

Contact: Keith Saunders

2011 ECONOMIC DEVELOPMENT AND TECHNOLOGY TRANSFER REPORT

Actions Requested: Consider recommending the following to the Board:

- 1) Receive the report.
- 2) Direct that this report and copies of complete institutional reports be forwarded to the Secretary of Senate, the Chief Clerk of the House of Representatives, the Legislative Services Agency, and the Office of the Governor and the Director of the Iowa Department of Economic Development pursuant to Iowa Code Chapters 262B.3, HF 809 (2005 Session) and HF 2459 (2006 Session).

Executive Summary:

The Regents universities promote the economy of Iowa most notably by providing higher education to the people of the state. The universities also make a significant contribution to the Iowa economy by conducting academic research that results in intellectual property and applications available to the marketplace and by providing expertise and assistance directly to Iowa's people, industry and communities. The University of Iowa (SUI), Iowa State University (ISU) and the University of Northern Iowa (UNI) thus support the economy of Iowa primarily through their core missions, and their economic contributions to the state are fundamentally linked to their overall academic excellence.

This core mission was supported by \$841.8 million in funding sponsored by federal and corporate sources in FY 2011. This funding provided the basis on which the Regents universities conducted a wide variety of economic development programs that produced the following results in the past year:

- 182 new intellectual property disclosures
- 169 patent applications
- 75 new patents awarded
- 75 new license and option agreements on intellectual property
- 322 total license and option agreements yielding income
- \$18.6 million in royalty and fee income
- \$90.4 million in revenue generated by Iowa companies as a direct result of university technologies
- 2,509 Iowans employed at 121 companies at the SUI, ISU and UNI research parks and incubators

State funding of ongoing economic development programs at the universities has declined by 58% comparing FY 2001 to FY 2011. Grow Iowa Values Fund appropriations to the universities in FY 2011 were reduced to \$3.8 million are 24% lower than the original FY 2005 authorization.

Selected FY 2011 Economic Development and Technology Transfer Highlights

University of Iowa:

- The UIRF executed 8 option and license agreements to startups based on UI intellectual property, and assisted in forming 3 new startup companies based upon UI Intellectual Property. At year-end, 20 UI initiated startup companies remained viable with 14 of these residing in Iowa. In FY11 the funding and financing of these startups (\$33M) doubled over the FY10 total (\$16M), which had doubled over the FY09 total (\$7M). Eleven startups were successful in securing funding and financing, and numerous startups that received funding in FY10 continued to secure additional funding in this year.

- The Iowa Medical Innovation Group (IMIG) is a rapidly growing student oriented interdisciplinary program involving students from the Colleges of Medicine, Engineering, Business and Law focused on the identification of solutions to clinical problems and focused in Health IT and medical devices. Under the auspices of JPEC and UIRF, senior faculty mentor interdisciplinary student innovation teams. In FY 11 two viable technologies emerged for further development.
- The UI Research Park companies and affiliated labs report 1618 employees living in 161 communities in 45 Iowa counties, a regional labor shed covering almost one-half of the state. The average individual salary of \$63,000, which translates into an annual payroll of nearly \$100 million, results in an estimated \$9.0 million in state income taxes in 2011.
- The BioVentures Center currently has 9 tenants, 6 of which are spun from UI technology, for an occupancy rate of 65%. The Technology Innovation Center (TIC) currently houses 11 tenant companies for an occupancy rate of 77% with two new tenants (Angel eCare and Brain Image Analysis) this year. Since TIC opened in 1989, 23 of the 41 companies affiliated with TIC are still in business in Iowa today.

Iowa State University:

- The ISU Research Park continues to be successful in initiating as well as nurturing numerous new businesses. Nine new companies and affiliates joined the Park in FY11, bringing the historical total to 210 companies, research centers, and affiliates. Currently, there are 53 companies, research centers, and affiliates located in the Park, employing 839 people.
- Companies receiving technical assistance from ISU's Institute for Physical Research and Technology reported that the estimated impact of projects conducted in the last year was \$16.9 million; the average impact over the last 5 years is \$12.8 million per year. Companies also estimated over 24 jobs were created or retained each year from 2005-2010 with 20 jobs retained or created from projects surveyed in the past year.
- In FY11, 1,235 businesses from 95 counties in the state received assistance on projects or attended educational workshops from ISU's Center for Industrial Research and Service staff or partners. Companies responding to surveys reported \$43 million in new investments, \$19 million in costs saved or avoided, and \$331 million in sales gained or retained. Company executives stated that 6,037 jobs were added or retained as a result of the assistance they received from CIRAS and partners.
- The Small Business Development Center (SBDC) provided business assistance to companies, involving 2,786 clients and 11,641 counseling hours. They also conducted 351 training workshops in which 4,017 individuals participated.

University of Northern Iowa:

- UNI provided service in all 99 counties of Iowa to nearly 1,300 unique businesses, community and local government clients; another 100,000 individuals were engaged in the MyEntre.Net entrepreneurial support system.
- UNI involved 212 faculty members and more than 2,000 students in the delivery of its services to Iowa businesses and communities.
- UNI's three incubator/accelerators programs and MyEntre.Net helped start or expand 247 business ventures creating 175 FTE jobs.

- 21 student businesses were tenants in the John Pappajohn Entrepreneurial Center's Student Business Incubator and 43 additional student entrepreneurs were assisted by the affiliate program.

Engagement

Many organizational units at the Regents universities are engaged with Iowa's people, industry and communities for the promotion of the state's economic development. Key economic development efforts include: research, intellectual property development and technology transfer, business incubation and acceleration, direct technical assistance to local and regional economic development groups, technical assistance and counseling to businesses, market research for Iowa companies and attracting and retaining businesses in the state. These activities are also highly coordinated with the economic development efforts of the Governor, the Iowa General Assembly and state agencies including the Iowa Department of Economic Development.

State Funding for Economic Development and Technology Transfer

State funding in FY2011 was provided in two primary economic development program areas:

1. Ongoing Economic Development and Technology Transfer Programs: FY 2011 \$3.41 million

In FY 2011, the state provided \$3.41 million for several ongoing programs which include the research parks at SUI and ISU, the Institute for Physical Research and Technology, the Small Business Development Centers, the Institute for Decision Making, the Metal Casting Center and the Center for Advanced Drug Development. For FY 2012, state support for these programs declined again by an additional 5.9 percent. Total state support for these programs now stands at \$3.21 million for FY 2012. This is a decline of 58% below the \$7.63 million provided in FY 2001.

2. Grow Iowa Values Fund (GIVF): FY 2011 \$3.8 million

In FY 2005, the General Assembly authorized a ten-year annual appropriation of \$5 million under the GIVF to the Regents universities for purposes of supporting the human and physical infrastructure needed to effectively develop and transfer technology discoveries and to fund development projects involving existing companies and start ups.

Many of the GIVF-funded projects involve multi-year research and development efforts with private companies. A number of projects funded in earlier years are now being completed and are demonstrating a significant impact on job and wealth creation.

For FY 2011 the General Assembly approved \$3.8 million in GIVF funding, of which \$3.65 million was allocated for the three universities and \$152,000 was allocated for projects submitted by Iowa's independent colleges and universities. The FY 2012 GIVF appropriation was reduced again to \$1.5 million. The Board of Regents approved the universities' FY 2012 proposals at the September 2011 Board meeting. The universities and companies involved in GIVF projects have identified matching funds for the projects. Examples of projects included:

- Terpenoid Therapeutics was provided GIVF funding proof of concept funding in 2005 by the University of Iowa. The company is currently located in the University of Iowa Research Park in the BioVentures Center Incubator and currently has 6 employees. Terpenoid Therapeutics, Inc. is a spin off cancer drug discovery and development company based on the intellectual property from the research of Drs. David Wiemer and Raymond Hohl in Chemistry and Oncology, respectively. The company has been successful in multiple Small Business Innovation Research grant applications, the Iowa Department of Economic Development DEMO fund as well as in raising significant private capital and has two lead compounds approaching Phase I human clinical

trials. Since 2005, the company has raised over \$2M in external funds including IDED demonstration funds (\$150K), Series A funding (\$1.5M) and SBIR/STTR (\$414K).

- Iowa State professor, Dr. Brehm-Stecher, is collaborating with Advanced Analytical Technologies, Inc. to develop a faster method to detect and genetically identify salmonella from contaminated foods. The new method would replace the current system of salmonella detection with a new approach that can provide DNA sequencing-like results in hours rather than days. Faster detection of specific strains can mean recognizing an outbreak sooner and stopping tainted food from being delivered and consumed. Brehm-Stecher's collaborator, Advanced Analytical Technologies, Inc., from Ames, is providing advanced biomedical instruments and reagents for the research.
- The Tallgrass Prairie Center (TPC) at UNI continues a relationship with Cedar Falls Utilities (CFU) to determine the maximum energy production potential from prairie biomass. CFU will burn the biomass in their stoker furnace to evaluate the materials. Unfortunately, the June 2008 flood has set the project back one year. Plots were replanted in 2009 and second year biomass data will be collected this fall. Test burn of biomass will be conducted in spring 2012. TPC continues working with the Iowa Crop Improvement Association to develop a consortium of native seed producers, native plant growers, nurseries, Iowa Department of Natural Resources, Iowa Department of Transportation, Iowa Natural Resources Conservation Service and private individuals to market native plants.

Private College Grant Program

Of the \$3.8 million in FY 2011 GIVF funding, \$152,000 was awarded by the Board of Regents at the February 2010 meeting to three independent universities and colleges for economic development and technology transfer projects.

- Luther College received funding for research into the use of cyclodextrins as a new and potentially less expensive method of detecting furans, dioxanes and polychlorinated biphenyls which can pollute water systems. The researcher believes a low-cost, effective detection method could be commercialized and, once proven, could be expanded to detect other forms of chemical pollutants. The research indicates that the results of the project will be shared with environmental regulatory agencies.
- Clarke College received funding to continue work previously done under GIVF funding that created a web-based analysis library and software tool/portal for clinicians and medical researchers gathering HIV data. The project is a collaboration among faculty at Clarke, UIHC, the University of Wisconsin Hospitals and Clinics, Stanford University School of Medicine and physicians at Dubuque Internal Medicine. The additional funding will allow Clarke to use the software, hardware and research tools developed to design and implement an Iowa clinical ontology in collaboration with a Dubuque clinician. The ontology will enable patients and clinicians to obtain statistical analysis related to patient health conditions by taking advantage of electronic medical records. The researchers believe the proposal will enhance the development of health informatics services in Iowa and plan to license the software product. The researchers propose to work with the Small Business Administration to develop a strategy promoting a medical informatics center in Iowa.
- Upper Iowa University received funding to accelerate a business development program funded in part by the University's Upper Iowa Business Development (UIBD) grant program. The UIBD is a \$570,000 endowment created in 2007. The program supports economic development initiatives including a grant program for entrepreneurs interested in starting or expanding a business in Fayette, Iowa. Local business applicants are evaluated based on their business

plan, growth potential, impact on job creation, and sales and taxes generated. Applicants are provided business development assistance and entrepreneurship mentoring through the University's e-Center and are advised about other sources of funding or tax credits. Funding provided the applicants may be used for research and development or commercialization of a product, marketing or advertising or construction and renovation expenses. Applicants are evaluated by a UIBD Grant Advisory Committee which includes representatives of local and regional economic development organizations. Applicants are required to provide a minimum of 20% cash match.

The Board will review FY 2012 proposals from private colleges at the December 2011 meeting. A total of \$60,000 will be available for these projects.

Full Reports Available

The full annual reports from the universities are available at the Board of Regents website and will be provided to the General Assembly, the Governor's Office, the Legislative Services Agency and the Iowa Department of Economic Development.

Table 1: Intellectual Property, Technology Transfer, and External Support FY2009-2011

Indicators	FY 2009				FY 2010				FY 2011			
	ISU	SUI	UNI	Regents Totals	ISU	SUI	UNI	Regents Totals	ISU	SUI	UNI	Regents Totals
1. Number of disclosures of intellectual property	95	70	12	177	111	70	8	189	106	68	8	182
2. Number of patent applications filed	40	128	6	174	26	107	8	141	47	90	5	169
3. Number of patents awarded	23	116	4	143	29	97	3	129	25	43	3	75
4. Number of license and option agreements executed on institutional intellectual property in total	84	18	3	95	97	21	3	121	49	24	2	75
5. Number of license and option agreements executed on institutional intellectual property in Iowa	32	2	3	37	32	6	2	41	19	5	1	25
6. Number of license and option agreements yielding income	121	135	13	269	260	129	11	400	217	94	11	322
7. Revenue to Iowa companies as a result of licensed technology ¹	\$103 million	\$1.71 million	\$3.2 million	\$107.9 million	\$58 million	\$2.03 million	\$2.7 million	\$62.7 million	\$86 million	\$1.99 million	\$2.4 million	\$90.4 million
8. Number of startup companies formed, in total (through licensing activities)	1	2		3		3		3*	2	3		5
9. Number of startup companies formed, in Iowa (through licensing activities)	1	2		3		3		3*	2	3		5
10. Number of start up companies formed through UNI MyEntrene/IIncubator			74	74			72	72*			61	61
11. Number of companies in research park/ incubators	62	50	34	146	59	46	30	135	57	41	23	121

*corrected

numbers

Indicators	FY 2009				FY 2010				FY 2011			
	ISU	SUI	UNI	Regents Totals	ISU	SUI	UNI	Regents Totals	ISU	SUI	UNI	Regents Totals
12. Number of new companies in research parks and incubators	16	6	23	45	11	3	11	25	10	2	15	27
13. Number of employees in companies in research parks and incubators	854	2029	65	2948	758	2010	61	2829	846	1618	45	2509
14. Royalties and license fee income	\$9.3 million	\$42.9 million	\$117,000	\$52.3 million	\$9.4 million	\$27 million	\$118,849	\$36.52 million	\$11.3 million	\$6.28 million	\$99,074	\$18.57 million
15. Total sponsored funding (\$ million)	\$305.2 million	\$429.5 million	\$39.7 million	\$774.4 million	\$388.2 million	\$466.5 million	\$42 million	\$896.7 million	\$342.3 million	\$456.5 million	\$43 million	\$841.8 million
16. Corporate-sponsored funding for research and economic development ² in total (\$ million)	\$22.4 million	\$38.6 million	\$1.35 million	\$62.35 million	\$21.1 million	\$30.8 million	\$1.55 million	\$53.45 million	\$24.9 million	\$44.7 million	\$2.07 million	\$71.7 million
17. Corporate-sponsored funding for research and economic development ² in Iowa (\$ million)	\$12 million	\$1.5 million	\$1.35 million	\$14.85 million	\$11 million	\$1.8 million	\$1.55 million	\$14.35 million	\$12 million	\$1.5 million	\$2.07 million	\$15.6 million

¹Aggregate sales reported by Iowa companies of products and services based on licensed inventions.

²Excludes corporate philanthropy