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## The Relationship Between Business and Research Universities: Collaborations Fueling American Innovation and Job Creation

*Witnesses:*

**William Green**

Executive Chairman, Accenture

**Ray Johnson**

Senior Vice President and Chief Technology Officer, Lockheed Martin Corporation

**John Hickman**

Director, Global University Relations and Life Sciences, Deere and Company

**Lou Graziano**

Director, University Research and Development Strategy, Sustainable Technologies & Innovation Sourcing, The Dow Chemical Company

**Jilda Diehl Garton**

Vice President for Research and General Manager, Georgia Tech Research Corporation, Georgia Institute of Technology

*Subcommittee Members Present:*

Mo Brooks, Chair (R-AL)

Daniel Lipinski, Ranking Member (D-IL)

Suzanne Bonamici (D-OR)

Hansen Clarke (D-MI)

Dan Benishek (R-MI)

Randy Hultgren (R-IL)

On August 1, the House Committee on Science, Space, and Technology Subcommittee on Research and Science Education held a hearing to discuss the relationships between businesses and research universities, more specifically, their impact on innovation and job creation. The panel was staffed with individuals from industry and academia to provide diverse viewpoints and suggestions to the subcommittee members.

Chairman Mo Brooks (R-AL) began the hearing with his opening statement saying how the research conducted at U.S. universities is “essential to the future prosperity of our nation.” Collaborations between businesses and academia drives research for “American innovation” and workforce preparation for industry, which Brooks says is “critical [...] to future economic prosperity and job growth.” He referenced the National Academy of Sciences (NAS) report, *Research Universities and the Future of America: Ten Breakthrough Actions Vital to Our Nation’s Prosperity and Security*, which says businesses and industries have not “fully partnered” with research universities. The report makes various recommendations, some of which Brooks highlighted briefly. Among these included: strengthening businesses’ involvement in research partnerships, “[reforming] graduate education, and “[reducing] regulatory burden.” Brooks closed by saying he wanted to learn about policies that could “help rather than hinder” both industry and universities.

Ranking member Daniel Lipinski (D-IL) began his statement by quoting former CEO of Lockheed Martin, Norm Augustine, who said that scientific research was like the “engine of a thought-based economy.” Lipinski highlighted what the federal government can do to promote collaboration. Those items discussed included tax incentives and support for university-based research centers. He mentioned the National Science Foundation’s (NSF) Innovation Corps (I-Corps) program, which helps the process of taking federally funded research from the lab to a company. Lipinski closed by briefly discussing science, technology, engineering and math (STEM) education, asking the panel how their companies can work better with universities to produce graduates who are skill-ready for industry.

William Green began the witness testimonies by saying, “Global competitiveness is the key CEO issue, and having the talent to

compete is what keeps CEOs up at night.” He said the research universities are the “secret weapons.” Green noted the lacking of talent, especially in the STEM education areas. He then revisited the NAS report, highlighting the three extensive goals and four of the recommendations made. Green closed by stating more needs to be done to “harvest the unique asset that we have” in America.

Ray Johnson gave his testimony by discussing Lockheed Martin’s involvement with universities. For 2012, he said that Lockheed Martin plans to make around \$20 million research and development (R&D) contributions to universities. Johnson said there is concentration on fewer partnerships with universities, but these few are very large in size. Working with universities is done because “their inventions become the basis for [Lockheed Martin’s] innovation.” One issue of note with collaboration, Johnson stated, was intellectual property (IP) rights where hesitance from universities to grant IP rights to research sponsors has increased. He highlighted recommendations one, three, and nine from the NAS report, which he believes will provide the “most significant impacts.” Recommendation one suggests modifying research policies and practices that have become “inefficient” and investing more in research as the economy improves. Recommendation three suggests making the business role stronger in a research partnership to achieve goals. Recommendation nine suggests giving “full benefits of education” to all Americans in STEM education. This includes women and minorities.

John Hickman began his testimony by saying research universities are not only good for innovation, but for “attracting employees” and understanding local customer needs. He discussed the Global University Relations Initiative, formed by Deere in 2011. Hickman noted the close proximities of industries to research universities, such as the John Deere Technology and Innovation Center located near University of Illinois. This locality “fosters an environment and workforce focused on innovation.” He closed by discussing organizations which assist in collaboration, including, the Government University Industry Research Roundtable (GUIRR ) and the University Industry Demonstration Partnership (UIDP).

Lou Graziano started his testimony by listing Dow’s involvement with U.S. universities. Dow increased investments to \$25 million per year for a 10 year commitment to 11 institutions. Dow says the successful way to have a partnership is to have only a few academic partners as it allows for a “deeper relationship.” Graziano concluded his remarks by discussing the NAS report, noting the recommendation to reduce barriers to those individuals who come from overseas to get training.

Jilda Diehl Garton began her testimony by giving figures of Georgia Institute of Technology’s (Georgia Tech) research money. In 2011, total research expenditures were over \$655 million and in fiscal year (FY) 2012 new awards from industry were over \$88 million. Of 407 invention disclosures Garton received in the Georgia Tech Research Corporation office in FY 2012, 103 were from industry-sponsored research. She said Georgia Tech will be a node for the NSF’s I-Corps program. Garton noted some challenges in Georgia Tech’s research efforts, referencing the NAS report list of challenges including limited resources, increasing regulation, and increasing reporting requirements.

Representative Dan Benishek (R-MI) began the round of questions. Benishek led off asking how the partnerships get started and how to determine which schools will be involved. Graziano acknowledged that larger research institutions are used more often than smaller ones. Benishek then asked Garton to elaborate on the barriers to research she discussed in her testimony. She replied by saying “duplicative regulation” or “multiple reporting” is a problem. Garton suggested streamlining to put things into a “logical sequence.” Benishek finished his questions by asking what would happen when government funding was over. Johnson said one of the main roles for federally funded research is investment in “high risk, high payoff research.” With collaboration, federally funded research will turn into “outcomes” or success through the partnership.

Lipinski wanted to know what defines a partnership. Graziano said there is an understanding of what universities are capable of and what the industry priorities are when trying to make a partnership.

Brooks began his questions by noting the NAS report recommendations for increased federal support. He said that expenditures at institutions have increased 83 percent over a nine year time frame. Businesses research and development increased by 39 percent from 2000 until 2008. Brooks mentioned the increase in federal debt, entitlements, and debt service. He asked the panel when it comes to federal funding, “who should prevail.” Green said “research capabilities are an untapped asset.” He said that research institutions should be more efficient, but that the return could be 1000 times. Johnson noted efficiency increase. Hickman said he agreed with previous answers. Garton said she agreed with the panel in increasing efficiency and conducting streamlining. She said the link between research and education will reduce the need for entitlement programs because of a growing workforce and using graduates for the new workforce.

Representative Hansen Clarke (D-MI) asked how can the problems with IP can be resolved with help from the subcommittee. Johnson said he cannot foresee the government’s role in resolving the IP issue. Clarke then asked what the best incentives would be to get businesses to work with universities on research. Green said that “success stories” need to be known. He noted the lack of large industrial research capabilities and the need to “replace” the ones that no longer exist. Hickman emphasized the importance of engagement at the university level.

Representative Randy Hultgren (R-IL) referenced the NAS report and how the large industrial research facilities have “dismantled” and have not attempted to partner with universities. He asked what can be done to alleviate the gap. Green said there is a need to “institutionalize and industrialize” and there is a lack of leadership in the pursuance of partnership. Hultgren wanted to know how partnerships can be applied to smaller and medium size companies. Graziano said that “throwing money” at companies will not help, but focusing in programs that will benefit the United States will. Hickman noted the importance of research parks at universities.

Representative Suzanne Bonamici (D-OR) focused her questions more on the importance of pre-kindergarten through secondary education and the need for “creative thinkers.” Bonamici cited the NAS article and the recommendation made to bridge gaps in the workforce. She wanted know how the panel identified gaps, filled the gaps, and how they match up universities for the specific skill sets needed. Graziano said that communication of science is a big issue and a lot of kids are lost at a young age due to this. He continued saying there needs to be a better job done at “exciting people” about the sciences. Green said there is a need to “not just educate” but to “energize and inspire.” Johnson mentioned the U.S.A. Science and Engineering Festival, where in October 2010 over one million people visited over 1500 hands-on exhibits on the National Mall. Garton added that engaging undergraduates in “problem-based learning” helps students understand the workforce needs.

Opening statements, full witness testimony, and a webcast of the hearing can be found on the committee’s web site.

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