



Federal Laboratory Consortium  
for Technology Transfer

# 2022

ANNUAL REPORT  
*TO THE PRESIDENT AND CONGRESS*

[federallabs.org](https://federallabs.org)





“The FLC used its expertise in supporting and promoting federal technology transfer to find new ways to continue growing and improving its performance in service to the nation.”

Linda L. Burger  
FLC Chair

Photo credit: ©Matt Gaydos/NETL



## Letter From the FLC Chair

In FY 2022, the Federal Laboratory Consortium (FLC) used its expertise in supporting and promoting federal technology transfer to find new ways to continue growing and improving its performance in service to the nation. Led by ambitious goals to increase the impact and awareness of federal technology transfer, and understanding the potential of new engagement methods, the FLC introduced new digital tools to advance its ability to engage with members and other stakeholders.

This year, the FLC unveiled a fully redesigned website that unleashed powerful new capabilities to expand the FLC's efforts to promote, educate and facilitate technology transfer in a digital format. By implementing new tools, our members gained access to FLC's training courses and events, allowing them to track their professional development, a critical first step toward establishing a credentialing program for technology transfer professionals.

Recognizing that technology transfer is an active profession, the FLC updated the digital FLC Technology Transfer Desk Reference. The FLC also delivered an interactive online version of the FLC Greenbook — a compilation of technology transfer legislation and policy — featuring mobile access, search capability and active links to government websites.

Through hundreds of events hosted independently and with our partners, the FLC brought together more than 2,700 registrants, making it a goal-breaking year. Our premier event, the FLC National Meeting, covered timely technology transfer topics including march-in rights, equity funding and intellectual property protection. We also rolled out a new type of technology-focused event to nurture the formation of partnerships between government laboratories, industry and academia. These events featured a broad range of topics and technologies, providing opportunities for partnership development and technology transfer success.

To reflect the diverse individuals who represent a treasure trove of innovation and technical leadership in our nation's federal laboratories, the FLC adopted a Diversity, Equity, Inclusion and Accessibility Policy. The policy ensures that all who want to participate in bringing our nation's innovations into the marketplace through the FLC are welcome. Building on this year's transformative work, the FLC has positioned itself for continued growth and positive impact.

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. Code § 3710(e)(6) and on behalf of the members of the FLC, I am pleased to present the FLC 2022 Annual Report to the President and Congress.

Respectfully,

A handwritten signature of Linda L. Burger in black ink, written in a cursive style.

Linda L. Burger  
FLC Chair



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## FLC Organization

The FLC is the formally chartered, nationwide network of more than 300 federal laboratories, agencies and research centers that fosters commercialization best practices, strategies and opportunities for accelerating federal technologies from labs to 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.

The FLC Executive Board is comprised of federal lab members who set direction and provide governance for FLC activities through the adoption of a strategic plan and supporting policies. Fiscal Year 2022 (FY 22) was the third year under the current strategic plan, and the FLC Executive Board and FLC team successfully completed a number of key goals this year that support the growth and awareness of the federal technology transfer community.

For more information on the FLC, please visit [www.federallabs.org](http://www.federallabs.org).



### PROMOTE

Actively promote availability, benefit and value of federal laboratory assets through 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.

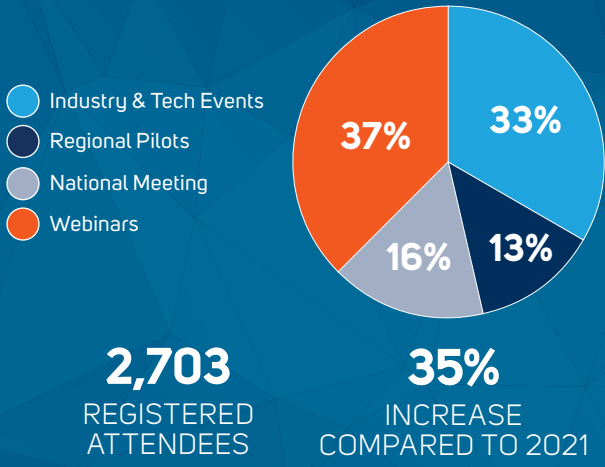


### FACILITATE

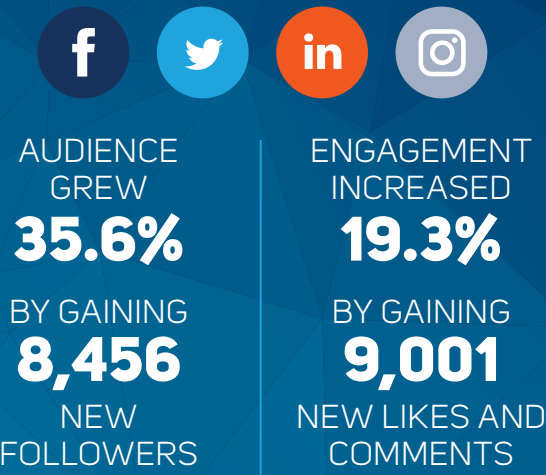
Proactively engage and leverage partnerships that connect relevant private sector partners with individual federal laboratories to increase measurable outcomes.

# 2022 BY THE NUMBERS

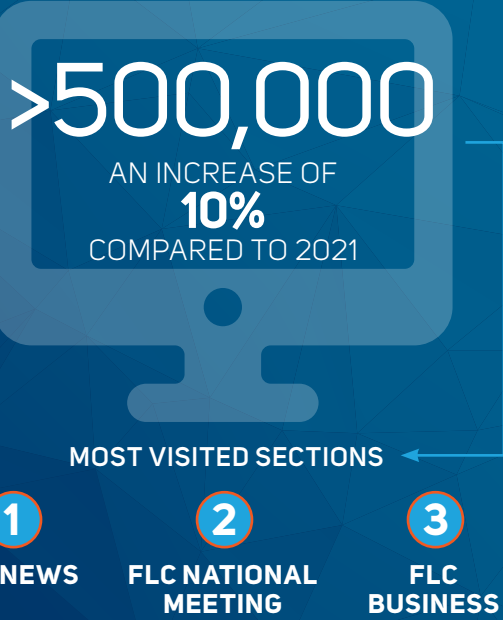
## ATTENDANCE AT FLC EVENTS



## SOCIAL MEDIA GROWTH

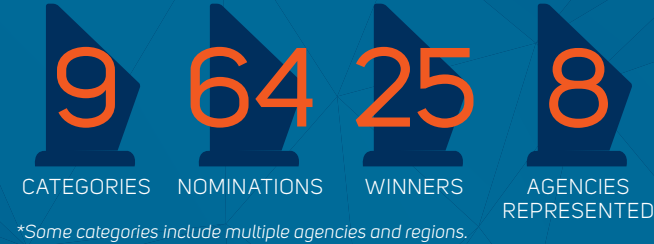


## FEDERALLABS.ORG VISITORS (UNIQUE PAGE VIEWS)

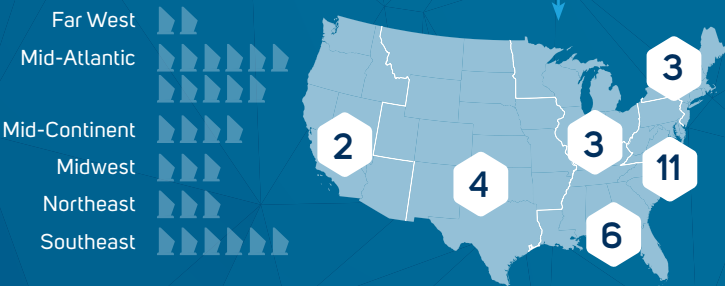


Discover more about the rollout of a redesigned FLC website on page 10.

## NATIONAL AWARDS



## WINNING LABS BY REGION



## WINNING LABS BY AGENCY



# Learning Without Limits

## FLC MAKES ESSENTIAL RESOURCES ACCESSIBLE ANYTIME, ANYWHERE

The world of technology transfer is constantly evolving as new information, innovations and partnerships emerge. The Consortium ensures that technology transfer professionals and industry partners can stay up to date by making educational tools and resources accessible wherever and whenever needed. The FLC designed, developed and implemented a new online learning management system that provides 24/7 access to a library of webinars and instructional materials organized by career path. The FLC also launched a mobile version of its interactive digital Greenbook, which outlines the legislation and policies that shape the federal technology transfer ecosystem.

## 2022 HIGHLIGHTS



## BEST ATTENDED EDUCATION WEBINARS

Ongoing education is essential to technology transfer success. As evidence of this demand, the FLC's education webinars drew more than a third of total registered attendees at FLC-hosted events in 2022.

**277** registered

### 1 Material Transfer Agreements for Early Career Professionals

Attendees learned the basics of Material Transfer Agreements (MTAs), which cover resource transfers between federal labs and non-federal entities. The session focused on what MTAs are, what they entail and how to effectively navigate them.

**180** registered

### 2 Principles of the U.S. Export Control System

This session covered the basic principles of Export Administration Regulations, which govern some domestic transfers of technology, as well as practical advice about when and how to abide by them.

**176** registered

### 3 Showcasing the Value of Technology Transfer

This webinar focused on the value of technology transfer and practical tools to move technology forward, including licensing, Cooperative Research and Development Agreements (CRADAs), other partnership agreements and facilities use.



# 2022 National Meeting

## BUILDING CONNECTION, GROWING ENGAGEMENT

Held virtually for the third consecutive year, the FLC's premier annual event garnered increased engagement in its sessions: **On average, participants attended more than four hours of educational sessions and programming per day during the three-day event.** Building on the previous two years of virtual National Meeting experience, the FLC leveraged lessons learned and strategic new efforts to achieve a more focused and engaged audience in the training sessions, plenaries and panel discussions.

**HIGH VALUE,  
HIGHLY  
RELEVANT**

**86%** of surveyed participants indicated that the National Meeting met or exceeded expectations

**89%** stated that the National Meeting was a valuable time investment

**39** States Represented

### TRAINING SESSIONS

#### Helping Your Commercial Partners Succeed with the Manufacturing Extension Partnership (MEP)

This session highlighted how the MEP helps small and medium-sized manufacturers source key materials, design efficient workflows and generally increase the likelihood of meeting their business objectives.

#### Critical Infrastructure Innovation: Seeking to Secure Our Cities and Municipalities

This session explained how to harness state-of-the-art communications, computing and sensor technologies to foster cleaner, safer and more equitable places to live and work.

### KEYNOTE

#### Entrepreneurial Expertise in Tech Transfer

Ray Leach, CEO of the venture development organization JumpStart, shared insights on applying entrepreneurial expertise to navigate the challenges of bringing a technology to market and securing venture capital investment.



### TOP-RATED SESSIONS

RANK	TITLE
1	Lab Directors Forum
2	Town Hall
3	Helping Your Commercial Partners Succeed with MEP
4	T2 Stories From FLC Award Winners
5	Critical Infrastructure Innovation

See page 13 for more information

## DID YOU KNOW?

The FLC worked hard to make its virtual National Meeting interactive and engaging. Attendees shared their insights on a digital bulletin board, mingled in virtual networking rooms and competed for a top spot on the leaderboard by answering trivia questions.

### TEST YOUR KNOWLEDGE

How would you have ranked on the leaderboard? Find out by trying to answer one of the trivia questions that was featured – no T2 knowledge necessary.

**Globe and Jerusalem are types of what?**

- a. Flowering seeds
- b. Artichokes
- c. Spices
- d. Lettuce



Answer: b. Artichokes

### LAB DIRECTORS FORUM

In this discussion, the FLC's 2022 Laboratory Director of the Year, Bartley P. Durst, shared how he has established a strong focus on technology transfer in his lab and how he capitalized on that to consistently bring federal innovations to market over nearly four decades.



**MODERATOR**  
**Richard Paul**  
National Advisory Council



**2022 LABORATORY DIRECTOR OF THE YEAR**  
**Bartley P. Durst**  
Geotechnical and Structures Laboratory  
U.S. Army Corps of Engineers

### TOWN HALL

In this interactive town hall, FLC Chair Linda Burger and the chairs of committees representing each of the FLC's three pillars – Promote, Educate and Facilitate – discussed the Consortium's new and ongoing efforts and how attendees can get involved.



**MODERATOR**  
**Linda Burger**  
NSA

PANELISTS



**Whitney Hastings**  
HHS



**Karen Presley**  
NSA



**Jenna Dix**  
NSWC

### SMALL BUSINESS FIRESIDE CHAT

Building a startup, partnering with a federal lab, collaborating to meet market needs – these critical aspects of technology transfer each brings unique challenges and benefits. In this discussion, a panel of industry partners shared their advice and experiences from being technology transfer partners with the National Security Agency.

**MODERATOR**  
**Karen Presley**  
NSA



PANELISTS



**Benjamin Harvey**  
AI Squared



**Sudesh Kumar**  
Kapalya



**Neil Norris**  
Athcorp  
and XZEVN Solutions



**Robert Williams**  
Athcorp  
and XZEVN Solutions

FLC WEBSITE REDESIGN

Improving Form, Increasing Function

ENHANCED ACCESS TO KEY RESOURCES

The FLC relaunched its website in July 2022, unveiling a fully updated design and user experience. Hundreds of web pages were rewritten and retooled to make the website easier to navigate and more effective at showcasing federal lab innovations, professional development resources and partnering opportunities. The redesign has contributed to an **80% increase in traffic to the website**, which helps raise the public’s awareness of the FLC’s work and amplifies our ability to serve the federal technology transfer community through information and events.

NEED TO KNOW

Technology transfer professionals, industry partners and the public need to know what’s new and what’s next in federal technology transfer. News and announcements are front and center to highlight the most recent updates from the FLC and its partners.

NAVIGATION MENU

The website’s navigation was reconstructed to be more intuitive and user-friendly. The search function allows users to search by lab, topic or keyword, enabling them to find the information they need quickly and easily.

FUNCTIONAL SIMPLICITY

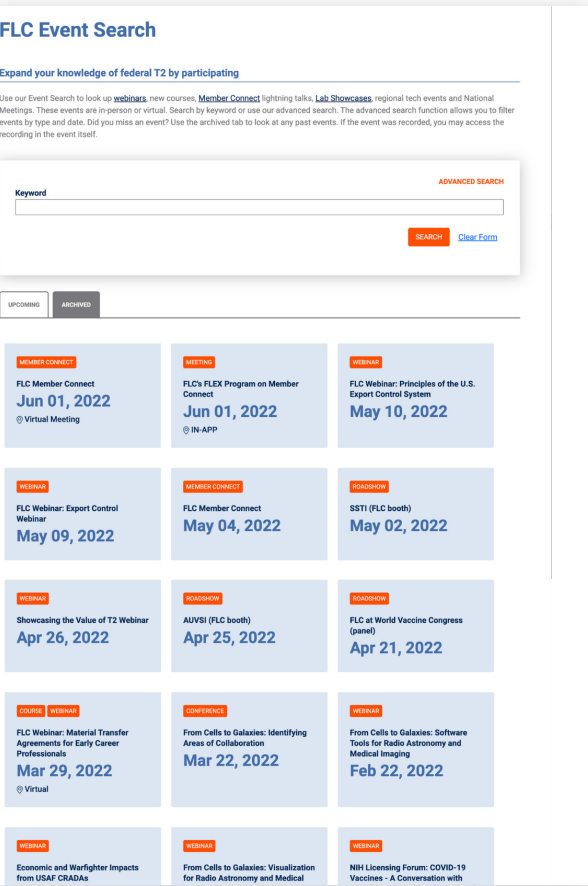
A cleaner, more streamlined design brings the most important information to the forefront, including announcements, calls to action, news that impacts the community and upcoming events.

IMPORTANT DATES

From conferences to webinars, events are one of the most important ways that the FLC supports the technology transfer community. To ensure that as many members as possible benefit from these opportunities, this design gives users a snapshot of key details about upcoming events.

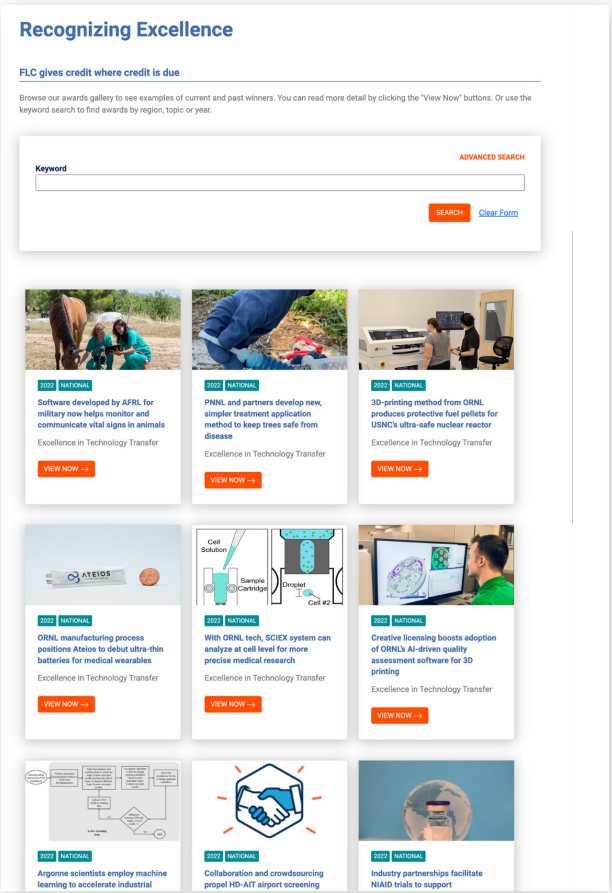
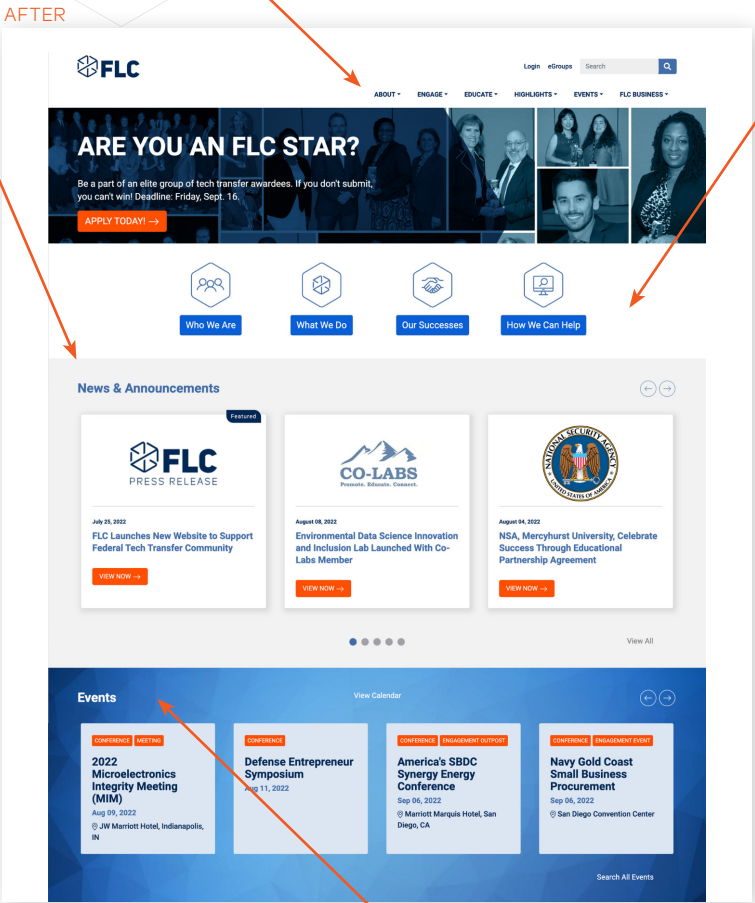
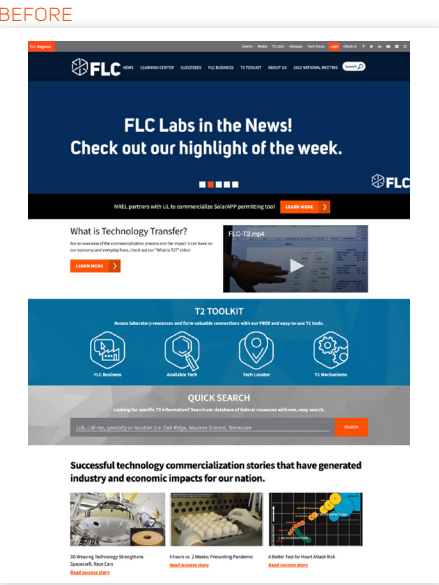
SIMPLER SUBMISSIONS AND A SEARCHABLE ARCHIVE

In 2022, the FLC National Awards underwent significant improvements from the inside-out. The Highlights section of the redesigned website showcased a new streamlined submission process that combines national and regional awards, saving applicants time and reducing barriers to competing for these prestigious awards. The updated Awards Honors Gallery features more than 2,000 profiles of past winners, which have been reformatted to ensure that each awardee receives proper recognition and categorized to create a searchable archive of incredible technology transfer achievements.



HELPING MEMBERS CONNECT, LEARN AND GROW

The events page is a central hub for in-person and virtual opportunities to continue professional development and connect with others in the federal technology transfer community. Upcoming and archived FLC-hosted events – including virtual lab visits, roadshow engagements and webinars – are clearly displayed and easily searchable.





FLC NATIONAL AWARDS

Results Powered by Resilience

CELEBRATING EXCEPTIONAL ACHIEVEMENT AND INNOVATION IN FEDERAL TECHNOLOGY TRANSFER

The FLC National Awards honor standout success stories from the federal tech transfer community. The 2022 winners, selected from 64 submissions, represent eight federal agencies and a range of technology sectors – from airport security screening to electric car batteries. Each submission was also a victory of resilience as labs adapted quickly to changing market needs to achieve tech transfer success. Winning an FLC Award brings the distinction of peer-reviewed recognition as well as positive attention that can lead to connections that foster future tech transfer collaborations. Select winners are highlighted here to illustrate the range of agencies and technology sectors associated with these prestigious awards.

TEAM AWARDS



**USDA**  
**Plum Island Animal Disease Center**  
**EXCELLENCE IN TECHNOLOGY TRANSFER AWARD**

The USDA's partnership with animal health company Zoetis enables the U.S. to produce vaccines to protect its livestock from foot and mouth disease – for the first time in history.



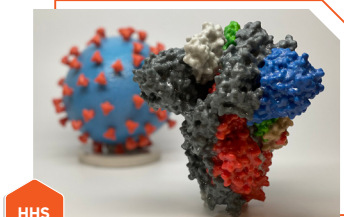
**DOE**  
**Oak Ridge National Laboratory (ORNL)**  
**STATE AND LOCAL ECONOMIC DEVELOPMENT AWARD**

ORNL, the Tennessee Valley Authority and the Tennessee Department of Economic and Community Development partnered to bring more than \$8 billion for electric vehicle battery production in the state.



**NASA**  
**Langley Research Center (LaRC)**  
**TECHNOLOGY TRANSFER INNOVATION AWARD**

NASA LaRC's annual technology fair enables the lab's technology licensees to showcase advances made to those technologies that could lead to new agreements and opportunities. The exhibition cultivates additional royalties and builds stronger partnerships.



**HHS**  
**National Institute of Allergy and Infectious Diseases (NIAID)**  
**EXCELLENCE IN TECHNOLOGY TRANSFER AWARD**

NIAID's partnership with biotechnology company AbCellera provided the foundation for the development of antibody-based COVID-19 therapies.



**DOE**  
**DHS**  
**NASA**  
**INTERAGENCY PARTNERSHIP AWARD**

These federal agencies collaborated with industry partner Liberty Defense Holdings to develop a more efficient and reliable airport screening system.

INDIVIDUAL AWARDS



**ROOKIE OF THE YEAR**  
**Kelli Howie**  
**DOE** | Sandia National Laboratories



**ROOKIE OF THE YEAR**  
**Patricia Cullum**  
**VA** | Department of Veterans Affairs



**OUTSTANDING TECHNOLOGY TRANSFER PROFESSIONAL**  
**John Kaplan**  
**VA** | Department of Veterans Affairs



**LABORATORY DIRECTOR OF THE YEAR**  
**Bartley P. Durst**  
**DOD** | Geotechnical and Structures Laboratory  
U.S. Army Corps of Engineers



**HAROLD METCALF AWARD FOR FLC SERVICE**  
**John Dement**  
**DOD** | Naval Surface Warfare Center

Tech Transfer Success Stories From FLC Award Winners

At the 2022 National Meeting (see page 8), a panel discussion featuring FLC Award Winners shined a light on lessons learned and best practices from their tech transfer successes. The panel of technology transfer and industry professionals shared their insights and advice for navigating the process of bringing federally developed software to market.



**George Gitchel**  
Veterans Health Administration



**IMPACT AWARD**  
**VA**  
The VA and Virginia Commonwealth University developed eye-movement analysis technology that improves diagnosis of Parkinson's disease and other neurological conditions.



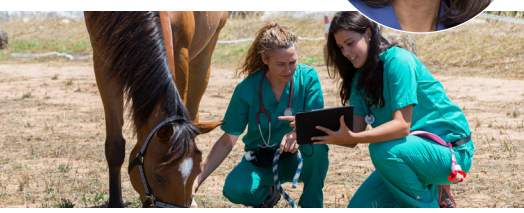
**Sara Hunt**  
Pacific Northwest National Laboratory



**IMPACT AWARD**  
**DOE**  
Scoring tool gives consumers a standardized, easy-to-understand assessment of home energy efficiency.



**Joan Wu-Singel**  
TechLink  
in partnership with Air Force Research Laboratory



**EXCELLENCE IN TECHNOLOGY TRANSFER**  
**DOD**  
Military researchers collaborated with industry partner Animal Cloud to commercialize a software tool that helps monitor vital signs of people and animals.





# FLC PLANNER

## Turning the Lens on Federal Labs

*Each picture tells a tale of tech transfer triumph.*

The FLC Planner is a dynamic 14-month printed calendar that celebrates federally developed technologies through captivating images. The striking visuals convey what words can't, showcasing the transformative impact of federal technology transfer, inspiring collaboration among prospective partners and stakeholders. This page features the top 14 images that labs submitted in 2022, which were featured in the 2023 FLC Planner.



### Western Ecological Research Center

Tracking Wildlife With High-Tech Tags

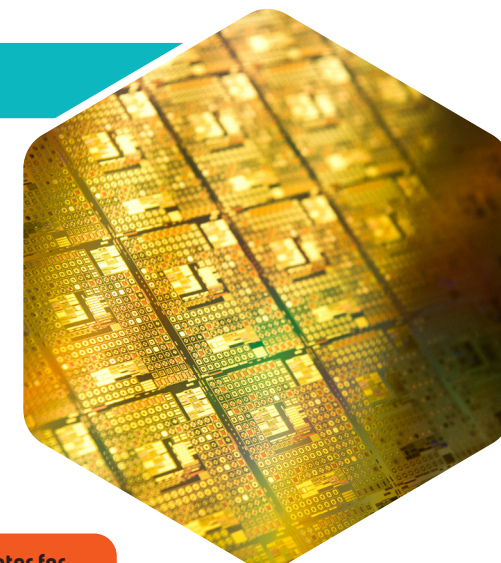


### Hawaiian Volcano Observatory

HVO Monitoring Network

### MIT Lincoln Laboratory

Semiconductor Processing for Extreme Environments



### National Center for Environmental Health

Newborn Screening Test Using Dried Blood Spot Specimens



### Argonne National Laboratory

Advanced Photon Source Upgrade Project



### U.S. Army Combat Capabilities Development Command Chemical Biological Center

Training Aid Material Delivery Device

### Transportation Security Laboratory

Automated Synthesis of Explosive Threats

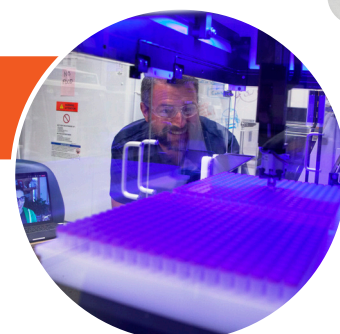


### Atlantic Oceanographic and Meteorological Laboratory

Underwater Hurricane Glider

### National Institute of Standards and Technology

Bottling Monkeypox Gene Fragments



### Federal Highway Administration

Enhancing Roadway Safety



### Los Alamos National Laboratory

Additive Manufacturing of a Tamper-Evident Container



### Oak Ridge National Laboratory

Frontier Supercomputer



### Department of Veterans Affairs

Pivot-Flex Prosthetic Foot with Biodynamic Motion



### U.S. Department of Agriculture Agricultural Research Service

Cross-breeding Soybeans for Disease Resistance



## BY THE NUMBERS

PHOTOS INCLUDED	REGION
3	Far West
3	Mid-Atlantic
1	Mid-Continent
2	Midwest
2	Northeast
3	Southeast
PHOTOS INCLUDED	AGENCY
1	Department of Agriculture
2	Department of Commerce
2	Department of Defense
3	Department of Energy
1	Department of Health and Human Services
1	Department of Homeland Security
2	Department of the Interior
1	Department of Transportation
1	Department of Veterans Affairs

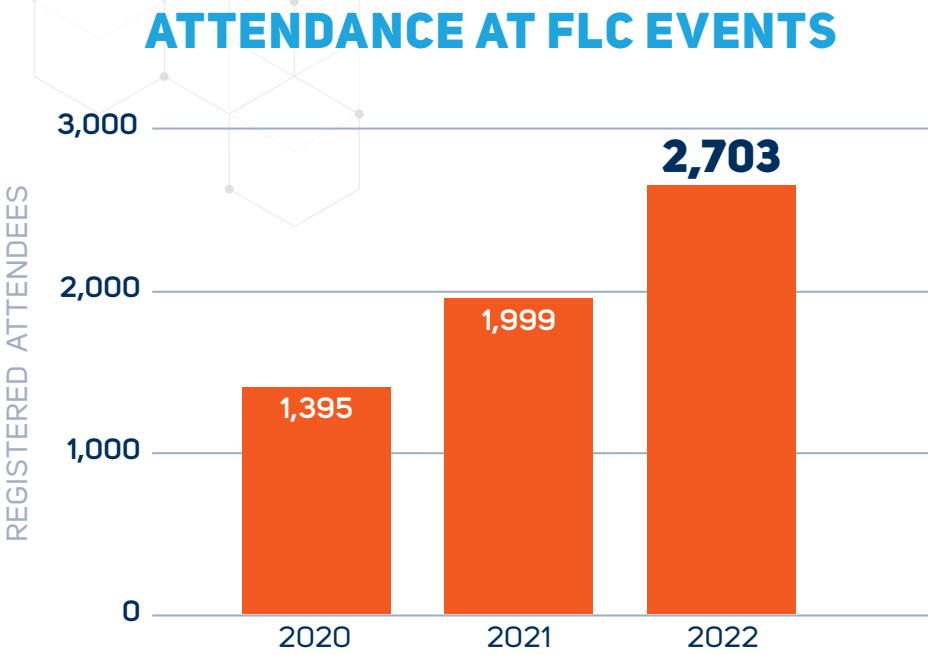


INDUSTRY ENGAGEMENT

Connection and Collaboration

FACILITATING PARTNERSHIPS FOR TECHNOLOGY TRANSFER SUCCESS

Federal technology transfer relies on opportunities to learn, share and connect. The FLC supports and facilitates essential partnerships between federal labs and industry through networking and informational events. The range of programming and diversity of topics – from export regulations to the metaverse – helped increase the number of registrants for all FLC-hosted events by 35% over the previous year.



35% INCREASE IN TOTAL REGISTERED ATTENDEES  
Compared to 2021

THREE LARGEST PARTNERSHIP-FOCUSED EVENTS

1 NATIONAL MEETING  
440 registered

Turn to page 8 for an overview of the FLC’s premier annual event.

2 NCI TECHNOLOGY SHOWCASE  
392 registered

This dynamic hybrid event convened researchers and technology transfer professionals with industry partners and stakeholders to highlight specific technologies and collaboration opportunities available through the National Cancer Institute.

3 MID-ATLANTIC/NORTHEAST REGIONS ANNUAL MEETING  
231 registered

This three-day virtual event for the FLC’s Mid-Atlantic and Northeast regions included opportunities for professional development, networking and honoring technology transfer successes.

FACILITATE

Federal Lab Education Accelerator (FLEX) Pilot Program

CREATING KEY PARTNERSHIPS FOR LONG-TERM COLLABORATIONS

The FLC launched the FLEX pilot program, an innovative approach to engage the next generation of entrepreneurs by connecting MBA students and federal labs. Through the FLEX program, students gain experience by conducting market research on real federal technologies, while labs benefit from students’ market assessments. The program’s first year saw participation from seven federal labs and four universities – with a promising outlook for future expansion.



Forging Strategic Industry Partnerships

FLC ENTERS NEW AGREEMENTS WITH FOUR LIKE-MINDED ORGANIZATIONS

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, networking opportunities, technology demonstrations and exhibit space, these strategic partnerships support the FLC’s mission to increase the impact of technology transfer and support all members of the federal technology transfer community. Those organizations are:



LOS ALAMOS COMMERCE & DEVELOPMENT CORPORATION (LACDC)

LACDC is a private not-for-profit organization that promotes economic development by providing resources and assistance to small businesses and entrepreneurs.



ROCKVILLE ECONOMIC DEVELOPMENT

The Rockville Economic Development is a public-private partnership that builds the economic base of Rockville, Maryland, through entrepreneurship, expansion, retention and recruitment programs.



XELEVATE

Xelevate is an Uncrewed Systems Center of Excellence testing facility located near Washington, D.C. This partnership is part of an ongoing campaign to help small to large businesses with innovative technologies succeed through collaborations with federal laboratories.



UNIVERSITY OF NEW MEXICO (UNM) RAINFOREST INNOVATIONS

UNM Rainforest Innovations supports technology transfer and economic development activities for UNM by facilitating connections between technology-focused businesses and multiple federal laboratories that have a presence in New Mexico.

LABTECH IN YOUR LIFE

Technology From the Lab to Your Life

INTERACTIVE VIRTUAL TOUR HIGHLIGHTS EVERYDAY TECH THAT CAME FROM FEDERAL LABS

Technology transfer is everywhere: Innovations born in federal labs have made their way into our homes, businesses and public spaces. LabTech in Your Life (LTIYL) is an interactive video experience that helps users visualize the impact of tech transfer in our everyday lives by providing users a virtual tour of a home and an airport. As visitors explore, they can select items to learn more about the federal lab origin stories behind those technologies.

In 2022, nearly 900 visitors toured the home and airport in LTIYL, spending an average of 10 minutes — more than twice the national average for virtual tours. Below are the newest additions, submitted from five federal agencies, which made this immersive virtual experience more robust to further drive home the importance of federal tech transfer to the public.

**KITCHEN**

**NIST**  
Standard Reference Material for Testing Allergens in Food

**Naval Information Warfare Center, Pacific**  
Essential Fatty Acid Pentadecanoic Acid

**National Institute of Standards and Technology (NIST)**  
Nutrition Facts Label

**Idaho National Laboratory**  
Advanced Electrolyte Model

**DRIVEWAY**

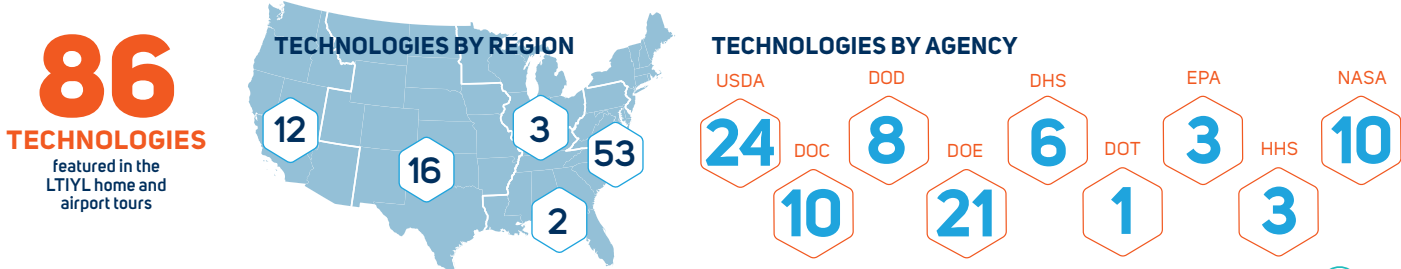
**NIST**  
Magnetic Particle Clutch

**AIRPORT**

**NASA**  
Power Factor Controller

**USDA Animal and Plant Health Inspection Service**  
Wildlife Repellent

BY THE NUMBERS



FINANCIALS

2022 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. The cooperative agreement partner has been reviewed in an independent audit per 2 CFR Part 200.

AGENCY CONTRIBUTIONS TO THE FLC FOR FISCAL YEAR 2022

AGENCY	AMOUNT INVOICED
Department of Agriculture	\$213,800.00
Department of Commerce	\$106,664.00
Department of Defense	\$2,609,440.00
Department of Energy	\$798,640.00
Department of Health and Human Services	\$791,816.00
Department of Homeland Security	\$16,240.00
Department of the Interior	\$60,232.00
Department of Transportation	\$28,120.00
Department of Veterans Affairs	\$135,152.00
Environmental Protection Agency	\$20,992.00
National Aeronautics and Space Administration	\$358,288.00
National Science Foundation	\$22,296.00
<b>TOTAL</b>	<b>\$5,161,680.00</b>

SCHEDULE OF REVENUES AND DISBURSEMENTS

Revenues	\$5,217,085
Agency Invoiced Contributions	\$5,161,680
Program Income	\$55,405
Budgeted Disbursements	\$4,070,405
Cooperative Agreement	\$3,505,405
Budgeted NIST Administrative Expenditures	\$565,000





Federal Laboratory Consortium  
for Technology Transfer

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[federallabs.org](https://federallabs.org)

