Federal Technology Transfer and the Federal Laboratory Consortium:

“Identifying and accessing U.S. federal lab technologies available for partnering”

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Science Diplomatic Club
January 12, 2010
Overview

- Overview of U.S. Federal Technology Transfer
- Role of the Federal Lab Consortium for Tech Transfer (FLC)
- Identifying Potential U.S. Federal Lab Partners
- Selected Examples of Tech Transfer
Federal Technology Transfer Defined

Technology transfer is the process by which knowledge, facilities, or capabilities developed under federal research and development (R&D) funding are utilized to fulfill public and private needs -- it can occur:

- Between the government and non-government entities
- Between government entities (labs/agencies)

.... and designed to:

- enhance agency mission capabilities
- increase return on R&D investment
- support economic growth and development
- enhance U.S. competitiveness
Office of Research Technology Applications
(Federal Lab Focal Point For Technology Transfer)
Results of Legislative History
(Current Tech Transfer Environment)

- Technology transfer is a mission of the federal government
- ORTAs (Lab T^2 Offices) established
- Small businesses, universities and not-for-profits keep title to inventions made with federal funds
- Federal agencies receive greater, more flexible, patent and licensing authority
- Lab scientists can participate in royalty income
- Mechanisms and incentives to implement technology transfer, including CRADAs, etc.
Common Tech Transfer Mechanisms

- Patent License Agreement
- Cooperative Research and Development Agreement (CRADA)
- Work for Others – Work for Private Parties
- Collegial exchange
- Educational Partnership Agreement
- Use of Facilities Agreement
- Cooperative Agreement
- Commercial Test Agreement
- Material Transfer Agreement
- Partnership Intermediary Agreement
- Commercial Service Agreement
- Personnel Exchange
Federal T2 Summary Report
(FY 2007, Department of Commerce, Issued January 2009)

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<td>CRADAs, total active in FY</td>
<td>5,603</td>
<td>6,016</td>
<td>5,949</td>
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<td>New inventions disclosed in FY</td>
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<td>Patent applications filed in FY</td>
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<td>Patents issued in FY</td>
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<td>Licenses, total active in FY</td>
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<td>New, executed in FY</td>
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<td>Income from licenses, ($$M)</td>
<td>$97.3</td>
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<td>$144.6</td>
<td>$138.2</td>
<td>$149.9</td>
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**Also includes multiple examples of downstream outcomes for all agencies (reporting since 2001)**

NOTE: DHS to begin reporting stats in FY 2008
What is the FLC

The FLC:

- Formally created by Congress under the Federal Technology Transfer Act (Public Law 99-502)
- Composed of tech transfer professionals from the federal laboratories, their respective agencies, and affiliated organizations
- The only government-wide forum for technology transfer

Membership reflects:
- 18 federal departments and agencies
- > Over 250 fed gov’t R&D laboratories and centers
- > $100 billion annual budget
- > 100,000 scientists & engineers
FLC Primary Activities

- Education and Training
- Sharing Best Practices/Networking
  - National and Regional Meetings & Conferences
- Professional Recognition
- Communications and Coordination

“To add value to the federal agencies, laboratories, and their partners to accomplish the rapid integration of research and development resources within the mainstream of the U.S. economy.”
Accessing Federal Technology/Capabilities (Entry Points)

- **FLC** (e.g., *Technology Locator Service*)
  - **Agency** (e.g., $T^2$ Office; Partnership Intermediaries)
    - **Laboratory/Institute** (Lab $T^2$ Office -- ORTA)
      - **Individual** Scientists & Engineers
Interest

Looking for federal lab work on electro-responsive smart materials (to improve its own technology).

“Ras Labs and Princeton Plasma Physics Lab recently formed a CRADA and are actively conducting research with various metals and plasmas to improve the interface between the embedded electrodes and the electro-responsive material of these actuators, which should lead to superior electro-responsive actuators.”

Lenore Rasmussen, Ras Labs, LLC
Examples of Federal Tech Transfer
A roof-mounted collector concentrates sunlight into a bundle of plastic optical fibers which are routed to multiple “hybrid” luminaires that blend natural light with artificial light, maintaining a constant level of lighting.

ORNL patented the technology in 2003 and licensed it in 2005 to Sunlight Direct, LLC, a local startup company that emerged from ORNL. The principal was granted part-time entrepreneurial leave status by UT-Battelle, LLC, the management and operating contractor for ORNL under contract to DOE.

The developers at ORNL won a R&D 100 Award in 2006 for the hybrid solar lighting system.
Qwiklite 200™:
(DOD-Navy: Space and Naval Warfare Systems Center)

- Qwiklite is a field-deployable bioluminescent bioassay system for measuring water toxicity – based on plankton’s bioluminescence characteristics being affected measurably by exposure to toxins.

- *Invented* by the Navy, the technology was *licensed* to Assure Controls, Inc., in 2005, with commercialization support from the Center for Commercialization of Advanced Technology, two *cooperative research and development agreements* and four more *patents*; marketed as QwikLite 200 TM.

- Less costly and faster than traditional assays -- it could save billions of gallons of water in every part of the world through simple, affordable regular testing.
Vascular Viewer™
(DOD-Air Force: Air Force Research Lab)

- Vascular Viewer™ reveals blood vessels in the body under a broad range of lighting conditions, allowing medical personnel to access blood vessels more quickly and accurately, even in extreme conditions such as on the battlefield or during trauma care.

- A team from the Air Force Research Laboratory’s Materials and Manufacturing Directorate (AFRL/ML) **developed and patented** the unique imaging technology for Vascular Viewer™

- The Air Force awarded an exclusive license to a spinoff company to develop and market the technology, InfraRed Imaging Systems (IRIS) of Columbus, Ohio.
Portable Chemical Sterilizer
(DOD-Army: Natick Soldier System Center)

- The PCS is a portable sterilizing apparatus that functions without electricity – using a patented chlorine dioxide combination mixed in simple water and functions in just 30 minutes.

- The Natick Soldier Center collaborated with academia and the Medical Research and Materiel Command - Institute of Surgical Research to invent, patent and transfer this technology to commercial industry via two PLAs negotiated by DOD Techlink.

- PCS technology won a 2005 Army R&D Achievement Award for Technical Excellence and contributed to Natick Soldier Center winning the 2006 Army Small R&D Lab of the Year Award.
The CDC and Creare Inc. engineered a handheld, battery operated device (for respiratory administration of vaccines) with disposable patient interfaces.

Technology was transferred to AerovectRx Corporation through: Confidential Disclosure Agreement, Material Transfer Agreement, Commercial Evaluation License Agreement, and Exclusive Patent License Agreement.

The technology allows large scale sanitary, customizable, and dosage-controlled delivery through the nose or the mouth - has been successful in animal studies of measles vaccination and will be included in human trials later this year.
Fed Labs Support U.S. Innovation
(FLC Supports Federal Labs -- Federal Tech Transfer)

Los Alamos and Sandia: R&D Treasures
How the famous weapons labs, Los Alamos and Sandia, are aiding corporations and spinning off startups

“These labs are national treasures” (Thomas Lange, P&G)

“Public-private collaborations such as P&G's ... are just what Congress had in mind two decades ago when it began pushing the nation's hundreds of national labs to transfer more of their knowhow to U.S. companies.”

Where Do Innovations Come From?

“In the last 20 years, federal labs have become the dominant organizational locus for winning R&D 100 awards [typically in collaboration with firms, universities or both].”
Recent Policy Statements
(on Collaboration with Federal Labs)

House S&T Committee (111th Cong. legislative agenda) (Jan 2009)
■ “… work to develop updated policies for encouraging Federally-supported research at labs and universities to be brought into the marketplace”

OMB Memo re S&T Priorities in FY11 budget (Aug 2009)
■ “Agency budget submissions should also explain how the agency plans to take advantage of today’s open innovation model …”

Administration’s Strategy for American Innovation (Sept 2009)
■ “The Federal government should take advantage of the expertise and insight of people both inside and outside the Federal government … and form high-impact collaborations with researchers, the private sector, and civil society …”

New DOC Office of Innovation and Entrepreneurship (Oct 2009)
■ “The office will focus on the following areas:

* Accelerating Tech Commercialization of Fed R&D
2010 FLC National Meeting
(Albuquerque, NM; April 26–29, 2010)

The Sky’s the Limit
April 26-29, 2010
Albuquerque, New Mexico
FLC Washington DC Office
(Farragut Square)

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