IOWA'S ADVANCED MANUFACTURING SECTOR:

IOWA INNOVATION COUNCIL RECOMMENDATIONS TO SUPPORT INNOVATION, GROWTH AND COMPETITIVENESS

GOVERNOR'S 2017 YEAR OF MANUFACTURING INITIATIVE
NOVEMBER 2017

THE IMPORTANCE OF MANUFACTURING TO THE IOWA ECONOMY

Manufacturing is a pillar of the Iowa economy and a critical industry that impacts the state's economic vitality. Over 5,900 manufacturers contribute more than $28 billion to Iowa's economy, accounting for nearly 18% of the state GDP, placing Iowa eighth in the nation for manufacturing GDP. Beyond pure economic size, manufacturing delivers an unmatched combination of employment, wages and geographic distribution.

- Manufacturing industry accounted for 213,752 jobs (Source: Bureau of Labor Statistics)
- Manufacturing pays, on average $56,082 per year, compared to the overall average state wage of $44,341 for all industries (Source: Bureau of Labor Statistics)
- Manufacturing jobs account for more than 25% of total worker wages in 50 counties (Source: Bureau of Labor Statistics; IEDA)
- Manufacturing wages are higher than the state average wage in 66 counties (Source: Bureau of Labor Statistics; IEDA)
- Manufacturing is an important industry for Iowa's rural economy – non-metropolitan counties account for 50% of all Iowa manufacturing jobs (Source: Bureau of Labor Statistics; IEDA)
- Manufacturing represents 17.8% of Iowa's GDP (Source: Bureau of Economic Analysis)
- Directly and indirectly, manufacturing drives one-third of the Iowa economy
- Iowa ranks eighth in the U.S. for percentage of GDP derived from manufacturing (Source: Bureau of Economic Analysis)
- In 2016, Iowa exported $12.1 billion worth of manufactured and value-added goods (Source: GTIS)

Manufacturing plays a significant role in Iowa's economy. It is important to our standard of living and to rural Iowa. Manufacturing's annualized real GDP growth rate from 2005 – 2015 was flat, placing Iowa 28th nationally. Many small and medium-size manufacturers are not growing through adoption of technology, innovation and productivity. Strong future growth of Iowa's manufacturing sector is not guaranteed.

GOVERNOR'S 2017 YEAR OF MANUFACTURING INITIATIVE

To demonstrate a commitment to Iowa's manufacturing industry, former Governor Terry Branstad announced the 2017 Year of Manufacturing Initiative during the Condition of the State address. The initiative focuses on promoting innovation and R & D, improving global competitiveness and building a skilled workforce. The goal is to increase Iowa's manufacturing GDP from $29 billion to $32 billion by 2022.

The Iowa Innovation Council (IIC) was tasked with developing strategies to assist Iowa manufacturers to stay on the cutting edge of their industry, positioning them to be globally competitive, and developing a skilled workforce to help us meet the goal.

The Goal

Grow Iowa's Manufacturing GDP from $29 Billion to $32 Billion by 2022

Call to Action

1. Promote Iowa manufacturing and take steps to encourage growth in companies through innovation, entrepreneurship and investment.
2. Assist small and midsized manufacturers (SMEs) build their capacity to innovate, commercialize new products and incorporate technology into their business.
3. Align resources and assets in the manufacturing ecosystem to support strategies to grow manufacturing; build on what works: improve, coordinate, connect, replicate and scale existing resources to manufacturers.
4. Identify new initiatives needed to improve viability and competitiveness of Iowa manufacturers.
5. Develop a set of manufacturing indicators to measure progress in the right areas to stimulate high wage manufacturing job creation that will eventually generate manufacturing GDP growth.

Landscape Drivers

1. Strengthen and improve management strategic planning and execution capabilities.
2. Improve SME digital manufacturing capabilities.
3. Exposure to applications of next-generation technologies, such as additive manufacturing, that can create sustained competitive advantage and accelerate the deployment of these technologies.
4. Strengthen existing networks to support manufacturers and identify the need for new networks.
5. Seek new markets and coaching to pursue the opportunities in new markets.
6. Encourage SMEs to take up regular R & D activities and support product development efforts.
7. Provide succession planning services particularly for companies where the owner does not have a transition plan.
8. Connect support services with business startups and entrepreneurs.
9. Attract talent to the manufacturing industry and increase the number of qualified, trained, skilled workers through training and development, with a focus on upskilling the current workforce.

IOWA MANUFACTURING

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YEAR OF MANUFACTURING INITIATIVE PARTNERS

Iowa Association of Business and Industry

ciras

IOWA economic development

RECOMMENDATIONS

STRATEGIC PRIORITY ONE: ENTERPRISE LEADERSHIP

Today's manufacturing businesses have become complex global operations. Leaders must effectively manage increasingly complex areas of responsibilities and respond adeptly to more unfamiliar and less predictable situations.

1. Facilitate active regional network building to connect manufacturers to peer-to-peer activities and connect them to existing sources of assistance.
   a. Increase the number of peer-to peer networking activities within a region.
   b. Support network-driven activities and connect manufacturing companies to existing sources of assistance.
   c. Identify and communicate best practices in local peer networks that can be adopted by economic development or chamber organizations to improve peer-to-peer activities with their manufacturers as part of their business development activities.
   d. Support networking activities between different regions to promote best practices.
   e. Encourage the IEDA to develop a manufacturing industry specialist/networking manager position to support manufacturing business development activities.
   f. Proactively ensure that manufacturers know programs and resources are available to assist them.
2. Strengthen and improve SMEs management strategic planning and execution capabilities.
   a. Encourage the use of strategic planning and provide tools for management teams to develop strategies to address challenges in areas such as: product strategy, planning and management of product development programs, technology, market analysis and marketing strategy development.
   b. Implement a common manufacturing leadership development model to help grow the next generation of manufacturing leaders.
   c. Provide access to succession planning tools to help leadership evaluate all exit and transition strategies.
3. Improve the level of engagement of SMEs in implementing new strategies and technologies.
   a. Conduct outreach to vendors of professional services to influence their manufacturing clients to consider new business strategies and technologies.
   b. Educate economic development professionals on the importance of SMEs adopting new technologies and business strategies to help them as they work with companies in their communities.

STRATEGIC PRIORITY TWO: MARKET AND PRODUCT DEVELOPMENT

Growing a manufacturing business by finding new customers, developing new products and entering new markets.

1. Encourage SMEs to grow their distribution channels and tap into new domestic markets and international markets.
   a. Provide target industry analysis and market analysis services to help companies identify new market opportunities.
   b. Assist SMEs in developing or expanding into international markets.
2. Improve SMEs understanding of the importance of product development as a strategy for growth.
   a. Educate SMEs on the product development process to enhance their own product development processes and grow their company.
   b. Provide training on tools use to improve the product development process.
   c. Educate SMEs about the benefit of having an IP strategy and connect them to resources to assist them in developing an IP strategy.
3. Support manufacturing startups and SMEs through the commercialization process.
   a. Market information on the Iowa Economic Development Authority's (IEDA) continuum of entrepreneurial funding programs and the services provided through VentureNet Iowa to small manufacturers.
   b. The IEDA's Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) Outreach Program helps companies apply for federal small business funding. This program assists Iowa companies by reviewing SBIR/STTR grant proposal applications and providing commitments to matching grant funds for Phase I SBIR/STTR awards. Actively market this program to small and mid-sized manufacturers.
   c. Help connect startups to mentors, potential clients and investors.

STRATEGIC PRIORITY THREE: TECHNOLOGY

Technology is constantly changing and new opportunities will open up to the companies that are agile and can quickly adapt. Companies need to know how new technologies will impact their business and how to incorporate new technologies into their business. Technology is critical to the long-term well-being of manufacturers.

1. Develop a specific digital manufacturing readiness plan that would be supported by the original equipment manufacturers (OEMs) and the SME community and begin a coordinated effort to make Iowa manufacturers digitally ready to compete.
    a. Leverage CIRAS' national networks to develop and deploy a common framework for assessing the digital readiness of Iowa manufacturers in the areas of Enterprise Support, Supply Chain Data, Design and Engineering, the Digital Factory Floor and cybersecurity.
    b. Identify and communicate best practices and resources for implementing change in each of the five areas.
2. The State has invested in additive manufacturing projects at the three public universities through the Iowa Economic Development Authority's Strategic Infrastructure Program. Develop a plan to leverage these assets to help SMEs and grow manufacturing.
    a. Form a collaboration among industry leaders and the three public universities to understand additive manufacturing's impact on the future Iowa manufacturing base.
    b. Develop a plan to leverage the assets and expand our additive manufacturing strengths to position Iowa as a national leader.
    c. Accelerate the deployment of additive manufacturing technologies to SMEs.
3. Expose manufacturers to applications of automation technologies that can create sustained competitive advantage and accelerate the adoption of these technologies in SMEs.
    a. Identify a set of automation technologies which can help SME's remain competitive.
    b. Deploy a common framework for assessing SME's automation technology needs, methods for sharing best practices, and identifying implementation resources.

STRATEGIC PRIORITY FOUR: PRODUCTIVITY

Maintaining global competitiveness requires continuous improvement in processes and quality.

1. Broaden the productivity conversation: Operational Excellence as a solution to the workforce problem.
   a. Work with the Iowa Lean Consortium, the Iowa Quality Center, and others to develop improved outreach materials to help companies take the first basic steps in operational excellence (Lean, six sigma, etc.).
   b. Approach large original OEMs about creating a mentor-protégé relationship with in-state suppliers, which includes loaning productivity experts to improve plant productivity.
2. Share Operational Excellence best practices and celebrate successes in productivity.
   a. Encourage applications for recognized productivity awards, OEM supplier awards, etc. (e.g. IndustryWeek Best Plants, Shingo Prize, Baldridge Award).
   b. Celebrate successes and promote these best practices to encourage more companies to pursue best-in-class operational excellence.

STRATEGIC PRIORITY FIVE: WORKFORCE

Access to a highly skilled and educated workforce is the most critical element for innovation success. Increasingly, companies report they cannot find individuals with the skills required for today's advanced manufacturing workplaces. These skill shortages span all stages of manufacturing— from engineering to skilled production.

1. Future Ready Iowa is an initiative to build Iowa's talent pipeline with a goal of 70 percent of Iowa's workforce to have education or training beyond high school by 2025. Support the Future Ready Iowa Alliance's recommendations for how to achieve the 70 percent goal.
    a. Registered Apprenticeship can help address skill shortages and skill gaps that are impeding manufacturers' efforts to expand, innovate and compete in a global environment, as well as address the latest technological advances. Increase manufacturing employers' knowledge of how apprenticeship works to build worker skills and the manufacturing occupations that can be supported by apprenticeships.
    b. Manufacturing internships can help students gain experience by applying what they have learned in school to the workplace. Many internships often lead to full-time job offers and keep talented graduates in the state. Increase manufacturing employer's knowledge about how to develop and manage an internship program. Continue to market the IEDA's internship programs to small and mid-sized manufacturers.
    c. Increase awareness and use of Capstone projects and other applied learning projects available through the Regents institutions.

2. Focus on talent attraction to the manufacturing industry by generating interest, awareness, and connections to training and job opportunities.
    a. Current manufacturing workers and those workers looking to make a career change need assistance with finding information about high-demand, high-skill manufacturing jobs and what is required to be employed in these jobs. Increase awareness of the Future Ready Iowa web site as the source of information on manufacturing careers, training requirements and job opportunities. Continue developing manufacturing career pathways which will identify the required education, training, credentials and experience for these jobs.
    b. The Iowa Association of Business and Industry's (ABI) Elevate program partners with all Iowa community colleges and is an industry-driven effort which targets Iowa's K-12 students and parents to inform them about Iowa's manufacturing industry, career opportunities, training and career pathways. Encourage manufacturers to support the Elevate Advanced Manufacturing program and marketing campaign activities to drive increased enrollments in established programs.
    c. Home Base Iowa (HBI) is a one-of-a-kind program connecting veterans and transitioning service members with HBI partners and resources. Develop marketing collaborations between CIRAS, ABI and other industry contacts to target advanced manufacturing employers and educate them on the benefits of becoming a Home Base Iowa business.


EXIT

WHAT'S NEXT: IMPLEMENTING THE RECOMMENDATIONS

In 2018, the IIC's Advanced Manufacturing Workgroup will oversee an implementation plan to address these recommendations. In developing the strategies, a key requirement was to build on what is already working and to align existing manufacturing resources and assets to support the strategies.

We will begin by asking the IEDA's partners in the Year of Manufacturing Initiative to review the strategies and submit the tactics, new activities or initiatives planned over the next three years to address a specific strategy. The partners are Iowa State University-CIRAS, ABI, University of Northern Iowa Metal Casting Center, and the Quad Cities Manufacturing Innovation Hub.

Subgroups will be established to work on these recommendations.

1. **Networking:** Facilitate active regional network building to connect manufacturers to peer-to- peer activities and connect them to existing sources of assistance.
2. **Digital Manufacturing Readiness:** Develop a specific digital manufacturing readiness plan that would be supported by the OEMs and the SME community and begin a coordinated effort to make Iowa manufacturers digitally ready to compete.
3. **Additive Manufacturing:** The State has invested in additive manufacturing projects at the three public universities through the IEDA's Strategic Infrastructure Program. Develop a plan to leverage these assets to help SMEs and grow manufacturing.

Progress reports will be presented at the IIC's quarterly meetings and a 2018 year-end report presented to the IEDA Director and IIC Executive Committee.

IOWA INNOVATION COUNCIL

The Iowa Innovation Council (IIC) is a business-led group that develops strategies and long-term plans to ensure Iowa stays competitive in the global business economy. As an advisory council to the Iowa Economic Development Authority, the IIC develops recommendations on programs, services and policies needed to support existing businesses and increase the chances of success for entrepreneurs. The IIC's Advanced Manufacturing Workgroup was charged with developing key strategies to help Iowa manufacturers address the challenges in improving global competitiveness, incorporating new technologies into businesses and building a skilled workforce.

Advanced Manufacturing Workgroup

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Kevin Gaul, Product Development Manager – Doors
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Maureen Lockwood, Manufacturing Manager
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Members

Kathy Anderson, Vice President Member Development and Programs
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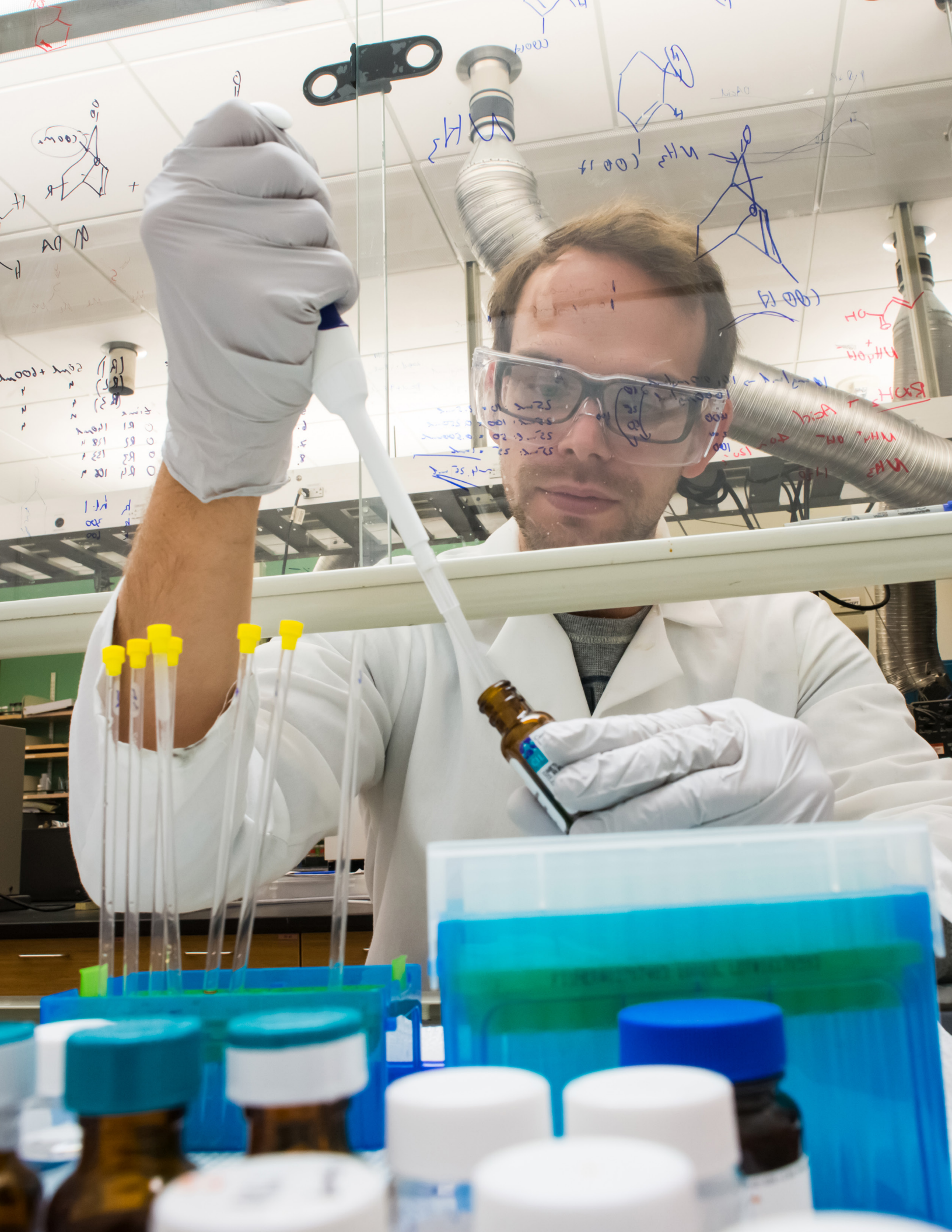

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