FLORIDA COMMERCE

2023 Florida Manufacturing

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Executive Summary

Despite a lack of awareness, Florida is a manufacturing state.

Recently, Florida manufacturing's impact on the state's economy surpassed the contribution to Gross Domestic Product (GDP) of many other key industries – tourism, agriculture, and transportation – that the state is most readily identified with by both inside and outside observers. Florida is already a strong manufacturing state and this report outlines ways Florida can become a national and global center for manufacturing.

Florida's manufacturing output (GDP) has grown from $43.5 billion in 2014 to $73 billion in 2022, a 67.8% growth rate over 9 years. This rate of growth has significantly outpaced all other leading manufacturing states.

Florida's manufacturing employment reached 422,800 in September 2023, passing both Georgia and New York to become the 10th largest state in the country for manufacturing employment. Manufacturing employment has grown by 23.3% since 2014, again significantly higher than other leading manufacturing states.

In its 2022 report titled "Florida 2030: A Blueprint for Success" and as part of a unified approach to grow Florida to the 10th largest economy in the world, the Florida Chamber Foundation set a goal for Florida to be in the top five for manufacturing employment in the country by 2030. If Florida enhances its focus on the importance of manufacturing and maintains its current acceleration in both manufacturing employment and its resulting manufacturing output, it is very likely this goal will be achieved. Based on September 2023 data, Florida added an additional 13,605 manufacturing jobs over nine months of 2023.

This is important because manufacturing jobs are premium jobs. These jobs tend to pay relatively higher wages, increase productivity, and are economically resilient against downturns. Furthermore, in Florida, manufacturing benefits small and large employers alike, each playing a role in the success of the industry, and all regions of the state, urban and rural.

As manufacturing jobs continue to be reshored to the United States from global markets, Florida is poised to become one of the top five manufacturing states by 2030. With that comes the promise of an even more resilient and diversified economy, higher

average wages for our citizens, and an increase in the volume and value of the goods we export to the world.

Critical to that goal, we must continue to aggressively implement Governor Ron DeSantis' policies that elevate manufacturing and strengthen Florida's economy, to simultaneously improve our national security, and reduce our nation's dependence on imports from China and other anti-free market regimes. Under the Governor's administration, Florida has succeeded in improving its overall ratio of exports to imports, and Florida will continue to lead the nation in divesting from China's influence.

In 2019, Governor DeSantis set a clear goal that Florida would be #1 in workforce education by 2030. That goal, outlined in Executive Order 19-31, aligns with the Florida Chamber's Blueprint for Success and was fully supported by the Legislature in 2019, and again in 2021 with the passage of the REACH Act. Our challenge, however, is to ensure that as a state we are making the necessary infrastructure and workforce investments commensurate with our rate of growth. Further, we must ensure that our research and development centers, our business and technical assistance assets, and our capital assets stay ahead of the evolving demand. And finally, we must ensure that policy and regulatory frameworks nurture and advance the business climate for a growing, competitive economy.

The purpose of this publication is to report on the state of Florida manufacturing in 2023, while also identifying some of the key challenges to be addressed. The report provides a summary of key technology, workforce, growth, and supply chain strengths as well as several opportunities, both local and national, to further improve Florida's manufacturing strengths and capabilities. Further, the report provides an analysis of key manufacturing sub-sectors that drive Florida's economy as well as the distribution and relative importance of those sub-sectors at a regional level.

The nation is watching and manufacturing is growing; this is Florida's chance to get it right. It is the hope of FloridaCommerce that this report will serve as a baseline for future reports and analyses on the state of Florida manufacturing, as well as its opportunities for growth and development.

J. Alex Kelly
Secretary of Commerce

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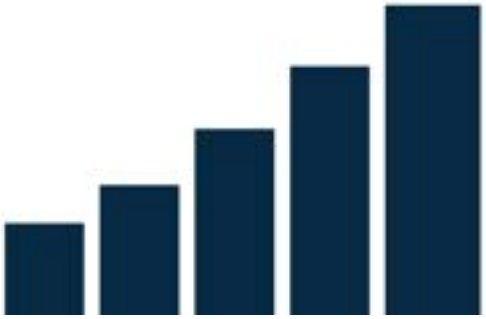


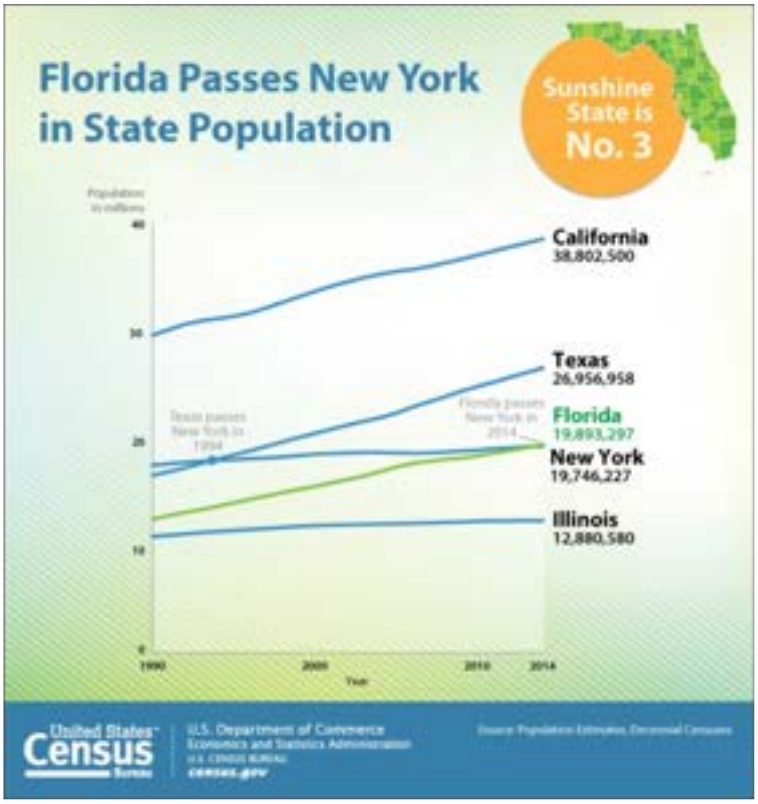
SECTION 1.
The State of Manufacturing in Florida

Population Drives Manufacturing

Florida is steadily becoming one of the nation's leading manufacturing states, and understandably so. Sometime between 2013 and 2014, Florida became the third most populous state in the nation surpassing New York.[1] As a result of forward-thinking policies and a favorable tax and business climate, Florida sees an influx of over 1,100 people per day, representing an income migration of roughly $4.4 million per hour.[2] Continued growth in Florida's manufacturing sector is not only the result of economic development strategies over the past several decades and an ever-improving business climate, but also an anticipated result of the increasing population and wealth density.

Key markets shift as people move, and manufacturers choose to operate in locations that are close to key markets. Proximity to buyers, suppliers, labor, and transportation enables companies to cut costs, develop close relationships with their communities, and provide high-quality jobs that can strengthen families and support sustained economic growth.

Figure 1



[1] Florida Passes New York to Become the Nation's Third Most Populous State, U.S. Census Bureau, December 23, 2014
[2] The Florida Scorecard, Florida Chamber Foundation, November 2023

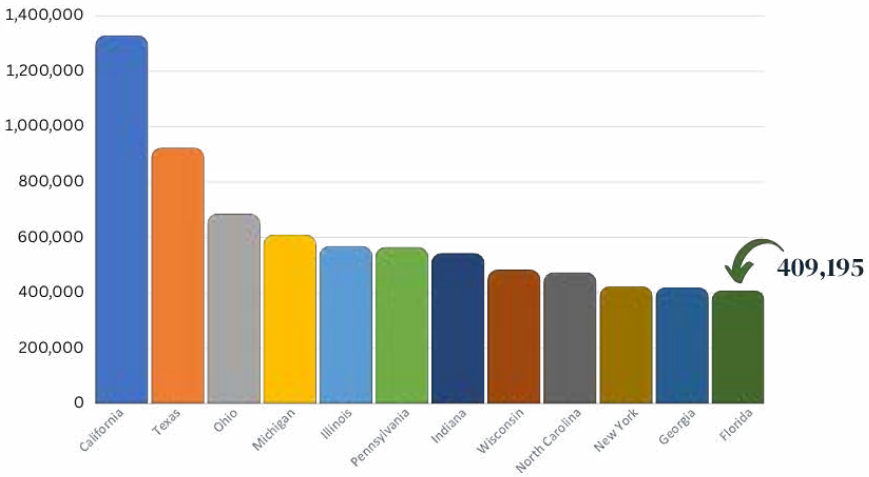
Florida is a Major Manufacturing State and Poised for Growth

The September 2023 manufacturing employment data from the U.S. Bureau of Labor Statistics documents Florida's standing as a significant manufacturing state. With 422,800 jobs,[3] Florida is the nation's 10th largest manufacturing employer, eclipsing both New York and Georgia.

Figure 2 illustrates data from 2022 and Florida's ranking compared to what most traditionally view as the "nation's manufacturing states." Clearly, Florida holds its own with those traditionally viewed manufacturing states as a core producer of manufactured goods, despite manufacturing not historically being associated with Florida.

Figure 2

2022 Top 12 States for Manufacturing Employment



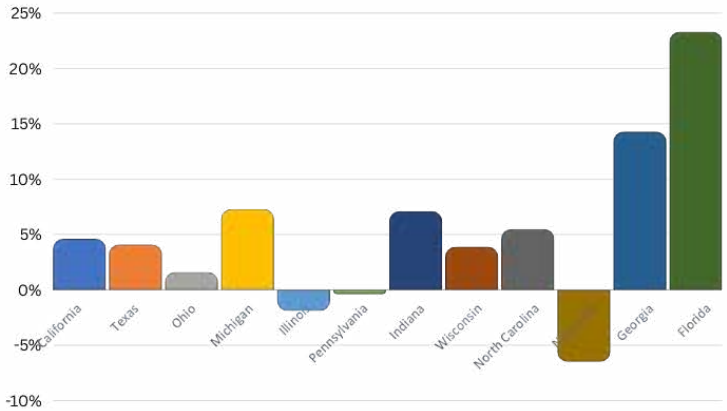
Source: Bureau of Economic Analysis

Taken alone, Florida's single year jump from 12th place in 2022 to 10th place 2023 is impressive. When taking into account Florida's rate of growth in manufacturing employment (Figure 3) over the last nine years, it becomes clear that Florida is swiftly gaining on the competition.

Since 2014, Florida has grown its manufacturing employment by 23.3 percent, far outpacing the other 11 states among the top 12. The only other states in the nation experiencing rates of manufacturing employment growth in this range were Arizona (22.4 percent), Utah (25.2 percent), Idaho (22.7 percent), and the largest, Nevada (57.5 percent). Nevertheless, all these states have substantially smaller manufacturing footprints both in terms of employment and output.

Figure 3

Manufacturing Employment Growth Rate
Tops 12 States
2014 - 2022



Source: Bureau of Economic Analysis

[3] U.S. Department of Labor, Bureau of Labor Statistics, Current Employment Statistics, released October 20, 2023

Strong Policies

In his first days in office, Governor DeSantis issued Executive Order 19-31, setting a clear goal for Florida to become the #1 state in workforce education by 2030. Aligning with a similar recommendation in the Florida Chamber of Commerce's report, Florida 2030: The Blueprint to Secure Florida's Future, it called for the state to ensure that Florida students are prepared to fill the high-demand, high-wage jobs of today and the future.

Key to the Governor's initiative were his signing of the 2021 Florida's Reimagining Education and Career Help (REACH) Act and Senate Bill 2040 in 2023 (otherwise known as REACH ACT 2.0). The REACH Act is a comprehensive blueprint for enhancing access, alignment, and accountability across the state's workforce development system. Chiefly, it established the REACH Office within the Executive Office of the Governor to facilitate, for the first time, coordination and alignment of entities that contribute to the state's talent pipeline system through education, training, and support services. Among the state workforce development entities and agencies recognized in the REACH Act are CareerSource Florida, local workforce development boards, one-stop career centers, FloridaCommerce, the Florida Department of Education, and the Florida Department of Children and Families.

REACH Act 2.0 furthered the Governor's and Legislature's emphasis on career and technical education (CTE) as a means of enhancing Florida's thriving economy and providing high-quality, high-paying jobs for Florida's graduates. Together, these state laws further solidify Florida's position as the number one state for education, including higher education for the past 6 years, and are rapidly advancing efforts toward the Governor's goal.

Florida's purposeful strategy to capitalize on CTE is already paying great dividends. At the secondary level, Florida has 17 CTE pathways leading to high-rewarding white-collar, blue-collar, and gray-collar jobs, including in manufacturing.[4] Growth in these CTE programs continues to increase, with nearly 800,000 students now enrolled.[5]

[4]https://www.myfloridahouse.gov/Sections/Documents/loaddoc.aspx?PublicationType=Committees&CommitteeId=3243&Session=2024&DocumentType=Meeting+Packets&FileName=cis+11-16-23.pdf

[5] ibid

The Multiplier Effect of Manufacturing Employment

Manufacturing employment represents one of the largest sectoral job multipliers in the economy. According to the Economic Policy Institute, for every 100 direct manufacturing jobs in the manufacture of durable goods, another 744.1 indirect jobs are sustained. For nondurable goods manufacturing, 100 direct jobs sustain 514.3 indirect jobs.[6] These indirect jobs take two forms: supplier jobs including material and capital suppliers and induced jobs which include jobs supported by the spending of income from the direct and supplier jobs, as well as public sector jobs supported by tax revenue. Table 1 provides a breakout of these jobs as well as a sample comparison of these multipliers against other key Florida industries.

Table 1

Employment Multipliers per 100 Direct Jobs

Major Industry Group	Direct Jobs	Supplier Jobs	Induced Jobs	Total Indirect Jobs
Agriculture, forest, fishing, and hunting	100	93.6	134.8	228.5
Construction	100	88.0	138.1	226.1
Durable Manufacturing	**100**	**289.1**	**454.9**	**744.1**
Nondurable Manufacturing	**100**	**184.8**	**329.5**	**514.3**
Transportation and Warehousing	100	112.8	163.3	276.0
Healthcare and Social Assistance	100	69.4	136.2	205.6
Accommodation and Food Services	100	53.8	107.4	161.2

Source: Economic Policy Institute

The data indicate that Florida's 295,500 durable manufacturing jobs and its 127,300 nondurable manufacturing jobs combine to produce another 2,853,226[7] indirect jobs in the economy, likely driving employment in many other industry groups. Therefore, opportunities realized to increase Florida's manufacturing employment also maximize its share of the supplier and induced employment resulting from that production.

[6] Economic Policy Institute Analysis from the Bureau of Labor Statistics Employer Requirements Matrices, the BLS Current Employment Statistics Program, and the Bureau of Economic Analysis GDP-by-industry accounts, January 23, 2019

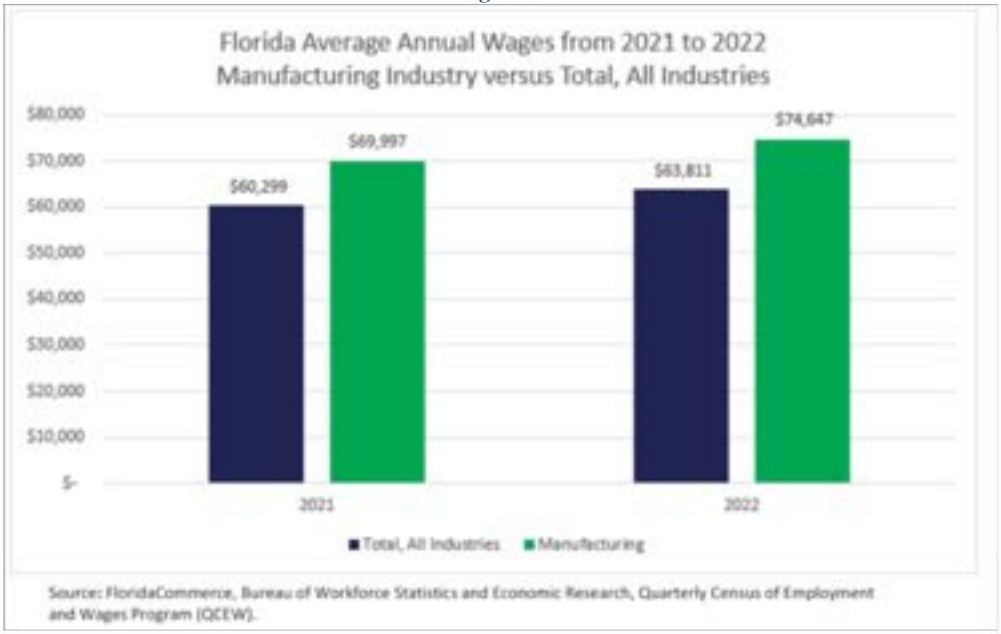
[7] Calculated based on multipliers above: 295,500 direct jobs in durable goods manufacturing generate 2,198,522 total indirect jobs from durable goods manufacturing. 127,300 direct jobs in nondurable goods manufacturing generate 654,704 total indirect jobs from nondurable goods manufacturing. 2,198,522 indirect jobs from durable goods + 654,704 indirect jobs from nondurable goods manufacturing = 2,853,226 total indirect jobs as a result of 422,800 direct jobs in Florida manufacturing in September 2023.

Higher Wages

Based on 2022 data published by FloridaCommerce's Bureau of Workforce Statistics and Economic Research, manufacturing jobs generally pay higher wages than those in other industries. As shown in Figure 4, the 2022 average annual wage for workers in the manufacturing industry cluster ($74,647) exceeded the average annual wage for all industries ($63,811) by $10,835 (+17.0%).

The manufacturing industry cluster's 2022 average annual wage also increased more than the average wage for all industries over the year and grew at a faster rate. The 2022 average annual wage for the manufacturing industry cluster increased by $4,650 (+6.6%) from 2021, while the average annual wage for all industries grew by $3,512 (+5.8%) over the year.

Figure 4



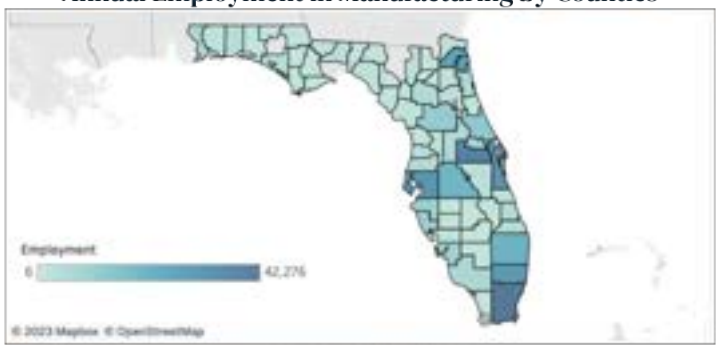
Urban and Rural Economic Prosperity

Manufacturing represents roughly 4.3 percent of the state's overall employment as compared to roughly 8.3 percent[8] nationally. That figure might suggest a less robust footprint for manufacturing employment compared to other sectors such as Trade, Transportation and Utilities, Professional and Business Services, Education and Health Services, and Leisure and Hospitality. However, that perspective changes when viewed through a county or regional lens. Miami-Dade County alone has approximately 42,000 manufacturing jobs. Orange County ranks second followed closely by Pinellas, contributing roughly 36,000 and 34,500 manufacturing jobs each. And finally, Brevard, Hillsborough, and Broward contribute over 29,000 manufacturing jobs each.[9]

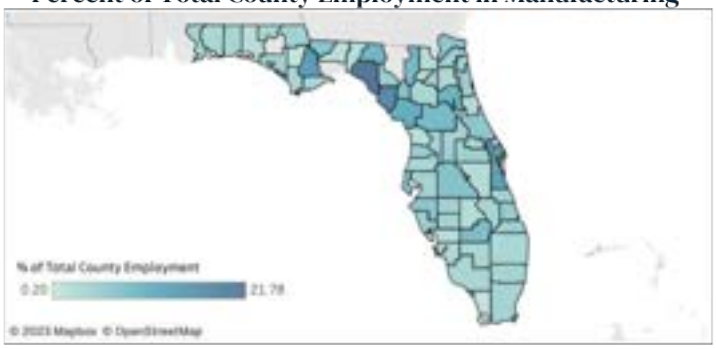
Not to be overshadowed by the state's major population centers, rural areas of the state rely on manufacturing employment more as a percentage of overall employment (See Figure 5). A 2016 study conducted by FloridaMakes for Florida's Department of Economic Opportunity[10] revealed manufacturing employment represented 4.7 percent of jobs in the Northwest Rural Area of Opportunity (RAO), while the North Central RAO had 8.4 percent of its employment in manufacturing,[11] both above statewide averages, with the North Central RAO above the national average.

Figure 5

Annual Employment in Manufacturing by Counties



Percent of Total County Employment in Manufacturing



Source: Quarterly Census of Employment and Wages (QCEW), 2022

[8] U.S. Bureau of Labor Statistics. September 2023.
[9] Florida Manufacturing, FloridaCommerce, September 2023 Labor Statistical Data, Bureau of Workforce Statistics and Economics Research (WSER), October 20, 2023.
[10] On July 2, 2023, the Florida Department of Economic Opportunity became the Florida Department of Commerce.
[11] Rural Area Manufacturing Study: An Assessment of Manufacturing in Florida's Rural Areas and the Opportunities for Growth and Expansion, prepared for the Florida Department of Economic Opportunity, FloridaMakes, June 2016.

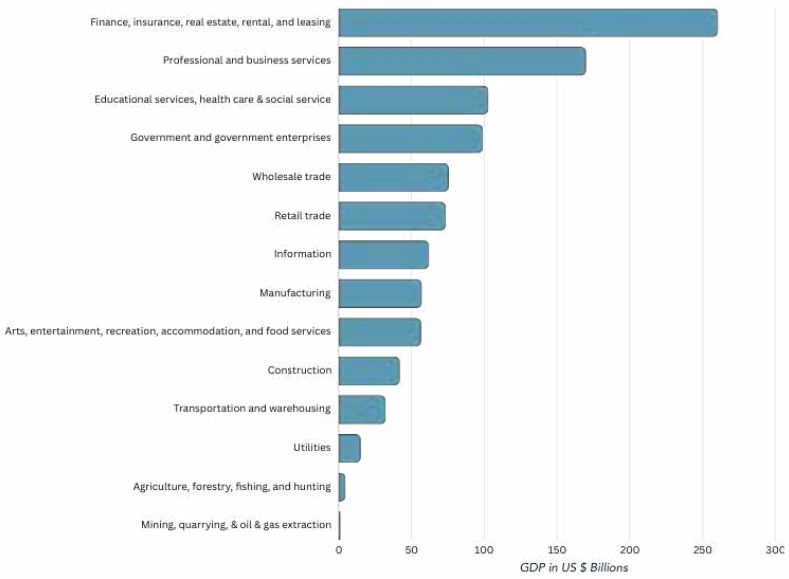
Manufacturing Drives Gross Domestic Product (GDP)

In Florida, both small and large employers play a role in the success of the manufacturing industry. In the first quarter of 2023, there were 25,087 manufacturing establishments operating throughout Florida.[12] More than 80 percent of these firms have less than 20 employees with an average size for the industry of 17 employees per firm, making manufacturing in Florida an industry of small businesses – not huge, multinational conglomerates. Yet, the success of these large firms in Florida is inextricably tied to the availability of a skilled workforce and a diverse and capable local, small business supplier base. Together these large and small firms produced nearly $73 billion in gross domestic product by the end of 2022.[13]

According to the Bureau of Economic Analysis, the manufacturing industry contributed approximately $2.8 trillion or roughly 11 percent to the U.S. Gross Domestic Product (GDP). During the same period, Florida's manufacturing industry contributed roughly 5.4 percent to the state's GDP. Figure 6 illustrates a breakout of real value to Florida's gross domestic product in 2022, by industry (in billions chained 2012 U.S. dollars).[14]

Figure 6

Real Value Added to Florida GDP in 2022, by Industry



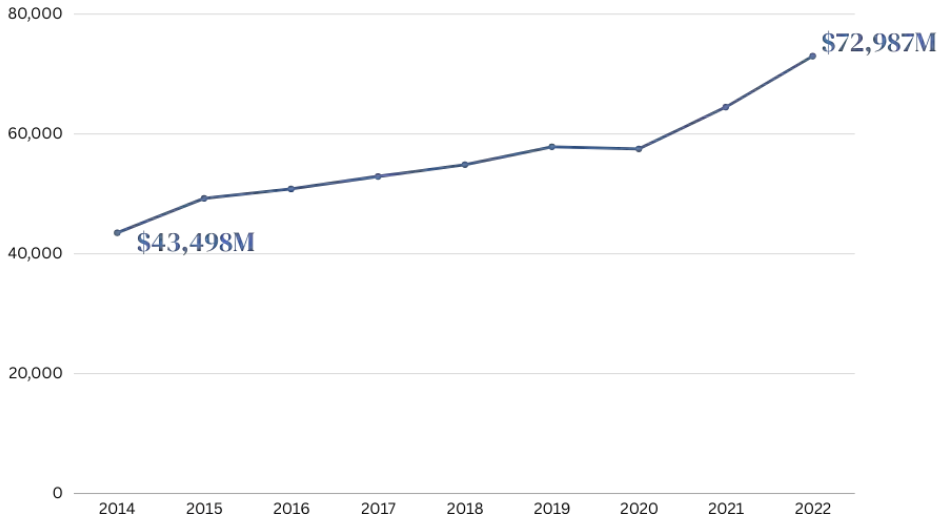
Source: Bureau of Economic Analysis, March 2023

Despite manufacturing's seemingly minor contribution to the state's GDP, Figure 7, on the following page, illustrates how the value of the state's manufacturing output has nearly doubled since 2014. Also, Florida's manufacturing GDP growth rate is outpacing the output growth rates of the top 11 manufacturing employment states, as depicted in Figure 8.

[12] Florida Department of Commerce, Bureau of Workforce Statistics and Economic Research (WSER), Quarterly Census of Employment and Wages Program.
[13] U.S. Department of Commerce, Bureau of Economic Analysis, September 2023.
[14] U.S Department of Commerce, Bureau of Economic Analysis, March 2023.

Figure 7

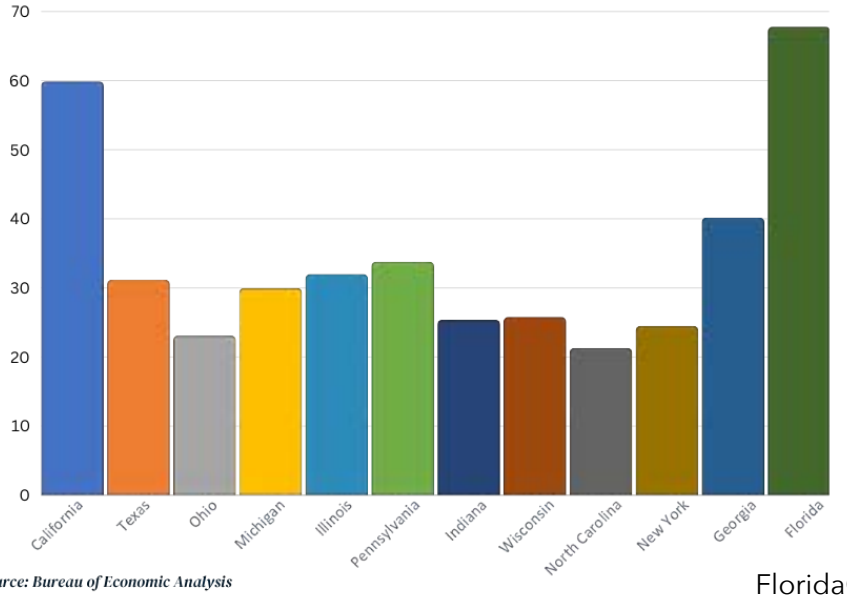
Florida's Manufacturing Output (GDP in $ millions)



Source: Bureau of Economic Analysis

Figure 8

2014 - 2022 GDP Growth Rate (%)
Top 12 States for Manufacturing Employment



Source: Bureau of Economic Analysis

Manufacturing Drives Export Trade

In 2022, U.S. manufactured goods exports totaled nearly $1.6 trillion, or 77 percent of all U.S. merchandise exports.[15] Of that, Florida's manufactured goods exports totaled more than $62.3 billion, just over 92 percent of Florida's total merchandise exports - 3.9 percent of the U.S. total manufactured goods exports value.[16]

Given Florida's size and presence in the global economy – with the 14th largest economy worldwide – the Florida manufacturing sector could have a larger impact internationally. Access to capital and the ability to acquire financing are essential ingredients for exporting and represent areas where U.S. manufacturers – especially small- and medium-sized manufacturers often face challenges.[17] Adopting new training methods and advanced manufacturing processes could increase efficiencies for business in the state.

Finally, as new products and production undergo digital transformation, many of the most competitive U.S. industries, including aircraft, machinery, and medical devices which are vital to key Florida sectors — are evolving into platforms for data collection and digital service delivery. This transformation facilitates improved operation and maintenance, enhancing the overall customer experience. However, it also introduces new market requirements and trade barriers that need to be addressed through our export assistance assets.

A positive trade balance is essential to maintaining a competitive and resilient economy for the state of Florida. Table 2 outlines the state's trade imbalances, wherein lie the opportunities for policy development.

Table 2
Florida's 2022 Exports and Imports by NAICS Commodities[16]

	Exports		Imports	
NAICs Commodities	Value ($B)	%	Value ($B)	%
Agriculture, Forestry, Fishing & Hunting	$1.46	2.15%	$11.94	10.66%
Mining, Quarrying, & Oil & Gas Extraction	$0.15	0.22%	$0.51	0.46%
Manufacturing	**$62.37**	**92.1%**	**$92.83**	**82.90%**
Other	$3.75	5.53%	$6.70	5.98%
State Totals	$67.73	100%	$111.98	100%

[15] "Why We Celebrate Manufacturing Month", U.S. Department of Commerce, International Trade Administration, October 2023.
[16] Florida State Exports by NAICS, Commodities, U.S. Census Bureau, USATradeOnline Website, November 2023.
[17] 2023 National Export Strategy, Trade Promotion Coordinating Committee,U.S. Department of Commerce, International Trade Administration.
[18] Florida State Imports by NAICS Commodities, U.S. Census Bureau, USATradeOnline Website, November 2023. The value of goods imported as appraised by U.S. Customs and Border Protection. This value is generally defined as the price actually paid or payable for merchandise when sold for exportation to the U.S.

In its report, "Florida Trade and Logistics 2030," the Florida Chamber Foundation concludes that "trade, logistics, and manufacturing offer opportunities for every region in Florida, including rural and inland regions in need of economic revitalization. A coordinated statewide effort to grow trade, logistics, and manufacturing jobs could generate 300,000 net new jobs in Florida between 2020 and 2030 – nearly one out of every five the state needs to create to account for anticipated population growth. Many of these jobs will be higher wage opportunities, with manufacturing jobs in Florida paying 20 percent more than the statewide average for all industries."[19]

[19] Florida Trade and Logistics 2030: Making and Moving Our Way Forward to 2030. Florida Chamber Foundation, April 2022.

SECTION 2.
The Florida Challenge: Productivity

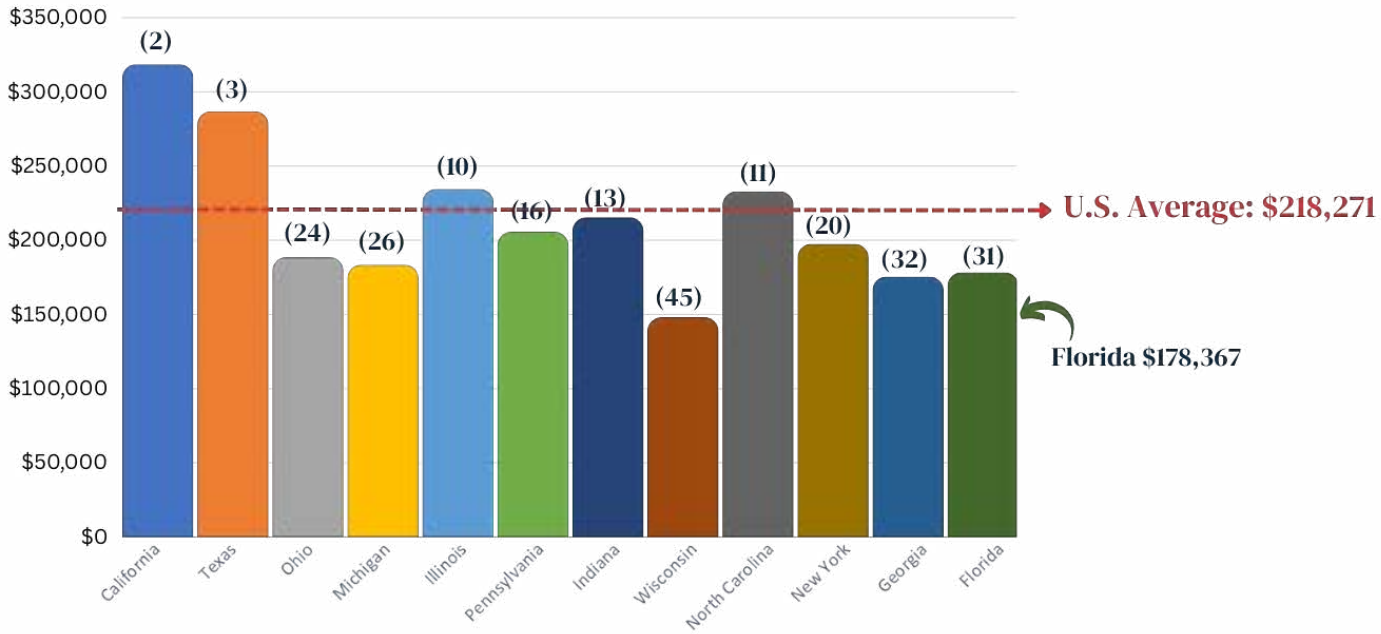
As Florida's manufacturing employment growth and manufacturing GDP significantly outpace the rest of the nation, Florida manufacturing productivity - the measure of output in $GDP per manufacturing worker in the sector – is an area in which the state can improve, as Florida currently ranks 31st in the nation.

In its 2019 publication, "Project Sunrise: An Economic Competitiveness Strategy for the State of Florida," the Florida Council of 100 cites "Economic Productivity" as one of five key performance indicators in measuring Florida's economic health. For all Florida industries, the Council noted "Florida's GDP per worker is currently lower than the national average, and our economy has not adopted technology and efficiencies as much as other places, making higher wage jobs scarce."[20]

Florida produces $178,367 in GDP for every manufacturing worker, which is below the U.S. average of $218,271 per worker (see Figure 9). Even within the southeast, Florida is competing with a manufacturing productivity average of $195,194.

Figure 9

2022 Manufacturing Productivity (GDP/employee)
Top 12 States for Manufacturing Employment



Source: Bureau of Economic Analysis

[20] Project Sunrise: An Economic Competitiveness Strategy for the State of Florida, Florida Council of 100, April 23, 2019

If Florida increases its output per manufacturing worker to that of the national average, it will add another $16.38 billion to the state economy.

Cost to Florida's economy of operating at a productivity level below the U.S. average

$16.38B

Key Factors to Improve Productivity

There are several factors that can contribute significantly to improving manufacturing productivity, including:

1. Greater use and development of advanced technologies.
2. Increasing the skills of the incumbent workforce. and the talent pipeline.
3. Increasing the number and share of high value, high trade industries.
4. Increasing the value contribution of our supply system to high value, high trade sectors, both domestically and internationally.

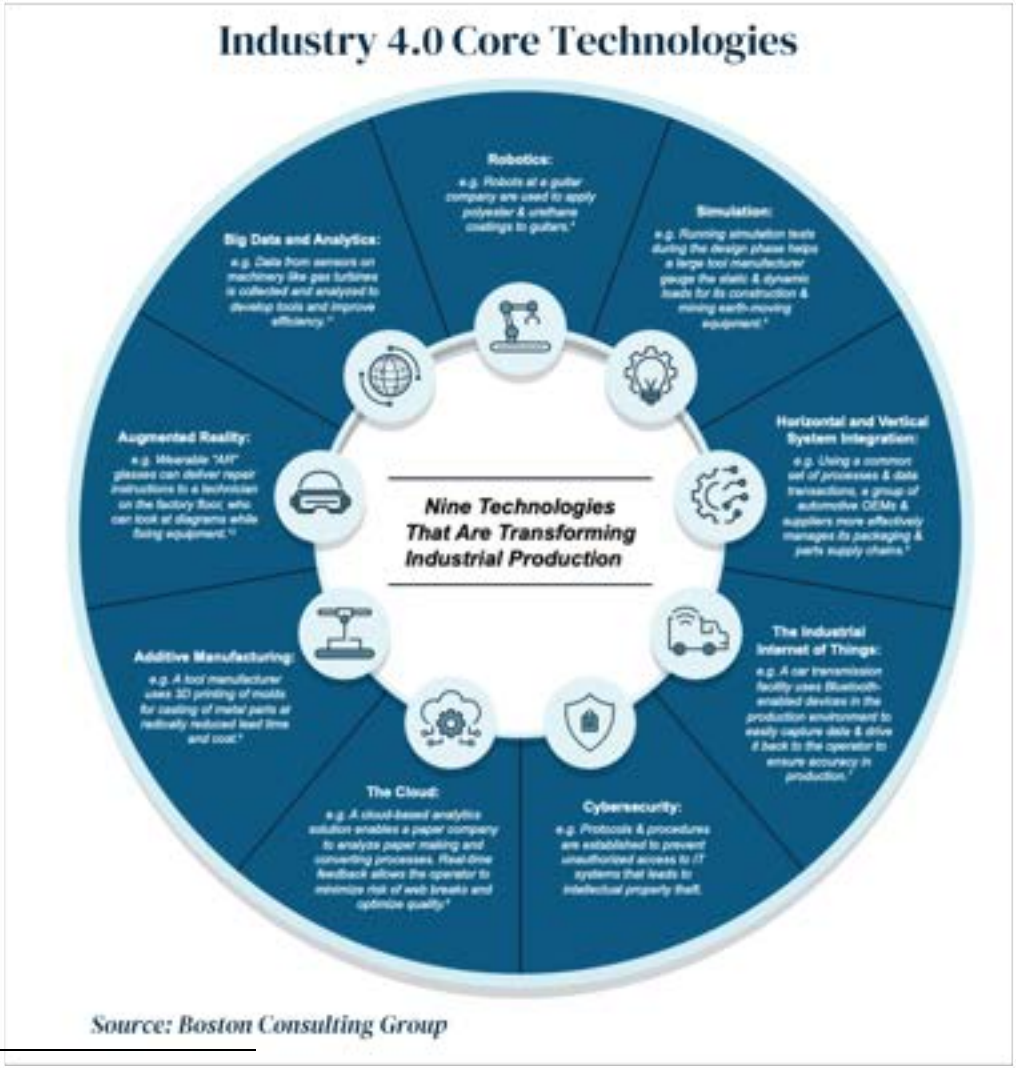
SECTION 3. Solutions

Advanced Technologies

Greater Use and Development of Advanced Technologies

Modern manufacturing in the 21st century combines long-established mechanical and electrical technologies with cutting-edge tools – including recent advances in information technology (IT), software, sensors, data analytics, and the Internet of Things – all of which depend on each other to enable advanced manufacturing processes.[21] What has often been referred to as "Industry 4.0" (see Figure 10) is often mistakenly considered as some future state of the industry but rather is, in fact, the current state of an evolving market advancing with almost daily innovations.

Figure 10



Source: Boston Consulting Group

[21] 2023 National Export Strategy, Trade Promotion Coordinating Committee, U.S. Department of Commerce, International Trade Administration.

In 2015, the Boston Consulting Group identified nine foundational technologies (Figure 10) driving manufacturing's digital transformation. In this transformation, sensors, machines, workpieces, and IT systems are connected along the value chain beyond a single enterprise. These connected systems (also referred to as cyberphysical systems) can interact with one another using standard Internet-based protocols and analyze data to predict failure, configure themselves, and adapt to changes. These technologies make it possible to gather and analyze data across machines, enabling faster, more flexible, and more efficient processes to produce higher-quality goods at reduced costs. This in turn increases manufacturing productivity, shifts economics, fosters industrial growth, and modifies the profile of the workforce—ultimately changing the competitiveness of companies and regions.[22]

Many large manufacturers are already fairly, if not fully, immersed in the adoption of these core technologies simply as a necessary condition for doing business in the 21st century. The challenges are much greater, however, for smaller and medium-sized manufacturers throughout the supply chain to embrace this new environment. These challenges include: (1) the risk in selecting the necessary information technologies involved, (2) the lack of digital training and culture within the incumbent workforce, (3) capital necessary to make the initial investment involved, (4) mature cybersecurity practices, and (5) lack of experience and expertise in the integration of data analytics within their business and across the customer/supplier value chain.

As the ecosystem confronts the challenges inherent in adopting cutting-edge technologies within the manufacturing landscape, the path forward calls for strategic collaboration among the state's manufacturing stakeholders. Florida's robust manufacturing ecosystem, with its diverse stakeholders and assets, can become a driving force in catalyzing a substantial increase in productivity by leveraging each other as well as national, state, and local funding opportunities.

Technology Strengths

Florida is well positioned to strategically leverage its existing strengths in research and development (R&D) into unprecedented growth in advanced manufacturing and the adoption of new technologies. Through deep partnerships with job creators, local governments, and workforce training and higher education, Florida has an ecosystem in which new technologies will continue to emerge. Through this, Florida will lead the way nationally by deploying and adopting those new technologies, leading to higher manufacturing productivity, sustained economic growth, and a better quality of life for all Floridians.

[22] Industry 4.0: The Future of Productivity and Growth in Manufacturing Industries, Boston Consulting Group, April 2015.

Florida's Office of Broadband. Widespread deployment, adoption, and use of high-speed broadband Internet is a critical component needed to support Industry 4.0 and the expansion of new technologies in advanced manufacturing. The Office works with local and state government agencies, community organizations and private businesses to increase the availability and effectiveness of broadband Internet throughout the state, specifically in small and rural communities. Through these partnerships, the Office of Broadband encourages investment in grant funding opportunities that focus on the expansion of broadband.

BRIDG. Offers production process technologies, R&D capabilities, and 200mm microelectronics fabrication geared toward system miniaturization, device integration, hardware security, and product manufacturing key to aerospace/defense, 5G and the IoT/AI revolution. BRIDG programs and its unique partnerships with the semiconductor supply chain support the mission to provide a credible, domestic microelectronics manufacturing capability and to deliver solutions to protect against malicious function insertion, fraudulent products, theft of intellectual property, and reliability failures.

Center for Advanced Manufacturing and Innovative Design (CAMID). An idea accelerator and innovation laboratory at the Florida Institute of Technology where entrepreneurs, startups, and even teams from established industries can design and develop new products. CAMID provides the space, technologies, and expertise.

Florida Economic Development Programs and Tools. The state of Florida offers many programs and tools that support retention and expansion of existing businesses, international trade, workforce, and community development. The full list of programs and tools is provided in Appendix A.

CyberFlorida. The Florida Center for Cybersecurity was created to help Florida become a national leader in cybersecurity education, academic and practical research, and community outreach and engagement. Cyber Florida operates on behalf of the State of Florida at large, engaging a large and growing list of public and private partners to achieve its mission.

FloridaMakes. Manufacturing extension services providing technical assistance to small- and medium-sized manufacturers in the principle areas of adopting advanced technologies, accelerating talent development, and business growth. Focuses on strengthening and advancing Florida's manufacturing economy. The state's affiliate to the National Institute of Standard and Technology's Manufacturing Extension Partnership.

Small Business Development Center (SBDC) Network. The mission of the Florida SBDC Network and SBDCs nationally is to provide the strategies, resources, and expertise to help small businesses grow and succeed. In addition to its core service offering of no-cost consulting, low-cost training, and research, the Florida SBDC Network also offers specialized services to qualifying companies, including capital access, market growth, government contracting, international trade, cybersecurity, disaster planning and recovery, and more. Specific to the manufacturing sector, the SBDC Network assists in exporting to international markets, diversifying supply chains and sales strategies, and conducting R&D on innovative manufacturing processes or products.

Florida Semiconductor Institute (FSI) at the University of Florida. Serves as a hub to coordinate activities that will support the development and manufacturing of semiconductors and advanced packaging technology in Florida. FSI advises the state and fosters public-private partnerships to enhance Florida's microelectronic footprint. Additionally, UF has embarked on an initiative to become the nation's first Artificial Intelligence university by embedding AI into every coursework pathway throughout the university.

Space Florida. Created to foster the growth and development of a sustainable and world-leading aerospace industry in the state, Space Florida promotes aerospace business development by facilitating business financing, spaceport operations, R&D, workforce development, and innovative education programs.

International Space Station National Laboratory. A U.S. National Laboratory enabling space R&D access to a broad range of commercial, academic, and government users. The ISS National Laboratory® is responsible for managing all non-NASA research, and all investigations require the capacity to utilize microgravity for the benefit of humanity. Through the ISS National Lab, this unique space-based research platform is available to U.S. researchers from small companies, research institutions, Fortune 500 companies, government agencies, and others interested in leveraging the space environment to solve complex problems on Earth.

Local FabLabs and Incubator Resources. There are a growing number of FabLabs and Incubators at the regional and local levels, often driving close community partnerships between the private sector and local government to foster community development, the advancement of STEM education among children and adults and the incubation of new business ideas.
Examples include:

- The Alan B. Levan | NSU Broward Center of Innovation is a public-private partnership between Nova Southeastern University and Broward County acting as

an economic and education development engine linking the South Florida innovation ecosystem.

- The Innovation Hub at FSU which focuses on advancing research, innovation, and education by bringing together faculty and students across disciplines to confront vexing and complex challenges using Innovation Frameworks and Emerging Technologies.
- Osceola County's NeoCity – a master planned strategic initiative containing state-of-the-art research facilities that support cutting-edge research in areas such as smart sensors, photonics, and optics. These facilities are designed to provide a collaborative and innovative environment that fosters breakthrough discoveries.

National Center for Simulation. The nation's focal point and catalyst for the development, understanding, and advancement of simulation and related technologies; to improve defense readiness and facilitate space exploration; to support education and training initiatives; and to extend useful applications of simulation.

State University System's Collaborative Research, Development and Testing Facilities. Florida's 12 major universities maintain numerous on-campus, research centers driving the development and transition of new technologies. Most of these facilities work in close collaboration with industry under consigned research agreements and leverage the State's extensive capital investment in research and testing facilities. The National High Magnetic Field Laboratory at Florida State University (FSU), the Center for Advanced Turbomachinery and Energy Research at University of Central Florida (UCF), the International Hurricane Research Center at Florida International University (FIU), and the Sid Martin Biotechnology Incubator at University of Florida (UF), are excellent examples.

State College System Advanced Manufacturing Facilities. Twenty-four of Florida's State Colleges offer an Associate of Science in Engineering Technology[23] consisting of eight specializations with one common core. Each of these colleges has extensive learning laboratories to support the programs. Many of these schools manage "corporate colleges" using the very same equipment for company-specific, incumbent worker training and development. Excellent examples of these can be found at Polk State College, Daytona State College, and the College of Central Florida. As an example, Indian River State College just unveiled the Eastman Advanced Workforce Training Complex which will serve its student population with an eye toward serving industry, as well as a user facility.

[23] Appendix B: Advanced Manufacturing Engineering Technology Programs

The Florida High Tech Corridor. Fosters applied research between industry partners, and faculty and student researchers at the University of Central Florida and University of South Florida. Grants directly fund the work of expert faculty and create an opportunity for their students to participate in collaborative research with industry partners in the 23-county, central Florida region.

Technology Opportunities

Identifying and leveraging different funding and partnership opportunities will provide resources to support sustained technology growth, adoption, and use throughout Florida, leading to a stronger manufacturing ecosystem. Additionally, efforts such as the Florida Council of 100's preliminary Regional Economic Analysis, first published in October 2023 and still undergoing additional feedback for finalization, will assist in identifying the "best bets" in regions throughout the state, many of which are manufacturing focused.

Defense Manufacturing Communities Support Program (U.S. Department of Defense). The Defense Manufacturing Community Support Program, administered by the Department of Defense Office of Local Defense Community Cooperation, is designed to support long-term community investments that strengthen national security innovation and expand the capabilities of the defense industrial ecosystem. The funding and technical expertise provided through the program are intended to enhance a region's ability to narrow gaps and address needs in defense manufacturing in the following areas: critical skills, facilities, R&D, and small business support. Since 2020, a total of $110 million has been allocated to over 20 Defense Manufacturing Communities across the country.

Economic Development Administration (U.S. Department of Commerce). The U.S. Department of Commerce's Economic Development Administration (EDA) plays a critical role in facilitating regional economic development efforts in communities across the nation. Guided by the basic principle that sustainable economic development should be locally driven, EDA works directly with communities and regions to help them build the capacity for economic development based on local business conditions and needs. EDA grant investments in planning, technical assistance, and infrastructure construction are designed to leverage existing regional assets to support the implementation of economic development strategies that make it easier for businesses to start and grow. EDA provides economic development financial assistance to communities so they can encourage innovation and entrepreneurship in a way that works best for them.

Department of Defense Microelectronics. The Department of Defense currently has $2 billion in appropriations across two major initiatives - Microelectronics Commons OUSD (R&E) and Next Generation Microelectronics Manufacturing (NGMM) (DARPA).

Industrial Assessment Center Implementation Grant Program (U.S. Department of Energy) Provides up to $300,000 in matching funds to support energy efficiency, equipment upgrades, performance improvement and cybersecurity enhancement at qualifying manufacturing facilities.

Manufacturing USA (National Institute of Standards & Technology). Manufacturing USA was created in 2014 to secure U.S. global leadership in advanced manufacturing by connecting people, ideas, and technology. Manufacturing USA is a network of 17 manufacturing innovation institutes, each with a specialized technology focus. The institutes share one goal: to secure the future of U.S. manufacturing through innovation, education, and collaboration. Manufacturing USA institutes convene business competitors, academic institutions, and other stakeholders to test applications of new technology, create new products, reduce cost and risk, and empower the manufacturing workforce with skills of the future. There are three Manufacturing USA institutes, funded by DoD, that have established an operational presence in Florida:

- **Advanced Robotics Manufacturing Institute (ARM).** The ARM Institute accelerates the development and adoption of innovative robotics technologies that are the foundation of every advanced manufacturing activity today and in the future. Their goal is to lower the barriers to adoption and expansion of robotics, autonomy, and AI for manufacturing. They leverage a unique, robust, and diverse ecosystem of over 400 member organizations across industry, academia, and government to (1) make robotics, autonomy, and artificial intelligence more accessible to U.S. manufacturers, large and small, and (2) train and empower the manufacturing workforce. Over the past several years, the ARM Institute has brought about $13 million in both technology and workforce projects to the region. Twenty percent of the ARM Institute's consortium membership is in Florida, a figure that continues to grow.
- **America Makes.** The nation's leading and collaborative partner in additive manufacturing (AM) and 3D printing (3DP) technology research, discovery, creation, and innovation. America Makes focuses its activities on developing additive manufacturing technology, accelerating human capital development, and maintaining a collaborative ecosystem.
- **LIFT (Lightweight Innovations for Tomorrow).** The National Advanced Materials Manufacturing Innovation Institute whose mission is to Drive American Advanced Manufacturing Into the Future Through Technology and Talent Development in support of our national economy and national security. LIFT is a public-private partnership which brings together government, industry, and academia to

accelerate advanced manufacturing by connecting advanced materials, manufacturing processes, systems engineering, and talent development across the U.S. manufacturing base.

NSF Innovation Engines. The U.S. National Science Foundation's Regional Innovation Engines (NSF Engines) program catalyzes and fosters innovation ecosystems across the United States to (1) advance critical technologies like semiconductors, artificial intelligence, advanced wireless, and biotechnology; (2) address pressing national and societal challenges; (3) cultivate partnerships across industry, academia, government, nonprofits, civil society, and communities of practice; (4) promote and stimulate economic growth and job creation; and (5) develop regional innovation and talent. Each NSF Engine can receive **up to $160 million**. Florida has secured one NSF Engine and is in the running for another:

- **Advancing Additive Manufacturing Technologies**. Led by ASTRO America and based at FSU/FAMU, this initiative aims to accelerate supply chains' adoption of 3D printing across the state and help grow capabilities in the aerospace, defense, and energy sectors. ASTRO America will leverage its partnership with several major corporations to support the State's small- and medium-sized suppliers transition to additive manufacturing (AM). ASTRO America's team for this "AM Forward Florida" project includes Florida International University, the joint Florida A&M University-Florida State University College of Engineering, the University of Central Florida, and the University of Florida.
- **NeoCity Semiconductor Technology Accelerator**. Identified as one of 16 finalists (award to be determined winter 2023 - 2024) still under consideration for award. The only finalist, nationally, in the Microelectronics and Semiconductor category.

Regional Technology and Innovation Hubs or "Tech Hubs" (Economic Development Administration). The U.S. EDA's Tech Hubs Program aims to strengthen U.S. economic and national security with investments in regions across the country with the potential to become globally competitive in the technologies and industries of the future. The program intends that those industries and companies - and the good jobs they create - start, grow, and remain in the United States. The Tech Hubs program was enacted as part Of the CHIPS and Science Act of 2022, which authorized $10 billion for the program over five years. As part of the FY 2023 Consolidated Appropriations Act, Congress appropriated the EDA $500 million to launch the program. These funds are being invested directly into regions with the assets, resources, capacity, and potential to transform into globally competitive innovation centers in approximately 10 years, while catalyzing the creation of good jobs for American workers at all skill levels.

State Manufacturing Leadership Program (U.S. Department of Energy - DOE). Through the State Manufacturing Leadership Program, the DOE Office of Manufacturing and Energy Supply Chains (MESC) is partnering with states in accelerating the deployment of smart manufacturing and high-performance computing technologies across their small- and medium-sized manufacturing (SMM) base. The program will connect SMMs broadly with resources for utilizing smart manufacturing technologies in their facilities, using states as critical partners for providing technical assistance and enhancing the competitiveness of the U.S. manufacturing base.

Small Business Innovation Research and Small Business Technology Transfer (SBIR/STTR). Each year, 11 participating federal agencies distribute SBIR/STTR awards totaling $4 billion to finance cutting-edge, high-risk technologies. This represents the nation's largest source of early-stage startup funding for R&D. SBIR/STTR awards are helpful for:

- Developing a proof of concept or prototype.
- Hiring technical staff or subject-matter experts.
- Purchasing essential materials and equipment.
- Validating potential as a government vendor.
- Funding university research partnerships.

Increasing the Skills of the Incumbent Workforce and the Talent Pipeline

Workforce

Engaging in manufacturing presents a significant opportunity to enhance the economic prospects of communities and residents throughout Florida. Manufacturing brings money back into local communities by producing goods and components, selling those products across the state, the nation, and the world, and bringing the proceeds of those sales back to the community in the form of wages and quality jobs, investment in facilities and support for local families, businesses, and charities.

Through workforce training and technical assistance, Florida can develop, support, and expand individual economic opportunities for workers at multiple levels of education. "Learn and Earn" programs help workers progress through a series of certifications and job-related training. These programs allow workers to learn new skills and become more productive and employable across a range of manufacturing sectors, providing benefits to themselves, their employers, and the communities in which they live.

Demographic shifts and economic volatility have disrupted already tight labor markets, making career-focused education and workforce training programs critical to our state's continued economic success. The need to attract and retain new talent in manufacturing is so acute that workforce availability, training, and identification are the number one priority of manufacturers throughout the state. Florida risks missing out on opportunities to retain and grow this sector without addressing education and workforce development for manufacturing at scale. Developing new pipelines and pathways for younger generations, as well as those pivoting from other industries to identify and pursue manufacturing as a career is essential to enable the continued growth of our state's manufacturing sector and Florida's economy overall.

Cultivating such knowledge and awareness of new manufacturing technologies and disseminating knowledge, best practices, and resources to help Florida manufacturers integrate and adopt new technologies and tools in their day-to-day operations is also critical to the competitiveness, health, and growth of our manufacturing sector and, by extension, our overall state economy.

Workforce Strengths

Supported by Florida's ability to quickly reverse engineer and stand-up workforce training programs and demonstrated by its status as both first in talent development (Lightcast) and first in higher education (U.S. News), Florida remains a national leader in workforce development.

The Florida Chamber Foundation's Florida 2030 Blueprint provides a framework for a long-term strategic plan to improve Florida's Talent Pipeline and is designed to help create an integrated talent system to provide a sustainable, skilled workforce that ensures the current and future prosperity of Florida employers, employees, and communities move the needle on securing Florida's future as a viable competitor with the best education and workforce talent.

Reimagining Education and Career Help (REACH) Office. In alignment with the Florida 2030 Blueprint, the 2021 Reimagining Education and Career Help (REACH) Act and 2023's Senate Bill 240 position Florida to help people with barriers to education and employment become self-sufficient through enhanced access to good jobs and career pathways that offer economic opportunity. This legislation led to the development of the Florida Workforce System Transformation Plan.

The Florida Workforce System Transformation Plan streamlines and modernizes the state's workforce system, enhancing alignment and accountability, serving job seekers and businesses more effectively, and improving outcomes for Floridians. Empowered by the state's landmark REACH Act, the plan is focused on three pillars: Alignment and Consolidation, System-wide Improvements, and Regional Planning. Implementation currently underway will increase collaboration among economic, educational, and governmental agencies; enhance services to customers to be consistent across the state; use resources more effectively; and strengthen the state's economy by supporting regional economies.

The integration across agencies that this initiative brings between FloridaCommerce, the Florida Department of Education, the State University System, CareerSource Florida, and

the Florida Department of Children and Families is essential to developing the workforce and talent pipeline that will enable Florida to be more competitive in the global economy.

The strategic alignment and coordination of education and workforce initiatives will include an online opportunity portal, allowing access to available state, federal, and local services and tools. This will provide Floridians with broader access to education and training options, labor market information, career planning tools, workforce training, and education support. Additionally, the REACH Act strengthens oversight, accountability, and transparency measures for the network of agencies, partners, and systems.

Florida Department of Education

- **Apprenticeship Programs.** Registered apprenticeship programs enable employers to develop and apply industry standards to training programs for registered apprentices that can increase productivity and improve the quality of the workforce. These programs are a proven solution to creating and retaining a pipeline of diverse skilled talent that allows businesses to succeed. Certifications earned through registered apprenticeships are recognized nationwide. To date, the Department has approved nearly 300 registered apprenticeships, many of which are in manufacturing occupations as well as other related trades.
- **Career and Technical Education Programs** within the department are active in pursuing opportunities to grow and upskill the manufacturing talent pipeline. These programs are organized into 17 different career clusters and are geared toward middle school, high school, district technical schools, and Florida College System students throughout the state. The Manufacturing Career Cluster incorporates six pathways: (1) Production; (2) Manufacturing Production Process Development; (3) Maintenance, Installation & Repair; (4) Quality Assurance; (5) Logistics & Inventory Control; and (6) Health, Safety & Environmental Assurance. Hundreds of manufacturing educational opportunities in a variety of trades and programs are offered throughout the state in school districts, colleges, and universities. During the third quarter of 2023, the State Board of Education approved the first of its kind 60-credit hour Semiconductor Engineering Technology Associate in Science (AS degree) and a stackable 18-credit hour Semiconductor Cleanroom Operator college credit certificate (CCC). These programs have been developed to meet Florida's semiconductor manufacturing and production industry needs.

State University System of Florida

- **Advanced Manufacturing Engineering (AME) Bachelor of Science Degree.** In 2016 the state approved a legislative budget request from the University of North Florida (UNF) to fund the Advanced Manufacturing and Materials

Innovation (AMMI) initiative. AMMI supports the Advanced Manufacturing Engineering Bachelor of Science (BS) degree, which admitted its first cohort in Fall of 2022. In addition to faculty positions, AMMI supports the Materials Science and Engineering Research Facility (MSERF), a state-of-the-art material testing and characterization facility to support R&D for manufacturing industry partners and UNF researchers. The AME BS degree is the only manufacturing engineering degree in Florida.

CareerSource Florida and Florida's 24 local workforce development boards all focus on manufacturing as a targeted industry. They also assist manufacturers with their local recruitment, hiring, and training needs. Local workforce development boards partner with educational institutions and other organizations to create local manufacturing apprenticeships. Examples include CareerSource Research Coast partnering with Indian River State College, Valencia College, and Paradigm Precision; and CareerSource South Florida partnering with the Precision Machinists Advanced Manufacturing Apprenticeship Program and GNJ with Machining Solutions, LLC. Finally, local organizations like JAX USA and CareerSource Northeast Florida partnered to develop clear career pathways in manufacturing.

Advanced Manufacturing Workforce Leadership Council (AMWLC). The Council, which is staffed and coordinated by FloridaMakes in partnership with CareerSource Florida, is a coalition devoted to enhancing manufacturing talent pipelines to bolster regional economies. The Council brings together industry, economic development, education, workforce development boards, and various stakeholders to discuss strategies, barriers, best practices, and lessons learned in a range of areas such as building talent pipelines, career pathways, apprenticeships, labor market data, and other work-based learning strategies. The council ensures the state's workforce network possesses a deeper comprehension of the talent needs of the manufacturing sector. Manufacturing members typically include senior leadership positions in manufacturing companies, such as manufacturing management, quality management, and human resources. The Council acts as a conduit for statewide advanced manufacturing labor market intelligence that informs policy and strategy of the state's workforce and talent development network.

Florida Advanced Technological Education Center (FLATE). FLATE was established as a National Science Foundation (NSF) Center of Excellence in high-technology manufacturing, and to serve as Florida's go-to organization for manufacturing and advanced technical education, best practices, and resources supporting a high-performance skilled workforce for its manufacturing sectors. FLATE is the leader in implementing a Florida statewide unified education system that positions manufacturing education as a convergent curriculum optimizing technician preparation in

manufacturing and its enabling technologies. FLATE has driven the Engineering Technology curriculum in partnership with 24 of the State's community and two-year colleges. It remains a backbone in the coordination of that curriculum and in maintaining its relevance. FLATE's strategic goals are to increase the skilled pipeline of workers for manufacturers, provide and enhance professional development for educators, and align the state's curricula with manufacturers' needs.

Veterans Florida helps military veterans transition to civilian life and promote Florida's status as the nation's most veteran-friendly state. Includes a Florida Workforce Grant Program that reimburses qualified employers 50 percent of industry skills-based training costs for new or current veteran employees. Additionally, a Career Services Program connects veterans with employers who are eager to hire veterans for jobs. Furthermore, a Florida Entrepreneurship Program is in place to provide the knowledge needed to successfully launch and operate a business.

Workforce Opportunities

Florida has opportunities through current programs to continue to enhance its workforce training efforts at the K-12, post-secondary, and adult and continuing education levels.

Florida Department of Education's Workforce Development Capitalization Incentive Program was created in section 1011.801, Florida Statutes. Its purpose is to provide grants to school districts and Florida College System institutions to fund some or all costs associated with the creation or expansion of career and technical education workforce development programs that lead to industry certifications included on the CAPE Industry Certification Funding List. All programs funded must serve secondary students and be aligned with an industry certification on the 2023-24 CAPE Industry Certification Funding List.

Pathways to Career Opportunities Grant Program (Department of Education). Grant program to establish new, operate existing or expand existing registered apprenticeship or pre-apprenticeship programs in high schools, school district career centers, charter technical career centers, Florida College System Institutions, and other entities authorized to sponsor apprenticeship or pre-apprenticeship programs.

CareerEdge Funders Collaborative. CareerEdge partners directly with employers in fast-growing sectors in the regional economy, to help them fill skills gaps and meet their employment needs, while at the same time assisting individuals in entering the workforce and moving up career ladders. CareerEdge is a cutting-edge initiative and is transforming the way stakeholders and policymakers in the region and around the state look at career training. The collaborative uses donated funds to create a skilled labor pool in the Manatee-Sarasota region and helps local employers find the talent they need.

Training Grants Available through CareerSource Florida Network. CareerSource Florida and the local workforce boards offer a variety of training grants using both federal Workforce Innovation and Opportunity Grants (WIOA) and state funded programs. These include:

- **WIOA Adult** - provides adults over the age of 18 with workforce activities such as training and career services that increase employment, retention, earnings, and occupational skill attainment which improves the quality of the workforce, reduces public assistance dependency, and enhances the productivity and competitiveness of the economy.
- **WIOA Youth** - delivers a comprehensive array of services that focus on assisting out-of-school and in-school youth with one or more barriers to employment, preparing for post-secondary education and employment opportunities, attaining educational and/or skills training credentials, and securing employment with advancement opportunities.
- **Quick Response Training** - state-funded grant program that provides funding for customized training to new or expanding businesses in Florida's targeted industries.
- **Incumbent Worker Training** - grant funding for 12 months of continuing education and training for incumbent employees at existing Florida businesses.

Job Growth Grant Fund. State grants are awarded for local public infrastructure and workforce training proposals that promote economic opportunity across the state. Proposals are reviewed by FloridaCommerce and chosen by the Governor to meet demand for workforce or infrastructure needs in communities across the state.

Experiential Learning Tax Credit (Department of Revenue). Program that provides a corporate income/franchise tax credit for up to five apprentices, pre-apprentices, or student interns employed by businesses for taxable years beginning in the calendar years 2022- 2025. The maximum tax credit available to a qualified business is $10,000 each year.

The National Institute of Innovation and Technology's (NIIT) National Talent Hub is a state-of-the-art portal that uses advanced data analytics to connect jobseekers and those looking to improve skills in technical, STEM-based jobs to employers and training programs that target their specific needs. Different from the typical, more general job matching services that use resumes and job descriptions to create matches, the NIIT's National Talent Hub uses a dynamic database of required job competencies that is continually informed by industry to provide insights into the degree of alignment between individuals, careers, and course curriculum to put the jobseeker in the driver's seat.

Trade Adjustment Assistance Program (U.S. Department of Labor). Assists workers adversely affected by foreign trade and competition who have lost their jobs or are threatened with losing their jobs due to a decline in production, sales, or outsourcing to foreign countries. The program offers extended income support, training, employment and case management services, and many other benefits to displaced workers who are certified as eligible.

Operation Next. A LIFT-led program which provides an accelerated-hybrid training opportunity that combines online education with hands-on training to earn credentials for in-demand advanced manufacturing careers, including welding, Computer Numerical Control (CNC) machining, robotics, and industrial technology maintenance. The program is open and available to separating active-duty service members, members of the National Guard and Reserve, service members immediate families, veterans, and civilians. Operation Next is currently available at Pensacola State College and Valencia College and is expanding across the State of Florida.

Space Florida Space Academy. Space Florida has made it one of its top priorities to incorporate advanced manufacturing in the *Space Academy,* which targets middle and high school students across Florida to develop a robust talent pipeline for Florida's current and future aerospace manufacturers and related industries. *Space Academy* related industries include aviation, construction, cybersecurity, and logistics. Space Florida intends to work with FloridaMakes in conjunction with FloridaCommerce to ensure Florida meets and exceeds its aerospace workforce needs now and in the future.

Increasing the Number and Share of High Value, High Trade Industries

Growing and Attracting Business

Manufacturing industries are high-value, highly tradeable sectors. Ninety-two percent of Florida's merchandise exports are manufactured goods. As such, these industries are notable for (1) generating a rising share of GDP, (2) supporting high-quality economic opportunities for workers and regions, (3) being a focal point in innovative activities such as R&D and patenting, and (4) consisting of jobs available at all levels of education, but the education and training pipeline is narrow.

By statute,[24] the state's business attraction, retention, and expansion activities are focused on Target Industries defined by criteria established by FloridaCommerce. The criteria for determining Target Industries include:

- **Future growth** - Industry forecasts should indicate strong expectation for future growth in both employment and output, according to the most recent available data. Special consideration should be given to businesses that export goods to, or provide services in, international markets and businesses that replace domestic and international imports of goods or services.
- **Stability** - The industry should not be subject to periodic layoffs, whether due to seasonality or sensitivity to volatile economic variables such as weather. The industry should also be relatively resistant to recession, so that the demand for products of this industry is not typically subject to decline during an economic downturn.
- **High wage** - The industry should pay relatively high wages compared to the statewide or local prevailing private sector wage.
- **Market and resource independent** - The location of industry businesses should not be dependent on Florida markets or resources as indicated by industry analysis, except for businesses in the renewable energy industry.

[24] Florida Statutes, Section 200.106 (2)(q)

- **Industrial base diversification and strengthening** - The industry should contribute toward expanding or diversifying the state's or area's economic base, as indicated by analysis of employment and output shares compared to national and regional trends. Special consideration should be given to industries that strengthen regional economies by adding value to basic products or building regional industrial clusters as indicated by industry analysis. Special consideration should also be given to the development of strong industrial clusters that include defense and homeland security businesses.
- **Positive economic impact** - The industry is expected to have strong positive economic impacts on or benefits to the state or regional economies. Special consideration should be given to industries that facilitate the development of the state as a hub for domestic and global trade and logistics.

Consistent with that criteria, the entirety of manufacturing – NAICs Codes 31-33 – are considered Target Industries in Florida. As such, the state has an abundance of business growth resources, both public and private, and through public-private partnerships, available to assist in strengthening and advancing the state's manufacturing sector.

Business Growth and Business Attractions Strengths

Florida's robust toolkit provides resources that can be strategically deployed through communities and private markets to enhance organic business growth, strengthen networks between businesses of all sizes, and present attractive options to businesses looking to create a footprint in Florida.

FloridaCommerce Industry Specific Resources. Committed to enhancing global competitiveness as a business destination, FloridaCommerce leverages public and private sector expertise to attract, retain, and grow businesses, fostering job creation in Florida's key industry clusters. See Appendix A for a full listing of resources.

Space Florida. Created to foster the growth and development of a sustainable and world-leading aerospace industry in the state. Space Florida promotes aerospace business development by facilitating business financing, spaceport operations, R&D, workforce development, and innovative education programs.

SelectFlorida Export Assistance. Provides a variety of export assistance programs and trade grants, to assist Florida firms seeking to export goods and services to international markets. Primarily tailored for small-to-mid-sized businesses, with a focus on manufacturers, high-tech companies, and value-added service providers, the program aims to assist Florida exporters in entering new markets and identifying clients worldwide.

SelectFlorida International Offices Program. International offices engage in recruiting foreign direct investment in Florida and providing support to Florida exporters. Foreign offices are located strategically in key target markets worldwide. The foreign offices work closely with the Florida based foreign direct investment recruitment team to promote Florida as an ideal investment destination, identify foreign investment prospects and assist them with establishing Florida.

Small Business Development Center (SBDC) Network. The mission of the Florida SBDC Network and SBDCs nationally is to provide the strategies, resources, and expertise to help small businesses grow and succeed. In addition to its core service offering of no-cost consulting, low-cost training, and research, the Florida SBDC Network also offers specialized services to qualifying companies, including capital access, market growth, government contracting, international trade, cybersecurity, disaster planning and recovery, and more. Specific to the manufacturing sector, the SBDC Network assists in exporting to international markets, diversifying supply chains and sales strategies, and conducting R&D on innovative manufacturing processes or products.

The Florida APEX Accelerator (formerly known as the Florida Procurement Technical Assistance Centers). Co-located within the Florida SBDC Network, The Florida APEX Accelerator provides technical assistance to businesses interested in selling products or services to federal, state, and local governments by offering no-cost consulting, education, and training to help equip them with the knowledge and resources needed to participate in these contracting opportunities. Offerings include: (1) determining suitability for government contracting, (2) securing requirements to become Defense Industrial Base (DIB) and Government Industrial Base (GIB) ready, (3) conducting procurement research, (4) identifying bid opportunities, (5) developing capability statements, (6) marketing to the government, (7) understanding federal regulations, (8) assistance with technology, transition, and commercialization, and (9) education on foreign ownership, control, or influence.

Florida First Capital Finance Corporation (FFCFC). With its primary mission of economic development and job creation, FFCFC carries out its work through the administration of various government small business assistance capital access programs. Most significant of these is the U.S. Small Business Administration (SBA) 504 Loan Program through which the organization has helped thousands of small businesses grow and expand their operations. This program is specifically designed to help small manufacturers acquire commercial real estate and/or heavy-duty fixed machinery and equipment without the high down payment requirements often associated with traditional financing programs.

Economic Development Organizations (EDOs). Florida has over 20 regional and county

economic development offices available to provide access to resources, services and assistance to address business needs. Typically, EDOs are involved in helping businesses locate and expand in Florida. EDOs work collaboratively with the private sector with the goal of attracting and growing quality businesses, creating jobs, and encouraging new investment.

Florida's Utility Providers. Energy rates can be a major factor in the cost of doing business and influence a company's decision regarding where to locate. Energy companies like Florida Power and Light (FPL), Duke Energy and Tampa Electric Company offer incentive programs that support Florida's attraction and retention of the manufacturing industry. Energy companies collaborate with government leaders, economic development professionals, and property owners to foster economic development in the state and expedite cumbersome permitting processes.

Business Growth and Business Attraction Opportunities

Prioritizing initiatives and deploying programs proactively and pragmatically will keep Florida growing, cement our position as a manufacturing leader nationally, and position Florida as a global model for sustained economic growth. The following programs and partnerships can continue to enhance Florida's status as a place where businesses can grow from the ground up and where companies can come to thrive.

Florida State Small Business Credit Initiative (SSBCI). Federal funds are provided to the state to establish access to capital for Florida's small businesses. Florida has been allocated $488,486,572 to expand access to capital, promote economic resiliency, create new jobs, and increase economic opportunity throughout the state. There are five approved programs under SSBCI 2.0: Loan Guarantee Program, Loan Participation Program, Collateral Support Program, Capital Access Program, and Equity Capital Program.

Florida Opportunity Fund. This "fund of funds" program was created to realize significant long-term capital appreciation by identifying and investing in a diversified, high-quality portfolio of seed and early-stage venture capital funds that target (in whole or in part) investment opportunities within Florida.

Rural Community Development Revolving Loan Fund. Provides loans to local governments or economic development organizations substantially underwritten by a unit of local government, to finance initiatives directed toward maintaining or developing the

economic base of rural communities, especially when addressing employment opportunities.

MakeMore Manufacturing Initiative. Serves as an annual summit to share best practices and exchange ideas about how state resources address the impacts of market dynamics, economic trends and policies, and new technologies available for manufacturers. The event is a leadership-focused meeting designed to connect ecosystem stakeholders with the needs and realities of industry leaders from the manufacturing sector. The summit facilitates conversations around industry challenges and offers solutions that will strengthen and advance Florida's manufacturers by improving competitiveness, productivity, and technological performance. Host partners include FloridaCommerce, FloridaMakes, CareerSource Florida, the Florida Chamber of Commerce, and Associated Industries of Florida (AIF).

GrowFL, Inc. Dedicated to the support and growth of second-stage companies throughout Florida, by providing their leaders with focused, efficient, and timely access to resources they deem important. The organization's programs provide connections with other second-stage company leaders, and to professional organizations whose expertise, experience, and products lead to the second-stage company's continued growth and prosperity, resulting in the diversification and growth of Florida's economy. Second-stage companies are the backbone of Florida's economy and the definition of economic success and prosperity.

Duke Energy's Product Development Programs. Designed to identify, evaluate, prepare, and promote industrial sites for economic development investments, while also powering new investment in marketable sites and encouraging communities and companies to reinvest in revitalization opportunities. As an example, Duke offers the Rider ED-2, which will allow a five-year reduction on the Duke Energy electric bill – up to 30 percent depending on qualifying factors – for any new or additional load associated with an economic development project. The company has also created the Florida Investment Fund designed to assist communities in attracting new industrial development projects for expanding and/or retaining existing projects as they compete with other locales, and by supporting general site preparation, workforce development training, incentive matching or other project needs.

Florida Power and Light's Commercial Industrial Service Rider (CISR). Unique negotiable incentive rate for qualifying company projects that create at least 2 Mega Watts of new demand and the Economic Development Rider (EDR) and Existing Facility EDR (EFEDR): Varying discounted rates available to businesses based on jobs created, amount of kW or MW of new demand used, and age of facility leased or purchased.

Southeastern Trade Adjustment Assistance Center (SETAAC). Helps import-impacted U.S. manufacturers develop and implement projects through federal matching funds, provided by the Trade Adjustment Assistance for Firms (TAAF) Program, to regain global competitiveness, strengthen operations, and increase profitability. SETAAC assists potential clients in determining if they are eligible for the federal matching funds sponsored by the U.S. Economic Development Administration. This cost-sharing federal assistance program provides up to $75,000 in matching funds for third-party consultants to help guide a client's economic recovery. Eligible manufacturing firms contribute a matching share to create and implement their respective recovery plan.

Triumph Gulf Coast, Inc. This nonprofit corporation was organized to oversee the expenditure of 75 percent of all funds recovered by the Florida Attorney General for economic damages to the state resulting from the 2010 Deepwater Horizon oil spill. Triumph Gulf Coast, Inc., is required to administer the distribution of the funds to be used for the recovery, diversification, and enhancement of the eight Northwest Florida counties disproportionately affected by the oil spill. Those counties include Escambia, Santa Rosa, Okaloosa, Walton, Bay, Gulf, Franklin, and Wakulla.

Supply Chain

Increasing the value contribution of our supply system to high value, high trade sectors, both domestically and internationally

Manufacturing in the United States is undergoing a "moment in the spotlight". Widespread disruptions to operations and supply chains across the world have underscored the importance of a strong domestic manufacturing sector, and the need to invest in capacity, especially here in the United States.

Resilient and diversified supply chains are the cornerstone of a successful manufacturing sector, and countries around the world are beginning to recognize the vulnerabilities that stem from over-reliance on a single supplier for critical resources.[25]

In order to address current disruptions and, to build modern supply chains that can withstand future disruptions, strengthen Florida's economy, and keep goods moving, our state can focus on the following action items:

(1) invest in production, freight and intermodal infrastructure, such as industrial parks, ports (air, sea, and space), terminals, bridges, and railroads, to enhance capacity and connectivity;
(2) provide technical assistance to support the growth and transformation of our manufacturing and logistics industries, including planning and coordination of production, investments in operations, and support for the upskilling of workers employed in the manufacturing and logistics sectors;
(3) improve data and research into supply chain performance;
(4) strengthen and streamline governance to improve efficiency, build the workforce, increase competitiveness, and reduce safety and environmental risks; and
(5) partner with stakeholders across the supply chain, including coordination with both the public and private sectors.

[25] 2023 National Export Strategy

Supplier Development Strengths

Florida's supply chains extend around the world. Florida can focus on improving the participation of its manufacturing industry in higher-value, highly tradeable advanced manufacturing sectors, thereby improving its domestic and international trade balance through export growth. Fortunately, the state has several strengths to draw upon and opportunities to leverage in affecting this type of change in the diversification and dynamics of its economy.

Florida Department of Transportation. The Florida Department of Transportation (FDOT) has invested in intermodal connectivity, most notably in Florida's seaports and spaceports but also through collaboration on enhancements to the state's rail network and to cargo and freight capacity at the state's major airports. The current FDOT 5-year work program includes over one thousand projects, covering all modes, related to intermodal improvements to Florida's infrastructure that underpins the state's logistics capabilities and capacity. Likewise, the SunTrax facility and other resources testing new technologies in transportation and logistics indicate the interest and investment by Florida in adapting and integrating new technologies while balancing the demands of a growing population.

Florida Ports Council (FPC). The professional association for Florida's fifteen public seaports and their management. The FPC provides advocacy, leadership, and information on seaport-related issues before the legislative and executive branches of state and federal government. The Florida Ports Council provides administrative support services on matters related to the Florida Seaport Transportation and Economic Development (FSTED) Council and the FSTED Program. In addition, by agreement, the FPC provides similar services to the Florida Ports Financing Commission.

State University System of Florida. Supply chain-related research and education centers, including the Freight Mobility Research Institute at Florida Atlantic University, the Logistics and Supply Chain Management program at the University of North Florida, the Monica Wooden Center for Supply Chain Management & Sustainability at the University of South Florida, and the Center for Supply Chain Management Excellence at the University of West Florida, as well as several technical research centers and institutes in key manufacturing technologies across the university system.

Florida Export Finance Corporation. Expansion of international trade is vital to the overall health and growth of Florida's economy. The Florida Export Finance Corporation was created to work with federal, state, and local partners and institutions to provide Florida traders with information, technical assistance, and access to credit. The Corporation

coordinates, assists, augments, and improves access to those programs by Florida-based small and medium-sized businesses and promotes Florida products and services in the international marketplace.

Emergency Support Function 18 (ESF 18) – Business, Industry and Economic Stabilization. Led by FloridaCommerce and the Florida Division of Emergency Management, the ESF-18 team includes members of workforce development boards, tourism and convention boards, industry associations, designated business support organizations, and private sector partners that support local and state emergency operations centers. This resource is critical to reinforcing or re-establishing supply chains in the wake of a natural or economic disaster.

The Florida APEX Accelerator. In addition to the services to contractors and manufacturers highlighted above, the APEX Accelerator program helps companies identify supply chain issues or information security needs and provides referrals to relevant resources or providers to assist companies in addressing those concerns.

Connex Florida. Connex Florida is an online capabilities database and connection platform created for Florida manufacturers. Connex helps manufacturers adapt to changing market demands, connect to an array of resources and locate new business opportunities by identifying new suppliers and customers. The Connex Florida platform contains information on thousands of Florida manufacturers along with detailed search functions to find specific manufacturers' production capabilities. The platform also allows connections throughout the country via affiliation with the National Association of Manufacturers (NAM) and the national Connex Marketplace. In addition, opportunities shared via the National Institute of Standards and Technology's Manufacturing Extension Partnership (NIST MEP) Supplier Scouting program are readily available, including visibility into requests for Buy America opportunities distributed by the U.S. Government and major federal contractors. Connex Florida has been connecting manufacturers to each other for nearly four years, and over that time, has resulted in nearly $50 million in impacts in terms of new and retained sales for Florida manufacturers. Over that period, Connex has also grown from two states (Florida and Utah) to more than 22 states directly linked with the system and coverage across all 50 states.

Florida Defense Portal. Launched in August 2023 and administered by FloridaCommerce's Office of Military and Defense, the new Florida Aerospace and Defense (FAD) Portal connects Florida's small and medium-sized businesses with employee resources and contracting opportunities that directly support Florida's vital military community. Through the FAD portal, users gain access to the Florida Defense Directory, a defense-specific business listing where registered users can connect with and

increase subcontracting opportunities with other registered small and medium-sized businesses. The search function allows users to search for products by North American Industry Classification System (NAICS) code, keywords, or company name to locate business to business opportunities. Furthermore, the FAD Portal enables users to access resources related to: Cybersecurity training and assessments; Free consultation services provided by the Florida APEX Accelerator and the Florida Small Business Development Centers Network; Disaster preparedness information; and how to obtain and manage government-awarded contracts.

Florida Defense Contractors Association (FDCA) is a statewide, state-focused business development and education group for Florida defense and aerospace businesses of all sizes. FDCA is a Florida nonprofit corporation with the long-term goal of facilitating a statewide business development network for defense related businesses. FDCA organizes and hosts business events and is a source for information on the defense industry in Florida.

Florida Medical Manufacturers Consortium. The Florida Medical Manufacturers Consortium (FMMC) is a statewide association of medical technology firms. The FMMC exists to unite, promote, and grow the Florida Medical Device Industry, and to enhance the business success of its member companies, through networking, industry knowledge and expertise, and advocacy.

Florida Minority Suppliers Development Council (FMSDC). The Council was founded in 1975 with the purpose of fostering the development of minority-owned businesses in South Florida. Central to its mission is the principle that networks and relationships among minority businesses and corporate and government buyers build the economy. The Council's main function is to register and certify minority-owned businesses. The process ensures that these businesses are 51% minority-owned and operated in accordance with the guidelines set by the National Minority Supplier Development Council (NMSDC). The FMSDC is one of 23 regional councils affiliated with the NMSDC. To carry out its mission more effectively, the FMSDC provides support to corporate members and Minority Business Enterprise affiliates from its headquarters in Miami as well as key locations throughout the state of Florida. The FMSDC's service area has grown to include the entire state of Florida.

Florida Supply Chain Summit. The Florida Supply Chain Summit provides a platform for statewide collaboration among key representatives from industry, professional organizations, government, economic development agencies, and higher education for the purpose of advancing the state of Florida as a global hub for trade, logistics

and manufacturing. The summit facilitates and strengthens partnerships in the trade, logistics and manufacturing industries by providing opportunities to network, address industry challenges, and share knowledge about critical issues including emerging trends, technology innovations, and workforce development. The 2024 Florida Supply Chain Summit will be hosted by SelectFlorida and statewide partners in Miami in the spring of 2024.

National Defense Industrial Association. The National Defense Industrial Association drives strategic dialogue in national security by identifying key issues and leveraging the knowledge and experience of its military, government, industry, and academic members to find solutions. NDIA works to strengthen the government-industry partnership through dialogue, education, and interaction with military and community leaders, Congress and Executive agencies. NDIA monitors, advances, and educates its members on legislative and regulatory activity of importance to the defense industrial base.

Regional Manufacturers Associations. Florida is home to 12 Regional Manufacturers Associations (RMA). These RMAs are located throughout the state and represent the interests of manufacturers in the geographic areas they serve. Florida's RMAs embrace their mission to serve as a strategic advisor to promote business growth and connect manufacturers to existing public and private resources essential for increased competitiveness and profitability. The RMAs are the primary conduit for understanding the needs of the state's manufacturing enterprises as well as the primary mode of communication and networking among manufacturers within their local communities. The RMAs also serve as a distribution network for the delivery of services to assist manufacturers, ranging in areas such as business growth, technology adoption and workforce development as well as readiness and resilience from adverse events.

These regional manufacturers associations include:

SOFWERX/Defensewerx. SOFWERX serves as an innovation platform for the United States Special Operations Command as a 501(c)(3) nonprofit bringing the best of Government, Industry, Academia, and National Labs together to help solve challenging problems encountered by Special Operations Forces. A registered Partnership Intermediary organization for the United States Special Operations Command, SOFWERX is part of a larger network of organizations managed by Defensewerx. This network of organizations (including AFWERX, HSWERX and the Doolittle Institute) helps to build partnerships and relationships between innovators, government program managers and procurement professionals who are working to equip, train and sustain the brave men and women who are the "tip of the spear" for our nation.

Supply Chain Florida. SupplyChainFlorida.com is a resource site for Florida manufacturers with a range of information regarding best practices in strategic sourcing and supply chain risk management. The site also contains links to an extensive library of technical training and informational resources on business continuity and disaster preparedness, response, and recovery as well as industry events and sourcing opportunities. The site serves as a knowledge dissemination platform for an array of partners who support manufacturers and logistics providers across the state of Florida, as well as an entry point for multiple sourcing platforms including Connex, NIST MEP Supplier Scouting and Amerified.io among others.

FloridaCommerce Office of Military & Defense. Housed within the Division of Economic Development, the office enables FloridaCommerce to engage with Florida's military and defense communities to streamline business and economic development efforts, provide further support for Florida's military families, and protect military installations. The Office administers and/or coordinates the following program, among others:

Florida Defense Alliance. The Florida Defense Alliance (FDA) is a grassroots consortium of representatives of defense-related organizations including federal, state, and local government as well as the defense industry, economic development organizations and other interested parties who come together in order to protect, promote and enhance the military value of Florida's installations and missions. The Alliance's mission is to maintain and enhance the position and reputation of Florida as the most military-friendly state in the nation. The Alliance seeks to expand defense-related industries in the state, support local efforts to enhance the value of military installations, and ensure that both active and retired service members, reserves and their family members receive continual improvement to their quality of life.

Supplier Development Opportunities

Florida has abundant opportunities to emphasize and strengthen our own manufacturing base, and build a resilient, robust and diversified economic engine providing prosperity for thousands of Florida families. Florida lies at the crossroads of a number of exciting global and national trends. The growth of manufacturing follows the strong growth of Florida's population, providing opportunities to deliver products to Florida's growing population as well as to tap into the growing and diverse talent pool that is increasingly choosing the Sunshine State. Florida also has strong connections to national and global markets and good underlying infrastructure – both important foundational pieces for the state to continue its emergence as a leading location for next-generation manufacturing.

Florida Foreign Trade Zones. Florida's Foreign Trade Zones offer a unique opportunity for Florida manufacturers to operate within the state while being able to avoid a number of restrictive customs regulations and import duties that might adversely impact their margins or ability to profitably produce a particular good. A number of Florida manufacturers and logistics providers have taken advantage of the foreign trade zones program to be able to develop and execute on a strategy to produce and export or trans-ship products to foreign markets at a lower cost basis than they would have under "normal" trade regulations.

Reshoring and Localizing Production. As Florida looks to build and expand its footprint in manufacturing, there are several inter-related trends that Florida can take advantage of in building and nurturing its local manufacturers. Manufacturers typically locate or expand in Florida to take advantage of one or more of the following trends:

1) The opportunity to supply a large local market (e.g. the over 22 million residents of Florida);
2) The opportunity to locate their operations near major customers and in "clusters" of related expertise (e.g. major aerospace and defense prime contractors and combatant commands);
3) Shortening supply lines by locating closer to sources of their raw materials in Florida (e.g. fertilizer, food and beverage processing, and wood products); and
4) Florida's proximity to serve as a "launch pad" for broader markets beyond the continental United States (in Latin America & the Caribbean, Europe, Africa, via the Panama Canal or indeed on-orbit).

As more industries re-evaluate the value proposition of supply chains spread across the planet, an emphasis on "regionalization" of production is beginning to take hold throughout industry. As more focus is given to reducing the length of supply chains, and many agencies and industries adopt "buy local" and even definitive "Buy America"

policies, this presents a perfect opportunity for Florida. Through supporting efforts to localize more of our own procurement of manufactured products, Florida can encourage our manufacturers to become familiar with and eligible for new business opportunities arising from the new Buy America requirements and broader emphasis on localizing production.

Florida's Role as a "Gateway to the Americas" (and the world). Florida's strong cultural and economic ties to Latin America and the Caribbean, as well as to Canada, the UK, European Union, Israel and a number of countries in Africa enable Florida manufacturers to use the state as a platform to conduct business throughout the Western Hemisphere and the Atlantic Basin. A diverse multicultural and multilingual workforce helps Florida manufacturers to be more capable to participate in international business opportunities compared to manufacturers in many other parts of the United States. This combined with national policies to encourage "near-shoring" and "friend-shoring" mean that Florida is well-positioned to benefit from a re-alignment of supply chains and business relationships toward countries and cultures that are well-represented in Florida and where strong personal ties ease the process of doing business. Florida has a strong set of resources that can help companies get started on the journey of international business.

Florida's Rapidly Growing High-Value Industries. As outlined in the opening section of this report, Florida's manufacturing industry has been growing quickly over the past dozen years. This has been especially true in manufacturing sectors with a high value-added component to their operations: aviation and aerospace; defense; microelectronics; medical devices and equipment; marine (boat building and shipbuilding); fabricated metal products and industrial machinery. The growth of these sectors improves opportunities for Florida's small and mid-sized manufacturers (who represent well over 90% of the total manufacturing establishments in Florida), as these larger or newer manufacturers often prefer to keep their supply chain as local as they can. As new manufacturing locations open or existing manufacturers expand, this momentum creates a "tide that lifts all boats" and enables new opportunities that some manufacturers may have never dreamed they would be able to capture. However, in many cases small manufacturers need to update or obtain certifications, integrate new technologies, or upskill their employees to be able to take part in these new opportunities. This speaks to the value of technical assistance to help small manufacturers "make the jump" to participating in these new market opportunities, which can be transformational for these companies and for the communities in which they live and operate, especially smaller communities across the state.

With that in mind, this analysis will next focus on a review of several emerging growth sectors for Florida's manufacturing industry and economy, and the opportunities they represent to help diversify Florida's economy and provide economic opportunity for thousands of Floridians.

SECTION 4.
Industry Sectors of Interest

Emerging Industry Sectors Statewide

Florida's manufacturing industry provides $76.345 billion in value per year (GDP) to Florida's economy as of the first quarter of 2023.[26] Within Florida's manufacturing industry overall, there are several sectors that have been growing faster over the past decade than similar sectors in other states. To inform our understanding of the growth and development of Florida manufacturing relative to the nation, this report consulted the Florida Council of 100's preliminary Regional Economic Analysis which identifies the "best bets" in regions throughout the state, many of which are manufacturing focuses. Additionally, FloridaCommerce's Bureau of Workforce Statistics and Economic Research (WSER) division conducted a shift-share analysis of Florida's manufacturing sectors by sectors over the past decade (2011-2022) and at a more granular level of detail over the past three years (2019-2022). The full details of these analyses, including sectors that are growing relative to the rest of the nation are presented in Appendix B and Appendix C. This analysis highlighted several subsectors of Florida's manufacturing industry that are sources of strength and growth relative to the rest of the United States. Among these subsectors of growth and opportunity are: Fabricated Metal Product Manufacturing, Transportation Equipment Manufacturing, Machinery Manufacturing, Non-Metallic Mineral Product Manufacturing, Wood Product Manufacturing, and Chemical Manufacturing.

NAICS 332

<u>Fabricated Metal Product Manufacturing</u>

Florida's Fabricated Metal Product Manufacturing sector has grown significantly, as the growth of several of the state's leading manufacturing sectors (Aviation & Aerospace, Defense and Medical Devices) has enabled other manufacturers to provide goods and services in support of these sectors, which are highly dependent upon components associated with the fabricated metal product manufacturing sector.

NAICS 336

<u>Transportation Equipment Manufacturing</u>

Florida's strength in Transportation Equipment manufacturing is particularly associated with Florida's boat building and marine manufacturing subsectors, as well as the state's aviation and aerospace manufacturing industry. Florida is a powerhouse in the boating and marine manufacturing industry, with activities in every portion of the state

[26] US Census Bureau of Economic Analysis, accessed via Federal Reserve Bank of St. Louis FRED Database, Oct 2023

from the Panhandle through the Keys. The state is also very strong in aviation manufacturing, with manufacturers such as Embraer producing business jets, Piper producing general aviation aircraft, and many aviation maintenance, repair, and overhaul facilities for the commercial and military aviation sectors across the state.

NAICS 333

Machinery Manufacturing

Florida's Machinery Manufacturing sector is particularly strong in power generation and propulsion units (aircraft engines, power generation turbines, and rocket engines) and industrial machinery. Florida is host to facilities of nearly every major aircraft engine original equipment manufacturer, including GE Aerospace and Pratt & Whitney. Most manufacturers of power generation turbines - Siemens Energy/Siemens Gamesa, Mitsubishi Power, GE Vernova - also have a presence in the state. In addition, there is a strong and growing presence in commercial space-related manufacturing, particularly around commercial space launch, satellite manufacturing, and related sub-system and component manufacturing, engineering, testing and validation.

NAICS 327

Non-Metallic Mineral Product Manufacturing

Florida is home to a significant concrete production capacity. This allows our state's manufacturing industry to serve the continued growth of the state's population and meet the state's needs to support ongoing construction and improvements to public infrastructure.

NAICS 339

Miscellaneous Manufacturing

Florida's Miscellaneous Manufacturing sector includes a burgeoning medical equipment and medical devices manufacturing industry. Within the medical equipment industry nationally, there has been a strong emphasis on reshoring or nearshoring production due to supply disruptions and industry dynamics highlighted by the COVID-19 pandemic. Florida stands poised to capitalize on both trends, both as a significant center of medical equipment manufacturing as well as hub for medical devices produced and distributed throughout the Western Hemisphere. Additionally, Latin America and the Caribbean (including Puerto Rico) are each significant sources of and markets for medical equipment.

Florida is a major source of contact lenses and related products across the Americas, with Johnson & Johnson Vision in Jacksonville and Bausch

+ Lomb in Tampa producing a significant proportion of the contact lenses for the Western Hemisphere.

NAICS 321

Wood Product Manufacturing

Wood Product Manufacturing is a major element of the state's manufacturing sector and the overall regional economy in North-Central Florida and the Florida Panhandle. The Florida Forestry Association found that the state's forest industry contributes up to $25 billion to Florida's economy annually, and much of this is reflected in its wood product manufacturing sector.[27] North Florida is so strong in this segment that it has earned the moniker of "wood basket" as a resource for the entire Southeastern region as well as the broader United States.

NAICS 325

Chemical Manufacturing

This category of manufacturing is quite broad and covers sectors and technologies as wide-ranging as pharmaceuticals and fertilizers.

Florida has a strong pharmaceutical and nutraceutical manufacturing industry, which helps to serve the needs of the state's large and diverse population. However, the Florida and Southeastern U.S. production of pharmaceutical products is a bit underrepresented relative to our population. In 2022, the Southeastern U.S. region represented 25.8 percent of the total U.S. population but only accounted for about 16 percent of the overall U.S. production in the pharmaceutical sector.[28] This could be a sector worthy of consideration for its future growth potential, as well as a good platform for export-focused activities as there is an ongoing need for shorter supply chains and high-quality pharmaceutical products throughout the Western Hemisphere.

Florida runs an especially large trade deficit in pharmaceutical products due to its large older demographic. This demographic consumes a significant number of prescribed medications, so an effort to expand production in Florida could also assist in reducing the state's dependence on foreign sources of supply for many of its medications.

Florida also has a robust phosphate mining and fertilizer production industry, particularly in the areas east of Tampa Bay and Sarasota, and this strength is reflected in the statistics for chemical manufacturing as well.

[27] Florida Forestry Association and UF/IFAS, Florida Forest Industry Economic Impact (2017): https://www.flforestry.org/resources/2017-economic-impact-study/

[28] IBISWorld, "32541A Brand Name Pharmaceutical Manufacturing in the US" Sept 2023

Emerging Industry Sectors Profiles

Computer and Electronic Product Manufacturing

Including Semiconductors and Microelectronics

Computer and Electronics Product Manufacturing is an enormous area of opportunity for the state of Florida. It encompasses semiconductor and related microelectronics product manufacturing (NAICS 3344) as well as broader electronics and communications equipment manufacturing (NAICS 3342 for communications equipment and 3345 for navigation, measurement, and control instruments).

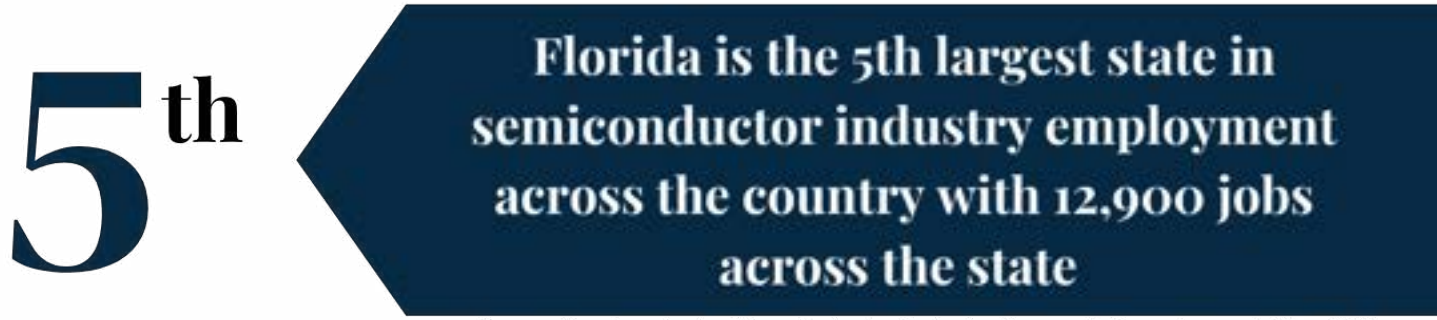
Florida has existing capabilities in semiconductors and related technologies that can be leveraged.

Figure 11

Semiconductor Manufacturers and Supply Chain

Source: University of Florida Semiconductor Institute

The state has some significant existing presence in the semiconductor and microelectronics industry as noted in Figure 11, including notable R&D development and prototyping fabrication facilities in Central Florida and the Tampa area, and a commercial fabrication facility in the Space Coast - Renesas Electronics in Palm Bay – which produces legacy technologies for secure/hardened chips for defense applications (including L3Harris, Lockheed, Boeing, SpaceX and other customers).



Source: Semiconductor Manufacturing Industry Economic Impact report, May 2021

As outlined by the most recent Target Industry Update, given the continued federal investment in semiconductor chips, Florida is poised to capture significant growth in this sector as newer and established companies look to expand production and distribution. Existing assets such as NeoCity in Osceola County have significant acreage for tenants in the field.

Florida is the 5th largest state in semiconductor industry employment across the country with 12,900 jobs.[29] And, according to the U.S. Department of Commerce Bureau of Economic Analysis, Florida's semiconductor manufacturing industry GDP exceeded $3.7 billion dollars in 2021. Globally, the overall industry is expected to generate a trillion dollars in revenue by the end of the decade, and overall capital investment in new semiconductor and electronics manufacturing facilities in the United States has more than doubled within the past couple of years.

According to the Semiconductor Industry Association, the industry supported 1.85 million Information Technology jobs in 2020, with 277,000 direct domestic jobs. For each direct job created within the industry, 5.7 additional indirect jobs are created.[30]

Source: Bureau of Economic Analysis

[29] Semiconductor Manufacturing Industry Economic Impact report, May 2021. Page 11. https://www.semiconductors.org/wp-content/uploads/2021/05/SIA-Impact_May2021-FINAL-May-19-2021_2.pdf

[30] Ibid

Florida is home to several companies that support the semiconductor and microelectronics industries in microelectronics packaging, including Micross, i3 Microsystems, Northrop Grumman, and Jabil Electronics. Additionally, Skywater, BRIDG and imec in NeoCity and related digital design and product lifecycle management (PLM) software (electronic design automation or EDA) and services – Siemens PLM and Advanced Micro Devices (AMD) among others. Florida also has a series of smaller manufacturers who support an array of technologies and equipment necessary for chip production, packaging, and assurance: Plasma-Therm, nScrypt, Jenoptik, Eclipse Energy and others.

Florida has the opportunity to focus on Advanced Microelectronics Packaging

There are two key initiatives regarding R&D in semiconductors: the National Semiconductor Technology Center (NSTC) and the National Advanced Packaging Manufacturing Program (NAPMP). The CHIPS Act invests more than $11 billion in these and other R&D initiatives, as well as about $39 billion in production incentives for large semiconductor fab operations (the "CHIPS for America Fund").

Florida's greatest opportunity lies in the advanced microelectronics packaging elements of these initiatives. These are the National Advanced Packaging Manufacturing Program and the planned funding opportunities for Manufacturing USA Institutes in advanced microelectronics packaging, which focus on advancing the testing, assembly, and packaging capabilities for chips within the United States R&D ecosystem.

These applications are as varied as aircraft, automobiles, communications equipment, computers, industrial controllers, industrial machinery, launch vehicles, medical devices, sensors and environmental monitoring equipment, satellites, simulators, smart phones, touchscreens, and weapons systems – basically, everything that underpins modern life.

Advanced Microelectronics Packaging

The process of taking integrated circuits/microchips from silicon wafers (the product that comes out of wafer fabrication facilities) and combining those chips with other components/interfaces to enable the integration of those microchips into the final assembly or application(s) that the microchips are needed to control.

Figure 12

Florida Semiconductor and Microelectronics Industry Value Chain

Source: NIST Manufacturing Extension Partnership, derived from D&B Hoovers

As much as 90 percent of microelectronics packaging currently occurs outside of the United States - much of the industry is based in east and southeast Asia.[31] Attention to and investment in advanced microelectronics packaging will help the U.S. to maintain our momentum in new microchip design and advanced computing. Cultivating and maintaining robust capabilities in advanced microelectronics packaging is key to maintaining our nation's industrial and technological advantages in a broad range of sectors. These include artificial intelligence/machine learning, advanced defense and space systems, and high-powered computing.

Nationwide Manufacturing Investment in Semiconductors

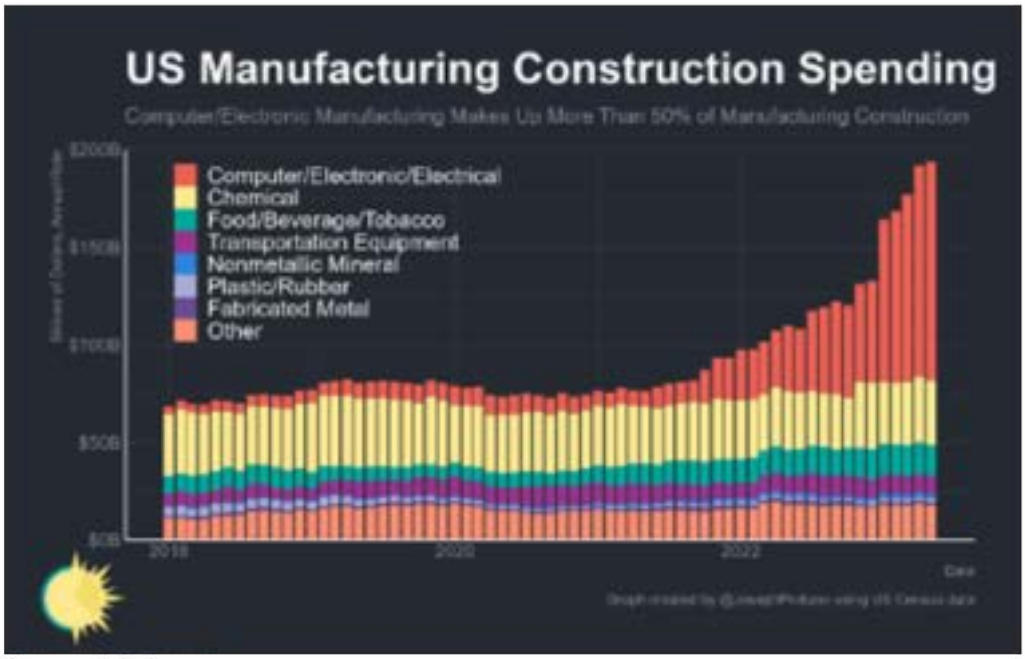
The CHIPS Act and Inflation Reduction Act have incentivized new investments in manufacturing capital nationwide. Construction spending on new manufacturing facilities across the United States has more than doubled relative to 2019 levels, driven almost entirely by Computer / Electronic / Electrical Component Manufacturing.

[31] CHIPS for America "Vision for Success - Commercial Fabrication Facilities" (Feb 2023) www.nist.gov/system/files/documents/2023/02/28/Vision_for_Success-Commercial_Fabrication_Facilities.pdf citing the SEMI Worldwide Assembly & Test Facility Database, Dec 2022 https://www.semi.org/en/products-services/market-data/ww-assembly-test-facility-database2022

Florida has to date only captured a tiny sliver of this overall investment in new advanced manufacturing facilities. What has been invested is mostly located in the NeoCity and Central Florida/I-4 Corridor region including over $50 million awarded by the U.S. Economic Development Administration in a microelectronics cluster centered around NeoCity, and significant investment (more than $100 million to date) in facilities and equipment by Osceola County, BRIDG, Skywater, the University of Central Florida, the University of Florida, Valencia College and other partners including the U.S. Department of Defense.

Local partnering to sustain statewide initiatives helps to build support around the state. For example, FloridaCommerce has provided strategic funding to Osceola County to support the NeoCity development. That strategic funding has allowed Osceola County to leverage

Figure 13



Source: U.S. Census

hundreds of millions of dollars of federal funding to grow central Florida's semiconductor and microchip industries. Additionally, FloridaCommerce has provided funding to several state colleges and technical centers – Valencia College, Lake Technical Center, and Santa Fe College, to name a few – in multiple rounds of funding to support statewide growth of the semiconductor manufacturing industry.

While Florida's electronic instrument manufacturing sector has grown mildly faster relative to the rest of the country over the past three to four years, Florida's semiconductor

manufacturing sub-sector has grown slower than the rest of the country,[32] driven in part by the significant investment(s) in chipmaking that are occurring in other parts of the country.

While other states (Texas, Arizona, and Ohio to name a few) are investing hundreds of millions of dollars in taxpayer dollars to directly fund semiconductor business expansion in their respective states, Florida's strategy for this sector has been to support a strong, pro-business climate and to make strategic investments with key local partners to drive job growth and economic development. In state fiscal year 2023-2024, Florida committed $50 million ($25 million from the Florida Department of Education's Workforce Development Capitalization Incentive Grant Fund and $25 million from FloridaCommerce's Job Growth Grant Fund) toward education and workforce training initiatives and infrastructure relevant to semiconductors and microelectronics.

[32] Florida Commerce manufacturing shift-share analysis highlighted that semiconductor manufacturing (NAICS 3344) was ranked second to last among all 86 sub-sectors of manufacturing in Florida regarding the degree to which Florida's relative lack of competitiveness impacted employment (in a negative way) when compared to other states and regions across the United States.

Defense Manufacturing

Florida's 21 major military installations and missions, long recognized as true national and state assets, contribute more than $95 billion dollars annually to the Florida economy. This makes defense the 3rd leading economic driver of the state's economy. Additionally, defense-related spending accounts for more than 914,000 direct, indirect, and induced jobs covering every county in Florida. The high-tech nature of the installations, missions and their support industries has been a foundation for many of Florida's businesses involving aviation and aerospace, photonics, lasers, cyber and modeling and simulation.

Florida's defense industrial base is particularly strong in areas related to aviation and aerospace, with many major prime contractors and manufacturers focused on both military and commercial aviation and aerospace components and solutions.

Source: U.S. Department of Defense, Defense Spending by State – FY22

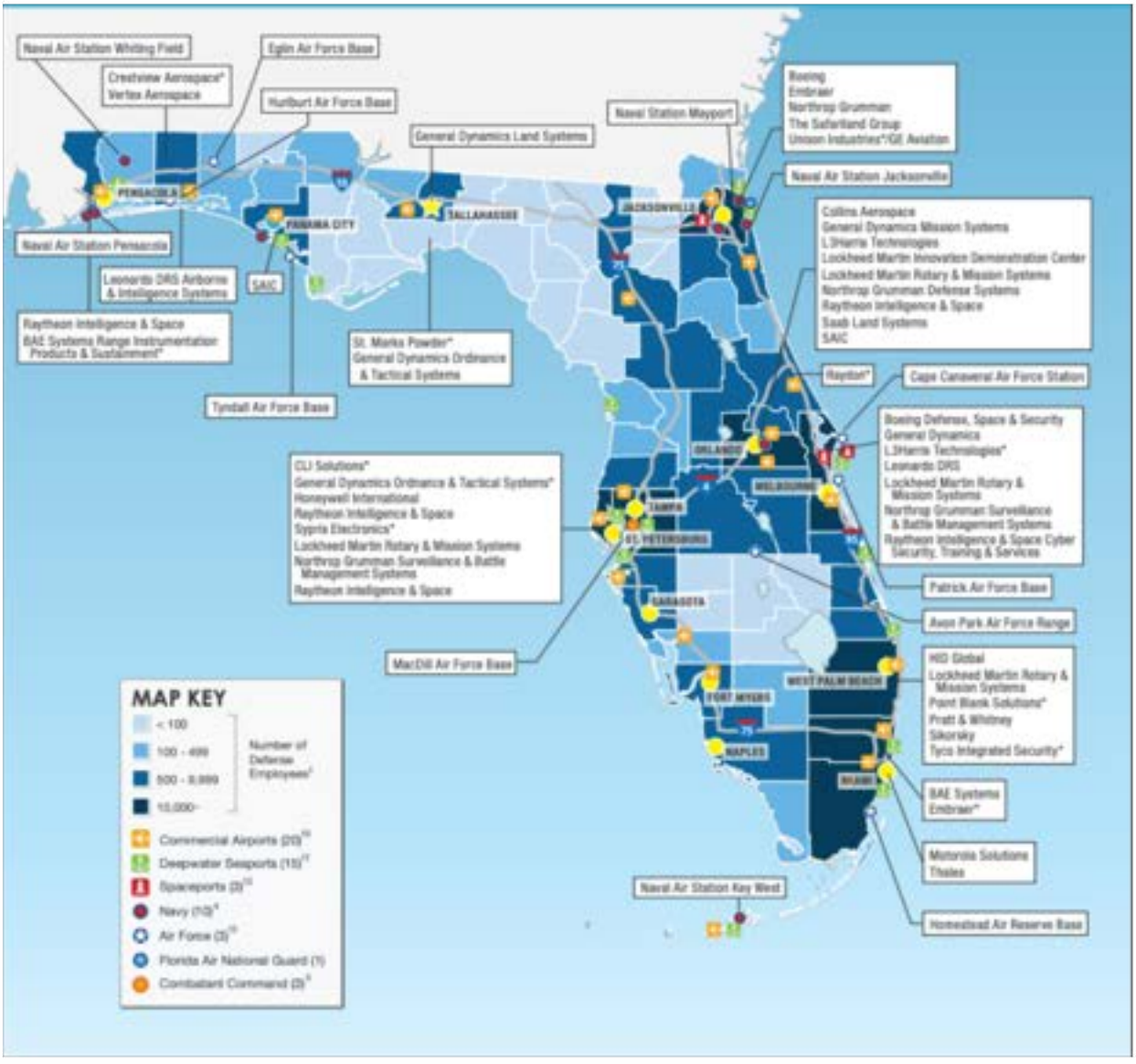
Figure 14

Defense Spending in Florida

These include all the "big 6" prime defense contractors (Lockheed Martin, Raytheon, Boeing, General Dynamics, Northrop Grumman, and BAE Systems), each of which have multiple locations in different areas of the state. There are a handful of major defense manufacturers and engineering firms who have their headquarters in Florida as well, including L3Harris Corporation in Melbourne (the 7th largest defense contractor as of early 2023), and Boeing Space Systems in Titusville.

Florida's aviation, aerospace and defense industrial ecosystem is extraordinarily diverse and robust, supporting all Department of Defense services and multiple combatant commands within Florida and nationally. The state has over 30,000 federal contractors and over 25,000 manufacturers, many of whom support defense and/or homeland security customers, as well as related industries including commercial aviation, commercial space, communications, and transportation.

Figure 15
Florida's Defense & Homeland Security Cluster



Source: Select Florida Defense & Homeland Security Industry Profile

There is a very strong small-business component of Florida's defense industrial base. Of the 33,987 registered contractors across the state of Florida as of 2020, 49.6 percent were registered as small businesses with the Small Business Administration. Moreover, of the 3,849 firms across the state that were awarded a Department of Defense/Department of Homeland Security contract in 2020, 42.2 percent identified as a small business under the SBA criteria. The breadth and depth of Florida's defense industry supply chain enables small businesses across the state to serve a very wide swath of defense applications and programs.

Florida ranks 5th nationally in the amount of national defense contract spending, with over $21 billion in annual direct contract spending in 2022

Florida ranks 5th nationally in the amount of national defense contract spending, with over $21 billion in annual direct contract spending in 2022,[33] and ranks 3rd nationally in defense industry employment. The most recent economic impact analysis of the defense industry in Florida (based on 2020 data) estimated that defense related spending had a $96 billion annual impact for the state, making defense the 3rd largest industry in Florida's economy, trailing only tourism and hospitality and construction.[34]

The state's areas of excellence in defense include electro-optics and lasers, simulation and training, logistics/warfighter support, defense electronics, and military flight training, among others. Standout companies in these sectors that are located in Florida include Lockheed Martin, Boeing, BAE Systems, Honeywell, Raytheon, and Sikorsky. The state's strengths in homeland security include the areas of cybersecurity, biometrics, disaster preparedness, response, and recovery, maritime security, and more. Select companies operating in this area that are located in Florida include General Dynamics, L3 Harris, and Motorola Solutions. In certain regions of Florida, such as portions of the Panhandle/Gulf Coast region (Okaloosa and Walton counties), defense comprises as much as 70 percent of the local economy.

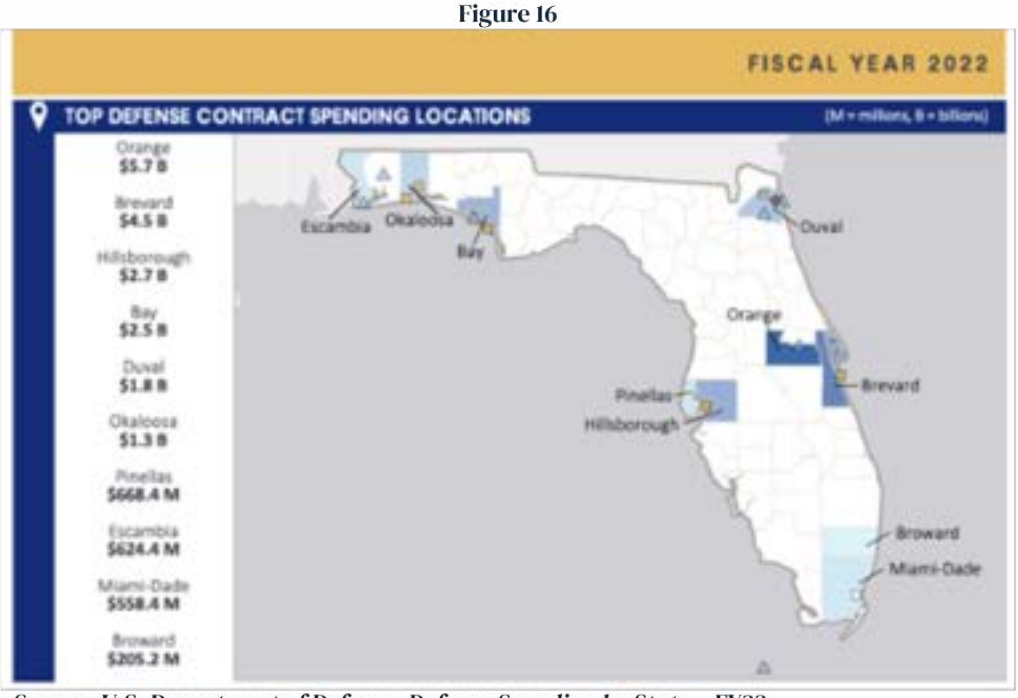
There are major centers of defense contracting, manufacturing, and engineering activity in East Central Florida around the Kennedy Space Center, Cape Canaveral Space Force Station, and Patrick Space Force Base, as well as the joint simulation and training acquisition commands in the Orlando region. There are also major hubs of training and operational commissioning activities in the Panhandle around Eglin and Tyndall air bases, and the Naval Air training commands in Pensacola. There are distinct and independent set of activities in Tampa Bay with MacDill Air Force Base, Central Command and Special Operations Command, in the Jacksonville region around major U.S. Navy operational (Naval Station

[33] Office of Local Defense Community Cooperation (OLDCC), Defense Spending by State – FY 2022 (October 2023) Accessed here: https://oldcc.gov/sites/default/files/defense-spending-rpts/OLDCC_DSBS_FY2022_FINAL_WEB_October2023.pdf

[34] Enterprise Florida & Florida Defense Support Task Force: Florida Defense Industry Economic Impact Analysis 2022 Update

Mayport) and maintenance (Fleet Readiness Center Southeast) facilities, and in South Florida with Southern Command and a significant U.S. Coast Guard presence throughout the region, as well as a number of highly specialized centers of excellence in advanced aviation, aerospace, marine and undersea operations.[35]

Figure 16



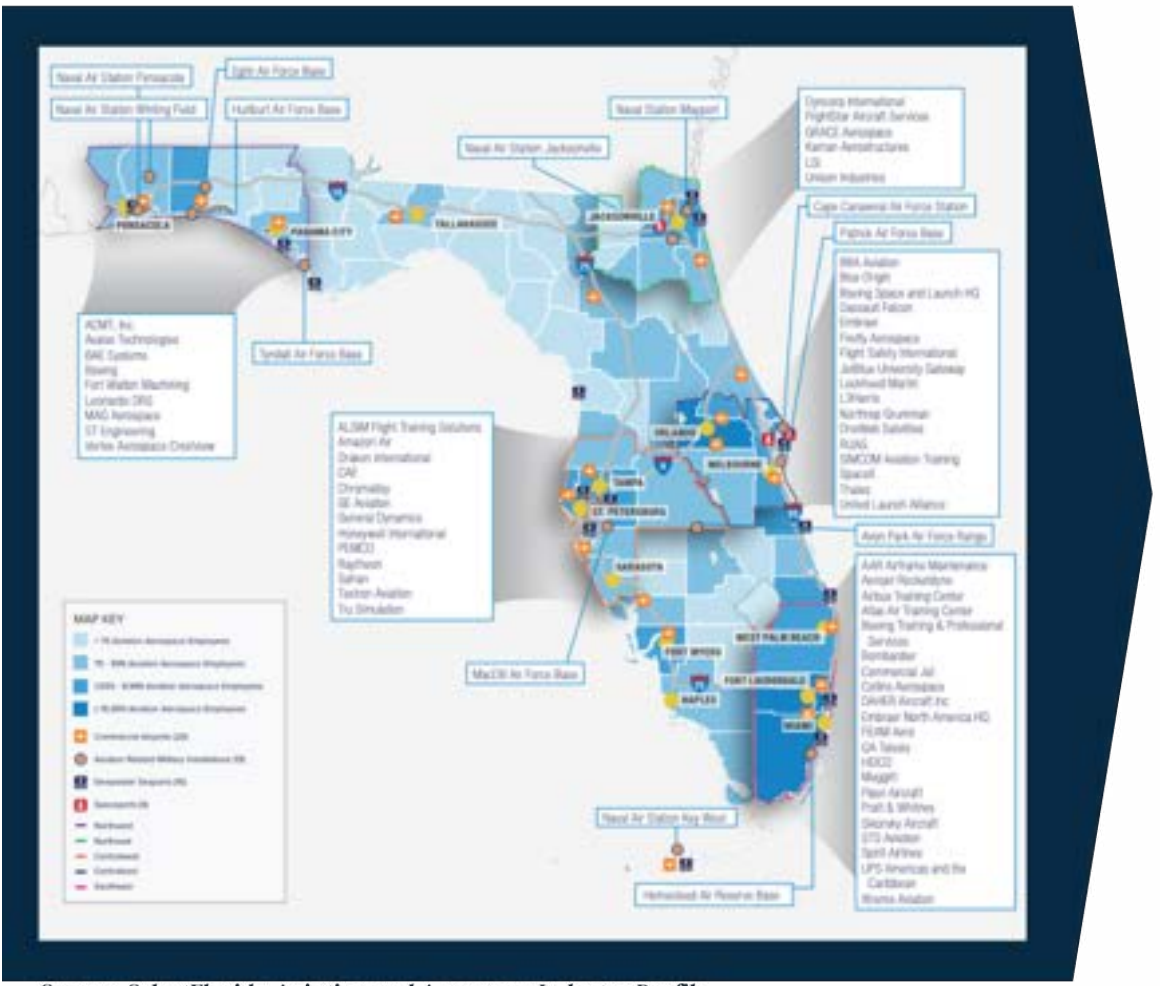
Source: U.S. Department of Defense, Defense Spending by State – FY22

Hypersonics. The United States has actively pursued the development of hypersonic weapons - maneuvering weapons that fly at speeds of at least Mach 5 - as a part of its conventional prompt global strike program since the early 2000s.[36] Development efforts are in two categories: hypersonic glide vehicles - which are launched from a rocket before gliding to a target, and hypersonic cruise missiles - which are powered by high-speed, air-breathing engines during flight. Major players in the hypersonics market are Lockheed Martin, Raytheon Technologies, Northrop Grumman, and Boeing, to name a few. One thing they all have in common are strong ties to Florida, which will present defense market expansion opportunities.[37]

[35] Enterprise Florida & Florida Defense Support Task Force: Florida Defense Industry Economic Impact Analysis 2022 Update
[36] Congressional Research Service: "Hypersonic Weapons: Background and Issues for Congress" July 2022
[37] EFI Target Industry Update 2022, pp 27

Aviation and Aerospace Manufacturing

The Aviation and aerospace sectors in Florida are growing and thriving and are the fastest-growing segments of Florida's manufacturing industry over the past decade. Home to the NASA Kennedy Space Center, Cecil Spaceport and Cape Canaveral Space Force Station, Florida's aviation and aerospace industry is the world's gateway to space. The birthplace of commercial aviation, Florida is a major hub for flight training and maintenance repair and overhaul and a leading location for manufacturing aircraft and aircraft components. Florida has a rich aerospace supply chain and a highly skilled workforce that supports engineering, robotics, surveillance, technology and more.



Source: SelectFlorida Aviation and Aerospace Industry Profile

Figure 17

Florida's Aviation & Aerospace Cluster

Florida consistently ranks in the top five U.S. states for aerospace industry employment, with more than 120,000 employees in 2022.[38] More than 17,144 aerospace-related companies call Florida home, contributing $19 billion in revenues to Florida's economy.[39]

Florida's aerospace industry has evolved and diversified from its traditional strength in government and commercial space launch into a broad array of related and supporting activities, including aerospace manufacturing. The activities surrounding the growth and development of the Cape Canaveral spaceport have assisted in a diversification of activities and companies involved in the industry as well as the development of other private spaceports across the state (TECO in Titusville, across the Indian River from KSC/Cape Canaveral, and Cecil Field in Jacksonville) with other locations under consideration throughout the state.

Florida has opportunities to expand and grow our aviation and aerospace manufacturing sector in the areas of:

1) aviation maintenance repair and overhaul, which is already an area of significant strength in employment and economic value-add for the state;
2) manufacturing of electric vertical takeoff and landing (eVTOLs) aircraft, a segment of aviation on the cusp of significant growth;
3) manufacturing of unmanned aerial vehicles (UAV's), an area of growth in national defense and homeland security, as well as new modes of logistics and last mile delivery; and
4) satellite manufacturing, particularly for the burgeoning number of private-sector satellite communications networks that are being planned, developed, and will be deployed into low-Earth orbit from spaceports in Florida.

Maintenance Repair and Overhaul (MRO). Florida is a powerhouse in the aviation maintenance repair and overhaul (MRO) industry. Florida is the number one state in the country in terms of its concentration of MRO companies with nearly 800 companies employing almost 20,000 Floridians. Florida's MRO sector also ranks first in the country with nearly $6 billion in annual revenue.[40] Companies in the aviation maintenance, repair and overhaul industry provide support services to air transportation operators, such as aircraft inspection and testing, ferrying aircraft between departure gates and taxiways, aircraft maintenance and repair and aircraft and parts overhaul.

[38] EFI Target Industry Update 2022, pp 25-26
[39] Space Florida: www.SpaceFlorida.gov
[40] IBISWorld "Aircraft Maintenance Repair Overhaul in the US Industry Report" October 2023

Advanced Air Mobility / Electric Vertical Takeoff and Landing Aircraft Manufacturing. An electric vertical takeoff and landing (eVTOL) aircraft uses electric power to take off, hover, and land vertically. This technology emerged as a result of major advances in electric propulsion and the growing need for new vehicles to transport cargo and people faster than ever before. Manufacturers are working to have eVTOLs in the air as early as 2024, and widely available by 2030.[41] Prototypes are being developed by aircraft companies such as Boeing, Airbus, Embraer, Honda, Toyota, Hyundai, and NASA. With 20 commercial airports and more than 130 public-use airports, there is room for potential growth within this segment in Florida. Several areas of the state are already beginning to plan for development and infrastructure to support advanced air mobility operations, including a planned vertiport in the Lake Nona neighborhood of Orlando, and plans to develop air taxi service between Miami International Airport and Miami Beach, and potentially other areas across Greater Miami.[42]

Commercial Unmanned Aerial Vehicle Manufacturing. An unmanned aerial vehicle (UAV), or drone, is an aircraft without any human pilot, crew, or passengers on board. The market for contactless parcel delivery has grown significantly in the past few years. As drone technology continues to improve it makes last-mile fulfillment of food and goods significantly faster, more cost effective, more sustainable, and more eco-friendly while helping unclog congested roads. Programs in the U.S. are already in place by major companies like Amazon, UPS, FedEx, and Walmart. As of early 2022, it is estimated that more than 2,000 drone deliveries are occurring each day worldwide. The growth rate is accelerating every week, and projections are close to 1.5 million deliveries in 2022, up from just under half a million in 2021.[43] Opportunity presents itself as manufacturing facilities and maintenance, repair, and overhaul facilities will be needed to maintain drone fleets as mass delivery operations become more of a reality.[44]

[41] EFI Target Industry Update 2022 and McKinsey & Company "The future of air mobility: Electric aircraft and flying taxis" 2022
[42] Orlando plans: https://www.orlando.gov/Our-Government/Orlando-plans-for-a-future-ready-city/Advanced-Air-Mobility and Miami plans: https://www.futureflight.aero/news-article/2023-04-18/university-miami-launches-autonomous-air-mobility-initiative
[43] McKinsey & Company "Drone delivery: More lift than you think" 2022 https://www.mckinsey.com/industries/aerospace-and-defense/our-insights/future-air-mobility-blog/drone-delivery-more-lift-than-you-think
[44] EFI Target Industry Update 2022

Satellite Manufacturing. The global satellite telecommunications industry is growing strongly, as demand for global interconnectivity and low latency (lag time in communications) is driving many companies to design, develop, build, and deploy their own communications and imaging satellites. For example, new 5G (5th generation) telecommunications networks will require new low-earth orbit satellites to achieve global coverage. The proliferation of small low-Earth orbit satellite constellations being developed by private corporations will lead to more manufacturers building facilities to produce these satellites. Florida has a strong opportunity to capture a significant portion of this industry as the Cape Canaveral spaceport is the nation's primary access point to space for commercial operations. Many new satellite providers are very interested in proximity to the launch and space vehicle recovery operations at the Cape.

Airbus OneWeb Satellites in Merritt Island, just outside the gates of the Kennedy Space Center is one example of a facility pioneering mass production of communications satellites, transforming an industry segment that has traditionally been highly customized and low-volume and therefore high-cost. For decades, communications satellites have been very sophisticated systems costing tens or hundreds of millions of dollars each to design, produce and operate. New satellite constellations such as SpaceX's Starlink, Amazon's Kuiper and the OneWeb network are rapidly changing that paradigm, producing hundreds or thousands of satellites in a mass production environment at the cost of a couple of hundred thousand dollars each (for Starlink) and less than $1 million each (for OneWeb).[45]

In addition, due to the proliferation of new satellite platforms and networks, there is significant interest in developing, building, and deploying smaller-scale launch vehicles to deliver small satellites to specific orbits at a lower cost basis than traditional satellite launch providers. These new launch providers, including Relativity Space, Vaya Space and several others who make use of the Cape Canaveral spaceport also benefit from proximity to their launch and recovery locations.

[45] https://www.cnbc.com/2019/12/14/spacex-oneweb-and-amazon-to-launch-thousands-more-satellites-in-2020s.html; Starlink: https://ts2.space/en/how-much-does-a-starlink-satellite-cost/

Advanced Manufacturing Technologies. Florida also has a significant opportunity to leverage advanced manufacturing technologies in support of our aviation, aerospace, and defense industries. As one example, Florida boasts a significant cluster of metal-based additive manufacturing firms and suppliers who support the aviation and aerospace industry, including commercial space, as well as power generation and energy systems. These technologies also have several defense-related applications, including rapid response and resiliency within the current industrial base, enabling new capabilities in propulsion (including hypersonics and launch vehicles) and satellite components, and finding ways to support legacy systems with new technologies and production techniques.

To catalyze some of these efforts, the National Science Foundation has awarded a $1 million NSF Innovation Engines Type 1 initiative entitled Additive Manufacturing Forward to a coalition of partners including the FSU/FAMU College of Engineering, UCF and FIU as well as several leading companies across the state in aerospace, defense, and energy systems.[46] This coalition is working to coalesce the existing industry community around advancing additive manufacturing technologies in Florida, building partnerships between large firms and smaller suppliers with specific expertise, and keeping our state on the "cutting edge" of the national and global adoption of these technologies.

Likewise, the International Space Station National Lab has been working with several companies and universities across the state to build partnerships to demonstrate manufacturing technologies in microgravity (e.g. on-orbit aboard the International Space Station). Companies such as Redwire/Made in Space, nScrypt, Sidus Space and others are partnering with the ISS National Lab and NASA to demonstrate new manufacturing techniques in a microgravity environment, laying the foundation for a broad range of high-value manufacturing activities and an entirely new paradigm for industrial production in space operations. This is an opportunity and resource unique to Florida (due to our access to launch capabilities and as a primary "point of access" to the International Space Station).

[46] "FAMU-FSU College of Engineering part of ASTRO America partnership with other top Florida universities to expand 3d printing in the state and grow high-tech jobs" May 17, 2023; Accessed via: https://eng.famu.fsu.edu/news/college-part-astro-america-1-million-nsf-engines-development-award

Each of these initiatives highlights both additive manufacturing and "on-orbit manufacturing" as key areas of strategic focus and investment for the U.S. manufacturing R&D enterprise keeping our nation at the forefront of new innovations and competing effectively in the global economy.[47]

[47] United States National Strategy for Advanced Manufacturing, Oct 2022 https://www.whitehouse.gov/wp-content/uploads/2022/10/National-Strategy-for-Advanced-Manufacturing-10072022.pdf

Boat Building and Ship Building Manufacturing

Florida far surpasses all other U.S. states in boat building, with over 19% of the establishments in the U.S. boat building sector located in Florida.

Marine manufacturing is prevalent throughout Florida, with a high concentration of industry (relative to national averages) in every region of the state near the ocean. Central and South Florida in particular continue to be hubs for the marine industry. South Florida is internationally considered the capital for yachts and sport fishing craft, while Central Florida is home to several large production boat manufacturers.

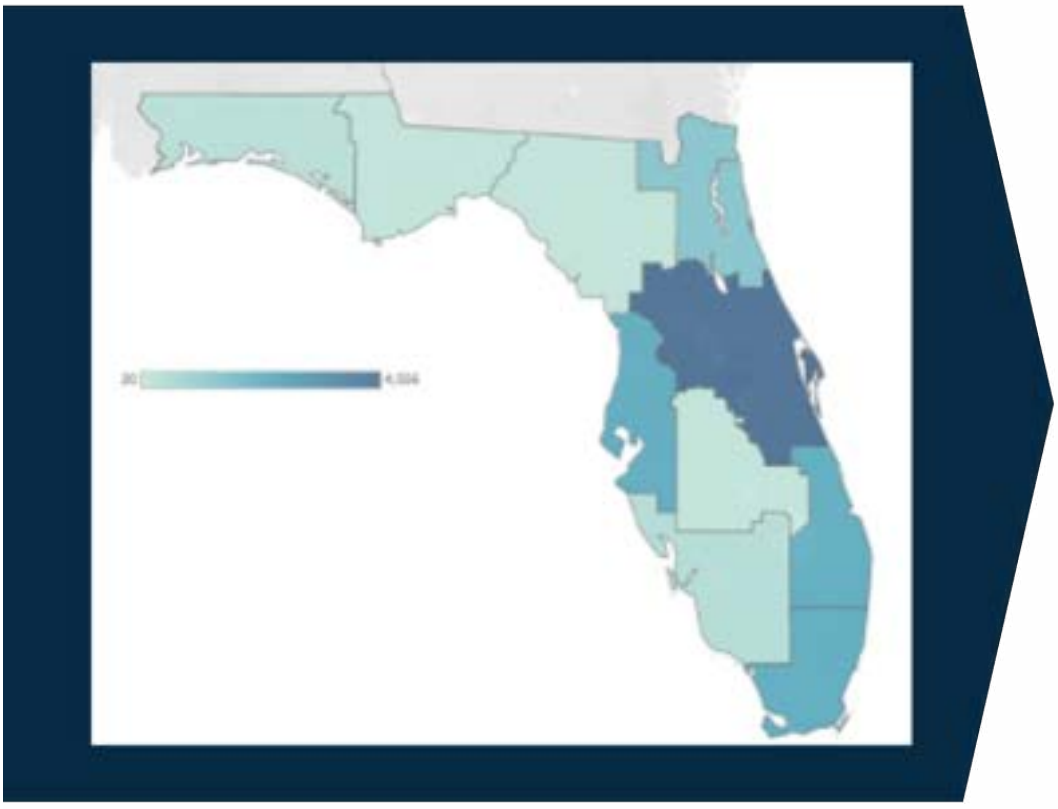


Figure 18

Annual Employment for Boat Building and Ship Building Manufacturing

Source: Florida Dept of Commerce WSER, Quarterly Census of Employment & Wages

Florida also has a significant shipbuilding industry, with several prominent shipbuilding operations in the Panhandle (Panama City) area, including Eastern Shipbuilding, Oceaneering and others, as well as other capabilities in Northeast Florida supporting the

Navy and commercial shipping lines (BAE Systems, Fincantieri, SERMC) and Tampa Ship in Port Tampa performing repair, conversion and dry-dock operations.

Below is a sampling of Florida's boat manufacturers and ship builders:

Alucat Catamarans USA, Inc.
American Jet Concept, LLC
Argos Nautic Manufacturing LLC
Aschenez USA, Corp
Belzona Boats
Beneteau America
Bertram Yachts LLC
Blackfin Boats
BlueCat USA, LLC
Bombardier
Bonita Boats, Inc.
Boston Whaler, Inc.
Brunswick
Catalina Yachts
Century Boats Chris-Craft Corp.
Cigarette Holdings, LLC
Cobia Boat Co, Inc.
Contender Boats, Inc.
Coral USA Vessels
Correct Craft
Dynamic Boats, LLC
EdgeWater Power Boats
Everglades Boats
Grand Banks Yachts Sales Florida
Hanover Yachts Hewes Boats
Ingenity
Intrepid Powerboats, Inc.
Invincible Boat Company LLC
Island Packet and Seaward Yachts
Jupiter Marine International
Littoral Marine, LLC
Marlow Yachts Limited, Inc.
Maverick Boat Group
Midnight Express Powerboats, Inc.
Mocama Marine
Monterey Boats
Nautique Boat Company, Inc.
Northstar RIBs USA
NX Boats USA, LLC
Pathfinder
Pursuit Boats
Regal Marine Industries, Inc.
Rigid Boats
SAY Carbon Yachts Miami
Sea Ray Boats
Seabring Marine Industries, Inc.
SeaHunter Inc.
SeaVee Boats
Shadow Six Racing
SHF Yachts, LLC
Solace Boats, LLC
Stamas Yacht, Inc.
Twin Vee PowerCats, Co.
Warbird Marine Holdings
Yacht Life, USA LLC
Yellowfin Yachts, LLC

Medical Devices, Equipment and Pharmaceuticals Manufacturing

Florida is in a very strong position in medical device and equipment manufacturing. The state is home to the nation's second-largest medical device manufacturing industry, as well as among the top ten states in pharmaceuticals manufacturing across the US.[48] As a powerhouse in contact lens manufacturing, the state accounts for more than $2 billion in revenue, 27 percent of the national total and the largest state in the U.S. in this segment of manufacturing.[49] Major firms in the medical manufacturing industry are noted in Figure 18. Some include Johnson & Johnson, Bausch + Lomb, Bristol-Myers Squibb, Medtronic, and Arthrex.

Figure 19

Florida's Life Science Cluster

Source: SelectFlorida Life Science Industry Profile

[48] IbisWorld, "Medical Device Manufacturing in the US" Industry Report, Sept 2023 and "Brand Name Pharmaceutical Manufacturing in the US" Industry Report, Sept 2023

[49] IbisWorld "Glasses & Contact Lens Manufacturing in the US" Industry Report, April 2023

These are sizable markets and represent opportunities for Florida manufacturers. For example, the global market for medical devices was approximately $447 billion in 2022, estimated to be worth $472 billion in 2023 and is projected to grow by 5.3 percent per year to about $610 billion worldwide by 2028. During 2023, $164 billion or slightly over one third of total industry sales will be generated in the United States.[50]

Likewise, the global eyewear market (including both glasses and contact lenses) is estimated to be $141.5 billion in 2023 and to grow by 4.4 percent annually to reach $168 billion by 2027. The market for contact lenses alone is approximately $18 billion annually in 2023 and expected to grow to about $22 billion by 2027.[51] The U.S. represents the largest portion of global eyewear sales at about $34 billion in 2023, however demand for eyewear is growing across the globe. It is estimated that as much as 75 percent of the world's population needs vision correction at some point in their lifetime.[52] On average, in 2023, every person worldwide is expected to generate a revenue of US$18.43 in the eyewear market, and it is projected that by 2027 global eyewear market volume will reach 10.66 billion units per year.[53]

Advances in technology, aging populations in the United States and many parts of the world, expansion of access to healthcare and a continuing strong underlying national economy are expected to maintain growth in the medical device and pharmaceutical industry for the foreseeable future. Florida can leverage its position as an intermediary between the U.S. and the rest of the Western Hemisphere (South and Central America and the Caribbean) to its advantage as a platform for manufacturing, sale and transport of medical devices and pharmaceuticals to markets across the Americas and the world.

As noted above, contact lens manufacturing is a particular source of strength in Florida. Significant investments in R&D and production process improvements have made Florida's contact lens manufacturing industry one of the most sophisticated and productive in the world, paying some of the best wages in the industry. As one example, contact lens manufacturers in Florida employ about 10 percent of the contact lens industry workforce across the U.S., but produce about 27 percent of the industry's revenue and pay 18 percent of the wages nationally.[54] By contrast, contact lens manufacturers in Texas and New York employ about an equal number of workers but produce less than a third of the

[50] Statista, "Market Outlook – Medical Devices; Worldwide" (2023) https://www.statista.com/outlook/hmo/medical-technology/medical-devices/worldwide

[51] Statista, "Market Insights: Eyewear-Worldwide" https://www.statista.com/outlook/cmo/eyewear/worldwide IMARC Group, "Eyewear Market Report 2023-2028" Market Overview https://www.imarcgroup.com/eyewear-market

[52] IbisWorld "Glasses & Contact Lens Manufacturing in the US" Industry Report, April 2023

[53] Statista, "Market Insights: Eyewear-Worldwide"

[54] IbisWorld "Glasses & Contact Lens Manufacturing in the US" Industry Report, April 2023

value in revenue overall, and pay substantially less in wages (33 percent less in New York and less than half in Texas' case).

The contact lens manufacturing industry offers Florida a window into a potential future for manufacturing in our state. Johnson & Johnson (J&J) Vision in Jacksonville has been highlighted by McKinsey as a "Global Lighthouse" facility, showcasing "best in class" industrial technology and automation practices. J&J Vision has proactively invested in technology and its workforce, and in their process fully transformed its business to operate in a digital environment, integrating suppliers and customers into a common "digital thread" providing end-to-end visibility and real-time adjustments to operational issues. J&J Vision is one of only 10 facilities in North America selected for this prestigious recognition.

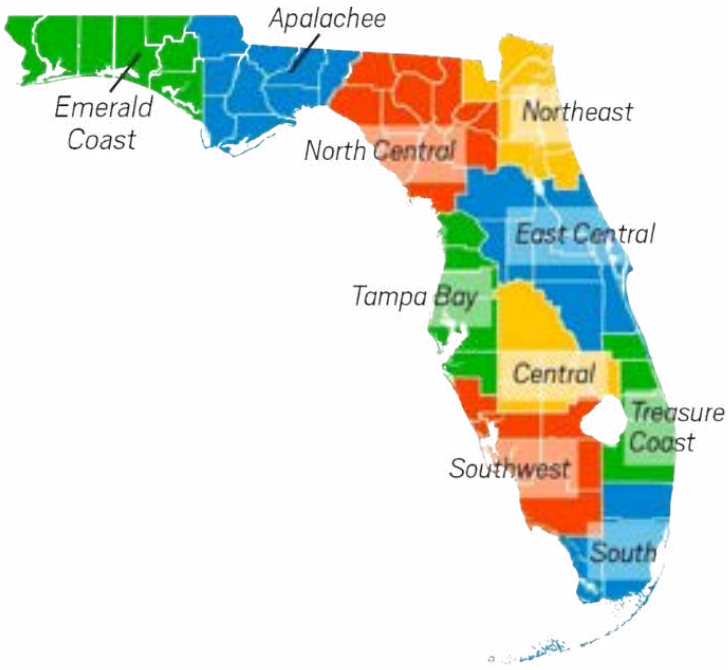
SECTION 5.
Regional Profiles

Introduction to the regional perspective

Due, in part, to our state's history and development, Florida is comprised of several distinct regions with differing demographic, cultural and economic profiles. To provide a more focused look at the impact of manufacturing on local economies across the state, this analysis has divided the state into 10 regions to highlight specific regional factors and dynamics within local communities. These regions are based on current regional planning council districts, which delineate regions by several common economic and infrastructural links. Each of these regions has an existing history of working together via their respective planning councils: multi-purpose entities comprised of local governments whose mission is to facilitate dialogue, solve problems at the regional level and help communities grow. Most of these regions have an existing Comprehensive Economic Development Strategy (CEDS), which enable the region to highlight and support common economic diversification strategies, prioritize public investments, and develop robust and resilient infrastructure and economies. Figures 20 and 21 depict the 10 geographical areas established for this section of the report by region and by counties.

Figure 20

Florida Regional Breakdown



Source: Florida Regional Councils Association

The Florida Council of 100 is leading a new initiative to identify regionally distinctive industries and statewide high-potential economic clusters that can support a strong, diversified, and resilient state economy. The foundation of this initiative is an ongoing data-driven Regional Economic Analysis to find the major industry sectors, existing and emerging, which regions can

"bet on" for new growth and collaborate with one another to leverage resources. In all regions, manufacturing has shown itself to be an integral component of both existing and emerging high-performing industry clusters worthy of investment. No matter whether it's aircraft engine manufacturing in the Aerospace Vehicles and Defense cluster, medical device manufacturing in the Healthcare cluster, semiconductor manufacturing in the Cleantech cluster, or cement manufacturing in the Construction cluster, expansion of manufacturing is, and will continue to be, a focal point of any successful regional economic development strategy.

Figure 21

Florida Regional Breakdown by County

Source: Florida Regional Councils Association

Greater awareness of the manufacturing industry and employment opportunities in their own "backyard" can help spark a conversation within each region regarding strategies and potential avenues to promote the diversification and growth of their local economies through a focus on manufacturing and local supply chains and can be part of their broader regional strategy for economic growth, infrastructure, and workforce development. These conversations in turn will lay the groundwork for activities, collaboration and investment that can provide even greater opportunities for employment and economic vitality in communities across our state.

Manufacturing in Florida is concentrated in urban areas of our state – the South Florida region (Broward, Miami-Dade, and Monroe counties) has the largest population of manufacturers with over 5,000 manufacturing firms and more than 70,000 employees –

Table 3

Florida Regional Manufacturing Statistics

REGIONS	Establishments	% of Total	# of Employees	% of Total	GDP ($US Bn)
Emerald Coast	460	2.6%	6,760	2.2%	2.67
Apalachee	103	0.6%	1,146	0.4%	0.98
North Central	188	1.1%	4,805	1.6%	2.18
Northeast	1,089	6.1%	25,041	8.2%	6.95
Tampa Bay	3,535	19.9%	68,061	22.4%	14.7
Central	563	3.2%	15,231	5.0%	3.86
East Central	3,230	18.2%	68,779	22.6%	15.84
Southwest	1,398	7.9%	16,553	5.5%	3.0
Treasure Coast	1,911	10.8%	27,499	9.1%	4.59
South	5,285	29.8%	70,051	23.1%	9.33

Some regional data is withheld to meet confidentiality rules for employment surveys, which can affect the accuracy of statewide totals.

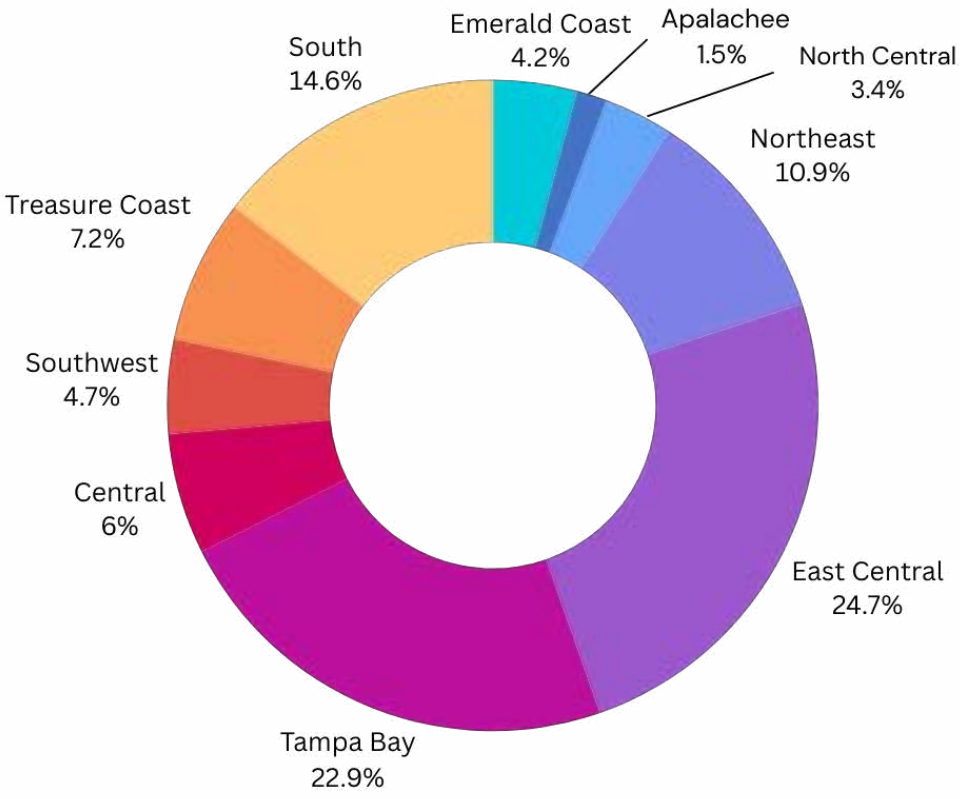
Source: FloridaCommerce Workforce Statistics and Economic Research Office

more than many other U.S. states. The I-4 Corridor region is also very strong in its manufacturing activity – the East Central Florida and the Tampa Bay regions have more than 3,200 and 3,500 manufacturers respectively, with each region employing more than 68,000 workers. Taken together with the Southern region, those three regions together account for nearly half of the state's manufacturing employment overall.

In terms of value, Florida's manufacturing GDP is heavily weighted toward the state's population corridors. The Central Florida I-4 corridor region is particularly strong, with nearly 50 percent of the state's overall manufacturing GDP concentrated in the East Central Florida and Tampa Bay regions, at $15.8 billion and $14.7 billion respectively in 2022. This increases to 54 percent of the state's output if the $3.9 billion contribution of the Central Florida region (including Polk County) is included. The South Florida and the Treasure Coast region put together (at $9.3 billion and $4.6 billion respectively) approach the individual manufacturing GDP contributions of East Central Florida and Tampa Bay. Several other regions have significant value-added in manufacturing as well: Northeast Florida manufacturers generated $6.95 billion in GDP during 2022, the Southwest Florida region contributed $3 billion, and the Emerald Coast (Northwest Florida) provided $2.67 billion.

Figure 22

Share of Florida Manufacturing GDP by Region - 2022



Source: Source: FloridaCommerce Workforce Statistics and Economic Research (WSER)

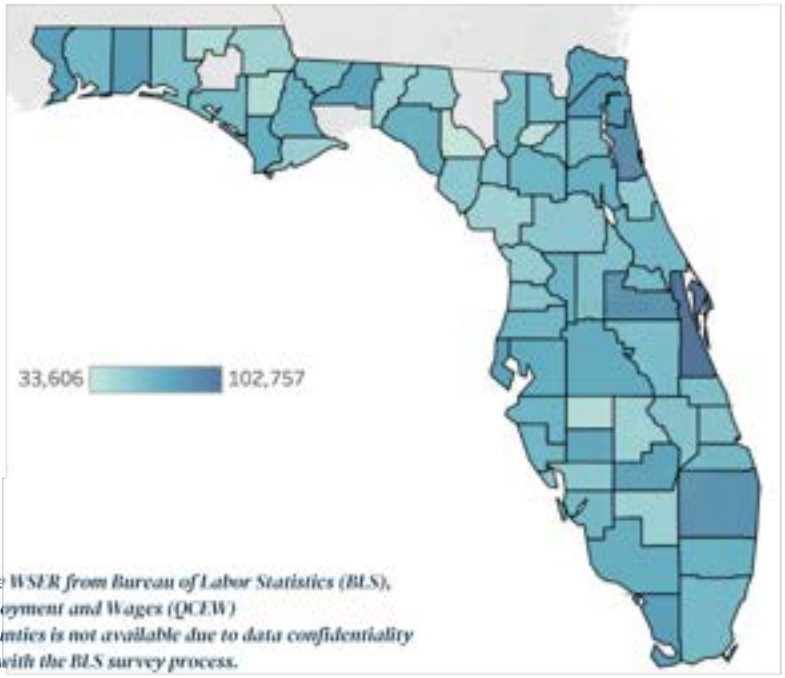
Manufacturing is critical to the economy of both urban and rural communities across Florida. It represents a significant opportunity for economic growth, advancement and resilience of local economies.

Although Florida's manufacturing sector is heavily represented in urban areas of the state, in many rural communities manufacturing represents a higher proportion of employment and economic activity. For example, the North Central Rural Area of Opportunity and the Big Bend of Florida have a proportion of manufacturing employment and percentage of overall GDP that are higher than national and statewide averages. For example, Liberty County in the Florida Panhandle has 14% of its employment and 35% of its economic output associated with manufacturing. This outstrips even Brevard County, where the Palm Bay-Melbourne metropolitan statistical area has the highest concentration and value of manufacturing in the state (13.4% of employment and 16.7% of GDP), related to the region's aviation, aerospace and defense industries.

The following section includes regional profiles of the manufacturing sector within each of the 10 Florida Regional Planning Council regions. As an introduction to these regional profiles, a series of overview visualizations will be presented that illustrate some of the demographics of Florida's manufacturing sector at the regional and county level.

Figure 23

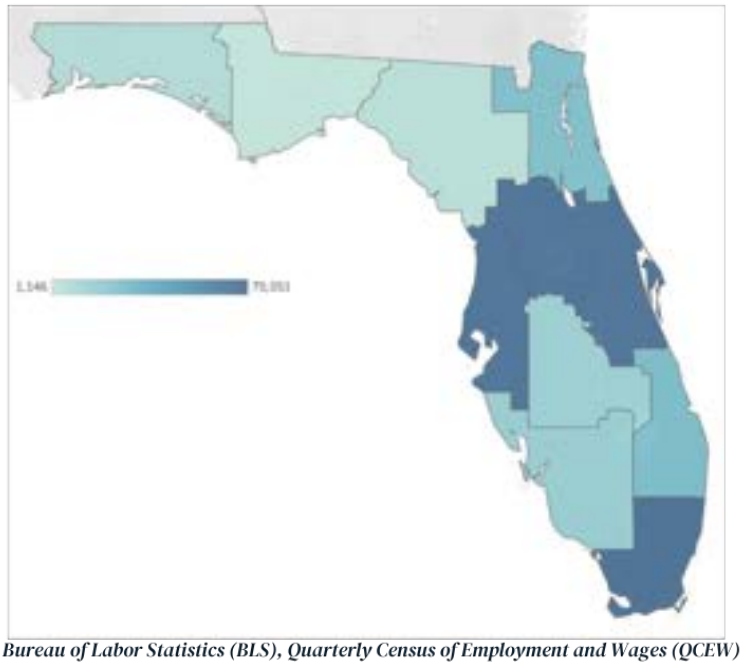
Average Wages in Manufacturing Sector in Florida Counties, 2022



Source: FloridaCommerce WSER from Bureau of Labor Statistics (BLS), Quarterly Census of Employment and Wages (QCEW)
Note: Data for certain counties is not available due to data confidentiality requirements associated with the BLS survey process.

Figure 24

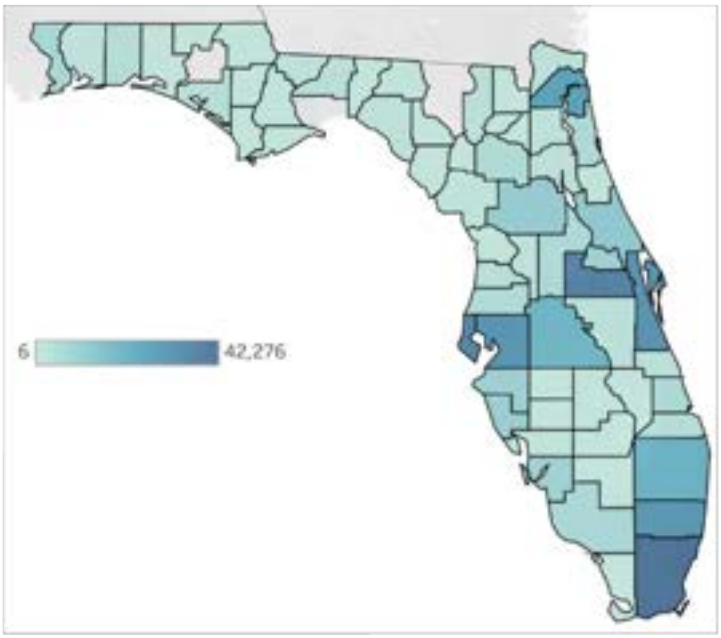
Florida Manufacturing Employment by Region, 2022



Source: FloridaCommerce WSER from Bureau of Labor Statistics (BLS), Quarterly Census of Employment and Wages (QCEW)

Figure 25

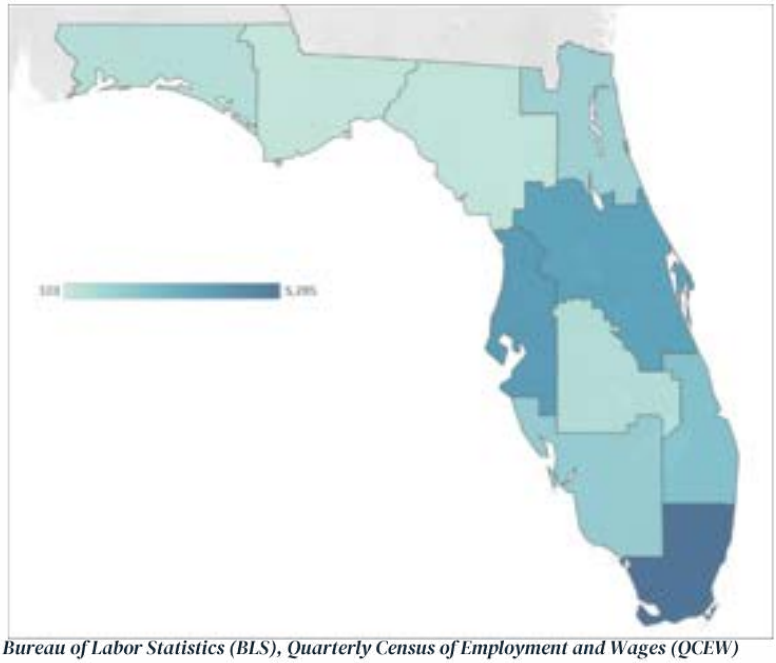
Florida Manufacturing Employment by County, 2022



Source: FloridaCommerce WSER from Bureau of Labor Statistics (BLS), Quarterly Census of Employment and Wages (QCEW)
Note: Data for certain counties is not available due to data confidentiality requirements associated with the BLS survey process.

Figure 26

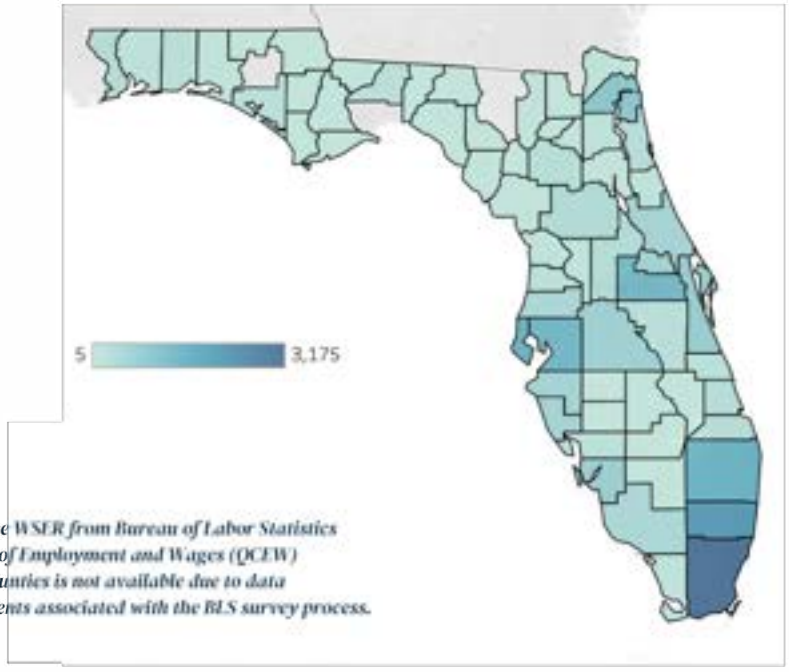
Florida Manufacturing Establishments by Region, 2022



Source: FloridaCommerce WSER from Bureau of Labor Statistics (BLS), Quarterly Census of Employment and Wages (QCEW)

Figure 27

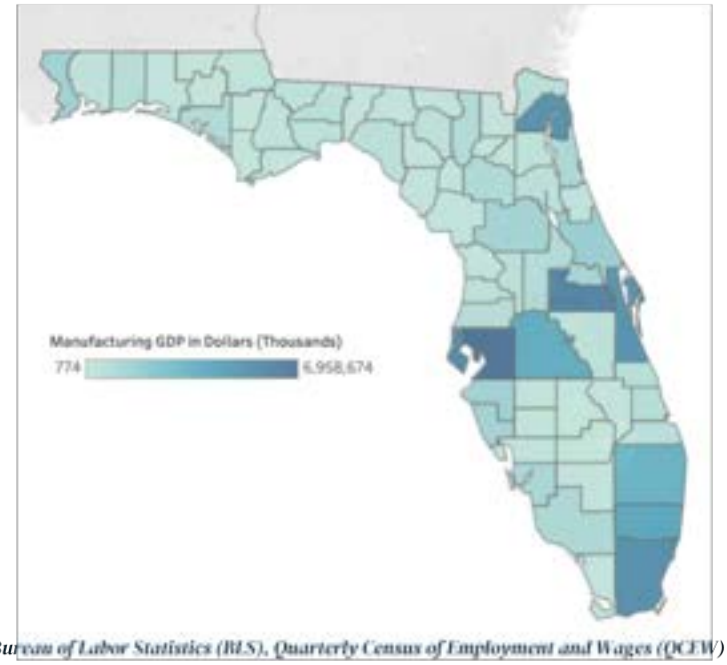
Florida Manufacturing Establishments by County 2022



Source: FloridaCommerce WSER from Bureau of Labor Statistics (BLS), Quarterly Census of Employment and Wages (QCEW)
Note: Data for certain counties is not available due to data confidentiality requirements associated with the BLS survey process.

Figure 28

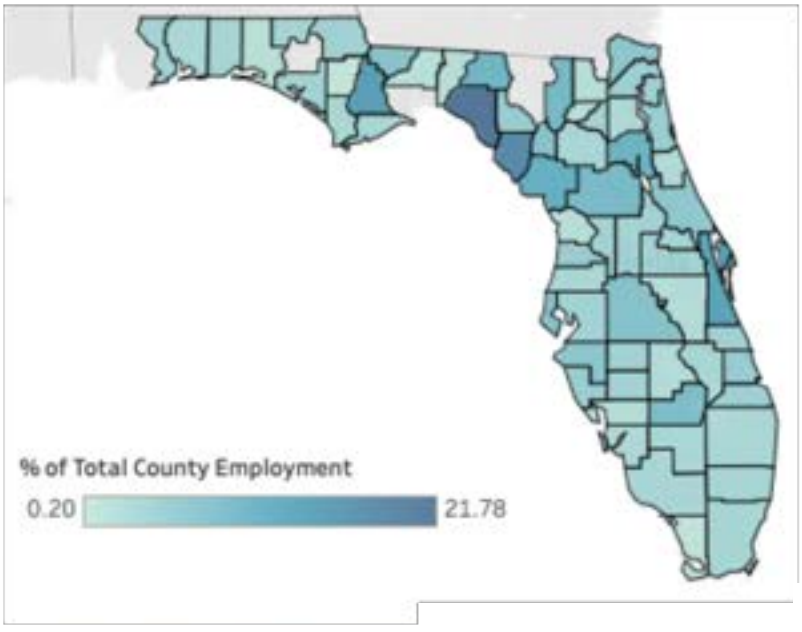
Florida Manufacturing GDP by County, 2022

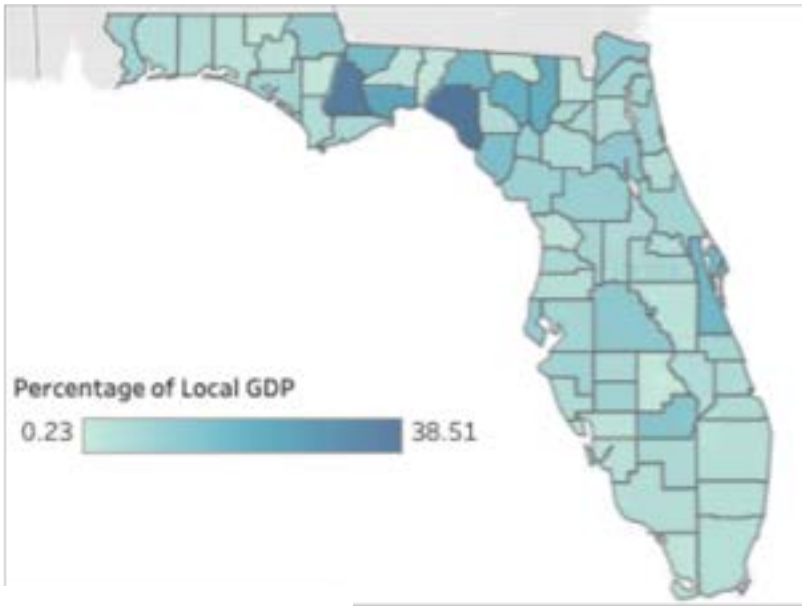


Source: FloridaCommerce WSER from Bureau of Labor Statistics (BLS), Quarterly Census of Employment and Wages (QCEW)

Figure 29

Manufacturing Share of Total County Employment and GDP, 2022





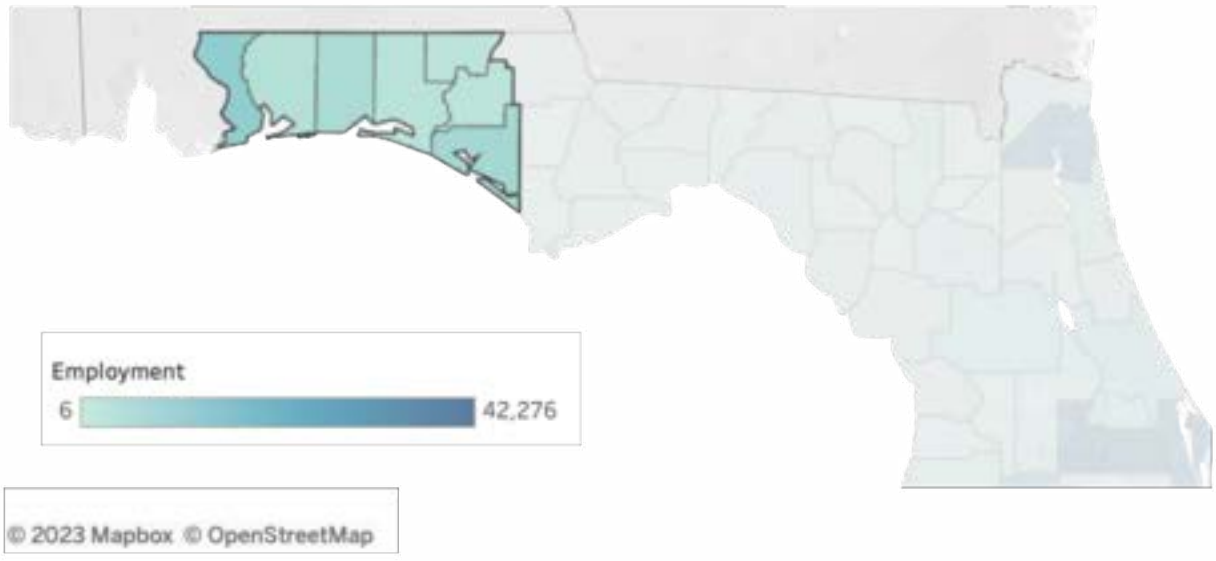
Source: FloridaCommerce WSER from Bureau of Labor Statistics (BLS), Quarterly Census of Employment and Wages (QCEW)
Note: Data for certain counties is not available due to data confidentiality requirements associated with the BLS survey process.

Emerald Coast Florida Manufacturing

Florida's Emerald Coast (Northwest) region is quite strong in Aerospace and Defense manufacturing, supporting activities at Eglin and Tyndall Air Force Bases and the Air Force Research Laboratory. The largest industry subsectors in the Manufacturing industry cluster in 2022 for the Emerald Coast region were: Aerospace Product & Parts Manufacturing; Ship and Boat Building; Resin, Rubber, and Synthetic Fibers; Medical Equipment and Supplies Manufacturing; and Architectural and Structural Metals. There is a notable concentration of shipbuilding and boat building activities in Bay County within the Panama City Port Authority (Eastern Shipbuilding and Oceaneering). Northwest Florida is also quite strong in engines, turbines and power transmission equipment, highlighted by the GE Vernova wind turbine manufacturing facility in Pensacola with many of its related suppliers, such as Jupiter Bach, nearby.

Manufacturers	Gross Domestic Product	Jobs
460	$2.67B	6,760

Annual Employment in Manufacturing by Counties



Emerald Coast Florida Top Sectors 2022

SECTORS	Establishments	Employment
Aerospace Product & Parts Manufacturing	27	1,370
Ship and Boat Building	11	210
Resin, Rubber, and Synthetic Fibers*		
Medical Equipment and Supplies Manufacturing	33	632
Architectural and Structural Metals	34	663

Source: Quarterly Census of Employment and Wages, Bureau of Labor Statistics

*Some regional data is withheld to meet confidentiality rules for employment surveys, which can affect the accuracy and availability of regional totals.

Regional Resources

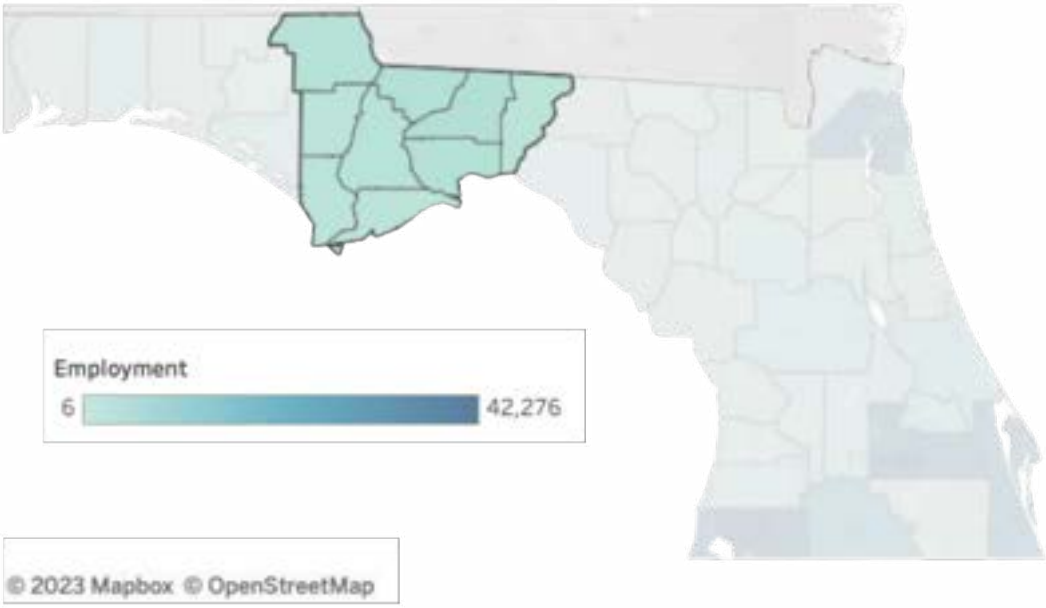
CareerSource Chipola	careersourcechipola.com
CareerSource Escarosa	careersourceescarosa.com
CareerSource Gulf Coast	careersourcegc.com
CareerSource Okaloosa Walton	careersourceokaloosawalton.com
Emerald Coast Regional Planning Council	ecrc.org
Florida SBDC at UWF	sbdc.uwf.edu
Northwest Florida Manufacturers Council	nwfmc.org
One Okaloosa Economic Development Council	florida-edc.org
Supply Chain Florida/Connex Florida	supplychainflorida.com

Apalachee Florida Manufacturing

The largest industry subsectors in the Manufacturing industry cluster in 2022 for the Apalachee region were: Other Chemical Preparation Manufacturing; Other General Purpose Machinery Manufacturing; Cement & Concrete Product Manufacturing; Veneer and Engineered Wood Products; and Sawmills and Wood Preservation. Manufacturing employment in the Apalachee region is primarily concentrated around Tallahassee (Leon County), with a handful of manufacturers and some outstanding manufacturing-related lab resources associated with the FAMU/FSU School of Engineering. Wood product manufacturing and defense-related manufacturing are each major contributors to the region's economy.

Manufacturers	Gross Domestic Product	Jobs
103	$981M	1,146

Annual Employment in Manufacturing by Counties



Apalachee Florida Top Sectors 2022

SECTORS	Establishments	Employment
Other Chemical Preparation Manufacturing*		
Other General Purpose Machinery Manufacturing*		
Cement & Concrete Product Manufacturing	4	167
Veneer and Engineered Wood Products*		
Sawmills and Wood Preservation*		

Source: Quarterly Census of Employment and Wages, Bureau of Labor Statistics

*Some regional data is withheld to meet confidentiality rules for employment surveys, which can affect the accuracy and availability of regional totals.

Regional Resources

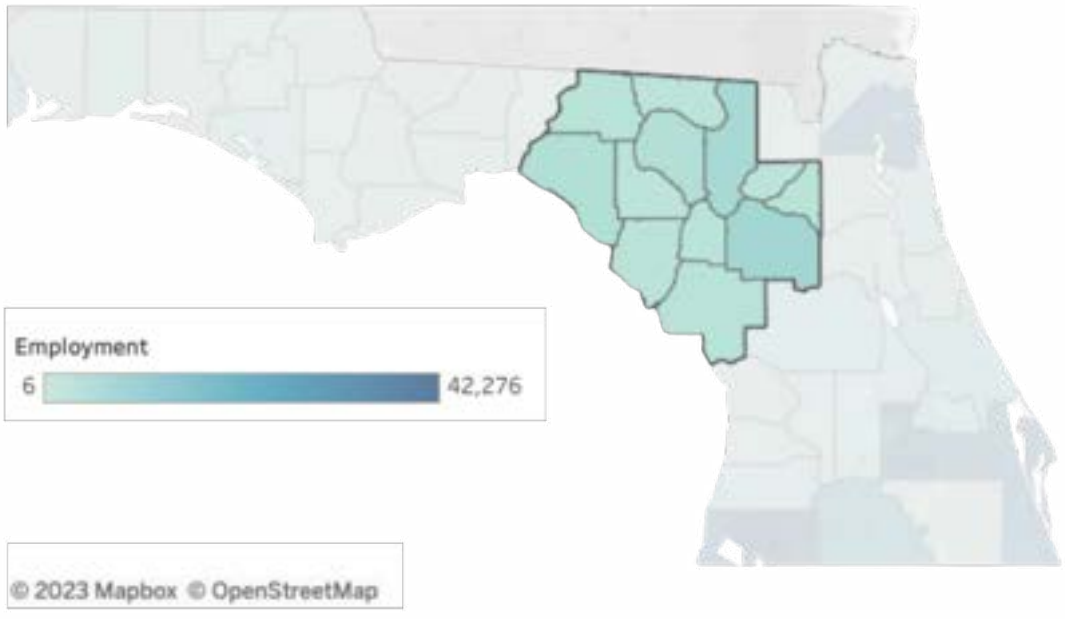
Apalachee Regional Planning Council	arpc.org
Big Bend Manufacturers Association	bbma-fl.com
CareerSource Capital Region	careersourcecapitalregion.com
CareerSource Chipola	careersourcechipola.com
CareerSource Gulf Coast	careersourcegc.com
Florida SBDC at Florida A&M University	sbdcfamu.org
Northwest Florida Manufacturers Council	nwfmc.org
One Okaloosa Economic Development Council	florida-edc.org
Supply Chain Florida/Connex Florida	supplychainflorida.com

North Central Florida Manufacturing

The North Central Florida region is quite rural in character (with the exception of Gainesville) but certain communities have a very strong influence of manufacturing. The largest industry subsectors in the Manufacturing industry cluster in 2022 for the North Central Florida region were: Animal Slaughtering and Processing; Medical Equipment and Supplies Manufacturing; Other Wood Product Manufacturing; Architectural and Structural Metals; and Sawmills and Wood Preservation. Manufacturing is very important to the economy of this region, as manufacturing's contribution to the region's employment base and overall GDP are markedly higher than national and statewide averages.

Manufacturers	Gross Domestic Product	Jobs
188	$2.18B	4,806

Annual Employment in Manufacturing by Counties



North Central Florida Top Sectors 2022

SECTORS	Establishments	Employment
Animal Slaughtering and Processing*		
Medical Equipment and Supplies Manufacturing	24	1024
Other Wood Product Manufacturing	16	866
Architectural and Structural Metals	3	17
Sawmills and Wood Preservation	3	404

Source: Quarterly Census of Employment and Wages, Bureau of Labor Statistics

*Some regional data is withheld to meet confidentiality rules for employment surveys, which can affect the accuracy and availability of regional totals.

Regional Resources

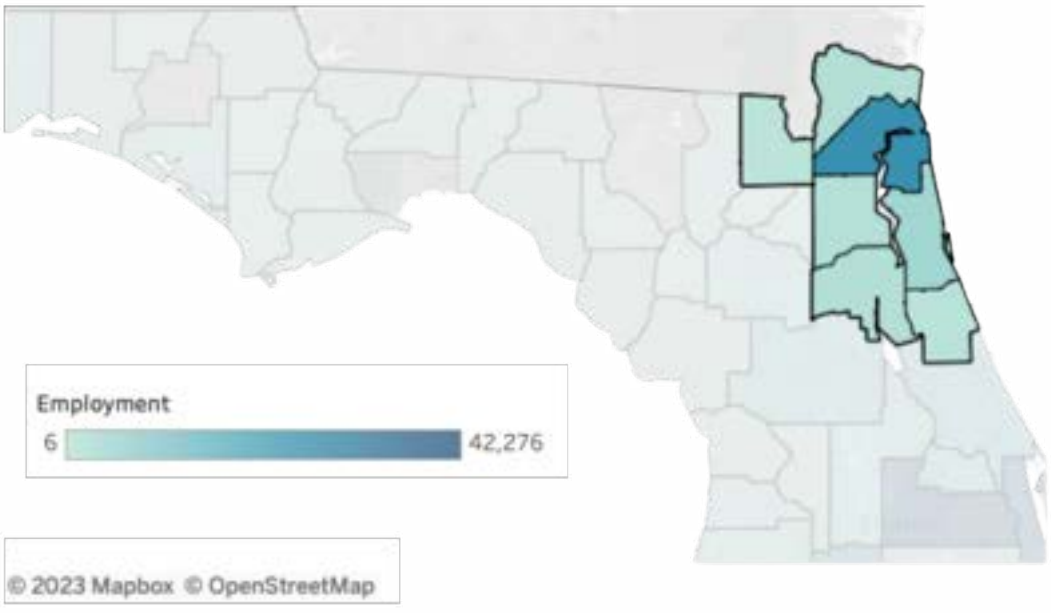
Big Bend Manufacturers Association	bbma-fl.com
CareerSource Florida Citrus Levy Marion	careersourceclm.com
CareerSource Florida Crown	careersourcefloridacrown.com
CareerSource North Central Florida	careersourcencfl.com
CareerSource North Florida	careersourcenorthflorida.com
North Central Florida Regional Planning Council	ncfrpc.org
North Florida Small Business Development Center	unf.edu/sbdc
Supply Chain Florida/Connex Florida	supplychainflorida.com

Northeast Florida Manufacturing

Northeast Florida's manufacturing industry is centered around the defense and consumer product industries. The largest subsectors in the Manufacturing industry cluster in 2022 for the Northeast Florida region were: Medical Equipment and Supplies Manufacturing; Aerospace Product & Parts Manufacturing; Beverage Manufacturing; Architectural and Structural Metals; and Converted Paper Product Manufacturing. Transportation-related operations in this FRCA region such as in Jaxport (Duval) and Fernandina Port (Nassau) contribute to the aerial and navy manufacturing industries, as well as access to intermodal transportation networks throughout the Southeastern United States.

Manufacturers	Gross Domestic Product	Jobs
1,089	$6.95B	25,041

Annual Employment in Manufacturing by Counties



Northeast Florida Top Sectors 2022

SECTORS	Establishments	Employment
Medical Equipment and Supplies Manufacturing	46	3,367
Aerospace Product & Parts Manufacturing	23	1,363
Beverage Manufacturing	49	2,242
Architectural and Structural Metals	184	4,439
Converted Paper Product Manufacturing	13	625

Source: Quarterly Census of Employment and Wages, Bureau of Labor Statistics

Regional Resources

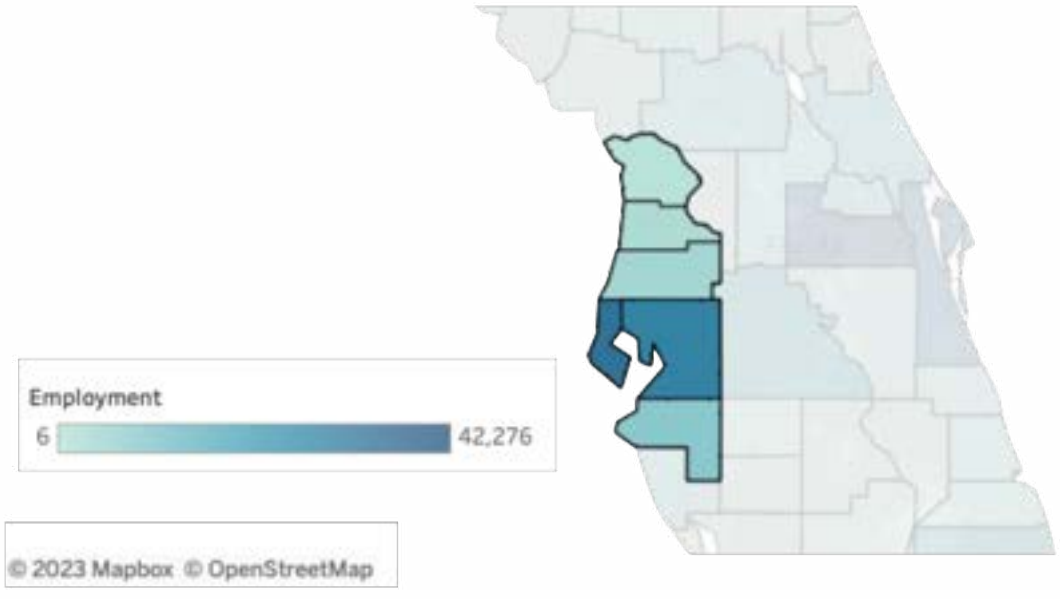
CareerSource Northeast Florida	careersourcenortheastflorida.com
First Coast Manufacturers Association	fcmaweb.com
Northeast Florida Regional Planning Council	nefrc.org
Northeast Florida Small Business Development Center	unf.edu/sbdc
Supply Chain Florida/Connex Florida	supplychainflorida.com

Tampa Bay Florida Manufacturing

Tampa Bay boasts a broad and diverse manufacturing sector, with medical and pharmaceutical products and electronics especially prominent. The largest industry subsectors in the Manufacturing industry cluster in 2022 for the Tampa Bay region were: Medical Equipment and Supplies Manufacturing; Electronic Instrument Manufacturing; Semiconductor and Electronic Components; Pharmaceutical & Medicine Manufacturing; and Architectural and Structural Metals. Tampa also is a growing hub for logistics operations leveraging the Panama Canal and Florida's growing population, as well as intermodal links to the Southeast United States.

Manufacturers	Gross Domestic Product	Jobs
3,535	$14.7B	68,061

Annual Employment in Manufacturing by Counties



Tampa Bay Florida Top Sectors 2022

SECTORS	Establishments	Employment
Medical Equipment and Supplies Manufacturing	216	5,105
Electronic Instrument Manufacturing	105	3,924
Semiconductor and Electronic Components	58	3,920
Pharmaceutical & Medicine Manufacturing	104	3,637
Architectural and Structural Metals	168	3,084

Source: Quarterly Census of Employment and Wages, Bureau of Labor Statistics

Regional Resources

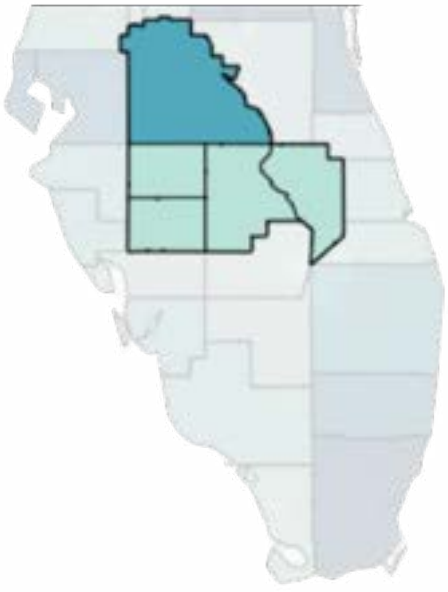
Bay Area Manufacturers Association	bama-fl.org
CareerSource Florida Citrus Levy Marion	careersourceclm.com
CareerSource Pasco Hernando	careersourcepascohernando.com
CareerSource Pinellas	careersourcepinellas.com
CareerSource SunCoast	careersourcesuncoast.com
CareerSource Tampa Bay	careersourcetampabay.com
Florida SBDC at USF	sbdctampabay.com
Mid-Florida Regional Manufacturers Association	mrmafl.com
Nature Coast Manufacturers' Association, Inc.	naturecoastmfg.com
Supply Chain Florida/Connex Florida	supplychainflorida.com
Tampa Bay Regional Planning Council	tbrpc.org

Central Florida Manufacturing

The Central Florida region's manufacturing industry includes building materials, food & beverage (citrus packing/juice, dairy, soft drink/water bottling, and food packing), bakeries and machine shops/metal working supporting aviation, aerospace and defense, as well as local supply chains. The largest industry subsectors in the Manufacturing industry cluster in 2022 for the Central Florida region were: Fruit, Vegetable, & Specialty Foods Manufacturing; Agricultural Chemical Manufacturing; Cement & Concrete Product Manufacturing; Bakeries and Tortilla Manufacturing; and Veneer and Engineered Wood Products. The region, particularly in Polk County, is witnessing significant growth in logistics and warehousing, aligning with Florida's overall expansion and the growth of the I-4 corridor. This benefits surrounding metro areas including Tampa, Orlando, and South Florida.

Manufacturers	Gross Domestic Product	Jobs
563	$3.86B	15,231

Annual Employment in Manufacturing by Counties



Central Florida Top Sectors 2022

SECTORS	Establishments	Employment
Fruit, Vegetable, & Specialty Foods Manufacturing	13	1,765
Agricultural Chemical Manufacturing*		
Cement & Concrete Product Manufacturing	42	1,209
Bakeries and Tortilla Manufacturing	16	1,481
Veneer and Engineered Wood Products	8	1,225

Source: Quarterly Census of Employment and Wages, Bureau of Labor Statistics

*Some regional data is withheld to meet confidentiality rules for employment surveys, which can affect the accuracy and availability of regional totals.

Regional Resources

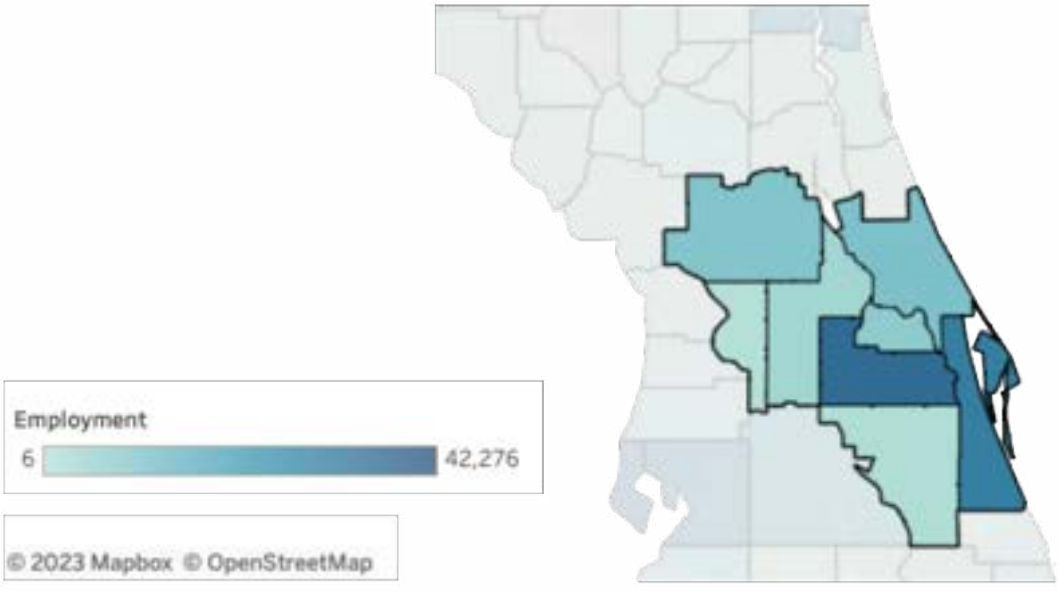
CareerSource Heartland	careersourceheartland.com
CareerSource Polk	careersourcepolk.com
Central Florida Regional Planning Council	cfrpc.org
Florida SBDC at IRSC	floridasbdc.org/find/irsc
Florida SBDC at USF	sbdcorlando.com
Manufacturing & Supply Chain Alliance of Mid-Florida	mscafl.com
Supply Chain Florida/Connex Florida	supplychainflorida.com

East Central Florida Manufacturing

East Central Florida has a strong and diverse manufacturing sector, led by the region's aerospace and defense industry, microelectronics and semiconductors, and the marine/boat building industry. The largest subsectors in the Manufacturing industry cluster in 2022 for the East Central Florida region were: Aerospace Product & Parts Manufacturing; Semiconductor and Electronic Components; Electronic Instrument Manufacturing; Commercial & Service Industry Machinery; and Ship and Boat Building. The Florida Space Coast (Brevard County) is located within this region - an area focused on aerospace research and development and that contains the Kennedy Space Center and Cape Canaveral Space Force Station. Aerospace manufacturing has been the fastest growing segment of Florida's manufacturing industry in recent years.

Manufacturers	Gross Domestic Product	Jobs
3,230	$15.84B	68,779

Annual Employment in Manufacturing by Counties



East Central Florida Top Sectors 2022

SECTORS	Establishments	Employment
Aerospace Product & Parts Manufacturing	58	6,213
Semiconductor and Electronic Components	70	2,270
Electronic Instrument Manufacturing	97	7,201
Commercial & Service Industry Machinery*		
Ship and Boat Building	57	4,556

Source: Quarterly Census of Employment and Wages, Bureau of Labor Statistics

*Some regional data is withheld to meet confidentiality rules for employment surveys, which can affect the accuracy and availability of regional totals.

Regional Resources

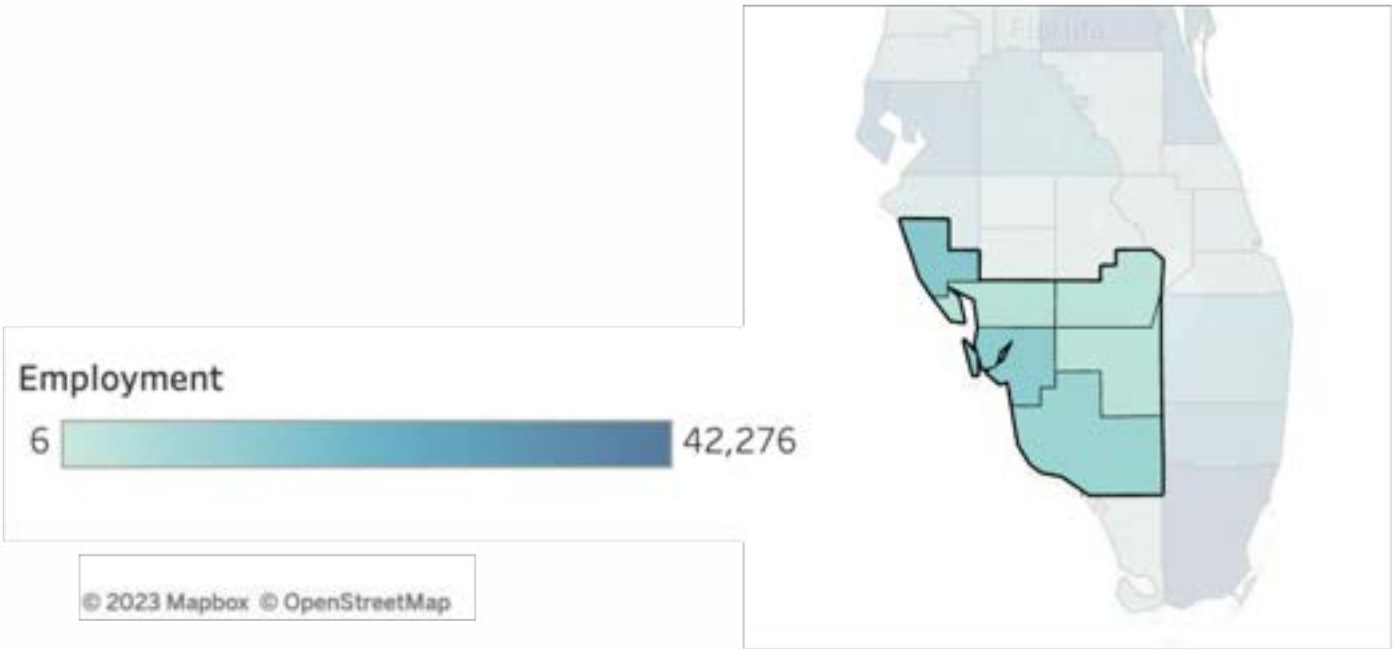
CareerSource Brevard	careersourcebrevard.com
CareerSource Central Florida	careersourcecentralflorida.com
CareerSource Citrus Levy Marion	careersourceclm.com
CareerSource Flagler Volusia	careersourcefv.com
East Central Florida Regional Planning Council	ecfrpc.org
East Central Florida SBDC at UCF	sbdcorlando.com
Manufacturers Association of Central Florida	macf.biz
Manufacturers Association of Space Coast	manufacturinginbrevard.org
Mid-Florida Regional Manufacturers Association	mrmafl.com
Supply Chain Florida/Connex Florida	supplychainflorida.com

Southwest Florida Manufacturing

Southwest Florida's manufacturing industry is especially strong in building materials and medical supplies. The largest industry subsectors in the Manufacturing industry cluster in 2022 for the Southwest Florida regions were: Architectural and Structural Metals; Medical Equipment and Supplies Manufacturing; Cement & Concrete Product Manufacturing; Household and Institutional Furniture; and Printing and Related Support Activities. Sarasota County leads this region in manufacturing employment, with the Architectural and Structural Metals industry as the highest employed subsector.

Manufacturers	Gross Domestic Product	Jobs
1,355	$3.0B	16,553

Annual Employment in Manufacturing by Counties



Southwest Florida Top Sectors 2022

SECTORS	Establishments	Employment
Architectural and Structural Metals	92	4,103
Medical Equipment and Supplies Manufacturing	68	866
Cement & Concrete Product Manufacturing	83	1,367
Household and Institutional Furniture*		
Printing and Related Support Activities	172	1,007

Source: Quarterly Census of Employment and Wages, Bureau of Labor Statistics

*Some regional data is withheld to meet confidentiality rules for employment surveys, which can affect the accuracy and availability of regional totals.

Regional Resources

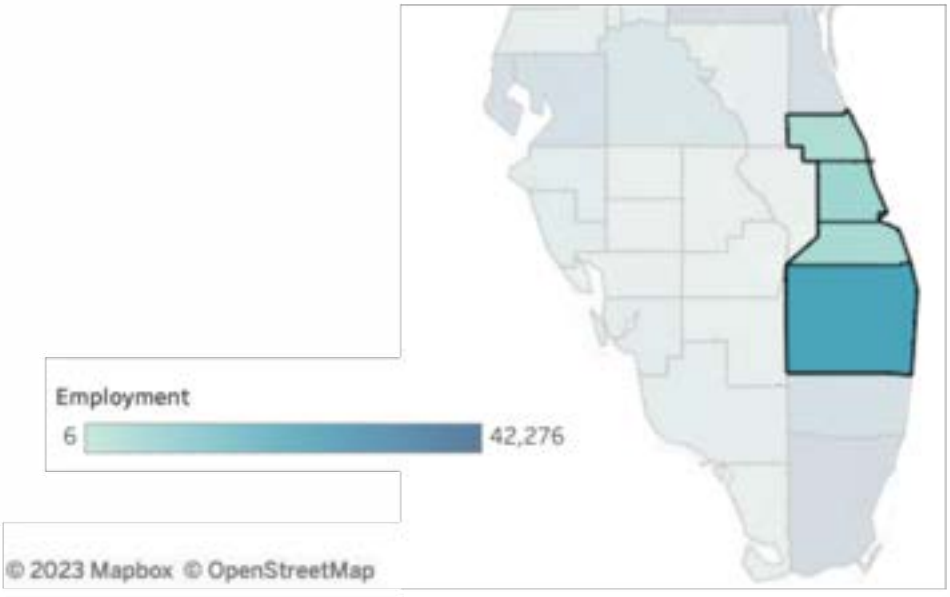
CareerSource Southwest Florida	careersourcesouthwestflorida.com
Future Makers Coalition	futuremakerscoalition.com
Sarasota-Manatee Manufacturers Association	sama-fl.com
Southwest Florida Manufacturers Association	srma.net
Southwest Florida Regional Planning Council	swfrpc.org
Southwest Florida SBDC at FGCU	fsbdcswfl.org
Supply Chain Florida/Connex Florida	supplychainflorida.com

Treasure Coast Florida Manufacturing

The Treasure Coast manufacturing sector is particularly strong in aviation and propulsion, and marine and processed agricultural products. The largest subsectors in the Manufacturing industry cluster in 2022 for the Treasure Coast region were: Aerospace Product & Parts Manufacturing; Ship and Boat Building; Sugar/Confectionery Product Manufacture; Medical Equipment and Supplies Manufacturing; and Cement & Concrete Product Manufacturing. Palm Beach County leads the region in manufacturing employment with Aircraft Manufacturing as the highest employing industry in the county. The Boat Building subsector is concentrated mainly in St. Lucie County followed by Martin County.

Manufacturers	Gross Domestic Product	Jobs
1,911	$4.59B	27,499

Annual Employment in Manufacturing by Counties



Treasure Coast Florida Top Sectors 2022

SECTORS	Establishments	Employment
Aerospace Product & Parts Manufacturing	33	4,745
Ship and Boat Building	92	2,292
Sugar/Confectionery Product Manufacture	12	1,716
Medical Equipment and Supplies Manufacturing	117	1,620
Cement & Concrete Product Manufacturing	73	1,292

Source: Quarterly Census of Employment and Wages, Bureau of Labor Statistics

Regional Resources

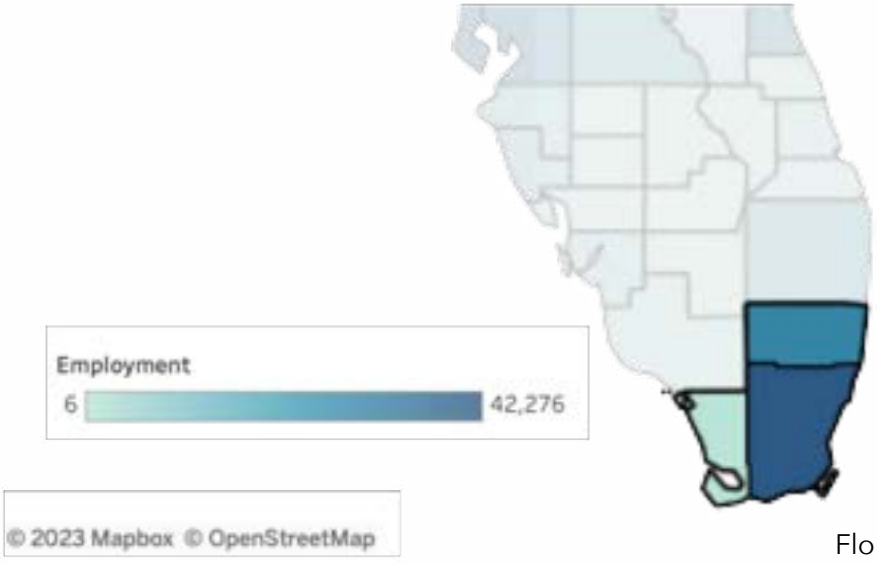
CareerSource Palm Beach County	careersourcepbc.com
CareerSource Research Coast	careersourcerc.com
South Florida Manufacturers Association	sfma.org
Supply Chain Florida/Connex Florida	supplychainflorida.com
Treasure Coast Florida Regional Planning Council	tcrpc.org
Treasure Coast Manufacturers Association	tcmamfg.com
Treasure Coast SBDC at FAU	fau.edu/sbdc
Treasure Coast SBDC at IRSC	floridasbdc.org/find/IRSC

South Florida Manufacturing

South Florida has the highest number of manufacturers of any region in the state; in fact there are more manufacturers in this region than many states across the country. The largest industry subsectors in the Manufacturing industry cluster in 2022 for the South Florida regions were: Printing and Related Support Activities; Architectural and Structural Metals; Medical Equipment and Supplies Manufacturing; Pharmaceutical & Medicine Manufacturing; and Aerospace Product & Parts Manufacturing. Miami-Dade County contributes the highest share of manufacturing employment of all counties in Florida. Aviation maintenance repair and overhaul and related component capabilities are a major presence in South Florida's manufacturing ecosystem, and the region also has a large proportion of manufacturers who are involved in international trade.

Manufacturers	Gross Domestic Product	Jobs
5,285	$9.33B	70,051

Annual Employment in Manufacturing by Counties



South Florida Top Sectors 2022

SECTORS	Establishments	Employment
Printing and Related Support Activities	578	5,217
Architectural and Structural Metals	244	4,763
Medical Equipment and Supplies Manufacturing	277	4,114
Pharmaceutical & Medicine Manufacturing	108	4,073
Aerospace Product & Parts Manufacturing	133	3,251

Source: Quarterly Census of Employment and Wages, Bureau of Labor Statistics

Regional Resources

CareerSource Broward	careersourcebroward.com
CareerSource South Florida	careersourcesfl.com
South Florida Manufacturers Association	sfma.org
South Florida Regional Planning Council	sfregionalcouncil.org
South Florida SBDC at FAU	fau.edu/sbdc
South Florida SBDC at FIU	business.fiu.edu/faculty-and-research/centers-institutes/sbdc
Supply Chain Florida/Connex Florida	supplychainflorida.com

Acknowledgments

We extend our sincere gratitude to the vibrant and dynamic manufacturing ecosystem in the state of Florida. This report is a testament to the collaborative efforts of a diverse array of stakeholders who play pivotal roles in driving growth, nurturing talent, and fostering innovation within the manufacturing sector.

While we have made every effort to engage with a wide range of stakeholders, the breadth and depth of Florida's manufacturing community make it impossible to acknowledge everyone individually within the confines of this report. We recognize the contributions of all those who are not explicitly mentioned, and their influence is woven into the fabric of this report.

The success of this report reflects the collective commitment and collaboration of these stakeholders. We are inspired by the resilience and vision of Florida's manufacturing community, and we remain optimistic about the continued growth and prosperity of the sector under their stewardship.

Thank you to all those who contributed to this study, and to the entire Florida manufacturing ecosystem for their ongoing dedication to advancing the industry and enhancing the competitive position of the state in the national and international economy.

The organizations consulted for this report were:

- AMI
- ARM Institute
- ASTRO-America/AM Forward
- CareerSource Florida
- Daytona State College
- Duke Energy
- FloridaMakes
- Florida Advanced Technological Education Center (FLATE)
- Florida Chamber of Commerce
- FloridaCommerce
- FloridaCommerce, Workforce Statistics and Economic Research (WSER)
- Florida Council of 100
- Florida Department of Education
- Florida Department of Transportation
- Florida Economic Development Council
- Florida First Capital Finance Corporation
- Florida Power & Light
- Florida Small Business Development Center Network
- Indian River State College
- LIFT
- Miami Dade College
- Mountain View Economics
- NIST MEP Program Evaluation and Economic Research group
- Orlando Economic Partnership
- Select Florida
- Space Florida
- University of Florida
- US Economic Development Administration
- Vision First Advisors

APPENDIX

Appendix A: Summary of Current Florida Economic Development Programs and Tools

ECONOMIC DEVELOPMENT

Grant Programs

- **Florida Job Growth Grant Fund –** grants awarded for local public infrastructure and workforce training proposals that promote economic opportunity across the state (section 288.101, Florida Statutes).
- **High Impact Performance Incentive** – grants to spur capital investment and job creation, reserved for major facilities operating in designated high-impact sectors (section 288.108, Florida Statutes).

Tax Credits

- **Capital Investment Tax Credit** - used to attract and grow capital-intensive industries operating in a designated high-impact portion of the following sectors in Florida: advanced manufacturing, clean energy, financial services, life sciences, information technology, transportation, semiconductors, or a corporate headquarters facility. Annual credit, provided for up to 20 years, against the corporate income or premium tax liability. Businesses must make a cumulative investment of at least $25 million and create a minimum of 100 new full-time jobs (section 220.191, Florida Statutes).
- **Research and Development Tax Credit Program** - provides a corporate income tax credit for qualified research expenses in Florida for eligible businesses in the targeted industries: manufacturing, life sciences, information technology, aviation and aerospace, homeland security and defense, cloud information technology, marine sciences, materials science, and nanotechnology (section 220.196, Florida Statutes).
- **Renewable Energy Technologies Investment Tax Credit** - credit against the corporate income tax for 75 percent of all capital costs, operation and maintenance costs, and research and development costs in connection with an investment in the production, storage, and distribution of biodiesel, ethanol, and other renewable fuel in the state, including the costs of constructing, installing, and equipping such technologies in the state (section 220.193, Florida Statutes).
- **Rural Job Tax Credit Program** - tax credit for eligible businesses located within one of 36 designated Qualified Rural Areas to create new jobs (section 212.098, Florida Statutes).
- **Urban Job Tax Credit Program** - offers a tax credit for eligible businesses located within one of 13 designated urban areas to create new jobs (section 212.097, Florida Statutes).
- **Community Contribution Tax Credit Program –** promotes the availability of housing and job opportunities for low-income households through tax credits for donations to entities engaged in affordable housing and community development projects (section 212.08(5)(p); section 220.183; and section 624.5105, Florida Statutes).

Tax Refunds

- **Brownfield Redevelopment Bonus Refunds** - spur job creation and capital investment in designated brownfield areas eligible for bonus refunds, approved applicants receive tax refunds up to $2,500 for each job created. An eligible business must be within a qualified target industry or demonstrate a fixed capital investment of at least $2 million in mixed-use business activities (section 288.107, Florida Statues).

- **Rural Areas of Opportunity Exempt Goods and Services Sales Tax Refund Program** – offers a maximum sales tax refund of up to $10,000 for the purchase of building materials, the rental of tangible personal property, and pest control services used in new construction projects within a Rural Area of Opportunity (section 212.08(5)(r), Florida Statutes).

Tax Exemptions

- **Semi-Conductor, Defense, and Space Technology Tax Exemption** - support technology-based companies as they continue to invest in critical advanced technology machinery and equipment, businesses involved in semiconductor, defense and space technology production are eligible to apply for a sales and use tax exemption permit, valid for two years, on the purchase of machinery and equipment (section 212.08(5)(j), Florida Statutes).
- **Manufacturing Machinery and Equipment Sales Tax Exemption** - available to any business whose primary business activity at the location where the industrial machinery and equipment is used to manufacture, process, compound, or produce items of tangible personal property for sale is specified in North American Industry Classification System (NAICS) Codes 31, 32, 33, 112511, and 423930 (Manufacturing). Exempts parts and accessories only when purchased for the machinery and equipment before the date the machinery and equipment is placed into service (section 212.08(7)(jjj), Florida Statutes).
- **Research & Development Machinery and Equipment Sales Tax Exemption** – available for purchases or lease of machinery and equipment used predominantly for research and development purposes (section 212.08(18), Florida Statutes).
- **Machinery and Equipment Used in Production of Electrical or Steam Energy Sales Tax Exemption** – available to facilities that burn boiler fuels, other than residual oil. The electrical or steam energy must be primarily used for manufacturing, processing, compounding, or producing for sale, items of tangible personal property in Florida. If a facility burns both residual and nonresidual fuels, the exemption is prorated. If 15% or less of all electrical or steam energy produced is from using residual oil, the full exemption applies (section 212.08(5)(c), Florida Statutes) .
- **Space Flight Activities Tax Exemptions** - for the sale, lease, use, storage, consumption, or distribution of any orbital space facility, space propulsion system, space vehicle, satellite, or station of any kind possessing space flight capacity and the tangible personal property on or used aboard (section 212.08(16), Florida Statutes). Also includes tax exemptions for property used or occupied predominantly for space flight business purposes (section 212.031(1)(a)(12), Florida Statutes), space launch vehicle fuels (section 206.42, Florida Statutes), space Laboratories and carriers (section 196.1999, Florida Statutes), and direct and overhead materials (section 212.08(17), Florida Statutes).
- **Aircraft Repair and Maintenance Sales Tax Exemption** – for labor, parts, and equipment related to the repair and maintenance of qualified aircraft (section 212.08(7)(ee) and 212.08(7)(rr), Florida Statutes).
- **Fixed Wing Aircraft Sales Tax Exemption** – sale or lease of a qualified aircraft or an aircraft having a maximum certified takeoff weight of more than 15,000 pounds and used by a "common carrier," as defined in Federal Aviation Administration regulations (section 212.08(7)(ss), Florida Statutes).
- **Solar Energy Systems Equipment Sales Tax Exemption** – for the equipment and requisite hardware that provide and are used for collecting, transferring, converting, storing or using

incidental solar energy for water heating, space heating and cooling, or other applications that would otherwise require the use of a conventional source of energy such as petroleum products, natural gas, manufactured gas, or electricity (section 212.08(7)(hh), Florida Statutes).

- **Florida Entertainment Industry Sales Tax Exemption** - qualified purchases made by production companies for motion pictures, made-for-television motion pictures, television series, commercials, music videos or sound recordings are eligible (section 288.1258, Florida Statutes).

Defense Grant Programs

- **Defense Infrastructure Grant Program** – supports local infrastructure projects deemed to have a positive impact on the military value of installations within the state (section 288.980(5), Florida Statutes).
- **Defense Reinvestment Grant Program** - provides support for community based activities that address one of three designated issues: protection of existing military installations, diversification of a defense dependent community; or the development of plans for the reuse of a closed or realigned military installation (section 288.980(4), Florida Statues).
- **Florida Defense Support Task Force Grants** – Department of Commerce shall contract with the task force for expenditure of appropriated funds that address one or more of six designated issues: economic and product research and development, joint planning with host communities to accommodate military missions and prevent base encroachment, advocacy on the state's behalf to federal civilian and military officials, assistance to school districts in providing a smooth transition for large numbers of additional military-related students, job training and placement for military spouses in communities with large shares of active duty military personnel, or promotion of the state to military and related contractors and employers (section 288.987(7), Florida Statutes).

Loan Programs

- **Florida State Small Business Credit Initiative 1.0, also known as the Florida Small Business Loan Program** – provided businesses with additional resources and capital to facilitate business growth and economic development. The SSBCI 1.0 program concluded at the federal level in 2017. States were authorized to retain their allocations, provided the use of funding stayed consistent with the SSBCI Law and U.S. Treasury Guidelines. Currently, SSBCI 1.0 funds are utilized for lending and the Florida Venture Capital Program (FLVCP).
- **Florida State Small Business Credit Initiative 2.0 -** reauthorization of the program providing additional federal funds provided to the state to establish access to capital for small businesses. Florida has been allocated $488,486,572 to expand access to capital, promote economic resiliency, create new jobs, and increase economic opportunity throughout the state. There are five approved programs under SSBCI 2.0: Loan Guarantee Program, Loan Participation Program, Collateral Support Program, Capital Access Program and Equity Capital Program.
- **Rural Community Development Revolving Loan Fund** - provides loans to local governments, or economic development organizations substantially underwritten by a unit of local government, to finance initiatives directed toward maintaining or developing the

economic base of rural communities, especially when addressing employment opportunities. (Section 288.065, Florida Statutes)

- **Microfinance Guarantee Program** - stimulates access to credit for entrepreneurs and small businesses in Florida by providing guarantees to loans. (Section 288.9935, Florida Statutes)
- **Rebuild Florida Business Loan Fund** - addresses the current gap in available, affordable capital for businesses by providing longer term loans with higher funding levels at market interest rates. Available to assist businesses statewide with economic development and resiliency.
- **Florida Small Business Emergency Bridge Loan Program** - provides short-term, interest-free working capital loans that are intended to "bridge the gap" between the time a major catastrophe hits and when a business has secured longer term recovery resources.
- **Black Business Loan Program** - provide loans, loan guarantees, and investments through certified black business investment corporations to black business enterprises that cannot otherwise obtain capital through conventional lending institutions, but that could compete successfully in the private sector. (Section 288.7102, Florida Statutes)
- **Local Government Revolving Emergency Bridge Loan -** provides interest free loans to help local governments support government operations that may have been impacted by a federally declared disaster. (Section 288.066, Florida Statutes)

Small Business Venture Capital

- **Florida Opportunity Fund -** The Florida Opportunity Fund's fund of funds program was created to realize significant long-term capital appreciation by identifying and investing in a diversified, high- quality portfolio of seed and early-stage venture capital funds that target (in whole or in part) investment opportunities within Florida.

Miscellaneous

- **Professional Sports Franchise Incentive** - qualified applicants are eligible for up to $2 million annually for 30 years. Along with local government resources, these dollars are for the public purpose of paying for the acquisition, construction, reconstruction, or renovation of a facility for a new or retained professional sports franchise to pay or pledge for the payment of debt service on, or to fund debt service reserve funds, arbitrage rebate obligations, or other amounts payable with respect to, bonds issued for the acquisition, construction, reconstruction, or renovation of such facility or for the reimbursement of such costs or the refinancing of bonds issued for such purposes (section 288.1162, Florida Statutes)**.**
- **Spring Training Baseball Franchise Incentive** - qualified applicants are eligible for up to $500,000 annually for up to 30 years. Funds may be used to serve the public purpose of acquiring, constructing, reconstructing, or renovating a facility for a spring training franchise; pay or pledge for the payment of debt service on, or to fund debt service reserve funds, arbitrage rebate obligations, or other amounts payable with respect thereto, bonds issued for the acquisition, construction, reconstruction, or renovation of such facility, or for the reimbursement of such costs or the refinancing of bonds issued for such purposes; assist in the relocation of a spring training franchise from one unit of local government to another only if the governing board of the current host local government by a majority vote agrees to relocation (section 288.11621, Florida Statues).

- **Expedited Permitting Review Process** – qualifying businesses can apply to be certified for an expedited review process for permitting and amendments to comprehensive plans. The process is to facilitate the location and expansion of economic development projects that offer job creation and high wages, strengthen and diversify the state's economy, and have been thoughtfully planned to take into consideration the protection of the environment (section 403.973, Florida Statutes).
- **Private Activity Bonds (incl. the Florida First Business Allocation)** - Part VI of Chapter 159 provides for allocation of Florida's state volume limitation imposed on private activity bonds by the Internal Revenue Service. Among the allocations, the Florida First Business Allocation Pool was created, and reserves 20% of Florida's total annual private activity bond allocation for large industrial projects making significant contributions to Florida's economy (section 159.8083, Florida Statutes).
- **Single Sales Factor Apportionment** – allows eligible corporations the ability to use the single sales factor apportionment to calculate Florida income for Florida income tax purposes. Qualifying businesses must make at least $250 million in qualified capital expenditures in a two-year period (section 220.153, Florida Statutes).
- **Florida Development Finance Corporation** - designated as a state-wide, special development financing authority (bond agency) for economic development purposes. Its purpose is to assist new and existing businesses and organizations (for-profit and not-for-profit) with access to capital through financings that promote business activity, job creation, and an improved standard of living for the citizens of Florida.
- **Florida Seaport Transportation and Economic Development Program (FSTED) –** a Department of Transportation program that finances seaport infrastructure projects, improves the efficiency of moving goods and people, and supports the interests and purposes of Florida's 16 public seaports.
- **VISIT FLORIDA –** the state's official tourism marketing corporation that conducts domestic and international marketing activities and advertising campaigns, conducts research on tourism and travel trends, manages the state's official welcome centers and administers a small number of grant programs.
- **Space Florida –** an independent special district created to foster the growth and development of a sustainable and world-leading aerospace industry in the state. Space Florida is a bond agency that promotes aerospace business development by facilitating business financing, spaceport operations, research and development, workforce development, and innovative education programs.
- **Florida Housing Finance Corporation (FHFC) –** is a public corporation of the state of Florida and serves as the state's housing finance agency. As a financial institution/bond agency, FHFC administers state and federal resources to provide affordable homeownership and rental housing options for Florida residents.

INTERNATIONAL TRADE

- **SelectFlorida Export Assistance** - provides a variety of export assistance programs and trade grants, to assist Florida firms seeking to export goods and services to international markets. Primarily directed to small-to-mid-sized businesses with emphasis on manufacturers, high tech companies and value added service providers and focus on helping Florida exporters to enter new markets and identify new clients worldwide.

- **SelectFlorida International Offices Program –** international offices engage in recruiting foreign direct investment in Florida and providing support to Florida exporters. Foreign offices are located strategically in key target markets worldwide. The foreign offices works closely with our Florida based FDI recruitment team to promote Florida as an ideal investment destination, identify foreign investment prospects and assist them to establish in Florida.

WORKFORCE DEVELOPMENT

Programs funded by U.S. Department of Labor

Various federally funded workforce training and job placement programs overseen and administered by FloridaCommerce, CareerSource Florida, and local workforce development boards, including, but not limited to:

- **Disaster Recovery Dislocated Worker Grants** – federal grants that provide disaster-relief employment, as well as employment and training services to eligible participants that minimize the impact of large, unexpected emergencies and natural disasters causing significant job losses.
- **Federal Bonding Program** - an incentive program that allows employers to hire with limited liability to their business at-risk job applicants by providing a business insurance policy that insures the employer for theft, forgery, larceny or embezzlement by the bonded employee.
- **Jobs for Veterans State Grant** – prepares veterans, transitioning service members, and eligible spouses for meaningful careers. The program offers services to break down barriers to employment, delivered through the case management framework with an empathetic approach and a veteran's perspective.
- **Military Family Employment Advocacy Program** - delivers workforce services to active duty military spouses and family members through Military Family Employment Advocates located in local career centers and select military bases throughout Florida.
- **Rapid Response** – provides, and/or facilitates the connection to, services to prevent or minimize the impact of layoffs on workers, businesses and communities.
- **Reemployment Services and Eligibility Assessment program** - helps reemployment assistance claimants return to work faster through a variety of workforce services such as assessments, an individual employment plan, resume workshops and more.
- **Trade Adjustment Assistance Program** - assists workers adversely affected by foreign trade and competition who have lost their jobs or are threatened to lose their jobs, due to a decline in production, sales, or outsourcing to foreign countries. The program offers extended income support, training, employment and case management services, and many other benefits to displaced workers who are certified as eligible.
- **Wagner-Peyser** - A federally funded labor exchange that matches employers with qualified job seekers and supports the State's online labor exchange and case management system, Employ Florida.
- **WIOA Adult** - provides adults over the age of 18 with workforce activities such as training and career services that increase employment, retention, earnings, and occupational skill attainment which improves the quality of the workforce, reduces public assistance dependency, and enhances the productivity and competitiveness of the economy.

- **WIOA Youth** - delivers a comprehensive array of services that focus on assisting out-of-school youth and in-school youth with one or more barriers to employment prepare for post-secondary education and employment opportunities, attain educational and/or skills training credentials, and secure employment with advancement opportunities.
- **Workforce Information Grant (WIG) -** ETA encourages LMI directors and their staff to actively seek opportunities to provide information and training to the local workforce system, employers, jobseekers, American Job Centers, and those seeking career advice.
- **Work Opportunity Tax Credit Program –** provides employers with the opportunity to earn a federal tax credit between $1,200 and $9,600 per employee when they hire a new employee who is a qualifying member of one of the defined target groups.

Miscellaneous Workforce Development Programs

- **Law Enforcement Recruitment Bonus Payment Program -** this program aims to aid in the recruitment of law enforcement officers within the state and attract out-of-state officers to Florida. The program administers one-time bonus payments of $5,000 after taxes to each eligible newly employed officer within the state.
- **Apprenticeship Programs –** Registered apprenticeship programs enable employers to develop and apply industry standards to training programs for registered apprentices that can increase productivity and improve the quality of the workforce. Certifications earned through registered apprenticeships are recognized nationwide.
    - **Experiential Learning Tax Credit (Department of Revenue) –** program that provides a corporate income/franchise tax credit for up to five apprentices, preapprentices, or student interns employed by businesses for taxable years beginning during calendar years 2022- 2025. The maximum tax credit available to a qualified business is $10,000 each year. (section 220.198, Florida Statutes.)
    - **Pathways to Career Opportunities Grant Program (Department of Education) –** grant program to establish new, operate existing or expand existing registered apprenticeship or preapprenticeship programs in high schools, school district career centers, charter technical career centers, Florida College System Institutions and other entities authorized to sponsor apprenticeship or preapprenticeship programs.
- **Non-Custodial Parent Employment Program –** this state-funded program awards grants to organizations that assist noncustodial parents who are unemployed or underemployed and have difficulty meeting child support obligations to become self-sufficient and establish a successful pattern of paying child support obligations.
- **Quick Response Training** - state-funded grant program that provides funding for customized training to new or expanding businesses in Florida's targeted industries.
- **Incumbent Worker Training** - grant funding for 12 month continuing education and training of incumbent employees at existing Florida businesses.
- **Veterans Florida** - helps military veterans transition to civilian life and to promote Florida's status as the nation's most veteran-friendly state. Includes a Florida Workforce Grant Program that reimburses qualified employers 50% of industry skills-based training costs for new or current veteran employees, a Career Services Program that connects veterans with employers who are eager to hire veterans for jobs, and a Florida Entrepreneurship Program that provides all the knowledge needed to successfully launch and operate a business.

COMMUNITY DEVELOPMENT

Grant Programs

- **Regional Rural Development Grant Program** - provides funds to regionally-based economic development organizations representing rural counties and communities to build the professional capacity of the communities they represent.
- **Rural Infrastructure Fund Program** - facilitates the planning, preparing, and financing of infrastructure projects in rural communities, which will encourage job creation, capital investment, and the strengthening and diversification of rural economies (section 288.0655, Florida Statutes).
- **Community Planning Technical Assistance Grant Program** - provides counties, municipalities, and regional planning councils the opportunity to create innovative plans and development strategies to promote a diverse economy, vibrant rural and suburban areas, and meeting statutory requirements for planning, while protecting environmentally sensitive areas.
- **Florida Small Cities Community Development Block Grant Program** - provides funding to small urban and rural communities for housing and community development activities. This is a competitive grant program that awards funds to units of local government in small urban and rural areas in the areas of Neighborhood Revitalization, Housing Rehabilitation, Commercial Revitalization, and Economic Development.
- **Competitive Florida** – provides grants to communities to engage in asset mapping and developing a strategic vision for economic development and growth.
- **Military Base Protection Grant Program** - There are no funds associated with program inasmuch as Division of Community Development is concerned. The Bureau of Community Planning and Growth provides intergovernmental coordination between the military installations, the Florida Defense Task Force and the Trustees of the Internal Improvement Trust Fund for consideration whether to secure non-conservation lands to serve as a buffer against encroachment for military installations and supports local community efforts to engage in service partnerships with military installations.
- **Broadband:**
    - **Broadband Opportunity Program** - grants to applicants who seek to install or deploy infrastructure that expands broadband service to unserved areas.
    - **Capital Project Fund (CPF) – Broadband Infrastructure Program** – grants to applicants who seek to install or deploy infrastructure that expands broadband service to unserved areas.
    - **Recovery Housing Program (RHP)** - provides funds for stable, transitional housing for individuals in recovery from a substance use disorder. FloridaCommerce has identified a specific need for additional recovery housing and services for veterans recovering from substance use disorder. Eligible recipients include public and private nonprofit organizations and local governments who have proven experience in providing services to veterans to help them attain self-sufficiency and individual recovery goals.

Existing but Yet-to-be-Funded Community Development Incentive Programs

- **Capital Project Fund (CPF) – Digital Connectivity Technology Projects** – grants to applicants for the purchase and/or installation of devices and equipment to assist Floridians

with broadband internet access to workforce, education and health monitoring opportunities.

- **Broadband Equity, Access, and Deployment (BEAD)** – grants to applicants for broadband planning, deployment, mapping, equity and adoption activities.

Economic Development Initiatives

- **Rural Economic Development Initiative** - serves Florida's economically distressed rural communities by providing a more focused and coordinated effort among state and regional agencies that provide programs and services for rural areas.

Tax Credits

- **Opportunity Zone Program** - fosters economic development and job creation in economically distressed communities by providing capital gains tax deferral or reduction for investments made in opportunity zone areas (Federal Tax Cuts and Jobs Act of 2017).

APPENDIX B: Shift-Share Analysis of Florida Manufacturing by 3-Digit Level NAICS Industries

Shift-Share Analysis

This shift-share study analyzed manufacturing employment growth in Florida from 2011 to 2022 for all 21 of Florida's published 3-digit manufacturing NAICS sectors using data from the Quarterly Census of Employment and Wages. This time period was selected in order to capture the long-run changes in the manufacturing sector since the low point of manufacturing employment in Florida following the Great Recession in 2011. This shift-share analysis decomposes job growth in Florida's manufacturing sectors in to three components over the period of study:

- The National Growth Effect accounts for the share of industry growth that is due to the overall growth rate of the national economy.
- The Industry Mix Effect accounts for the share of industry growth that is due to shifts in industry composition at the national level.
- The Regional Competitive Effect accounts for the industry growth that is due to factors specific to the state of Florida and excludes the effects of national trends and other factors that are not unique to the state. This component is the focal point of the shift-share analysis and is the metric that assesses the degree to which Florida's manufacturing sectors are out-competing the nation. A large positive Regional Competitive Effect value means that the industry has grown at a faster rate than it has nationwide, a Regional Competitive Effect value near zero means that the industry is running close to the nationwide trend, and a Regional Competitive Effect below zero means the sector has grown at a slower pace than nationwide.

Results

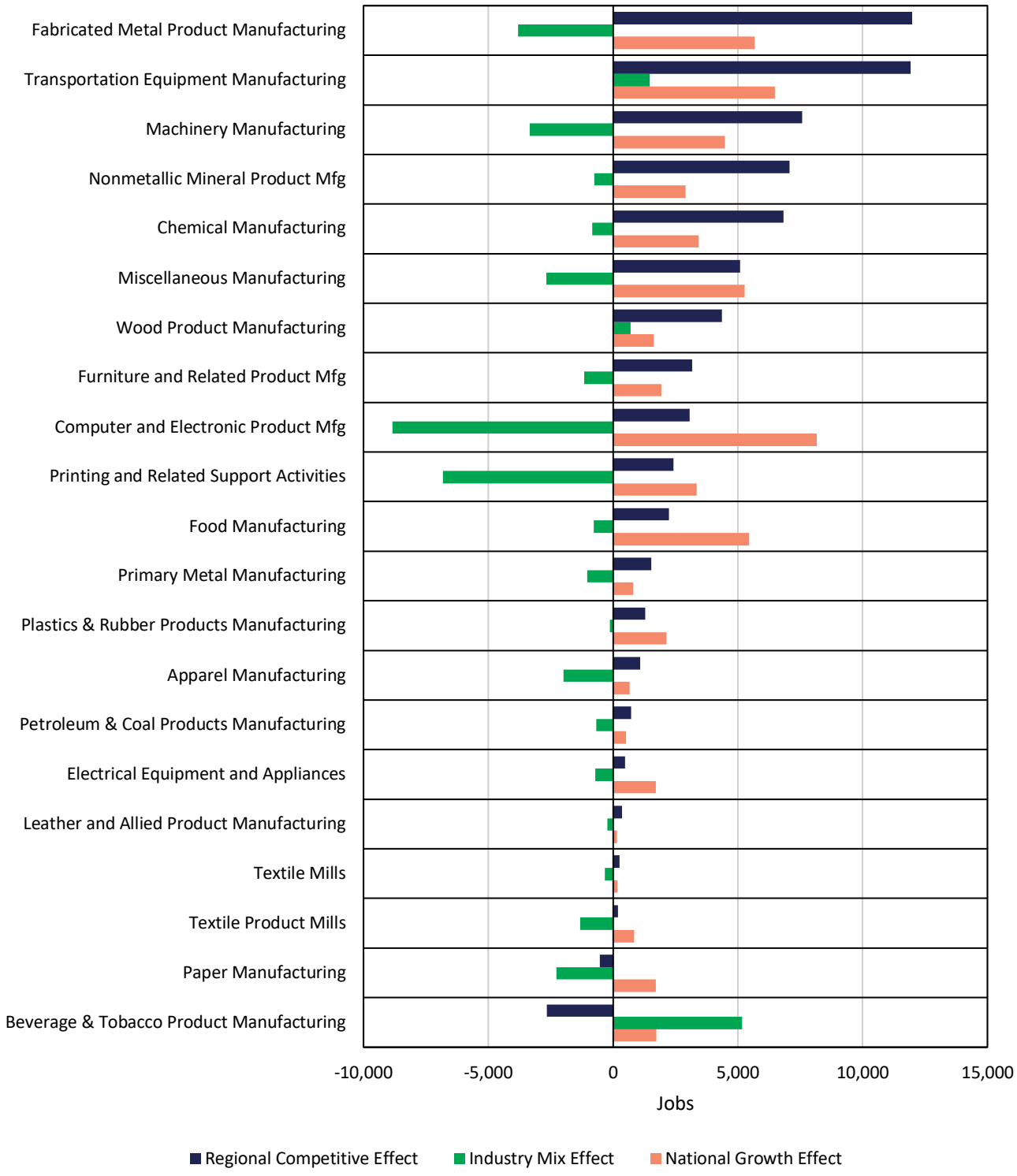
This analysis identified 19 out of 21 total 3-digit manufacturing NAICS sectors in Florida with positive Regional Competitive Effect values, indicating that the vast majority of Florida manufacturing sectors have outpaced the nation in job growth since 2011. In 12 of these sectors, the Regional Competitive Effect was the single largest contributor to employment growth over the period of study.

The sector with the largest Regional Competitive Effect was Fabricated Metal Product Manufacturing followed closely by Transportation Equipment Manufacturing, as Florida-specific economic conditions contributed nearly 12,000 jobs to each sector between 2011 and 2022. Other sectors with large regional effects were Machinery Manufacturing, Nonmetallic Mineral Product Manufacturing, and Chemical Manufacturing. The analysis identified two Florida manufacturing sectors with negative Regional Competitive Effects: Paper Manufacturing and Beverage and Tobacco Product Manufacturing. The full results of the study can be found in Table 1 and Figure 1.

Table 1: Shift-Share Components of Florida Manufacturing Sectors; 2011-2022

NAICS Sector	Industry Title	National Growth Effect	Industry Mix Effect	Regional Competitive Effect
311	Food Manufacturing	5,438	-770	2,226
312	Beverage & Tobacco Product Manufacturing	1,731	5,167	-2,654
313	Textile Mills	165	-335	260
314	Textile Product Mills	839	-1,327	182
315	Apparel Manufacturing	653	-1,988	1,071
316	Leather and Allied Product Manufacturing	160	-237	358
321	Wood Product Manufacturing	1,627	687	4,354
322	Paper Manufacturing	1,698	-2,279	-545
323	Printing and Related Support Activities	3,341	-6,824	2,417
324	Petroleum & Coal Products Manufacturing	514	-670	720
325	Chemical Manufacturing	3,427	-837	6,817
326	Plastics & Rubber Products Manufacturing	2,129	-127	1,278
327	Nonmetallic Mineral Product Mfg	2,904	-766	7,069
331	Primary Metal Manufacturing	798	-1,045	1,517
332	Fabricated Metal Product Manufacturing	5,673	-3,807	11,964
333	Machinery Manufacturing	4,469	-3,348	7,571
334	Computer and Electronic Product Mfg	8,152	-8,833	3,056
335	Electrical Equipment and Appliances	1,702	-717	481
336	Transportation Equipment Manufacturing	6,474	1,470	11,919
337	Furniture and Related Product Mfg	1,932	-1,153	3,162
339	Miscellaneous Manufacturing	5,268	-2,671	5,087

FIgure 1: Shift-Share Components of Florida Manufacuring Sectors 2011 to 2022 (Ordered by Regional Competitive Effect)



APPENDIX C: Shift-Share Analysis of Florida Manufacturing by 4-Digit Level NAICS Industries

Shift-Share Analysis

This shift-share study analyzed manufacturing employment growth in Florida from 2019 to 2022 for all 86 of Florida's published 4-digit manufacturing NAICS sectors using data from the Quarterly Census of Employment and Wages. This time period was selected in order to capture the short-run changes in the manufacturing sector. This shift-share analysis decomposes job growth in Florida's manufacturing sectors in to three components over the period of study:

- The National Growth Effect accounts for the share of industry growth that is due to the overall growth rate of the national economy.
- The Industry Mix Effect accounts for the share of industry growth that is due to shifts in industry composition at the national level.
- The Regional Competitive Effect accounts for the industry growth that is due to factors specific to the state of Florida and excludes the effects of national trends and other factors that are not unique to the state. This component is the focal point of the shift-share analysis and is the metric that assesses the degree to which Florida's manufacturing sectors are out-competing the nation. A large positive Regional Competitive Effect value means that the industry has grown at a faster rate than it has nationwide, a Regional Competitive Effect value near zero means that the industry is running close to the nationwide trend, and a Regional Competitive Effect below zero means the sector has grown at a slower pace than nationwide.

Results

This analysis identified 62 out of 87 total 4-digit manufacturing NAICS sectors in Florida with positive Regional Competitive Effect values, indicating that the majority of Florida manufacturing sectors have outpaced the nation in job growth since 2019. In 57 of these sectors, the Regional Competitive Effect was the largest contributor among the three components to employment growth over the period of study.

The sector with the largest Regional Competitive Effect was Aerospace Product & Parts Manufacturing followed closely by Architectural and Structural Metals, as Florida-specific economic conditions contributed over 7,000 jobs to those sectors between 2019 and 2022. Other sectors with large regional effects were Ship and Boat Building and Pharmaceutical & Medicine Manufacturing. The analysis identified 23 of the 87 Florida manufacturing sectors with negative Regional Competitive Effects. The Converted Paper Product Manufacturing and Semiconductor and Electronic Components were the lowest sectors to indicate slower growth than the nationwide pace. The full results of the study can be found in Table 1.

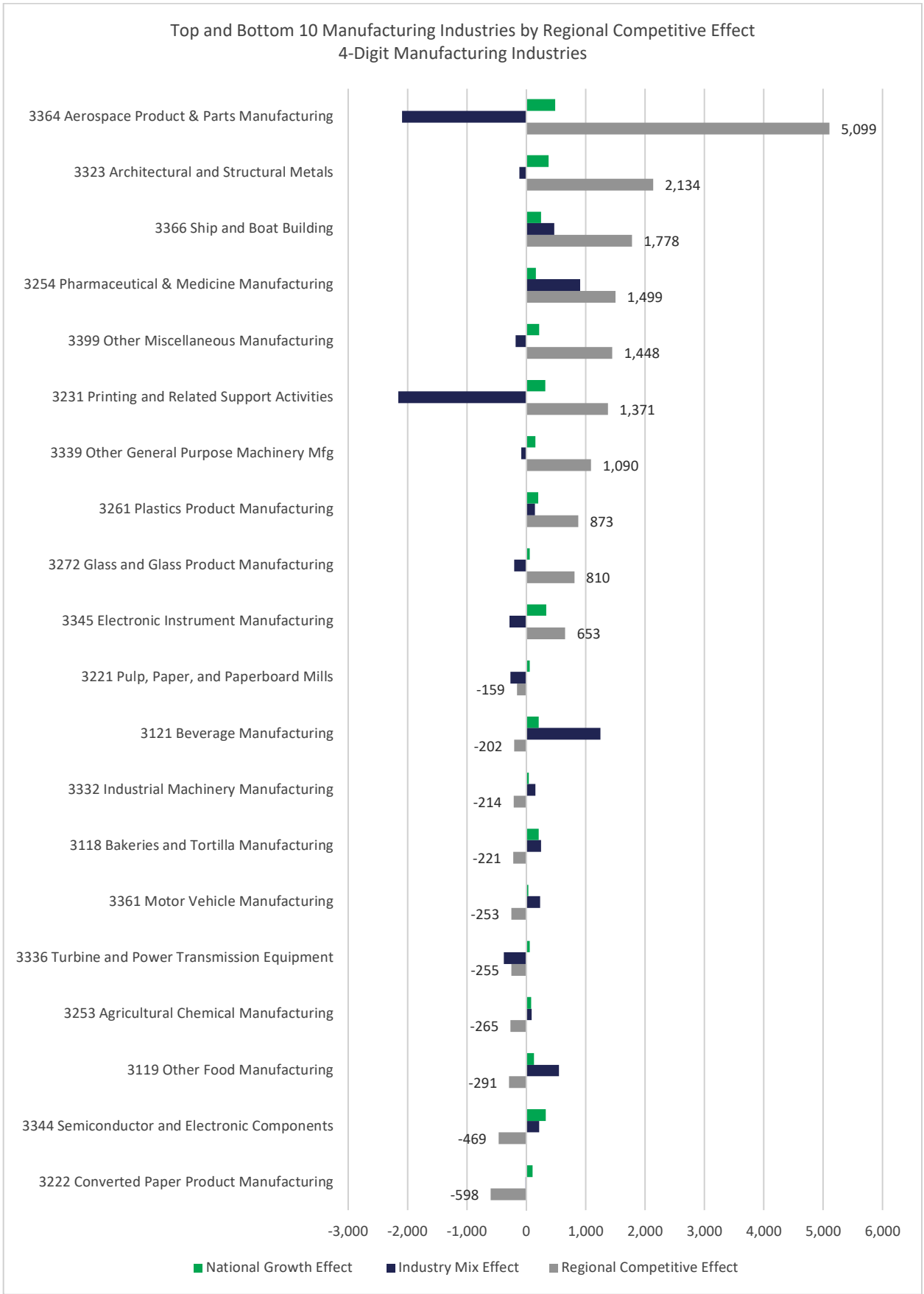
Although there are industries with negative regional effects, the magnitudes of even the lowest industries are small compared to the industries with the highest regional effects. Converted Paper Product Manufacturing had the lowest regional effect

(-598) compared to the Aerospace Product & Parts Manufacturing industry (+5,099) in 2022. Figure 1 graphs the top and bottom industries by regional effects.

Table 1: Shift-Share Components of Florida 4-Digit Manufacturing Sectors; 2019 - 2022

Industry Code	Industry Title	National Growth Effect	Industry Mix Effect	Regional Competitive Effect
3111	Animal Food Manufacturing	12	69	100
3112	Grain and Oilseed Milling	5	1	34
3113	Sugar/Confectionery Product Manufacture	43	34	59
3114	Fruit, Vegetable, & Specialty Foods Mfg	111	39	159
3115	Dairy Product Manufacturing	46	71	208
3116	Animal Slaughtering and Processing	53	-47	-116
3117	Seafood Product Preparation & Packaging	31	-171	187
3118	Bakeries and Tortilla Manufacturing	207	247	-221
3119	Other Food Manufacturing	126	552	-291
3121	Beverage Manufacturing	207	1,246	-202
3122	Tobacco Manufacturing	17	1	81
3131	Fiber, Yarn, and Thread Mills	1	-4	-11
3132	Fabric Mills	7	-48	-88
3133	Textile and Fabric Finishing and Fabric	16	-128	-78
3141	Textile Furnishings Mills	20	-137	39
3149	Other Textile Product Mills	57	-166	183
3151	Apparel Knitting Mills	1	-17	-29
3152	Cut and Sew Apparel Manufacturing	56	-553	-58
3159	Accessories and Other Apparel Mfg	10	13	112
3161	Leather and Hide Tanning and Finishing	2	-14	-26
3162	Footwear Manufacturing	2	-11	100
3169	Other Leather Product Manufacturing	15	46	22
3211	Sawmills and Wood Preservation	40	-19	378
3212	Veneer and Engineered Wood Products	91	135	-68
3219	Other Wood Product Manufacturing	131	363	147
3221	Pulp, Paper, and Paperboard Mills	55	-268	-159
3222	Converted Paper Product Manufacturing	108	-16	-598
3231	Printing and Related Support Activities	318	-2,158	1,371
3241	Petroleum & Coal Products Manufacturing	62	-315	203
3251	Basic Chemical Manufacturing	29	-29	185
3252	Resin, Rubber, and Synthetic Fibers	38	-16	241
3253	Agricultural Chemical Manufacturing	80	86	-265
3254	Pharmaceutical & Medicine Manufacturing	160	906	1,499
3255	Paint, Coating, & Adhesive Manufacturing	31	-2	-100
3256	Cleaning Compound and Toiletry Mfg	64	110	624
3259	Other Chemical Preparation Manufacturing	37	-80	390
3261	Plastics Product Manufacturing	203	141	873
3262	Rubber Product Manufacturing	39	-81	352
3271	Clay Product & Refractory Manufacturing	6	-20	37
3272	Glass and Glass Product Manufacturing	57	-203	810
3273	Cement & Concrete Product Manufacturing	305	35	9
3274	Lime and Gypsum Product Manufacturing	13	-33	38
3279	Other Nonmetallic Mineral Products	53	-35	256
3311	Iron and Steel Mills and Ferroalloys	14	-36	293
3312	Purchased Steel Product Manufacturing	11	-36	-156
3313	Alumina and Aluminum Production	23	-36	100
3314	Other Nonferrous Metal Production	15	-51	68
3315	Foundries	30	-210	422
3321	Forging and Stamping	26	-144	-28
3322	Cutlery and Handtool Manufacturing	11	-11	31
3323	Architectural and Structural Metals	374	-119	2,134

3324	Boilers, Tanks, and Shipping Containers	38	-94	212
3325	Hardware Manufacturing	11	-29	180
3326	Spring and Wire Product Manufacturing	14	-66	151
3327	Machine Shops and Threaded Products	120	-626	232
3328	Coating, Engraving & Heat-Treating Metal	47	-276	170
3329	Other Fabricated Metal Product Mfg	126	-215	337
3331	Ag., Construction, and Mining Machinery	31	-94	226
3332	Industrial Machinery Manufacturing	41	155	-214
3333	Commercial & Service Industry Machinery	155	-346	331
3334	HVAC and Commercial Refrigeration Equip	89	75	185
3335	Metalworking Machinery Manufacturing	52	-308	206
3336	Turbine and Power Transmission Equipment	59	-380	-255
3339	Other General-Purpose Machinery Mfg	153	-85	1,090
3341	Computers and Peripheral Equipment	33	-35	291
3342	Communications Equipment Manufacturing	103	-1	-3
3343	Audio and Video Equipment Manufacturing	20	-86	78
3344	Semiconductor and Electronic Components	330	216	-469
3345	Electronic Instrument Manufacturing	331	-288	653
3346	Magnetic Media Manufacture & Reproducing	6	-2	123
3351	Electric Lighting Equipment Mfg	25	-185	546
3352	Household Appliance Manufacturing	2	11	113
3353	Electrical Equipment Manufacturing	79	-179	20
3359	Other Electrical Equipment & Components	75	86	106
3361	Motor Vehicle Manufacturing	31	233	-253
3362	Motor Vehicle Body and Trailer Mfg	50	79	-73
3363	Motor Vehicle Parts Manufacturing	67	-335	234
3364	Aerospace Product & Parts Manufacturing	482	-2,095	5,099
3365	Railroad Rolling Stock Manufacturing	1	-13	17
3366	Ship and Boat Building	245	467	1,778
3369	Other Transportation Equipment Mfg	16	124	-9
3371	Household and Institutional Furniture	157	-128	284
3372	Office Furniture and Fixtures Mfg	55	-316	305
3379	Other Furniture Related Product Mfg	41	11	197
3391	Medical Equipment and Supplies Mfg	405	252	278
3399	Other Miscellaneous Manufacturing	212	-178	1,448


Top and Bottom 10 Manufacturing Industries by Regional Competitive Effect
4-Digit Manufacturing Industries
3364 Aerospace Product & Parts Manufacturing
5,099
3323 Architectural and Structural Metals
2,134
3366 Ship and Boat Building
1,778
3254 Pharmaceutical & Medicine Manufacturing
1,499
3399 Other Miscellaneous Manufacturing
1,448
3231 Printing and Related Support Activities
1,371
3339 Other General Purpose Machinery Mfg
1,090
3261 Plastics Product Manufacturing
873
3272 Glass and Glass Product Manufacturing
810
3345 Electronic Instrument Manufacturing
653
3221 Pulp, Paper, and Paperboard Mills
-159
3121 Beverage Manufacturing
-202
3332 Industrial Machinery Manufacturing
-214
3118 Bakeries and Tortilla Manufacturing
-221
3361 Motor Vehicle Manufacturing
-253
3336 Turbine and Power Transmission Equipment
-255
3253 Agricultural Chemical Manufacturing
-265
3119 Other Food Manufacturing
-291
3344 Semiconductor and Electronic Components
-469
3222 Converted Paper Product Manufacturing
-598
-3,000
-2,000
-1,000
0
1,000
2,000
3,000
4,000
5,000
6,000
National Growth Effect
Industry Mix Effect
Regional Competitive Effect

APPENDIX D: Advanced Manufacturing Engineering Technology Programs					
Program Name	Program Description	Program Level	Program Length	School Name	State Enrollment 21-22
Production Technology	The purpose of this program is to provide students with a foundation of knowledge and technically oriented experiences in the study of production technology and its effect upon our lives and the choosing of an occupation. The content and activities will also include the study of entrepreneurship, safety, and leadership skills. This program focuses on transferable skills and stresses understanding and demonstration of the technological tolls, machines, instruments, materials, processes and systems in business and industry.	Secondary	3 credits	Broward/Dave Thomas Education Center	22
				Miami-Dade/South Dade Senior High School	65
				Miami-Dade/Jann Mann Education Center	26
				Okaloosa/Niceville Senior High school	12
Advanced Manufacturing Technology	The content includes but is not limited to providing students with a foundation of knowledge and technically oriented experiences in the study of automation technology, its application in manufacturing, engineering and robotics, and its effect upon our lives and the choosing of an occupation. The content and activities will also include the study of enterprise systems, safety, quality, and leadership skills. This program focuses on transferable skills and stresses understanding and demonstration of the technological tools, machines, instruments, materials, processes and systems in business and industry.	Secondary	5 credits	Bay/Rutherford High School	59
				Brevard/Heritage High School	67
				Duval/Frank H Peterson Academies	104
				Escambia/Pensacola High School	117
				Escambia/Northview High School	69
				Lake/Lake Minneola High School	136
				Manatee/Manatee High School	254
				Marion/Bellview High School	134
				Okaloosa/Niceville Senior High School	44

				Palm Beach/Glades Construction Academy	15
				Pasco/Anclote High School	65
				Putnam/Palatka Jr-Sr High School	74
				St. Lucie/Treasure Coast High School	38
				Santa Rosa/Milton High School	35
				Seminole/Lake Mary High School	254
				Volusia/Pine Ridge High School	192
				Walton/Freeport Senior High School	44
Welding Technology Fundamentals	Students explore career opportunities and requirements of a professional welder. Content emphasizes beginning skills key to the success of working in the welding industry. Students study basic shielded metal arc welding (SMAW), Carbon Arc Gouging (GAC) principles, and visual examination skills. Students demonstrate learned skills by creating and producing a finished product.	Secondary	5 credits	Bradford/North Florida Technical College	20
				Brevard/Astronaut High School	148
				Calhoun/Blountstown High School	59
				Clay/Orange Park High School	96
				Columbia/Columbia High School	219
				Miami-Dade/Miami Northwestern Senior High School	68
				Dixie/Dixie County High School	106
				Duval/A Phillip Randolph Academies	130
				Franklin/Franklin County	67
				Gulf/Port St. Joe High School	39

				Gulf/Wewahitchka High School	53
				Hendry/Labelle High School	15
				Hernando/Central High School	168
				Hillsborough/East Bay High School	154
				Hillsborough/Hillsborough High School	140
				Hillsborough/Jefferson High School	86
				Hillsborough/Tampa Bay Tech High School	159
				Hillsborough/Pepin Academies	33
				Holmes/Holmes County High School	33
				Lee/South Fort Myers High School	146
				Lee/East Lee County High School	176
				Leon/James Rickards High School	50
				Leon/Amos P Godby High School	80
				Liberty/Liberty County High School	35
				Liberty/Liberty Wilderness Crossroads	51
				Marion/Dunnellon High School	27
				Marion/Marion Technical Institute	89

				Okaloosa/Crestview High School	141
				Pasco/Marchman Technical College	10
				Pinellas/Largo High School	132
				Pinellas/Pinellas Technical College	18
				Putnam/Interlachen Jr-Sr High School	232
				Putnam/Crescent City Jr-Sr High School	142
				Putnam/Palatka Jr-Sr High School	191
				Santa Rosa/Radford M Locklin Technical College	8
				Seminole/Lyman High School	18
				Suwannee/Branford High School	71
				Wakulla/Wakulla High School	93
Advanced Manufacturing and Production Technology	The content includes but is not limited to providing students with a foundation of knowledge and technically oriented experiences in the study of automation technology, its application in manufacturing, engineering and robotics, and its effect upon our lives and the choosing of an occupation. The content and activities will also include the study of enterprise systems, safety, quality, and leadership skills. This program focuses on transferable skills and stresses understanding and demonstration of the technological tools, machines, instruments, materials, processes and systems in business and industry.	Postsecondary Clock Hour	600 hours	Manatee/Manatee Technical College	24
				Sarasota/Suncoast Technical College	21
				Chipola College	21
				North Florida College	1
				South Florida College	1

CNC Production Specialist	CNC Production Specialist prepares students for entry into the CNC machining industry. Students explore career opportunities and requirements of a CNC production specialist. Content emphasizes beginning skills key to the success of working in the CNC machining industry. Students study workplace safety and organization, job-related mathematics, basic blueprint information, metrology, the history of manufacturing and primary and secondary manufacturing processes, geometric dimension and tolerance, set up and operation of drill presses, CNC control panels, CNC machine systems, CNC lathe and mill operations, and maintenance and troubleshooting.	Postsecondary Clock Hour	600 hours	Collier/Immokalee Technical College	17
				Lake/Lake Technical College	24
				Manatee/Manatee Technical College	11
				Orange/Orange Technical College	17
				Osceola/Osceola Technical College	22
				Sarasota/Suncoast Technical College	6
				Daytona State College	16
				Tallahassee Community College	5
Mechatronics Technology	The program is designed to provide graduates with a high-tech skill set and knowledge in electronic, mechanical, fluid power/pneumatic systems, electrical, Program Logic Controller applications (PLC) programming, computer technology for maintenance and repair of PLC / computer controlled, automated machines and robotic systems. The content includes but is not limited to Direct current (DC) circuits, alternating current (AC) circuits and analog circuits; solid state and digital devices; microprocessors; use of circuit diagrams, blueprints and schematics; soldering and chassis assembly techniques; laboratory practices, technical recording and reporting. The operation, maintenance and repair of electrical equipment and control systems, hydraulic/pneumatic systems, and mechanical systems: gears, drives, linkage and lever systems,	Postsecondary Clock Hour	1550 hours	Lee/Fort Myers Technical College	14
				Orange/Orange Technical College	53

	computers, Programmable Logic Controller (PLC) programming, process control systems, automated control and integrated robotic systems.				
Welding Technology Welding Technology Advanced	The program prepares students for entry into the welding industry as a basic Shielded Metal Arc Welder. Students explore career opportunities and requirements of a professional welder. Content emphasizes beginning skills key to the success of working in the welding industry. Students study basic shielded metal arc welding (SMAW), Carbon Arc Gouging (GAC) principles, and visual examination skills. The Welding Technology Advanced program prepares students for entry into the welding industry. Students explore career opportunities and requirements of a professional welder. Content emphasizes advanced skills key to the success of working in the welding industry. Students study intermediate and advanced Shielded Metal Arc Welding (SMAW) Class-B Pipe Welder, pipe fitting fabrication techniques, and advanced Gas Tungsten Arc Welding (GTAW) skills.	Postsecondary Clock Hour	1050 hours	Bay/Tom P Haney Technical College	49/13
				Bradford/North Florida Technical College	7
				Broward/McFatter Technical College	61/17
				Broward/Atlantic Technical College	44
				Citrus/Withlacoochee Technical College	68
				Collier/Lorenzo Walker Technical College	27
				Miami-Dade/William H Turner Technical College	9/3
				Miami-Dade/Miami Lakes Educational Center	18
				Miami-Dade/Robert Morgan Educational Center	44/9
				Dixie/Dixie County Adult Center	9
				Escambia/George Stone Technical College	100/15
				Hendry/Clewiston Adult School	32/13
				Sarasota/Suncoast Technical College	26
				Hillsborough/Erwin Technical College	71

				Indian River/Treasure Coast Technical College	39
				Lake/Lake Technical College	120/8
				Lee/Fort Myers Technical College	58
				Leon/Lively Technical College	184/70
				Manatee/Manatee Technical College	103/9
				Marion/Marion Technical College	78/6
				Okaloosa/Okaloosa Technical College	64/8
				Orange/Orange Technical College	120/38
				Pasco/Marchman Technical College	52
				Pinellas/Largo High School	36
				Pinellas/Pinellas Technical College	177/24
				Polk/Maynard A Traviss Technical College	55
				Polk/Ridge Technical College	66
				St. Johns/First Coast Technical College	27/13
				Santa Rosa/Radford M Locklin Technical College	63/25
				Suwannee/Riveroak technical College	55/7
				Taylor/Big Bend Technical College	62/12
				Walton/Emerald Coast Technical College	24/9

				Washington/Florida Panhandle Technical College	35/11
				Eastern Florida State College	30
				College of Central Florida	50/3
				Chipola College	42/4
				Daytona State College	76/7
				Florida State College Jacksonville	54
				Hillsborough Community College	49/6
				Indian River State College	80
				Florida Gateway College	49/45
				Northwest Florida State College	41/15
				Palm Beach State College	70
				Pasco-Hernando State College	67/5
				Pensacola State College	57/17
				Santa Fe College	36/7
				Tallahassee Community College	53/11

Engineering Technology	This program is a planned sequence of instruction consisting of eight specializations with one common core. It is recommended that students complete the core or demonstrate a mastery of the student performance standards contained in the core before advancing to the course(s) in the next level of specialization. The common core consists of 18 credit hours of technical core courses from the following areas: instrumentation and measurement, manufacturing processes and materials, quality, computer-aided drafting, electronics, and safety. The total Associate in Science degree program consists of 60 credit hours. The 18 credit hour technical core has been defined to align with the Manufacturing Skills Standards Council's (MSSC) skills standards. MSSC skill standards define the knowledge, skills, and performance needed by today's frontline manufacturing workers. After completing this core and the General Education requirements, it is anticipated that students will be prepared to pass the MSSC Production Technician Certification.	Postsecondary AS Degree	60 credit hours	Eastern Florida State College	161
				Broward College	81
				College of Central Florida	114
				Chipola College	8
				Daytona State College	83
				Florida State College Jacksonville	168
				The College of the Florida Keys	15
				Gulf Coast State College	43
				Hillsborough Community College	127
				Lake-Sumter State College	105
				State College of Florida	42
				North Florida College	13
				Northwest Florida State College	38
				Palm Beach State College	267
				Pasco-Hernando State College	93
				Pensacola State College	51
				Polk State College	67
				St. Johns River State College	87
				St. Petersburg College	119
				Seminole State College	133
				South Florida State College	26
				Tallahassee Community College	35
				Valencia College	129
Support Specialist	The content includes but is not limited to communication skills, leadership skills, human		18 credit hours	Eastern Florida State College	8
					18

	relations and employability skills, technical competency, safe and efficient work practices and a combination of theory and laboratory activities to gain the necessary cognitive and manipulative skills to perform preventive and corrective maintenance and support for engineering design, processes, production, testing, and/or maintaining product quality. This program focuses on broad, transferable skills and stresses understanding and demonstration of the following elements of the Engineering Technology and Industrial Applications: production materials and processes, quality, computer-aided drafting, electronics, mechanics, instrumentation and safety	Postsecondary College Credit Certificate		Broward College College of Central Florida Daytona State College Florida State College Jacksonville Gulf Coast State College Hillsborough Community College Lake-Sumter State College State College of Florida Miami Dade College Northwest Florida State College Palm Beach State College Pasco-Hernando State College Pensacola state College Polk State College St. Johns River State College St. Petersburg College Seminole State College Tallahassee Community College	1 3 87 3 10 21 3 3 3 56 6 1 17 38 20 10 1
Automation	The content includes but is not limited to instruction in maintenance techniques, computer aided drafting/design skills, technical communications, maintenance and operation of various industrial components, quality control and testing, material handling protocols, and proper usage of tools and instrumentation.	Postsecondary College Credit Certificate	12 credit hours	College of Central Florida Florida State College Jacksonville Gulf Coast State College Hillsborough Community College Miami Dade College Palm Beach State College Pasco-Hernando State College Seminole State College	1 50 1 4 2 5 2 26

CNC Composite Fabricator/Programmer	The content includes but is not limited to maintenance techniques, computer-aided drafting/design skills, technical communications, maintenance and operation of various industrial components, quality control and testing, material handling protocols, and proper usage of tools and instrumentation	Postsecondary College Credit Certificate	12 credit hours	Pensacola State College	1
CNC Machinist / Fabricator	The content includes but is not limited to maintenance techniques, computer aided drafting/design skills, technical communications, maintenance and operation of various industrial components, quality control and testing, material handling protocols, and proper usage of tools and instrumentation.	Postsecondary College Credit Certificate	12 credit hours	Eastern Florida State College	12
				Florida State College Jacksonville	19
				Gulf Coast Sate College	3
				Hillsborough Community College	5
				Northwest Florida State College	6
				Pensacola State College	6
CNC Machinist Operator / Programmer	The content includes but is not limited to maintenance techniques, computer aided drafting/design skills, technical communications, maintenance and operation of various industrial components, quality control and testing, material handling protocols, and proper usage of tools and instrumentation.	Postsecondary College Credit Certificate	12 credit hours	Broward College	3
				Pensacola State College	1
Lean Six Sigma Green Belt Certificate	The content includes but is not limited to, the concepts, theories, and tools of the Lean Manufacturing and Six Sigma as used in the	Postsecondary College Credit Certificate	12 credit hours	College of Central Florida	1

	manufacturing and services industries. The program covers the methods used in Lean and Six Sigma such as: continuous flow, overall equipment effectiveness (OEE), Kaizen, process mapping, the 5S's, total productive maintenance (TPM), cellular manufacturing, the DMAIC, self-directed work teams, the kanban system, design for manufacturing, and value steam mapping.			St. Petersburg College	7
Six Sigma Black Belt Certificate	The content includes but is not limited to the six sigma methodology of problem solving, strategic improvement, business transformation and process improvement. The specifics of this certificate program will focus on the theory and application of methods to improve the quality of process outputs by identifying and removing the causes of defects and minimizing variability in manufacturing or business processes. Six Sigma uses a set of quality management methods including statistical methods to improve customer satisfaction, reduce cycle time, and reduce defects.	Postsecondary College Credit Certificate	12 credit hours	St. Petersburg College	0
Lean Manufacturing	The content includes but is not limited to maintenance techniques, computer aided drafting/design skills, technical communications, maintenance and operation of various industrial components, quality control and testing, material handling protocols, and proper usage of tools and instrumentation.	Postsecondary College Credit Certificate	12 credit hours	Hillsborough Community College	2
				State College of Florida	3
				Miami Dade College	1
				Palm Beach State College	11
Mechatronics	The content includes but is not limited to instruction in maintenance techniques, computer aided drafting/design skills, technical	Postsecondary College Credit Certificate	30 credit hours	Eastern Florida State College	3
				College of Central Florida	2

	communications, maintenance and operation of various industrial components, quality control and testing, material handling protocols, and proper usage of tools and instrumentation.			Florida State College Jacksonville	74
				Hillsborough Community College	5
				Lake-Sumter State College	2
				Miami Dade College	3
				Palm Beach State College	5
				St. Petersburg College	4
				Seminole State College	27
				South Florida State College	4
Pneumatics, Hydraulics, and Motors for Manufacturing	The content includes but is not limited to maintenance techniques, computer aided drafting/design skills, technical communications, maintenance and operation of various industrial components, quality control and testing, material handling protocols, and proper usage of tools and instrumentation.	Postsecondary College Credit Certificate	12 credit hours	Florida State College Jacksonville	58
				Hillsborough community College	7
				Pasco-Hernando State College	2
Computer-Aided Design and Drafting	The content includes but is not limited to specialized courses in Applied Technology areas for design, assembly, and fabrication using various software packages	Postsecondary College Credit Certificate	24 credit hours	Daytona State College	6
				State College of Florida	4
				St. Petersburg College	53
Rapid Prototyping Specialist	The content includes but is not limited to techniques, computer aided drafting/design skills, technical communications, maintenance and operation of various industrial components, quality control and testing, material handling protocols, and proper usage of tools and instrumentation.	Postsecondary College Credit Certificate	12 credit hours	Miami Dade College	1
				Palm Beach State College	19
				St. Petersburg College	14
				Valencia	9

Manufacturing-Related Registered Apprenticeship Programs

North Florida Sheet Metal Workers JATC
Sheet Metal Workers Local 32 JAC
Florida Gulf Coast Chapter ABC, Inc., GNJ
Northeast Florida Builders Association GNJ
Tampa Bay Machining Apprenticeship, GNJ
South Florida Manufacturers Association, GNJ
Hudson Technologies Apprenticeship Program INJ
Advanced Manufacturing Apprenticeship Program GNJ
The People of Manufacturing Apprenticeship GNJ
CareerSource Suncoast Apprenticeship Program GNJ
Rayonier Advanced Materials IJ
Space Coast Consortium Apprenticeship Program, GNJ
AmSkills Apprenticeship Program, GNJ
CareerSource Research Coast Apprenticeship Program, GNJ
Metra Electronics Apprenticeship Program, INJ
Northwest Florida State College Apprenticeship Program, GNJ
Florida Rural Water Association
Bartelt Packaging, LLC Apprenticeship, INJ
Indian River State College Apprenticeship Program, GNJ
FloridaMakes Advanced Manufacturing Apprenticeship Program, GNJ
Learning Alliance Corporation Apprenticeship, GNJ
Emerging Technology Apprenticeship Program, GNJ
Tampa Ship Apprenticeship Program, INJ
Bloem Living Tool Maker Apprenticeship Program, INJ
Immokalee Technical College/CME Manufacturing Apprenticeship Program, GNJ
Treasure Coast Technical College/SDIRC Apprenticeship Program, GNJ
Tallahassee Community College Registered Apprenticeship Program, GNJ
Reliance Test & Technology Registered Apprenticeship Program, IJ

Manufacturing-Related Pre-apprenticeship Programs

North Florida Ironworkers Preapprenticeship Program
Florida Training Services, Inc. Preapprenticeship
Tampa Ironworkers Preapprenticeship JATC
Brevard Adult Education Pre-Apprenticeship Program
AmSkills Pre-Apprenticeship Program
Brevard Public Schools Preapprenticeship Program
St. Lucie Public Schools Preapprenticeship Program
iBuild Central Florida Preapprenticeship Program
Volusia County Schools Preapprenticeship Program
Pinellas County Schools Machining Preapprenticeship Program
Florida Trade Academy
Advanced Manufacturing Pre-Apprentice Program

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