



2019–20  
Annual Report

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## IES Mission

We help engineer success for North Carolina by understanding our partners; building long term relationships; crafting meaningful, sustainable solutions and inspiring continuous learning.

## Our Vision

To make North Carolina #1 in every market IES serves.

## Our Values

**Integrity:** Do the right thing—always!

**Innovative Solutions:** We foster creative talent to deliver high impact solutions to drive success.

**Client First:** We uphold a culture of exceptional service.

**Pursuit of Excellence:** We partner to achieve measurable economic impacts for North Carolina and beyond.



IES All Hands Meeting

Year End Update

At June 1 or YTD	FY2016	FY2017	FY2018
Total Staffing Level	90	81	71
Vacant Positions	7	7	4
Auxiliary Reserve Levels	\$459K	\$804K	\$1.3M
Federal Funds Expended	\$2.0M	\$2.7M	\$3.4M
Extension Operations Sales	\$2.33M	\$2.02M	\$1.89M
# of Regional Managers	11	10	8.5
# of Improvement Specialists	22		19
Public Course Receipts		981K	\$916K
Net to IES			\$633K

# Executive Summary

NC State Industry Expansion Solutions (IES) is seen as a key contributor to the state's economic development inventory of business solutions. We leverage state and federal resources to provide professional programs in support of business growth primarily throughout the state and nationally, where appropriate.

Our primary objectives for 2019–2020 were to enhance the recognition of industrial extension through better outreach practices and to develop extension personnel in ways that ensure effective business communication.

In the spring of 2020, however, the national challenges for manufacturing related to the novel coronavirus required a shift in our strategies in order to respond directly to the immediate needs of helping companies address the shortage of Personal Protective Equipment (PPE). IES played a key role as part of a Governor's Task Force for Repurposing Manufacturing (TFERM) in order to create new capacity in critical healthcare items.

Innovation and strategic partnerships remain critical in attaining the IES mission and our role as an applied technology unit of the NC State College of Engineering. Over the past year, we have added capabilities and expertise in additive manufacturing through infrastructure, training and partnerships. In addition, cybersecurity remains a top priority as 3D printing and additive manufacturing, along with increasing network access and interaction, become more commonplace throughout the Department of Defense (DoD) and other sectors.

We continue to administer federal grant awards, focusing on identifying, assessing, and providing solutions to manufacturers and defense contractors that serve to improve profitability and long-term growth. We have also expanded state partners in ways that expand federal program reach and capabilities through the North Carolina Manufacturing Extension Partnership.

Active federal awards included:

- › NIST Manufacturing Extension Partnership (MEP)
- › NC Department of Transportation Research Project: "Integrating Supply Chain with Transportation Infrastructure Data for Enhanced Planning Capabilities"
- › NIST Competitive Awards Program (CAP)
- › DoD Office of Economic Adjustment
- › NCMEP Emergency Assistance Program (Cares Act Funding)

IES is committed to being a recognized leader in continuous improvement services, professional development and independent project evaluation. We have learned that market leadership requires constantly rethinking our engagement methods and program solutions. We continue to monitor and improve with a focus on four primary goals in a renewed emphasis of the IES enterprise model and strategic plan.

- › Employee Development and Engagement
- › Systems and Processes
- › Financial Systems
- › Clients and Stakeholders

# Goal 1: Employee Development & Engagement

**In 2019–20, we continued to support the development and engagement of IES employees through:**

1. Enhanced awareness of and support for the IES mission and values, providing opportunities for staff input, innovation and shared decision making
2. Promotion of an employee engagement and community culture and improved communication, generating opportunities for collaboration and greater awareness of progress towards shared goals
3. Enhanced support for IES staff development



We invested strategically in resources to support a culture of leadership, learning, communication and collaboration:

- › Continued to deliver weekly “In the Loop” emails designed to streamline internal communications and ensure everyone has access to timely, critical information
- › Served as facilitator and event planner for the IES summer and winter All Hands Meetings
- › Facilitated IES Wellness Annual Report Updates.
- › Met monthly to foster employee development and engagement, with initiatives like community service activities and staff training and development advocacy and promoting IES values
- › Awarded the well wolpack certification ‘gold standard’ for the second year in a row for efforts in sustaining a wellness culture
- › Featured in an article by the University which highlighted IES’s initiatives to promote wellness and engagement through IES wellness programs.
- › Developed and deployed an interest survey to determine virtual coffee breaks to be implemented biweekly across IES.
- › Continued a wellness subcommittee to lead, develop and implement initiatives, community outreach and wellness workshops
- › Became a member of the new university wellness strategic planning committee. The IES wellness champion worked with a sub-group tasked with building and maintaining collaborative opportunities with campus and community partners to increase awareness of wellness at NC State.
- › Participated in IES and state-wide walking challenges and developed an IES water challenge which has been adopted by the University as a challenge
- › Volunteered to serve two organizations. Individually, 50% of our organization has accumulated over 90 hours of community service.
- › Participated in University sponsored lunch and learns on retirement, resilience and goal-setting. IES sponsored three social wellness events around mindfulness, healthy living and STEM (Pi Day).

Over the next twelve months, we plan to restructure the employee and engagement team to be more reflective of IES’ future state and ensure better alignment with the enterprise model. By using the enterprise model’s strategic priorities as a focus for our efforts, we will be able to better gauge, track and enhance employee engagement and development. We also intend to roll out an updated employee engagement survey, as well as a wellness interest survey, to ensure that we are addressing the current needs of our staff.

## Goal 2: Business Systems & Process Improvement

We continue to look for ways to strengthen our internal business systems and processes, auditing activities to create a more efficient infrastructure. By focusing on internal improvement, IES can better serve both our internal and external clients with greater depth and veracity. The end goal of our efforts will be greater client and stakeholder satisfaction.

### **In 2019–20, IES:**

- › Continued to strengthen our expertise and functionality around our Client Relationship Management (CRM) tool Salesforce, making it the centerpiece of our data support and information including housing and managing our 3rd party vendor contracts
- › Received a final report out from an internal Client Engagement process team
- › Enhanced internal performance metrics to strengthen our focus on efficiency and effectiveness in serving client needs

Our plans in the future will shift more toward identifying and documenting processes that are ripe for an improvement project based on feedback from our internal and external customers and stakeholders around what is working well and what is not. We will align to a new strategy model that will shift away from goal teams and more toward short term initiatives that include process documentation and improvement components.

In addition, we plan to incorporate these revised processes into Salesforce in order for the system to be as functional and useful as possible as well as to contribute to its position as the system of record for IES' business operations. Other enhancements will include a leadership dashboard containing key metrics to guide decision making, improved project management capabilities and a data quality process.

## Goal 3: Financial Systems

The finances of an organization such as ours can be multi-faceted; our open enrollment and professional learning state appropriated receipts is supplemented by state appropriations, fee for service generated income and federal grants and contract sponsors. Keeping up with the financial side is aided by streamlining our financial management processes with new technology.

### **In 2019–20, IES:**

- › Continued to utilize data analytics and reports in Salesforce to monitor financial performance
- › NC State's OIT Enterprise Application Services addition to several key financial system tools continued to create new opportunities for oversight of financial data



## Goal 4: Clients & Stakeholders

At the heart of it all is you—our clients and stakeholders. Every day we come to work with a single question in mind: how can we better serve you and the multiple industries across the state of North Carolina?

### In 2019–20, IES:

- › Utilized internal resources to work more closely with colleagues at the College of Engineering to better execute the mission of the university
- › Supported a Client Engagement Team, applying best practices around client interactions
- › Implemented Customer Care initiatives to ensure effective preventive or corrective action response to the voice of the customer from feedback through survey, course evaluations, and correspondence
- › Delivered approximately 291 industry fee-for-service projects, utilizing 30 IES Extension Specialists and Regional Managers
- › Delivered 89 open enrollment courses, and workshops for a total of 31,181 contract hours, serving 1,432 students
- › Offered seven online courses serving 67 virtual students

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In all, IES recognized approximately **\$1.49M** in fees for industry project services and **\$986,870** in open enrollment and professional learning state appropriated receipts.

## Sales Performance

Product Area	
Management Systems and Quality:	\$386,586
Business Growth and Innovation:	\$15,675
Leadership and Organizational Development	\$30,431
Open Enrollment and Online Courses:	\$986,870
Environmental Health and Safety:	\$496,057
Process Optimization-Manufacturing and Related for Profit:	\$150,701
Process Optimization-Health Care, Government, NonProfit:	\$171,415
Evaluation Services and Resource Development:	\$116,970

## Federal Grants and Contracts

IES was also awarded the following federal grants and contracts during the 2019–2020 calendar year, including:

Grant Title	Government Entity	Year Awarded	Award Amount	Award Type
* The Robotics/Automation and Cybersecurity Knowledge Sharing Coordination Network (TRACKS-CN)	The National Science Foundation Advanced Technological Education Program	2020	\$443,619	Grant
Manufacturing Extension Partnership Center for the State of North Carolina	National Institute for Standards and Technology Hollings Manufacturing Extension Partnership Program	2020	\$3M	Ongoing Co op. Agreement
NC Manufacturing Emergency Assistance Program	NIST MEP CARES Act Funding	2020	\$1.5M	Co op. Agreement

\* The NSF Advanced Technological Education (ATE) program funds projects that focus on the education of technicians for high-technology fields. NC State Industry Expansion Solutions and NCMEP are anticipated to receive \$443,619 to support an NSF ATE Coordination Network project entitled “The Robotics/Automation and Cybersecurity Knowledge Sharing Coordination Network”, (TRACKS-CN) sometime in 2020.



# Organizational Structure

## 2019–20 IES External Advisory Board

**Chris Trevey**, CEO/President, Carlton Scale, Chair of IES Advisory Board

**David Catt**, Plant Manager, Keihin Carolina System Technology

**John Chaffee**, Business Broker, Transworld Business Brokers

**Larry Hall**, Secretary, North Carolina Department of Military & Veteran Affairs

**Martin Kegel**, Fabrications Operations Manager, Caterpillar

**Michael Marlowe**, Managing Director Emeritus, Automation Federation

**Byron Murphy**, Controller, Package Craft

**Jerry Pedley**, President, Mertek Solutions, Inc.

# IES Services & Solutions

## Standards & Regulatory Services

We offer a multitude of solutions that prepare organizations to consistently focus on improving their operations and meeting their client requirements. We coach our clients to implement processes to ensure their objectives are achieved and to provide exceptional value to their clients. This is accomplished through ISO-based services, Performance Excellence Coaching, Industrial Systems Engineering and Student Projects.

## Environmental, Health & Safety

Our full collection of environmental, health and safety services includes training, customized solutions and certificate programs. They are designed to support environmental stewardship, worker safety and compliance with federal and state health, safety and environmental standards and regulations. This year, we introduced several new courses including OSHA #7215 Crystalline Silica, OSHA #2225 Respiratory Protection, OSHA #3085 Principles of Scaffolding, OSHA #2045 Machine Guarding and OSHA #7210 Pandemic Illness and Workplace Preparedness. Additionally, in an effort to meet the changing needs of our clients, we now have the ability to offer many of our courses and training topics in a virtual training format.

## Leadership & Organizational Development

We introduced a new suite of solutions this year designed to help organizations address complex leadership and organizational development challenges like enhancing or transforming organizational culture, developing a talent strategy or succession plan to support business continuity and growth, cultivating company leadership or optimizing organizational performance. With these new tools, we are able to create custom leadership development programs to support small and mid-size business' ability to address gaps in talent and support their business strategy.

## Cybersecurity

Our cybersecurity services include training, ready-built materials and tools and customized gap assessments. We focus our cybersecurity gap assessments around the NIST 800-171 standards and Defense Federal Acquisition Regulations (DFARS) cybersecurity requirements. Our ready-built materials include awareness campaign materials that any business can use to enhance their own cybersecurity training and an assessment and planning tool for the NIST 800-171 standard.

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**We also craft solutions to meet specific needs.  
If you have a challenge, we can find a solution.**



## Instructional Design

IES designs and develops online, face-to-face, and hybrid course content that integrates the latest trends in instructional design and technology, multimedia and content presentation to facilitate learning and knowledge retention. Our instructional design services include learning needs analysis, development of instructional materials and evaluation of existing programs.

## Process Optimization

We offer a suite of Lean and Six Sigma continuous improvement solutions, tailored to your specific organization, that help improve performance and reduce variation. Our hands-on training, coaching and mentoring can guide your team through the journey.

Lean is a practice that improves processes by reducing waste through harnessing the drive of the total organization. When rigorously applied, it can have positive impacts on cost, quality and delivery of services.

We also offer Six Sigma solutions (DMAIC) that utilize statistically driven methodology for reducing variation and eliminating defects in both products and processes.

## Evaluation Services & Resource Development

IES designs and delivers a comprehensive approach to evaluation, ensuring high-quality, rigor and client-focus for all of our projects in North Carolina and beyond. Our resource development services include comprehensive program evaluation, organization agility assessments and research and evaluation capacity building. We also offer scouting and reviewing potential grant opportunities, developing proposal concepts, facilitating the proposal development process and playing an active role as desired in writing the proposal. All of these services leverage our evaluation expertise in order to ensure that proposals contain a rigorous evaluation component that is most attractive to funding sources.

## Open Enrollment & Professional Learning

We offer a broad range of strategic development, training and learning solutions for a wide variety of organizations. This year, we instructed classes in numerous locations throughout the states of North and South Carolina and converted seven face-to-face instruction courses into a virtual instructor led training format due to the COVID-19 pandemic.

# Affiliate Programs

## NCMEP

The North Carolina Manufacturing Extension Partnership (NCMEP) is the official representative of the MEP National Network™ and NIST MEP in North Carolina. The MEP National Network™ is a unique public-private partnership that delivers comprehensive, proven solutions to U.S. manufacturers, fueling growth and advancing U.S. manufacturing. NCMEP is a proven resource as a public-private operating alliance of state supported programs that work together to help manufacturing companies become operationally efficient and well positioned to grow profitably.

Industry Expansion Solutions serves as the administrator for NCMEP and is joined by returning partners from the North Carolina Community College System, NCWorks

Customized Training; the Economic Development Partnership of NC; the Polymers Center of Excellence; the Manufacturing Solutions Center and North Carolina A&T State University. East Carolina University, Hangar6 and UNC Charlotte joined as new partners in 2020.

NCMEP offers multiple networking opportunities through programs like Manufactured in North Carolina (MNC), the premiere searchable supply chain directory for North Carolina manufacturers, and the **MNC Network**. In 2019, IES partnered with Business North Carolina to host the fifth mfgCON Conference, delivering two days of keynotes, presentations and breakout sessions and attracting more than 300+ attendees in Durham, North Carolina.



## Minerals Research Laboratory

The Minerals Research Laboratory (MRL) is a world leader in research, development, and implementation of mineral processing techniques. The MRL is part of the North Carolina State University College of Engineering, under the management of the NC State Industry Expansion Solutions (IES). The MRL serves state, regional and international clients.

## NCAfE Program

IES serves as the administrator for the North Carolina Awards for Excellence (NCAfE) program, the top state level recognition presented to an organization that has demonstrated, through its practices and achievements, the highest level of performance excellence by applying the principles of the Baldrige Excellence Framework—the Criteria for Performance Excellence.

NCAfE welcomed 11 examiners for the 2020 award cycle. Six are new examiners and five are returning to the program from the prior year.

## North Carolina Defense Industry Diversification Initiative

NC State's Industry Expansion Solutions administers the North Carolina Defense Industry Diversification Initiative (NCDIDI), bringing together partners from industry, academia and government to strengthen the defense industry in North Carolina. A strong project advisory board consisting of local universities, colleges, military

business organizations, business services providers, manufacturers and state agencies informs and drives the grant's statewide efforts. The program has increased awareness of the defense industry, gathered valuable data on defense business supply chains and economic impact and enhanced the competitive position of defense manufacturers and service providers to the Department of Defense.

## Southeastern OSHA Training Institute Education Center

Industry Expansion Solutions serves as the lead organization of The Southeastern OSHA Training Institute Education Center (SE OTIEC) in partnership with The University of Tennessee Center for Industrial Services. Since 2008, the organization has partnered to offer OSHA training throughout the states in Region IV. An OSHA-authorized provider of trainer courses, standards and technical courses as well as two safety certificate programs, the SE OTIEC provides the US Department of Labor OSHA Outreach Training Train-the-Trainer Program, OSHA's primary means of training employees in the basics of occupational safety and health. Courses are available for construction, general industry, and disaster site safety. The SE OTIEC has authorized more than 2,500 OSHA Outreach Trainers, who subsequently instructed more than 15,000 workers this year. 25 OSHA Outreach Trainers were able to request and receive approval to teach OSHA 10/30 Hour Outreach training in a virtual instructor led training format as a result of the COVID-19 pandemic.

# Total Impact for Manufacturing

In the past four quarters (2019Q1–2019Q4), manufacturing clients of IES or IES' NCMEP affiliates returned surveys to NIST's third-party survey company, reporting the following results they attributed to work done by NCMEP affiliates: \$1.19B in economic impact; 3,753 jobs created; 4,476 jobs retained; \$209M retained sales; \$219M increased sales and \$14M cost savings.

We continued to diligently collect data about our clients' needs and restructured the use of our resources so we could develop solutions to meet those needs more efficiently and effectively.

## Here are some of the accomplished highlights:

- › Hosted the fifth mfgCON manufacturing conference with Business North Carolina in Winston Salem, North Carolina
- › Rebranded mfgNC Connections to MNC Network and hosted two in-person program events: Information Security and Disaster Preparedness
- › Developed an MNC Network webinar series that will launch in the 2020-2021 year as a response to COVID-19 and being unable to meet in person
- › Dispatched ambassadors to events across the state in honor of National Manufacturing Day
- › Updated marketing materials for the North Carolina Awards for Excellence (NCAfE) program
- › Grew federal grant awards through continued recognition of team's broad capabilities
- › Expanded industry training programs through better leverage of college expertise and technology
- › Made our professional learning solutions more accessible with the introduction of webinars and online workshops
- › Enhanced awareness of Baldrige Examiner classes
- › Launched a new course evaluation process in our CRM (Salesforce) that includes a new client case model to elevate client feedback into an action team for resolving opportunities for improvement.
- › Launched a successful "Clocking In" podcast series, driving 12 new podcasts out the

- second Tuesday of each month
- › Redesigned and relaunched a new IES staff portal
  - › Refined video production capabilities, delivering multiple client reference videos.
  - › Delivered 215,436 campaign/promotion emails with an average 39.15% open rate + 19.6% click rate
  - › Attracted 144,735K users to the IES website of which approximately 142K were new users. These users engaged in 184,710K sessions for an average time per session of 1.64 minutes and 303,540 page views. 118,871 users found us through organic search, 20,270 found us directly and 6,751 came through referral traffic.
  - › Manufactured in North Carolina (MNC), our online supply chain database, attracted 168,000 visitors, 498,000 page views and 2750 inquiries to companies
  - › Improved our understanding of the DoD supply chain in North Carolina and its impact to the state
  - › Developed new Leadership and Organizational Development and NCDIDI portals on the IES website

**But even with our long list of accomplishments, we're not done!**

In the coming 2020-2021 year, we'll continue to explore alternate avenues of communication with our clients, including virtual contact and informal learning groups. We'll pursue grant opportunities that align with the College of Engineering and North Carolina Manufacturing Extension Partnership priorities.

## \$1.19B Total Impact for Manufacturing in NC

(2019 Q1-Q4)



**4,476** jobs retained



**\$209M** retained sales



**\$27.5M** cost savings



**3,753** jobs created

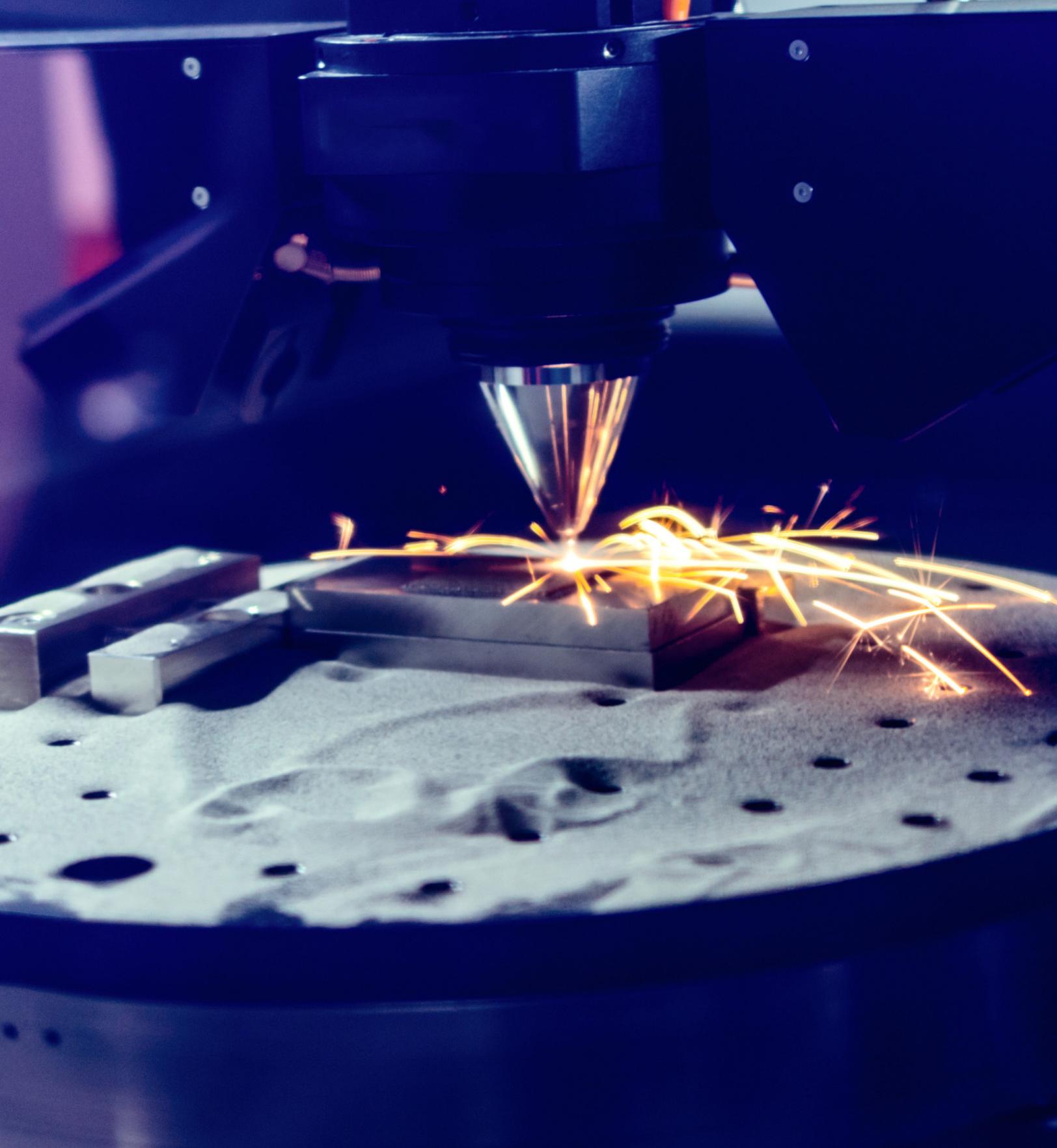


**\$219M** increased sales



**\$922M** investments

And, as always, we'll listen and learn from you, to discover how we can best work together to make North Carolina industry even stronger and more prosperous.



**Industry Expansion Solutions** (IES) is the engineering-based, solutions-driven, client-focused extension unit of NC State's College of Engineering. Our broad portfolio and deep industry expertise help organizations grow, innovate and prosper. Our extensive partnerships with business, industry, education and government generate a unique culture of collaboration that provides access to cutting-edge expertise, research, and technology.