

## CHAPTER 3

### Goal 2

#### **FOSTER INNOVATION THROUGH RESEARCH IN SCIENCE AND TECHNOLOGY IN LOUISIANA**

To capitalize on Louisiana's existing research strengths and plan strategically for future investment, the Board of Regents, systems and campuses have adopted the Fostering Innovation through Research in Science and Technology in Louisiana (FIRST Louisiana) statewide science and technology plan (<http://web.laregents.org/program-evaluations/state-st-plan/>). This plan offers context for institutional planning and provides the foundation for a targeted statewide approach to research, development and innovation. The plan has been recommended by senior research leaders at major research universities in the State, presented to the Louisiana Innovation Council<sup>18</sup> and unanimously approved by the Board of Regents.

The plan is guided by a vision that considers higher education, in collaboration with other partners, to be a principal leader in driving the State's dynamic innovation economy through the advancement of science and technology research. The plan evolves from a simple premise: the basic and applied sciences lay the foundation for targeted and sustained innovation. Included are strategies for enhanced national competitiveness in translational research domains that relate both to the enabling science areas and to state and federal priorities such as energy, the environment, biomedicine, agriculture, and the digital world. Strategies are also identified to enhance the competitiveness of existing industries within the State and to foster the growth of new and emerging industry sectors in collaboration with the Louisiana Innovation Council. The inclusion of metrics related to FIRST Louisiana in the GRAD Act recognizes the importance of science and technology research to the advancement of knowledge and to Louisiana's economic development.

FIRST Louisiana has identified seven core industry sectors to drive research activity and economic development in Louisiana, each of which aligns, often in multifaceted ways, with the Louisiana Department of Economic Development's Blue Ocean targeted industry sectors. The following list provides FIRST Louisiana core industry sectors with related Blue Ocean sectors in parentheses:

- Petrochemical (ultra-deep water oil & gas; unconventional natural gas; enhanced oil recovery);
- Energy & Environmental (next-generation automotive; energy efficiency; renewable energy; nuclear power; water management; ultra-deep water oil & gas; unconventional natural gas; enhanced oil recovery);
- Transport, Construction & Manufacturing (next-generation automotive; pharmaceutical manufacturing; renewable energy; nuclear power; water management);

---

<sup>18</sup> Governor Bobby Jindal created the Louisiana Innovation Council by Executive Order in 2009 to formulate a State strategy for innovation. Its diverse membership includes government officials, educators, top entrepreneurs and community leaders.

- Information Technology & Services (digital media/software development);
- Arts & Media (digital media/software development);
- Agriculture & Wood Products (water management; renewable energy); and
- Health Care (Specialty research hospital; obesity/diabetes research and treatment; pharmaceutical manufacturing; digital media/software development: health care IT).

The objectives below are designed to attain broad and targeted goals of the FIRST Louisiana plan.

**Objective 2-1: Maintain and build strength in foundational science and technology disciplines identified in FIRST Louisiana.**

Core foundational areas identified in FIRST Louisiana include the physical sciences, engineering, mathematics, computational sciences, earth sciences, agricultural sciences, biological sciences, biomedical sciences and the social, behavioral and economic sciences.

The essential prerequisite to sustaining world-class research in these disciplines is recruitment and retention of high-quality faculty and maintenance of competitive infrastructure.

Activities

1. Recruit, cultivate, and retain research talent in the foundational sciences;
2. Develop and maintain cutting-edge infrastructure and facilities for fundamental science and technology research; and
3. Articulate campus science and technology research priorities with the foundational sciences identified in the FIRST Louisiana plan.

Performance Measures

- Number of faculty researchers in the foundational sciences;
- Dollar value of investments in science and technology research at campus and State levels; and
- Number of peer-reviewed outcomes (e.g., grants, articles) and value (in-cash and in-kind) of industrial support.

**Objective 2-2: Promote multidisciplinary and multi-institutional collaborative research efforts.**

Major science and technology research advancements are increasingly rooted in collaborations across disciplinary and institutional boundaries. Over the last decade, Louisiana has supported numerous endeavors, such as the Louisiana Optical Network Initiative, the Cancer Research Consortium and Louisiana EPSCoR, that capitalize on the talents and infrastructure across departments and campuses. Louisiana should maintain and grow these and comparable collaborative research efforts to maximize investments and maintain competitiveness.

### Activities

1. Address multi-disciplinary and multi-institutional collaborations in campus research plans;
2. Build infrastructure and faculty in areas related to strengths in collaborative science and technology research; and
3. Encourage the establishment of one or more federally funded centers of excellence in priority research areas.

### Performance Measures

- Number of collaborative research activities and amount of internal and external funding across participating disciplines and campuses;
- Number of shared facilities and resources related to collaborative research; and
- Number of successful proposals submitted to federal research center programs.

### **Objective 2-3: Sustain and advance research commercialization and translational activities that promote economic development in Louisiana.**

FIRST Louisiana and the Blue Ocean initiative have identified core and emerging industry sectors in Louisiana that are ripe for investment and university involvement. Leveraging and building upon statewide research and development resources in these areas are of strategic importance to developing innovative translational research domains and enhancing the competitiveness of Louisiana's core industry sectors.

### Activities

1. Foster networking and strategic collaborations between higher education, government, and Louisiana's existing and prospective high-growth industry sectors;
2. Encourage targeted faculty to participate in innovative entrepreneurial activities;
3. Build capacity in areas of competitive advantage and target niches which align with campus and State research priorities; and
4. Develop and implement a State-level policy for addressing issues related to research commercialization, technology transfer, and ownership/transfer of intellectual property.

### Performance Measures

- Amount of university/government/private-sector research and financial partnership;
- Number of entrepreneurship activities among targeted faculty, including participation in SBIR/STTR grants, start-up companies, industrial partnerships, and patents/licenses;
- Amount of aligned investment of State and campus resources in areas of high potential for research commercialization; and
- Amount of university revenue generated from research commercialization, technology transfer and intellectual property development.

**Objective 2-4: Develop and periodically update campus-based plans for science and technology research.**

To be eligible for Board of Regents Support Fund Research and Development and research-related Endowed Chairs funding, each public and independent campus with more than two doctoral programs will establish and periodically update evolving research plans in relation to FIRST Louisiana, linking strategic investments in the FIRST Louisiana framework with performance and assessment.

Activities

1. Develop and disseminate, in collaboration with campus representatives, a format and timetable for campus submissions;
2. Develop campus-based strategic plans for science and technology research based on the format provided by the Board; and
3. Facilitate collaboration regarding plans across academia, government and the private sector.

Performance Measures

- Number of science and technology research plans submitted by affected public and independent campuses; and
- Comprehensive catalog of all submitted campus research plans on the Board's website.

**Objective 2-5: Assess and encourage the articulation of statewide priorities for investment with campus research priorities and activities.**

It is critical that targeted State and campus investments in science and technology research be mutually reinforcing.

Activities

1. Review campus plans and reports at meetings of the Master Plan Research Advisory Committee<sup>19</sup> and recommend to the Board statewide priorities for investment; and
2. Explore prospects for targeted science and technology research commercialization through cyclical external reviews.

Performance Measures

- Demonstrated alignment of State and external science and technology research funding with identified campus and statewide science and technology research priorities; and
- Number of science and technology research commercialization outcomes (e.g., patents, licenses, startups, spin-off businesses).

---

<sup>19</sup> To include representatives from affected systems, government, industry, and the Board of Regents staff.

**Objective 2-6: Enhance communication, interactivity, and effectiveness through statewide data collection consistent with proprietary protections.**

The availability of relevant, up-to-date information related to science and technology research activities is necessary to enhance collaboration within and across campuses, and among academia, government and industry.

Activities

1. Help to establish a statewide research commercialization data bank;
2. Disseminate targeted information through diverse approaches including a web-based data access system; and
3. Establish a data bank task force composed primarily of research campus representatives, which reports regularly to the Master Plan Research Advisory Committee and periodically to the Innovation Council.

Performance Measures

- Return rate of requested data (campus strengths and priorities, patents, licenses, start-ups, etc.); and
- Rate of data bank use and related outcomes.