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ANNUAL ECONOMIC DEVELOPMENT AND TECHNOLOGY TRANSFER REPORT**Action Requested:** Receive the report.**Full Reports Available:** The FY 2023 annual reports from the University of Iowa (UI), Iowa State University (ISU) and the University of Northern Iowa (UNI) are available on the Board of Regents website and will be provided to the General Assembly, Governor's Office, Legislative Services Agency and the Iowa Economic Development Authority as required by law.**Executive Summary:** Iowa's three public universities collaborate with business and industry and with each other to foster success for all economic development and entrepreneurship efforts in Iowa. They significantly impact Iowa daily and demonstrate to the public the value of research through research-based expertise and business assistance directly to Iowa's people, industry and communities in all 99 counties. Conducting academic research also results in intellectual property discoveries and innovations available to business, industry and the marketplace; and it provides Iowa with an educated workforce. Research and scholarship from faculty and staff at the Regent universities often lead to the discovery of innovations that can improve the quality of life for people in the state, the nation, and worldwide.

The Regent universities research and economic activities outlined in their reports meet the Board of Regents Strategic Plan, Priority 2, Objective 2.3: The Regent Enterprise will build strategic collaborations among universities and with outside entities to foster opportunities for innovation and economic development. Each institution shall report annually on significant partnership and/or collaboration activities. This includes both quantitative and qualitative metrics that demonstrate the impact of these activities.

FY 2023 Highlights:

Collectively, in FY 2023, the three universities provided nearly \$1.28 billion dollars in total sponsored funding to the state of Iowa, including \$687.8 million from competitive federal grants and awards. The Regent universities work diligently to develop breakthroughs that help to improve Iowa's economy through economic development, technology transfer and commercialization of research. The Regent universities faculty and researchers compete with other faculty and researchers from around the world to win this funding for their work. Students are the beneficiaries of this hard work as they get hands-on experience participating in this research.

Externally sponsored projects supplement the instruction, research, scholarship and public services provided by the Regent universities. These funds do not supplant state general fund dollars. This is true for all external funding (federal or non-federal) because it is required by federal regulation that external funds shall supplement and not supplant state dollars.

The Regent universities aid Iowa businesses and start-up companies across Iowa. The numbers fluctuate on an annual basis, but generally reflect an upward trend over several years. In FY 2023, there were 3,550 employees in the 213 companies located in the university research parks and incubators, 138 license and option agreements on institutional intellectual property were executed, and 158 patents were awarded. These numbers only tell part of the story. The value added by aiding licensees and startup companies as they take these typically early-stage

research ideas and turn them into revenue is not reflected. In addition, information on revenue from licensed patents is only collected during the patent term, which results in an underreporting of revenue generated from products that contain university technology. Nonetheless, these statistics reflect excellent performance when compared to similar institutions and reflect the economic value the Regent universities provide to the State of Iowa.

The below charts show the combined statistics for the three universities over the past five fiscal years. See the chart at end of the docket item for the details from each university.

| Licenses, Intellectual Property and Patents | FY 2019 | FY 2020 | FY 2021 | FY 2022 | FY 2023 |
|--|---------|----------|---------|----------|----------|
| Patent applications filed | 260 | 250 | 239 | 284 | 289 |
| Patents awarded | 88 | 176 | 158 | 150 | 158 |
| Disclosures of intellectual property | 259 | 237 | 256 | 197 | 215 |
| Total license and option agreements executed on institutional intellectual property | 96 | 85 | 96 | 84 | 136 |
| License and option agreements executed on institutional intellectual property in Iowa | 38 | 34 | 30 | 16 | 27 |
| License and option agreements yielding income | 292 | 260 | 217 | 208 | 201 |
| Revenue to Iowa companies as a result of licensed technology | \$13 M | \$10.3 M | \$6.9 M | \$12.1 M | \$11.5 M |
| Royalties and license fee income | \$4.6 M | \$4.6 M | \$4.8 M | \$6.5 M | \$5.3 M |

| Companies | FY 2019 | FY 2020 | FY 2021 | FY 2022 | FY 2023 |
|--|---------|---------|---------|---------|---------|
| Total startup companies formed through licensing activities | 10 | 7 | 15 | 5 | 7 |
| Startup companies formed in Iowa through licensing activities | 9 | 5 | 12 | 3 | 6 |
| Startup companies formed through UNI assistance | 94 | 99 | 107 | 98 | 75 |
| Companies in research parks and incubators | 189 | 191 | 185 | 194 | 213 |
| New companies in research parks and incubators | 168 | 72 | 55 | 55 | 62 |
| Employees in companies in research parks and incubators | 4,766 | 4,596 | 4,460 | 4,478 | 3,550 |

| Income and Funding | FY 2019 | FY 2020 | FY 2021 | FY 2022 | FY 2023 |
|--|-------------|-------------|-------------|-------------|-------------|
| Total sponsored funding | \$1,098.5 M | \$1,207.8 M | \$1,449.5M* | \$1,515.4 M | \$1,277.3 M |
| Sponsored funding from federal grants | \$540.4 M | \$648.3 M | \$790.3 M* | \$617 M | \$687.8 M |
| Total Corporate-sponsored funding | \$135.3 M | \$143.3 M | \$159.8 M | \$199.9 M | \$203.0 M |
| Corporate-sponsored funding in Iowa | \$32.2 M | \$21.6 M | \$20.59 M | \$27.6 M | \$32.6 M |

*FY 2021 sponsored funding includes federal Higher Education Emergency Relief Fund (COVID Relief) funding

State Appropriations: Stable state dollars allow the Regent universities to grow Iowa's economy. In many cases sponsored projects, including many federally sourced projects, require cost share (match) funds so that the sponsor and the university have a financial stake in the project. In order to provide cost share, some state dollars are used and in doing so the Regent universities are able to make every state dollar have twice, and sometimes more, of an impact on the university's instruction, research and public service.

Additionally, federal agencies will only invest in institutions that are financially healthy, compliant with federal regulations that have cutting edge technology and instrumentation, robust public service portfolios, and that have top-tier scholars and researchers. State funding supplies these resources, allowing the Regent universities to attract federal and non-federal funds so that every state dollar invested in the Regent universities has double or more of an impact on Iowa's communities and economy.

For FY 2023, the Iowa General Assembly appropriated nearly \$12.6 million in total funding for economic development, technology transfer and commercialization of research to the three Regent universities, which was equal to the FY 2022 state appropriation. The two state general fund appropriations for FY 2023, totaling nearly \$3.9 million, are divided as follows:

- Nearly \$3.5 million to ISU and UI for the biosciences innovation program (divided \$2,623,481 to ISU and \$874,494 to UI), which is the same level as FY 2022. The funding continues the four bioscience platforms identified in the TEconomy report where Iowa has the greatest likelihood of achieving a differentiated leadership position to grow and diversify the state's economy: biobased chemicals, precision and digital agriculture, vaccines and immunotherapeutics, and medical devices. The funding will facilitate technology transfer, incubate start-ups and accelerate technology transfer, attract external funding and provide innovation ecosystem services, and develop a skilled workforce.
- \$394,321 to UNI for the expansion of the Metal Casting Center's additive manufacturing capabilities related to investment castings technology and industry support, which is the same as FY 2021. This program was initially funded at \$400,000 in FY 2020.

The remaining \$8.7 million allocated to the Regent universities, from the Skilled Worker and Job Creation Fund (SWJCF), has not changed since creation of the fund in FY 2014:

- \$3 million to the Regents Innovation Fund, which is used in the areas related to technology commercialization, marketing, entrepreneurship, business growth, and infrastructure projects and programs needed to assist in implantation of activities under Iowa Code chapter 262B (Commercialization of Research). The Regent universities invest the funds received from the legislature in opportunities that yield successful startups, innovative business assistance, and critical research leading to commercialization. The universities are required to match the funding on a one-to-one basis from non-state resources. Research grants, private investors or companies interested in a project, and other university funds are often used as match dollars. The legislation divides the funding: 35% to UI, 35% to ISU, and 30% to UNI.
- \$2 million to UI for implementing the entrepreneurship and economic growth initiative. The appropriation is used to expand public/private partnerships and programing through the Pappajohn Entrepreneurial Center.
- \$209,000 to UI for the UI Research Park, Technology Innovation Center and UI Pharmaceuticals (formerly Advanced Drug Development program). UI must direct

expenditures for research toward projects that will provide economic stimulus for Iowa and emphasize providing services to Iowa-based companies.

- \$2.42 million to ISU for small business development centers, the ISU Research Park and the Center for Industrial Research and Service. At least \$735,728 must be allocated for purposes of funding small business development centers. ISU is to direct expenditures for research toward projects that will provide economic stimulus for Iowa and emphasize providing services to Iowa-based companies. The industrial incentive program must focus on Iowa industrial sectors and seek contributions and in-kind donations from businesses, industrial foundations, and trade associations, and that moneys for the Center for Industrial Research and Service industrial incentive program can only be allocated for projects which are matched by private sector moneys for directed contract research or for nondirected research. The match required of small businesses for directed contract research or for nondirected research shall be \$1 for each \$3 of state funds. The match required for other businesses for directed contract research or for nondirected research shall be \$1 for each \$1 of state funds. The match required of industrial foundations or trade associations shall be \$1 for each \$1 of state funds.
- \$1.07 million to UNI for the Metal Casting Center, the Center for Business Growth and Innovation, and the Institute for Decision Making. UNI must allocate at least \$617,638 for purposes of support of entrepreneurs through the university's Center for Business Growth and Innovation and Advance Iowa program. UNI must direct expenditures for research toward projects that will provide economic stimulus for Iowa and emphasize providing services to Iowa-based companies.

Annual Report Highlights:

The University of Iowa secured \$704.1 in external funding in FY 2023, including \$561.3 million in funds to support cutting-edge research, public service and creative discovery. UI has secured more than \$363 million in federal funding in FY 2023, a 16.5 percent increase over the previous year. A specific significant increase in UI funding is from NASA, which exceeded \$75 million in FY 2023, more than doubling the previous year's total. The funds that UI receives support a range of activities that advance the pace of research and discovery, engage students in transformational experiences, and benefit citizens of Iowa, the nation and the world.

Iowa State University secured \$530.5 million in total external funding for FY 2023. ISU researchers attracted \$301.3 million to support their experiments and projects, setting the university's record for annual, external, sponsored research funding; it topped the previous record, set in FY 2022, by \$17.1 million. The new research total also includes records for federal research funding (\$206.9 million) and non-federal research funding (\$94.4 million). Among the organizations to provide major support to ISU research projects include the National Science Foundation, the U.S. Department of Agriculture, and the Department of Health and Human Services and the National Institute of Health.

The University of Northern Iowa provided economic development assistance to all of Iowa's 99 counties for the 24th consecutive year. UNI's economic development outreach programs are housed in the Business and Community Services (BCS) division and work toward supporting UNI strategic goal 2, to "Empower Communities to Shape Their Future." Since 2000, BCS has engaged the entire university community in its outreach efforts, including faculty, staff, students, and alumni – all of whom play a critical role in Building a Better Iowa. Client interaction reached 3,953, a record high for BCS outreach centers and programs.

| Indicators | FY 2019 | | | | FY 2020 | | | | FY 2021 | | | | FY 2022 | | | | FY 2023 | | | |
|---|-----------------|-----------------|----------------|-------------------|-----------------|-----------------|----------------|-------------------|------------------|-------------------|-----------------|--------------------|-----------------|-----------------|----------------|-------------------|-----------------|-----------------|----------------|-------------------|
| | ISU | SUI | UNI | Regents Total | ISU | SUI | UNI | Regents Total | ISU | SUI | UNI | Regents Total | ISU | SUI | UNI | Regents Total | ISU | SUI | UNI | Regents Total |
| Number of disclosures of intellectual property | 165 | 83 | 11 | 259 | 132 | 95 | 10 | 237 | 144 | 101 | 11 | 256 | 82 | 103 | 12 | 197 | 130 | 72 | 13 | 215 |
| Number of patent applications filed | 98 | 160 | 2 | 260 | 102 | 146 | 2 | 250 | 114 | 123 | 2 | 239 | 94 | 188 | 2 | 284 | 112 | 175 | 2 | 289 |
| Number of patents awarded | 32 | 54 | 2 | 88 | 98 | 76 | 2 | 176 | 71 | 86 | 1 | 158 | 69 | 80 | 1 | 150 | 97 | 59 | 2 | 158 |
| Number of license and option agreements executed on institutional intellectual property in total | 46 | 48 | 2 | 96 | 46 | 37 | 2 | 85 | 47 | 47 | 2 | 96 | 34 | 48 | 2 | 84 | 87 | 47 | 2 | 136 |
| Number of license and option agreements executed on institutional intellectual property in Iowa | 25 | 12 | 1 | 38 | 22 | 10 | 2 | 34 | 22 | 7 | 1 | 30 | 10 | 5 | 1 | 16 | 14 | 12 | 1 | 27 |
| Number of license and option agreements yielding income | 155 | 127 | 10 | 292 | 154 | 95 | 11 | 260 | 118 | 87 | 12 | 217 | 113 | 83 | 12 | 208 | 113 | 76 | 12 | 201 |
| Revenue to Iowa companies as a result of licensed technology | \$8.3 million | \$1.2 million | \$3.5 million | \$13 million | \$5.4 million | \$1.1 million | \$3.8 million | \$10.3 million | \$1.7 million | \$1.1 million | \$4.1 million | \$6.9 million | \$5.5 million | 2.32 million | \$4.3 million | \$12.1 million | \$3.0 million | \$4.0 million | \$4.5 million | \$11.5 million |
| Number of startup companies formed, in total (through licensing activities) | 4 | 5 | 1 | 10 | 4 | 2 | 1 | 7 | 8 | 6 | 1 | 15 | 1 | 3 | 1 | 5 | 1 | 5 | 1 | 7 |
| Number of startup companies formed, in Iowa (through licensing activities) | 4 | 4 | 1 | 9 | 4 | 0 | 1 | 5 | 8 | 3 | 1 | 12 | 1 | 1 | 1 | 3 | 1 | 4 | 1 | 6 |
| Number of startup companies formed through UNI assistance | -- | -- | 94 | 94 | -- | -- | 99 | 99 | -- | -- | 107 | 107 | -- | -- | 98 | 98 | -- | -- | 75 | 75 |
| Number of companies in research parks and incubators | 130 | 38 | 21 | 189 | 135 | 34 | 22 | 191 | 134 | 32 | 19 | 185 | 142 | 32 | 20 | 194 | 159 | 31 | 23 | 213 |
| Number of new companies in research parks and incubators | 151 | 1 | 16 | 168 | 53 | 5 | 14 | 72 | 35 | 5 | 15 | 55 | 45 | 2 | 8 | 55 | 48 | 2 | 12 | 62 |
| Number of employees in companies in research parks and incubators | 2,253 | 2,459 | 54 | 4,766 | 2,041 | 2,500 | 55 | 4,596 | 1,913 | 2,500 | 47 | 4,460 | 1,945 | 2,500 | 33 | 4,478 | 2,491 | 1,022 | 37 | 3,550 |
| Royalties and license fee income | \$2.8 million | \$1.77 million | \$29,050 | \$4.6 million | \$3.0 million | \$1.57 million | \$45,100 | \$4.62 million | \$2.9 million | \$1.81 million | \$63,400 | \$4.8 million | \$2.8 million | \$3.65 million | \$35,600 | \$6.5 million | \$3.1 million | \$2.16 million | \$49,068 | \$5.3 million |
| Total sponsored funding | \$469.0 million | \$588.7 million | \$40.8 million | \$1,098.5 million | \$494.7 million | \$666.2 million | \$46.9 million | \$1,207.8 million | \$559.1 million* | \$818.04 million* | \$72.4 million* | \$1,449.5 million* | \$601.7 million | \$867.2 million | \$46.5 million | \$1,515.4 million | \$530.5 million | \$704.1 million | \$42.7 million | \$1,277.3 million |
| Sponsored funding from federal grants | \$237.1 million | \$281.5 million | \$23.2 million | \$541.8 million | \$272.5 million | \$346.7 million | 29.1 million | \$648.3 million | \$303.5 million* | \$431.3 million* | \$55.5 million* | \$790.3 million* | \$251.7 million | \$343.1 million | \$22.2 million | \$617 million | \$301.3 million | \$366.3 million | \$20.2 million | \$687.8 million |
| Corporate-sponsored funding in total | \$57.2 million | \$77.1 million | \$1.0 million | \$135.3 million | \$51.2 million | \$91.1 million | \$1.0 million | \$143.3 million | \$51.5 million | \$107.1 million | \$1.2 million | \$159.8 million | \$62 million | \$136.6 million | \$1.27 million | \$199.9 million | \$67.6 million | \$134.2 million | \$1.22 million | \$203.0 million |
| Corporate-sponsored funding in Iowa | \$20.7 million | \$10.9 million | \$560,000 | \$32.2 million | \$11.8 million | \$8.8 million | \$1.0 million | \$21.6 million | \$12.2 million | \$7.49 million | \$900,000 | \$20.59 million | \$18.8 million | \$8 million | \$800,000 | \$27.6 million | \$22.8 million | \$8.8 million | \$950,000 | \$32.6 million |