Introduction to Technology Transfer and the FLC

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- Technology Transfer Officer, Naval Surface Warfare Center (NSWC), Crane Division, for 5 years
- Primary T2 responsibilities include:
  - Invention mining
  - Marketing and licensing Navy intellectual property
  - Negotiating CRADAs among the lab, industry, state and local governments, and academia
  - Outreach activities to develop partnering opportunities
  - Interaction with partnership intermediaries
  - ORTA Representative for NSWC, Crane Division
- FLC Member-at-Large (2008-Present)
  - Education and Training Committee
  - State and Local Government Committee
What Is Federal Technology Transfer?

- Federal technology transfer is the process by which existing knowledge, facilities, or capabilities developed under federal research and development (R&D) funding are utilized to fulfill public and private needs.
- T2 can occur:
  - Between government entities
  - Between the government and the private sector
- Federal technology transfer
  - Results in commercialization of new products
  - Enhances laboratory and/or agency mission objectives
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Examples of Federal Tech Transfer

- Movement of technology from or into federal laboratory system to promote commercialization or mission accomplishment (i.e., technology “spin-in” and “spin-out”)
- Mission-related technology transfer between government activities
- Technical assistance
- Collaborative R&D among government, nongovernment activities, and user communities
- Commercial technology transferred for government applications
Legislative History

- EO 12591 (1987)
Office of Research & Technology Applications

Focal Point for Technology Transfer

Inside the Lab
- R&D Staff
- Lab Management
- Public Affairs
- Legal Staff
- Procurement Staff
- Human Resources

Outside the Lab
- Private Sector
- Academia
- State and Local Organizations
- National Networks
- Professional and Trade Groups
- Other ORTAs
Common Tech Transfer Mechanisms

- Patent License Agreement
- Cooperative Research and Development Agreement (CRADA)
**Definition:** Contract between IP owner and another party that permits the licensee to use the IP in accordance with the terms of the contract (35 USC 209)

- Intent is to bring inventions to practical and broad commercial application (make, use, or sell)
- Requires business/commercialization plan
- Exclusive, partial and nonexclusive type licenses
- Other highlights:
  - Manufactured substantially in U.S.
  - Preference given to small businesses
  - USG retains nontransferrable, irrevocable, paid-up license to practice or have practiced on behalf of USG
  - Royalties only paid when end item sold to nonfederal entities
  - Often tied to CRADAs
Common Tech Transfer Mechanisms (Cont.)

• Collegial exchange - public disclosure/release of information through:
  – Informal and free exchange of information among colleagues
  – Laboratory open houses
  – Presentations at technical or professional conferences
  – Articles published in technical journals
  – Caution should be taken not to disclose information prematurely if patent application or proprietary data involved

• Nondisclosure/Authorized Use agreements
Common Tech Transfer Mechanisms (Cont.)

Other mechanisms available at agency level include:

• Educational Partnership Agreement
• Partnership Intermediary Agreement
• Personnel Exchange
Other mechanisms available at agency level include:
• Work for Private Party (Others) Agreement
  – Use of Facilities Agreement
  – Cooperative Agreement
  – Other Transactions
  – Commercial Test Agreement
  – Material Transfer Agreement
  – Commercial Service Agreement
# NSWC Crane IP-Oriented T2 Model

## Discovery
- **IP Mining**
- Presentations
- Publications
- Training
- Tech Reviews
- Contracts (882s)
- CRADAs

## Protection
- Prosecution
- Through Issuance

## Marketing

## Transfer
- Licenses *
- CRADAs *
- NDAs *
- Contracts
- Work with Private Parties

## Sources:
- Inventors
- Natl. & Local PIAs
- University Partners
- Workshops
- ORTAs

## Content:
- Tech Ops *
- Market Studies *
- Market Analysis *
- Business Plans *
- Eureka!Ranch *
- Brochures
- Tech Shorts *
- Videos
- Military to Market
- Business Translation

## Channels:
- PIAs (local/natl.) *
- Websites *
- Road Shows *
- Showcases *
- Conferences *
- One-on-Ones *

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* PIA involvement
Selected T2 Organizations

• Federal Laboratory Consortium for Technology Transfer (FLC): www.federallabs.org
• State Science and Technology Institute (STTI): www.ssti.org
• National Technical Information Service (NTIS): www.ntis.gov
• Defense Technical Information Center (DTIC): www.dtic.mil
• Assoc. of University Technology Managers (AUTM): www.autm.net
• Technology Transfer Society (T2S): www.t2society.org
• Assoc. of Small Business Development Centers (ASBDC): www.uasbdc-us.org
• ***More at http://www.federallabs.org/resources/
Economic Impact: Navy T2 Study – “The So What”

- Indiana University Kelly School of Business
  - 103 Navy licenses & CRADAs

- Results
  - Economic activity $545M
  - Tax revenue $60M
  - Jobs 2,600
  - Avg. salary $79.3K

http://www.ibrc.indiana.edu/studies/t2executivesummary.pdf
NSWC Crane T2 in Indiana

- Partnership Intermediaries – 7
- Licenses – 6
- CRADAs– 12
- Startups- 8
- Univ. Edu. Partnerships – 9 (TBED)
- University T2 Projects – 6

In process
What Is the FLC?

The FLC is the only government-wide forum for technology transfer
What Is the FLC? (Cont.)

- The FLC was formally chartered by Congress under the Federal Technology Transfer Act
- The FLC is composed of technology transfer professionals from more than 700 federal laboratories, their respective agencies, and affiliated organizations
- 18 departments and agencies participate, conducting $billions in R&D annually and employing over 100,000 scientists and engineers
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FLC Vision

• Actively promote the fullest application and use of federal research and development by providing an environment for successful technology transfer

• Be the recognized leader in maximizing collaborative research and transferring federal technologies to enhance the socioeconomic well-being of the nation in the global marketplace
FLC Mission

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
FLC Statutory Mandates

15 USC 3710(e)(1) mandates the following:

• Develop and administer technology transfer techniques, training courses, and materials to increase the awareness of federal laboratory employees regarding the commercial potential of laboratory technology and innovations

• Provide advice and assistance to federal agencies and laboratories for use in their technology transfer programs

(See “Green Book, ” pp. 20-21)
FLC Statutory Mandates (Cont.)

• Provide a clearinghouse for technical assistance from state and local governments, business, industrial development organizations, not-for-profit organizations, including universities, federal agencies and laboratories, and other persons

• *Facilitate communication and coordination between ORTAs*

• Utilize the expertise and services of the National Science Foundation, the Department of Commerce, NASA, and other federal agencies as necessary
Facilitate the use of appropriate technology transfer mechanisms

Assist laboratories with establishing programs using technical volunteers to provide technical assistance to local communities

Facilitate communication and cooperation between federal laboratory ORTAs and regional, state, and local technology transfer organizations

Assist colleges or universities, businesses, nonprofit organizations, state or local governments, or regional organizations with establishing programs to stimulate research and to encourage technology transfer
FLC Statutory Mandates (Cont.)

• Seek advice in each FLC region from representatives of state and local governments, large and small businesses, universities, and other appropriate persons on the effectiveness of the technology transfer program

• Work with the Director of the National Institute on Disability and Rehabilitation Research to compile a compendium of current and projected federal laboratory technologies and projects with an impact on assistive technology for individuals with disabilities
FLC Strategies

- Create innovative partnerships
- Influence technology policy
- Optimize diverse resources
- Strengthen the FLC structure
- Establish a clearinghouse for technical assistance requests from federal agencies, labs, etc.
- Lead the vision
- Project a positive and consistent image
FLC Membership

**Departments**
- Agriculture
- Commerce
- Defense (Army, Navy, Air Force)
- Education
- Energy
- Health and Human Services
- Homeland Security
- Interior
- Justice
- Labor
- Transportation
- Veterans Affairs

**Agencies**
- Central Intelligence Agency
- Environmental Protection Agency
- National Aeronautics and Space Administration
- National Science Foundation
- Smithsonian Institution
- Tennessee Valley Authority

National Institute of Standards and Technology (NIST) serves as host agency for finances
FLC Structure

- General Membership
- Executive Committee/Executive Board
- Standing Committees
- Agency Representatives
- National Advisory Council
- Chair Vice-Chair
- Washington, DC Representative

Regions:
- Northeast Region
- Mid-Atlantic Region
- Southeast Region
- Midwest Region
- Mid-Continent Region
- Far West Region
FLC Regions

Provide improved communication and accessibility to individual laboratories in each region

- Northeast
- Mid-Atlantic
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FLC Regional Meetings

FLC Far West/Mid-Continent
Sept. 4-6, 2012
San Antonio, Tex.

FLC Southeast
February 2013
Location TBD

FLC Midwest
Aug. 13-16, 2012
Dayton, Ohio

FLC Northeast
Spring 2013
Location TBD

FLC Mid-Atlantic/Northeast
Aug. 28-30, 2012
Cambridge, Md.
FLC Regions

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- Northeast
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FLC Committees

• Planning and Policy
• Standing Committees
  - Education and Training
  - Communications
  - Awards
  - Legal Issues
  - Program
  - State and Local Government
• Special Committees – as necessary (e.g., elections, etc.)

Get involved and be part of a committee!
FLC Products & Services: Education & Training

- Training at national and regional meetings
- FLC Technology Transfer Desk Reference
- *Federal Technology Transfer Legislation and Policy* ("Green Book")
- Federal T2 Mechanisms Matrix
- Training Resources Database
- T2 Training DVD Set
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FLC Products and Services: Communications

- Media support
- Exhibits
- *FLC NewsLink*
- *Technology for Today*
- T2Talk (FLC message board)
- Roundtable discussion groups
- FLC on Twitter & Facebook
- Website - www.federallabs.org
FLC Products and Services: Website
FLC Products and Services: Technology Locator

- Centralized service for reviewing and routing requests from potential partners to the appropriate resource
- Serves as a point-of-entry to federal laboratory expertise and technology
- Responds to requests, monitors and coordinates responses, provides user feedback, and reports on the level of activity
- Uses network of representatives and online resources to put potential partner in contact with a federal laboratory that has required expertise and capability

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FLC Products and Services: Meetings

- **National Meeting** - One annual national meeting, highlights include:
  - Training
  - Awards
  - Relevant T2 topics
  - Expert panels
  - Networking

- **Regional Meetings** - Promote networking and activities within the six FLC regions
FLC Products and Services: Awards

- Excellence in Technology Transfer
- Interagency Partnership
- Outstanding T2 Professional
- Laboratory Director
- State and Local Government*
- STEM*
- Rookie of the Year*
- Service Awards
  - Harold Metcalf
  - Lab Representative of the Year
  - Outstanding Service

* - new awards

Be a reviewer!
Tech Transfer Works: Selected Technology Transfer Success Stories
Hyperspectral Imaging for Food Quality and Safety Inspection

- Hyperspectral imaging is an innovative technology for food quality and safety inspection
- More effectively detects food contamination than conventional inspection technologies
- Developed by an Agricultural Research Service (ARS) team and successfully demonstrated effectiveness for high-speed inspection of poultry and fruit for contamination
- A CRADA between ARS and three commercial companies facilitated transfer of the technology to the food and agricultural industries
- Hyperspectral imaging systems are currently being marketed for use by food and agricultural product processing companies
Innovative Scrubbing Process to Capture CO₂ From Power Generation

• Innovative carbon sequestration technology developed by the Department of Energy’s National Energy Technology Laboratory (NETL) uses an aqueous-based scrubbing solution to mitigate and capture CO₂ emissions from power generating plants.

• Technology patented by NETL and transferred through licensing and a CRADA to Powerspan Corp. for commercialization.

• Potential market for the technology is significant—potential to provide the utility industry with a solution for mitigating greenhouse gas emissions while maintaining the cost of electricity at affordable levels.
QwikLite 200™

- QwikLite is a field-deployable bioluminescent bioassay system invented at the Space and Naval Warfare Systems Center, San Diego to measure the toxicity of water.
- Technology uses the bioluminescence of certain species of plankton as bio-indicators of toxicity in water or soil samples.
- Provides an onsite measurement of toxicity that is more accurate, less costly, and faster than traditional bioassays.
- QwikLite technology was licensed by the U.S. Navy to Assure Controls, Inc. for commercialization.
- Support for commercialization was provided by the Center for Commercialization of Advanced Technology and two CRADAs.
- Currently on the market as QwikLite 200.
Multiplexed Assay for *Streptococcus Pneumoniae*

- New multiplexed assay for detection of *Streptococcus pneumoniae* antibodies was developed by the Department of Health and Human Services’ Centers for Disease Control (CDC) for use in the development of more effective *S. pneumoniae* vaccines
- Technology transferred using an exclusive license and a CRADA to a company established specifically to commercialize the technology
- Successful transfer has enabled the rapid production of a commercial product necessary for determining the efficacy of *S. pneumoniae* vaccines
Modular Mission Payload Control Software (NSWC Crane)

- Pekin, Ind. Small Business
  - Patent licensed to commercialize software
  - No cost contract to exchange code for improvements
  - CRADA to collaborate on improvements and commercialization

Local Indiana company selling licensed products
Thermal Target (NSWC Crane)

Dr. Les Nunn, ProEngage, LLC President and USI Faculty
- Evansville, Ind., startup company
- Licensed patent # 6,767,015 Thermal Target
- CRADA to assist with commercializing technology
Replacement Chassis Stock System for Firearms (NSWC Crane)

Objective:
- Modular replacement chassis-type stock for existing firearms (M14 Battle Rifle)

Benefits:
- Provides an economical way to update the design of the weapon with advancing technologies while improving accuracy and ergonomics of a proven firearm

Technology:
- Provides a “plug and play” approach for the M-14 chassis. A user can “plug and play” things like a telescoping buttstock, grips, day & night optics, lights, bipods, etc.
- Name of product: Sage Enhanced Battle Rifle

Status:
- Sage has an Exclusive License
- Over 3,000 delivered on Navy ID/IQ contract; 2,500 more on order (Army)
- Marketed to civilians/law enforcement also
- Adapted for M1 and Mini-14 rifles
- $22,000 paid in royalties