Essential Elements of University/Laboratory/Industry Research Partnerships

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Overview

• What is a Research University
• How do Research Universities Benefit Society
• Essential Elements of Partnerships
  ▪ University/Laboratory Partnerships
  ▪ University/Industry Partnerships
• Examples of Success
• Conclusions
What is a Research University?

• Over 4000 institutions of higher education in the U.S.
• Approximately 125 of these are research universities
  ▪ Funded research, research space, and scholarly expectations of the faculty
  ▪ Production of graduate and professional degrees
  ▪ Involvement of students with research and graduate education

—*The Creation of the Future*
By Frank Rhodes
How do Research Universities Benefit Society?

• Preparation of the Workforce
• Research as an Enterprise
• Transfer of research to the commercial sector
The Preparation of the Workforce

• Graduates have*
  ▪ Higher personal income
  ▪ Lower unemployment rates
  ▪ Reduced reliance on public assistance
  ▪ Lower healthcare costs
  ▪ Higher rates of volunteerism
  ▪ Vote more often

• Technology-based companies tend to be started by graduates

Research as an Enterprise

Graph showing trends in Research Expenditure (Res. Expen) and Public Service Expenditure (Public Serv. Exp.) from 2001 to 2004. The graph indicates an increasing trend in both categories over the years.
Transfer to the Commercial Sector

Larry Schrader, WSU Faculty member and Founder, FruitGuard, LLC, based in Wenatchee

Kim Kidwell and her team not only breed new wheat varieties, but also develop treatments for major plant pests
WSU’s mission as a Land-Grant, Research University

“The first Morrill Act of 1862, the Hatch Act of 1887 and the Smith-Lever Act of 1914 created a system of Land Grant Universities. These acts endowed the colleges with a three-part mission of teaching, research and extension. The third component of the mission – extension – links the Land Grant Colleges' programs to the needs of society at large through a service function that includes extending education and technology transfer to the public.”

Industry/University Partnerships

- University/Industry collaboration has prospered
  - Faculty interest in application of research
  - Increased industrial emphasis on short term results
  - Fueled by Bayh-Dole act of 1980 which granted control of most IP rights from Federally sponsored research
- Today, industry funds ~7% of university research
Barriers to Industry/University Partnerships

- Partners may lack understanding or trust
- Different time horizons (university time unit is the time to complete a PhD dissertation – 3 years)
- Institutional Reward Structures may be disincentives
  - Industry rewarded for success
  - Academia rewarded for increased knowledge
- Student time may be misused and conflict of interest may result
- Industry may not want to pay full cost (no F&A)
- IP rights issues
  - Ownership of resulting, and related, IP
  - Research tool patents
  - Publication delays and non-disclosure

Overcoming Barriers to Collaborative Research: Report of a Workshop, National Academy Press (http://www.nap.edu/html/overcoming_barriers/)
University/Laboratory Partnerships

• The strength and the weakness:
  ▪ “National laboratories posses the specialized facilities and expertise to carry out chemistry research ..., and universities collaborate and use these facilities to train the next generation of nuclear scientists.” - R. Orbach
  ▪ “We award grants of $100,000 per year to three universities.... Our radiochemistry program also attracts excellent matching financial support from the recipient universities.” – W.D. Magwood

• comments by Dr. Orbach and Dr. Magwood in response to questions by Rep. Simpson (R-ID), 3-15-05
University/Laboratory Barriers*

- Allocation of intellectual-property rights.
- Concerns over publication, copyright, and confidentiality.
- Regulation, liability, and tax-law issues.
- Concerns over foreign access.
- The involvement and best interests of graduate students.
- Infrastructure-related impediments to interdisciplinary and interdepartmental research.

Successful Collaborations Require

• Experience, careful planning, and continuing attention by all in order to ensure maintenance of the University’s missions and achieving sponsors goals.
• Consistent communication to build trust (remember that we recall negatives better than positives)
• Work to understand the culture of the partner organization,
• Understanding of the role of students – they are not “employees” of the research sponsor,
• Fair allocation of costs, including of F&A (indirect) costs, in proportion to benefits
• Fair prosecution and disposition of intellectual-property and patent rights to encourage the widest possible use of research tools, and
• Development of sensible agreements on publication delays

Examples of Success

- **WSU/Lab Success**
  - **BioProducts**
  - **Radiochemistry**
- **WSU/Industry Success**
  - **Chromosome Biology: Genetics of Birth Defects**
    - Sacred Heart Medical Center, Signature Genomics Laboratory, NIH
  - **Biochemistry and Human Performance of Sleep**
    - Walter Reed Army Institute of Medicine, Holister-Steir, NIH
  - Various in agriculture
Conclusions

• University/Laboratory/Industrial collaborations can have significant success

• Communication, trust, and working together to ensure that all partners meet their own definition of success is essential

• Together, we can solve problems, create new technologies, understand societal issues, facilitate good public policy and train the next generation of scientists, engineers, and world leaders.