

for Technology Transfer

ANNUAL REPORT

TO THE PRESIDENT AND CONGRESS

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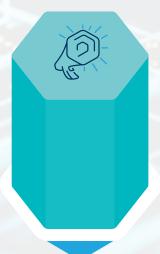
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FLC Organization

The Federal Laboratory Consortium for Technology Transfer (FLC) is the formally chartered, nationwide network of more than 300 federal laboratories, agencies, and research centers that fosters commercialization best practice strategies and opportunities for accelerating federal technologies from out of the labs and into the marketplace.

Through American taxpayers' investment in our federal laboratories' research and development (R&D) efforts, scientific and technological breakthroughs can take place and return dividends to our economy. New industries, businesses, and jobs are just a few of the benefits that result when a new innovation is brought to market, through a collaborative process called technology transfer (T2). The FLC is here to promote the organization, educate labs and their prospective partners about the T2 process, and facilitate the partnerships that drive these achievements. Accordingly, the FLC has updated its organizational structure to reflect those three key foundational pillars - Promote, Educate, and Facilitate.

In Fiscal Year 2020 (FY20), the FLC began implementing its five-year Strategic Plan, working closely with a full-time staff established under the cooperative agreement between AUTM and FLC that was announced at the end of 2019. AUTM is a nonprofit leader supporting the development of academic technology transfer and research that changes the world and drives innovation forward. For more information on the FLC, please visit www.federallabs.org. For more information on AUTM, visit www.autm.net.



PROMOTE

Actively promote availability, benefit, and value of federal laboratory assets through technology transfer (T2) to improve national economic prosperity and execution of lab missions.



EDUCATE

Provide progressive full spectrum education and training (E&T) and networking opportunities for federal T2 professionals and key internal stakeholders.



FACILITATE

Proactively engage and leverage partnerships that connect relevant private sector partners with individual federal laboratories to increase measurable outcomes.

LETTER FROM THE FLC CHAIR



Letter from the FLC Chair

2020 was another year of great impact for federal labs. The FLC continues to focus on its mission to increase the impact of federal technology transfer for the benefit of the U.S. economy, national security and society. To do so, this past year the organization has taken a more strategic approach to focus its efforts into three main pillars: Promote, Educate, and Facilitate. These areas support federal technology transfer through communication, education, and partnerships, respectively.

The FLC developed a five-year communications plan for more deliberate promotions to clearly communicate the value proposition to our audiences. Our 2020 education initiatives resulted in nearly doubled attendance for all virtual training. In addition, the FLC has established several key national and regional partnerships to improve federal lab connections within the private sector.

FY20 was a year of change. Implementation of the five-year Strategic Plan began with our new cooperative partner, AUTM, the global technology transfer association serving the academic community. AUTM staff handles most of the FLC's organizational daily activities so the Executive Board can work on mission-focused strategic initiatives—an arrangement that is already bearing fruit, as our audience is expanding and the quality of our programs is improving.

The pandemic converted all of FLC's in-person professional development training to virtual events, creating a broader audience. The FLC also developed a special news section highlighting federal labs' rapid responses in the fight against COVID-19. Nearly 700 articles generated more than 50K pageviews, and the database was linked with AUTM's site to inform and encourage collaborative COVID-19 response efforts among the federal, academic and private sectors.

In addition, the organization continued to modernize its procedures with bylaw changes voted upon by the membership to allow electronic voting and virtual meetings.

The FLC national and regional awards programs, the Planner, and Lab Tech in Your Life are essential for promoting federal lab success to a broad audience. High-quality submissions from member labs allow these products to fully demonstrate the value of federal research, development, and innovation and inspire future collaborations.

Despite the challenges faced by all federal labs during the pandemic, we received 87 nominations for the prestigious FLC National Awards and 71 excellent submissions for the 2021 edition of the very popular FLC Planner. We conducted a new paid media campaign for the Home edition of LabTech in Your Life while collecting new technologies for the next Airport edition, to be launched in 2021.

The exciting results from the first year of our 2020-2025 Strategic Plan implementation give us confidence that we are forging positive changes for our community.

This annual report outlines the efforts that our organization continues to make on behalf of our members, partners, and collaborators. In accordance with 15 U.S.C Section 3710(e)(6) and on behalf of the members of the FLC, I am pleased to present the FLC 2020 Annual Report to the President and Congress.

Respectfully,

John Dement, FLC Chair

2020 by the Numbers

FEDERALLABS.ORG VISITORS (UNIQUE PAGE VIEWS)

472,561

MOST VISITED SECTIONS

NEWS

EVENTS

FLC BUSINESS

106,632 33,431

24,240

FLC REGIONAL MEETINGS

NORTHEAST Registrants

MIDWEST AND SOUTHEAST

> 113 Registrants

MID-ATLANTIC

Registrants

FAR WEST AND MID-CONTINENT

Registrants

SOCIAL MEDIA





Facebook likes (+58% vs 2019) LinkedIn followers

(+53%)

(+54%)

SUCCESSES **GALLERY**

AWARD PROFILES AND **SUCCESS STORIES**

PANDEMIC PARTICULARS

COVID-19 NEWS

POSTS

NATIONAL AWARDS

Categories

Nominations

Winners



Agencies Represented

WINNERS BY REGION

Far West

Mid-Atlantic

Mid-Continent

Midwest

Northeast **•**

Southeast



*Some categories include multiple agencies and regions, so

WINNERS BY AGENCY

USDA

DOC

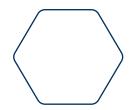
DoD

DOE

HHS

NASA

FLC NATIONAL MEETING AND AWARDS



National Meeting

Embracing unexpected opportunities

The COVID-19 pandemic necessitated shifting the 2020 National Meeting from its original April dates and the planned location of Portland, OR. Since federal travel restrictions persisted through the summer, the FLC took its premier event online from August 31 to September 3, 2020. The virtual format expanded participation, with a recordbreaking 804 registrants. More than 68% of attendees reported they learned something new to do their jobs better.

PANDEMIC PARTICULARS VIRTUES OF GOING VIRTUAL Federal tech transfer professionals, their partners, and other stakeholders embraced the concept of a virtual National Meeting, with almost double the number of registrants as the prior year's in-person meeting. The advantages are clear: NO COST TO **NO NEED TO** ATTEND **TRAVEL SESSIONS ACCESSIBLE ARE EASILY** FROM RECORDED FOR **ANYWHERE** LATER VIEWING And so are the results: RECORD NUMBER OF REGISTRANTS **2019 REGISTRANTS** 2020 REGISTRANTS

MEETING HIGHLIGHTS

TRAINING SESSIONS

AUTM Essentials of Technology Transfer

This course followed the lifecycle of invention disclosure ultimately resulting in licensing—while highlighting the different perspectives, issues, and concerns of industry, academia, and government labs.

CRADA Workshop

A cooperative research and development agreement (CRADA) is one of federal technology transfer's most important mechanisms. This course was a one-stop shop for everything CRADA.

Communicating Up, Down, and Across the Organization This hands-on workshop covered how to improve communication skills and put your best foot forward, as well as specific tools and strategies to build mutual understanding and connectivity with others.

KEYNOTE

 Nuclear Technology: What it Takes to Go from New Idea to First Plant Deployment

Derick Botha of NuScale Power discussed the NuScale concept for a new kind of nuclear power plant and the company's work with U.S. national laboratories to commercialize new technologies, including deployment of NuScale's Small Modular Reactor at the Idaho National Laboratory site.

PANEL DISCUSSIONS

 How Agencies Decide Whether to Seek IP Protection for an Invention

Representatives from a diverse set of agencies discussed the factors they consider when seeking intellectual property (IP) protection. While each agency's mission requires specific criteria, some factors may be common to many or even all agencies.

Panelists: Mojdeh Bajar of NIST, Linda Burger of NSA, Mary Monson of Sandia, and Brian Nakanishi of USDA ARS

Pandemic Particulars:

Tech Transfer and Other Aspects of Federal Agencies' COVID-19 Response

This panel discussion described how federal scientists and technology transfer professionals were working with patent, regulatory and public health communities, bringing their agencies' strengths and specialties to respond to the global pandemic.

Panelists: Kim Pham of DOD, Barney Graham of NIAID, Karin Ferriter of USPTO, and Clara Asmail of DOE

National Awards Highlights



ROOKIE OF THE YEAR Jack L. Owsley III, Air Force Research Laboratory Sensors Directorate



LABORATORY DIRECTOR OF THE YEAR Dr. Paul Kearns, DOE Argonne National

Laboratory



TECHNOLOGY TRANSFER **PROFESSIONAL**

OUTSTANDING

Jason Martinez, DOE Sandia National Laboratories



HAROLD METCALF FLC SERVICE AWARD Dr. Robert Griesbach, USDA Aaricultural Research Service

The 2020 FLC National Awards included two new categories: the Impact Award and the Technology Transfer Innovation Award.

IMPACT AWARD

Honors FLC member laboratories and nonlaboratory partners whose technology transfer efforts have made a tangible and lasting impact on the populace or marketplace.



WINNERS

DOC National Oceanic and Atmospheric Administration

"NOAA Expands Reach of Science On a Sphere"

DOD Uniformed Services Universitu

"USU Work Helps Control Hendra, Nipah Viruses"

DOE Oak Ridge National Laboratory

"Catalyst Swaps CO2 for Ethanol and Cleaner Air"

DOE Sandia National Laboratories

"Home Test Helps Keep Male Infertility Private"

HHS Food and Drug Administration

"FDA Mobile App Promotes Focus on Patients"

TECHNOLOGY TRANSFER INNOVATION AWARD

Recognizes federal labs that successfully implemented innovative or unconventional technology transfer approaches that resulted in a significant increase in T2 activities.



WINNERS



USDA Agricultural Research Service

"ARS Innovation Fund Awards Millions for T2"

Naval Undersea Warfare Center, Division Newport

"Navy Event Champions Two-way Tech Transfer"

DOE Oak Ridge National Laboratory

"ORNL Scientists Compete for T2 Opportunities"

DOE Pacific Northwest National Laboratory

"Exploratory License Allows Industry Test Drives"

HHS National Cancer Institute

"NCI's T2 Training Benefits Lab and Postdocs"

FLC Regional Meetings And Awards

Celebrating successes amid uncertainty

For the first time, all FLC Regional Meetings were converted to a virtual format due to the pandemic and travel restrictions. Each region provided a robust regional program delivering content tailored to the needs and interests of its regions. Federal labs' ongoing response to the COVID-19 pandemic was reflected both in meeting sessions and in the themes of the tech transfer projects that won FLC Regional Awards.

NORTHEAST REGION MEETING

OCTOBER 6-7

MEETING HIGHLIGHTS

Keunotes:

"IP and Espionage" Presented by Scott McGaunn Federal Bureau of Investigation

"How to Succeed in Tech Transfer" Presented bu Valerie Larkin NAVSEA Division Newport



Army DEVCOM Armaments Center Volpe National Transportation Systems Army Engineer Research & Development Center MIT Lincoln Lab U.S. Coast Guard Princeton Plasma Physics Lab

AWARDS

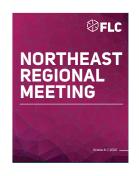
Excellence in Technology Transfer

MIT Lincoln Laboratory "MIT Lincoln Laboratory and partners enlist analog technology for complex computing challenges"

During the meeting, a panel of representatives from MIT Lincoln Laboratory and spin-off partner company Sync Computing discussed the award-winning project.

Participants:

Kevin Lefebvre, MIT Technology Transfer Office Bill Herzog, MIT Lincoln Laboratory Jeffrey Chou, Sync Computing Suraj Bramhavar, Sync Computing



MIDWEST AND SOUTHEAST JOINT REGIONAL **MEETING**

OCTOBER 27-28

MEETING HIGHLIGHTS

Keynotes:

"Midwest Award Winner: A Closer Look" Presented by Johnette Shockley U.S. Army Corps of Engineers

"Southeast Award Winner: A Closer Look" Presented by Gail Poulos USDA Agricultural Research Service

AWARDS

Midwest Region:

Interagency Partnership

USACE Construction Engineering Research Laboratory "Collaborations and T2 drive use of USACE facilities management software at NNSA and beyond"

Excellence in Technology Transfer

USDA Agricultural Research Service "USDA-led team's findings could help explain how agriculture can affect antibiotic resistance"

Southeast Region:

Excellence in Technology Transfer

DOE Oak Ridge National Laboratory "ORNL and licensee MVP join forces to make thermoset materials an option for large-scale 3D printing"

USDA Agricultural Research Service "USDA and Renewable Nutrients partner to improve nitrogen recovery from livestock waste"



MID-ATLANTIC REGIONAL MEETING

NOVEMBER 10

MEETING HIGHLIGHTS

Keynote:

"Unleashing Innovation" Presented by Mojdeh Bahar National Institute of Standards & Technology



Sessions:

- Al and the Patent Process
- Cultivating an Entrepreneurial Culture in Federal Labs
- Pandemic Particulars:

Federal Tech in the COVID-19 Response

AWARDS

Excellence in Technology Transfer

NIH National Cancer Institute

"NCI's partnership with Adastra moves new brain cancer drug along the path to commercialization"

Army Medical Research & Development Command "Patience, persistence, and creativity make USAMRDC's Body Cooling System a T2 success story"

Educational Institution and Federal Lab Partnership

National Aeronautics and Space Administration "NASA engineer's airborne remote-sensing innovation inspires nationwide educational network"

NIH National Center for Advancing Translational Sciences "Seed funding and a start-up help NCATS-CCHMC cancer therapy cross preclinical Valley of Death"

Interagency Partnership

DHS Chemical Security Analysis Center Army DEVCOM Chemical Biological Center National Institute for Occupational Safety and Health "Three agencies collaborate to update respirator testing and ensure emergency responder safety"

State and Local Economic Development

DOC National Institute of Standards and Technology "NIST-TEDCO entrepreneurship program facilitates 11 new start-ups and \$2.7M in annual revenue"

FAR WEST AND MID-CONTINENT REGIONAL MEETING

NOVEMBER 18-19

MEETING HIGHLIGHTS

Collaboration Forums:

Unmanned Aerial Systems for Defense and Agriculture Panelists from USDA, NAVFAC, and TradeSpace



AWARDS

Far West Region:

- Outstanding Commercialization Success DOC National Oceanic and Atmospheric Administration
- Outstanding Partnership

DOE Lawrence Livermore National Laboratory USDA Agricultural Research Service National Aeronautics and Space Administration

Outstanding Technology Development

DOE Sandia National Laboratories Naval Facilities Engineering Systems Command DOE Lawrence Livermore National Laboratory

 Outstanding Commercialization Success National Oceanic and Atmospheric Administration

Mid-Continent Region:

- Excellence in Technology Transfer DOE Sandia National Laboratories USDA Agricultural Research Service
- Notable Technology

National Aeronautics and Space Administration DOE National Renewable Energy Laboratory DOE Los Alamos National Laboratory

Partnership

DOE Sandia National Laboratories USDA Agricultural Research Service DOE National Renewable Energy Laboratory DOE Idaho National Laboratory DOE National Energy Technology Laboratory



DOE Sandia National Laboratories

 Tech Transfer Professional of the Year DOF Sandia National Laboratories



PANDEMIC PARTICULARS

AWARD-WINNING REGIONAL TECH TRANSFER PROJECTS WITH A COVID-19 FOCUS

ventilator developed for space missions"

DOE Lawrence Livermore National Laboratory

"LLNL and partners take COVID-19 ventilator technology from design to EUA in just three months"

National Aeronautics and Space Administration "COVID-19 pandemic inspires modifications to human-powered **DOE Sandia National Laboratories**

"Sandia's regional COVID-19 response efforts address medical and economic effects of pandemic"

FLC PLANNER

Success in **Snapshots**

An album of innovation, collaboration, and contributions

The FLC Planner is a 14-month calendar illustrating federal technology transfer achievements. This visually appealing package helps promote those successes to the FLC community, government offices and the general public.



PANDEMIC PARTICULARS



USDA Agricultural Research Service Rain Enhancement Technology

Lawrence Livermore National Laboratory (LLNL)

Additively Manufactured Nasal Swabs

To address a shortage of nasal swabs for COVID-19 testing, LLNL experts 3D-printed swabs from a biocompatible, surgical-grade resin and tested them in the Advanced Manufacturing Laboratory before making them available to medical providers.

> Lawrence Berkeley National Laboratory Innovative Grid Burner



Los Alamos National Laboratory Spectroscopic Detection of Nerve Agents





Sandia National Laboratories

Helping Protect Medical Professionals

A Sandia team rapidly modified existing aerosol and filtration systems, originally developed for nuclear nonproliferation work, to test materials that could be manufactured into N95-like respirators for medical professionals

on the COVID-19 front lines.







National Energy Technology Laboratory Characterization of Solid Oxide Fuel Cells



National Oceanic and Atmospheric Administration Remotely Operated Vehicle Deep Discoverer



National Institute of Standards and Technology 3D-Printed Materials Made for Impact





Oak Ridge National Laboratory (ORNL)

Blow Molding Technology

ORNL researchers discovered that plastic preforms used to make Coca-Cola bottles met the specifications for test tubes used in COVID-19 test kits. This led to Coca-Cola rapidly producing millions of the test tubes to address a global shortage.



PANDEMIC PARTICULARS

PROMOTIONAL PIVOTING

- Debuting an Events Newsletter to maintain awareness in the FLC community of webinars and other online education and training opportunities, to help federal laboratory professionals stay informed despite the cancellation or postponement of most inperson events.
- Launching a COVID-19 news database to highlight the contributions of federal labs to pandemic response efforts. A total of 691 COVID-related stories were collected between March and December, and the database is still growing in 2021. Federal technology transfer helped fight the pandemic on many levels, which included:

Addressing shortages of equipment and hospital beds



Sandia National Laboratories Sandia National Laboratories partnered with New Mexico small businesses to develop

and test new combinations of materials for use in N95-like respirators for COVID-19 responders.

Developing tests, treatments and vaccines



A team of researchers from the National Institute of Allergy and Infectious Diseases,

the University of Texas at Austin and Ghent University in Belgium were one of the first to identify that antibodies from llamas could be used to help develop COVID-19 treatments.

Creatively structuring licensing agreements



The Naval Surface Warfare Center, Crane Division, introduced a royalty-free

licensing program to help make pandemicspecific technologies rapidly available and to encourage commercialization of other technologies to bolster the national economy.

Promoting Technology Transfer

The FLC seeks to increase awareness and engagement within the federal lab community, among prospective partners from industry and academia, and with the general public. Successful promotional efforts are key to the FLC achieving its goal of becoming the premier federal technology transfer organization, as outlined in the Strategic Plan.

To that end, 2020 was about proactively developing promotional strategies. But 2020 was not just about plans. Thanks to the COVID-19 pandemic, it was also about pivoting.

PROMOTIONAL PLANS

- A five-year communications plan that, along with the Strategic Plan, is being used to build a strategic roadmap for the organization.
- Plans to develop and gauge the success of the second edition of Lab Tech in Your Life, the popular interactive online experience that showcases technologies that have moved from federal labs to everyday life.

The initial version of Lab Tech in Your Life was focused on a home environment, and the second version—which launched in 2021—is focused on an airport environment.

A paid media campaign was launched to promote the home version to the public and to provide a baseline against which to measure the success of the airport version.





Educating Technology Transfer Professionals

The FLC's goal is to provide high quality professional development for the federal technology transfer community. FLC training courses, conferences and webinars are focused on providing a well-rounded curriculum to meet the needs of the entire federal technology transfer community from novice to expert.

The FLC professional development team and committee members have made significant progress on the organization's educational strategic initiatives, including developing a clearinghouse of education and training as well as information for an executive education package.

The FLC continues to enhance its online educational offerings to provide convenient professional development opportunities for all levels of technology transfer professionals throughout the year. The virtual format of the 2020 National Meeting (see page 6) and the four 2020 Regional Meetings (see page 8) made it possible for registrants to view session recordings for up to one year after an event—significantly adding to the educational value of those presentations.

In addition, the FLC produced a number of training webinars in 2020 that will remain available on the FLC website for free on-demand viewing, even for individuals who did not register for the initial event. These include a State Science and Technology Institute (SSTI) webinar on communicating technology transfer concepts and a Department of Defense webinar series that has continued in 2021.

DOD Technology Transfer Training Webinar Series: 2020 Installments

October 21:

Technology Transfer Training Working Group

November 4:

Technology Transfer First Timers' Overview Session

December 3:

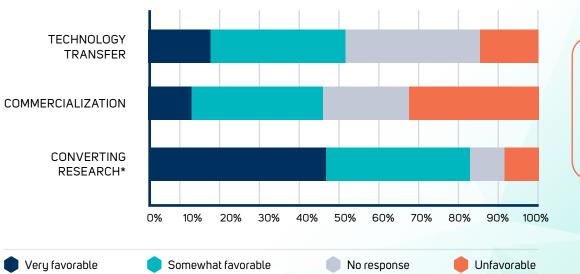
Legislative Changes Impacting Technology Transfer

WHAT'S IN A NAME? PUBLIC PERCEPTIONS OF 'TECHNOLOGY TRANSFER'

Two representatives from the State Science and Technology Institute (SSTI) presented results from SSTI's 2020 National Innovation Language Study, drawing insights into how the vocabulary of tech transfer and innovation policy is received and translated by the public.

For example, the SSTI study asked individuals whether they thought certain terms used to describe moving innovations from lab to market were favorable. More than 80% of respondents thought "converting research into jobs and businesses" was favorable or very favorable, while "commercialization" and "technology transfer" were similarly rated by only about half of the respondents.

When we talk about putting research to work...



^{* =} full text was "converting research into jobs and businesses"

Data courtesy of SSTI

Facilitating Technology Transfer Activity

In 2020, the Facilitate Pillar of the FLC Strategic Plan launched its activities to proactively engage and leverage collaborators and partners to assist connections between individual federal laboratories and the private sector.

The year's Facilitate highlights included:

- Developing a much-needed census of all federal laboratories
- Evolving the regional programs for greater efficiencies
- Preparing a Partnership Policy and Memorandum of Understanding for the organization
- Initiating discussions with several potential national and regional partners
- Starting the process of reinventing FLC Business to meet the changing needs of federal laboratories

TECHNOLOGY FOCUS AREA NATIONAL AWARD SPOTLIGHT

"CRADAs drive sensor-based irrigation solution"

For the U.S. Department of Agriculture's Agricultural Research Service (USDA ARS), the decade-long quest for an autonomous technology-based solution to the irrigation challenge of an increasingly limited water supply was made possible by multiple cooperative research and development agreements (CRADAs) between ARS and key industry players.

The result was the proprietary Irrigation Scheduling Supervisory Control and Data Acquisition (ISSCADA) system - a wireless sensor network of noncontact crop infrared thermometers (IRTs) to replace the miles of wire previously required to scan a crop for water stress.









SBIR ENGAGEMENTS

The Small Business Innovation Research and Small Business Technology Transfer (SBIR and STTR) programs in 2020 offered a wealth of opportunities for facilitating partnerships. The FLC Facilitate team held 63 meetings to connect with prospective strategic partners.



SBIR WEEK IN THE MIDWEST 10 meetings



SBIR WEEK IN THE SOUTH 9 meetings



SBIR WEEK IN THE SOUTHEAST 12 meetings



SBIR WEEK IN THE ROCKIES 2 meetings

SBIR/STTR Innovation Summit 30 meetings



2020 Financial Statement

By statute (15 USC 3710(e)(6)), the FLC receives its funding as a stated percentage of the intramural research and development budget of each federal agency for the fiscal year. These funds are transferred to NIST at the beginning of each fiscal year and then transferred by NIST to the FLC to conduct its activities.

AGENCY CONTRIBUTIONS TO THE FLC FOR **FISCAL YEAR 2020**

AGENCY	AMOUNT PAID
Department of Agriculture	\$128,696
Department of Commerce	\$90,608
Department of Defense	\$1,706,424
Department of Energy	\$832,808
Department of Health and Human Services	\$746,368
Department of Homeland Security	\$35,752
Department of Interior	\$55,520
Department of Transportation	\$36,808
Department of Veterans Affairs	\$119,440
Environmental Protection Agency	\$20,408
National Aeronautics and Space Administration	\$427,600
National Science Foundation	\$24,360
Total	\$4,224,792

SCHEDULE OF REVENUES AND DISBURSEMENTS

Revenues	\$4,224,792
Disbursements	\$3,395,000
Cooperative Agreement	\$3,200,000
NIST Administrative Charges	\$195,000



