

ANNUAL REPORT
TO THE PRESIDENT AND CONGRESS

A successful focus on engagement accelerated the FLC toward our goal to increase the impact of federal technology transfer for the benefit of the U.S. economy, national security, and society.

-Linda L. Burger, FLC Chair



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Letter from the FLC Chair

The Federal Laboratory Consortium (FLC) continued to demonstrate unprecedented resilience and creativity in 2021, finding new ways to achieve ambitious goals while navigating unexpected challenges. A successful focus on engagement accelerated the FLC toward our goal to increase the impact of federal technology transfer for the benefit of the U.S. economy, national security, and society.

Expanding engagement opportunities with stakeholders required contributions from all three of the FLC's foundational pillars: Promote, Educate, and Facilitate. These areas, formalized in the FLC's 2020-2025 Strategic Plan, support federal technology transfer through communication, education, and partnerships, respectively.

The Educate and Facilitate teams created a slate of new opportunities for federal technology transfer professionals to engage with each other and with prospective partners from academia, industry, and other like-minded organizations. The targeted programming of these events, effectively communicated by the Promote team, led to a 43% increase in registrants and nearly three times more attendees with partnership potential compared with the previous year.

The FLC national and regional awards programs, the Planner, and Lab Tech in Your Life provide additional opportunities for engaging FLC's member labs as well as promoting federal lab successes to a broad audience. High-quality submissions from member labs allow these products to fully demonstrate the value of federal research, development, and innovation, as well as inspiring future collaborations.

In FY21, we received 84 nominations for the prestigious FLC National Awards and 82 excellent submissions for the 2022 edition of the popular FLC Planner. The new LabTech in Your Life experience, which launched this year and was filmed on location at the Albuquerque International Sunport in New Mexico, highlights 31 different technologies related to safe air travel that were developed by 11 federal laboratories from seven federal agencies.

Collectively, these outcomes underscore the strength of the FLC's Strategic Plan and the federal technology transfer community's ongoing ability to adapt as needed to positively impact the nation.

This annual report outlines our organization's continued efforts on behalf of our member labs and their technology transfer partners. In accordance with 15 U.S.C Section 3710(e)(7) and on behalf of the members of the FLC, I am pleased to present the FLC 2021 Annual Report to the President and Congress.

Respectfully,

Linda L. Burger FLC Chair

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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, research centers and their agencies 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 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 its member labs and the T2 profession, educate labs and their prospective partners about the T2 process, and facilitate the partnerships that drive these achievements. Accordingly, the FLC's organizational structure reflects those three key foundational pillars - Promote, Educate, and Facilitate.

Fiscal Year 2021 (FY21) was the second year of the FLC's most recent five-year Strategic Plan, which established a full-time executive director and staff under a cooperative agreement between the FLC and AUTM. For more information on the FLC, please visit www.federallabs.org.



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.

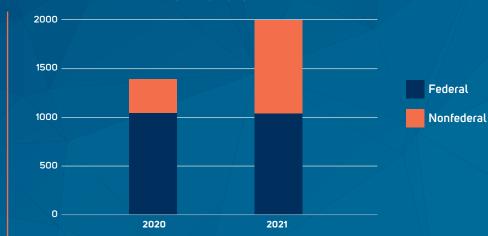
IMPACTFUL EVENTS

Attendance at FLC events contributes significantly to the organization's mission to increase the impact of federal technology transfer by expanding the pool of federal and nonfederal professionals who turn to the FLC for professional development and partnership opportunities. For a second consecutive year, the FLC successfully leveraged virtual engagement platforms, but also focused outreach efforts on new audiences beyond the federal space.

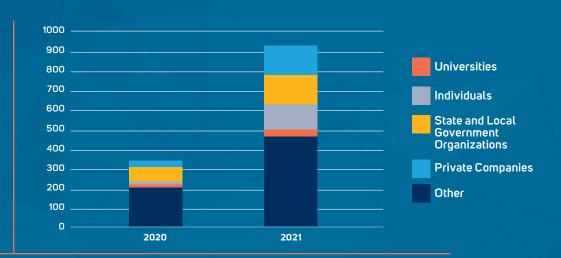
Those efforts yielded results. Attendance at FLC events was 43% greater than in 2020. A record breaking 1,043 people registered for the 2021 FLC National Meeting, a 29% increase over 2020 numbers. The largest gains in participation came from nonfederal audiences. Prospective technology transfer partners attending FLC events in 2021 was nearly triple the 2020 number. Additionally, private companies comprised the largest partner category in both years, but the category more than doubled in size between 2020 and 2021.

FEDERAL AND NONFEDERAL ATTENDANCE AT FLC EVENTS 2021 VS 2020





NUMBER OF ATTENDEES



SUCCESSES GALLERY

AWARD PROFILES AND SUCCESS STORIES

NATIONAL MEETING

+29% FROM 807 IN 2020 | +140% FROM 434 IN 2019

FEDERALLABS.ORG VISITORS

(UNIQUE PAGE VIEWS)

MOST VISITED SECTIONS -

FLC BUSINESS **NEWS**

EVENTS

NATIONAL AWARDS

Categories

Submissions

Winners

Labs Represented

WINNING LABS BY REGION

Far West

Mid-Atlantic

Mid-Continent

Midwest

Northeast

Southeast



SOCIAL MEDIA







1,690

Facebook likes LinkedIn followers Twitter followers

3,310

WINNING LABS BY AGENCY

DoD

USDA





DOI





NASA

VA

TRAINING ENGAGEMENTS

2021 National Meeting

ANOTHER REGISTRATION RECORD

Held virtually for a second consecutive year, the FLC's premier annual event again set a new record for participation. **The 2021 event brought in 1,043 registrants, eclipsing the previous record of 804 set in 2020.** This increase in engagement helped the FLC's educational offerings reach a broader and deeper pool of federal and nonfederal professionals from across the innovation ecosystem.

BY THE NUMBERS

POPULAR KNOWLEDGE

The results are in: Across the country, federal tech transfer professionals, their partners and other stakeholders valued the opportunities and convenience of the 2021 FLC National Meeting.

POPUL	AR TOPICS
RANK	TITLE
1	Lab Directors Forum
2	Bayh-Dole Act of 1980 in 2021
3 T2 and Non-Traditional Labs	
4 IP and Tech Transfer Topics in Manufacturing	
5	Keynote with FBI's Scott McGaunn
	of surveyed participants felt
	of surveyed participants felt the National Meeting was a valuable time investment

MEETING HIGHLIGHTS

TRAINING SESSIONS

Technology Transfer for Beginners

This course provided an introduction to federal technology transfer--what it is, why it is important, the role of the technology transfer professional, and the tools needed to be successful.

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.

Marketing Strategies Course

Before discussing a patent with an inventor or negotiating a license for a technology, tech transfer professionals need to start a conversation about their services. This course explained how.

KEYNOTE

Espionage, Intellectual Property Theft, and Technology Transfer

Federal Bureau of Investigation (FBI) Special Agent Scott McGaunn discussed the FBI's counterintelligence efforts against America's adversaries and the nature of espionage as it relates to intellectual property at research institutions.

PANEL DISCUSSIONS

• The Bayh-Dole Act of 1980 in 2021

This session explored the effects of the Patent and Trademark Amendments Act, also known as the Bayh-Dole Act, and how its significance for federal technology transfer has evolved in the four decades since its passage.

Lab Directors Forum

2021 FLC National Award for Laboratory Director of the Year recognizes executive-level support for technology transfer activities within a federal lab. In this session, the three 2021 winners of this award shared their perspectives on the value of technology transfer.

Making Education Count



729 TOTAL

NATIONAL MEETING TRAINING COURSE REGISTRANTS **267**CRADA Workshop

➤ 260
AUTM Marketing
Strategies Course

202 Technology

Technology Transfer for Beginners



of surveyed participants said that **education and training were important factors** in their decision to attend the National Meeting



of surveyed participants responded positively to the **quality of educational sessions** at the National Meeting

BEYOND THE NATIONAL MEETING

TRAINING WEBINARS



FLC CREDENTIALING FEASIBILITY STUDY

485
TRAINING WEBINAR

REGISTRANTS

46
EDUCATION &
TRAINING NEWSLETTERS

LOOKING AHEAD

In 2021, FLC's Educate team not only grew attendance numbers overall, but also began to lay the framework for new T2 training opportunities. Plans were made for a Learning Management System that will include courses, webinars, resources, and a technology transfer microcertification curriculum. The LMS is scheduled to launch in late summer 2022.

FLC NATIONAL AWARDS



Excellence in **Extraordinary Times**

RECOGNIZING THE BEST IN FEDERAL **TECHNOLOGY TRANSFER**

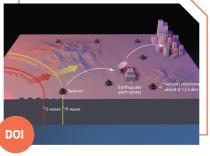
Despite work-from-home orders and travel restrictions, federal labs and their strategic partners continued to raise the bar for collaborative innovation in 2021. This year's 33 FLC National Awards epitomize federal technology transfer's contributions to the economy, society, and national security which will be key to the nation's pandemic recovery. Select winners are highlighted here to illustrate the range of agencies and technology sectors associated with these prestigious awards.



Jet Propulsion Laboratory **TECHNOLOGY TRANSFER INNOVATION AWARD**

Free licensing facilitates global use of JPL's simple, scalable ventilator for COVID-19 patients

[see page 18 for more on federal labs' COVID-19 response]



U.S. Geological Survey **IMPACT AWARD**

USGS earthquake early-warning system can provide valuable time to protect people and infrastructure before impact.



National Cancer Institute STATE AND LOCAL ECONOMIC **DEVELOPMENT AWARD**

Annual tech showcase strengthens public-private connections that support regional economy



Agricultural Research Service **EXCELLENCE IN TECHNOLOGY TRANSFER AWARD**

USDA and industry partner improve nitrogen recovery from livestock and municipal wastes



Uniformed Services University of the Health Sciences **EXCELLENCE IN TECHNOLOGY TRANSFER AWARD**

Radiation-resistant bacteria Inspire USU-BMI vaccine against polio and emerging superbug



Pacific Northwest National Laboratory **EXCELLENCE IN TECHNOLOGY TRANSFER AWARD**

PNNL-PST collaboration could save billions through proactive detection of fluid contaminants



LABORATORY DIRECTOR OF THE YEAR

Dr. Walter CopanDOC | National Institute of
Standards and Technology



LABORATORY DIRECTOR OF THE YEAR

Dr. David Pittman

DOD | USACE Engineer Research
and Development Center



LABORATORY DIRECTOR OF THE YEAR

Dr. Brian Anderson DOE | National Energy
Technology Laboratory



ROOKIE OF THE YEAR

Ryan Adam Davis

VA | Department of Veterans Affairs



OUTSTANDING TECHNOLOGY TRANSFER PROFESSIONAL

Dr. Bob Westervelt

DOE | Sandia National Laboratories



FLC PLANNER

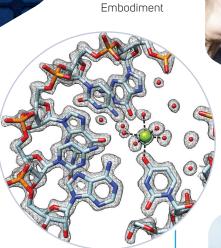
Federal Innovation in Focus

EVERY PICTURE TELLS A TECH TRANSFER SUCCESS STORY

An engaging photo can sometimes capture the essence of a federally developed technology more effectively than words. The FLC Planner, an annual 14-month printed calendar, leverages this concept to illustrate the value of federal technology transfer for prospective partners and other stakeholders.



US Department of Veterans Affairs Sensorized Prosthetic Hands to Promote



Frederick National Laboratory

Cryogenic Electron Microscopy





FLEXSIM PROTECTION SUCKING SUC



INCLUDED	
1	Far West
1	Mid-Atlantic
8	Mid-Continent
5	Midwest
2	Northeast
3	Southeast

3	Southeast
PHOTOS INCLUDED	AGENCY
1	Department of Commerce
6	Department of Defense
7	Department of Energy
1	Department of the Interior
1	Department of Health and Human Services
2	Department of Transportation

NASA

Department of Veterans Affairs



Frequency Combs

National Energy Technology Laboratory

NETL's Glowing Innovation for Health Care





Army Research Laboratory ARL MEMS Lidar Technology



Federal Highway

Administration
Air-coupled Acoustic Inspection of Highway Structures



National Renewable Energy Laboratory Enzymatic Degradation

of Thermoplastics



Oak Ridge National Laboratory Polyphase Magnetic Coil

for Wireless Technology



Los Alamos National Laboratory Oak Ridge National Laboratory

QED: Quantum Ensured Defense of the Smart Electric Grid



Engineer Research and Development Center Coastal & Hydraulics **Laboratory** Ship/Tow Simulator



Sandia National Laboratories

Small Reactor for Medical Isotopes

LABTECH IN YOUR LIFE

Technologies for Travelers

VIRTUAL AIRPORT TOUR SHOWCASES FEDERAL LAB INNOVATIONS

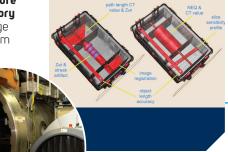
LabTech in Your Life is an interactive video experience highlighting examples of federally developed technologies that the average person might encounter in real-life settings. The first edition of LabTech in Your Life guides users through a home; the latest edition, launched in 2021, tours an airport. These pages highlight a selection of the 31 technologies, from seven federal agencies, that are featured in the airport edition.

DHS Science & Technology Directorate Immersive Imaging System & 360-degree Coverage USDA Agricultural Research Service Hydrangea Quercifolia "Munchkin"

AIRPORT CHECK-IN

Lawrence Livermore National Laboratory

3D-Xray Luggage Screening System



National Institute of Standards and Technology

NIST Luggage Screening Standards

BY THE NUMBERS

REGION	
Far West	
Mid-Atlantic	
Mid-Continent	
Midwest	
Southeast	
	Far West Mid-Atlantic Mid-Continent Midwest

PHOTOS INCLUDED	DEPARTMENT
6	Department of Agriculture
3	Department of Commerce
1	Department of Defense
13	Department of Energy
5	Department of Homeland
	Security
1	Department of Transportation
2	NASA

SECURITY SCREENING

Pacific Northwest National Laboratory Holographic Millimeter Wave Scanning for Passenger Screening

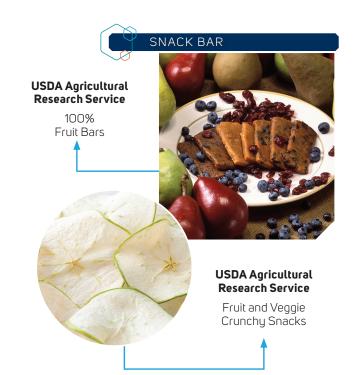


DHS Science &
Technology Directorate
Explosive Trace

Explosive Trace
Detector Standards



Target Suppressor Software





National Oceanic and Atmospheric

Administration
Quarter-scale 449 MHz Radar

INDUSTRY ENGAGEMENT



Finding New Ways to Network

PARTNERSHIP-DRIVEN PROGRAMS HELP EXPAND FLC'S REACH

In 2021, the type of innovative thinking that drives technology transfer also helped the FLC create new ways for federal labs to engage with prospective commercialization partners and with each other. With ongoing travel restrictions compounded by pressure to regain momentum lost in the first year of the COVID-19 pandemic, T2 professionals and prospective partners were looking for events that would deliver maximum return for the time invested. The FLC responded by reinventing its regional meetings and introducing multiple new platforms to help cultivate public-private partnerships.

MEMBER CONNECT: LIGHTNING TALKS

EVENT TYPE: Webinar

EVENT LENGTH: 30 minutes

FOCUS ON: Federal labs and FLC strategic partners

DESCRIPTION: Like speed dating for technology transfer, these lightning talks are a great way for prospective partners to get a snapshot of the expertise, facilities or technologies available from a federal lab or the services offered by one of FLC's strategic partners.

LAB SHOWCASE: A DEEPER DIVE

EVENT TYPE: Webinar

EVENT LENGTH: 60 minutes

FOCUS ON: Federal labs

DESCRIPTION: These events offer a deeper dive into the newsworthy tech transfer activities of a federal lab. A Lab Showcase might highlight a lab's research, a technology challenge, a national initiative, a tech transfer success story, or a new partnership opportunity.



INDUSTRY AND TECH EVENTS

Most federal tech transfer collaborations involve a lab and a partner organization that share an interest in a particular technology sector. That's why the FLC Regions have created thematic Industry and Tech Events to promote partnerships focused on specific technologies that have been identified as growth areas by federal and industry analysts. Industry and Tech Events are hosted by the FLC Regions, but stakeholders from across the innovation ecosystem are encouraged to attend.



WILDFIRE TECHNOLOGY PARTNERSHIP FORUM

DATES: AUGUST 24-25, 2021
REGION HOST: Far West and Mid-Continent

ATTENDEES: 241

Federal laboratories are adjusting their priorities as climate change increases the risk of wildfires. Technologies are being developed to address this problem, such as fuel load abatement, material science to harden structures, wildfire modeling technologies, and other fire-fighting tools and techniques.



ARTIFICIAL INTELLIGENCE PARTNERSHIP FORUM

DATES: SEPTEMBER 20-21, 2021 **REGION HOST:** Midwest and Southeast

ATTENDEES: 139

With the market for artificial intelligence-based technologies growing exponentially, this event focused on strategic priorities for tech transfer partnerships. Discussions explored the safety, security and reliability of human-Al collaboration; the ethical, legal, and societal implications of Al and more.



Creating Strategic Partnerships

FLC FORGES NEW AGREEMENTS WITH SIX LIKE-MINDED ORGANIZATIONS

Connecting federal labs with partners who can advance the commercialization of federal technologies supports the FLC's mission to increase the impact of technology transfer. And strategic organizational partnerships also play a key role in achieving that mission.

The FLC proudly partners with organizations from government, industry, and academia with an interest in connecting their constituents with federal labs' technologies, facilities, and expertise. Through collaborative communications, exhibit space, networking opportunities, and technology demonstrations, the FLC and its strategic partners work synergistically to provide valuable resources and support to all members of the tech transfer community.

In 2021, the FLC forged new strategic partnership agreements with six like-minded organizations:



CO-LABS

Regional partner (Mid-Continent)

CO-LABS connects technologists to manifest scientific discoveries improving the world.

Colorado has more than 30 federal taxpayer-funded scientific research labs ranging from agriculture to aerospace, geology to GPS, extreme weather to quantum physics, wildlife biology to ice cores, and more. CO-LABS mission is to keep these labs funded and keep them in Colorado.



DEVELOPMENT CAPITAL NETWORKS

National partner

Capital Networks DCN seeds the growth of entrepreneurs by attracting technology, capital, and talent to

help communities build innovation economies. DCN collaborates with Cimarron Capital Partners, a manager of targeted venture fund investments, and Innovate, Inc., a nonprofit that facilitates technology transfer. The in-depth experience of DCN's national team and its extensive network of innovators and investors complement local talent in the communities it serves.



MONTGOMERY COUNTY ECONOMIC **DEVELOPMENT CORPORATION**

Regional partner (Mid-Atlantic)

MCEDC helps businesses find what they need to succeed in Montgomery County, Maryland.

MCEDC works with county and state officials to connect companies with resources, funding, incentives, permitting and more. MCEDC is a gateway to collaborations with county and state entities; information on incentives, tax credits and programs; and business support or loans for specialized minority-owned, women-owned, or veteran-owned businesses.



NEW JERSEY COMMISSION ON SCIENCE, INNOVATION AND **TECHNOLOGY**

Regional partner (Northeast)

CSIT is responsible for strengthening the innovation economy within New Jersey, encouraging collaboration and connectivity between industry and academia and the translation of innovations into successful high growth businesses. CSIT has been established to exercise oversight for the responsibility of implementing, evaluating, and formulating long-range plans and programs for science, innovation, and technology in New Jersey.



NEW MEXICO LAB-EMBEDDED ENTREPRENEUR PROGRAM

Regional partner (Mid-Continent)

NM LEEP matches entrepreneurs with seed capital, a large network of mentors, customers, and investors and the unique expertise and resources of Los Alamos and Sandia National Laboratories. NM LEEP strives to foster a diverse and inclusive program by creating a process that solicits a range of innovators from universities, accelerators, and other organizations around the country, and from across numerous technology areas.



TEDCO (MARYLAND TECHNOLOGY **DEVELOPMENT CORPORATION)**

Regional partner (Mid-Atlantic)

TEDCO is leading innovation to market. TEDCO provides funding, resources and connections that early-stage technology and life sciences companies need to thrive in Maryland. TEDCO's mission is to Enhance economic empowerment by fostering an inclusive and entrepreneurial innovation ecosystem. Identify, invest in, and help grow technology companies in Maryland.

2021 COVID-19 RESPONSE



Federal laboratories continued to innovate and answer the sustained challenges of the COVID-19 pandemic throughout 2021.





PANDEMIC-RELATED LAB NEWS ON FEDERALLABS.ORG

352

28,270

NEW POSTS

PAGE VIEWS

COVID-19 NEWS ACCOUNTED FOR 24% OF ALL SOCIAL MEDIA REFERRALS TO FEDERALLABS.ORG







655

552

525

FEDERAL LABS' PANDEMIC RESPONSE BY SUBMISSIONS TO NATIONAL AWARDS AND PLANNER (COMBINED)



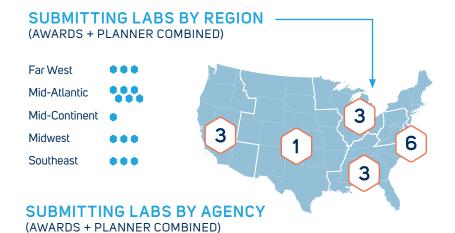


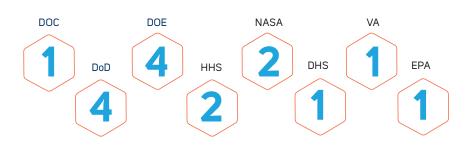


16 Labs Represented









FINANCIALS

2021 Financial Statement

By statute (15 USC 3710(e)(7)), 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 2021

AGENCY	AMOUNT PAID
Department of Agriculture	\$115,872.00
Department of Commerce	\$83,600.00
Department of Defense	\$1,101,920.00
Department of Energy	\$832,000.00 [*]
Department of Health and Human Services	\$61,840.00
National Institute of Health	\$684,968.00
Department of Homeland Security	\$109,584.00
Department of Interior	\$55,520.00
Department of Transportation	\$36,808.00
Department of Veterans Affairs	\$238,880.00
Environmental Protection Agency	\$20,408.00
National Aeronautics and Space Administration	\$427,600.00
National Science Foundation	\$24,360.00
TOTAL	\$3,793,360.00

*Amount was collected after the

SCHEDULE OF REVENUES AND DISBURSEMENTS

Revenues	\$3,793,360.00
Disbursements	\$2,551,714.22
Cooperative Agreement	\$2,408,537.60
NIST Administrative Charges	\$143,176.62





Federal Laboratory Consortium for Technology Transfer

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