle sales drops.

This makes it important for manufacturers to recognize the value of their existing customer base and invest in creating a positive, lasting customer experience.

"The customer experience is an ongoing process that really relies on staying connected with the consumer after the sale,' said Khanna.

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# **Dow Automotive Manager** Values Career Mentoring

CONTINUED FROM PAGE 1

school. I later got my MBA at Michigan. I've lived here for 22

Wagner first came to Michigan to participate in a six-month industrial engineering program.

"I met someone who would later become my husband and I hung around," Wagner said. "I heard that Ford was looking for someone with industrial engineering skills. I couldn't believe it.

The company that was founded by Henry Ford, the father of industrial engineering with the invention of the production line, was looking for someone like me.'

Ford liked what they saw when she applied and she was hired.

Through the years, she has worked at several different companies. One of them would become Eastman Chemical. It was there that she met Jay Pyper, a man who became a mentor to

"Jay believed in me," Wagner said. "He let me own my own role in the company and was a real sounding board. We still talk. And that's one thing I like to say. A mentor doesn't have to be a

"Jay is a big supporter of women moving up in the auto business. There are a lot of people like that. Steve Henderson, president of Dow Automotive, is also such a person."

Having mentors and networking are important to being successful, Wagner said. But she also tells people that being happy in one's work, liking one's job is also important.

"Look, I understand that no one is happy with their job 100 percent of the time," Wagner said. "There will be bad days. But I do believe that in order to be good at your job, to be successful at your job, you should like what you're doing at least 70 percent of the time. If you hate your job, you won't be pleasant and you won't be very good at it."

Wagner said she would like to see more women reach the upper ranks of the auto industry.

"I recently attended an IHS conference, and I'd say that only 10 or 15 percent of the audience were women," Wagner said. "I just don't think that's enough women. But with Mary Barra, we have a woman CEO at GM. I hope that's a catalyst for the rest of the industry.'

Wagner said that many women do graduate with engineering degrees. They do well at the entry level, but not that many move up into middle manage-

"I can't put my finger on why that happens," Wagner said. "But I believe it's important that we get more women into middle and upper management."

Wagner and her husband Jim are the parents of two children, ages 11 and 13. She said that she's been able to manage family and a job because men - like her husband - these days are chipping in with household duties.

"It's a true partnership," Wagner said. "When one of us travels, the other picks up the load by picking up the kids.'

Wagner has been at Dow for six years. She has moved away from the engineering side of things and has been in marketing since 2000.

"I'm hoping to continue to make a difference at Dow," Wagner said. "I love mentoring people myself, especially young female engineers.'

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# AAM Creating New Technologies to Meet New Standards

CONTINUED FROM PAGE 1

power density increase comes with a minimum 30 percent mass reduction at the same torque capacity.

"For a heavy-duty pickup, Quantum provides more than 100 pounds of vehicle weight savings. It is significantly more efficient without any reduction in performance.

"Its new design is centered on using traditional axle components in new ways. Bearings are arranged more efficiently and gears are set in optimal positions. AAM's engineers utilized system innovation to eliminate weight by combining functions of many components and developing proprietary lubricants that would increase system efficiency and durability.

"In a traditional axle, shims are used to ensure an axle's hypoid gears are installed precisely for optimum durability and NVH. Because of Quantum's smart design, engineers were able to eliminate the need for shims while still providing up to a five-decibel improvement in NVH perform-

Scalable across vehicle segments, Quantum can be adapted for use on virtually any size truck or passenger vehicle, Guys said.

AAM initially designed a Quantum lightweight beam axle for rear-wheel-drive (RWD) vehicles such as pickup trucks but has expanded Quantum technology to include RWD and all-wheel-drive (AWD) passenger vehicles, crossovers and SUVs.

Scalable across vehicle segments, Quantum can be adapted for use on virtually any size truck or passenger vehicle, Guys said.

The next step for AAM, Simonte said, is developing eSystems for hybrid and electric driveline systems. By 2018, the company's first e-product using only the front wheels when should be hitting the market-

"AAM is well-positioned to benefit from the global trend toelectrification," Simonte

AAM has invested \$140 million in research and development in 2016 alone, Simonte said.

Chris Son, director of Marketing and Communications at AAM, said that technology leadership is the key to AAM's growth. He said the company, which was created in 1994, has depended heavily on its legacy core business of making drive axles.

When SUVs used rear axle drives in the 1990s, business was great, said Simonte, but starting in 2005, OEMs began the shift toward making front-wheel-drive SUVs.

Combined with the recession of 2008, AAM sales hit \$1.6 billion in 2009. Since then, AAM has recovered and project sales for 2017 will be more than \$4 billion.

Son said the development of AAM's EcoTrac technology was a big reason for the improved sales.

"We got serious about developing front-wheel-drive architecture," Simonte said. "It's still the largest part of our sales. It's an industry first - a disconnecting all-wheel-drive system that dramatically increased efficiency, safety and performance when it was introduced.

"Now, the second-generation EcoTrac will further this mission with even greater efficiency and packaging gains."

Guys said when originally launched on the 2014 Jeep Cherokee, AAM's EcoTrac Disconnecting AWD gives drivers the performance of an AWD vehicle with the fuel economy of a front-wheel-drive vehicle by automatically and seamlessly

AWD is not required.

The EcoTrac AWD system disconnects at the power transfer unit (PTU), so that the driveshaft stops spinning and power is no longer sent to the rear wheels. Less spinning means less fuel consumption and fewer emissions. When the EcoTrac system senses that road conditions necessitate AWD, EcoTrac automatically reconnects the PTU and rear drive module to seamlessly provide AWD.

Launching next year, the second-generation EcoTrac is even more efficient, said Guys.

It reduces the system drag of a typical AWD system by more than 90 percent, as compared to 80 percent for the first generation.

Furthermore, AAM was able to reduce the size and weight of the EcoTrac system without affecting safety and functionality.

"AAM's EcoTrac was a groundbreaking technology that significantly increased fuel economy, vehicle handling and off-road capability," said Guys.

"We have raised the bar with our next-generation EcoTrac. It's lighter and smaller with increased torque density. This



Phil Guys

means drivers will see further fuel economy improvement while the reduced packaging footprint will allow our customers the flexibility to incorporate other vehicle systems.

"When you add a traditional AWD system to a vehicle, it increases safety, but it also decreases fuel economy by one to three miles per gallon.

"AAM's system offsets that fuel economy penalty but still allows drivers the safety and functionality of an AWD system. It's a win-win for people who are looking for fuel-efficient AWD."

#### Oakland Seeks Health Nominations

The Oakland County Health Division Women, Infants, and Children (WIC) program is seeking nominations for its 3rd Annual Breastfeeding-Friendly Place

Awards will honor Oakland County pediatrician offices, employers, and businesses that are taking extra steps to support breastfeeding mothers, said Kathy Forzley, Health Division manager/health officer.

Those interested should complete an online nomination form nounced Aug. 9.

at oakgov.com/health. Award nomination entries are due Friday, April 28, at 5 p.m.

"Businesses, employers, and pediatrician offices that support breastfeeding mothers by providing a comfortable, welcoming environment send a clear message that breastfeeding is a normal and accepted way to feed babies," said Forzley.

"They are helping to develop healthy children."

Award winners will be an-

#### French Find More **Evidence in Emissions Fraud**

PARIS (AP) - French investigators say they have found evidence of possible emissions fraud in Fiat, Renault, Peugeot-Citroen and Volkswagen cars sold in France, but have found no proof of fraud in Opel vehicles.

The Finance Ministry announced in a statement March 20 that its consumer fraud agency has closed its investigation into Opel, having found no "facts constituting an infraction of fraud."

The ministry said the agency has handed documents to French courts in recent months showing "evidence of fraud" in emissions controls concerning Volkswagen, Renault, Fiat Chrysler and Peugeot Citroen.

The ministry did not specify whether investigators found cheating software, or so-called defeat devices, to trick emissions tests.

Now it's up to the French jussystem to determine whether to send the companies to trial.

The ministry said investigations into other carmakers are still under way, prompted by the 2015 discovery that Volkswagen used software to cheat on U.S. diesel emissions

Investigators and regulators have cracked down on emissions cheating in response to the scandal.

Renault denied a report last week that its vehicles are equipped with similar software. Renault recalled 15,000 cars last year over excessive levels of harmful gases, but the company insisted there was no intentional wrongdoing.

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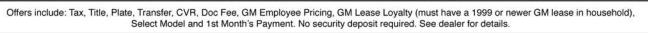
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# New Technology? - In 1930, It Was Motorola's Car Radio

by Jim Stickford

Automakers using wireless technology to make their automobiles more attractive is nothing new. The tradition goes as far back as 1930, when the first radios were built in cars.

According to PCMag, in 1930, Paul and Joseph Galvin, along with William Lear, developed the first automobile dashboard radio and named it the "Motorola," or motorized Victrola - and demonstrated the 5T71 prototype in a Studebaker.

And, Car&Driver magazine reports that the first car radios weren't cheap. It cost \$130 at a time when a Ford Model A Deluxe Coupe cost \$540.

The problem was overcoming the difficulties in vacuum tube technology. Around 1920, vacuum tube technology had matured to the point where the availability of radio receivers made radio broadcasting viable.

A technical challenge was that the vacuum tubes in the radio receivers required 50 to 250 volt direct current but car batteries ran

Voltage was stepped up with a vibrator that provided a pulsating DC that could be converted to a higher voltage with a transformer, rectified, and filtered to create higher-voltage DC.

Motorola went on to sell millions of car radios, and later, two-way radios for police and fire departments, home stereo systems, and televisions before moving into transistors, solidstate electronics, and semiconductors.

And, according to writer Bill DeMann in an article written for the mental-floss Web site, the reaction to the new technology



First Motorola car radio

wasn't without its own difficul-

DeMann wrote that in 1930, laws were proposed in Massachusetts and St. Louis to ban radios while driving.

DeMann added that, according to automotive historian Michael Lamm, "Opponents of car radios argued that they distracted drivers and caused accidents, that tuning them took a driver's attention away from the road, and that music could lull a driver to sleep.'

Even the Auto Club of New York agreed. In their 1934 poll, 56 percent deemed the car radio a 'dangerous distraction." Arguing the other side was the Radio Manufacturers Association, who said car radios could be used to warn drivers of inclement weather and bad road conditions, as well as keeping them awake when they got drowsy.

By the early 1930s, built-in Motorola radios were standard features in cars, DeMann wrote. Later in the decade, push-button tuning and presets helped drivers to select stations without taking their eyes off the road.





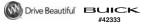


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# **Chrysler Unveils Texas-Sized Truck Option**

Pickup trucks are more popular than ever in the United States, and nowhere is that more true than in Texas. So it makes sense that Ram unveiled a "Texas" truck at the Dallas Auto Show on March 22.

Ram Truck revealed a new exterior color shade for its "luxurious and capable Laramie Longhorn line of pickup trucks," said Ram spokesman Nick Cappa.

The color – RV Match Walnut Brown - will serve as the model's new two-tone contrast color, replacing White Gold, Cappa

"The Ram Laramie Longhorn has deservedly become the world's benchmark for upscale, capable pickup trucks," said Mike Manley, head of Ram Brand, FCA – Global.

"The Laramie Longhorn has earned the title, 'Luxury Truck of Texas,' from the Texas Auto Writers Association and there's no better place to show off these updates than at the Dallas Auto Show.'

The luxurious Laramie Longhorn-edition model is available across the Ram pickup truck lineup, including 1500, 2500 and 3500 Heavy Duty models, Cappa

With more than 30,000 pounds of trailering capability, Ram Heavy Duty Laramie Longhorn editions have become a popular choice among buyers who rely on their truck to tow a camper or recreational vehicle.

"In fact, the new RV Match Brown was chosen to closely match or complement a shade of brown that is frequently used in the exterior design of RV travel trailers, including premium fifthwheel models," Manley said.

"Ram Laramie Longhorn edition models are known for distinctive exterior badges. A chrome metal Laramie Longhorn edition badge with painted accents is mounted to the tailgate while eye-catching, model-specific (1500, 2500 or 3500) Laramie Longhorn edition badges adorn the doors.

Ram's RV Match Walnut Brown lower-body two-tone, wheel flares, painted front and rear bumpers and running boards complement a bright chrome grille and painted tow hooks, Manley said.

Two-tone Ram 1500 Laramie Longhorn editions are equipped with 20-inch polished aluminum wheels with brown-colored pockets, while monochromatic versions roll on polished silver aluminum wheels. Ram 2500 and 3500 (single rear wheel) models get 18-inch polished aluminum wheels with brown-colored

pockets, while monochromatic versions roll on polished silver aluminum wheels. Twenty-inch wheels are optional. Ram 3500 duallies get polished silver aluminum wheels with Laramie Longhorn edition-badged center

RV Match Walnut Brown is available as a two-tone combination with nine exterior colors, including Black Forest Green, Bright Silver, Bright White, Brilliant Black Crystal, Delmonico Red, Granite Crystal, Maximum Steel, Pearl White and True Blue, Cappa said.

Ram Laramie models will continue to be offered in an optional Bright Silver two-tone contrast, but for 2017 will also be available in two-tone RV Match Brown color. Non-two-tone paint is standard on Ram Laramie models.

Ram RV Match Walnut Brown models will go on sale in the second quarter of 2017, Cappa said.



2017 Ram 1500 Laramie Longhorn pickup

# Ford Technology Lights Up Driver's View

It's not just children who are curred after dark, according to afraid of the dark. Whether preferring to sleep with a light on or worrying about driving at night - grown-ups get scared too.

Some experts believe fear of the dark, or nyctophobia, can be traced back to our cave-dwelling ancestors, who were more at risk of being attacked by predators in the dark. Today, it affects us behind the wheel, said Ford spokesman Emmanuel Lubrani.

Worries over night blindness, and fear of hitting someone - or something - top a new poll of night-time driving fears, commissioned by Ford. Lubrani said. And for the latter at least, there is now a solution that goes beyond simply eating more carrots.

The company is, for the first time, introducing new technology that is designed to detect pedestrians at night and then automatically apply the brakes if the driver does not respond to initial warnings.

'We know some drivers find hitting the road at night a stress- than 30 snapshots every second ful experience. Especially driving in towns and cities, pedestrians sometimes distracted by mobiles can without warning step into the road, leaving even alert drivers very little time to avoid an accident," said Gregor Allexi, active safety engineer, Ford of Europe.

"Day and night, Pedestrian Detection is designed to help identify people already in - or about to step into - the road ahead."

Of thousands of drivers surveyed across Europe, Lubrani said 81 per cent admit to being scared on the roads at night, rising to 87 per cent for women. More than half say poor night vision is a source of stress, and more than a third worry they might be involved in an accident. Fears that they may hit a pedestrian were highlighted by one in five drivers surveyed.

This is a global issue. In 2014, across Europe, more than one in five road fatalities were pedestrians, almost half of whom died following accidents that oc-

the European Road Safety Observatory Traffic Safety Basic Facts 2016 survey.

Lubrani said that in the U.S. in 2015, three in four motor-vehicle related pedestrian deaths happened during dark hours, according to the National Highway Traffic Safety Administration.

For the improved Pedestrian Detection technology, now able to work at night for the first time, the development team worked at night, sending life-sized dummies into the path of vehicles on closed tracks, and testing the system on public roads in busy cities including Paris and Amsterdam, Lubrani said.

Pedestrian Detection processes information from a radar located in the bumper, and a windshield-mounted camera; while a database of "pedestrian shapes" enables the system to distinguish people from objects such as trees and road signs.

The camera delivers more - faster than a cinema projector. The video live-feed and viewing angle enables the system to pick out pedestrians, even in low-light conditions, illuminated only by the headlights, Lubrani said.

If the system detects an imminent collision with a pedestrian, it first provides audible and visual warnings to the driver. Should the driver not respond, the system automatically applies the brakes. Later this year, the more advanced Pedestrian Detection technology will be introduced on the next-generation Fiesta in Europe.

In North America, the new technology will debut first on the 2018 Ford F-150 and 2018 Ford Mustang, Lubrani said.

Here are a few ways to make driving at night easier:

- Ensure windows and mirrors are clean and free of ice and condensation.
- Clean all exterior lights and check they work, keep spare bulbs in the car.
- On unlit roads, put headlights on full beam and dip them on seeing oncoming vehicles.
- Don't drive tired or for more than two hours without a
- Schedule regular optician appointments to check your

#### Macomb Mental Health Services

Macomb County Community Mental Health (MCCMH) is hosting a community conversation about Home and Community Based Services (HCBS) from 6 p.m. to 8 p.m. on Tuesday, March 28, at the Community Care Center in Sterling Heights.

HCBS provides Medicaid beneficiaries with opportunities to receive services in their own home or community rather than in institutions or other isolated settings. These programs serve people with intellectual or developmental disabilities, physical disabilities and/or mental illnesses.

A panel of mental health care experts will discuss the Federal HCBS Final Rule, which seeks to promote inclusion, access and full participation of services in the local community, said Macomb County spokesman Kevin

The Michigan State Transition Plan will also be discussed before it is completed and sent to the federal government by the Michigan Department of Health and Human Services.

The Community and Mental Health Board and administration want to hear from the community about how we can make our local approach to mandate the best experience and benefit for individuals and families served Macomb County Community Mental Health," said John Kinch, executive director of MCCMH.

Go to www.mccmh.net to learn more about the program.



On-the-Go H2O idea is finalist in technology awards category.

#### Ford Idea: Oasis in Your Car

Sometimes a watered-down scribed a billboard in Lima, Peidea is the best idea possible.

Ford Motor Company's Onthe-Go H2O is in the spotlight selected as a finalist in both the Transportation and Developing-World Technology categories as part of *Fast Company's* 2017 World Changing Ideas Awards.

The awards showcase 12 winners and nearly 200 finalists, honoring businesses, policies, projects and concepts that offer innovative solutions to the issues facing humanity, said Ford spokesman Alan Hall.

On-the-Go H2O was developed by Ford engineers Doug Martin and John Rollinger, Hall said. The pair brought the concept to life after an idea struck: what if cars could be a source of water?

The system collects condensation from vehicle air conditioners, then filters and pumps the fluid into a faucet located inside the car to provide drinking

"A couple of years ago, I was reading a document that de-

ru, that condensed water out of thin air in this dry environment,' said Martin.

"It made 2,500 gallons of water in three months. They dispersed the water to residents who didn't have access to clean water. I thought, cars go through air, too, and why not do something with cars like that billboard."

Martin said he believes this system is important.

"I do see this as a benefit in developing countries," Martin said.

"If all their cars have this, and there's a shortage of clean water, they can run their water through this system and have clean water. That would be a very good benefit to have.

"I think this would be pretty exciting to see this system go into production somewhere and make a difference in people's lives."

The project will appear in Fast Company's April issue, which will hit the newsstands on March 27.

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# **MCC Innovation Fund Finds** Three Companies to Help

A Macomb Community College program has just planted three entrepreneurial seeds in southeast Michigan.

Three early-stage companies from Oakland, Washtenaw and Wayne counties will receive \$75,000 in funding from the Innovation Fund Macomb Community College, Powered by JPMorgan Chase & Co.

Since July 2015, the Macomb Innovation Fund has awarded \$1.475 million to 27 companies, said MCC spokeswoman Jeanne Nicol.

The Innovation Fund is a \$2.7 million effort to stimulate economic development and job growth among promising Detroitarea entrepreneurs and nextstage companies with highgrowth potential, Nicol said.

Funding is provided by Ma-Community College's Strategic Fund and JPMorgan Chase, as part of the company's \$100 million commitment to Detroit's economic recovery. The unique initiative provides mentoring and capital to early-stage businesses, as well as learning opportunities for Macomb Community College's students.

"In addition to enhancing southeast Michigan's entrepreneurial ecosphere, the Macomb Innovation Fund is providing unique educational experiences to our students that extend classroom learning," said college President James Jacobs.

'More than 400 Macomb Community College students have directly interacted with the emerging economic drivers of our community, positioning them with distinctive learning experience."

Three companies will receive \$25,000 awards, which are de-

signed to support early-stage businesses taking the initial steps in market introduction.

They are:

- Alchemie Solutions (Troy/ Oakland County). Alchemie Solutions has developed a mobile learning technology for higher education, combining gamebased and interactive video with machine learning. Designed for college gateway courses in STEM (science, technology, engineering, math), with chemistry the first subject area of focus, the interactive app is tied to an analytic platform to help both students and their instructors create a deeper understanding of a subject's core concepts.
- iServe (Northville/ Wayne County). iServe has invented a soft-serve dessert-making system for the home. The system's concept is like that of a Keurig coffee maker, combining a softserve ice cream with single-serve dispensing and pod technology. The ice cream is dispensed in under 10 seconds, and the machine requires no preparation or cleanup.
- MySwimPro (Ann Arbor/ Washtenaw County). MySwimPro is a fitness application for swim training. The mobile app features instructional video content, as well as personalized training and tracking through a free subscrip-

The premium subscription, which involves a monthly fee, unlocks advance work content and analytics.

"Investing in entrepreneurial young people is a great way to create economic opportunity that spans beyond Main Street," said Chauncy Lennon, head of Workforce Initiatives for JPMorgan Chase.



Chrysler's WCM principles are learning by building children's toys in a controlled environment.

# Chrysler's New WCM Site Open for Business

It's finally become a reality. With the mission of cultivating, planting and growing its Indiana workforce, Fiat Chrysler on March 21 officially celebrated the opening of two new training facilities in the Hoosier state during a ceremony at the World Class Manufacturing Academy housed inside the Tipton Transmission Plant, said Fiat Chrysler spokeswoman Jodi Tinson.

Via a live feed linking the Tipton location with a second training site at the UAW-Chrysler National Training Center (NTC) in Kokomo, Tinson said the company showcased the state-of-the-art technology and unique hands-on curriculum that was developed to meet the needs of the 8,200 local powertrain employees.

The company's head of Manu-

joined by UAW Vice President Norwood Jewell, Indiana Secreof Commerce tarv Jim Schellinger and Ivy Tech President Dr. Sue Ellspermann, told the audience that investments in buildings and equipment are crucial, but nothing is more important than having an educated and well-trained workforce.

"World Class Manufacturing has fueled a true cultural change at our company, because its goal of continuous improvement depends on engaging people at every level in planning, executing and problem solving," said Harlow. "The Academy was developed in order to accelerate the pace at which we implement the World Class Manufacturing system and take it to higher levels."

World Class Manufacturing (WCM) is a methodology that focuses on eliminating waste, and improving quality and safety in a systematic and organized way. WCM engages employees to provide and apply suggestions on how to improve their jobs and their plants, promoting a sense of ownership, Tinson said. It was first implemented by Fiat in 2006 and introduced to Chrysler Group as part of the alliance between the two companies in June 2009.

Supported by a \$2.1 million investment from FCA US and the UAW, Tinson said the goal of the Tipton and Kokomo training sites is to transfer WCM "know-how" to more than 1,500 participants each year and cultivate an enriched culture of continuous improvement and learning.

The Tipton academy replicates the original Warren facility with hands-on training in a flexible, open concept environment.

As part of the grand opening festivities, guests had the oppor- a 15,000-square-foot expansion tunity to participate in several and also established a satellite training simulations, many of facility in Saltillo, Mexico.

facturing, Brian Harlow, who was them incorporating popular children's games and toys, Tinson said. Concepts like workplace organization and problem-solving are taught using the game, Operation, and the Bike Build Line. A slot car that jumps the track mimics a piece of equipment stopping on the assembly line, teaching skills to identify and correct the issue. Trivia Basketball and FCA Jeopardy reinforce common WCM concepts and themes.

> During the live feed from the NTC, guests got a tour of the renovated space, featuring a lab specifically designed for skilled trades training, Tinson said. The technical training curriculum was developed in partnership with Indiana University, Purdue University and Ivy Tech Community College. Also at the NTC site, FCA US employees and community members can take classes to earn an associate's degree through Ivy Tech, then work toward a bachelor's degree from Purdue.

"Today's high-tech manufacturing requires workers who are adaptable, can think critically and understand how to problemsolve," said Harlow. "Working together with state and local schools, we are helping to train the next generation of advanced manufacturing employees and creating a pipeline for future workers."

This is the fourth installment of the WCM Academy (WCMA) since the grand opening of its flagship operation in January 2012. Since then, the WCMA has taken its training on wheels with the WCMA Mobile Unit in 2013, bringing its core curriculum right to the plant floors for more immediate learning. A year later, the Warren academy underwent

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#### **BorgWarner Launches New System**

compact cam torque actuated (CTA) variable cam timing (VCT) technology with mid-position lock in the new Subaru 1.6- to 2.0liter BOXER engines.

Debuting on the 2017 Impreza, BorgWarner's lightweight, compact VCT technology provides precise valve timing with less oil consumption, better fuel economy and improved engine performance, said BorgWarner spokeswoman Katya Pruett.

"To meet Subaru's specifications for this new engine, Borg-Warner engineers evaluated every part of our VCT technology and extensively tested each innovation," said Joel Wiegert, president of BorgWarner Morse Systems. "By every measure, our new compact VCT technology

BorgWarner launched its new achieves the same rapid and precise performance in a smaller, lighter package.

"For nearly a decade, Borg-Warner has been supplying Subaru with our advanced VCT technology from our plant in Japan. We are pleased to add localized manufacturing of our latest VCT products to support Subaru's assembly plant in the U.S.'

BorgWarner's CTA phasers take advantage of the existing energy in the valve train to actuate faster and operate under a wider range of engine speeds and temperatures than conventional VCT systems, Wiegert said.

The patented mid-lock technology ensures failsafe return to the mid-park position for reliable engine starts in any operating condition.



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Was \$28,360

Sale Price \$20,800\*

Was \$33,375

Sale Price \$27,699\*

#### **2017 BUICK ENCORE "PREFERRED"**



- 1.4L TURBO DOHC ENGINE!
- PUSH BUTTON STARTI
  INTELLINK RADIO w/8" DIAGONAL COLOR TOUCH SCREENI

  PUSH BUTTON STARTI

  REPUSH STARTING

  PUSH BUTTON STARTI

  REPUSH BUTTON STARTI

  REPU
- REMOTE KEYLESS ENTRYI
- REAR VISION CAMERAIBLUETOOTH FOR PHONEI
- ONSTAR w/4G LTE w/BUILTIN WIFI HOTSPOTI

#### 24 MONTH LEASE

STK# BG800

Sale Price \$21,699 NO EMPLOYEE

DISCOUNT REQUIRED!

Was \$25,825



MONTH

\$999 DOWN NO SECURITY DEPOSIT REQUIRED

#### **2017 BUICK REGAL "SPORT TOURING"**



- 2.0 TURBO DOHC 4 CYL. SIDI ENGINEI
   INTELLINK RADIO w/8" DIAGONAL
- COLOR TOUCH SCREEN!

  REAR SPOILER!
- REMOTE KEYLESS ENTRY!
   18" ALUMINUM WHEELS!
- REAR VISION CAMERAL
- BLUETOOTH FOR PHONE!
- ONSTAR w/4G LTE w/BUILTIN WI-FI HOTSPOTI

24 MONTH LEASE

Was \$29.540 Sale Price \$23,999\*



MONTH

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#### **2017 BUICK ENCLAVE "CONVENIENCE"**



- INTELLINK RADIO w/8" DIAGONAL COLOR TOUCH SCREEN!
- REMOTE START AND ENTRY!
   7 PASSENGER "CAPTAIN CHAIR" SEATING!
- TRI-ZONE CLIMATE CONTROLI POWER LIFTGATE!
- 19" ALUMINUM WHEELSI ONSTAR w/4G LTE w/BUILT-IN

Sale Price \$33,699'



24 MONTH LEASE

PFR MONTH \$999 DOWN

NO SECURITY DEPOSIT REQUIRED

#### 2017 BUICK ENVISION "PREFERRED"



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   REMOTE KEYLESS ENTRY AND START!
- REAR VISION CAMERI
   18" ALUMINUM WHEELS!
- PUSH BUTTON START!
- BLUETOOTH FOR PHONE!
   ONSTAR w/4G LTE w/BUILTIN WI-FI HOTSPOTI

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Was \$36,795 Sale Price \$27,999\*



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- DIAGONAL COLOR TOUCH SCREEN! KEYLESS OPEN AND START!
- REAR VISION CAMERA! 7 PASSENGER SEATING!
- ALUMINUM WHEELS!
- BLUETOOTH FOR PHONE! ONSTAR w/4G LTE w/BUILT-IN WI-FI HOTSPOT!

#### 24 MONTH LEASE

STK# BG672

PFR MONTH

\$999 DOWN NO SECURITY DEPOSIT REQUIRED

#### 2017 GMC YUKON "SLE" 4x4



- 5.3L VB ECOTECH3 ENGINE!
- INTELLILINK RADIO w/8" DIAGONAL COLOR TOUCH SCREEN!
- REAR VISION CAMERA!
- TRAILERING PACKAGE!
- FRONT AND REAR PARK ASSIST!
   REMOTE START AND ENTRY!
- 18" BRIGHT ALUMINUM WHEELS!
  ONSTAR w/4G LTE w/BUILT-IN WI-FI HOTSPOT!

Was \$52,725 Sale Price \$47,450\*

Was \$56,/50

Sale Price \$48,271



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MONTH

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#### **2017 GMC SIERRA DENALI 4x4 CREW CAB**

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PERIOD!



- 5.3L V8 ECOTEC3 ENGINE
- 5.3L V8 EDOTECS ENGINE!
   INTELLILINK RADIO W/7"
   DIAGONAL COLOR TOUCH SCREEN!
   ENHANCED DRIVER ALERT PACKAGE!
   REMOTE START AND ENTRY!
   FULL-FEATURE LEATHER-APPOINTED HEATED BUCKET SEATS!
   6" RECTANGULAR CHROMED
   TUBULAR ASSIST STEPS!
   ADDILLAR ADDILLAR CHROMED
   TUBULAR ADDILLAR CHROMED

- 20" ULTRA BRIGHT MACHINED ALUMINUM WHEELS! ONSTAR w/46 LTE w/BUILT-IN WI-FI HOTSPOT!

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Sale Price: \$16,999\* Was \$22,235

- 1.4L Turbo DOHC Engine!
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- Aluminum Wheels!
- Remote Keyless Entry!
- Rear Vision Camera!
- Bluetooth for Phone!
- OnStar w/4G LTE w/built-in Wi-Fi Hotspot!
   Chevrolet Complete Care INCLUDED! Stock# H37296

24 MONTH LEASE





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NO Security Deposit required. Tax, title and plate fees extra

# 2017 MALIBU "LT"



20 Available at Similar Savings!

- 1.5L Turbo DOHC Engine! 6 Speed Transmission!
- 8" Color Touch Screen MyLink Radio! Bluetooth for Phone!
- Rear Vision Camera!
- OnStar w/4G LTE w/built-in Wi-Fi Hotspot!
- 17" Alloy Wheels!
- Remote Entry and Start!
- Chevrolet Complete Care INCLUDED! Stock# Q7401

Was \$26,895 Sale Price: \$19,499\* 24 MONTH LEASE





**\$999** Down NO Security Deposit required. Tax, title and plate fees extra

### *2017 EQUINOX "LS"*



- 7" Color Touch Screen MyLink Radio!
- OnStar with 4G LTE w/built-in Wi-Fi Hotspot!
- Bluetooth for Phone!
- Remote Keyless Entry!
- Rear Vision Camera! Aluminum Wheels!
- Chevrolet Complete Care INCLUDED!

Was \$26,405 Sale Price: \$18,599\* 24 MONTH LEASE





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NO Security Deposit required. Tax, title and plate fees extra.

#### 2017 TRAVERSE "LS"



- 6.5" Color Touch Screen Radio!
- 8 Passenger Seating!
- Rear Vision Camera! Power Driver's Seat!
- Bluetooth for Phone!
- OnStar with 4G LTE w/built-in Wi-Fi Hotspot!
- Chevrolet Complete Care INCLUDED

Was \$32,745 Sale Price: \$22,785\* 24 MONTH LEASE





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# 2017 SILVERADO "LT" 4X4 DOUBLE CAB



- Automatic Transmission!
- GM Bed Liner INCLUDED!
- 8" Color Screen MyLink Radio w/USB Ports!
- OnStar w/4G LTE w/built-in Wi-Fi Hotspot! Steering Wheel Radio Controls!
- Remote Keyless Entry!
- Aluminum Wheels!
- Chevrolet Complete Care INCLUDED!

Sale Price: \$31,517\* Was \$41,060 36 MONTH LEASE





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