

Statement of

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Before the

**Subcommittee on Research and Technology of the
U.S. House Committee on Science, Space Technology**

December 14, 2022

Chairwoman Stevens and Ranking Member Feenstra:

Thank you for this opportunity to testify on behalf of Iowa State University on this important topic.

My name is David Spalding, and for the last nine years I have been the Raisbeck Endowed Dean of the Debbie and Jerry Ivy College of Business and for the last four years, interim Vice President of Economic Development and Industry Relations at Iowa State University, and I am testifying before you today wearing both of those hats, which really speaks to the unique nature of how we approach innovation and entrepreneurship at Iowa State University. Prior to my tenure at Iowa State, I was a senior administrator at Dartmouth College in New Hampshire for eight years, and before that I enjoyed a 29-year career in finance in New York City, in various roles, including as managing director for Lehman Brothers doing private equity investing. I received my undergraduate degree from Dartmouth and my MBA from New York University.

As a part of today's hearing I look forward to exploring the role of the U.S. Department of Commerce's Economic Development Administration (EDA) to promote regional innovation through support for community-led economic development strategies that increase geographic diversity and expand participation in the innovation economy, bolster domestic supply chains, grow manufacturing capacity, and strengthen community resilience across the United States — all topics that are at the heart of the work we do at Iowa State.

I would like to start by providing some additional background about Iowa State to frame our discussion and shine a light on the important investment the EDA Build to Scale program has created in our entrepreneurial ecosystem. Later in my testimony, I will showcase some additional ways that we leverage our partnership with EDA at Iowa State.

Iowa State's motto since the 1870s has been "Science with Practice," and aptly describes Iowa State's interests in science with practical applications. We pride ourselves on serving each of our almost 30,000 students, and home-grown businesses in all 99 Iowa counties through our Iowa State Extension and Outreach network and economic development programs.

Innovation is at the core of our curriculum at Iowa State and is woven into the fabric of our university culture, which inspires entrepreneurial thinking and innovation in every college and academic program across our campus. One physical manifestation of *Innovate at Iowa State* is the 140,000 square foot Student Innovation Center, which is our epicenter for on-campus innovation, fostering interdisciplinary creativity and problem-solving.

We have been recognized for our focus on innovation. In 2021 we received the United States Association for Small Business and Entrepreneurship (USABE) Model Program award, and just last month we received the prestigious Nasdaq Center for Entrepreneurial Excellence Award from the Global Consortium of Entrepreneurship Centers (GCEC). These are the top awards from the United States entrepreneurship educators and entrepreneurship centers around the globe. We are also proud that for the last three years, Iowa State has achieved a number-eleven ranking for undergraduate entrepreneurial programs by Princeton Review's annual survey.

We traditionally rank in the top 100 universities worldwide for patents granted for our science and technology achievements. Our focus on innovation has also earned us recognition by our peers — the Association of Public and Land Grant Universities (APLU) annually recognizes winners in Innovation and Economic Prosperity (IEP). Iowa State achieved APLU’s Innovation and Economic Prosperity designation in 2016 and since then we have earned awards in Talent, Innovation and Place in 2017, 2020, 2021 and 2022, and we were a finalist in 2018. One program highlighted in our most recent submission focused on a public private partnership between Iowa State’s Digital Agriculture Innovation and several corporate partners that are housed at the Iowa State University Research Park (ISURP). That Iowa State team is training engineers, data scientists and agronomists for the workforce of our corporate partners, and have developed intellectual property in 22 products sold globally and accounting for 66 separate IP events, all with corporate partners in the equipment manufacturing space.

The Build to Scale Program builds regional economies through scalable startups through the Venture Challenge and Capital Challenge grants, and previously the Industry Challenge grants. The program provided Iowa State and the State of Iowa with foundational funding to establish or expand two important programs — The Iowa State Startup Factory (SUF) and the Iowa Go 2 Market (G2M) accelerator. Both programs function under our economic development umbrella, and both have provided substantial economic return on investment.

We have received two Build to Scale awards to date totaling just shy of one million dollars. The first was a \$406,000 investment in the Iowa State Startup Factory that was a three-year award used to support companies developing innovations in food, and the second, was a \$525,472 EDA investment in the creation of the Iowa Go 2 Market post accelerator. In both cases, Iowa State provided 1:1 in-kind matching funds.

The Startup Factory and The Iowa Go 2 Market accelerator and post accelerator are the centerpieces of our work with startups at Iowa State University. To date, 88 startups have graduated from our Startup Factory program, and more than \$52 million has been raised in external financing since the program’s inception. This includes 30 SBIR phase I, 8 SBIR phase II, 27 State of Iowa funding events, 26 angel investment rounds, totaling more than 150 distinct funding events and a handful of successful exits.

Developing startups requires the ventures to simultaneously technically perfect their product or service and make sure that there is correct product market fit. The Startup Factory and Iowa Go 2 Market programs do not take equity in these companies, because the entrepreneurs are still in the ideation and development stage — learning to move from “tech speak” to “business speak.” They do not benefit from the added pressure of a typical equity-based accelerator that is driven to generate revenue.

Our first Build to Scale award began in Fall 2017. We put the EDA’s \$406,000 three-year award to use in supporting companies in the Startup Factory working to develop food and food safety innovations. This was broadly defined as encompassing startups in food production, food safety and new food products.

Over the course of the award, 29 companies were supported, and they raised \$11.5 million in

funding through investments, including just over \$5 million in state and federal grants and in loans. The companies created or retained 80 jobs and launched dozens of new products.

The EDA investment in our program helped to scale startup companies that are helping farmers in rural Iowa and affecting global food security. I would like to briefly highlight a few of those companies. These examples not only showcase the strength of Iowa's agricultural and manufacturing economies — they also provide strong evidence on how this investment helped meet the goals of Build to Scale in several ways:

- **Haber Technologies:** developed a DRI-Stack system to improve the grain drying process while reducing energy use and increasing grain quality. This company was started by undergraduates that grew up on farms, and through entrepreneurial coursework in our College of Agriculture and Life Sciences created a more efficient way to dry grain. They eventually took part in our Startup Factory program funded by the Build to Scale investment.
- **The FarmPost app (formerly FarmHand app):** developed a platform to connect farmers with workers for seasonal or day-to-day employment to help address labor scarcity issues in the agricultural sector.
- **EnGenious Ag:** developed low cost, instant read-out sensors for field-based measurement of nutrients in crops, water, and soils. They received Phase I SBIR awards from U.S. Department of Agriculture and National Science Foundation and the underlying technology was developed at Iowa State.
- **Deadeye BBQ (sauce):** scaled and refined a family recipe for BBQ sauce, company has since been acquired and now has products in two of Iowa's largest grocery store chains (Fareway and Hy-Vee).
- **Tres Mentas Salsa:** scaled and grew a family recipe for salsa. The company has since diversified its product lines, expanded operations and is sold by grocers throughout the Midwest.
- **Ideo Pak (food packaging safety):** Ideo Pak was founded to provide consulting services on packaging and polymeric materials focused on safety, quality, and performance.
- **Gym-n-Eat Crickets:** the development of an alternative protein source through sustainable cricket farms.
- **Kimle Aquaculture:** development and scaling of indoor shrimp farms currently selling sustainably raised shrimp direct to business and consumers throughout the Midwest.
- **Nebullam (now Clayton Farms):** started in 2017 as an equipment and software solution for indoor farms. In 2020, they pivoted to a direct-to-consumer business model growing and delivering year-round fresh lettuce and greens. The company has raised \$3 million in capital from equity and debt, has expanded to more than 800 subscribers and recently

expanded into Minnesota. This startup is currently the only Iowa company to graduate from the prestigious Y Combinator accelerator.

Our second, and most recent grant from the Build to Scale program helped us launch the Iowa Go 2 Market in Fall 2020. This \$525,427 award made possible, with matches, a total project cost of \$1.3 million.

Iowa Go 2 Market is a post accelerator, with rolling cohorts, that provides startups with advanced training, business resources and advising services to develop innovative technology driven products or services. The program is a partnership involving BioConnect Iowa, Iowa State Startup Factory and VentureNet Iowa. The Iowa State Startup Factory administers the program, so our startups have synergy in leadership and mentorship following their graduation from our Startup Factory program. Since the launch of Go 2 Market, nine startups have completed the program. Three startups are part of the fourth cohort, which began this month (December).

Startups in the three cohorts to date are:

- Cohort 1:
 - CartilaGen (injections for osteoarthritis treatment)
 - Classroom Clinic (virtual rural mental health for children) Classroom Clinic has expanded its service presence in Iowa with the help of G2M where they revised their business plan financial projections and were introduced to Iowa Ed-Tech consortium
 - FBB Biomed (RNA blood test for predicting disease severity)
 - Mazen Animal Health (oral pre-dosed vaccine delivery via feed) Mazen recently completed an \$11 million investment round after strengthening their messaging, financial pro forma, business plan and pitch during G2M
- Cohort 2:
 - SoilSerdem (precise soil mapping for targeted application of chemicals)
 - Sublime Stericeuhasticals (pharmaceutical freeze-drying equipment)
- Cohort 3:
 - Janas Materials (sustainable technology for coatings industry) Janas Materials secured an ISU CEO and joint development agreement with Diamond Vogel for their water-based stain additive following their participation in Startup Factory and G2M
 - NanoSpy (rapid pathogen detection biosensors)
 - Zymosense (rapid enzyme measurement) Zymosense leveraged their Startup Factory business plan deliverable into a \$400,000 NIST grant

Since completing the Iowa Go 2 Market program, one startup recently announced it has raised more than \$11 million in Series A funding. Another won first place in the investor pitch category with the John Pappajohn Entrepreneurial Center (JPEC) Summer 2022 Accelerator. Another startup won a Small Business Development Center statewide small business award. Three others have received State of Iowa Innovation funding or America's Seed Fund Small Business Innovation Research grants. I would like to highlight a few companies that have reaped the benefits of the Startup Factory and Go 2 Market:

- SoilSerdem: developed a technology for creating higher quality, lower cost soil maps using machine learning. The underlying technology for this company was developed at Iowa State as part of the founders' PhD work. These founders have now participated in three of our accelerators.
- NanoSpy: implemented our program to develop sensors for rapid detection of food-borne pathogens for improved safety. Its underlying technology was developed in part at Iowa State and the company recently received a Phase I SBIR award from the National Science Foundation.
- Soylei: leveraged over \$30 million in research funding and recently secured a commercial contract for its soybean-based polymer additive for asphalt.

The John Pappajohn Entrepreneurial Center at Iowa State University (JPEC) is part of our Economic Development and Industry Relations group, and Iowa State University's Ivy College of Business. This organization serves as the home for The Startup Factory and the Iowa Go 2 Market program. JPEC works collaboratively with four other programs throughout the state to host a statewide student competition, a statewide Iowa entrepreneur competition, a weeklong entrepreneur summer boot camp, and a fellowship with the Entrepreneurs Organization Iowa. Through these programs and support this year from Iowa Economic Development Authority, the John Pappajohn Entrepreneurial Centers awarded \$120,000 in incentives for entrepreneurial ventures.

Additionally, JPEC placed 46 student interns in startup companies located at the ISU Research Park and reported more than 6,720 students enrolled in entrepreneurship-themed coursework across campus in the last year. More than 10,000 individuals (students, faculty and community members) participated in programs and classes focused on entrepreneurship, startups and small business in the last year. Programs outside of the classroom included conferences, internships, speaker series, and more.

All our Iowa State accelerators operate from the ISU Research Park, a 550-acre innovation campus located adjacent to our campus connecting 120 tenant companies and 2,500 employees to the vast array of resources at Iowa State. Five companies that started operations at our research park have since gone on to successful initial public offerings and multiple others have enjoyed liquidity events, including the acquisition of an early Startup Factory company, SmartAg, by Raven Technologies (now Case New Holland).

We also leveraged the early success of The Startup Factory and the first EDA investment in responding to demand for a rural innovation program. We shared resources with America's Small Business Development Center Iowa (SBDC) - also co-located at our research park - with these accelerators, and launched *The Rural Business Innovators* program. This program provides customized one-on-one counseling and group training to help rural, technology innovation entrepreneurs develop and scale their business ideas and create jobs in rural Iowa. Participants in the program have developed more than 20 companies and collected external funding from multiple sources. They are in various vertical markets, including precision agriculture, renewables, manufacturing, and ed-tech. All are located in rural locations throughout the state.

The organization partnering with the accelerators is the Small Business Development Center Iowa, which also is an important part of our economic development footprint at Iowa State. In FY2022 our statewide Small Business Development Center counseled 4,217 clients located in every Iowa county and those companies self-reported \$121,595,607 in capital infusion, \$156,714,054 in sales increases, 213 new business starts and 1,961 new jobs created.

Finally, I would like to highlight two additional organizations in Iowa State's economic development ecosystem that have both received and benefited from EDA investments in recent years.

Our Center for Industrial Research and Service (CIRAS) received a \$690,000 award as an EDA University Center, between 2018 and 2023. The Iowa Workforce Innovation Network (iWIN) team is working with research universities, regional Council of Governments (COGs), economic developers, and education and business leaders to develop innovative, multi-faceted solutions to Iowa's systemic workforce issue. CIRAS previously had wrapped up a 5-year EDA award in the fall of 2018. That earlier award, with matching funds, totaled \$1.25 million and focused on technology readiness of manufacturing sub-sectors in Iowa.

CIRAS also received a \$300,000 University Center, Coronavirus Aid, Relief, and Economic Security Act, or CARES Act, Supplemental Disaster Recovery and Resiliency Award, that ran from summer of 2020 to summer of 2022. This award provided services to directly support the ability of businesses and communities to respond to the coronavirus outbreak. This effort included support for making and distributing personal protective equipment, supply chain shortages, back to business checklists and more.

The impact of injecting EDA investment into CIRAS reaches companies in every county in Iowa. Clients that CIRAS helped reported \$2.5 billion in impact in the last five years alone, including in 2021-2022 \$614 million in economic impact, 1,591 companies served, 200 onsite technology assessments for manufacturing companies, 740 attendees from 247 manufacturing companies into our digital manufacturing lab, 96 student capstone projects with 62 Iowa businesses and hosting 120 companies for Lean practices education.

Our ISU Research Park received an important \$1.3 million EDA infrastructure investment that with a match created \$3.6 million in additional infrastructure to support the expansion of the park. Since then, the research park has grown the footprint of the primary tenant that created the expansion, and next year alone that tenant will invest more than \$9 million in research at Iowa State and hire more of our graduates than any other company. The company has grown its footprint at ISU Research Park by more than 300 percent.

It has been an honor to share my perspectives with you today. I would be remiss if I closed my remarks without adding that we have been well-served by our regional EDA representative who has proven thoughtful, fair, and helpful in identifying and leveraging EDA's investment into each of the programs and organizations I highlighted today.

I hope that the testimony shared today showcases what programs like Build to Scale can do when thoughtfully administered and executed to maximize return on investment. Iowa State University remains committed to serving and delivering “Science With Practice” and we hope to continue to partner with federal government in support of these EDA programs as we Innovate at Iowa State.