Summary of Research and Economic Development for University of Louisiana Board of Supervisors
August 22, 2014
Strengths of Louisiana Tech

• National Leader (Carnegie DRU-High Research, USN&WR, Low Student Debt, High Graduation Rates, High Research Productivity, High “Innovation” Rates)

• Interdisciplinary = “Competitive Advantage”

• Education: 59 BS/BA, 30 MS/MA, 10 PhD/Doc

• Research and Technology
Louisiana Tech University
STEM Research Priority Areas

Louisiana Tech University has identified the following five research areas as STEM priority areas, with nationally recognized, regionally relevant, and sustained activity in each area.

1. Science and Engineering for Health and Quality of Life
2. Cyber and Information Systems
3. Infrastructure, Energy, and Environmental Systems
4. Matter, Materials, and Multiscale Systems
5. STEM Education, Entrepreneurship and Innovation
**S&E for Health and Quality of Life**

**Centers**
- The Center for Biomedical Engineering and Rehabilitation Science (CBERS)
  - Center for Rehabilitation Engineering, Science, and Technology
- The School of Biological Sciences
- Louisiana Tech Speech and Hearing Center
- PDRIB: **Professional Development and Research Institute on Blindness**

**Success Stories:**
- NIH Funding Award for Brain Imaging Studies
- Zero-Gravity Flight Test for Experimental DNA Analysis Prototype

**Clinical Partnerships**
- LSU Health Sciences Center (Shreveport, New Orleans)
- Willis-Knighton Cancer Center, Shreveport
- Cleveland Clinic, Cleveland Ohio
- Translational Genomics Research Institute, Phoenix, AZ
- Louisiana Biomedical Research Network
Cyber and Information Systems

- Center for Secure Cyberspace
  - Over $20 million Total Cyber Grants since 2007 (AFOSR, NSA, AFRL, ONR, DARPA)
  - Cyber Security Research Projects: Behavioral biometrics; Security for networks, control systems, and mobile devices; Sensor data and networks; Cyber physical systems

- National Center of Academic Excellence in Information Assurance Research and Education

- B.S. in Cyber Engineering

- Industry Consortium for Innovations in Communications, Information and Cyberspace (IC3) –
  - Communications Systems Graduate Certificate, IT Certificate

- Computational Science and Engineering Research
  - Particle physics; Comp’l materials, biology; Informatics and data analysis; Modeling

- Cyber Innovation Center (CIC)
Infrastructure, Energy and Environmental Systems

- Trenchless Technology Center
  - Geopolymer Concrete (Louisiana Technology Product of the Year 2012), UWB e-m for pipe inspection and void detection, Pipeline evaluation, and remediation, E-Vortex pipeline energy harvesting
  - Trenchless Technology Center Industry Advisory Board
  - Technology Transfer Agreements and Sponsored Research

- Institute for Micromanufacturing
  - Biosensors ( photonics/optics ), Sensor Networks, Fusion, Nuclear Detection, Nanomaterials and Nanofabrication, Energy Harvesting, Nanotechnology for Fuel Production, Electronics Protection, Electromutagenic Processing, Metamaterials
Matter, Materials, and Multiscale Systems

• Centers
  – Institute for Micromanufacturing (IfM)
  – Center for Applied Physics Studies (CAPS)
    • Higgs boson, ATLAS, Q-Weak
  – Louisiana Alliance for Simulation-Guided Materials Applications (LA-SiGMA)

• Partnerships
  – National Center for Advanced Manufacturing.
  – Consortium for Innovations in Materials and Manufacturing (proposed)
STEM Education, Entrepreneurship, and Innovation

- Integrated STEM Education Research Center
  - NICERC/CIC expands curricula to a national audience ($M DHS)
- Science and Technology Education Center
- Center for Entrepreneurship and Information Technology
  - US EDA funding for “i6 green energy challenge”
  - Regional Business Accelerator
  - Proof of Concept Center, The Thingery
- Enterprise Campus and Enterprise Centers
- Technology Business Development Center, Regional Idea Pitch, New Venture Championships
- Louisiana Tech @ Shreveport-Bossier City
  - Engineering Resource Center, Tech Barksdale
- Project-Based Learning
## Research & Economic Development Data

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Ranked 9th nationally in Reports of Inventions per $10 million R&D

Ranked in the top 20 in terms of issued US patents per $10 million R&D and startups formed per $100 million R&D

(AUTM)
Industry Partnerships

- Louisiana Cyber and Data Consortium
  - AEP, AFGSC (BAFB), CSC, CIC, Dell, IBM, GE Capital, LED, other industry and government
- Trenchless Technology Industry Advisory Board (30+ contributing members)
- Formal agreements
  - CenturyLink
  - Cyber Innovation Center
  - CSC
- Start-ups (over 20)
- Industry-sponsored research

http://ic3.latech.edu