

**Economic Development Committee Memorandum**  
Board of Regents, State of Iowa

**Subject:** Overview of Battelle Report

**Prepared by:** Barbara Dietrich Boose

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**Recommended Action:**

Discuss and receive the overview of the report by the Technology Partnership Practice, Battelle Memorial Institute, produced for the Iowa Department of Economic Development.

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**Executive Summary:**

In fall 2003, under the Governor Tom Vilsack's direction and with cooperation of the Regent universities, the Iowa Department of Economic Development commissioned a study with the Battelle Memorial Institute's Technology Partnership Practice. The Battelle Project Team examined the state's existing bioscience industry to understand Iowa's core competencies, the current economic base, and opportunities and challenges for realizing Iowa's bioscience potential.

The report, completed in March 2004, found that the bioscience industry is already a significant part of the state's economy. It also identified opportunities for Iowa to further develop its bioscience industry by identifying existing core competencies and combining market data to form solid technology platforms for economic progress. Six near-term platforms, each with large-scale market potentials for Iowa, were defined:

- Bioeconomy
- Advanced food products
- Animal systems
- Integrated biosecurity
- Integrated drug discovery, development, piloting and production
- Integrated post-genomic medicine

Battelle staff presented the report to the Biosciences Steering Committee, assembled by the state to work with the Battelle team, on March 31. The Steering Committee is expected to proceed with the creation of an action plan. Its 12 members include Jim Bloedel, Vice Provost for Research and Advanced Studies, Iowa State University; Bill Decker, Interim Vice President for Research, University of Iowa; Greg Nichols, Executive Director, Board of Regents, State of Iowa; and Randy Pilkington, Executive Director, Business and Community Services, University of Northern Iowa.

### **Background and Analysis:**

To develop its report, Battelle's Technology Partnership Practice examined the state's existing biosciences industry, broadly defined to include most aspects of agriculture and key industry segments such as medical devices, drugs and pharmaceuticals, and research and testing. Battelle used quantitative data sources and interviews with faculty, administrators, trade and business associations, industry, and others.

Currently in Iowa, the report states, employment in the bioscience arena accounts for 7 percent of the overall employment, exceeding the national average. Current Iowa employers are integrating new technologies in a variety of ways to raise productivity and product capabilities. The average salary for workers in the bioscience industry (\$39,253) exceeds the statewide annual average by more than \$10,000.

The Battelle report concludes that "Iowa has broad and substantial bioscience expertise in each of the core bioscience areas." Further, Iowa has "significant promise to be among the nation's bioscience leaders in selective fields," with its "substantial strengths" in human, animal, and plant biosciences.

According to IDED Director Mike Blouin, the Battelle report shows "how to capitalize on Iowa's research and development investments at the Regents universities in order to turn that knowledge into high-skill, high-pay jobs now and in the future."

#### Six Platforms for Iowa's Biosciences

The Battelle report identified six "near-term" platforms with significant potential and that draw upon Iowa's institutional expertise:

- BioEconomy – using plant and animal biomass and waste streams to generate chemicals, energy, fuels and materials for industrial and commercial applications.
- Advanced food products – using Iowa's established strengths in plant and animal sciences, production agriculture, food science, nutrition, and processing technology to develop and produce functional foods and nutraceuticals.
- Animal systems – using Iowa's bioscience expertise to establish a leadership position in the modeling of animal systems and in the development of technologies and applications for transgenic animals, chimeric animals and cloning.
- Integrated biosecurity – deploying the strengths of Iowa's institutions in human, animal, and plant disease prevention, protection, and treatment to establish an integrated approach to securing the environment, food production systems, human health and safety.
- Integrated drug discovery, development, piloting and production – leveraging Iowa's strengths in basic biomedical research, drug development and GMP production into an integrated pipeline of new drugs and therapeutics.
- Integrated post-genomic medicine – using Iowa's genomics expertise and specific disease/disorder skills, in conjunction with epidemiologic

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data and Iowa's stable population to produce rapid advances in post-genomic medicine and associated discoveries.

The report identified the following areas as offering long-term opportunities:

- Host-parasite biology and systems
- Instrumentation, sensors and devices
- Cardiovascular Institute
- Free Radical Institute

Iowa's  
Biosciences  
Weaknesses

The Battelle report outlined weaknesses and gaps that need to be addressed for Iowa to advance in the biosciences. They include:

- Agricultural biosciences enjoy appropriately high legislative and public visibility, but that may take away from Iowa's potential in human medical sciences.
- Good attempts by Iowa higher education institutions to link research to industry needs are hindered by a lack of a commercial base in many areas of biotechnology, pharmaceuticals, medical devices and food processing.
- Declining state support for the Regent institutions has diminished investment in new technologies, research, and infrastructure.
- The state lacks pre-seed, seed and venture capital to fund new biosciences ventures and help retain university spin-offs in Iowa.
- Iowa also lacks experienced bioscience entrepreneurs and managers who can lead new start-ups or mentor new enterprises.
- Considerable variability and inconsistency seem to exist in the level of commercialization and intellectual property protection services offered by Iowa's universities to their faculty.
- Faculty in the state are confused about what is expected of them in terms of faculty entrepreneurship, intellectual property generation, and idea commercialization.
- The universities face significant risk and have little incentive to license good technologies to start-ups.

The Battelle report also noted that other states are "investing aggressively" in bioscience programs and are pursuing development strategies including strengthening research, increasing university-industry collaborations, and enhancing business development support.

Regent  
Response

The Regent universities and Board Office strongly support the Battelle report's emphasis on the bioeconomy and the biosciences as foundations for economic growth in Iowa. The Regent universities already are very involved in all of the six platforms recommended in the report.

University leaders will consider supporting and leading further efforts in ways that are appropriate to the institutions' academic missions and that enhance the economy of Iowa. Toward that goal, staff also will continue working with partners in public and private sectors to advocate for adequate and appropriate funding for these critical economic growth opportunities.