

ALABAMA

2019 ECONOMIC DEVELOPMENT GUIDE

A comprehensive resource for site selection

AN ECONOMY FOR THE 21ST CENTURY

2019 is liftoff for NASA's Space Launch System, the next generation of space exploration, managed by NASA's Marshall Space Flight Center, in Huntsville.



INSIDE

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Workforce Solutions
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ON THE COVER: An artist's image of the next generation of NASA's Space Launch System, which will be 364 feet tall in the crew configuration, will deliver a 105-metric-ton lift capacity and feature a powerful exploration upper stage. NASA's Marshall Space Flight Center in Huntsville manages the SLS program. Work by hundreds of contractors across the country is coordinated by Marshall, then assembled by prime contractors into the big components and delivered for final assembly on the launch pad at NASA's Kennedy Space Center in Florida. The first integrated test flight of the SLS is currently scheduled for late 2019. *Photo courtesy of NASA*

Opposite, 24: From left, Masamichi Kogai of Mazda, Gov. Kay Ivey and Akio Toyoda of Toyota applaud the companies' joint venture announcement. *Photo by Robert Fouts*

Opposite, 37: Fuel-saving engines are a key element of the A200, new to Alabama's aerospace scene. *Photo by Mike Kittrell*

This page, 22: Owa offers fun at the beach in Alabama's Gulf Coast region.

This page, 83: Taxes and incentives make Alabama a great place for business to grow. Photo shows Georgia-Pacific's Brewton plant.

This page, 44: Groundbreaking at Google in Jackson County, a highlight of Alabama's burgeoning IT industry. *Photo by Dennis Keim*

SIX BIG WINS

Biggest investments announced

in 2018 total \$3.87 billion*

\$1.6 BILLION Mazda Toyota Manufacturing USA, Huntsville

\$785 MILLION DC Blox data center, Birmingham

\$750 MILLION Facebook data center, Huntsville

\$325 MILLION Amazon fulfillment center, Bessemer

\$300 MILLION Airbus-Bombardier final assembly line, Mobile

\$110 MILLION Rex Lumber mill, Pike County

Expansions announced in 2018

total another \$1.6 billion*

\$552 MILLION International Paper, Selma

\$388 MILLION Hyundai, Montgomery

\$115 MILLION GE Appliances, Decatur

\$100 MILLION Kimberly Clark, Mobile

\$80 MILLION Topre America, Cullman

\$80 MILLION Koch Foods, Gadsden

\$70 MILLION Continental Motors, Mobile

\$54 MILLION Honda, Lincoln

\$52 MILLION Carpenter Technology, Athens

\$45 MILLION BAE Systems, Huntsville

\$40 MILLION Unipres, St. Clair County

\$28 MILLION LG Electronics, Huntsville

* January through September 2018

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ECONOMIC OVERVIEW



STATEWIDE ECONOMIC OVERVIEW

More cars, more tech, more space, more planes, more trains, more ships — it's been quite a year for Alabama's economy. And all those economic coups build the best of all — more jobs.

Wages and salaries hit a 10-year high at mid 2018, just after unemployment dropped to an 11-year low. Commerce officials say the state attracted \$4.4 billion in capital investment in 2017, creating some 15,500 jobs.

Tariffs and trade woes dampened enthusiasm from time to time — the U.S. Chamber of Commerce said Alabama would be the second hardest hit state from proposed tariffs — but business and government have toiled together to find workarounds that allow industry to move ahead.

To kick off this banner year of economic development, Alabama was picked for a major new automotive joint venture between Toyota and Mazda. A 4,000-employee plant is rising in Huntsville, with plans to build 300,000 vehicles a year. That establishes Alabama firmly in the forefront of U.S. automaking, augmenting the array of established firms headlined by Mercedes-Benz, Hyundai and Honda OEM plants; a Toyota engine plant; a new

Autocar truck plant in progress, plus bus maker New Flyer and automotive supply firms numbering in the hundreds.

Tech triumphed, too, in 2018. Construction kicked off for a new Google data center in Jackson County. Facebook picked Huntsville for a data center. DC Blox chose Birmingham for a \$785 million technology and innovation campus — prompting Forbes to speculate whether The Magic City would soon be known as the Silicon Valley of the South. Meanwhile, Montgomery created an all-encompassing cyber works including government, business and military elements. And in Lauderdale County, Sierra Artificial Neural Networks announced plans for a headquarters of operations to develop artificial intelligence products.

Alabama's economy flies high with aircraft and spacecraft, too.

Mobile kicked off a second final assembly line for commercial aircraft. Next door to the Airbus FAL, a new line is rising to craft a smaller jet in partnership between Canadian firm Bombardier and the European giant Airbus. The plants are surrounded by aircraft suppliers; maintenance, repair and overhaul firms, and training facilities.

And Continental Motors, which makes aircraft engines, launched a \$70 million upgrade to its facilities.

Farther north, work continues on NASA's space launch system, a massive project developing a craft that can carry humans beyond the moon. A bevy of private firms are supporting that massive federal project. Boeing is creating the launch vehicle cryogenic stages and developing avionics systems. Newest player is BWX Technologies, which is developing nuclear power options for the craft. And just down the road in Decatur, United Launch Alliance — a joint venture of Boeing and Lockheed Martin — builds the rockets that carry the vast majority of U.S. payloads into space.

Defense industries flex their muscle in north Alabama, clustered around Redstone Arsenal in Huntsville. The missiles to pro-

Above left: A Littoral Combat Ship (LCS) built for the U.S. Navy by Austal USA, at the company's headquarters in Mobile.

Above, right: Jonathan Cirtain, vice president of advanced technologies for BWXT Technologies Inc., a \$1.7 billion nuclear technology company that set up shop in 2018 in Huntsville.

HONDA, HYUNDAI, MERCEDES-BENZ, TOYOTA AND MAZDA.

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The global auto industry has found a home in Alabama, where Mercedes, Honda, and Hyundai have teamed to produce more than 11 million vehicles. Arriving next: a \$1.6 billion Mazda Toyota Manufacturing USA plant that will push production totals higher. This success story is made possible by a skilled workforce and advanced training programs. In addition, Alabama was just named the most business-friendly state by Business Facilities. Fasten your seatbelts, because we're moving fast.

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ECONOMIC OVERVIEW

protect America from threats are designed and built here and in Pike County, while other contractors create high tech gear to protect and train military personnel. Military folks tend to the maintenance of land vehicles in Anniston and to helicopters in Dothan. The old Fort McClellan in Anniston now trains the nation's first responders for whatever catastrophe may arise — from an Ebola outbreak to an earthquake. And the Coast Guard trains its aviators in Mobile, ready to thwart drug smugglers, protect ports and rescue those stranded on the high seas or in flooded communities.

Train and ship making flourish in Alabama, too. While Austal USA continues to crank out ships for the US Navy at its downtown Mobile shipyard, FreightCar America has now taken over all facilities in a 2.2 million-square-foot plant in The Shoals area of northwestern Alabama.

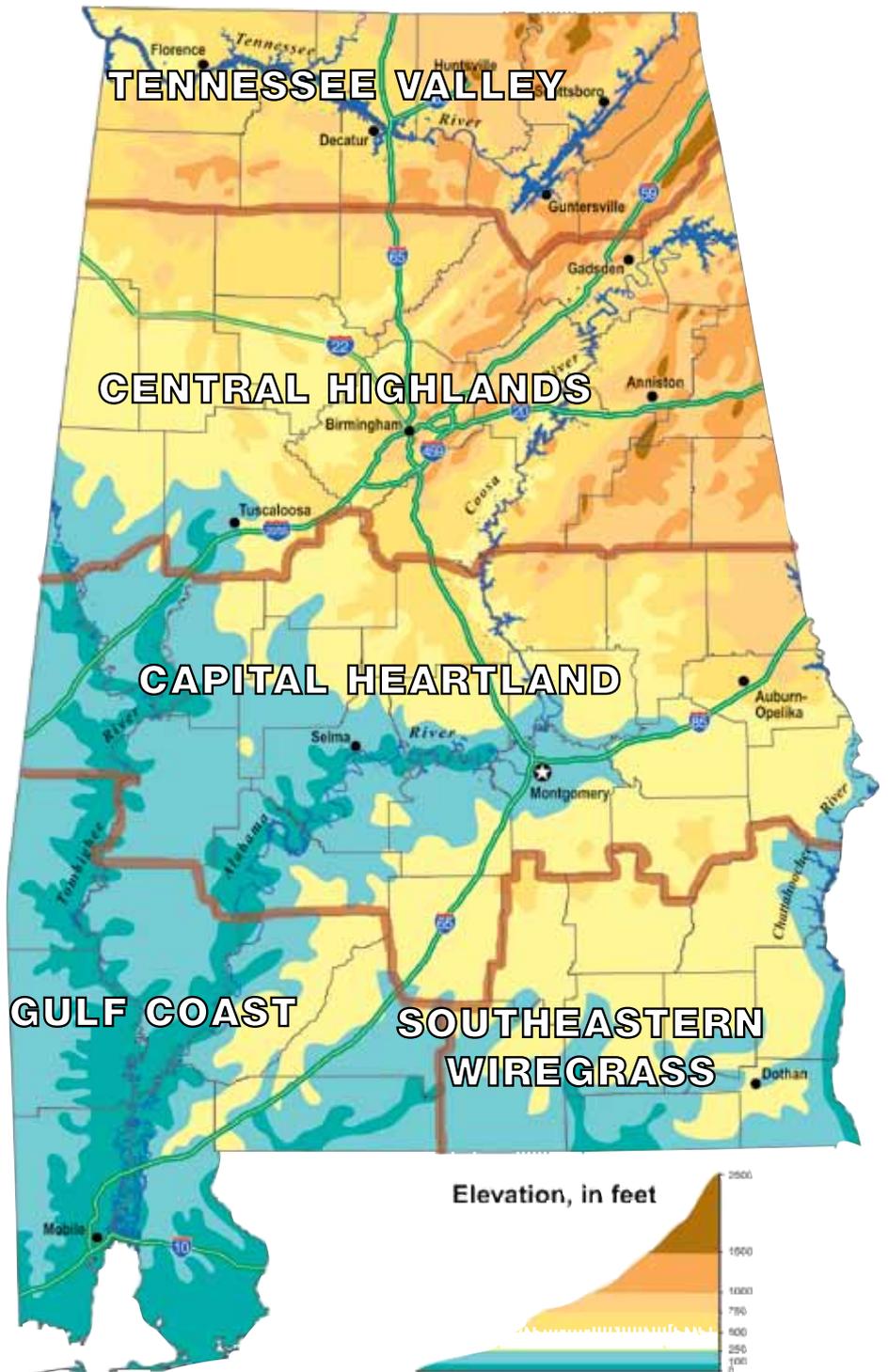
Medical research and healthcare are core economic sectors in Alabama, led by physicians and scientists at the University of Alabama at Birmingham, Southern Research and the HudsonAlpha Institute for Biotechnology. UAB will begin offering proton therapy for cancer care in 2020 — the center is under construction now; and scientists at HudsonAlpha are teaming to understand rare diseases — the conditions that can be so frustrating for patients and physicians alike.

For decades, Alabama's universities have built football legends, but the university of Alabama system is much more than sports. Arts, law, medicine, pharmacy, business — all help today's students flourish as tomorrow's leaders.

For all that Alabamians build, create, blast off, launch or study, the state's roots run deeper still. Crops thrive on farms rich with Black Belt soil; cotton creates a landscape of white; trees soar to the skies. Seafood thrives in the Gulf waters, while catfish swim in inland ponds. And Alabama chickens feeds millions here and abroad.

All the while that manufacturing thrums, commerce hums, research expands our horizons and agriculture grows, Alabama continues to attract more and more people who just want to enjoy — staring in awe at the rockets towering overhead at the U.S. Space and Rocket Center, thrilling to the zoom of Nascar at Talladega, fishing, hunting, hiking, canoeing, watching Shakespeare or just lolling on the sugar white sand of Alabama's Gulf Coast beaches.

REGIONAL OVERVIEW



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TENNESSEE VALLEY

Alabama's Tennessee Valley is home to one of the most firmly established and fastest growing technology economies in the U.S.

Alabama aims for the stars. For nearly three-quarters of a century, scientists have worked diligently in Huntsville to convert dreams of space exploration into the realities of rockets, satellites, telescopes and propulsion systems.

In the mid 1950s, the federal government brought a team of former German rocket scientists to the nearly defunct Redstone Arsenal. From that quiet start, the U.S. leaped into the space race — an effort that continues today as NASA and a host of other companies big and small work to develop the mighty new Space Launch System.

No longer aiming just for the moon but also to the planets beyond, the Space Launch System will be bigger and faster, able once again to carry mankind beyond the known. Working alongside NASA are firms like Boeing and Lockheed Martin, who design elements of the Space Launch System in Huntsville, along with smaller firms like BWX Technologies, which is working on

a nuclear propulsion system that can whittle months off the flight time between the moon and Mars.

Even as they work on the newest of rockets in Huntsville, Boeing and Lockheed Martin team in a joint venture called United Launch Alliance in nearby Decatur, building the Atlas and Delta rockets that have been the mainstays of U.S. spaceflight for a generation. Blue Origin is newest to the flock, chosen to develop a new engine for those ULA rockets — one that will replace the Russian-made version.

Always at the cutting edge, Huntsville is also working with Sierra Nevada Corp., hoping the firm's Dream Chaser space craft will one day land on the workaday runways at Huntsville International Airport.

As glamorous as its rocketry may be, the northernmost region of Alabama has many more facets.

National defense goes hand in hand with Huntsville's space science. Clustered around Redstone Arsenal are firms that design and build missiles to protect the country and simulations to



Technology is king in north Alabama not only because of aerospace, defense and information technology. New technology is also helping to relaunch Alabama's textile industry. Renfro Corp. recently retooled one of the largest hosiery mills in Fort Payne, bringing it to a capacity of 300,000 pounds of yarn a week, running 24/7. Photo by Cary Norton

help soldiers learn to make the right decision in an instant.

Cummings Research Park, one of the largest in the nation, and the newer Redstone Gateway are home to an array of defense firms like those that encircle the Pentagon.

The synergy of space science and defense engineering has attracted an array of scientific minds to Alabama's northern tier — not limited to those original fields.

Rockets and defense notwithstanding, automaking was the biggest headline maker in northern Alabama as Huntsville was chosen for a Toyota-Mazda joint venture that many another state had coveted. Ground work is underway for the plant, set to open in 2021, employing 4,000 workers and crafting 300,000 vehicles a year. Huntsville is already home to a major Toyota engine plant, the only one in the country that builds 4-cylinder, V-6 and V-8 engines.

Another newcomer to Huntsville this year is Facebook, announcing plans at mid year for a massive data center. Meanwhile ground was broken for a Google data center in Jackson county, at the northeast corner of the state. The Google site is a creative re-use of a former TVA power plant.

And speaking of power, right around the corner from Google, TVA's Bellefonte nuclear plant is once again looking like a go — this time at the direction of a private firm, Nuclear Development LLC.

In addition to the powerful new data centers showing off the region's information technology capabilities, the Tennessee Valley is home to some of the state's brightest lights in biotechnology.

HudsonAlpha Institute for Biotechnology focuses on encouraging biomedical researchers and entrepreneurs to work together so that new developments can come efficiently to the marketplace. The Institute is making a name for itself and for Alabama in the intricate world of genetic research.

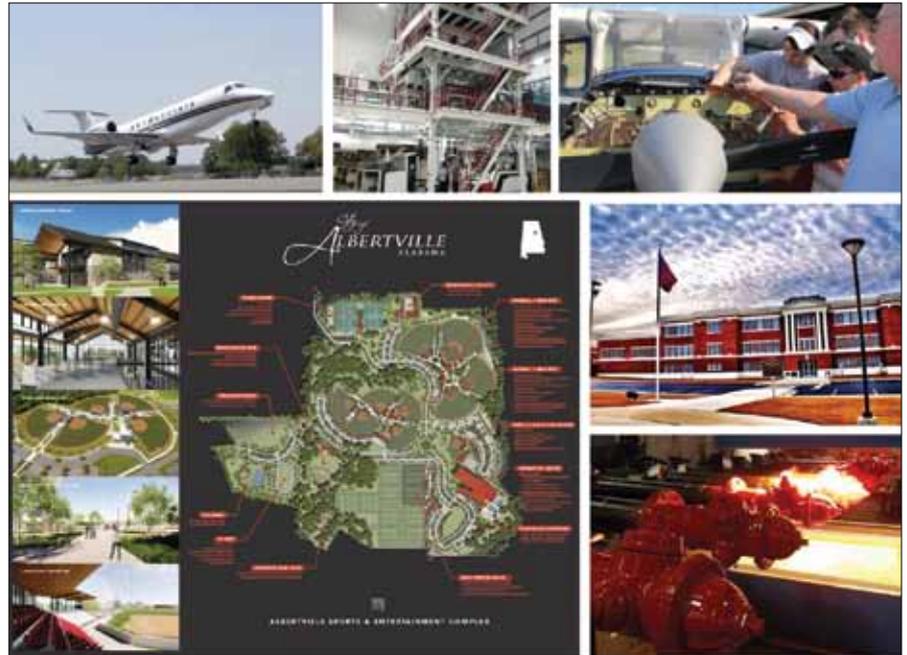
The northern tier's other industry is as varied as your imagination. Freight-Car America makes railroad cars in the Shoals; Polaris makes powersport vehicles in Huntsville and Remington Outdoor makes sporting rifles and semi-automatic pistols there. Constellium makes the sheet metal for food and beverage containers in the Shoals and its new furnace can recycle 20 billion aluminum cans a year.

Carpenter Technologies has added a \$52 million research center in Athens, where it works on additive manufacturing technology.

Keeping the workforce up to date, Alabama's new robotics center at Calhoun Community College trains workers in how to operate and maintain the high-tech machines, while offering space for industry to design and test robotic components.

And the northern counties offer fash-

ion and fun, too — outdoor opportunities abound along the Tennessee River, music is nearly as fundamental to the Shoals as the water itself, there's a chance to snow ski up near Mentone, and fashionistas can enjoy the home-town spaces of designers Billy Reid and Alabama Chanin. And baseball is on the horizon as Madison builds a new ballpark as home to the Los Angeles Angels AA team that's moving north from Mobile for the 2020 season.



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CENTRAL HIGHLANDS

Banking and biotech, education and insurance, football and finance —
all find a home in the Central Highlands

Already the largest city in Alabama, with a long history of steel and coal and a newer chapter of banking, insurance and healthcare, Birmingham — heartbeat of the Central Highlands — this year made major strides in info tech and internet commerce.

Newcomer DC Blox announced plans for a technology and innovation campus in Birmingham, starting small but with plans for growing into a \$785 million flagship data center. Homegrown internet-based grocery service Shipt sold out to Target early

in the year, but the name still blazes on the Birmingham skyline because the service itself maintains its headquarters here. And an Amazon fulfillment center, with an anticipated 1,500 employees, began to take shape in suburban Bessemer.

The changes prompted Forbes Magazine to ponder whether Birmingham may earn a new moniker as “the Southern Silicon Valley.”

The updated image is another tribute to the adaptability of Alabama’s Central Highlands.

Birmingham and the 19 counties that surround it are home to the state’s flagship university and two of the automotive plants that revved up Alabama’s economy just a quarter century ago.

Born in the steel industry, Birmingham still counts major manufacturers like American Cast Iron Pipe Co., U.S. Pipe and Foundry, McWane Inc. and O’Neal Industries among the stalwarts of its economy.



Left: The Birmingham skyline shows off the city’s renewed prosperity.

Right: Energen Inc., which grew up in Birmingham, was among the largest drillers of Permian Basin oil when acquisition negotiations began with Diamondback Energy Inc.



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REGIONAL PROFILE



Left: ACIPCO in Birmingham crafted the pipes that run beneath the Panama Canal.



Right: Thomas Jefferson Tower is one of Birmingham's many historic buildings being refurbished for a modern lifestyle.

Banking now dominates the Birmingham skyline, where the Wells Fargo Tower and Regions-Harbert Plaza are landmarks. Banking also gives Alabama its own homegrown Fortune 500 company — Regions Financial.

Downtown is also home to Infinity Property & Casualty, now part of Kemper, and to ProAssurance, as well as the former world headquarters of Protective Life, recently purchased as a U.S. foothold for Dai-ichi Life of Japan.

Biotechnology is a major player here, too. Nurtured by the University of Alabama at Birmingham and Southern Research, medical care is offered for those in need today while teams of scientists search for the causes and cures for ills still hard to treat. New medicines and medical devices are always in development. Seven current FDA-approved cancer drugs were developed at Southern Research, while UAB expects to have the state's first proton therapy facility offering advanced cancer care by 2020.

Arts, sports, entertainment and an array of eateries show Birmingham for the major city it is — among the largest in the Southeast. After nine years as a finalist, in 2018 Chef Frank Stitt and his Highlands Bar and Grill won the coveted James Beard Foundation award as the best among restaurants.

Tuscaloosa is home to the University of Alabama. A highly ranked educational institution, Bama also fields one of the most recognizable football squads in the nation, repeatedly winning national championships while attracting crowds to the university city.

Moreover, the Tuscaloosa County city of Vance boasts another claim to fame as the wellspring of Alabama's auto making industry. More than 20 years ago, Mercedes-Benz U.S. International announced plans to launch a U.S. plant, and Tuscaloosa beat out all rivals for the honors. MBUSI has grown and expanded repeatedly over the years, building the popular luxury SUVs and sedans.

Talladega County has a pair of auto-related success stories. Like Tuscaloosa, it's home to one of Alabama's major auto plants. Honda builds the Odyssey minivan, the Pilot SUV, the luxury Acura MDX in the city of Lincoln, and since the advent of the new Ridgeline, it's also the light truck leader for Honda.

And across the county, speed dominates the auto scene at the Talladega Super-speedway, famous for its sizzling speeds and challenging curves. If speed's your thing, don't miss the Barber Motorsports Museum, with hundreds of vintage motorcycles and a great view of the motorcycle races.

The Central Highlands are also home to the cities of Cullman, Anniston and Gadsden — all big contributors to the Alabama economy. Gadsden, lying along the Coosa River at the foot of the Appalachians, boasts a major Goodyear Tire & Rubber plant, two large poultry processing plants, and several new automotive suppliers. As the gateway to Alabama's mountains, it's a tourist attraction with a charming riverfront and a popular park that showcases Noccalula Falls.

A pacesetter city, Anniston was the first in Alabama to be wired for electricity, in 1882, and added telephones in 1884. Its major employer is the Anniston Army Depot, the maintenance center for tracked vehicles. Nearby McClellan, a planned community growing on the site of the former Fort McClellan, also hosts the Department of Homeland Security's Center for Domestic Preparedness, helping first-responders from across the nation be prepared, whether they face Ebola or an earthquake.

Like its Central Highlands neighbors, Anniston and Calhoun County are also home to automotive supplier firms that have emerged in the past 20 years.

Cullman, not too far north of Birmingham nor too far south of Huntsville, along Interstate 65, has kept its agricultural roots strong but taken to the highways as well. One of the nation's top 60 counties for agricultural income, the county is also home to three relatively new Tier 1 auto suppliers and a host of smaller firms. And looking to the skies, Cullman is home to Axsys Technologies, charged with shaping the lenses for the James Webb Space Telescope, in development to replace the Hubble. In fact, Cullman County was tops in the state for new industry just a few years back.

Not to be outdone by their bigger neighbors, three counties in the western reaches of the Central Highlands — Lamar, Marion and Fayette — teamed up to create a single economic development agency, the C3 of Northwest Alabama Economic Development Alliance, that is promoting location along new Interstate 22 and bringing new industry to the region. When a Wrangler jeans factory was destroyed by tornadoes in 2011, C3 convinced the company not only to rebuild but to rebuild bigger and better.



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CAPITAL HEARTLAND

The hub of state government is also the homeland of auto manufacturers, information technology centers, agribusiness, advanced manufacturing and Auburn University.

Cotton and catfish, cars and the Capitol, universities and history — all abound in Alabama’s Capital Heartland — a rich and varied land that’s both prosperous and forward thinking.

In 2017, Montgomery County topped the state for new jobs, an-

nouncing some 1,704 new positions. And it kicked off the Montgomery Internet Exchange, linking public and private, civilian and military expertise to make the city a leader in data exchange.

This Alabama heartland lies in the famed Black Belt and once produced cotton to clothe the world. The sounds of agriculture still fill the air, but the crops now sprout products undreamed of when plantation life was at its peak. Today you’ll find catfish ponds where the farmers raise \$120 million in fish and harvest the algae to make biodegradable plastic, and even an inland shrimp farm or two.

Down the road, former cotton fields now produce bamboo where Resource Fibers plans a harvest of flooring materials and other household products. Trees grow here, too, for construction and paper and more. And the leftovers — the sawdust and chips and bits and pieces from tree trimming — are processed into pellets that substitute for coal.

More traditional forest products thrive here. International Paper recently invested more than





\$550 million to boost productivity at its Selma mill. And Ikea Group invested in its first U.S. forest, purchasing 25,000 acres in rural Lowndes County.

There's another new product growing here, too — popular Elantra and Sonata sedans and Santa Fe SUVs rolling off the line at Hyundai Motor Manufacturing Alabama. The \$1.7 billion, 2 million-square-foot plant opened in 2006 and today produces nearly 400,000 vehicles a year. The plant has attracted 35 Tier 1 suppliers and another 43 Tier 2, bringing an added \$650 million industrial investment and employing another 7,000 workers. This year it announced plans to invest an additional \$388 million in a facility dedicated to engine heads and support of current models.

In 2018, German auto supply firm MollerTech opened a \$46 million plant in Bibb County, alongside a Mercedes-Benz expansion there.

The Heartland just got word of a new type of building product, too — a \$220 million James Hardie Building Products plant under construction in Prattville.

Montgomery is a living mix of history and trendy lifestyle options. The city centers on the Capitol complex and all the myriad offices that handle the public's business. But just down the street one way is Old Alabama Town, showcasing the area's pioneer roots. Down the street another way are

the remembrances of the hard times of the Civil Rights era. Turn yet another way and you find an array of nightspots, restaurants, riverfront parks and loft apartments.

Education is a cornerstone of the Capital Heartland. Auburn University, the state's original land grant university, lies in the eastern edge of the region. Programs in engineering, architecture and veterinary medicine are hallmarks of the school. The state's newest medical school, a branch of the Virginia-based Edward Via College of Osteopathic Medicine, is now offering classes.

The campus region is also home to a variety of high tech businesses, including GE Aviation's new factory, which includes 3D printing to make jet engine components. Six of the top employers are auto suppliers, making components such as wheels, bumpers, springs, axles and drive shafts. Briggs and Stratton continues to make its industry-standard air-cooled gasoline engines that power lawn equipment and more — and recently brought some production back to Alabama and Georgia from overseas.

Baxter, a medical device maker crafting products like dialyzers, finished a \$270 million expansion in Opelika. Opelika recently made headlines by wiring the entire city with fiber optic cable to provide a city-owned Internet utility.

Smaller cities in the Capital Heartland are making their own headlines.

Phenix City, for example, is now home to a world-class whitewater course on the Chattahoochee River. The waterway attracted some 18,000 river runners in its first year, many more than expected, and Phenix City is spiffing up its downtown to give those visitors a good welcome. The whitewater course is a joint endeavor with Columbus, Georgia, on the opposite bank.

Selma, in Dallas County, is home to auto suppliers, newfangled agricultural products and Bush Hog — maker of agricultural and lawn care implements.

And you can get a close-up look at the history of the Civil Rights Movement by following U.S. Highway 80 from Selma to Montgomery, travelling in the footsteps of the Civil Rights marchers from the Edmund Pettus Bridge to the Capitol steps.

Opposite: In 2018, International Paper announced it is investing \$552.7 million in its Riverdale Mill in Selma.

This page left: The first elements of a new Hyundai on the line in Montgomery. *Photo by Cary Norton*

This page right: An abundant haul at Townsend Kyser's Hale County catfish farm. *Photo by Art Meripol*



SOUTHEASTERN WIREGRASS

The Wiregrass region has cultivated economic mainstays in agriculture, forest products and military products — especially helicopters and missiles.

On the ground and in the air, Alabama's Wiregrass is thriving. On the ground are crops to feed the Southeast and beyond — especially if they're hankering for peanuts or chicken. Pointing skyward are the trees to feed the lumber and paper mills. And in the air are the aircraft — especially missiles and helicopters — that are the new face of the Wiregrass economy.



This southeastern corner of the state, nestled alongside Georgia and just north of the Florida Panhandle, is the epicenter of the nation's peanut crop.

More than half the peanuts grown in the U.S. are grown within 100 miles of Dothan, which honors the tasty legume with an annual festival.

It's such an important crop that the city of Enterprise has a statue honoring the boll weevil, which forced farmers to find an alternative to cotton.

Chickens are part of the agricultural mix, too, with several plants that process broilers among the major employers. Wayne Farms opened a \$55 million feed mill in Ozark in 2017.

And one more crop defines the agriculture of the Wiregrass — trees. Forests feed the lumber mills and provide the raw materials for sawmills, paper and wood-products plants big and small. Rex Lumber is a newcomer to the Wiregrass, but it moved in in a big way, with plans to invest \$110 million on a brand new yellow pine saw mill that should be in operation in 2019.

While farmers and foresters have tended to their crops, a new realm of industry has flown into the Wiregrass in the contrail of



Fort Rucker. The Army base opened in 1942 to train troops, but in less than a decade was reimagined as the Army's aviation training facility. It continues to fill that role today, training Army and Air Force helicopter pilots, as well as those of U.S. allies around the world. CAE USA won a major Army contract and opened a new facility in 2017, training Army aviators on rotary-wing aircraft.

A major fleet of helicopters at Fort Rucker has attracted its own cluster of supporters. Lockheed Martin, Sikorsky and Bell Helicopter all maintain a presence nearby.

Dothan had been nurturing a new MRO sector — companies that perform aircraft maintenance, repair and overhaul — when its major player abruptly moved out. In 2013, local officials lured Commercial Jet into the empty property and the sector is moving forward again. Yulista Holdings just opened a new facility to maintain both fixed and rotary-wing aircraft in Andalusia.

That allows the region to take full advantage of the Alabama Aviation Center campus in nearby Ozark.

The Wiregrass is an important player in Alabama's higher education scene, too, as home to Troy University. Troy has built a reputation as an international campus, welcoming overseas students and offering Troy classes abroad.

Now Dothan is home to one of the state's two new medical schools, the Alabama College of Osteopathic Medicine. The school's first students completed coursework in 2017.

Along with the staples of agriculture, aircraft, Army and medicine, the Wiregrass is also home to several of Alabama's most unusual businesses. Lockheed Martin maintains its Pike County facility in Troy, building missiles to protect the world.

Fishing is big business in Eufaula. The city is home to Humminbird-Johnson Outdoors, which makes fishfinders, depth

sounders, marine radios and GPS systems for anglers, while a neighboring company, Strikezone Lures, makes fishing lures. Also in Eufaula look for Southern Plastics, maker of wiggly plastic fishing worms for some of the nation's biggest retailers.

And over in Enterprise you'll find Enterprise Electronics. Lest you expect an appliance store, be assured that this is the home of a remarkable product — the Doppler weather radar used around the world to protect us all from approaching storms.

Opposite: Lockheed Martin's missile assembly plant in Troy employs more than 350 workers.

Above: Troy University's recently completed Trojan Village student housing complex includes private and semi-private options. Founded in 1887, Troy is a public university with a total undergraduate enrollment of 14,000. The campus is 820 acres.



GULF COAST

The Gulf Coast Region has launched emerging industries in airplane and steel manufacturing, alongside legacy enterprises, such as shipbuilding, that endure by innovation.



Mobile’s deepwater seaport has long been Alabama’s connection to the wide world. Shipbuilding and shipping have been mainstays for centuries. That tradition continues today, but now airships thrive alongside the waterborne variety.

On the waterfront are modern variations of the shipbuilding craft that has flourished here for nearly three centuries. Austal USA, making ultramodern aluminum ships for the Navy, dominates the downtown waterfront and is the largest employer by far. Hidden farther from the public eye, along the bayous of south Mobile County, smaller shipyards rear above backcountry roads, crafting tug boats, offshore platform tenders, shrimp boats and more.

Just a few miles away, Airbus builds commercial jets that have been augmenting the fleets of U.S. carriers for three years now. And in 2019, Mobile will become home to a second commercial jet final assembly line as Bombardier and Airbus partner to build a new, smaller jet.

It’s sometimes hard to remember that aviation was big business in Mobile before Airbus came to town a dozen years ago. One of the region’s very first international firms was Singapore-based Mobile Aerospace Engineering — now VT MAE — repairing and overhauling planes from the world’s fleets. It’s still among the region’s top three industrial employers. Continental Motors, another face of Mobile’s aerospace cluster that predates Airbus, kicked off a \$70 million upgrade this year.

Baldwin County, across the bay, also boasts a major cluster of aerospace firms

— UTC Aerospace, making nacelles and more, is that county's largest industrial employer and growing.

And the air over coastal counties frequently thrums with the sound of Coast Guard helicopters, taking off from their national training facility, at Mobile's commercial airport.

Meanwhile, the Alabama State Port Authority operates Alabama's gateway to the world, where ships laden with coal, steel, chickens, chemicals and wood products head for ports around the world. Steel and chemicals and timber are also big business along the Gulf Coast.

Just a few years ago, German-based ThyssenKrupp built a massive, \$5 billion steel mill at the Mobile-Washington County line. When the steel market nosedived and ThyssenKrupp backed away, the prospects looked bleak. But almost before you could say "fire up the furnace," world stainless leader Outokumpu Oyj, a Finnish company, had purchased the stainless mill, and a partnership between the world's largest and second largest steel producers — Arcelor-Mittal and Sumitomo Metals — had the cold rolled steel mill up and running.

Chemical plants line the riverbanks, winding inland from the Bay — making products from herbicides to sugar substitutes. A Tate & Lyle plant in McIntosh is the only producer of Splenda sweetener.

And now the coast is sorting out a new line of work — an Amazon sortation center and a Wal-Mart distribution center opened within a few miles of each other, taking advantage of the interstate, port, air and rail connections.

The port itself is hard at work on facilities specially designed to transport the cars and SUVs being built farther north in the state, hoping to win a greater role in the state's burgeoning automotive industry. In the meantime, it ships steel, coal, aviation products, chemicals, chickens and forest products — so much cargo that it's ranked No. 10 among U.S. ports in total trade.

Cooperation has been key for inland Gulf counties that have formed the Coastal Gateway partnership to recruit business.

But the glory of the Gulf Coast is the beach. Baldwin County's economy thrives on an aviation cluster, established agriculture, suburban living and great schools. When Alabamians think of the sprawling county, however, they're more likely to think of the beach — white sand, clear water, exciting entertainment, sports venues, condos with a view and fabulous seafood. It's Alabama's playground.



Opposite: Riders fly high over the Park at Owa, one of the newest attractions in Baldwin County's beach zone.

This page, top: Thompson Engineering's design for a new I-10 bridge in Mobile.

This page, bottom: Take a seat outside the Grand Hotel and watch Mobile Bay go by.

AUTOMOTIVE

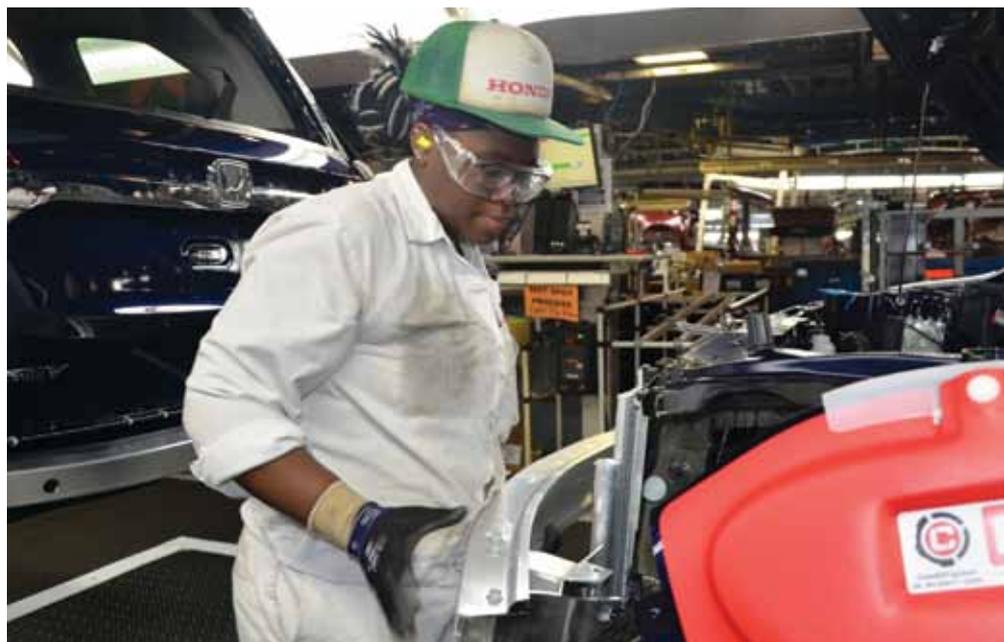


Alabama's auto industry turned 25 years old in 2018 — and what a birthday present! The year was just days old when Toyota and Mazda announced that their coveted \$1.6 billion joint venture to build cars and SUVs would go to a tract of land near Huntsville. The joint venture will also collaborate on new technologies for green operating, connected cars and passenger safety, the two firms said.

Just 25 years ago, Alabama had essentially no automotive industry. Now it's poised

Above: Hyundai Motor Manufacturing Alabama's plant, in Montgomery, employs more than 3,000 workers and has the capacity to produce nearly 400,000 vehicles a year.

Right: Honda Manufacturing of Alabama, in Lincoln, employs more than 4,000 workers and has the capacity to produce 340,000 vehicles and V6 engines a year.



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to be the nation's No. 4 automaker, with huge plants crafting vehicles for Mercedes-Benz, Hyundai and Honda, plus a new Autocar truck plant and a major Toyota engine plant.

If any single event can earn credit for changing the face of an entire state's economy, consider this one — the day back in 1993 when Mercedes-Benz announced plans to build its first U.S. plant in Tuscaloosa County.

What started as a \$400 million plant to make a line of sport-utility vehicles is now the vibrant hub of a \$6 billion presence in Alabama, making SUVs and coupes and winning the top ranking among Alabama exporters.

The Alabama work is part of company-wide efforts to completely electrify each segment of the Mercedes lineup by 2022. Alabama is one of Mercedes' biggest producers, where 3,700 workers helped create nearly 300,000 vehicles in 2017. More than \$1 billion worth of vehicles are destined for the international marketplace, going to 135 countries.

Hyundai Motor Manufacturing Alabama, in Montgomery, is credited with a \$5 billion impact on Alabama's economy. The \$1.7 billion plant employs more than 3,000 workers. It has attracted more than 70 supplier firms, located in 17 counties across Alabama and creating another 7,000 jobs. Hyundai has the capacity to produce nearly 400,000 vehicles a year. Sedans and SUVs built in Montgomery are sold throughout the U.S., Canada, Puerto Rico and other locations in North America.

Honda Manufacturing of Alabama is the company's largest light truck facility. In addition to the new Honda Ridgeline, it makes Odyssey minivans, Pilots and Acura MDX, as well as V6 engines. The \$2 billion plant employs more than 4,000 workers and has the capacity to produce 340,000 vehicles and V6 engines annually. An \$85 million logistics facility opened in 2018, and a \$54 million project to improve weld operations is in progress, slated for completion in 2021.

Toyota's Huntsville plant is the only U.S. plant with the capability to make 4-cylinder engines for Camry, Highlander, RAV4 and Venza models; V6 for Highlander, Tacoma and Tundra, and V8 for Sequoia and

Team members at Toyota Alabama, in Huntsville, build about 3,000 engines a day.

STATE OF THE ART IN THE STATE OF ALABAMA

Clean, smart and high tech. That's the world of modern automotive manufacturing today. An industry experiencing unprecedented growth and constantly in need of a steady flow of skilled local workers.

It's why you'll find us partnering with schools, colleges, agencies and attending employer job fairs. We also support education through grants and scholarships.

Our aim is to develop talent, build skill sets and shine a light on the opportunities a career in automotive manufacturing affords. Together with our friends and neighbors, we aim for Alabama to continue to have a workforce to be reckoned with.



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HONDA

Honda Manufacturing of Alabama



Tundra. And in September 2017 Toyota announced a \$106 million investment to equip the plant to build the next generation of engines — a total investment of \$850 million since groundbreaking in 2001.

Just a year after announcing plans for a heavy-duty truck facility in Alabama, Indiana-based Autocar cut the ribbon on the pristine \$120 million, 1 million-square-foot plant in Birmingham. Founded in 1897, Autocar counts itself the oldest motor vehicle brand in the U.S.

Alabama's automakers represent the largest export sector in the state's array and make Alabama third in the nation for vehicle exports. The firms produced nearly 1 million vehicles in 2017 and shipped \$9 billion worth of vehicles and parts to destinations around the world.

The automotive sector now provides jobs for some 40,000 Alabamians.

Above: Workers at Honda Manufacturing of Alabama, in Lincoln, celebrate the beginning of production of the 2018 Odyssey Minivan.

Left: SUVs move toward completion at the Mercedes-Benz plant in Tuscaloosa County.



SIGNATURE VICTORY: ALABAMA WINS \$1.6B MAZDA TOYOTA PLANT

Big win comes at 25th anniversary of Alabama's first step into automotive arena

BY DAVE HELMS // PHOTO BY ROBERT FOUTS

Toyota and Mazda handed Alabama the \$1.6 billion auto factory prize in mid-January, choosing a Limestone County industrial megasite for an operation expected to employ about 4,000 people building Corollas and a new small SUV from Mazda.

The site had been looked at before by automakers — it was passed up some years back by Volkswagen — but this time Huntsville was ready, according Mayor Tommy Battle.

Gov. Kay Ivey made the official announcement Jan. 10 in Montgomery, flanked by Akio Toyoda, president of Toyota Motor Corp., and Masamichi Kogai, president and CEO of Mazda Motor Corp. It wasn't the Toyota CEO's first visit to Alabama — he noted his first extended stay in the States occurred some years back as a visiting Boy Scout.

The plant, first discussed publicly by the two automakers last August and code named Project New World, drew a long line of suitors. Alabama's strong automotive supply lines, Huntsville's megasite and trained workers eager to make \$50,000 a year yielded the winning bid.

North Carolina, reported to be Alabama's only competition for the plant in the last stage, offered a whopping \$1.5 billion in incentives, according to the Raleigh News & Observer. The paper said leaders in that state were confident enough that they had readied a bill for the Legislature to approve the package.

Alabama's incentives package was estimated at as much as \$900 million, counting state and local incentives, which were still being sorted out by Alabama Secretary of Commerce Greg Canfield and others.

The plant should begin operations by 2021 and have an estimated annual production capacity of approximately 300,000 units. Toyota and Mazda already have a solid record of cooperation. Toyota makes hybrid technology like that found in its Prius for Mazda, which in turn makes compact cars for Toyota in Mexico. Such compacts saw a nearly 10 percent drop in sales in 2017, according to Autodata Corp., meaning that the new factory's model output may need to change before it gears up.

The two companies have said they will split the development cost of the new plant equally. An agreement signed

last August also indicated the new plant would be a collaboration site for further work on green technologies, connected-car technologies and passenger safety.

Among about \$320 million in auto plant incentives, Huntsville is donating the land for the plant to Mazda-Toyota, estimated to be a \$68 million value.

"Nothing would please me more than if, through this alliance, we can help to energize the auto industry and create more car fans by bringing together two competitive spirits to spur each other on," said Mazda's Kogai.

President Donald Trump specifically criticized Toyota a year ago for not having enough U.S. investment, saying its decision to shift automaking jobs to Mexico was unfair. Toyoda has denied that Trump's statements influenced the company's decision, which he says was based on "the best production strategy for our business."

Masamichi Kogai and Akio Toyoda joined Gov. Kay Ivey for the trumpet blast in Montgomery at the RSA Activity Center. Also in the photo: Secretary of Commerce Greg Canfield, far left; Limestone County Commission Chairman Mark Yarbrough, far right, and Huntsville Mayor Tommy Battle, second from right.



STATE OF THE AUTO INDUSTRY, 2018

BY CARY ESTES // PHOTO BY ROBERT FOUTS

As sensational as the announcement 25 years ago when Mercedes-Benz launched Alabama into automotive manufacturing was the announcement January 10, 2018, that Toyota and Mazda selected Alabama as the site for their \$1.6 billion, 4,000-job joint venture assembly plant.

The new plant, expected to start operations in 2021, is planned to have an annual production capacity of approximately 300,000 units.

Alabama has already been zooming along in the fast lane of the automotive industry. The state now produces more than 1 million vehicles per year, with approximately 40,000 jobs connected to the industry through the various OEMs and

suppliers. When the new plant comes on line, Alabama is expected to move from fifth place to fourth among the nation's automaking states.

"It's amazing if you look at where we started and our position today in the auto industry. We've really become a global player," says Steve Spencer, president of the Economic Development Partnership of Alabama. "We've matured as a state in the industry, both in terms of the growth of the companies here and also in economic development. We've become more knowledgeable about the industry and the need to address the issues that are important for its growth."

Most industry officials agree that the primary issue facing the industry is workforce development. Not only is there an

abundance of long-time employees in the workforce who are nearing retirement age, but also there is a need for new workers who have the necessary skills for the high-tech vehicles being produced these days.

"The key thing we're working on across the whole state is workforce development, to provide the quality workers that are needed for both the existing industries in the state and these new companies coming in," says Ron Davis, president of the Alabama Automotive Manufacturers Association. "They're going to be successful only if they have qualified workers. So

Akio Toyoda, left, president of Toyota Motor Corp., and Masamichi Kogai, president and CEO of Mazda Motor Corp., applaud January's factory announcement.

there are initiatives across the whole state of Alabama in the area of workforce development to provide those workers. We have tremendous activity going on in that area.”

Three other topics are also headline makers in the industry.

THE CREATION OF THE NEW SOUTHERN AUTOMOTIVE MANUFACTURERS ALLIANCE

This new organization consists of the state automotive manufacturing organizations of Alabama, Tennessee and Mississippi, with the Georgia association as an apprentice member. Also part of the new alliance are the Southern Automotive Women’s Forum, the South Carolina Automotive Council and the Kentucky Automotive Industry Association.

The goal is for the states to work together to create new opportunities in the automotive industry throughout the Southeast region, though they still will compete with each other to land individual manufacturers and suppliers. The concept is similar to that of a professional sports league such as the NFL, where the teams cooperate for the benefit of all, yet remain rivals on the playing field.

“The states will still compete in the area of economic development, but association presidents and executive directors will work together and talk to each other as friends,” Davis says. “So we are partners who want to help the whole region grow, but there will be that competition in economic development for who gets what plants. But it’s a healthy thing, because we really do help each other to support the associations in each of the states.

“The teamwork is fantastic, because each of the presidents from the other states have their areas of expertise, their specific backgrounds and skills. For example, Rick Walker of Georgia is a patent attorney. So there are certain things that he has more knowledge about. And when we all come together, it makes collectively for a much stronger team that any one of our states alone.”

OPENING OF A NEW AUTOCAR TRUCK ASSEMBLY PLANT IN BIRMINGHAM

The Indiana-based company is investing \$120 million to open a manufacturing plant in an existing 1 million-square-foot complex in the Birmingham suburb of



Indiana-based Autocar announced in September it will build a \$120 million plant in Center Point and Birmingham to make heavy-duty trucks and to engineer new products. *Photo courtesy of Autocar*

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Center Point. The plant is expected to create nearly 750 jobs and generate more than \$645 million in annual economic impact, according to a study from the University of Alabama's Culverhouse College of Commerce.

In addition, Autocar gave Alabama yet another OEM assembly plant to go along with Mercedes, Hyundai and Honda — plus Toyota's massive engine plant and the Mazda Toyota project that was still just a

dream when Autocar announced — but Autocar will produce different types of vehicles from the others. Autocar's focus is on heavy-duty work trucks, opening up new markets for suppliers in the state.

"It's a completely different product," says Brian Hilson, president and CEO of the Birmingham Business Alliance. "They make trucks that are purchased by companies and governments, vehicles for things like public works divisions. That's signifi-

cant for both Birmingham and the state. The economic impact is going to be very strong. This is part of the natural evolution of the growth of the automotive industry in Alabama over the past 25 years."

A GROWING SUPPLIER BASE

Alabama continues to welcome new suppliers and supplier expansions as well. No surprise, says Davis, since Alabama has "a proven track record of being very friendly to the automotive industry."

Among the newest are MollerTech, which cut the ribbon on its \$46 million plant in Bibb County early in 2018; Topre America Corp., which announced an \$80 million expansion in Cullman and Unipres, planning a \$40 million expansion in Steele; Samvardhana Motherson Peguform, which opened its Tuscaloosa plant in spring 2018, and Yorozu Automotive Alabama opened a \$100 million facility in Jasper.

This newest group of openings, expansions and announcements, followed close on the heels of the previous year's wins: German auto parts manufacturer BOCAR announced plans for a \$115 million manufacturing plant, also in Huntsville, with plans to hire 300 workers. Spanish firm Grupo Antolin announced plans for a \$10 million plant in Jefferson County to make doors, seats, lighting fixtures and trim. Guyoung Tech USA, based in Korea, has invested \$7.5 million and will employ 130 people making seating in Montgomery. Another Korean firm, Seoyon e-Hwa Interior Systems Alabama, already operating a supply facility in Selma, will open a new plant in Montgomery to make door trim, seats, head linings. And German firm SAS Automotive Systems plans to assemble cockpit modules for Mercedes in a new plant in Tuscaloosa.

"Alabama is now one of the leading states in the country for automotive production, and we expect that to continue to grow," Hilson says. "Every one of our Alabama-based automotive manufacturers has announced recent expansions. They've added capacity, they've generated investment, and they've added jobs. And the changes in the product lineups are going to dictate changes among the supplier lines and the manufacturing technologies. As we look several years down the road, I think Alabama's role in the automotive industry is going to be significant."

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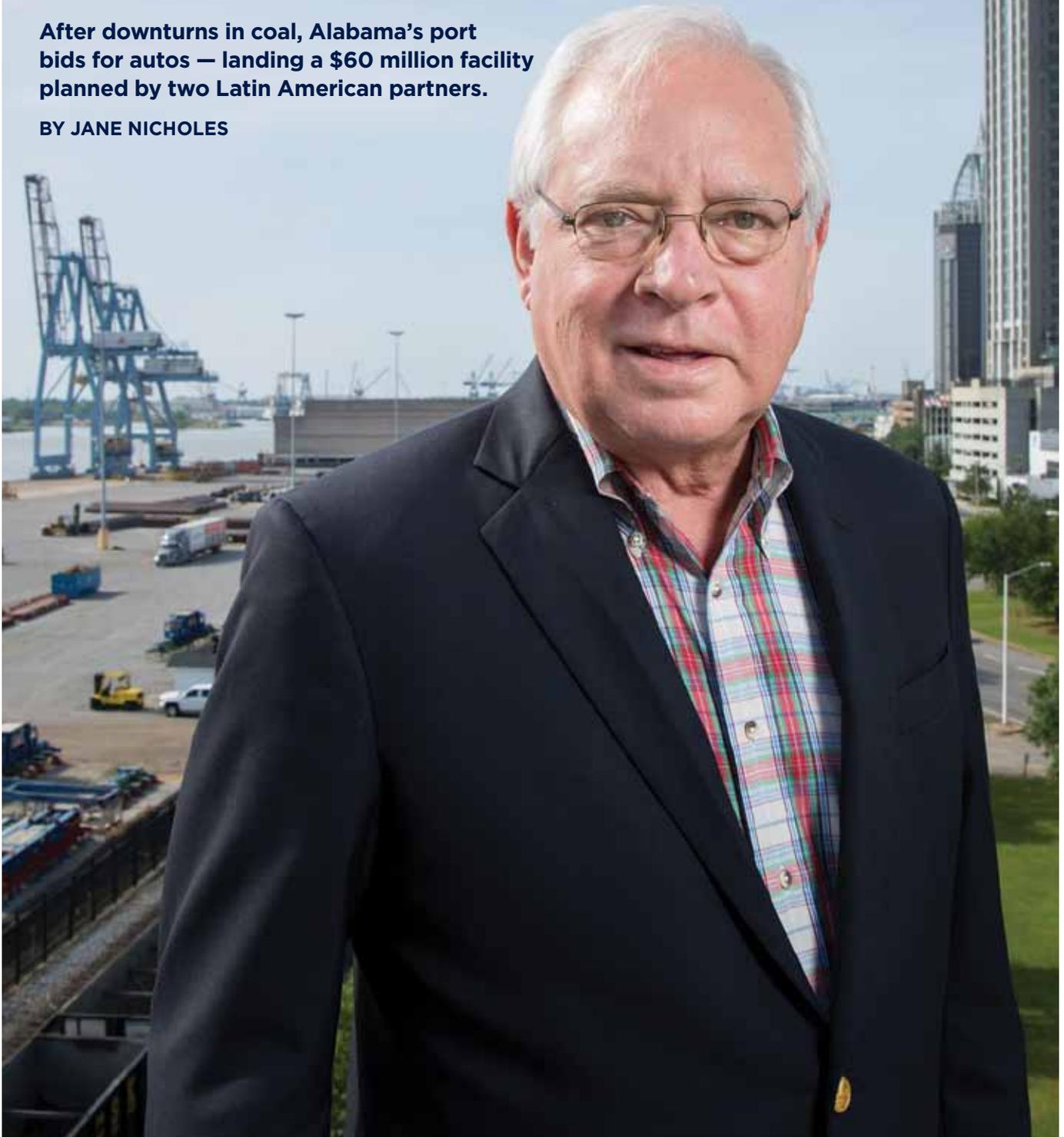
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PORT ANGLES FOR AUTO TRAFFIC

After downturns in coal, Alabama's port bids for autos — landing a \$60 million facility planned by two Latin American partners.

BY JANE NICHOLAS



Mobile's port sprawls behind Director Jimmy Lyons. Port officials hope a new RO/RO terminal being built by two South American firms will finally attract automotive shipping to the Port City. *Photo by Mike Kittrell*

The planned \$60 million roll-on/roll-off facility in Mobile represents a major diversification for the nation's 10th largest seaport by volume. But Jimmy Lyons, director of the Alabama State Port Authority, says it's too soon to project which automakers will use it.

"Nobody will really talk to you until you have the facility built, so nobody's going to guarantee that they will ship through us until they can see what we've got and what we've got coming through here," Lyons says.

Two of the big players in the RO/RO business, however, are optimistic enough to take on the project, called AutoMobile International Terminal.

Terminal Zarate of Argentina built the first vehicle terminal in Latin America in Buenos Aires in 1996. The RO/RO facility handled 625,000 vehicles in 2017. The company is owned mostly by Grupo Murchison, which Lyons describes as primarily "stevedores and terminal operators

with multiple locations in Argentina and one in Uruguay."

SAAM Puertos SA is a subsidiary of the Chilean multinational company Sociedad Matriz SAAM SA. It operates 11 ports in Chile, Mexico, the United States,

"I think there's a very good chance that we can pick up automobile volumes."

— Jimmy Lyons

Colombia, Ecuador and Costa Rica.

"They will get a long-term concession to operate the facility," Lyons says of the two companies. "This doesn't necessarily have anything to do with trade between Chile and Argentina. Our trade could be with Asia, with Europe, with Mexico."

The Port Authority has been working

on the project for about a year and a half. It put out requests for proposals for the RO/RO terminal and received two, with the second proposal from two stevedoring companies that operate in Mobile, Lyons says. "It wasn't nearly as attractive."

Grants were crucial to putting the deal together as well. The Port Authority was awarded a \$12.7 million TIGER grant (Transportation Infrastructure Generating Economic Recovery) and a \$28.8 million grant from the Alabama Gulf Coast Recovery Council under the Restore Act resulting from the 2010 BP oil spill.

Lyons says the deal for the new facility will work much like a lease at the Port's container terminal, which is run by APM Terminals, he says. The Port Authority gets a flat amount of money per month plus a fee for each unit that moves through the RO/RO terminal. The South American partners will charge the ships and rail cars using the terminal for loading and unloading.

The site of the terminal is the 57-acre



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former Bulk Material Handling Plant on the far northern end of the docks. It once handled coal, iron ore and other materials, and was owned and operated by the Port Authority. It was shut down three times, Lyons says, the last time about three years ago. At that time it was handling coal destined for Mississippi Power in Biloxi, but Mississippi Power shut down its coal-fired units, Lyons says.

Construction on the new terminal should take about a year, so the facility will be ready for operations, hopefully, in 2019. Lyons says most of the property will be paved over for parking for hundreds of cars at a time.

The terminal also will be able to handle tractor trailers, utility trucks, farm tractors, construction equipment, heavy machinery and roll trailers. The port currently handles windmill parts destined for a facility in Pensacola that come in on roll trailers, but the only available parking lot is gravel and new car makers won't accept a gravel lot, Lyons says.

How much Alabama auto manufac-



Facilities of the Alabama State Port Authority line the west side of the Mobile River.



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turing will benefit depends on who is exporting and which ships agree to use the Port of Mobile, he says. Mercedes, for example, exports a significant number of vehicles. The cost benefit to the ships also depends on the number of vehicles per ship. “A ship is not going to come in here to pick up five automobiles.”

The chief RO/RO terminal competition is to the east.

“The two big auto ports that are in this region are in Brunswick, Georgia, and Jacksonville, Florida,” Lyons says. “They both have very large auto handling facilities and they’ve been in business for a long time. They have ships going in and out of there and they have ships going to a lot of places that Mercedes ships to.”

On the other hand, the Alabama port is much closer to Mexico, where Chrysler, Ford, General Motors and Mazda have a combined 11 auto or auto parts manufacturing plants. Ship transport would need to be more cost effective than rail for manufacturers, Lyons says.

“I think that’s a good possibility for us.

If we do get ships going back and forth to Mexico, I think there’s a very good chance that we can pick up automobile volumes and go back down to Mexico.”

Lyons predicts that AutoMobile will employ about 100 people but the number will go up when ships are in port. Long-shoremen who already work the container ships will be in the RO/RO pool, and they can make \$75,000 to \$100,000 annually.

The Port of Mobile already has another RO/RO facility that loads train cars for rail-ferry services to Coatzacoalcos, Mexico, and boasts that it saves several days compared to overland shipping. The CG Railway service is owned and operated by Seacor in partnership with Genesee & Wyoming.

The Port of Mobile depends heavily on coal, steel and forest products. In addition to generating additional revenue, AutoMobile will strengthen the port overall, Lyons says.

It also strengthens the South Alabama Mega Site located off Interstate 65 north

of Bay Minette in Baldwin County. The 3,000-acre site, owned by Baldwin County and marketed by the Baldwin County Economic Development Alliance, is a potential location for large industrial development such as an automaker.

“It’s definitely a positive asset for the mega site as it relates to automotive assembly,” says Lee Lawson, president of the alliance.

Any port improvement complements the mega site, which has a direct rail line to the port already in place, Lawson says. The alliance stays in touch with port officials and has been talking with them about the possibilities introduced by the AutoMobile terminal.

Always cagey about what he might be working to lure to the mega site, Lawson says “there may not be a direct correlation” to automaking among current projects.

“But if there’s an automotive manufacturer that’s going to assemble cars and ship them internationally, then it’s definitely a positive thing for us.”

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AEROSPACE AND AVIATION

Once upon a time, not so very long ago, Huntsville was a sleepy town awash in cotton. Then the Russians put Sputnik into space and the race was on. The government whisked a team of former German rocket scientists to the all but deserted Redstone Arsenal to craft America's path to the heavens.

Today a Saturn V rocket dominates the Huntsville skyline, a tribute to NASA's success — launching a satellite and then a man into space and then a man to the moon.

Now that rocket is a challenge to reach beyond the moon.

"Exploring space is imperative to addressing the fundamental questions about our place in the universe and the history of our solar system," said Jerry Cook, deputy director of the NASA Space Launch System, as the program began to develop a couple of years ago. "As demonstrated by the numerous inventions created because of America's space exploration efforts, we expand technology and create new industries that make Earth a better place, and SLS is the vehicle that is going to allow us to explore like never before."

At NASA's direction, teams of contrac-

tors are designing and building the Space Launch System, aiming for Mars — creating the core stage, designing the propulsion systems, fine-tuning the materials. More than 150 companies are involved in the massive project.

At the opposite end of the state, the focus is on commercial air travel. Just as Airbus was hitting its stride, crafting jet after jet on its nearly new final assembly line in Mobile, a quirk of international politics brought plans for another FAL right beside the first. While Airbus builds A320 jets on one line, the other will assemble the slightly smaller jet designed by Canadian aircraft company Bombardier and now an Airbus project.

In other pockets around the state, other rockets and missiles are designed and built.

In Decatur, not far from Huntsville, United Launch Alliance builds the rockets that take most U.S. payloads to space. ULA is a joint venture between Boeing and Lockheed Martin, building the standby Atlas and Delta rockets. For blastoff junkies, ULA almost always has a launch video or two on its website. Now, as pressure is on to replace Russian rocket engines with

home-grown versions, companies competing for the engine work are joining ULA in Huntsville and Decatur.

And in Troy, Lockheed Martin builds the missiles designed to protect us from attack while it works to design a hypersonic missile at its facilities in Huntsville. Defense efforts go hand in hand with Alabama's aerospace cluster. Virtually all the biggest names are represented in Huntsville, including all of 2016's top five defense contractors — Boeing, Lockheed Martin, General Dynamics, Raytheon and Northrop Grumman.

Completing the aerospace package that's headlined by NASA, Boeing, Lockheed Martin and Airbus, the state boasts a host of aerospace firms that search for solutions to complex problems, develop materials to make flight safer, analyze their way to more accurate guidance systems for missiles, train the world's helicopter pilots and keep the nation's aircraft shipshape.

The Alabama Department of Com-

Arthur Scott of PPG Aerospace, which supplies aircraft windows and more worldwide. *Photo by Dennis Keim*

merce counts more than 300 state firms in the aerospace field, with more than 61,000 employees. Alabama aerospace companies garnered \$8.4 billion in defense contracts and tallied \$1.4 billion in exports.

Newer aerospace-focused companies include Carpenter Technology, which opened in 2014 near Athens to create premium steel alloys — nearly half of which go into aerospace and defense projects. The Pennsylvania-based company traces its

heritage to the early days of flight and space flight, noting that its products were part of the Wright Brothers planes, Charles Lindbergh's Spirit of St. Louis and the rockets that took Neil Armstrong to the moon.

General Electric Aviation is also new to the Alabama mix, opening a \$75 million plant in Auburn in 2015 and starting work on a new \$200 million facility in Huntsville in 2016. The Auburn plant produces precision, super-alloy engine parts. Early on the

firm invested an additional \$50 million to begin 3D printing of jet fuel nozzles. The twin Huntsville plants will make silicon carbide materials for jet engines and gas turbines.

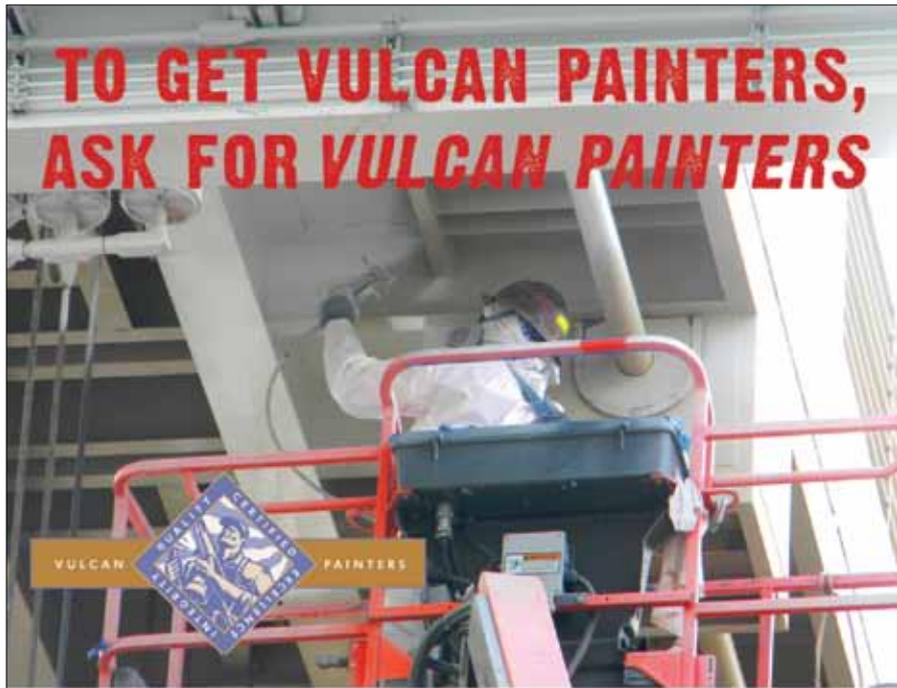
BWX Technologies joined the mix this year. Expanding on a long history of creating nuclear power systems for submarines and more, the firm hopes to expand its niche making a nuclear propulsion system for the Space Launch System.

The state's MRO cluster — performing maintenance, repair and overhaul for many kinds of planes and helicopters — continues to thrive. VT Mobile Aerospace Engineering, which sparked the south Alabama aerospace cluster, celebrated a quarter century in Mobile in 2015. UTC, Baldwin County's largest manufacturing employer, specializes in nacelles and other systems and just completed a major expansion, increasing its workforce by a third. Star Aviation adds specialty systems like Wi-Fi and advanced avionics at its site in Mobile, and Commercial Jet just moved to Dothan, where it specializes in modifications. Continental Motors is in the midst of a \$75 million expansion at the Mobile plant where it makes turbine and piston engines for light aircraft.

Newcomers to the mix include the Swiss firm Ruag Space, which is building payload fairing systems at ULA's Decatur plant. Winkelmann Group announced plans for an Auburn plant focused on "high-precision, high-strength, thin-wall roto-symmetrical parts" from many metals and for many industries, including aerospace. The Poarch Band of Creek Indians launched a new business, PCI Aviation, in Huntsville to perform cable and wiring harness fabrication.

And as the industry gears up, so have the state's airports — a completely renovated terminal in Birmingham, talk about moving Mobile's commercial airport alongside its international aircraft industrial facilities at the Mobile Aeroplex, new commercial service popping up in several cities, terminal expansions in Montgomery, upgraded amenities and a new hotel in Huntsville, and a variety of upgrades in Dothan from runway and security improvements to upgrades of on-premises industrial sites.

And Huntsville still hopes to be among the very first airports where Sierra Nevada's Dream Chaser spacecraft can land.



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PARTNERS RATIFY \$300M AIR ASSEMBLY LINE

Top brass from two international aircraft companies flew into Mobile in February 2018 to affirm a big deal for Alabama.

BY NEDRA BLOOM // PHOTOS BY MIKE KITRELL

Key executives from Airbus Americas and Bombardier Inc. flew into Mobile in early 2018 to show off the CS-300 aircraft they plan to build here and their plans for a new \$300 million final assembly line — provided the project can clear the remaining regulatory hurdles.

At the time, the two companies hoped to close a deal before the end of 2018, said Jeff Knittel, chairman and CEO of Airbus Americas — predicting an increase of 400 to 600 jobs in Mobile. The regulatory approvals subsequently went through and the deal was finalized.

The plans were first announced last October, within weeks after the U.S. Department of Commerce slapped a 300 percent tariff on the Canadian-built planes.

The tariff was the last step in a complex trade battle between Bombardier, Euro air giant Airbus and U.S. aircraft stalwart Boeing Co.

The story starts in Canada. Bombardier introduced a new little plane to fill the smaller end of the commercial jet market. The plane was designed from the ground up to be so fuel efficient that airline companies could afford to fly it with a passenger-friendly seating configuration.

And the plane's success was critical to Bombardier, where times have been tough.

Costs were higher than expected, the project was taking longer than planned, engines were delayed and sales were off — all leading to a \$417 million loss in 2016, another \$377 EBIT loss in 2017 and yet another bleak prospect for this year.

Alain Bellemare, president and CEO of Bombardier (left), and Allan McArtor, chairman emeritus of Airbus Americas, welcomed Airbus employees and local media to view the CS-300.



The Quebec government provided \$372 million in interest-free loans to keep its plane maker afloat.

But Bombardier had to sell some of the planes. There were a few orders, but not enough. What looked like the saving grace came in late 2016, with a big sale to Atlanta-based Delta Air Lines.

That sale prompted a trade complaint from rival aircraft maker Boeing, objecting specifically because of the Quebec government bailout funds.

Trade complaints about aircraft sales are common.

John Walton, writing for Australian Aviation, described it this way: “a trade complaint that, initially, seemed like all the others that end up all sound and fury, but signifying nothing. A little launch aid here, a little investment incentive there, a big discount for early or large orders over there: it’s all part of the cut and thrust of commercial aircraft manufacturing, and is frankly nothing new to commercial aviation.”

This time, however, Boeing won a big victory. New protectionist policies under the Trump Administration led to imposition of a massive tariff — roughly 300 percent.

That made the price tag too big for Delta, and the sale was put on hold. “Delta CEO Ed Bastain has made it clear that his airline wants the planes but will not pay any tariffs,” wrote Benjamin Zhang in Business Insider.

Within weeks, Bombardier and Airbus announced plans to work together. Airbus took a controlling interest in the new plane with plans to build it in the U.S.

The move made heads spin among industry observers.

Australian Aviation writer John Walton recalled in January how Airbus sales chief John Leahy viewed the Bombardier craft last year and described it as “a cute little airplane.” Even that recently, Walton continues, “few people would have imagined that the European airframer would take over the Canadian aircraft program, essentially for free, in a move that shook the world of commercial aviation like few others.”

The CS-300 — renamed the A220 since the new partnership — boasts fresh design features for fuel efficiency, passenger comfort and ease of flying.



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Meet the C-Series Bombardier

The C-Series aircraft has been designed for passenger comfort and operating efficiency.

From the flight deck with larger graphic displays and a side stick that gives pilots more space to the human-sized lavatories and overhead bins that hold three carry-ons plus three laptops the aircraft is roomier.

People are bigger than they used to be — on average 25 pounds bigger — so seats are wider (and the middle seat is wider than the aisle and window seats). Windows are half again the size of most competitors and the aisle is 20 inches wide, allowing two people to pass each other.

Although airline companies can order any configuration of seats they choose, including ones that would undermine passenger comfort, Bombardier officials believe that the fuel efficiency will make it practical to offer the plane in its comfy configuration.

Bombardier calculates fuel use at about 2 liters per passenger per 100 kilometers, at the very low end of the spectrum.

Fuel savings are achieved with aerodynamic design, lightweight components, fuel-efficient engines and redesigned elements, such as electric brakes instead of heavier hydraulic versions.

And if you're interested, Bloomberg pegs the list price at \$89.5 million, but notes that if you buy enough, you can probably get a discount.



Writing in Forbes, Loren Thompson painted the other side of the deal's picture, saying, "Here's why Boeing isn't worried at all.

"The first thing to understand about Boeing's reaction is that it could have had the same deal," Thompson wrote. "When Bombardier was skirting insolvency in 2015 due to bad management and soft demand for its products, the company invited a number of suitors to look over the business, including Boeing. Boeing didn't like what it saw. Neither did Airbus, nor did prospective Chinese investors. That's why Quebec's provincial government had to spend a billion dollars bailing out the company to keep the troubled C-Series program going."

Mobile "is our industrial home; this is where we come to grow."

— Allan McArtor,
chairman emeritus of
Airbus Americas

Currently, Airbus has slightly more than half interest in the C-Series planes, Bombardier retains 37 percent and the remainder stays with the Quebec government, for infusing the company with cash during its financial plight.

Boeing, meanwhile, is working on similar plans with Brazilian firm Embraer, which also builds small commercial jets.

UNVEILING PLANS IN MOBILE

In Mobile, aircraft company officials focused on their plans, rather than any of the factors that might have provoked those plans.

Chairman emeritus Allan McArtor, who was the face of Airbus as the international firm moved into Mobile six years ago, said the partnership of Airbus and Bombardier "is another example of the solid commitment of Airbus to manufacturing in the United States and in particular, in Mobile, Alabama.

"This is our industrial home; this is where we come to grow," McArtor said.

Knittel added that the plan is to build

Introducing the Bombardier jet to its new home in Mobile.

four Bombardier C-Series per month in a new final assembly line adjacent to the Airbus facility, and possibly increase Airbus A320 family production from four per month to six or more.

Alain Bellemare, president and CEO of Bombardier, said the C-Series aircraft represents a new generation of single-aisle aircraft, with anticipated sales of 6,000 or more over the next 20 years.

Lightly addressing challenges from rival Boeing, Bellemare said that more than 50 percent of the Bombardier aircraft components are made in the U.S. already. And all officials said they expect even more suppliers to move to the Mobile Aeroplex in support of the new craft.

“The commercial magnet of Brookley Field would be doubled,” McArtor said.

The C-Series plane is a good companion to the Airbus A320 family, all officials said.



The C-Series, with 100 to 150 seats, can be used when an airline moves into a new market. As the market matures and demand increases, they can move up to the bigger Airbus single-aisle options. McArtor said the two firms expect their

customer airlines will want both varieties, not just one or the other, so they expect a competitive advantage from having both options.



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INFORMATION TECHNOLOGY

Google in Scottsboro, Facebook in Huntsville and DC Blox in Birmingham — all new data centers on the rise as Alabama's information technology star ascends.

Google broke ground for its Scottsboro data center this year. The \$600 million center, which will function as an internet traffic hub for the international giant, is being built on a former Tennessee Valley Authority coal-fired power plant site.

The ceremonial shovels had hardly been polished up before Facebook announced plans for a \$750 million data center in Huntsville.

Less than a month later, Atlanta-based DC Blox announced plans for a \$785 mil-

lion data center in Birmingham.

All reflect Alabama's newly recognized prowess in information technology.

From hardware to software, from city-operated fiber optics to head-in-the-cloud imagination, from hospital record keeping to military modeling and simulation, from the smallest specialty company to the 2,500 professional staffers at the Air Force's Gunter Complex, information technology is a strong and growing sector in the Alabama economy.

The state also boasts a couple of very high-powered teams working to keep all that information safe, among them the National Computer Forensics Institute in Hoover, which trains law enforcement,

prosecutors and judges in the more complex aspects of cyber safety.

Around the state, the industry is growing. Each of the data centers, for example, is expected to employ 100 or more highly skilled professional staffers.

Adtran is the premier IT hardware and software developer in Alabama, one of the state's leading publicly traded companies and a trendsetter in connectivity and in

Above: A Facebook data center, like this one in Oregon, was announced for Huntsville in July 2018 with construction scheduled to start later that year.

Right, top: Adtran headquarters in Cummings Research Park, Huntsville

helping bring cloud computing in reach of small businesses as well as big.

Also in Huntsville, Intergraph — now part of Swedish firm Hexagon — continues to develop new software that feeds the world market for geospatial data.

In the south, Computer Programs and Systems Inc. has created record-keeping systems targeted at smaller hospitals, helping them keep their data accessible and compliant with federal mandates. CPSI is another of the state's publicly traded IT companies.

A host of smaller companies have joined the mix in the past few years.

Some areas of the state have taken extraordinary steps to provide high-speed connectivity. A few years ago, Opelika, unable to get the quality of service its citizens wanted from commercial providers, built its own fiber optic network, available to every home and business. Huntsville soon announced plans to join the ranks of “gig” cities, teaming with Google to bring the speeds needed for the city's bevy of tech-rich industries.

Montgomery has created an Internet Exchange that brings together the expertise of municipal, military and academic resources to move it to the forefront of high-speed connectivity. Latest development is a move by global internet service provider Hurricane Electric to catapult the system forward to 100 gig connectivity.

Alabama's military presence also contributes to its IT prowess, both from within the military and from the hundreds of defense contractors nearby. At Gunter Annex, associated with Maxwell Air Force Base in Montgomery, the Air Force maintains the majority of its professional IT services. Some 2,500 IT professionals are based there. The Business and Enterprise Systems Directorate provides IT services and superintends contracting and acquisition of additional services.

In Huntsville, contractors specializing in modeling and simulation support the nation's defense capabilities. The city's annual modeling & simulation conference, AlaSim, attracts experts and exhibitors from around the world. Aegis Technologies is one of the modeling & simulation industry leaders, developers of a new program that acts like a video game but helps troops learn to differentiate quickly between friend and foe.



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AUBURN RESEARCH AND TECHNOLOGY FOUNDATION



LIGHTNING SWIFT JACKPOT CASHOUT

Four years from launch to cashout, Shipt's \$550 million sale to Target is a new high for Alabama startups and a beacon for Birmingham's emerging community of business innovators.

BY TOM LITTLE // PHOTOS BY JOE DE SCIOSE

Late in 2017, Target announced plans to acquire the Birmingham-based grocery delivery service Shipt. The all-cash purchase totaled \$550 million, a new high-water mark for Alabama startups.

"It was always a dream of ours to work with Target," says Shipt CEO Bill Smith. He had met with a Target representative at a conference the previous year, originally discussing adding Target as a retail partner.

"We reconnected after that initial meeting, and conversations progressed from there," says Smith. "They brought up the idea of acquiring Shipt, and we consulted with the board and began giving it serious thought."

Target plans to use Shipt's app-based delivery network, allowing online customers to order home goods, electronics and more, in addition to the standard grocery list. By the end of 2019, all the store's major product categories will be included in Shipt's same-day delivery capabilities.

At Shipt's headquarters in the John



Hand building in Birmingham, much will stay the same. Shipt joined Target as a wholly owned independent subsidiary, retaining the staff at its Birmingham and San Francisco offices and maintaining the services that appealed to Target in the first place. Smith will remain CEO, and Shipt will continue to deliver for its existing retail partners.

Customers can use Shipt's services via shipt.com or the downloadable smartphone app. If Shipt operates in their area, they can pay \$99 for a yearly membership, place an order for groceries, and wait for a shopper to deliver the order directly to their door.

The acquisition was a key part of Target's larger plan to improve its digital capabilities and make the customer experience more convenient. Target began to experiment with next-day delivery last summer, starting with essential items. They also purchased transportation tech company Grand Junction to expand into same-day delivery. In addition, online shoppers now have the option to order their products in advance, then pick them up in the store or via drive-up.

Shipt, which had already distinguished itself nationally as a successful same-day delivery service, presented obvious appeal. "Shipt operates in terms of hours," says Smith. "You have to when you're working with groceries."

Shipt brings with it a user-friendly app as well as an established network of 30,000 shoppers, a crowd-sourced workforce that has grown from 10,000 over the last year. This existing presence within the e-commerce market added tremendous value to the company, prompting Target to invite Shipt into its fold rather than start from scratch.

Staffing such an endeavor would be a challenge in itself, and Shipt could easily tout the quality and reliability of its shoppers as an attractive selling point. "We put people first," says Smith. "The shoppers in our network create incredible experiences. That's a big priority for Target."

The acquisition was solidified in six months. "A deal of this size requires a lot of diligence, but both teams worked well together," says Smith. "It was very clear from our meetings that there was a strong

Left: Bill Smith built his company, Shipt, around an app-based grocery delivery service. Now part of Target, his Shipt will deliver most anything you might want from the big box store's wares.

Above: The Shipt logo blazed atop the John Hand building in downtown Birmingham even before owner Bill Smith launched his grocery delivery business.

cultural fit and that our philosophies aligned toward customers and employees. It was a great match from the beginning."

Shipt began delivering from Target locations on Feb. 1. Birmingham and South Florida were Shipt's first metros to incorporate Target as a retail partner, with more sites rolling out in the following months. The company planned to offer same day delivery in the bulk of Target's markets by the start of the 2018 holiday season.

The alliance comes at a pivotal time for the retail industry, as online shopping plays an increasingly significant role in American consumer behavior. According to the U.S Census Bureau, e-commerce accounted for more than 9 percent of all



ALABAMA TECHNOLOGY NETWORK (ATN)

The Alabama Technology Network (ATN) is a part of the Alabama Community College System and serves as the Manufacturing Extension Partnership affiliate for Alabama. ATN has served Alabama manufacturers since 1996. ATN's team of experts helps address the needs of industry and business through innovative, sustainable, and cost-effective solutions. ATN conducts detailed needs assessments, outlines potential solutions based on the assessment results, and provides technical assistance and customized training to help companies solve their problems.

ATN links industry and business with its network of research universities, community colleges, government agencies, and other partner organizations to deliver the technical assistance, customized training, and other tools and resources needed to improve operational efficiency, productivity, and competitiveness for Alabama manufacturers. ATN offices are located strategically throughout the state at 15 community colleges and 3 research universities to provide local points of contact and access to resources. ATN's vision is to be the driving force that makes Alabama's manufacturers the most profitable, competitive, and productive in the world.

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retail sales in the third quarter of 2017. That represents a 15.5 percent increase over the same period in the previous year.

Major retailers must now analyze their consumer interactions and adjust to the easy availability of online shopping options. Online powerhouse Amazon purchased Whole Foods last summer, with a substantial amount of the investment allocated to future growth, and Amazon Prime members could pay an additional fee for their grocery delivery feature.

When he first conceived of Shipt in 2014, Smith had envisioned a big box delivery service but saw that customers wanted grocery delivery more than anything else. “We had to build the infrastructure for it, but we knew we were on to something,” he says. “You need groceries every week or more. Everyone today is looking to leverage their time. That’s a huge need we could serve. It exploded overnight.”

By May 2015, Shipt had restructured itself to focus on groceries, based on Smith’s observations. E-commerce was a growing industry, but the ways that consumers would use it could change on the fly. “This business is about getting in the game and getting feedback,” says Smith. “No matter what your original idea was, you have to respond to the new info that you receive and adapt to changes.”

Before the acquisition, Shipt had earned \$65 million in investments. Its Series A round of fundraising brought in investors from coast to coast, with Greycroft Partners of New York and e.ventures of San Francisco. Birmingham’s Harbert Growth Partners was the startup’s first major in-state investor.

The acquisition by a major player like Target may elevate the profile of Birmingham’s emerging startup community. While attracting initial investors can be a grasp at straws, Birmingham is gradually becoming a more hospitable environment for ambitious entrepreneurs like Smith. Incubators like Innovation Depot provide startups with room to grow their potential, and local success stories should be willing to reinvest in their community. Smith himself recently contributed to the startup Planet Fundraiser, an app that allows users to donate to schools, non-profits and other worthy causes while shopping.

When Shipt first launched its grocery

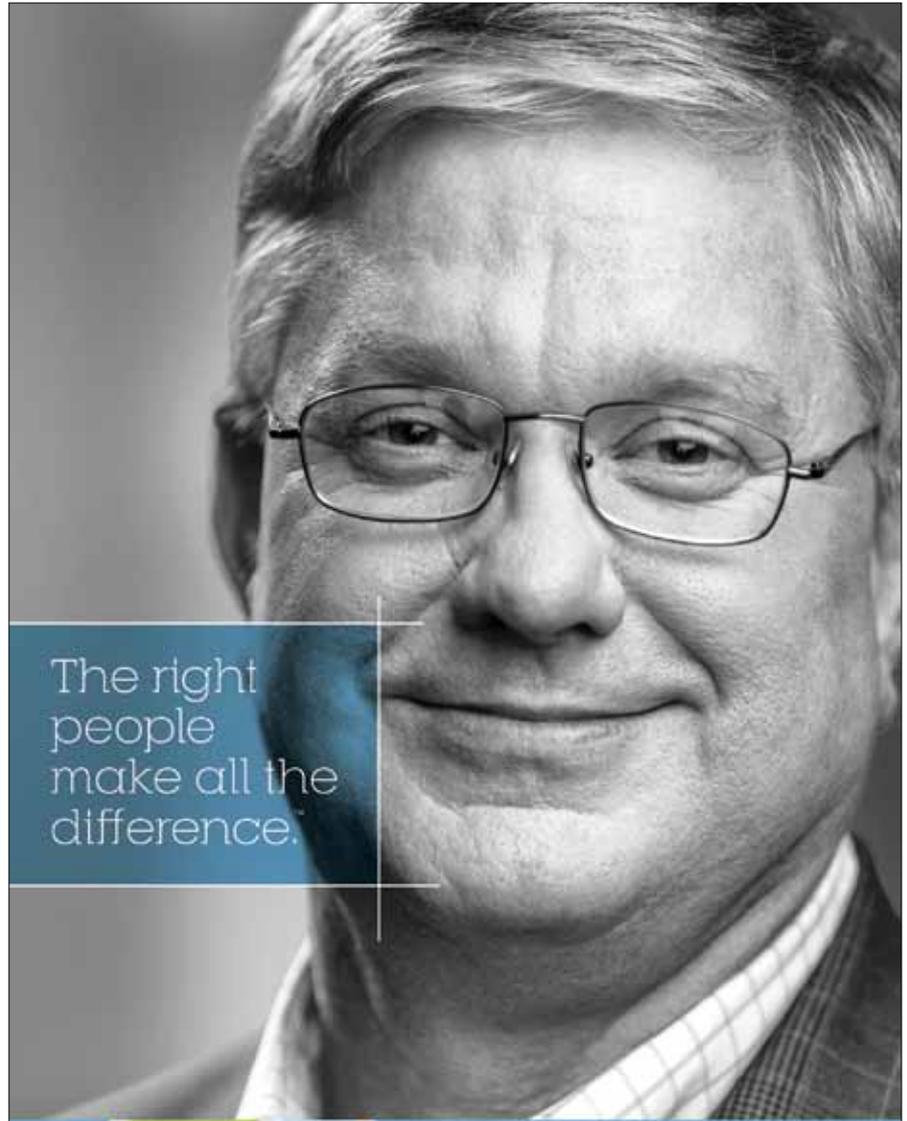
delivery app, Smith aimed to reach 100 markets by the end of 2018. In light of building momentum and Target’s support, he has adjusted his initial expectations upwards.

“We’re set to exceed that original number,” he says. Shipt operates in more than 70 markets right now, with plans to continue expanding.

Smith and company remain focused on

their partner retailers and may add more going forward. While Shipt was already proliferating at a rapid pace, he believes that the acquisition will further accelerate its market expansion.

“Target’s support will allow us to keep growing,” he says. “They’re like an anchor tenant, and we’re able to give them these great customer experiences.”



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SHIPT INVESTOR TAKE: 700 Percent Not Bad

Global venture capital firm e.ventures specializes in internet and software companies, and their portfolio includes ubiquitous names like Angie's List and Groupon.

Shipt was the firm's first investment in an Alabama-based startup, but Principal Brendan Wales was confident in the venture. "First, we realized that Smith had scaled the business rapidly on a relatively small amount of capital," he says. "Shipt already had an incredible trajectory by the time we invested, and they had proven to be remarkably capital-efficient for what they were building."

By the time they were approached, e.ventures was already looking into the food market and was impressed by Shipt's numbers. "Competition, although a concern, turned out not to be a major issue in the markets they served," says Wales, "so, it ended up being more of a green field opportunity than we could have hoped for."

Shipt aced e.ventures' checklist for funding, which focuses on potential and hard data. "We need it to play in an enormous market," says Wales. "It has to have the potential to be a public company. The team is mission-critical, and we want to build strong relationships with the leaders."

Naturally, growth matters to Wales and company, as does the defensibility of a startup's business model. "Shipt has subscribers," he says. "They have generated long-term relationships with customers by providing an elevated level of service."

Customer retention played a big part in Shipt's practical appeal, as the e.ventures staff had the opportunity to shop with Shipt early on and see the process first-

hand. "Bill Smith built a company that is obsessed with customer service," says Wales. "Every interaction with a customer is partially done through a distributed network of shoppers, both adding risk to the business, but also providing more upside, as our shoppers represent the brand well and drive customer engagement."

While e.ventures could have seen the startup eventually go public, they're pleased by the ROI yielded by Target's acquisition. "Shipt is a great success story, and for us only having invested in them for 18 months, this is a tremendous outcome for us," says Wales. "This was the right exit at the right time, and we know Bill and his team will continue to aggressively grow Shipt as a part of the Target family."

Based in New York, Greycroft's diverse markets include healthcare, cybersecurity and data among others. Previous notable exits include the digital payment service Venmo.

From the start, Greycroft was impressed by Shipt's leadership and long-term growth potential within a new field. "We've been looking into different types of marketplaces," says Co-Founder and Partner Ian Sigalow. "Shipt checked a lot of boxes for us. We looked at their numbers, and they were growing incredibly fast, and Bill Smith is a repeat entrepreneur with a great record."

While Shipt did not go public as Greycroft originally anticipated, the firm was not disappointed by its rapid acceleration and exit. "They consistently beat their plans," says Sigalow. "From a return perspective, it was great. We made over seven times our investment."

With a focus on emerging companies in the Southeast and Mid-Atlantic, Har-

bert Growth Partners has an impressive track record with healthcare and information technology investments.

Harbert seeks companies that demonstrate proven leadership, potential in a large market and a clear plan for recurring revenue. Shipt had all three. "We learned about Shipt from passionate customers," says Managing Partner Wayne Hunter. "They said it was a life-changer, so we did some research. We were very impressed with Smith. He had a quality team, and they were already starting to grow."

The timing of Shipt's arrival couldn't have been any better for Hunter and company, as the industry became increasingly active over the last two years. "We knew there was a large market for grocery delivery," he says. "We knew there was big appeal with millennials. Amazon's acquisition of Whole Foods was an accelerant."

Like other investors, Harbert anticipated that Shipt was bound for an initial public offering, but saw the Target acquisition as a logical conclusion given changes in the market. "Shipt really took off," says Hunter. "It wasn't a surprise that Target was so interested."

Operating in Birmingham, Hunter and company believe that Shipt has proven that other Alabama-based startups can attract serious financial support in state and beyond.

"Alabama has a lot of potential for companies in their early stages of growth," he says. "We like markets like Birmingham because they're great for building businesses. The costs are relatively low and there's a good quality of life."



BIOTECHNOLOGY

Cancer research, genetics, medical devices, drug discovery and a myriad of variations on those themes make up the fabric of a strong bioscience sector throughout Alabama. Some 780 companies, with nearly 18,000 workers, contribute \$7.3 billion to the state's economy, according to a University of Alabama study commissioned by trade association BioAlabama, which notes that the array of companies span "all sub-sectors of the biotech industry, including agriculture, pharmaceuticals, medical devices, hospitals, research testing and medical labs."

Those companies are recognized for a host of achievements. Birmingham's Southern Research, for example, developed seven cancer-fighting drugs that are in use today and has six more in advanced

testing. Just since 2009, Alabama companies in the industry have been awarded more than 600 patents.

Researchers at the state's universities, specialty labs, the massive Cummings Research Park and two widely respected research centers — the HudsonAlpha Institute for Biotechnology and Southern Research in particular — continue to pursue some of the most advanced medical research in the world.

The University of Alabama at Birmingham is the state's premier biomedical research facility, winning more than \$270 million in funding from the National Institutes of Health, plus more from other sources.

Founded in 1941, Southern Research specializes in a wide spectrum of biomed-

ical research in its own right, and it partners with the University of Alabama at Birmingham to research new drugs and bring medical devices to market. Among its most recent biomedical projects is a major effort to fight the Zika virus.

HudsonAlpha Institute, in Huntsville, is actively working on genomic research related to "cancer, neurological and psychological disorders, childhood genetics disorders, immunogenomics, and agriculture and bioenergy." Founded in 2008, the nonprofit Institute fosters research and

Scientists at Evonik's new Research & Development Center in Birmingham work to develop screws and plates used to fix bone fractures from bioresorbable polymers that biodegrade into carbon dioxide and water, eliminating the need for second surgeries.



A researcher checks blood samples with VAP Diagnostics equipment, in a company reborn from Atherotech. *Photo by Cary Norton*

education, individual research and collaboration, academia and business. Researchers work on esoteric problems and practical solutions, applying the science of genetics to personalized, gene-based treatment of human disease, as well as developing crop plants that are stronger and more useful.

From its inception, the institute has sought to not only study problems but also bring solutions to the marketplace.

Cutting edge research is in progress also at the University of South Alabama's Mitchell Cancer Institute. Scientists there also work to prevent and treat skin cancer, uncover the ways to detect ovarian and pancreatic cancers earlier, while they are easier to treat, and learn why African Americans are subject to more and more aggressive cancers.

Some of the research is coming via private companies. The German firm Evonik Corp. has built its first U.S. research and development facility in Birmingham, planning to focus on medical devices and technology.

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The University of Alabama at Birmingham (UAB) is a world leader in research and patient care with \$562 million in annual research funding, ranking it 15th among public universities.



The Alabama Drug Discovery Alliance is a partnership between UAB and Southern Research, a scientific research organization with seven FDA-approved drugs, that facilitates drug discovery and development and funds pilot projects.



Bioscience companies like Evonik, Oxford Pharmaceuticals, BioGX, Incycus and others serve international markets from Birmingham.



There are currently 1,551 clinical trials active, recruiting and enrolling patients in Birmingham – more than 1,200 are funded by private industry.

Anchored by UAB and Southern Research, life science companies are starting, growing and flourishing. With companies like Evonik, Oxford Pharmaceuticals, BioGX, Incycus and many others leading the way, Birmingham offers competitive advantages for researchers and life science startups.



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Alabama Biotech Investment 101

A strong support network has led Alabama biotechs to land \$101 million in venture capital since 2012.

BY GAIL ALLYN SHORT // PHOTO BY DENNIS KEIM

Discovering a medical breakthrough and turning it into a viable commercial product takes brains. Perseverance. Business savvy. And capital. Lots of capital.

But raising enough capital to launch and grow a biotech startup can be a lengthy and somewhat arduous process for any scientist or innovator who spends more time in labs than boardrooms.

Moreover, biotech startups are, by their very nature, built on emerging technologies, which come with the inherent risks that many investors shy away from.

Peggy Sammon knows. She's one of the founders of the Huntsville company GeneCapture Inc., formerly SLP Diagnostics. The idea for the company was great. Working with his team, Krishnan

Chittur, a chemical engineering professor at the University of Alabama in Huntsville, came up with the idea for a portable instrument that would detect infections in the body in less than an hour, rather than the days required by other methods. By speeding up the diagnostic process, doctors could deliver the right medications to patients sooner.

"Dr. Chittur, Dr. [Marc] Pusey and I founded the company with private funds and performed some early research on our own time," says Sammon, "enough to know that we had a very promising opportunity in detecting a broad range of infections in a point-of-care setting.

"Our biggest challenge was overcoming the fear that investors had in biotech," says Sammon, "the lack of tangible biotech successes, and the risks associated

with getting FDA approval. Many investors and angel groups lean on others for technical knowledge in the biotech space, and since our platform is so novel, there was a learning curve."

To raise monies for biotech startups and to keep the associated research moving forward, innovators go through several rounds of fundraising. Starting out, some inventors may rely on private monies to reach an early milestone, such as building a prototype.

For many, however, the first stage in fundraising is the "seed" round where innovators seek funding from angel investors and early-stage venture capitalists for

At work in the GeneCapture lab, cofounders Peggy Sammon (center) and Krishnan Chittur (right) with senior scientist Paula Koelle.



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product development, marketing or the product launch.

Once the startup's product has a track record, entrepreneurs can raise monies in a "Series A" round. Here, venture capitalists invest their funds in exchange for a percentage stake in the startup. With the new cash infusion, the startup might use the capital for new projects like a study or clinical trial.

The Auburn-based Vitruvias Therapeutics Inc., which makes specialty generic pharmaceuticals, recently completed its Series A funding round of \$11.5 million.

At the Series B stage, a biotech startup can raise even more venture capital for milestones, such as commercializing its products or developing new products.

As the biotech startup continues to succeed and the risk of failure continues falling, the company can attract more investors like private equity firms and large foundations for a Series C round. The additional funding can help a biotech company build a new facility, scale the business or expand its market base.

Eventually a successful startup can pursue an exit strategy by going public in an initial public offering or having a larger, more established biotech company acquire the business.

HARVESTING SEED MONEY

One source of seed funding is the federal Small Business Innovation Research (SBIR) grant program. SBIR awards seed money to early-stage technology companies or entrepreneurs engaged in early research and development who are working to start a company. Entrepreneurs can apply to one of 12 participating federal agencies, including the U.S. Department of Defense, Energy, Agriculture and the Environmental Protection Agency.

Another seed funding source is the federal Small Business Technology Transfer (STTR). Grant recipients, however, must work collaboratively with a nonprofit research laboratory or national laboratory.

In Alabama, biotech entrepreneurs can win seed funds through the Alabama Launchpad, a program of the Economic Development Partnership of Alabama. The Alabama Launchpad hosts statewide concept- and seed-stage competitions where ventures compete for cash prizes. The program's aim is to help startups

launch, grow and remain in the state.

In 2010, then-SLP Diagnostics won the Alabama Launchpad \$100,000 prize.

"We used the funds to build an early prototype," says Sammon, "and to demonstrate our proof of concept, which was critical to the next round of funding. Also, a local investor matched the Launchpad award as both a recognition and a show of confidence."

UNIVERSITY SUPPORTS

Innovators who work or study at universities may also find the path to funding and commercialization right on campus. The University of Alabama at Birmingham (UAB) Harbert Institute for Innovation and Entrepreneurship (HIIE) Commercialization Accelerator, for example, raises UAB researchers' and innovative students' and staffers' opportunities to turn their cutting-edge research into "high-growth startups," HIIE Executive Director Kathy Nugent says.

After an inventor discloses his or her intellectual property to the HIIE, the HIIE decides whether to pursue commercialization. If so, it assigns the inventor a licensing associate who determines whether to move forward with possible intellectual property protections and licensing strategies. The associate also approaches companies that might want to license the intellectual property.

"We want to take companies and make sure we're equipping them with all of the right resources," says Nugent, "including how to get funding or at least helping companies build proof of concept and increase the value of the technologies and products in the company before we send them out and off of our campus to be autonomous and independent."

More than 40 companies began as UAB technologies, including BioCryst Pharmaceuticals Inc., Discovery BioMed Inc. and VectorLogics Inc., which was later acquired by DNATrix Inc. Another UAB spin-off, Blondin Bioscience, has been working on a precision cancer diagnostic technology that doctors can use to determine the effectiveness of a chemotherapy treatment within just hours.

In Mobile, the University of South Alabama's Office of Commercialization and Industry Collaboration assists faculty in turning their inventions into market-

able products.

Sammon credits the University of Alabama in Huntsville's Office of Technology and Commercialization with patent support and UAH with forging collaborations with HudsonAlpha Institute for Biotechnology in Huntsville, which later helped GeneCapture attract investors.

Another resource is BioAlabama. The nonprofit assists startups in a number of ways, including matching them with mentors and helping them identify sources of capital, from grants to early- and growth-stage equity funding.

"BioAlabama's role is to support, promote and convene a collaborative bioscience ecosystem throughout Alabama," says Blair King, BioAlabama's president-elect and Alabama Power Co.'s manager of economic development and existing industry.

"Access to capital is critical to biotech startups and for the commercialization of technology developed at our key research institutions in Alabama," King says.

REAPING CAPITAL

Venture capital firms are another major funding source for biotech startups. These investors often invest in exchange for some governance over a startup's operations, such as management of the business side or marketing.

"The pace of bioscience funding across [Alabama] has picked up steadily in recent years, although mostly by way of early stage equity financings," says Birmingham attorney James Childs Jr., a BioAlabama board member and a partner and chairman of venture capital and private equity at the Bradley Law Firm.

Childs points to biotech startups like CNine Biosolutions, Vituro Health and Circulogene, companies that have raised several rounds of equity funding in the last few years. In 2017, IllumiCare Inc. closed on its Series B funding at \$3.7 million.

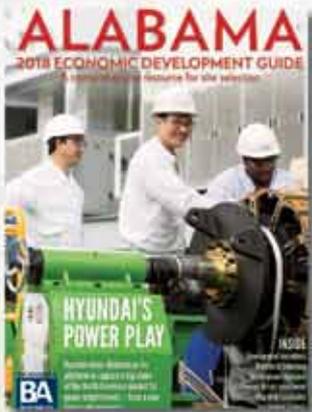
In fact, since 2012, Alabama bioscience companies have received \$101 million in venture capital funding, with investments focused in human biotechnology and health information technology, according to a 2016 state-by-state report by the Biotechnology Innovation Organization.

See the full story in April 2018 Business Alabama.

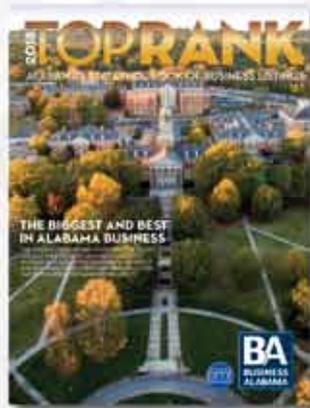


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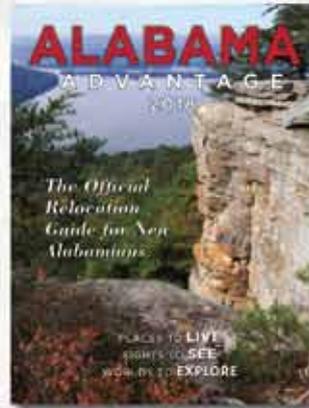


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RAISING AND RETAINING ENTREPRENEURS

Entrepreneurship education and support centers are one of the fastest growing segments of Alabama business schools. The growth may be just in time to keep our best entrepreneurs in Alabama.

BY CHARLIE INGRAM // PHOTO BY ART MERIPOL

There are about 400,000 startups annually, according to the U.S. Census Bureau, so there is no shortage of ideas for new businesses. But since roughly half of all new businesses don't last more than five years, it would seem the hard part of being an entrepreneur is making your idea work.

University business schools tout their entrepreneurship training in a big way, but can you really teach someone how to be a successful entrepreneur? Well, yes, as a matter of fact you can, according to several business school sources. In fact, entrepre-

neurship almost always must be taught.

"Entrepreneurship must be learned and practiced, just as any trade, skill or talent," says Jason Greene, dean of the College of Business at the University of Alabama in Huntsville. "Entrepreneurship is about learning, adapting and developing strategies to address needs in the marketplace with solutions.

"This isn't just about taking risks or coming up with ideas. Someone isn't just born with these capabilities, but they can learn, practice and refine these capabilities. In many ways, by teaching business, we are teaching entrepreneurship. By learning business, students are learning things that

will help them be entrepreneurs."

To be sure, aspiring entrepreneurs are exposed to reams of information from textbooks and lectures — everything from new venture financing to financial management and marketing. Just as important or more so, however, they must learn to do things well that are outside the realm of book knowledge and within the realm of people skills and personal

UA's Theresa Welbourne (standing) helps students learn the value of story-telling to find success for their clever business ideas. Students, from left, are Shelby Norris, Michael Larsen and Kris Irwin.



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development.

Effective communications, working in teams and character building are all part of the process, whether it be in a new business venture or introducing a new product or service idea within an existing business.

“There’s a really important part in all this that I put under the ‘storytelling’ label,” says Theresa Welbourne, an entrepreneurship professor at the University of Alabama’s Culverhouse College of Commerce. “You need to be able to convince other people your idea is going to work so they will work with you and be your customers.

“There is an art and science to storytelling, and that includes communicating and presenting your ideas,” says Welbourne, who also serves as executive director of the Alabama Entrepreneurship Institute, the programming component of the Edge Center for Entrepreneurship and Innovation in Tuscaloosa.

Says Lou Bifano, director of entrepreneurship strategy at Auburn University’s Raymond J. Harbert College of Business: “A successful entrepreneur or innovator, either starting a company or trying to innovate within a larger company, needs to master the ability to communicate at all levels — verbally, in writing, in short conversations, longer discussions, more detailed discussions.

“We focus a lot on sharpening students’ communications skills. There are a lot of other courses while students are here at Auburn where they will have the opportunity to work on their communication skills, but that’s something that I see that always needs work with students in courses I’m teaching.

“A successful entrepreneur or innovator has to be able to express their ideas in an inspirational way so that their project will be selected. ‘Invest in Me.’ They have to be able to communicate that thought and the compelling story underneath it.”

Being able to fit within a team effort is mandatory for aspiring entrepreneurs. “If you’re going to bring an idea to reality, you’re going to have to work with other people and learn how to team,” Bifano says. “A lot of our experiential learning activities center on small teams of people working together to present a business idea. I can tell you for certain that’s the case in entrepreneurship courses.”

The normal process of taking a new



Students of entrepreneurship need to be confident enough to ask questions and take rejection and smart enough to listen, says UA’s Theresa Welbourne.

idea to fruition is going to involve some roadblocks and adversity that students are taught to overcome. “Along the way, there’s a lot of character building that happens,” UA’s Welbourne says. “Students have to be confident enough to ask questions and take rejection. Also, they must be smart enough to be able to listen, and the word they use now is ‘pivot,’ or change their ideas, not being so arrogant you won’t listen to others and understand that you need to change.”

Many of today’s students are perceived as risk averse and poor communicators. The safety of anonymous online posts and widespread cell phone usage has something to do with that.

But UAH’s Greene sees the glass as half full when it comes to showing students tough love. In an email, he writes that, “While there still might be challenges in helping students understand the importance of resiliency (learning and recovering from “failures”) and patience/

persistence (learning that instant gratification is rare), I have observed that this generation’s drive to innovate and make a difference make them great candidates for entrepreneurial activities.”

Interest in the state’s entrepreneurial activities is growing, and so is the support. Both Auburn and Alabama, for example, host entrepreneurial contests each year with prize money totaling \$50,000 each. And university incubators and accelerators across Alabama work with students and with area businesses to breathe life into ideas for new products and services.

Bifano says donor interest has picked up for entrepreneur programs at Auburn, where incubator and accelerator facilities are located at Auburn Research Park. Meanwhile, the University of Alabama in Huntsville has broken ground on the \$14 million, 45,000-square-foot D.S. Davidson Invention to Innovation Center. Scheduled to open in 2019, the facility will have startup and lab space for up to

40 businesses in a 15-county area.

In Birmingham, plans have been announced for the UAB Commercialization Accelerator, a program of the Bill L. Harbert Institute for Innovation and Entrepreneurship aimed at enhancing the university's entrepreneur-support efforts.

In Tuscaloosa, the Edge Center for Entrepreneurship and Innovation is being expanded from 9,000 square feet to 26,000 square feet. A joint effort among the University of Alabama, City of Tuscaloosa and West Alabama Chamber of Commerce, the new facility is expected to be ready in 18 months, supporting students and area businesses in their entrepreneurial endeavors.

These incubators and accelerators have supported thousands of students in their attempts to open viable enterprises, as well as helping new businesses that need assistance to survive.

"What we're offering is not just for students," UA's Welbourne says. "We have resources for adult learners and anybody in the community interested in entrepreneurship, and I think it's something that

anybody can do at any age. In a true entrepreneurial ecosystem, it's not just young students who want to start businesses."

Dave Ketchen, a management professor at Auburn's Raymond J. Harbert College of Business, notes that a more robust entrepreneurial ecosystem would

"We have resources for adult learners and anybody in the community interested in entrepreneurship."

**— Theresa Welbourne,
University of Alabama**

help ensure that startups created in the state stay in the state.

He cites a successful start-up, Bellhops, that provides app-based, on-demand moving help. Started by Auburn graduates, Bellhops has raised \$20 million in angel and venture funding, according to Ketchen. A second company, beer maker

Oskar Blues, was begun by an Auburn graduate and is now the tenth-largest craft brewing company in the country.

The founders of both companies, however, felt the need to leave the state. Colorado-based Oskar Blues left because Alabama's beer laws at the time were too restrictive. Bellhops went to Chattanooga, Tennessee, to gain better access to capital and other support mechanisms for startups.

Says Ketchen: "Today Oskar Blues would not need to set up shop elsewhere because Alabama's beer laws have changed to become business-friendly. Alabama now has over 30 craft breweries. Among them are Back Forty in Gadsden, Good People in Birmingham and Singin' River in Florence, all of which were started by Auburn graduates.

"Our next challenge as a university and as a state is to make sure that the next Bellhops does not feel the need to go elsewhere to get the resources they need to succeed."



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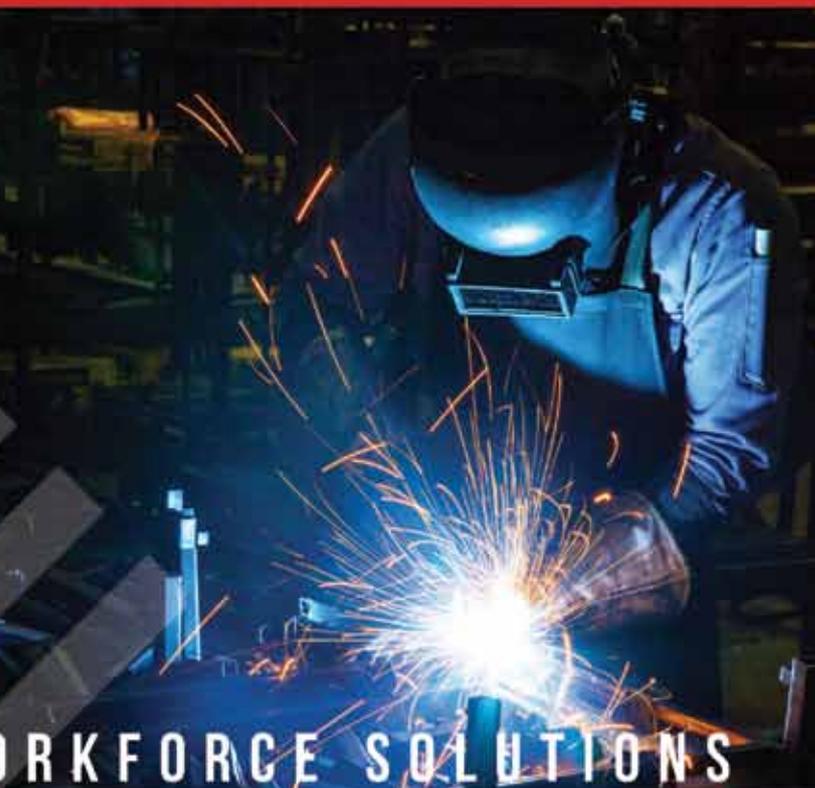


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RE-EQUIPPING THE UNDEREMPLOYED

A new Innovate Birmingham initiative helps disciplined workers move from menial to meaningful.

BY GAIL ALLYN SHORT // PHOTOS BY CARY NORTON

Before becoming an information technology professional, Allanté Jowers was a cook at a Birmingham country club. The job, he says, offered no chance for career advancement and was “mentally unstimulating.”

Jowers says he wanted to go to college but could not afford the tuition.

“I worked many long nights and holidays cooking upscale dinners for Birmingham’s elite,” he says. “Financial issues kept me from finishing school. I moved to Birmingham in 2012, but I stopped attending [school] due to an overdue balance.”

Then Jowers spotted an ad on Facebook announcing a free training program

by the Innovate Birmingham Regional Workforce Partnership. The program aimed to prepare young adults like him

UAB’s Josh Carpenter (left) was a leader on the \$6 million grant that is providing computer skills education for underemployed young adults like Allanté Jowers. Now Jowers also works at UAB.

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Martin Townsend now works as a workstation tech for Blue Cross and Blue Shield of Alabama.

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for careers in IT through a free, three-month, fast-track specialist training boot camp. "Having an interest in technology," says Jowers, "I felt inclined to apply."

Jowers won a spot in the program and soon began 12 weeks of intensive coursework at Innovation Depot, a high-tech business incubator in downtown Birmingham. Jowers and the other students learned about computer hardware and operating systems and how to help customers troubleshoot computer problems.

Last May, Jowers graduated from the program and, not long afterward, landed a job as a help desk analyst at the University of Alabama at Birmingham.

Jowers says he now has plans to earn a bachelor's degree in information sciences and later an MBA. Meanwhile, he says he enjoys his new IT career.

"This program has set my life on a different course," says Jowers. "I'm now in an environment where hard work is not only noticed, but rewarded."

The Innovate Birmingham Regional Workforce Partnership involves leaders from the city's business, education

and civic community. The partnership program plans to take 925 young adults between the ages of 17 and 29 who are unemployed or working low-wage jobs and train them for high-paying, in-demand information technology jobs.

Funding for Innovate Birmingham comes from a federal, four-year, \$6 million America's Promise grant from the U.S. Department of Labor. Innovate Birmingham is one of 23 regional workforce development groups across the country to win the grants.

In Alabama, technology workers are in high demand. Last year, the Alabama Department of Labor listed computer user support specialists and software developers among the 25 most high-demand jobs.

In the Birmingham-Hoover metro area

“This program has set my life on a different course. I’m now in an environment where hard work is not only noticed, but rewarded.”

— Allanté Jowers

alone, entry-level computer user support specialists can make about \$15.97 an hour, according to the Department's Labor Market Information Division. An entry-level software developer can make as much as \$33 an hour.

The idea for Innovate Birmingham started from University of Alabama at Birmingham President Ray Watts' desire to extend the university's resources to the community so more people could find a gateway to UAB for educational opportunities, says Josh Carpenter, Ph.D., director of external affairs in UAB's Office of the President and the principal investigator for the Innovate Birmingham grant.

“We found that these high-demand occupations were across industries and that we needed to devote more resources to create opportunities for these 26,000 underemployed young people in our community to obtain those skills and potentially take advantage of opportunities of employment with those employer partners,” Carpenter says.

“So the plan for Innovate Birmingham

was to bridge those gaps between people who want to work, educators and employers and create a seamless pathway for young people at low cost or tuition-free opportunities,” he says.

Although the program targets teens and adults ages 17 to 26, Carpenter says the grant allows them to accept students through age 29. The program offers three options: first, a 12-week intensive program to learn coding for web develop-

ment or IT specialist credentials; second, information technology classwork at Jefferson State or Lawson State community college, leading to a certificate or associate degree, or third, UAB enrollment leading to a bachelor's degree. Grants and scholarships are available for the college and UAB options.

Ninety-six students have participated in the boot camps so far, he says.

Jowers, who chose the IT specialist

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boot camp, says he learned basic software and hardware concepts, as well as soft skills such as how to interact with customers. The class simulations, weekly quizzes, assigned reading and guest speakers helped motivate him to succeed.

“I liked how the simulations resembled real-life situations,” says Jowers. “I was working a full-time job during the program. Monday through Friday I was in class from 8 a.m. to 3 p.m. Then I would

leave class and go straight to work.”

Jowers’ classmate, Martin Townsend, says he applied for the IT specialist program because he wanted to boost his technology skills.

“From a young age, I’ve worked with computer systems,” says Townsend, “first familiarizing myself with a Macintosh LC my mom got from the thrift store.”

Like Jowers, Townsend says he found the coursework to be intense.

“It required you to commit and apply yourself to the curriculum, learning the ins and outs of what makes a computer work,” says Townsend.

Besides the colleges and UAB, Innovate Birmingham has 30 employer partners, companies committed to interviewing the program’s graduates. Those companies include Alabama Power, Brasfield & Gorrie General Contractors, McLeod Software, EBSCO, Birmingham Coca-Cola Bottling Co., Mercedes-Benz, Honda Motor Manufacturing of Alabama, Mayer Electric Supply, Regions, Tech Birmingham and Blue Cross and Blue Shield of Alabama.

So far, 13 of the boot camp graduates have snagged jobs, Carpenter says. Blue Cross and Blue Shield of Alabama hired Townsend as a workstation tech to troubleshoot computer problems for other staffers.

“The plan for Innovate Birmingham was to bridge those gaps between people who want to work, educators and employers and create a seamless pathway for young people at low cost or tuition-free opportunities.”

— Josh Carpenter, Ph.D., UAB

“We were looking for support center and desktop technicians,” says Scott McGlaun, the chief information officer at Blue Cross and Blue Shield of Alabama. “These associates are our first and second-level IT support personnel.”

McGlaun describes Innovate Birmingham’s talent pool as strong.

“We made multiple offers but were only able to hire one because of the demand from other employers seeking high-quality candidates,” says McGlaun. “The associate we did hire is very competent technically, possesses a strong work ethic, embraces individual accountability and thus is thriving as a contributing member of the team.”

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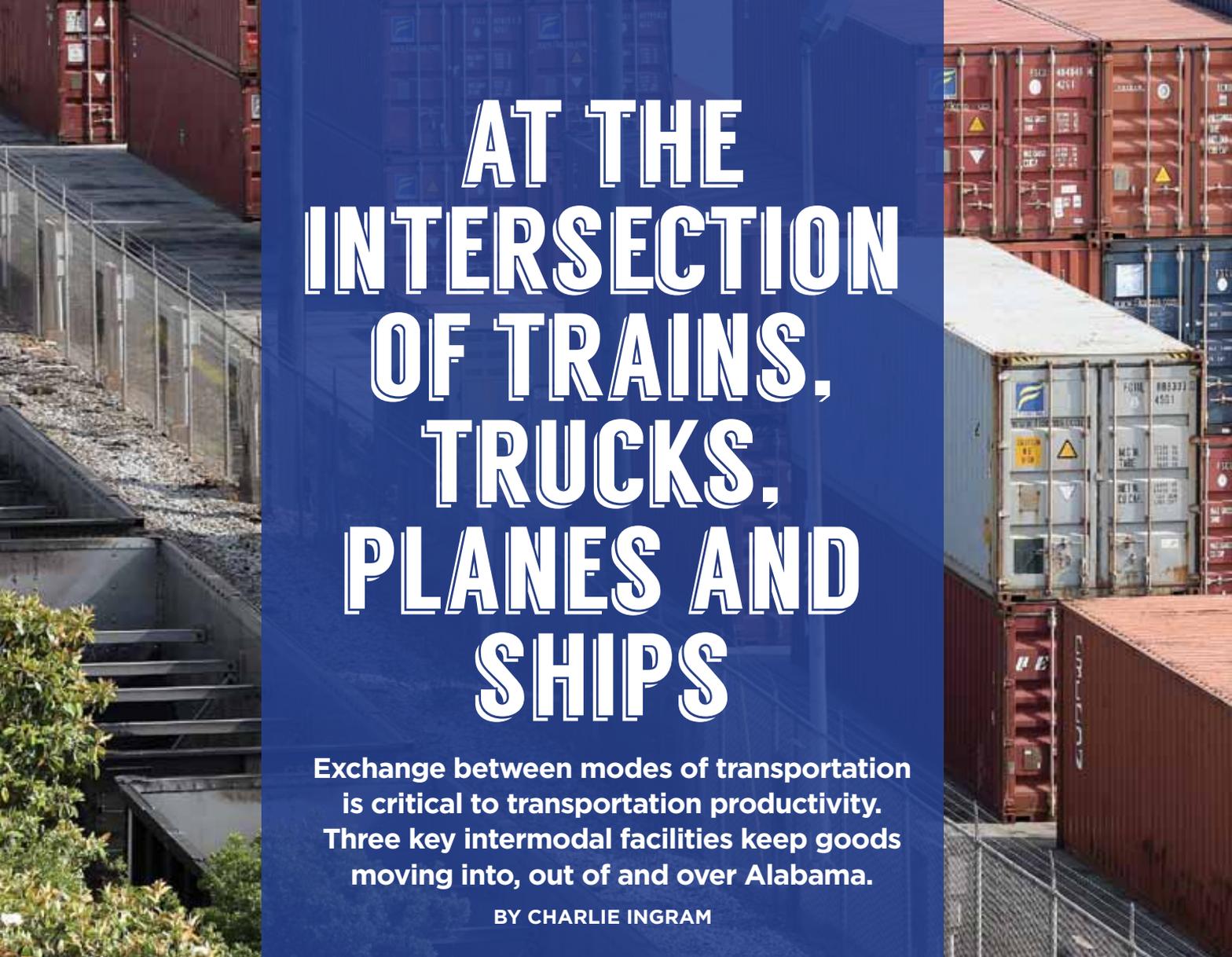
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AT THE INTERSECTION OF TRAINS, TRUCKS, PLANES AND SHIPS

Exchange between modes of transportation is critical to transportation productivity. Three key intermodal facilities keep goods moving into, out of and over Alabama.

BY CHARLIE INGRAM



Nil, or close to it. Those were the chances the Mobile area had for landing Walmart's new mega distribution center without the intermodal transportation facilities at APM Terminals Mobile at the Port of Mobile.

APM Terminals Mobile, a business unit of Denmark-based A.P. Moller-Maersk Group, has the infrastructure to unload numerous intermodal containers from ships and place them directly onto trucks taking the merchandise to Walmart's vast facility in nearby Theodore. That capability was a major reason why Walmart's facility — and more than 500 jobs that go with it — landed near Mobile.

Intermodal typically refers to transporting cargo among different modes — ship-to-rail or ship-to-truck or air-to-truck, for example. Alabama has three major intermodal transportation facilities, and they touch a healthy chunk of more than \$45 billion the feds calculate that Alabama does annually in exports (\$21.7 billion) and imports (\$23.6 billion).

In addition to APM Terminals Mobile, a massive Norfolk Southern intermodal facility in McCalla, near Birmingham, focuses on rail cargo. Huntsville's International Intermodal Center, adjacent to the city's airport, is the largest air cargo facility in the state and among the nation's largest for international air cargo. Services provided at the state's intermodal facilities aren't new, but they are increasingly important and in greater demand.

PORT OF MOBILE

APM Terminals Mobile is the largest of Alabama's intermodal facilities in terms of investment, backed by about \$550 million since it opened in 2008. The facility has an annual throughput capacity of 500,000 twenty-foot equivalent units, or TEUs, a standard shipping volume unit that refers to a 20-foot intermodal container.

The marine terminal at APM Terminals Mobile is currently undergoing a \$50 million expansion that will bring annual throughput to 650,000 TEUs when completed in late 2019, says Judith Adams, vice president of marketing at the Alabama State Port Authority.

"The current capacity is sufficient to serve our current shippers and the new Walmart 2.5 million-square-foot international distribution center set to open this summer," Adams says. "Additional phases are planned, with a 1.5 million TEU capacity at full buildout."

Complementing the shipping function, APM Terminals Mobile includes a container rail terminal that provides import, export and domestic rail service via Canadian National Railway along a route that includes Jackson, Mississippi; Memphis, Tennessee; Decatur and Chicago, Illinois, and Canadian markets. The rail terminal is accessible to the remaining four Class I railroads — CSX, Norfolk Southern, Kansas City Southern and BNSF — at the Port of Mobile.

Export and import traffic is roughly 50-50 in Mobile, with slightly more imports. Overall, volume increased 20 percent last year at APM Terminals Mo-

mobile, and that can be attributed to several factors, according to Adams.

For starters, the economy and trade are doing better, so normal market increases have occurred.

Also, more container carrier services have been added, and agreements between carriers to carry each other's cargo when feasible have increased volume. And ships are getting larger, which has increased capacity and potential for business.

Says Adams: "That capacity has been needed to serve growth within existing shipper business lines, like an automotive plant expansion or more saw mills coming online to export lumber, and added capacity on vessels helps us serve new businesses like Airbus, Walmart, new automotive suppliers, new distribution centers, new chemical plants that import and export ISO-containerized products, etc. The larger ships have provided relief."

APM Terminals Mobile is Post-Panamax ready, able to handle the larger 8,000-TEU ships built to navigate a wider Panama Canal. The terminal has a 45-foot draft with two Post-Panamax and two super Post-Panamax ship-to-shore cranes. The "super" cranes are the

Previous page, Top: Containers in transit at the Port of Mobile. *Photo by Mike Kittrell*

Previous page, Bottom: Norfolk Southern's new intermodal facility at McCalla.

Below: Huntsville's International Intermodal facility offers worldwide cargo flights via Panalpina, which maintains its U.S. hub here.



largest in the world.

The Port of Mobile is currently the nation's 10th largest seaport in the United States by volume. Its largest industries served include Alabama automotive, agribusiness, metals and retail/distribution. Volume is expected to increase by at least 10 percent in the wake of Walmart's new distribution center, port officials have said.

BIRMINGHAM REGIONAL INTERMODAL FACILITY

In North Central Alabama, Norfolk Southern's \$97.5 million Birmingham Regional Intermodal Facility is a major part of the company's Crescent Corridor, a \$2.5 billion investment aimed at developing a high-capacity intermodal freight route between the Gulf Coast and the Northeast.

In operation since 2012, the Birmingham facility sits on 316 acres and includes more than 13 miles of tracks. Norfolk Southern foresees its Crescent Corridor eventually generating enough new business to take more than 1.3 million trucks off the nation's highways after its completion in 2020.

"Intermodal business has been the fastest growing sector of the rail industry for a number of years, and that trend does not show signs of slowing," according to Norfolk Southern spokeswoman Susan Terpay. "This includes both the domestic (freight moving within North America) and the international (containerized freight delivered to ports by ship) segments of the market.

"The largest driver of this growth is the rising cost of over-the-road trucking due to increasing demand, driver shortages, productivity declines, rising fuel costs and highway congestion. Freight by rail is more environmentally sustainable, and that is an important factor in choosing a transportation mode for a growing number of companies."

INTERNATIONAL INTERMODAL CENTER, HUNTSVILLE

In Huntsville, volume is on the rise at the International Intermodal Center (IIC), which is part of the Port of Huntsville, along with Huntsville International Airport and Jetplex Industrial Park. Huntsville ranks 17th nationally in international air cargo tonnage, says



Ships at the Port of Mobile carry cargo to and from the world. APM Terminals Mobile, a business unit of Denmark's A.P. Moller-Maersk Group, operates the container facilities. *Photo by Chad Riley*

Jim Hutcheson, business development manager at the Port of Huntsville.

Air cargo tonnage, virtually all of it international, was 205 million pounds last year, up from 180 million pounds in 2015. That volume is divided roughly 50-50 between imports and exports, with slightly more in imports, Hutcheson says.

Most of Huntsville's air cargo is automotive parts, pharmaceuticals, electronics and fashion or apparel items. More than \$170 million has been spent since 1992 on airport improvements in Huntsville, much of which has gone to enhance air cargo, which is essentially driven by Panalpina, a Swiss company specializing in air and ocean shipments.

Hutcheson notes that Huntsville's IIC is about more than air cargo. It also has Norfolk Southern intermodal container rail service, and that business has seen a definite uptick, too. The auto industry had a lot to do with that.

"Prior to the Huntsville Toyota engine plant opening in 2003, automotive parts were probably less than 2 percent of our container volume," says Hutcheson. "Today, with the growth of Toyota, their tier suppliers, plus tier suppliers in this area for Honda and Mercedes, automotive parts account for nearly 15 percent of our container volume. We anticipate our percentage of automotive-related volume

to grow even more, with the coming Mazda/Toyota project and their supporting tier suppliers."

The Huntsville IIC has direct intermodal rail service between the ports of Charleston, South Carolina, and Savannah, Georgia, with connecting intermodal service, via Memphis, between West Coast ports of Los Angeles and Long Beach in California and Seattle and Tacoma in Washington. Huntsville does not have an intermodal rail connection with Mobile.

Container traffic through Huntsville's IIC is divided roughly half and half between businesses in Alabama and Tennessee, with slightly more in Alabama. A higher percentage of the air cargo involves businesses in other states within a 600-mile radius, Hutcheson says.

Having intermodal transportation capabilities isn't always mandatory in industrial recruiting, Hutcheson says, but then again, there are times when it's a must.

"It depends on the company," Hutcheson says. "If you have a business that imports or exports to any degree, they're going to want to be within a certain radius of an intermodal facility. The Mazda/Toyota people have been in touch with us, and they're doing their due diligence on how we might support them."



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EXPORTS AND FOREIGN DIRECT INVESTMENT

With a major deep-water seaport plus planes, trains, barges and trucks, Alabama has long enjoyed strong trade connections with the world — and 2017 set a new record for exports at \$21.7 billion.

Once again, transportation equipment tops the list of exports at \$10.9 billion — half the total — and up 2 percent from the previous year. Mercedes-Benz U.S. International continues to be the state's top exporter, shipping \$1 billion worth of vehicles, which are sold in 135 countries. Honda Motor Manufacturing Alabama is next in line.

While vehicles make up most of this transportation equipment category, it also includes auto parts, aircraft and spacecraft parts. In addition to autos and aero equipment, the state ships chemicals, primary metals, minerals and paper. Coal exports were up 158 percent.

“Alabama’s dynamic manufacturing base turns out a wide range of great products that consumers in markets around the world want to own, which creates jobs and opportunity here at home,” says Greg Canfield, secretary of the Alabama Department of Commerce.

Much of that commerce moves through the Port of Mobile, long the state’s link to the world. And as international shipping changes, so does the Port. When the Panama Canal opened to newer, bigger ships this year, the port was already upgraded to handle the new post-Panamax ships. Massive new cranes joined the waterfront array in 2017.

The port connects to inland waterways crisscrossing the state and offering connections to the Midwest and beyond. Interstate highways serve the trucking industry. And international freight forwarder Panalpina makes direct connections to the world from Huntsville.

Alabama products went to 189 countries in 2017.

Canada is the top destination, followed by China, Germany, Mexico and Japan.



Tons of frozen chicken is shipped from Mobile to international ports, including Cuba.
Photo courtesy of Alabama State Port Authority

About a third of all exports go to NAFTA partners — Canada and Mexico.

To bolster international trade, the Department of Commerce sponsors trade missions, taking state officials and business owners abroad for face-to-face business exchanges.

FOREIGN DIRECT INVESTMENT

Alabama is also home to multitudes of international firms or foreign direct investment.

“The success of the companies operating in Alabama is a story that’s being told around the world,” says Greg Canfield, secretary of the Alabama Department of Commerce. “Here at home, that’s meant significant new investments and lucrative jobs for communities across the state.”

In 2017, investment came from 16 countries with a total of \$1.2 billion in projects. In the past five years, the state has attracted more than \$8 billion.

Germany led the investor list at \$417 million, followed by Japan at \$281 million, South Korea at \$242 million and Canada at \$156 million — accounting together for more than 2,900 new jobs.

Headlining Germany’s investments were a major Mercedes-Benz project in Bibb County and a Bocar auto supplier plant in Huntsville.

The biggest investment from Japan was an \$83 million upgrade at Honda Motor Manufacturing of Alabama in Lincoln, with 14 other projects — mostly automotive — adding to the total.

South Korea’s investments total an expected 1,200 new jobs, mostly in automotive expansions. The biggest is a \$61 million investment at Hyundai Motor Manufacturing Alabama in Montgomery.

Canada’s investment leaders were two West Fraser lumber and wood products projects in Chilton and Lee counties, plus an expansion at New Flyer’s bus plant in Anniston.



What's in a Name?

Millions of dollars a year, if that name is “Alabama”

BY CHARLIE INGRAM

Lee Sentell remembers when he and other tourism officials were at an evening party during a trade show in Las Vegas that was pretty much ho-hum. But then the deejay, who had been spinning records without much reaction from the crowd, played Lynyrd Skynyrd's iconic “Sweet Home Alabama.”

“Almost everybody in the nightclub cheered,” recalls Sentell, director of the Alabama Tourism Department. “And we thought, ‘Pay attention to this.’”

That experience 12 years ago got the big wheels turning in Sentell's head. Would it make sense, he wondered, to see if the song's widespread popularity could help promote tourism in Alabama?

On the heels of that Vegas trip, the Alabama Tourism Department and its ad agency at the time worked to answer that question. Online testing told them the phrase “Sweet Home Alabama” was much more popular than other taglines, or slogans, used in previous Alabama tourism campaigns, including “Stars Fell on Alabama,” “Now This You Gotta See” and “Alabama Has It All.”

Usage rights were negotiated with the song's owner, and the deal was sealed. Alabama Tourism had itself a new marketing tagline, and it's served the state well for 11 years now.

In 2017, for example, Alabama had 26.6 million visitors, 21 percent more

than in 2008, which is when use of the “Sweet Home Alabama” tagline started. Money spent by visitors in the state hit \$14.3 billion in 2017, up 7.5 percent from 2016 and almost 50 percent more than 2008.

To be sure, the tagline is only part of Tourism's overall marketing each year. But it would be hard to question its lasting value. Five years ago, for example, “Sweet Home Alabama” became the only song released before 1975 to break more than 3 million downloads.

In addition to its adopted use by Alabama Tourism, it has appeared on Alabama license plates since 2009, and it also now appears on large Alabama signs welcoming interstate motorists to the state.

“Because of the 1974 song and the 2002 movie of the same name, the phrase is linked to our state around the world,” Sentell says. “When an Alabama family was vacationing in Dublin, Ireland, a few years ago they rode in three taxis. Of those three, when they told the drivers where they were from, two said, ‘Ah, sweet home Alabama.’ No doubt many Alabamians have enjoyed the same experience.”

Manufacturing Hallmark

The Alabama Department of Tourism is not alone among state entities that see

value in showcasing the Alabama name in taglines or marketing campaigns. The Alabama Department of Commerce, for example, launched its “Made in Alabama” branding campaign in 2013, totally revamping its website for more and better emphasis on the state's business and manufacturing prowess.

“From the onset it has received remarkably positive support from inside and outside our state — from workforce partners to current business partners,” says Aaron Gresham, executive creative director at Birmingham's Big Communications, the ad agency behind “Made in Alabama.”

Gresham says he thinks of “Made in Alabama” as more of a statement of pride than a tagline. “Alabama has been cast as an underdog in the national media, and we get a lot of attention over negative news,” he says. “The truth is we are not what you may think. We are smart, innovative and hard working.”

“We are leaders in space exploration, produce the best cars on the road and the best planes in the air — not to mention the tech space, where we are creating groundbreaking ideas with 3D printers and building server farms with Google. The message is we are leaders — not underdogs — and we are proud of what we are making. We want to invite others to be a part of our story.”

Others apparently are buying into that. Since 2012, economic development efforts have resulted in more than 105,000 new jobs in Alabama and roughly \$29 billion in capital investment, according to figures on Commerce's “Made in Alabama” website.

The Bama Mint

Bill Battle clearly saw value in the Alabama name almost 40 years ago. For him, it was the value of the University of Alabama brand and its athletic programs.

In those days, colleges and universities did next to nothing to market merchandise such as jerseys, T-shirts, caps or any number of other trademarked products bearing school logos, symbols, slogans and other marks.

The university had no real control over those marks and symbols. Folks who had no relationship with the university could splash school logos on a mish-mash of products, some of which weren't good representations of the university. More-

Right: Alabama is the magic word for everything from the beach to industry to university merchandising.

Bottom: Bill Battle during his time as University of Alabama athletic director. *Photo by Associated Press*

over, the schools saw no profit from the many users of their logos.

Battle, a 1960s-era University of Alabama football player and University of Tennessee head coach from 1970-1976, set out to repair the situation.

In 1981 he formed Collegiate Licensing Co. to organize and manage sale of licensed apparel and other theme products.

He knew that fan bases in the South and across the nation would buy licensed products from their favorite schools. But signing Alabama, given its rich football heritage and loyal fan base, would be a great testimonial for Battle's company, and UA turned out to be his first client.

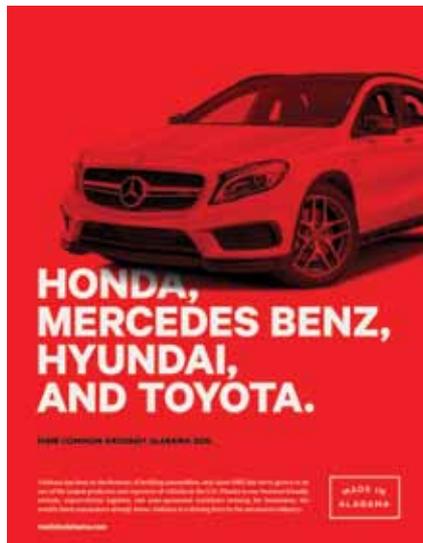
"Signing Alabama was a very important step in gaining the credibility that we needed to bring on other university clients," he says.

For the year ending June 2017, the University of Alabama generated more than \$10 million in gross royalties from the sale of UA-themed products. Men's and women's T-shirts and men's polo shirts are the primary product categories, with men's T-shirts by far the largest seller, says Cole Price, director of UA's Trademark Licensing Office.

Since 1981, UA has generated roughly \$112 million in gross royalties from the sales of such merchandise. It consistently ranks near or at the top among the nation's universities in that regard.

So, how would Price describe the value of the Alabama name as it relates to the university — Alabama football, Roll Tide, the UA seal, whatever? "Significant," Price says. "We work very hard to protect that value, so it can be maintained, developed and utilized for the future ..."

After selling Collegiate Licensing for \$108 million in 2007, Battle rejoined Alabama as athletic director in 2013, retiring in 2017. He now is a special assistant to UA President Stuart Bell. For him, it really has been Sweet Home Alabama.





PORT OF HUNTSVILLE

Huntsville has historically been the hub of Alabama aerospace enterprise — the builders of spacecraft — but Huntsville also sets the pace for using aircraft to get things and people from one place to the other in record time. Now, these two meet, with Huntsville International Airport continuing to work towards landing Sierra Nevada Corp.'s Dream Chaser spacecraft on one of their commercial runways. This would make the first commercial airport to land a vehicle from space be right here in Alabama.

October 2018 marked the culmination of the airport's 50th Anniversary celebration. During the anniversary year, the airport thanked customers and the commu-

nity by hosting and sponsoring a variety of events throughout the region. These events and activities were a way for the airport to give back and also to remind our patrons of the tremendous contributions and growth of the organization over the years. The celebration of 50 years was important; however, Huntsville International Airport is not content to rest on the laurels of reaching this milestone, but rather is proactively looking to the future as innovators and visionaries. Since its inception in 1967, the airport has grown to more than 7,300 acres, which makes it one of the largest commercial airports in the Southeast United States. The Port of Huntsville has three key units — the

Huntsville International Airport (HSV), International Intermodal Center and Jetplex Industrial Park.

The airport features two parallel runways — 12,600 feet, which is the second-longest runway in the Southeast U.S., and 10,000 feet. They also have 2.3 million square feet of air cargo ramp space. HSV is the 17th largest international air cargo airport in the United States.

Huntsville International Airport is the U.S. hub of Swiss-based international cargo carrier Panalpina. Since the arrival of Panalpina in Huntsville in 1990, the Port of Huntsville has invested \$146 million in infrastructure that directly relates to cargo operations. *Photo by Tyler Brown*

Passenger service is provided by five commercial airlines since Silver Airways launched service to Orlando in September and Frontier Airlines launched service to Orlando and Denver in October. HSV has more than 65 flights per day and ten nonstop destinations. More than 1 million customers are served annually.

The Huntsville Airport Authority began promoting its cargo capacities in the early 1980s, with an air cargo ramp that had 50,000 square feet of cargo space. Those efforts culminated in a rail intermodal facility in 1986. The International Intermodal Center celebrated 30 years of serving the region this past April with an event that recognized all of the individuals who saw the vision of the IIC and in turn ensured that the multi-modal complex would become a reality. The International Intermodal Center provides a single-hub location that delivers world-class, multi-modal (rail, air and highway) services and facilities. Nationwide rail service is provided by Norfolk Southern.

In 1990, Swiss-based international carrier Panalpina opened operations in Huntsville with one 747 flight a week, gradually adding flights over the years. Panalpina celebrated their 25th anniversary at the Port of Huntsville in 2015. There was plenty to celebrate, since they have the only non-stop 747-8 freighter international air cargo service in the State of Alabama to Europe, Mexico, Asia and South America. These markets are currently served with 7 to 10 flights weekly.

Panalpina also provides fully integrated and customizable supply chain solutions at its U.S. hub in Huntsville. Panalpina's Huntsville Logistics Center serves many of the company's largest hi-tech customers in healthcare and the chemicals industries with temperature-controlled storage and transport capabilities. Advanced warehouse services, customizable IT enhancements and direct access to its road feeder service in Huntsville allow Panalpina to also provide last-minute solutions for needs of all customers.

The Port of Huntsville completed upgrades that make it operational for Group VI aircraft. Both the 12,600-foot west runway and 10,000-foot east runway meet requirements set for the 747-8s. While the 747-8 has a payload increase of 16 percent over the 747-400 model, it has substantial reductions in fuel burn, noise and CO2

emissions. This Group VI aircraft boasts a 224-foot, seven-inch wingspan and measures 250 feet, 2 inches from nose to tail. The new model is 18.3 feet longer and 13 feet wider than the earlier 747 models.

"Huntsville International Airport is part of a small group of U.S. airports that have been FAA-certified to support these 747-8s," said Dr. Carl Gessler Jr., Huntsville-Madison County Airport Authority

board member. "We share this distinction with cities like Miami, New York, L.A. and Chicago. Considering the size of our community as compared to the others on the list, this truly is an accomplishment for our region."

For more information, visit the port's website at www.flyhuntsville.com.



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*2017 New and Expanded Report, Alabama Department of Commerce



annual report, noting that: “The plant produces the M-Class, R-Class, GL-Class, C-Class and the GLE Coupe vehicles for 135 worldwide export markets. The FTZ operation employs 3,200 people producing approximately 232,000 vehicles in 2014. More than half the vehicles manufactured at the plant are exported to markets outside the United States, Canada, and Mexico.”

QUICK FACTS ABOUT ALABAMA'S FIVE MAJOR FTZs

Mobile: Administered by the City of Mobile, the southernmost FTZ covers 9,848 acres in several locations. Several international firms are located within the FTZ, while Evonik Degussa, Austal USA and Shell all benefit from smaller business-based subzones. The Mobile zone also has four sites in Baldwin County.

Huntsville: FTZ facilities are clustered on 1,700 acres around the intermodal center, plus another 1,000-acre complex at Mallard Fox Creek Industrial Park and the Port of Decatur. DaimlerChrysler has its own subzone in the Huntsville group, as do VF Jeanswear, General Electric and Toyota Motor Manufacturing Alabama.

Birmingham: Birmingham's FTZ is scattered over seven sites including parts of AirportNorth/ Northeast Industrial Park, Shaw Warehouse facilities, ACIP-CO industrial area, Oxmoor Industrial Park, Birmingham International Airport's air cargo facility, and Munger/Valley East. Industrial giant Mercedes-Benz has its own subzone in Vance, as do ZF Industries, JVC America and NACCO Materials Handling Group Inc.

Montgomery: Montgomery has more than 5,000 acres in four sites — near the airport and I-65, along the northern and eastern bypass, at the Airport Industrial Commercial Park and at Montgomery County Technology Park. Montgomery also has subzones for Hyundai Motor and Quantegy Inc.

Dothan: Dothan has six sites in its FTZ, with no industry-specific subzones. Dothan's international commerce is handled by the airport and the port of Panama City, Florida.

Freight is unloaded from a Panalpina cargo plane at the 1,700-acre foreign trade zone at the intermodal center of the Huntsville International Airport. *Photo by Tyler Brown*

FOREIGN TRADE ZONES

Like an airport duty-free shop, Foreign Trade Zones offer businesses a place for international trade without the encumbrance of tariffs — a level playing field with international competitors.

The U.S. Department of Commerce designates FTZs, mostly near ports and major industrial sites. The designation allows companies within the zones to import foreign goods without paying any duty, store them, mix them with domestic parts, and convert them into new products for sale here or abroad.

The National Association of Foreign Trade Zones estimates in its 2016-2017 annual report that some \$84 billion worth of goods were exported from FTZs in 2015, despite a drop caused by volatility in the oil market. Automotive exports — an Alabama strength — helped keep exports as strong as possible.

“On the import side, FTZs have also continued to grow in their importance for U.S. production and distribution opera-

tions that rely on global supply chains to remain competitive. Foreign-status inputs to FTZs totaled \$288.3 billion in 2014, accounting for 12.1 percent of all foreign goods imported to the United States. FTZ imports have tripled as a share of U.S. imports over the past two decades,” according to the NAFTAZ annual report.

Five of Alabama's major cities — Mobile, Huntsville, Birmingham, Montgomery and Dothan — has an FTZ. State economic development officials estimate that 12,000 workers are employed in FTZ companies, making \$1 billion worth of products that are later sold overseas. Autos, ships, oil and chemicals are among the key products.

Recent additions include sites for Airbus Americas in Mobile, MH Wirth Inc. in Theodore, Toyota Motor Manufacturing Alabama in Huntsville and Outokumpu Stainless in Calvert.

Mercedes-Benz U.S. International's site in Vance is highlighted in the NAFTAZ

ALABAMA STATE PORT AUTHORITY



Alabama's deep-water seaport, at the Port of Mobile, is located just 32 miles from the Gulf of Mexico and handled more than 58 million tons of cargo in 2018, making it the 10th largest U.S. seaport in total trade (U.S. Army Corps of Engineers Waterborne Commerce Statistics). The full-service public seaport terminals are owned by the Alabama State Port Authority and are served by major ocean carriers transiting today's global trade lanes. In 2017, the Journal of Commerce named the Port of Mobile the fastest growing container port in North America, owing primarily to 19 percent growth in 2016. In 2017, the container terminal posted 20 percent growth and is now on track to repeat that growth in 2018. APM Terminals' and the Authority's continued investments support traditional markets and new emerging growth markets, including retail distribution, refrigerated products, and advanced manufacturing in aviation and energy. In September 2018, CMA CGM inserted 9,000+ TEU capacity vessels into its direct Asia service. This is the second Post-Panamax vessel to service the port providing both capacity and economies of scale for shippers.

With over \$1 billion invested to date in public port facilities, the Port of Mobile ranks as the second largest steel port in the nation,

while maintaining a large market position in export of metallurgical coal and forest products.

Investment and expansion continue as the Port Authority and its partner construct an Automotive Logistics (RO/RO) Terminal that will serve a growing Southeast U.S. automotive industry. The Port Authority is also developing a logistics park at the container intermodal complex to serve value-added, distribution and light manufacturing projects dependent upon first-class container intermodal investments.

In late 2014, the U.S. Army Corps of Engineers and the Port Authority launched a four-year, environmental and economic feasibility study to deepen and widen the Port of Mobile ship channel. The proposed improvements will take the ship channel to 50-foot draft and construct a 3-mile widener to pass wide body and Post-Panamax ships. The study will be completed by year-end 2019, with construction set to begin in 2020.

Two new Post-Panamax ship-to-shore cranes bring the Port's container terminal capacity to 500,000 TEUs. *Photo by Brad McPherson*



At the Port's steel terminal, electromagnets lift steel slabs and load them onto waiting barges. *Photo by Todd Douglas*

ROADS

The public terminals are connected to two interstate systems (I-10 and I-65) and U.S. Highways, including US90, US98, US43, and US45.

WATERWAYS

Extending from the deep-water port terminals are more than 1,200 miles of navigable waterways in Alabama, among the most of any state in the nation, with lock and dam structures along the Tennessee-Tombigbee Waterway, Black Warrior, Coosa-Alabama and Tennessee rivers that provide access to not only Alabama's heartland but also to the Tennessee and Ohio valleys and the Great Lakes. The Port of Mobile is also accessible to the Gulf Intracoastal Waterway, providing coastal connections from Texas to Florida.

RAIL, AIR AND HIGHWAY ACCESS

Five Class 1 railroads access the port — Burlington Northern/Santa Fe/Alabama & Gulf Coast Railroad, CSX Transportation, Canadian National, Norfolk Southern and Kansas City Southern. Port linkage is provided by the Alabama State Port Authority's Terminal Railway. The Port is also served by the Alabama & Gulf Coast Railroad (AGR) and the CG Railway. The CG Railway's unique service provides shippers railed cargo via ship to Mexico's Veracruz region. The seaport is located approximately 4 miles from the Mobile Aeroplex at Brookley, which is home to Airbus's assembly plant for its family of A319, A320 and A321 aircraft. Mobile Aeroplex also serves as the region's air car-

go terminal, with daily service provided by UPS and FedEx.

GENERAL CARGO

The Alabama State Port Authority offers 31 general cargo berths, with approximately 2.4 million square feet of open yards adjacent to piers and railroad tracks, and more than 2.6 million square feet are under roof. The general cargo facilities also feature heavy-lift terminals, along with a heavy-lift crane capable of lifting cargo up to 400 tons from ship to barge, rail, truck or specialized carrier. Other facilities include a freezer terminal, a cement terminal, a grain terminal and three RO/RO berths, all of which can accommodate vessels up to 40-foot draft.

STEEL

Investments in the Authority's steel handling facilities are contributing to Alabama's rapid growth in the steel market. The automated Pinto Terminal applies innovation and technology to meet its 5 million ton annual throughput capacity. The terminal has a 45-foot draft, a 1,050-foot-long ship berth, an automated barge handling system and a slab storage yard. Pinto Terminal is equipped with three post-Panamax gantry cranes, which are the first in North America to use magnet technology in a ship-to-shore cargo handling operation. At the port, stainless and carbon steel coils are handled through a state-of-the-art, multi-modal steel coil handling facility. The assets include a 178,200-square-foot warehouse equipped with four 50-ton bridge cranes, an adjacent 168,000-square-foot open yard and

supported by integrated technology that provides shippers real time cargo data and tracking. Another key steel terminal investment includes a \$26 million modernized Pier C North terminal to handle both inbound and outbound carbon and stainless steel articles.

COAL

The McDuffie Coal Terminal is the most versatile facility in the nation, with import/export handling capability to ship, barge and rail transportation. More than \$135 million has been invested in new ship and yard equipment, automation and new rail facilities to increase export throughput to 16 million tons annually. Overall investments at McDuffie have generated annual import and export throughput capacity to 30 million tons.

APM TERMINALS MOBILE/CONTAINER INTERMODAL INVESTMENTS

The recently completed Phase 2 expansion added twenty acres and two new Super Post-Panamax ship-to-shore gantry cranes, bringing the terminal's capacity to 500,000 TEUs (20-foot equivalent units). In mid-2018, Phase 3 was launched adding 20+ acres, more outbound lanes and a dock extension to allow for simultaneous berth for two Post-Panamax ships. Phase 3 will deliver an annual throughput capacity of 650,000 TEU when completed in 2019. Maersk, China Shipping (CSCL), CMA CGM, COSCO, Evergreen, Mediterranean Shipping Company (MSC), OOCL, and ZIM provide weekly ocean carrier services on most trade lanes. The container terminal is part of the Authority's 380-acre Choctaw Point container intermodal project, which includes an intermodal rail transfer facility and development land for logistics. The intermodal container transfer facility (ICTF) is served by the Canadian National and is accessible to all five Class I railroads serving the Port of Mobile.

INNOVATIVE GATEWAY
Old Fashioned
SERVICE



ALABAMA INDUSTRY
ALABAMA STATE PORT AUTHORITY

Since 1928



INTERNATIONAL TRADE

RAIL FERRY TERMINAL

The Authority's Terminal Railway operates a rail ferry terminal that provides rail shippers twice weekly sailings into the Veracruz region of Mexico. The CG Rail Terminal is the first of its kind, with a twin-deck design for quicker loading. The ships can haul 120 standard rail cars per voyage without loading and unloading cargo, shaving nearly two weeks off the typical rail services into Mexico. The service provides four-day rail service between Mobile and Coatzacoalcos, Mexico.

TERMINAL RAILWAY

The Port Authority's Terminal Railway (TASD) is the largest port authority-owned railroad. The Terminal Railway provides switching service between the five Class 1 railroads serving Mobile and the port authority's terminals. It handles more than 137,000 revenue-producing rail cars annually and maintains more than 75 miles of track and eight locomotives. The Terminal Railway serves the general cargo and over-dimension cargo

berths, McDuffie Terminal, and private industries located as far north as the Port of Chickasaw and as far south as the Alabama State Port Authority's Intermodal Container Transfer Facility (ICTF).

INLAND PORT FACILITIES

To take full advantage of Alabama's waterway system, which comprises nearly 1,500 navigable inland barge miles, the Alabama State Port Authority owns 10 inland dock facilities that can be served by either barge or rail. The facilities are located throughout the state's river systems — at Bridgeport, on the Tennessee River; Demopolis, Tuscaloosa/Northport and Cordova on the Warrior River; Selma and Montgomery on the Coosa Alabama River; Columbia, Eufaula and Phenix City on the Chattahoochee River, and at Axis on the Mobile River.

PORT FACTS - 2018*

(Fiscal Year ending September 30, Extrapolated Volumes)

Acreage: 4,000

Number of Berths: 41

Channel Depth:

45 Feet in the lower harbor;

40 Feet in the upper harbor

Warehousing and Open Yards:

4.8 million square feet

Number of vessel calls: 1,611

Tonnage: 25.54 million

Containers: 338,665 TEUs

Imports: heavy lift and oversized cargo, containerized cargoes, coal, aluminum, iron, steel, copper, lumber, woodpulp, plywood, fence posts, veneers, roll and cut paper, automotive components, furniture components, retail goods, cement and chemicals

Exports: heavy lift and oversized cargo, containerized cargoes, coal, automotive components, lumber, plywood, woodpulp, OSB, laminate, flooring, roll and cut paper, iron, steel, frozen poultry, soybeans and chemicals



Going Global?

We Help Small Businesses Sell in Foreign Markets

- Export Research and Consulting
- Export Financing
- Training Programs

THE UNIVERSITY OF
ALABAMA



Culverhouse
College of Business

Alabama International Trade Center

www.aipc.ua.edu

A member of the Alabama SBDC Network, funded in part through a Cooperative Agreement with the U.S. Small Business Administration.

ALABAMA ECONOMIC DEVELOPMENT INCENTIVES

“Alabama has one of the most competitive business climates in the nation,” says the Alabama Department of Commerce. And the fact that tax incentives are statutory — part of the state’s Constitution and Codes — “gives industry a stable framework for long-term investment.”

Citing Alabama’s tax burden as among the lowest in the nation, the Economic Development Partnership of Alabama says, “Alabama is one of a small number of states that allow a full deduction of federal taxes paid from state income tax liability.” That provision drops an actual 6.5 percent corporate tax rate to an effective rate of 4.5 percent, lower even than any of its Southern neighbors.

Here’s a quick look at major tax incentives and credits:

JOBS ACT INCENTIVES

- **Jobs Credit.** Annual cash refund up to 3% of the previous year’s gross payroll for up to 10 years, with additional credits for companies employing many veterans or in targeted counties.
- **Investment Credit.** Credit of up to 1.5% of the qualified capital investment costs for up to 10 years. Credit can be taken against the Alabama income tax liability and/or utility tax liability. Credit is available for up to 15 years for companies in targeted counties selling their output nearby.

ALABAMA REINVESTMENT AND ABATEMENTS ACT

- **New Facility and Expansion.** (1) Abatement of non-educational portion of sales and use taxes on construction materials, and (2) Abatement of non-educational portion of property tax for up to 20 years.
- **Existing Facility:** Refurbishments, Upgrades, or Placed Back in Service. (1) Abatement of non-educational sales and use taxes on construction materials and

equipment, (2) Abatement of non-educational property taxes for up to 20 years of the incremental property tax increases, (3) Exemption from taxes for increased utility services for up to 10 years, and (4) AIDT worker training.

- **Property Tax Abatement.** New and expanding businesses can abate all of the state and local non-educational portion of the property taxes on all real and personal property incorporated into a qualifying project, for up to 20 years. Data processing center projects can receive an extended abatement up to 30 years, contingent on total capital investment in a project.
- **Sales and Use Tax Abatements.** Companies can abate all state and the local non-educational portion of the sales and use taxes on the acquisition, construction and equipping of a qualifying project. Data processing center projects can receive an extended abatement associated with constructing and equipping a project, including refresh, for up to 30 years, contingent on total capital investment in a project.
- **Full Employment Act Credit.** Employers with less than 50 employees are eligible for a \$1,000 nonrefundable income tax or financial institution excise tax credit for each qualifying job created.
- **Heroes for Hire Credit.** Employers meeting the requirements for the Full Employment Act are eligible for an additional \$1,000 nonrefundable income tax or financial institution excise tax credit if the employee is a qualifying veteran.
- **Net Operating Loss Carryforward.** Companies may carry forward any operating losses for up to 15 years.
- **Alabama Enterprise Zone Credit.** Credits and exemptions based on numbers of employees for businesses locating in depressed areas of the state.
- **Income Tax Education Credit.** Allows an employer to take a tax credit for 20 percent of the cost of an employer-sponsored program to improve basic skills through high school level.



Jeff Joyce, manager of Georgia-Pacific’s Brewton mill, where the company recently completed \$400 million in upgrades. *Photo courtesy of Georgia-Pacific*

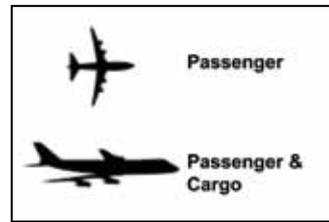
Here’s a look at financing incentives:

- **Industrial Development Grants.** Local governments and authorities can receive state grants to help businesses with the cost of site preparation. These grants are available to industrial, warehousing and research firms or headquarters facilities for other types of firms.
- **Industrial Revenue Bonds.** Tax-exempt bonds up to \$10 million can be issued covering all or part of the cost of land and building acquisition, construction, furnishings and some soft costs.
- **Alabama Infrastructure Grant Program.** Helps finance water, sewer and road facilities.
- **Alabama Industrial Access Road and Bridge Program.** Helps finance the roads and bridges needed to connect public roads to industrial projects.
- **Certified Capital Company Program.** Provides financing for projects considered to be too risky for conventional financing options.

More Information: Alabama Department of Revenue, Alabama Department of Commerce and other state agencies.



ALABAMA COMMERCIAL AIRPORTS



MAJOR ALABAMA HIGHWAYS



Source: Center for Business and Economic Research, The University of Alabama

ALABAMA MAJOR RAIL SERVICE



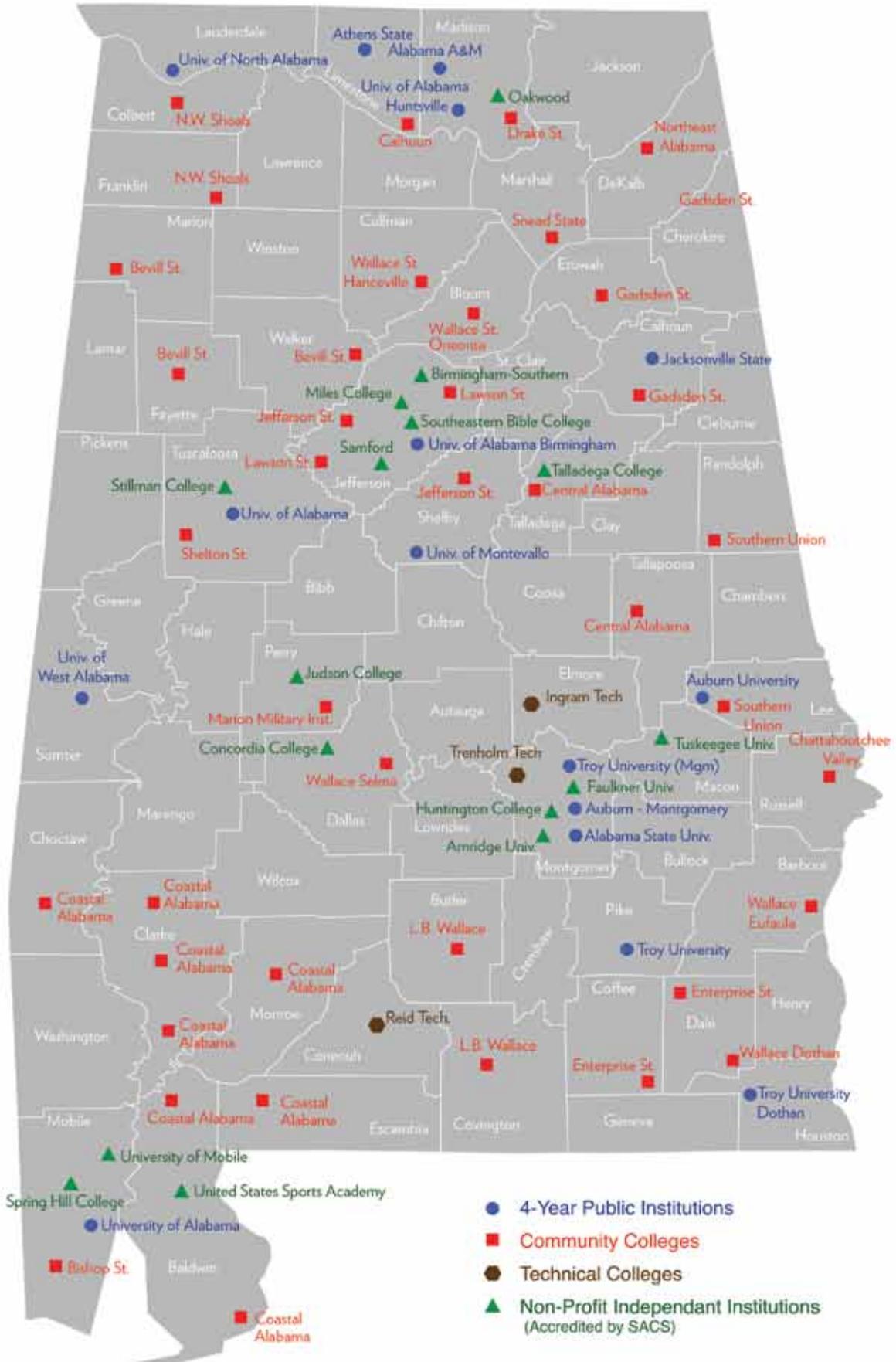
Alabama offers
4,728 miles ~ 7,608 kilometers
of railroad track serviced by
five Class I railroads

- Federal Interstate Highway System
- Burlington Northern
- CSX Transportation
- Kansas City Southern
- Norfolk Southern
- Canadian National

ALABAMA'S WATERWAY SYSTEM



Alabama Colleges and Universities



ALABAMA DEPARTMENT OF COMMERCE

Alabama's lead economic development agency

Alabama's economic development efforts focus on creating jobs that provide meaningful, long-lasting opportunities for citizens across the state. Leading this push is the Alabama Department of Commerce, which coordinates and supports the strategic efforts of its partners and allies across the state to secure new investment and jobs. Under the direction of Secretary Greg Canfield, Commerce's project managers share a global outlook as they build relationships and pursue economic development projects that can make a difference to families and communities across Alabama. Commerce also plays a critical role in the state's workforce development efforts, which ensure that businesses operating in Alabama have the skilled workers they need to succeed.

Commerce and the Alabama economic development team have a long track record of winning game-changing projects that expand opportunity and add new dimensions to the state's economy. In recent years, this team has worked with an expansive roster of industry leaders, including Boeing, Airbus, Facebook, Google, Amazon, and global automakers including the Toyota-Mazda partnership. In 2017 alone, economic development activity in Alabama attracted more than \$4.4 billion in new capital investment and 15,000 jobs. As a result, Alabama's economic development team has been recognized with numerous awards, and site-selection consultants have recognized Alabama as a top state for doing business.

Alabama's updated strategic economic development growth plan, called Accelerate Alabama 2.0, reflects a robust focus on recruiting knowledge-based jobs in activities such as R&D, engineering and design, as well as a greater alignment with the state's research universities. Accelerate 2.0 identifies seven key industry target sectors whose growth prospects make them appropriate



Following announcement in Montgomery of the \$1.6 billion auto assembly plant to be built in Alabama by the joint venture firm of Mazda Toyota Manufacturing USA Inc., from left: Commerce Sec. Greg Canfield, Mazda CEO Masamichi Kogai, Gov. Kay Ivey, Toyota President Akio Toyoda, Huntsville Mayor Tommy Battle, and Limestone County Chairman Mark Yarbrough. Photo by Alabama Governor's Office/Hal Yeager

targets for economic development efforts. These are aerospace/aviation, automotive, agricultural/food products, chemicals, forest products, primary metals/advanced materials, and bioscience. Important foundational aspects of business operations, such as cybersecurity, distribution, and R&D, remain a target for the state's economic development team.

By outlining a clear set of objectives, Accelerate Alabama introduced a framework for economic development when it was launched in 2012. Since then, Alabama has seen a high level of economic development activity, with companies announcing projects involving roughly 105,000 jobs and \$29 billion in new capital investment. A significant portion of that activity stemmed from foreign-based companies.

In addition, Commerce is tightly aligned

with the state's primary non-educational workforce development initiatives, which serves to streamline the process for prospects. AIDT, the state's highly regarded job-training agency, remains at the core of Commerce's Workforce Development Division. Other state workforce programs are also part of the division, whose goal is to act as a comprehensive and convenient conduit for worker recruitment and training needs.

A critical Commerce objective is to identify prospects for partnerships that can broaden Alabama's economic base and create jobs for its citizens. Other objectives are to attract domestic and foreign investment, expand international trade and Alabama exports, facilitate small business growth, and attract film and entertainment projects to the state.

KEY CONTACT

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BBA BIRMINGHAM BUSINESS ALLIANCE

BBA promotes economic growth in the seven-county Birmingham metro area



Ground is broken on a \$248 million expansion for Mercedes-Benz in Bibb County. From left, Bibb County Commissioner Ricky Hubbard; Angela Till, with the Alabama Department of Commerce; Jason Hoff, president and CEO of Mercedes-Benz U.S. International; and Lee Smith, East Region Executive for BBVA Compass and chairman of the Birmingham Business Alliance.

struction aggregates company Vulcan Materials Co.; national retailers Hibbett Sporting Goods and Books-A-Million; mining giant Drummond Co. Inc.; Blue Cross Blue Shield of Alabama; global life insurance provider Protective Life Corp., and many others. There are 80 international-based companies located throughout the region, and most of the workforce for two of the premier automotive assembly plants in North America — Mercedes-Benz in Vance and Honda in Lincoln — as well as a growing base of automotive suppliers, are located in the area. The region has a \$63 billion GDP and a workforce that comprises over a quarter of Alabama’s total employment.

The quality of life in the region is unmatched throughout the state. Since 2015, \$1.2 billion has been invested in downtown Birmingham, a hub of nationally ranked restaurants and new apartments, condos, hotels and entertainment venues of all sorts. The cost of living in Birmingham is an impressive 91 percent of the national average.



Birmingham, the largest city in the state of Alabama, is a great place to do business. It is home to Alabama’s largest employer, the University of Alabama at Birmingham (UAB) and the headquarters of Alabama’s only Fortune 500 company, Regions Financial Corp. It is also home to over 1.1 million people who make up a diverse, motivated workforce that drives the regional economy.

As the economic development organization for the Birmingham metropolitan area, the primary mission of the Birmingham Business Alliance is to increase job growth and capital investment across the region, encompassing Bibb, Blount, Chilton, Jefferson, St. Clair, Shelby and Walker counties.

Birmingham’s economy is as diverse as its workforce. Historically, manufacturing, banking, insurance, health care, logistics and construction industries have been the region’s most dominant business sectors. More recently, life science, technology and automotive have become major growth industries. Mercedes-Benz is currently building two facilities in Bibb County, a Global Logistics Center and a new after-sales North

American hub, and Autocar has opened a new truck assembly facility.

DC BLOX, a data center developer, recently announced a \$785 million investment and plans to transform a 27-acre site in Birmingham into a technology and innovation campus. Online retail giant Amazon will invest \$325 million to build a state-of-the-art fulfillment center in the Birmingham region that will employ more than 1,500.

The BBA leverages Birmingham’s greatest assets, including UAB, which annually conducts research funded at over \$560 million, and Southern Research, a contract research organization with nearly 500 scientists and engineers who focus on drug discovery and drug development. Seven FDA-approved cancer drugs currently on the market were developed at Southern Research. Entrepreneurs thrive in Birmingham, home to Innovation Depot, which houses more than 100 startups. The Depot is the Southeast’s largest technology incubator, and many of the region’s 700+ technology-based businesses began there.

The region is the headquarters of con-

KEY CONTACT

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ADECA ALABAMA DEPARTMENT OF ECONOMIC AND COMMUNITY AFFAIRS

Managing economic incentives and community development grants

The Alabama Department of Economic and Community Affairs (ADECA) was created by the Alabama Legislature in 1983. Under the leadership of former Enterprise Mayor Kenneth W. Boswell, ADECA distributes hundreds of millions of dollars each year to Alabama cities, counties, non-profit organizations and others to support economic development projects, infrastructure improvements, job training, energy conservation, law enforcement, traffic safety, recreational development, assistance to low-income families and more. Community development leads to economic development, and all of ADECA's investments support the agency's mission to "Build Better Alabama Communities."

There are five ADECA divisions and numerous programs that focus all available resources to address a variety of local challenges.

Three ADECA grant programs are often used to help Alabama communities with economic development projects:

- Community Development Block Grants are funded through the U.S. Department of Housing and Urban Development and support local efforts to attract and prepare for new or expanding industries, rehabilitate neighborhoods, provide water and sewer services or fund other infrastructure improvements that support business development or enhance the quality of life. Many of the funds are awarded annually on a competitive basis, but a portion of the allocation is kept in reserve for economic development projects that help industries and businesses locate and expand in communities and provide jobs. In 2017, ADECA received a total of 121 competitive applications from small cities, large cities, counties and planning organizations across Alabama, and the agency awarded a total of 54 projects totaling nearly \$17 million enabling local governments to



Officials gather for the groundbreaking of a \$110 million Rex Lumber Co. mill near Troy in June 2018. The industry will employ more than 100 people. An ADECA Community Development Block Grant helped build an access road to the mill.

address critical infrastructure needs. Eighteen grants, amounting to \$5.4 million, were awarded through ADECA's economic development CDBG program. Those funds are used to supply infrastructure necessary for new businesses and industry to locate in a community and provide community jobs.

- Grants from the Appalachian Regional Commission (ARC) are awarded to encourage economic development and improve the quality of life of Alabamians living within 37 north Alabama counties considered part of the Appalachian Region. Projects that develop and improve infrastructure and support education, workforce development and community development are funded through the program. In 2017, \$6.2 million was invested in 33 projects in ARC counties.

- Delta Regional Authority (DRA) is another state-federal partnership that encourages the development of new jobs and helps with basic community improvements in a rural region that includes 20 counties primarily in the Black Belt region of Alabama. In 2017, ADECA partnered with DRA to fund seven projects totaling \$1 million.

- Two recreational programs are managed by ADECA, the Land and Water Conservation Fund and the Recreational Trails Program (RTP), to fund parks and recreational facilities that attract tourists who

boost local economies by patronizing hotels, restaurants and shops. Sixteen projects were funded in 2017 with the Land and Water Conservation Fund, representing \$1.63 million in investments. The RTP invested \$3.3 million for 19 projects in Alabama.

A new tool in Alabama's industry recruiting efforts are Opportunity Zones. Unveiled in 2018, the program establishes U.S. Census tract areas within each of Alabama's 67 counties where jobs are greatly needed. Industries and businesses locating within any of the 158 Opportunity Zones in the state are eligible for tax cuts and additional incentives.

Alabama continues to move forward in its efforts to provide high-speed internet to rural Alabama with ADECA at the helm. In March 2018 Gov. Kay Ivey signed the Alabama Broadband Accessibility Act, acknowledging that broadband services are necessary to attract business to rural Alabama and important to keep rural Alabama on even keel with the rest of the state.

Other ADECA programs support state and local law enforcement, traffic safety, juvenile justice, victim services, home weatherization and energy conservation. The department also helps manage the state's water resources and distributes state and federal surplus property.

KEY CONTACT

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Montgomery, AL 36103-5690 || (334) 242-5591 || Fax: (334) 242-5099 || Kenneth.Boswell@adeca.alabama.gov

AIDT ALABAMA'S WORKFORCE TRAINING AGENCY

Workforce development provided by AIDT is among the strongest incentives for businesses choosing to locate or expand in Alabama.

Alabama has one of the strongest workforce training programs in the world, in support of Alabama's commitment to new and expanding industries.

AIDT has long been recognized among the nation's top workforce training programs by industry observers. AIDT's pre-employment training program holds an ISO 9001:2015 certification for quality and continuous improvement.

AIDT has assisted new and expanding companies in recruiting, selecting and training more than 700,000 job seekers. AIDT training typically produces a workforce that employers recognize for high performance achievement — a result of both the technical assessment and training AIDT trainees receive and the process by which they are selected.

From automotive to aerospace and logistics and warehousing to biomedical, AIDT researches and identifies the needs of each company served and uses that information to develop a full range of technical pre-employment selection programs uniquely customized to each company.

In a continued effort to meet the needs of industry, Alabama has embarked on an aggressive plan to open regionalized Workforce Centers of Excellence, managed and operated by AIDT. The Alabama Workforce Training Center in Birmingham is designed to meet the growing needs of companies engaged in the manufacturing and construction industries in north and central Alabama. And the Montgomery Regional Workforce Training Center provides entry-level training, employee upgrade training, two-year technical college level training, and K-12



AIDT's Maritime Training Center, in Mobile

career training to adequately supply businesses with a trained workforce for the Montgomery region.

AIDT SERVICES INCLUDE:

- Identification of needed employee skills and knowledge, training criteria and curricula content definition, and required behavior and performance criteria the company expects of employees.
- Recruitment of trainee candidates for potential employment. AIDT interviews and enrolls applicants in training that are acceptable to the company.
- Provides program development, instructors, equipment, consumable supplies, and training aids such as manuals, workbooks and videos. All AIDT services are provided at no cost to trainees or employers.

• Job seekers who meet the selection criteria designed by AIDT and the employer are enrolled in job specific, pre-employment training for detailed assessment of attitude, character, work ethic, literacy, teamwork and technical learning ability.

A division of the Alabama Department of Commerce, AIDT also provides leadership development, on-the-job training, industrial maintenance assessment and industrial safety assessment. Leadership development conducted by AIDT is designed to develop and retain quality leaders, improve retention and create loyal and dedicated employees. Industrial maintenance and safety assessment services help identify candidates best qualified for effective and efficient operations through corrective and preventive maintenance of equipment and processes.

KEY CONTACT

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ATN ALABAMA TECHNOLOGY NETWORK

Experts in technical assistance and innovation work directly with Alabama's existing industry to increase productivity, profitability and competitiveness.



The Alabama Technology Network provides the most innovative technical assistance and training to continually improve Alabama's businesses and industries.

As part of the Alabama Community College System, the network's 19 sites are located at 15 community colleges and the state's three research universities — Auburn University, the University of Alabama and the University of Alabama in Huntsville. ATN's team of experts helps solve the needs of industry and business through innovative, sustainable, cost-effective solutions. ATN can conduct detailed needs assessments, outline potential

solutions based on the results, and then provide technical assistance to help you solve those problems or identify those who can. Services include lean enterprise, quality services training, continual improvement methods, environmental health and safety training, industrial maintenance training, sustainability in manufacturing, and innovation engineering.

ATN is an affiliate of the National Institute of Standards and Technology's Manufacturing Extension Partnership, which provides hands-on assistance and training to smaller manufacturers. As the state's MEP, in FY2017 Alabama compa-

nies served by ATN reported with economic impacts as follows:

- Created and Retained Jobs: 1,464
- Increased/Retained Sales: \$112.9 Million
- Saved Manufacturers: \$26.1 Million
- Client/Workforce Investments: \$37.7 Million
- Total Impact Exceeding: \$176.7 Million

In addition to its training services, ATN partners in presenting the Alabama Manufacturer of the Year awards. These awards recognize the state's top manufacturers, in three size categories, for their accomplishments.

KEY CONTACT

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1-877-428-6457 toll free || www.ATN.org

EDAA ECONOMIC DEVELOPMENT ASSOCIATION OF ALABAMA

An association of professionals committed to Alabama's economic development



Blast furnace at Nucor Steel in Tuscaloosa. The business-friendly atmosphere and availability of a well-trained workforce have attracted many steel companies to Alabama.

Economic development can have a multitude of meanings, but at its core, it is a collaborative effort between businesses, communities, organizations and government agencies. Since 1968, the Economic Development Association of Alabama (EDAA) has facilitated that collaboration in an effort to both attract new investment to the state and work to expand those companies that are located here. EDAA provides a forum for discussion of specific issues affecting economic development and provides programs, training and expertise

The EDAA Leadership Institute represents a partnership between EDAA and GEDI to educate and engage elected officials, ED board members and other community leaders about key issues in economic and community development. For more information contact: EDAA (334) 676-2085

to create successful development programs.

The EDAA membership of 475 consists of individuals involved in economic development from many different areas and disciplines. EDAA members are economic development professionals, attorneys, engineers, architects, state agency personnel, utility employees, bankers, contractors, real estate agents and educators, municipal and county officials.

A voluntary member association, EDAA conducts workshops and seminars covering the ideas, principles, practices and ethics of economic development. Most of the EDAA educational programs focus on enhancing the skills of economic development professionals by providing them with new tools to address the challenge of remaining one of the nation's top states in economic development. Additionally, EDAA works with other organizations in the state to improve Alabama's economic development environment. Strategic alliances with the Alabama Department of Commerce, Alabama Department of Economic and Community Affairs and

the Economic Development Partnership of Alabama enable EDAA to provide its membership with substantive skills.

EDAA is diligent in addressing state and federal legislation and regulatory issues impacting economic development in Alabama. With a full-time lobbying presence when the Alabama Legislature is in session, EDAA is a leader in forming economic development policy and legislation for its members. Legislative efforts on the state level in recent years have seen EDAA lobby for competitive and sustainable economic development incentives, adequate funding for state recruitment efforts and worker training programs and to defeat legislation that would pose a threat to Alabama's economic development effort.

EDAA actively seeks innovative solutions to challenges that could negatively impact the state's economic development efforts. EDAA holds multiple networking opportunities, provides members with a quarterly Economic Development Journal, publishes a membership directory, conducts two major conferences each year, and holds quarterly workshops. EDAA is also a partner with Auburn University's Government and Economic Development Institute (GEDI) in conducting the Economic Development Leadership Institute.

Additionally, EDAA has partnered with the University of Alabama's Economic Development Academy to offer an Applied Economic Development Honors program. This program is specifically aimed at increasing the skills and abilities for those new to the profession.

KEY CONTACT

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Montgomery, AL 36104 || (334) 676-2085 || Fax: (334) 676-2087 || info@edaa.org || www.edaa.org

EDPA ECONOMIC DEVELOPMENT PARTNERSHIP OF ALABAMA

A private, non-profit organization, EDPA works with companies looking to locate or expand within the state and assists companies and communities within the state to improve their competitiveness.

For more than 25 years, the Economic Development Partnership of Alabama has been a catalyst for economic growth in the state. During that time, the Partnership has been involved in Alabama's greatest economic development successes. A totally private, non-profit organization, EDPA is uniquely positioned to partner with state, local and private entities involved in Alabama's economic development efforts.

In 1993, EDPA assisted in the effort to attract Mercedes-Benz. EDPA provides services to businesses looking to locate in the state, encourages emerging business development and assists companies and communities that want to improve their competitive edge.

EDPA is supported by more than 60 leading companies from various sectors that are committed to the state's long-term economic growth. The organization's board of directors is comprised of top business leaders in Alabama.

By aligning its resources with the Governor's Office, the Alabama Department of Commerce and key state agencies and institutions of higher learning, EDPA works to market Alabama and to provide prospective companies a smooth site selection process and tools for a sustainable operation in Alabama.

EDPA actively assists companies searching for a location. Equally as important, EDPA works to provide resources and networks for existing industries and communities in Alabama.

EDPA has also led efforts to encourage innovation, commercialization and entrepreneurship. Alabama Launchpad,



Steve Spencer addresses the second annual imerge event, promoting the area's innovation and entrepreneurship landscape.

a program of the Economic Development Partnership of Alabama (EDPA), helps high-growth companies Start, Stay and Grow in Alabama. Started in 2006, Alabama Launchpad is the state's largest virtual accelerator and early seed investor and drives innovation and job growth through startup competitions and ongoing mentoring for launching and growing

businesses in Alabama.

EDPA's imerge is an annual event that celebrates the achievements of innovation and entrepreneurship in the state.

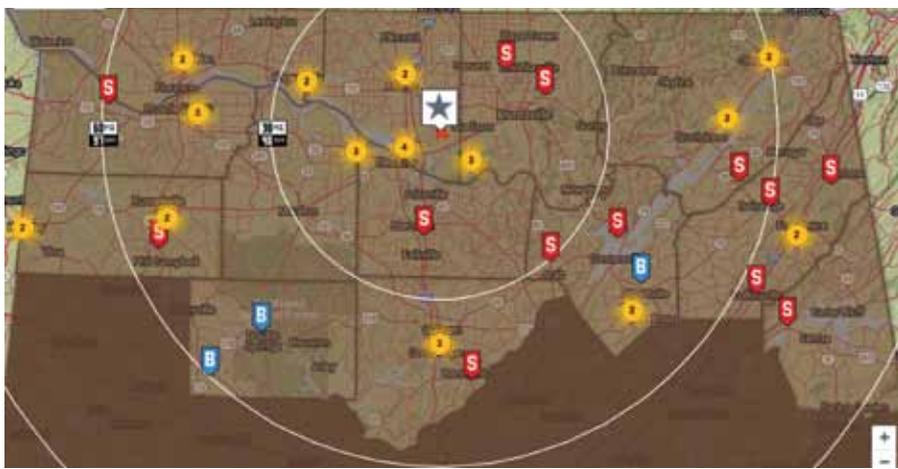
By participating in collaborative efforts in Alabama, EDPA works to foster a cooperative spirit among the diverse organizations involved in the many areas that affect the state's growth.

KEY CONTACT

Steve R. Spencer, President || **Steve Sewell, Executive Vice President** || Economic Development Partnership of Alabama
1320 1st Avenue South || Birmingham, AL 35233 || (205) 943-4700 || Fax: (205) 943-4703 || www.edpa.org

NAIDA NORTH ALABAMA INDUSTRIAL DEVELOPMENT ASSOCIATION

The North Alabama Industrial Development Association (NAIDA) is a 70-year-old regional economic development organization formed to assist in the creation of quality jobs in the thirteen counties that are served by the distributors of TVA electric power.



When compared to the national average, North Alabama has more than twice as many individuals employed in manufacturing occupations. This current industrialization of the region owes its roots to the 1950s when heavy industry began locating along the Tennessee River, and the development of the Saturn V rockets that took man to the moon began taking shape here. Today, the North Alabama region continues to build on those successes, steadily growing with more advanced manufacturing in various industry sectors.

The aerospace and defense sectors continue to be among the strongest in the region with companies such as Boeing, Lockheed Martin, Raytheon, Northrop Grumman, Ruag and ULA (United Launch Alliance). ULA continues the tradition of building rockets in North Alabama with the Delta IV, the Atlas V and soon, the new Vulcan rocket platform.

Our automotive sector is strengthening its base of over 100 current automotive

suppliers and the construction of the new \$1.6 billion Mazda/Toyota joint venture centrally located in the region. In response, we've created a new microsite, www.automotivesites.us, featuring sites and buildings pre-selected by each of our counties as readily available for development. Polaris also continues the ramp up of their production of the Ranger side-by-side and their radical new 3-wheeled Slingshot.

Alloys/Metalworking companies such as Carpenter Technology, Constellium, Freight-Car America, Nucor Steel, and Progress Rail also find success in North Alabama.

The HudsonAlpha Institute for Biotechnology and its 30+ associate companies are the shining stars for the Life Sciences sector.

Over 70 chemical companies operate in the region including 3M, Ascend, Daikin, Hexcel, OCI, Occidental Chemical and Toray.

Other new additions to our diverse

NAIDA has created this map of potential industrial sites that can be viewed interactively and in greater detail at www.automotivesites.us

economy include \$750 million Facebook and \$600 million Google datacenters, both under construction, and a \$200 million GE investment producing state-of-the-art SiC and CMC materials for the aviation industry.

Some of the reasons companies in North Alabama flourish include

- Twelve institutions of higher education (5 four-year, 7 technical/ community colleges).
- World-class automation training provided at no charge to Alabama industries by AIDT through the Robotics Technology Park (RTP).
- North Alabama is served by the robust TVA electric power system providing rates that are lower than 69 percent of the top 100 utilities in America. Since 2000, the TVA system has delivered 99.999 percent transmission reliability.
- Two commercial airports. Huntsville International provides direct flights to major cities and air cargo to international destinations and offers an intermodal facility. US Customs and Border Patrol are located on site, in addition to FTZ #83.

With product offerings that include over 3,000 acres designated as AdvantageSites, several Primary Data Center Sites, and speculative buildings ranging from 21,600 SF to 227,600 SF along with other available sites and buildings, North Alabama is prepared for your company's growth.

For site location assistance, please call 256.353.9450 or visit www.naida.com.

KEY CONTACT

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For over **100 years**, our firm's history includes working with a variety of auto manufacturers and suppliers in the Southeast to drive economic development for our region.

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At Burr, we collaborate with our manufacturing clients as business partners, working alongside them on matters including economic incentives, land acquisition, construction, operations and workforce management.

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