

**MEMORANDUM**

Agenda Item 4

**To:** Board of Regents  
**From:** Board Office  
**Subject:** Annual Report on Technology Transfer and Economic Development  
**Date:** December 1, 2004

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**Recommended Actions:**

1. Receive the report on technology transfer and economic development.
2. Direct that this report and copies of complete institutional reports (included in the Regent Exhibit Book) be forwarded to the Secretary of the Senate, the Chief Clerk of the House of Representatives, and the Legislative Fiscal Bureau by January 15, 2005.

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**Executive Summary:**

The Regent universities promote the economy of Iowa primarily by providing higher education to the people of the state. The universities also strengthen the Iowa economy through development of the state's workforce, conducting research that results in intellectual property and applications in the marketplace, providing assistance to Iowa businesses and communities, and attracting and retaining industry. The Regent universities collaborate in a variety of initiatives aimed at promoting economic development. In addition, the research undertaken at the Regent universities' and the external support it attracts invigorate the Iowa economy.

The report also provides brief background concerning the Regent universities' activities supported through direct budget allocations. These directly supported enterprises nevertheless constitute a small part of the wide range of Regent university projects and services that promote economic development in Iowa.

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**Background:**

The broader context of Economic Development and the Regent Universities

The Regent universities promote the economy of Iowa primarily by providing higher education to the people of the state. In addition to on-campus undergraduate, graduate, and professional degree programs, the Regent universities are important providers of distance and continuing education for people in the workforce. By providing higher education, the Regent universities help to sustain both high productivity and high-wage employment in Iowa, both of which are critical to the state's economic well-being. Additionally, the Regent universities hire people for well-paying jobs, support state and local tax bases, spend in and attract money to local and state economies, and contribute to an overall climate and quality of life which attract and retain business.

The focus of this report

This report focuses on the more purposeful and targeted ways in which the Regent universities promote the economy of Iowa. These include:

- workforce development;
  - the creation of intellectual property;
  - advancing ideas for market applications;
  - supporting the creation of new companies;
  - offering assistance to existing companies;
  - providing technical assistance to Iowa communities;
  - attracting new companies to the state.
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Outline of this report

This report briefly describes the Regents universities' contribution to the economic development and technology transfer in terms of the following categories of activities:

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- I. Research and Technology Transfer
  - II. Research Parks and Business Incubation
  - III. Other Technical Assistance
  - IV. Major Collaborations for Economic Development
  - V. Economic Development Appropriations FY 2001-2005

**I. Research and Technology Transfer**

The fundamental purpose of the research undertaken by the Regents universities is to expand the horizons of human knowledge and possibility. As contributions to science, the research activities of the Regent universities' promote the well-being of the whole of society.

Academic research contributes to the Iowa economy

Nevertheless, the universities' research efforts, including the management of intellectual property and the transfer of new technologies for broader application, also make a vital contribution to the economy of the state. The research undertaken at the Regent universities' and the external support it attracts invigorate the Iowa economy.

External support attracted by the Regent Universities supports 15,590 jobs

According to a U.S. Commerce Department Bureau of Economic Analysis multiplier, \$433 million in external support for research at the Regent universities supported 15,590 jobs in FY 2004<sup>1</sup>. Aggregate FY 2004 revenue to Iowa companies as a result of Regents university licensed technologies (i.e., sales reported by Iowa companies of products and services based on licensed inventions) amounted to \$21.4 million.

Some technology transfer achievements

Examples of achievements in technology transfer at the Regents universities include:

- In FY04, the University of Iowa achieved a record high 47 options/licenses executed and a record high 46 patents issued.
- In FY04 the University of Iowa achieved a record high \$10,734,275 in intellectual property earnings.
- In FY04 the University of Iowa received \$333.3 million in sponsored funding. Of this sum, \$30.4 million came from corporations.
- In FY04, Iowa State University obtained a record \$274.2 million in sponsored funding from federal and non-federal sources. Of this amount, \$12.6 million came from businesses and commodity groups for research activities and \$12.7 million for non-research activities, including many projects that provide technical support and outreach to companies in Iowa.
- Total sales of ISU research foundation-licensed technologies (excluding germplasm) were \$68.7 million.
- The University of Northern Iowa's technology transfer efforts have spun out several companies into the regional economy.
- UNI's Intellectual Property Committee to date has reviewed disclosures leading to 18 patents, 3 provisional patents, 31 international patents, and 9 memorandums of understanding.

Table 1 provides statistics

Table 1 (on the following page) presents indicators related to intellectual property and aggregate external support for FY 2003 and FY 2004.

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<sup>1</sup> "These job figures include both full- and part-time jobs. They also include jobs supported directly on campuses and jobs supported indirectly outside campuses as institutional expenditures ripple through local and state economies." Source: AAU memorandum, Employment Impacts of Academic R&D, August 19, 2003.

**Table 1: Intellectual Property and Aggregate External Support FY 2003 – FY 2004**

Indicators	FY 2003				FY 2004			
	ISU	SUI	UNI	Regents Total	ISU	SUI	UNI	Regents Total
1. Number of disclosures of intellectual property	134	75	1	210	110	86	3	199
2. Number of patent applications filed	37	101	2	140	52	118	3	173
3. Number of patents issued	27	39	2	68	27	46	2	75
4. Number of license and option agreements executed on institutional intellectual property	187	42	2	231	166	47	1	214
5. Number of license and option agreements yielding income	437	177	6	620	362	164	5	531
6. Royalties/license fee income	\$6,820,000	\$8,762,838	\$26,320	\$15,609,158	\$2,800,000	\$10,734,275	\$25,695	\$13,559,970
7. Revenue to Iowa companies as a result of licensed technologies <sup>2</sup>	\$14,800,000	\$1,506,526	\$890,000	\$17,196,526	\$18,000,000	\$740,779	\$2,660,000	\$21,400,779
8. Total sponsored funding	\$230,400,000	\$352,319,990	\$18,071,000	\$600,790,990	\$274,217,384	\$333,299,508	\$23,735,500	\$631,252,392
9. Sponsored funding for research	\$148,000,000	\$279,320,212	\$1,750,000	\$429,070,212	\$163,075,683	\$267,547,634	\$2,433,400	\$433,056,717
10. Corporate-sponsored funding for research and economic development <sup>3</sup>	\$26,400,000	\$33,274,148	\$3,214,000	\$62,888,148	\$25,254,584	\$30,383,055	\$1,756,800	\$57,394,439
11. Iowa special appropriations for economic development and technology transfer	\$2,424,161	\$253,338	\$370,555	\$3,048,054	\$2,369,617	\$247,638	\$362,217	\$2,979,472

<sup>2</sup> Aggregate sales reported by Iowa companies of products and services based on licensed inventions.

<sup>3</sup> Excludes corporate philanthropy.

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Research parks provide support to new businesses

Some examples of successes in supporting businesses and technology innovation

## **II. Research Parks and Business Incubation**

The Regent universities support business and job creation in part through business and technology incubation. The Regent universities' incubators provide new companies with guidance through the start-up process, connections to the respective universities, affordable space, reception services, office equipment, conference rooms, and other amenities at reasonable rates.

Examples of Regents university achievements in business and technology incubation include:

- The 39 active Iowa companies affiliated with the University of Iowa's Technology Incubation Center and Oakdale Research Park employ 1,231 people earning an average salary of more than \$49,000. Employees come from 22 counties and 83 cities and towns.
- In FY04, the UI Office of Corporate Partnerships worked with 29 Iowa companies, organized seven on-campus visits by Iowa businesses and facilitated interactions between business representatives and UI researchers, technology transfer personnel and career placement officers.
- The UI Center for Biocatalysis and Bioprocessing (CBB) expanded collaborations with industry in Iowa and worldwide and advanced plans for a cGMP manufacturing facility.
- Five new companies and affiliates have joined the ISU Research Park in FY04, bringing the historic total of affiliated companies to 139. These companies employ more than 1500 people. Currently, there are 48 companies located in the Park, employing over 750 people.
- A study of the ISU Research Park has indicated that tenants contribute \$134.2 million both directly and indirectly to the state's industrial output.
- Wages paid by the ISU Research Park companies exceed \$36.7 million annually.
- During its three years of operation, UNI's Regional Business Center has launched 15 businesses and graduated 8 into approximately 17,000 square feet of commercial space in downtown Waterloo.
- UNI's MyEntreNet program provides virtual incubator services to eight rural Iowa counties.
- UNI's two incubator programs have launched 46 new ventures which in turn have created more than 154 jobs.

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Universities provide technical support to industry and Iowa communities

Some examples of achievements in technical assistance

## **III. Other Technical Assistance**

In addition to the support provided by the research parks, numerous other Regent university programs and projects provide technical assistance and public outreach. Regent university outreach and public service activities for economic development include hands-on technical assistance to businesses and entrepreneurs and direct economic development assistance to Iowa communities.

Examples of Regents university achievements in technical assistance include:

- The University of Iowa's John Pappajohn Entrepreneurial Center served nearly 1,800 students in entrepreneurial courses during the year and received the 2004 National Model Program Award for Excellence in Entrepreneurship Education for undergraduates.
  - SUI's Small Business Development Center provided more than 3,800
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hours of assistance including one-on-one technical business services to 375 small businesses

- New technologies originating at ISU and licensed to Iowa companies have resulted in \$18.7 million in sales by those companies in calendar year 2003.
- Eight manufacturers that collaborated with ISU's Institute for Physical Research and Technology reported one-time cost savings of more than \$1.22 million,
- One hundred seventy companies served by ISU's Iowa Manufacturing Extension Partnership (IMEP) reported a total of over \$27.5 million on cost savings as a result of IMEP company assistance. Also as a result of these efforts, 170 companies in Iowa reported a combined \$32 million in new investments during the last four quarters, and \$167 million in sales gains.
- UNI's Institute for Decision Making has provided hands-on technical services to 457 community clients. Largely as a result of these services, these clients have created over 1,000 to 1,500 jobs per year over the last decade.
- The UNI John Pappajohn Entrepreneurial Center provided research, consultation and services to 35 business start-ups, and 500 individuals participated in JPEC educational programs. The center helped launch one of the first community-based regional investment funds in Iowa.
- The UNI Regional Business Center/Small Business Development Center provides support services for entrepreneurs in Northeastern Iowa. The center helped launch 46 new business ventures, which created 154 new jobs. Approximately 775 small businesses in nine counties were served through the center's programs.

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#### **IV. Major Collaborative Efforts**

Universities collaborate for economic development

Regent universities collaborate in a variety of initiatives aimed at promoting economic development. The universities collaborate with one another as well as with such other Iowa entities as Iowa community colleges, the Iowa Department of Economic Development, Iowa Workforce Development, the Department of Natural Resources, Recycle Iowa, USDA Rural Development, and regional and local economic development groups.

A few examples of major collaborative projects

A small number of examples of major economic development collaborative projects include:

##### Battelle Study

All three Regent universities participated extensively in facilitating the Battelle Memorial Institute's study and road map for Iowa's biosciences. All three universities are active participants in implementing this plan to accelerate the growth of the bioscience industry in Iowa.

##### Consider Iowa Program

Aimed at workforce development, Consider Iowa offers co-funded student internships with qualifying companies as well as a series of discussion forums. The program was launched by the University of Iowa's Office of Corporate Partnerships, UI Career Center, Engineering Career Services, Technology Innovation Center and Oakdale Research Park .

##### Highlighting Emerging Careers to High School Students

University of Iowa's Office of Corporate Partnerships facilitated a one-day program for Kirkwood Community College Workplace Learning Connection students from area high schools to visit with emerging Iowa companies and UI Centers of excellence.

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State Biotechnology Marketing Initiatives

For more than a decade the University of Iowa and Iowa State University have been partners with the Iowa Department of Economic Development in a major strategic state presence at the annual international convention of the Biotechnology Industry Organization.

Biologics Facility

This is a significant effort at ISU to initiate the biopharming industry in Iowa through the establishment of a Biologics Facility that can be used to extract from plants critical proteins that have significant pharmaceutical, nutraceutical, and/or industrial applications.

International Economic Development Initiatives in Korea and New Zealand

These efforts, undertaken by ISU together with the Iowa Department of Economic Development and the Greater Des Moines Partnership, have focused on attracting companies to North America.

ABIL Collaboration with ISU-CIRAS/USDA

The University of Northern Iowa's Ag-Based Industrial Lubricants and Iowa State University's Center for Industrial Research and Service are jointly cooperating in the development, commercialization and utilization of bio-based products. The CIRAS database is part of USDA's Federal Bio-based Products Preferred Procurement Program.

IWRC – STAR Training with Community Colleges

UNI's Iowa Waste Reduction Center enjoys strong partnerships with several state agencies, primarily the Iowa Department of Natural Resources and Iowa Department of Economic Development. The IWRC has also collaborated with eleven Iowa community colleges to transfer the Spray Technique Analysis and Research (STAR) Training Program.

IDM and IWD

In 2004, UNI's Institute for Decision Making continued to assist Iowa Workforce Development with its efforts to expand and enhance the use of labor market data by economic development organizations and businesses. Among the outcomes of this ongoing collaboration was a study that won the National Association of State Workforce Agencies' 2004 Labor Market Information Communication Publication Award.

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**V. Economic Development Appropriations FY 2001 – FY 2005**

State appropriations for specific enterprises

This year, as in prior years, state appropriations have been allocated to each of the Regent universities for specific enterprises associated with the promotion of economic development in the state. These enterprises represent a small fraction of the wide range of Regent university projects and services that promote economic development in Iowa. The universities' individual reports (included in the Regent Exhibit Book) provide more information about their respective programs.

Since 2001, appropriations cut 60%

The universities report that reduced appropriations for Regent universities' economic development enterprises have had critical consequences and severely limited the services they provide. For example, as a result of new or increased fees for technical assistance, many rural communities and businesses that cannot pay for technical assistance—often those with the greatest need—are no longer served. Also for example, the Small Business Development Centers, and UNI's Institute for Decision Making and Metal Casting Center have reduced staffing and services. In addition, reductions in state funding have weakened both the universities' capacity to help create and develop new commercial ventures and their ability to attract and retain the researchers that drive intellectual property development.

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Table 2 “Economic Development Appropriations FY 2001 – FY 2005” provides an overview of state appropriations and allocations for these projects for fiscal years 2001-2005. During this period, total appropriations for Regent economic development programs declined from \$7.63 million to \$2.97 million. Re-stated, total state support for Regent universities’ economic development in FY 2005 are roughly 39% of those for FY 2001; moreover, these figures are not controlled for inflation.

Table 2: Economic Development Appropriations FY 2001 - FY 2005

	<b>FY 2001 Final Appropriations</b>	<b>FY 2002 Final Appropriations</b>	<b>FY 2003 Final Appropriations</b>	<b>FY 2004 Final Appropriations</b>	<b>FY 2005 Appropriations</b>
<b>University of Iowa</b>					
Center for Advanced Drug Development	275,811	250,774	113,172	110,626	110,343
Oakdale Research Park/Innovation Center	<u>341,021</u>	<u>310,590</u>	<u>140,166</u>	<u>137,012</u>	<u>136,662</u>
Total Economic Development	616,832	561,364	253,338	247,638	247,005
<b>Iowa State University</b>					
Institute for Physical Research & Technology	4,474,108	4,057,557	1,790,657	1,669,627	1,665,325
Small Business Development Centers	1,220,417	1,096,416	474,097	551,375	550,000
Research Park/ISIS	<u>385,271</u>	<u>351,130</u>	<u>159,407</u>	<u>148,615</u>	<u>148,232</u>
Total Economic Development	6,079,796	5,505,103	2,424,161	2,369,617	2,363,557
<b>University of Northern Iowa</b>					
Metal Casting Center	176,861	162,996	70,406	68,822	68,646
Institute for Decision Making	<u>757,098</u>	<u>692,625</u>	<u>300,149</u>	<u>293,395</u>	<u>292,645</u>
Total Economic Development	933,959	855,621	370,555	362,217	361,291
<b>TOTAL</b>	<b>7,630,587</b>	<b>6,922,088</b>	<b>3,048,054</b>	<b>2,979,472</b>	<b>2,971,853</b>

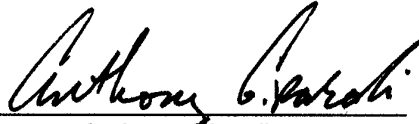
Highlights represent allocations and not appropriated amounts.



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Conclusion	This report is a brief summary of complete reports by each of the Regent universities. These are included in the Regent exhibit book. These will be forwarded to the Iowa legislature as part of this report.
Regent Exhibit Book	Each Regent university submitted a comprehensive report concerning technology transfer and economic development to the Board office. The institutions' complete individual reports are included in the Regents exhibit book.
Outline of institutional reports	<p>The universities' reports to the board office are organized according to the following outline</p> <ol style="list-style-type: none"><li>1. A narrative description of the relationship of the university's economic development activities to the enhancement of economic growth in the state, including the creation of jobs in Iowa.</li><li>2. Statistics on indicators related to intellectual property and aggregate external support.</li><li>3. A narrative description of the institution's efforts at outreach and public service for the purposes of economic development.</li><li>4. A narrative description of the institution's major collaborative efforts for economic development.</li><li>5. A detailed listing of each institution's economic development projects in Iowa, including project descriptions, the Iowa city or cities where this project occurs, and, where possible, the names of businesses or other entities served.</li></ol>
Report to be Forwarded	Following Board action, this report and copies of complete institutional reports will be forwarded to the secretary of the senate, the chief clerk of the house of representatives, and the legislative fiscal bureau by January 15, 2005, as mandated in the Iowa Administrative Code.

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Anthony Girardi

Approved:   
Gregory S. Nichols