

Technology Transfer Metrics

CENDI

November 2012

Paul Zielinski

Director, Technology Partnerships Office

National Institute of Standards and Technology

Policy Development Activities

- White House Innovation and Information Policy Working Group – co-chaired by NEC and OSTP (2009)
- Evolved to Innovation and Entrepreneurship Working Group (December, 2009)
- Four subcommittees
 - SBIR (SBIR 2.0)
 - Proof of Concept Centers
 - Access to Capital (Startup America)
 - **Federal Lab Commercialization**



October 28, 2011

MEMORANDUM FOR THE HEADS OF EXECUTIVE DEPARTMENTS AND AGENCIES

SUBJECT: Accelerating Technology Transfer and Commercialization of Federal Research
in Support of High-Growth Businesses

Section 1. Policy. Innovation fuels economic growth, the creation of new industries, companies, jobs, products and services, and the global competitiveness of U.S. industries. One driver of successful innovation is technology transfer, in which the private sector adapts Federal research for use in the marketplace. One of the goals of my Administration's "Startup America" initiative, which supports high-growth entrepreneurship, is to foster innovation by increasing the rate of technology transfer and the economic and societal impact from Federal research and development (R&D) investments. This will be accomplished by committing each executive department and agency (agency) that conducts R&D to improve the results from its technology transfer and commercialization activities. The aim is to increase the successful outcomes of these activities significantly over the next 5 years, while simultaneously achieving excellence in our basic and mission-focused research activities.

Agency Plans

- Increased emphasis on Technology Transfer within agencies
- Thirteen agency plans submitted
- Plans are public
 - Check Agency Web Site
 - Links page on NIST website
<http://www.nist.gov/tpo/publications/agency-responses-presidential-memo.cfm>
- Executive summary of plans
- Opportunities summary document

Opportunities/Technology

- New Technology and Scientific Work Products
- Collaborations – Public/Private Partnerships for Research and Development
- Technology Transfer Efficiency
- SBIR

Metrics

- Goal to minimize burden while providing responsive information
- Attempt to use what agencies already collect
- Look at agency plans
- Info on White House initiatives – Cross-agency Priority (CAP) Goal
- Coordinate with the National Center for Science and Engineering Statistics of the National Science Foundation on data already available – Science and Engineering Indicators
- 15 USC 3710(g)(iii) has an open invitation to propose new metrics

Metrics - Context

- Context - NSF “Federal Funds for Research and Development” Table 10, which provides a breakout of intramural and Federally Funded Research and Development Center data by agency. (see: http://www.nsf.gov/statistics/nsf12308/content.cfm?pub_id=4121&id=2)
 - Show size of R&D program
 - Show relative size of agency programs

Metrics - New Technology and Scientific Work Products

Intellectual Property

- Retain existing statutory metrics
- New: Number of licenses granted to small businesses
 - Although 35 USC 209 (c) has a clear preference for small businesses in exclusive licensing, no efforts have been made to analyze the component of small businesses licensing Federal inventions.
- New: Number of startups created
 - For the purpose of this report, a startup company is a privately-held, for-profit company operating for less than 5 years and actively seeking financing to commercialize a federal scientific work product.
 - Anecdotes should be reported on selected startups as appropriate.
 - Recommended that agencies develop a process to track the performance of agency-assisted companies.

Metrics - New Technology and Scientific Work Products

- New: Number of patents granted categorized by selected technology areas and by agency.
 - NSF's annual publication SEI based on data obtained from the USPTO's technical review process for patent applications
 - Broken down by agency from NSF

New: Scientific Articles and Publications

- New: U.S Scientific and Engineering (S&E) articles by selected technology areas and agencies.
 - Data on the number of U.S. S&E articles by technology areas is available and published in NSF's SEI report
 - This data will be expanded to include the number of articles by technology area and by agency.
- Citations of U.S. S&E articles in U.S. patents
- By selected S&E field and Agency
- Published by NSF in their annual SEI report

Metrics - New Technology and Scientific Work Products

Future Metric: The number of software programs available for download developed by Agency and the number of software programs downloaded per fiscal year by Agency

- Important measure of potential technology transfer
- Most Federal software cannot be protected by copyright, this important area generally goes unreported
- Recommended that each Federal agency undertake a review of how software is developed and made available to the public
- Recommended that agencies work together to develop metrics on the annual number of software downloads grouped by an agreed upon set of S&T areas

Metrics - Collaborations

- Traditional output metrics to be retained are:
 - Total active CRADAs
 - New CRADAs executed in the fiscal year
 - Non-traditional CRADAs active in the fiscal year
 - Other collaborative R&D relationships active in the fiscal year (this includes Space Act agreements or other agency specific authorities, Material transfer Agreements, or other important collaborations as deemed relevant by the agency)
 - Anecdotal information on the nature, character, and successes of collaborative relationships.
- New – Small business
 - Breakout of the number of agreements and other collaborations involving small businesses.
 - The total number of small businesses involved in agreements.

Process Metrics – Measures of Efficiency

- Existing statute (but not in current interagency report) - The amount of time that elapses from the date on which a license was requested by a licensee in writing to the date the license was executed
- **New: Narrative Description** - Each agency will provide an annual summary on the progress of streamlining administrative processes and highlights.
 - Time and process
 - Training (reduces transaction and redirect time)

Metrics - Impact Analysis

Impact Analysis – In addition to process outputs and anecdotal descriptions, agencies have conducted studies that examine the downstream outcomes and economic impact of technology transfer. The following metrics will be included in the annual summary report:

- The annual number of technology transfer impact studies completed by agency
- Abstracts of selected agency impact studies that highlight the success of recent technology transfer activities.
- Literature Review and Summary - In addition to individual analysis reports, the Commerce Department's annual summary report will include an updated literature review of peer reviewed publications that have assessed the economic impact of Federal technology

Metrics Reporting

- No new requirement for reporting
- Annual reporting will be in existing reports
 - Agency required under 15 USC 3710(f)
OMB Circular A-11
 - Interagency under 15 USC 3710(g)

Communication

Sec. 3. Streamline the Federal Government's Technology Transfer and Commercialization Process - CIO/CTO, in coordination with other agencies: List all federal inventions on a public Government database; increase the use

- Not looking for a single solution
- Currently referencing improved FLC Available Technologies Site at:
http://www.federallabs.org/available_technologies/
- Asking for agency participation
- Will likely have feed to data.gov as well, possibly using FLC collection
- Spoke with CENDI, looked at others, more possibilities
- Still need to meet with CIO/CTO

Thank You!

Paul Zielinski

Director, Technology Partnerships Office

NIST (2200)

100 Bureau Dr

Gaithersburg, MD 20899-2000

Paul.zielinski@nist.gov