OPPENHEIMER SCIENCE AND ENERGY LEADERSHIP PROGRAM

Cohort 6

OSELP NLDC CAPSTONE

Achieving “big science” requires people trusting people, embracing innovation and diversity

Agenda

Panel 1: Mission and Operations

Break

Panel 2: People

Break

Panel 3: New Frontiers

Closing

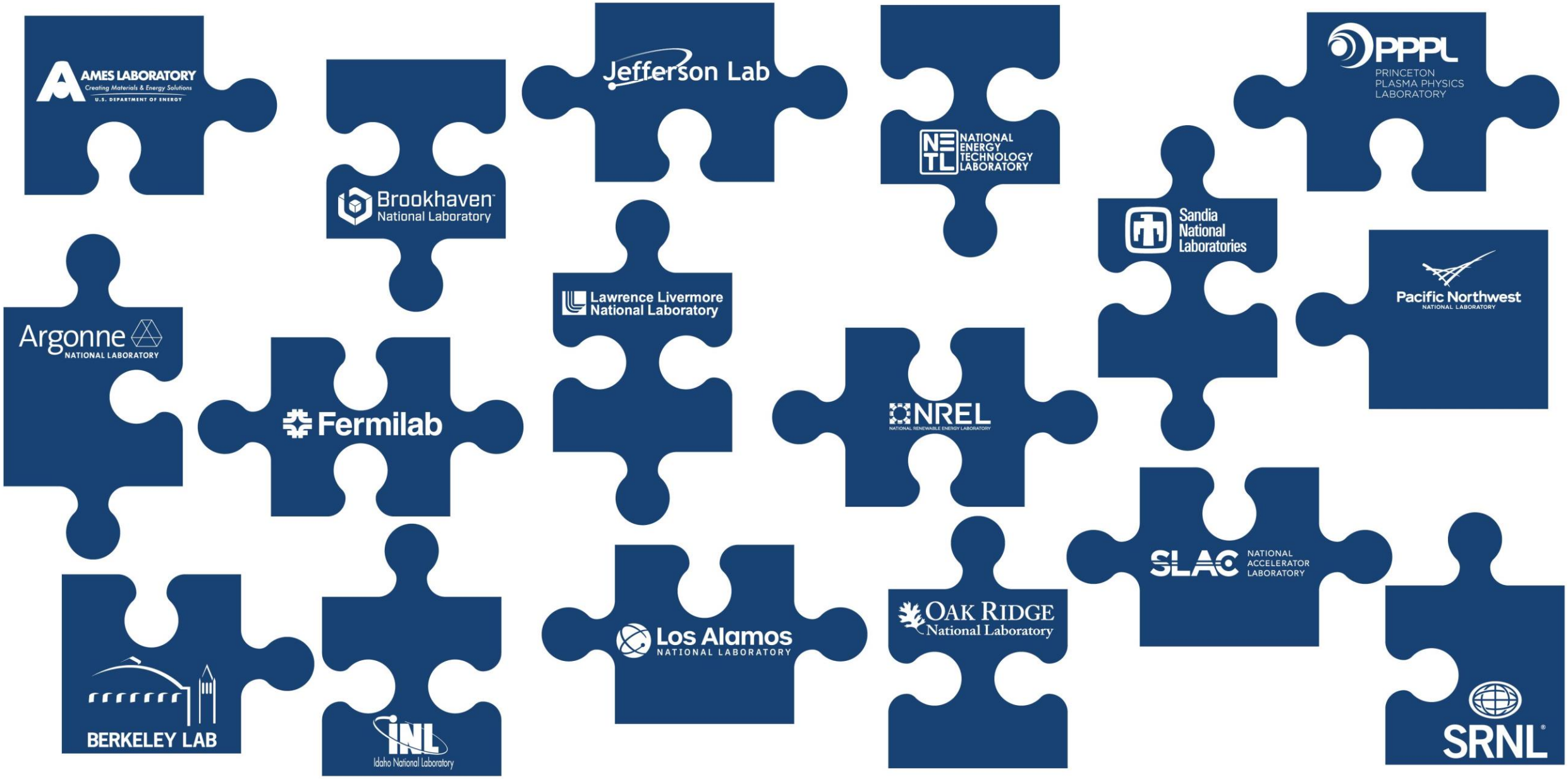
Panel 1
Mission and Operations

Moderator, **Matt Toups (FNAL)**
Spotlight, **Jimmy Fung (LANL)**

Reimagining the Implementation of the FFRDC Model
Christian Petrie (ORNL), Emily Smith (AMES), Matt Toups (FNAL), Jimmy Fung (LANL), Mark Kemp (SLAC), Lance Kim (LLNL)

GenAI Driven Operational Excellence Across the National Lab Complex
Amanda Stegen (PNNL), **Katya Le Blanc (INL)**, Emily Smith (Ames), Bert de Jong (LBNL), Stefan Vogt (ANL), Teresa Bailey (LLNL), Michelle Slovensky (NREL), Andres Castaneda (PPPL), Joe Stoffa (NETL), Mark Barnes (SRNL), Moises Smart (SLAC), Marianne Francois (LANL)

Governance to Accelerate CLEAN Energy RD&D
Michelle Slovensky (NREL), Joe Stoffa (NETL), and Sibendu Som (ANL)



Topic 1: Mission and Operations. Spotlight Discussion

Reimagining the Implementation of the FFRDC Model

Chris Petrie (ORNL)

Emily Smith (AMES), Matt Toups (FNAL), Jimmy Fung (LANL), Mark Kemp (SLAC), Lance Kim (LLNL)

Urgent DOE Missions Require Bold, Creative Approaches to Enhancing Lab Efficiencies Under Heightened Oversight

Congressional and Public Scrutiny

Official Report: Nuclear Waste Accident Caused By Wrong Cat Litter

npr WBEZ CHICAGO

The Nun Who Broke Into the Nuclear Sanctum

The New York Times

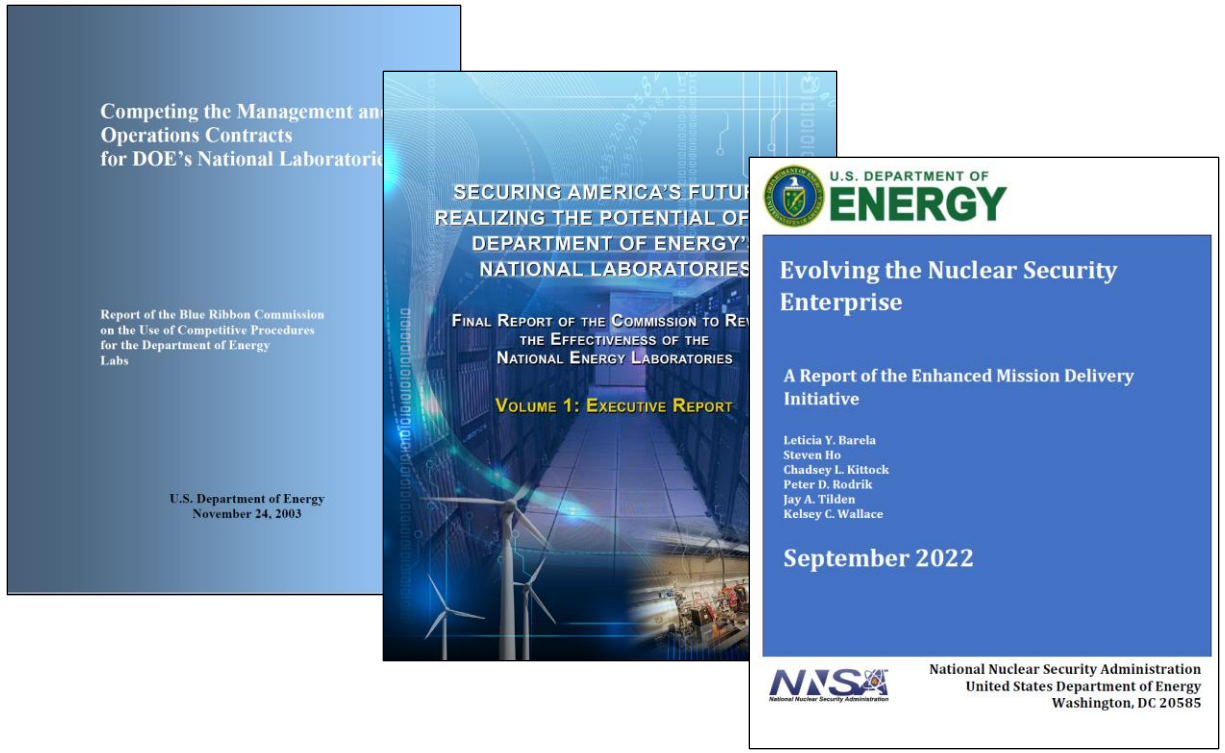
Government Executive

Lax oversight at national labs led to purchase cards abuse, GAO says

Light penalties, lax oversight encourage weak safety culture at nuclear weapons labs

AP

Lack of Trust Contributed to Risk-Averse, Inefficient Processes



Why now? What is different?

Urgency	DOE Interest	Recent Progress
❖ NNSA weapons modernization ❖ OCED timelines	❖ NNSA initiation of EMDI ❖ FY24 LOB initiative	❖ Lab response to EMDI ❖ RWG, HR Benefits Toolkit

Recommendation 1 (already started)

Work with the NLDC/LOB to summarize what DOE/labs have done in response to previous reports to address inefficiencies:

What worked, what didn't, and why?

Why now? What is different?

Urgency

- NNSA weapons modernization
- OCED timelines

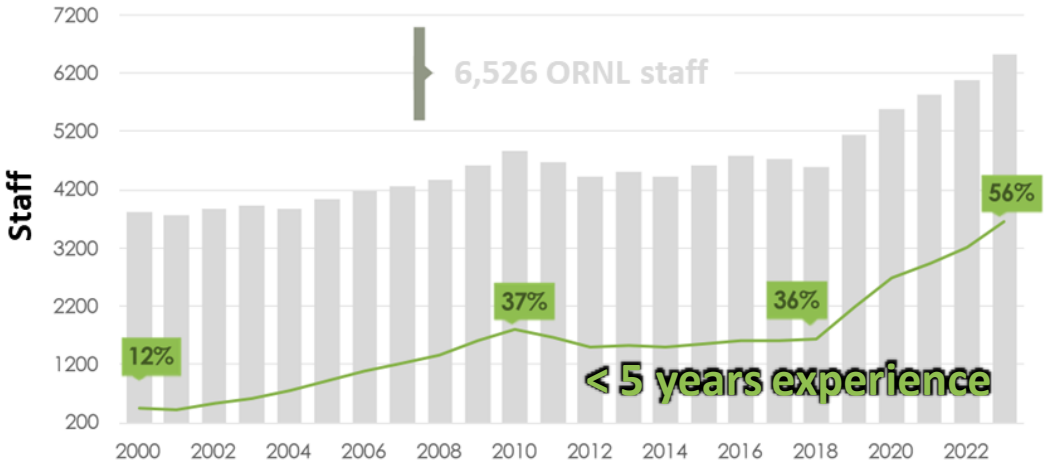
DOE Interest

- NNSA initiation of EMDI
- FY24 LOB initiative

Recent Progress

- Lab response to EMDI
- RWG, HR Benefits Toolkit

Many staff don't fully understand the FFRDC model



Recommendation 2

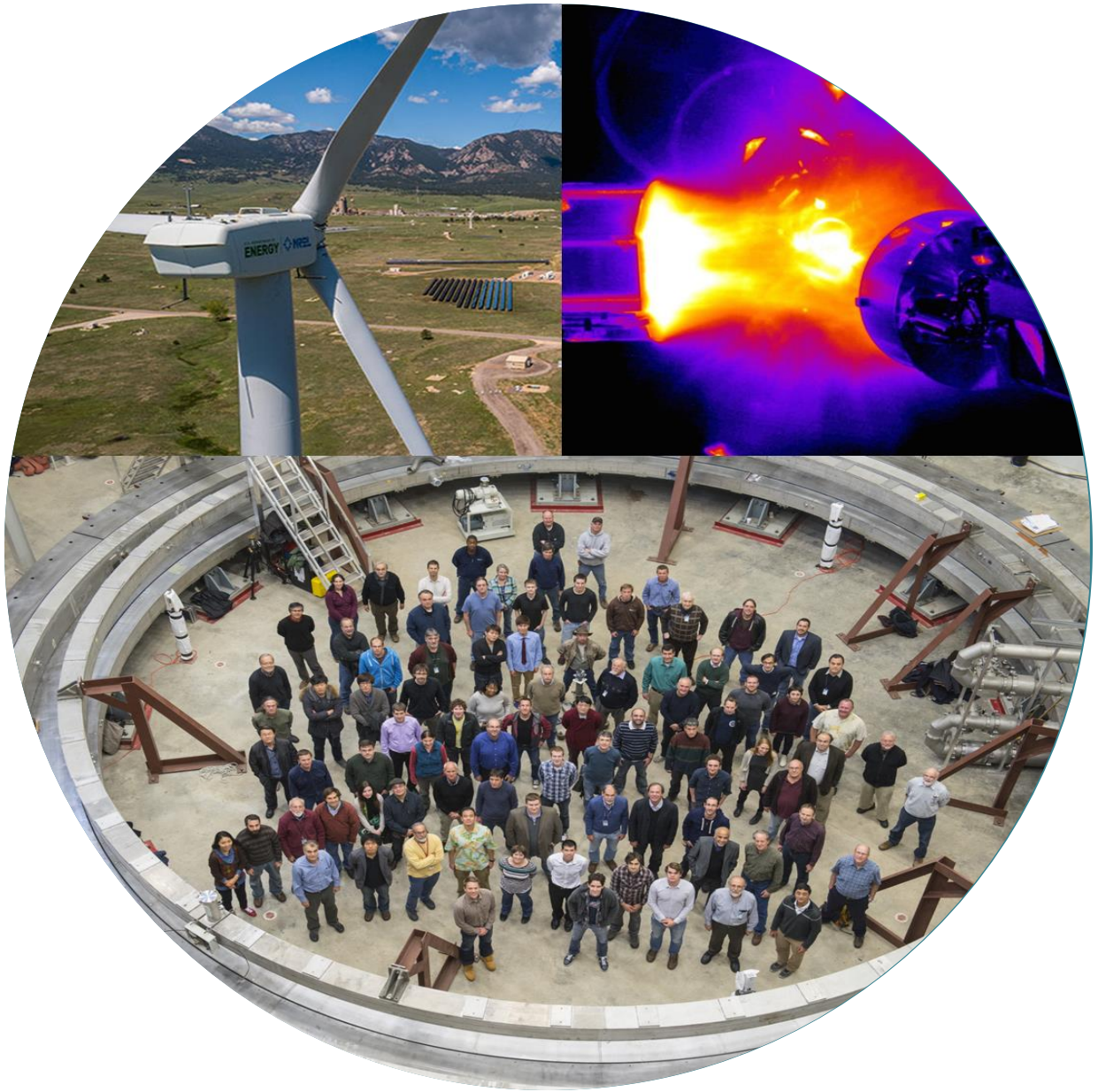
Work with the NLDC/LOB to organize a workshop with lab and federal staff to discuss recommendation 1 findings, continue momentum

Generative AI Driven Operational Excellence Across the National Lab Complex

Amanda Stegen (PNNL), Katya Le Blanc (INL), Emily Smith (Ames), Bert de Jong (LBNL), Stefan Vogt (ANL), Teresa Baily (LLNL), Michelle Slovensky (NREL), Andres Castaneda (PPPL), Joe Stoffa (NETL), Mark Barnes (SRNL), Moises Smart (SLAC), Marianne Francois (LANL)

December 13, 2023

We are here to do Big Science



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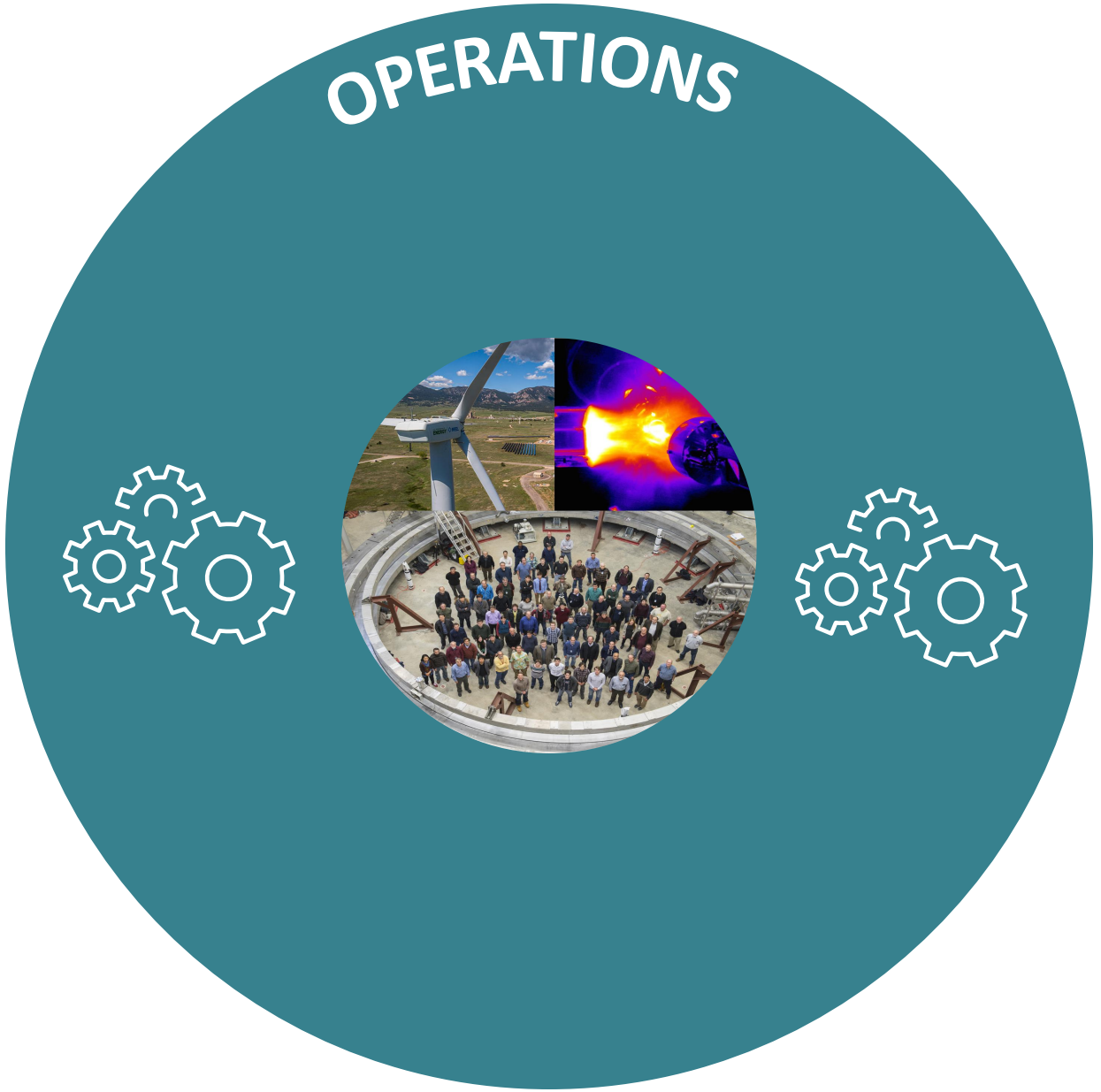
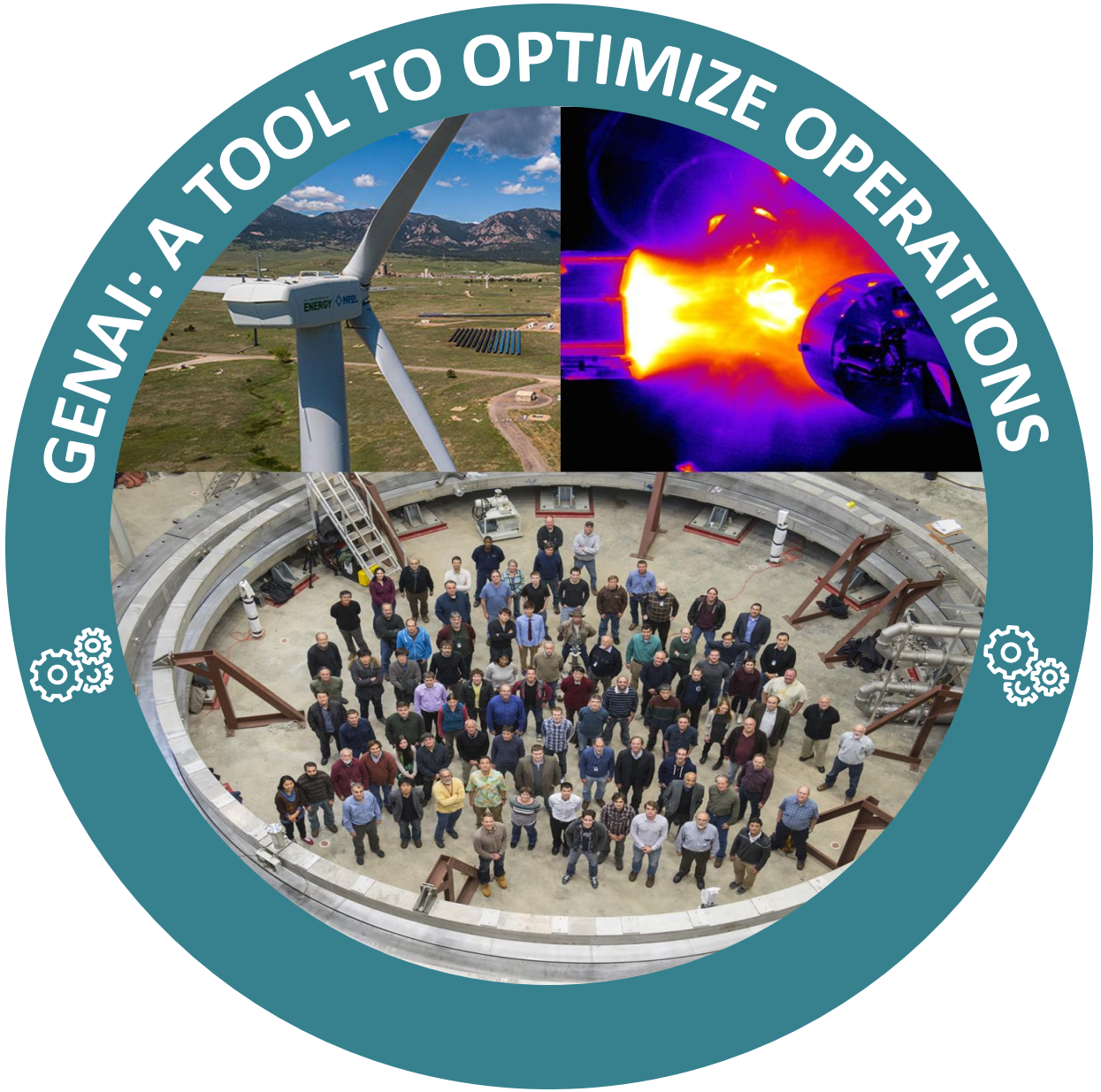
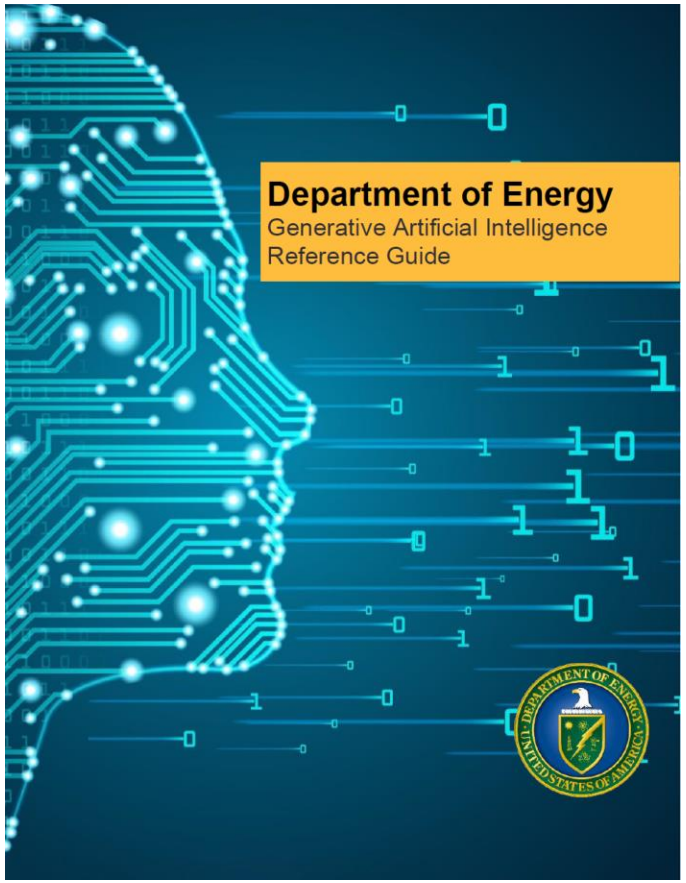
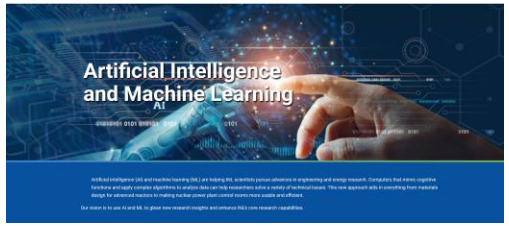


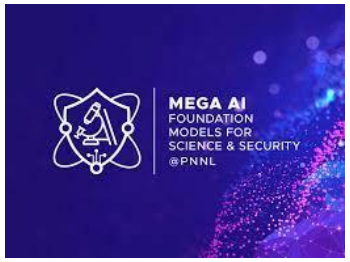
Harnessing GenAI: Focus on Mission



GenAI Landscape





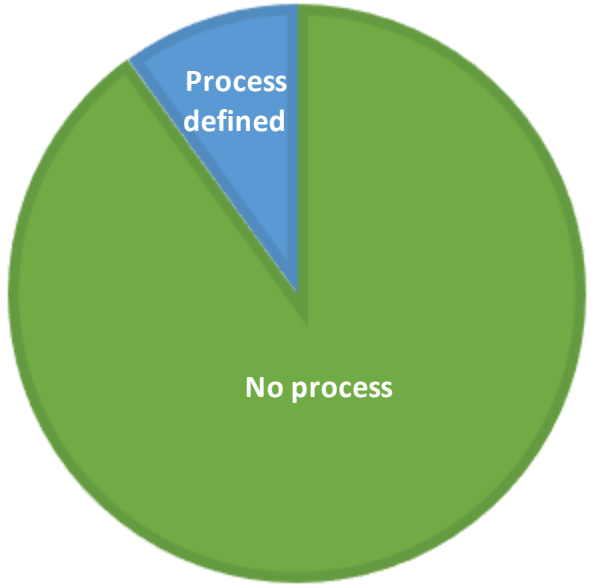


GenAI Landscape

LABORATORY GUIDANCE FOR GENAI USE

GENAI USE POLICY

PROCESS FOR ASSESSING GENAI PROJECT NEEDS



Optimize Operations to Accelerate Mission Outcomes

HOW

Create a cross disciplinary community of practice

WHAT

- Share learnings
- Develop decision-making framework
- Steward complex wide use cases

THANK YOU

Amanda Stegen (PNNL), Katya Le Blanc (INL), Emily Smith (Ames), Bert de Jong (LBNL), Stefan Vogt (ANL), Teresa Baily (LLNL), Michelle Slovensky (NREL), Andres Castaneda (PPPL), Joe Stoffa (NETL), Mark Barnes (SRNL), Moises Smart (SLAC), Marianne Francois (LANL)

Governance to Accelerate **CLEAN** Energy RD&D

Virtual Complex to Advance Technologies and Systems Deployment to Decarbonize the Global Community

Michelle Slovensky
NREL

Joe Stoffa
NETL

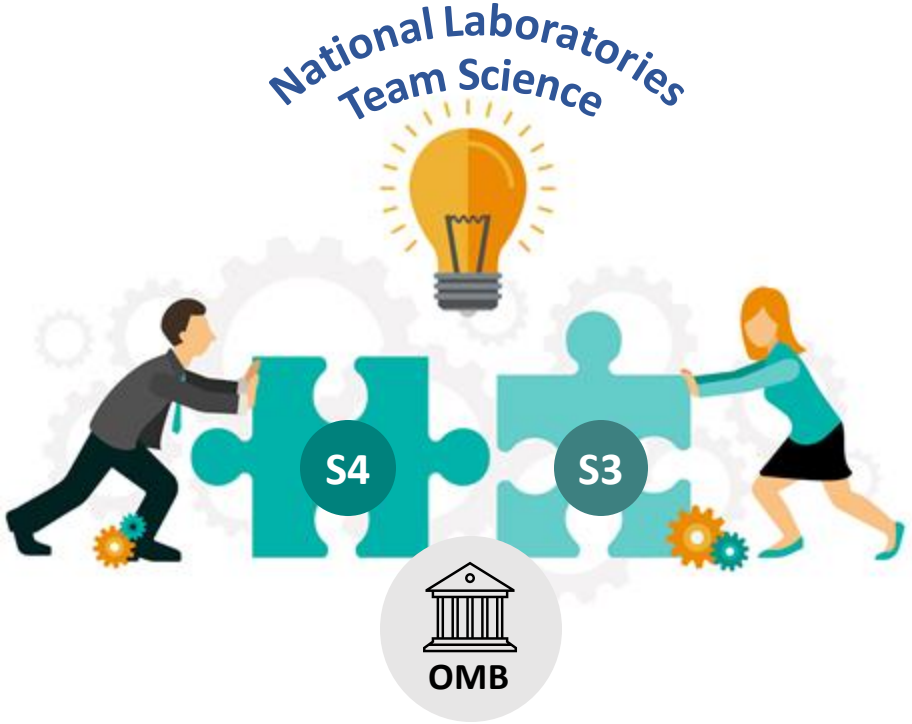
Sibendu Som
ANL

DOE Organization Challenge

Major innovations must take place this decade to bring new technologies to market in time so DOE must replicate **TEAM SCIENCE** to approach audacious challenges

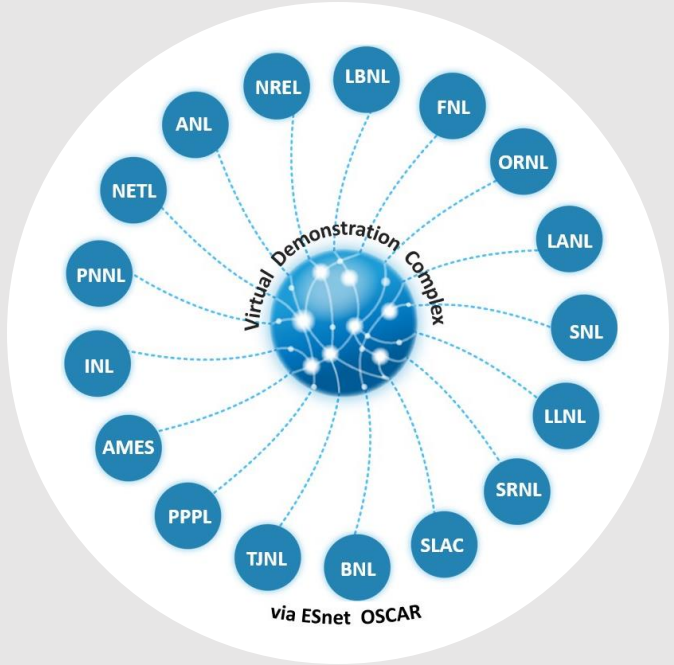
Industry needs access to entire laboratory complex

Productive integration of all DOE Program areas are critical



The Proposal

Accelerate maturity of technologies and adoption through evolved governance structures, utilizing the real-world settings of National Lab campuses with signature capabilities in partnership with industry.

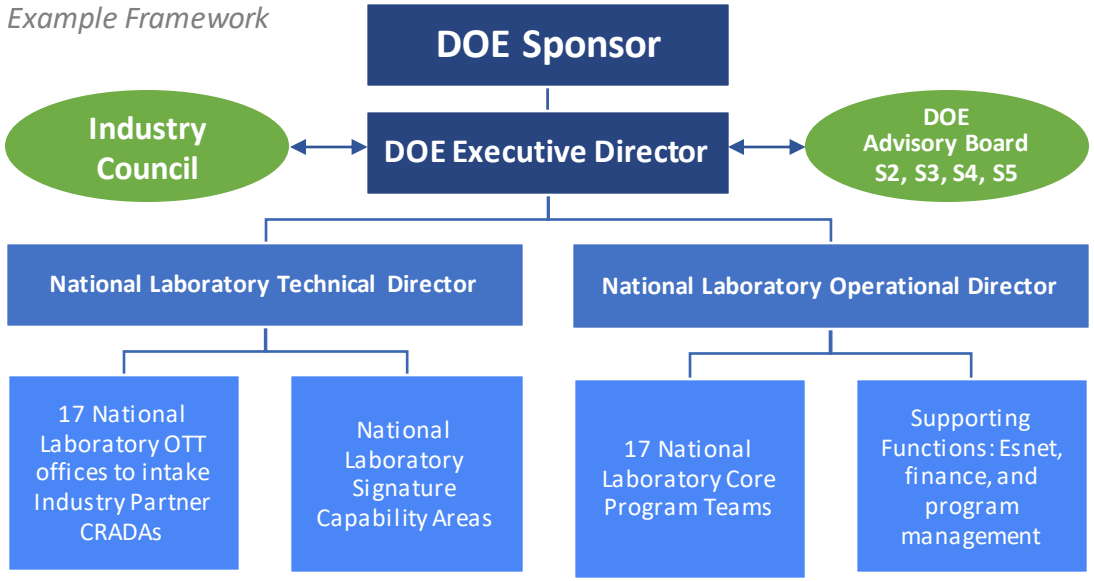


- Connected Virtual Test-Beds for technology proving grounds
- Improve pace of innovation by addressing integration and operational issues earlier and at lower cost
- Supports RD&D activities outline by BIL/IRA, CHIPS, 2023 Consolidated Appropriations, and Energy Act of 2020

Governance Structure

- Program Agnostic
- Bridge to connect DOE Complex challenges
- Testbed spans multiple mission sectors
- Conducts efficient process for use of assets
- Accelerates awarding and conducting the work

Example Framework



Host a Workshop

Bridge the 4 DOE Program Offices to deliver impact

- **Governance Structure**
  Explore typology framework
- **Mission Use Case**
  Identify a working group for pilot
- **Partnership Vehicle**
  Create umbrella CRADA
- **Industry Access**
  Socialize patent R&D library
- **Collaboration**
  Apply change management approach

NLDC Ask: Approval to convene a working group to create vision and agenda to facilitate workshop with DOE

Mission and Operations Integration

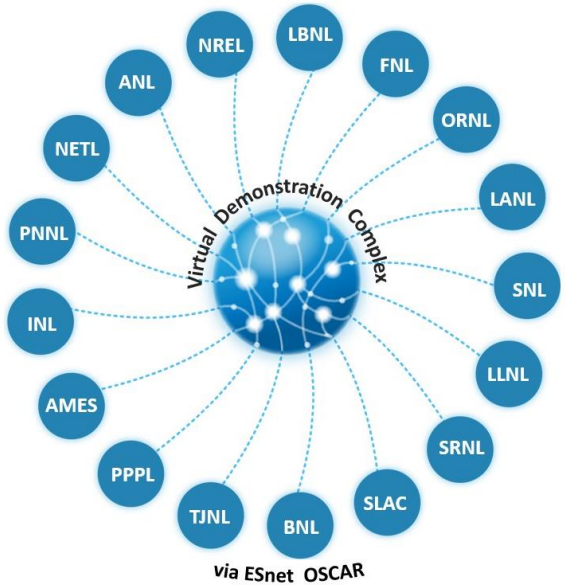
Reimagining the Implementation of the FFRDC Model

- Recent efforts to improve FFRDC model
- What worked? What didn't, and why?
- How to encourage broader adoption
- Workshop with NLDC / LOB on ideas

Generative AI Driven Operational Excellence Across Nation Lab Complex

- Harness AI for mission
- Operational focus
- Create Community of Practice

Governance to Accelerate CLEAN Energy RD&D



- Virtual test beds
- Leverage complex
- Straw governance model
- Workshop to explore

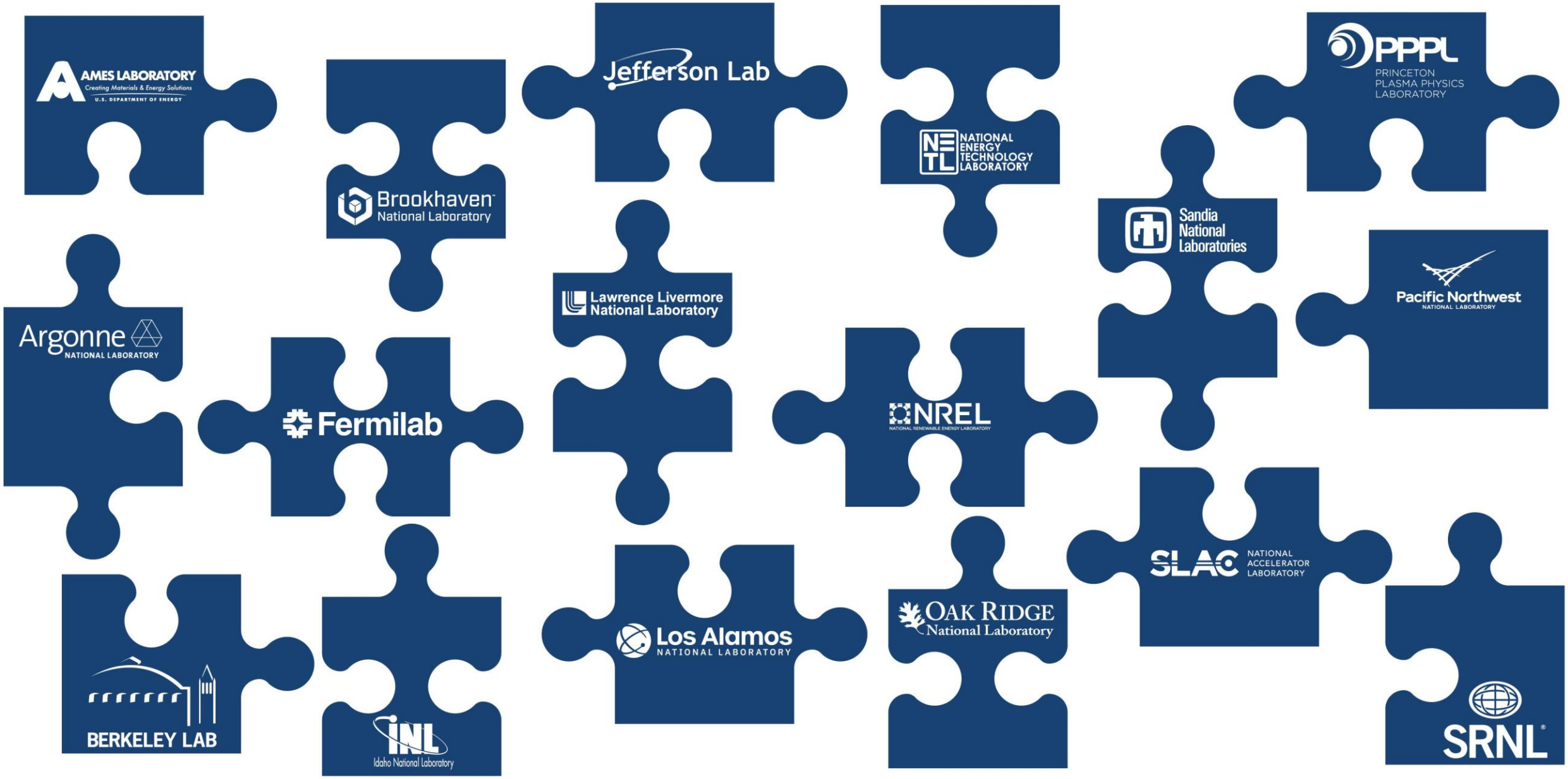
Panel 2: People

Moderator, **Emily Smith (AMES)**
Spotlight, **Lorena Basilio (SANDIA)**

Discovering the National Laboratory Ecosystem (where you fit in the complex)
Mark Barnes (SRNL), Christian Petrie (ORNL), Lori Basilio (SNL), Bert de Jong (LBNL), **Daniel Stephens** (PNNL), Emily Smith (AMES), Josh Schaidle (NREL), Ale Hakala (NETL), Barbara Harrison (PPPL)

Future of Work Reinvented
Allison Bennett Irion (ANL), **Elizabeth Hong-Geller** (LANL), Mark Jeffers (FNAL), Lijuan Ruan (BNL), Stefan Vogt (ANL), Elizabeth Wheeler (LLNL)

Becoming better together: advancing a sense of belonging in the National Laboratories
Mark Barnes (SRNL), Lorena Basilio (SNLs), Elizabeth Hong-Geller(LANL), Bert de Jong (LBL), **Alistair Rogers** (BNL), Josh Schaidle (NREL), Elizabeth Wheeler (LLNL)



Topic 2: People. Spotlight Discussion

Discovering the National Lab Ecosystem

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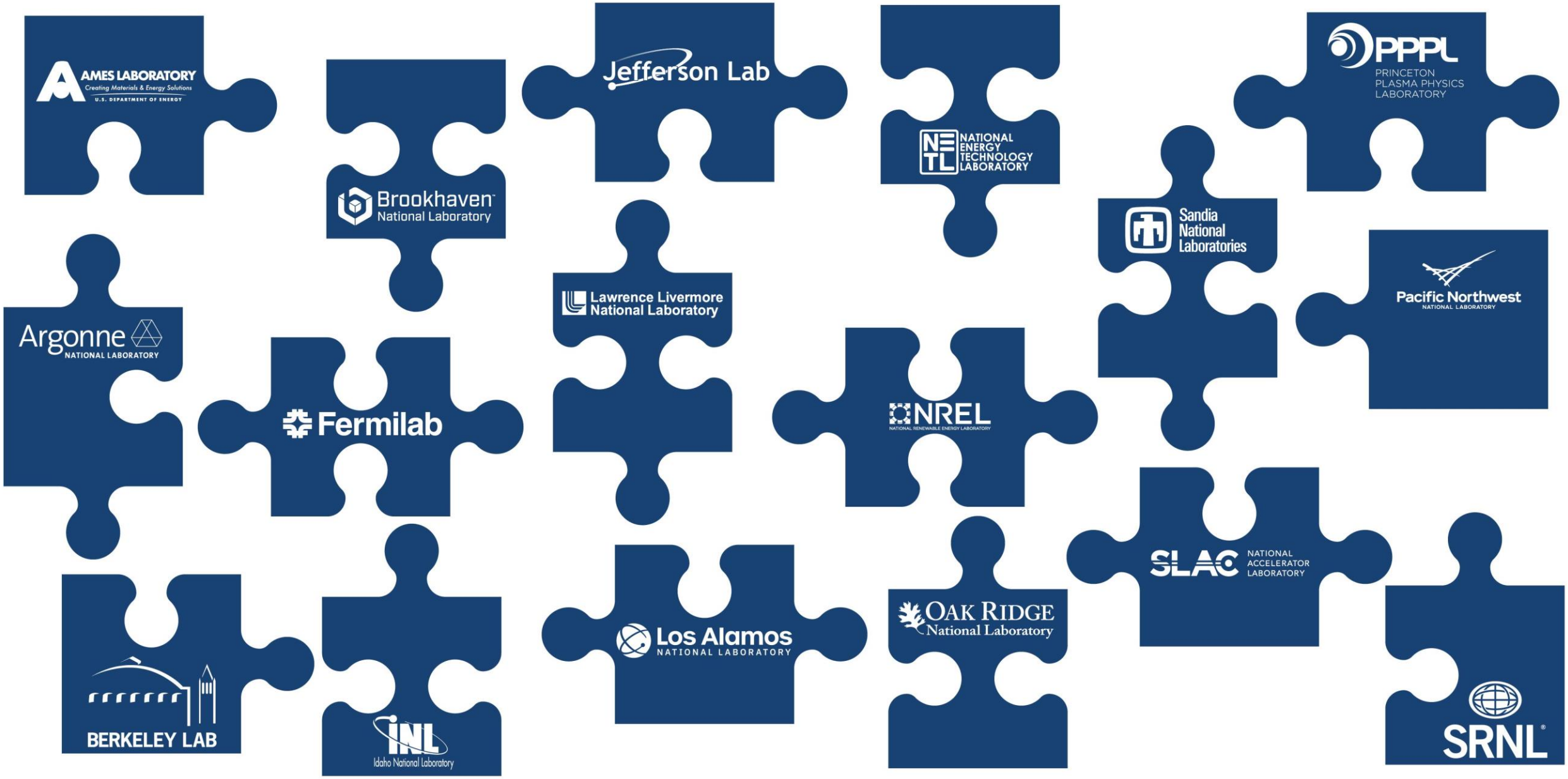
AMES LABORATORY
Creating Materials & Energy Solutions
U.S. DEPARTMENT OF ENERGY
Jefferson Lab
NATIONAL ENERGY TECHNOLOGY LABORATORY
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Brookhaven National Laboratory
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OSELP has been amazing
How do we share what we have gained
BERKELEY LAB
INL
Idaho National Laboratory
Los Alamos NATIONAL LABORATORY
OAK RIDGE National Laboratory
SRNL

Offer all National Lab staff an “OSELP” experience

OSELP has been amazing

How do we share what we have gained

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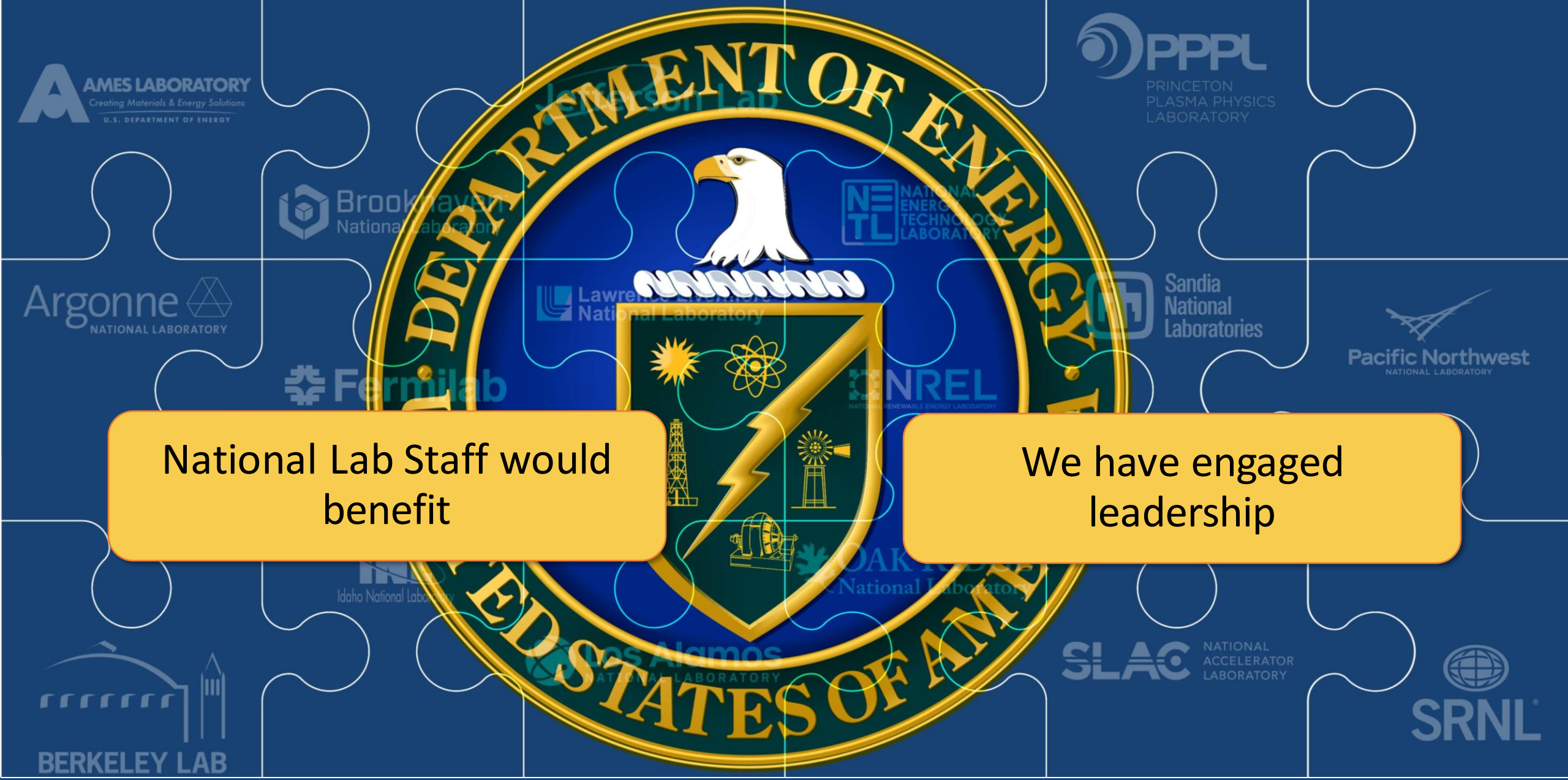
NATIONAL RENEWABLE ENERGY LABORATORY
National Lab Staff would benefit
Idaho National Laboratory
OAK RIDGE National Laboratory
BERKELEY LAB
Los Alamos NATIONAL LABORATORY
SLAC NATIONAL ACCELERATOR LABORATORY
SRNL



National Lab Staff would benefit

We have engaged leadership

Pilot multi-prong engagement with NL staff

National Lab Staff would benefit

We have engaged leadership

Future of Work Reinvented

Allison Bennett Irion (ANL)
Elizabeth Hong-Geller (LANL)
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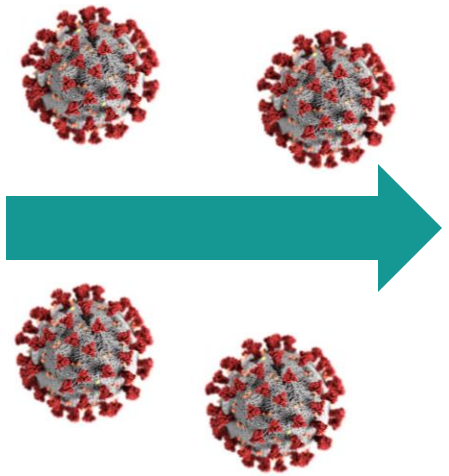
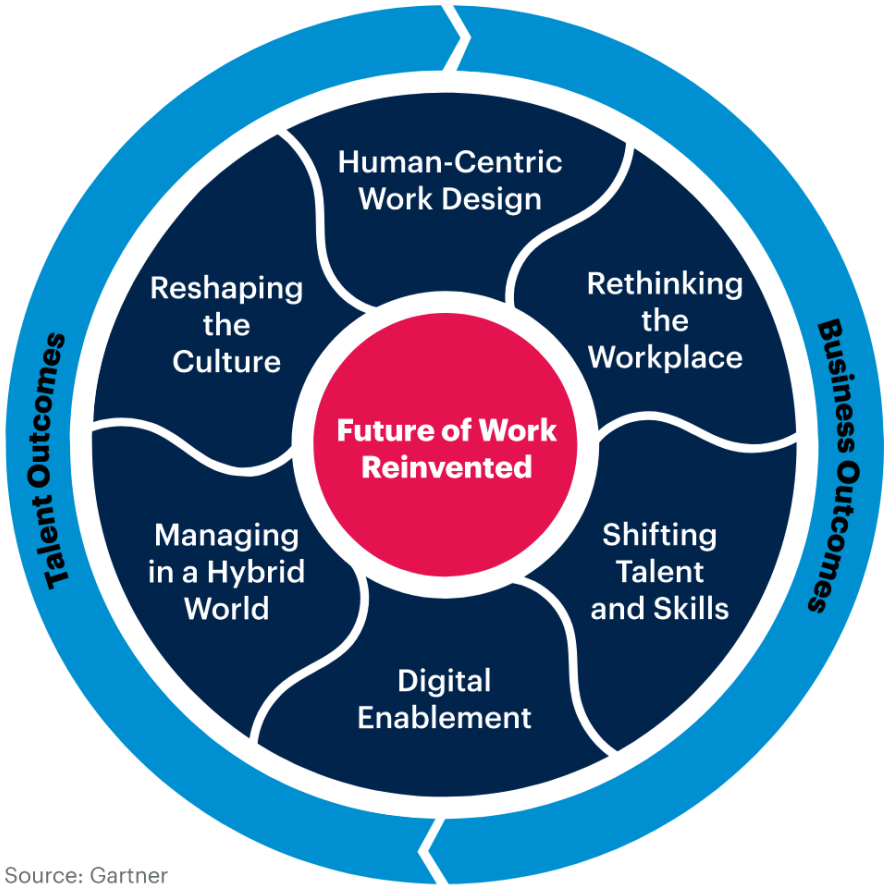
Pre-Covid





Source: Gartner

Post-Covid

Workforce Incentives - Metrics and Data Development

Shared spaces

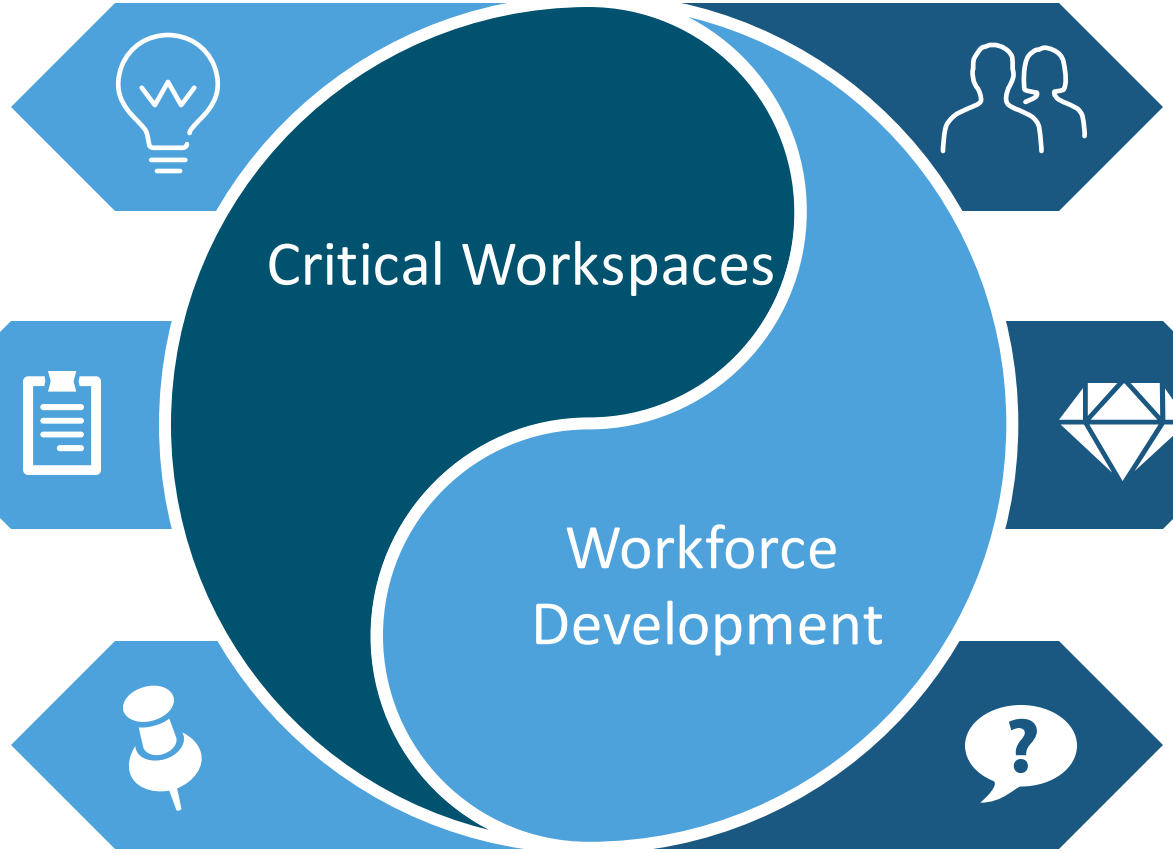
- Second campus/satellites
- Collaboration spaces - Drop-in/gym/cafeteria

Seamless digital tools

- Virtual and hybrid meeting efficiencies
- Institutional support

Reduction in bureaucracy

- Streamlined policies
- Reassess signature authority levels



Manager training

- Training to manage hybrid workers
- 360° feedback

Early career mentoring

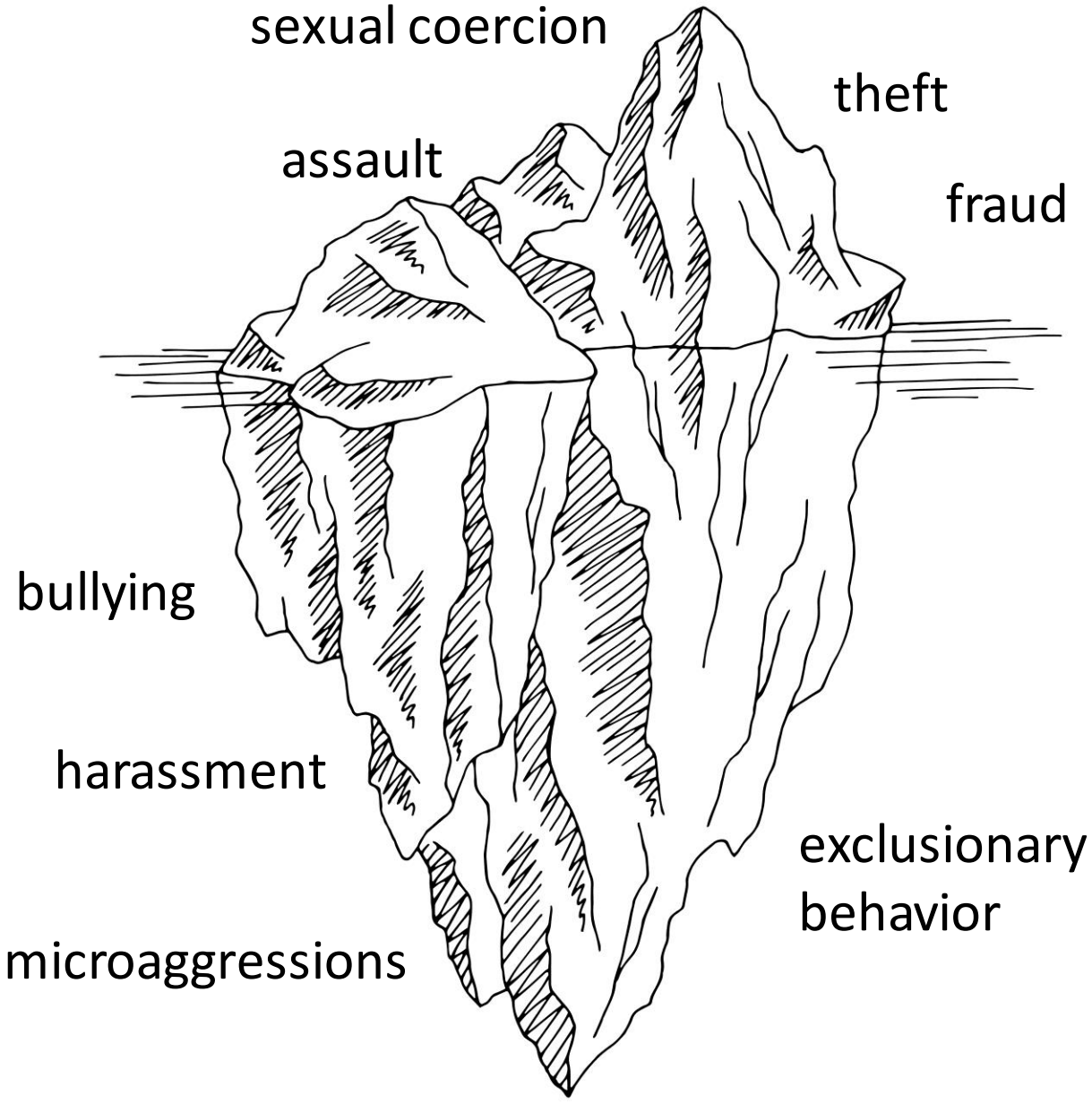
Compare hybrid vs on-site

- Promotions
- Publications
- Stay interviews

- Communications
- Work-life balance

Becoming better together: advancing a sense of belonging in the National Laboratories

Mark Barnes, Lorena Basilio, Elizabeth Hong-Geller, Bert de Jong, Alistair Rogers, Josh Schaidle, Elizabeth Wheeler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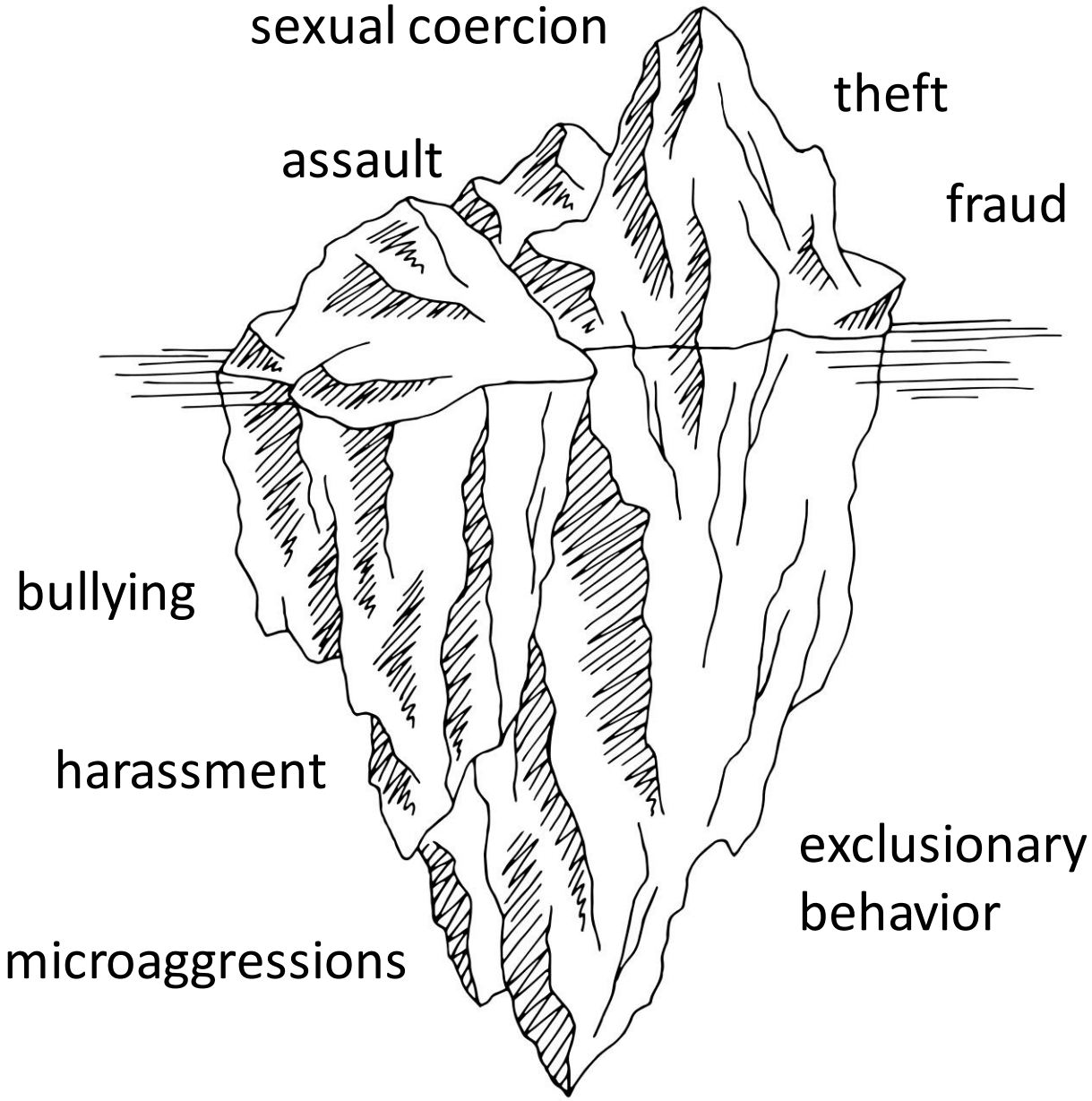
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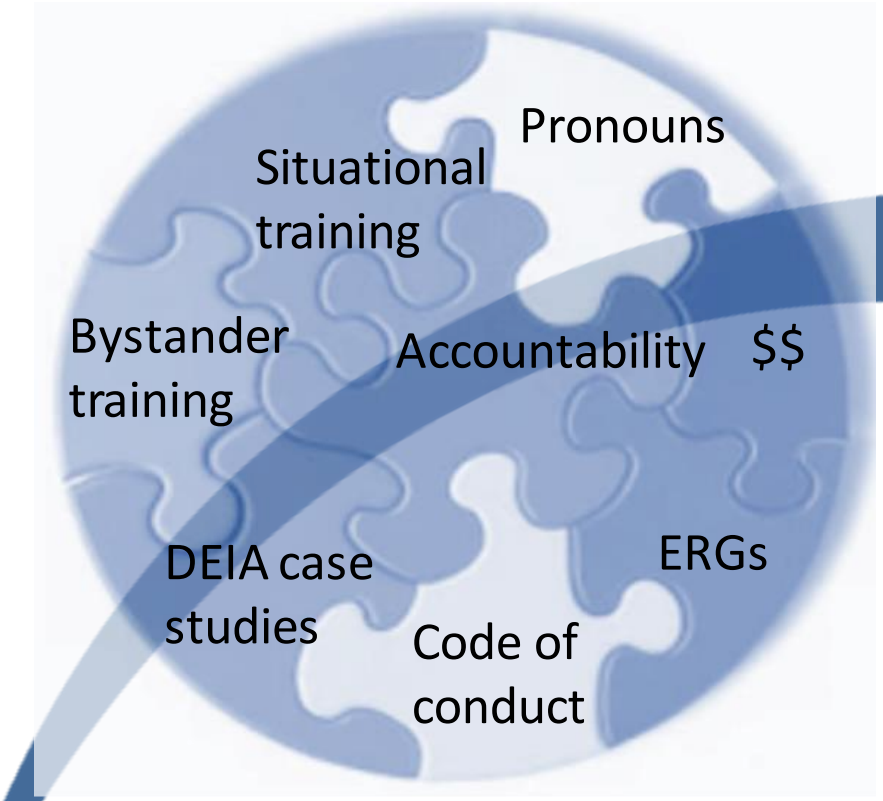

Resilience Promotion Culture

National Lab best practices & tools to enable employees

National Lab Values

Panel 2: People

Foster a culture that supports a sense of belonging for everyone in the national laboratory complex to generate a competitive advantage by:

Putting diversity, equity, inclusivity and allyship at the forefront in all that we do

Adapting to the needs of today's workforce

Personalizing the importance of everyone's role in mission achievement.

Panel 2: People

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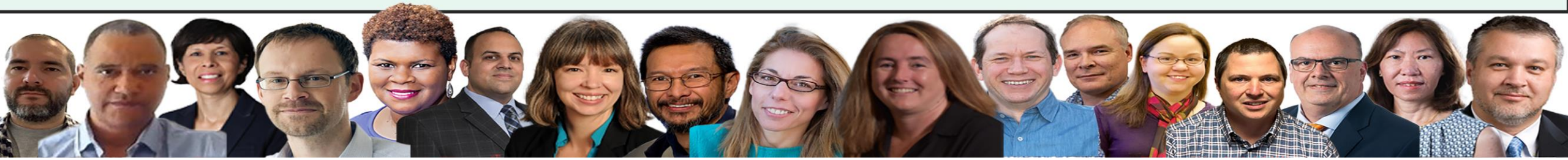


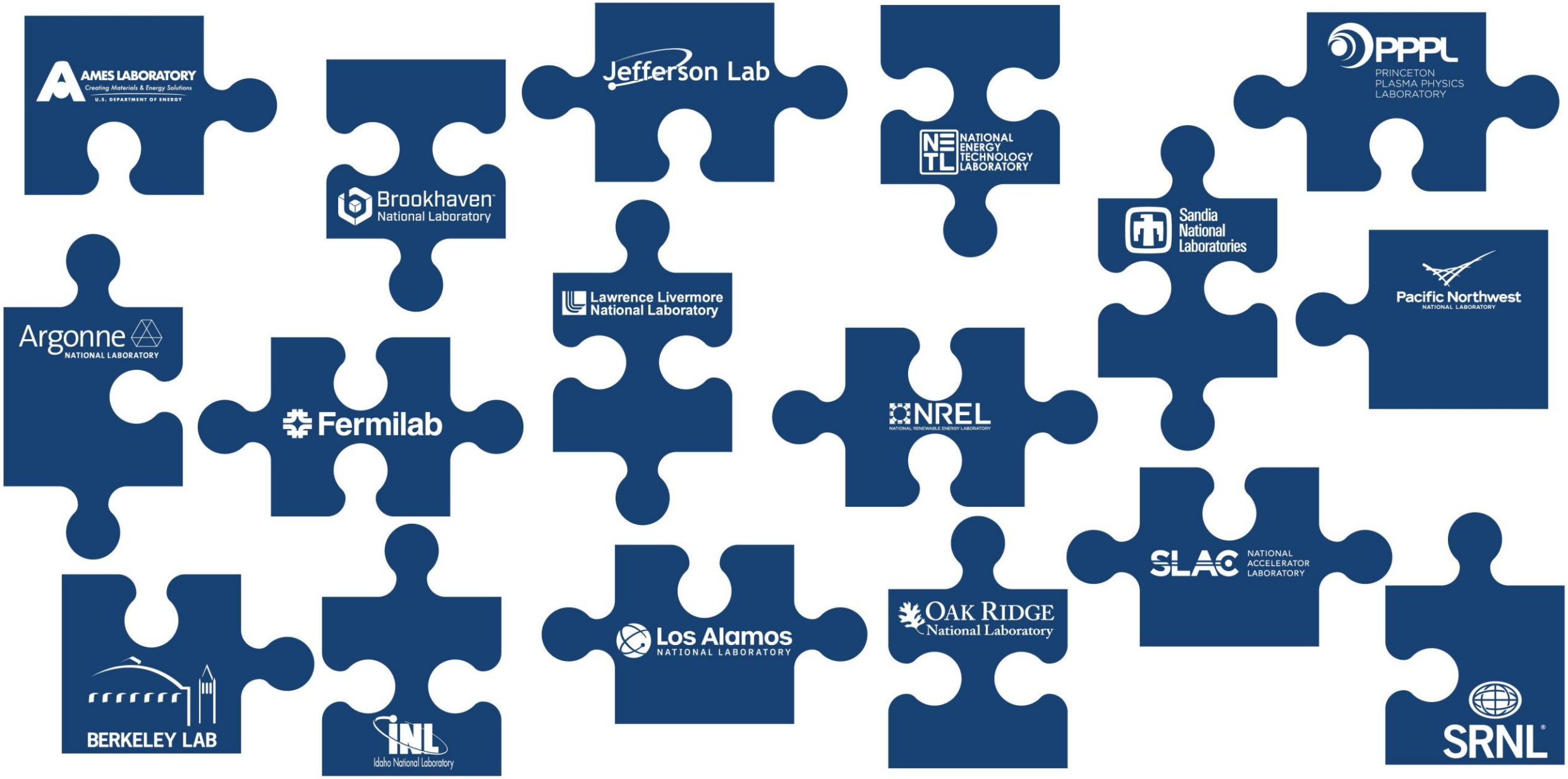
Panel 3: New Frontiers

Leverage Alumni: Proposed Use Cases to Accelerate Mission Outcomes

Teresa Bailey (LLNL), Lori Basilio (SNL), Alexandra Hakala (NETL), Elizabeth Hong-Geller (LANL), Colin Judge (INL), Lance Kim (LLNL), Josh Schaidle (NREL), Amanda Stegen (PNNL), Wah-Keat Lee (BNL), Mark Jeffers (FNAL), Marlo Maxson (SNL), Christian Petrie (ORNL)

Moderator, **Amanda Stegen (PNNL)**
Spotlight, **Mark Jeffers (FNAL)**

Use Cases
Connecting OSELP Alumni– Marlo Maxson (SNL)
Strategic Action Network – Alexandra Hakala (NETL)
Strategic Peer Review – Colin Judge (INL)



Topic 3: New Frontiers. Spotlight Discussion

Connecting OSELP Alumni

Presented by Marlo Maxson on behalf of Cohort 6

Goal: Collectively address emerging challenges; share best practices; support the priorities of the NLDC and DOE; and leverage, sustain, and advance trusted relationships that have been built within OSELP.

Benefits

- **Bringing leaders together** – Share best practices, lessons learned, and identify opportunities.
- **Access to experts** – Increases awareness of OLN experts.
- **Support NLDC's committees**
- **Accelerates the success of lab-directed or lab-funded leadership initiatives.**

Activating the Oppenheimer Leadership Network (OLN) Expertise

Continue to promote and mature the Oppenheimer Leadership Network that was established in 2019.

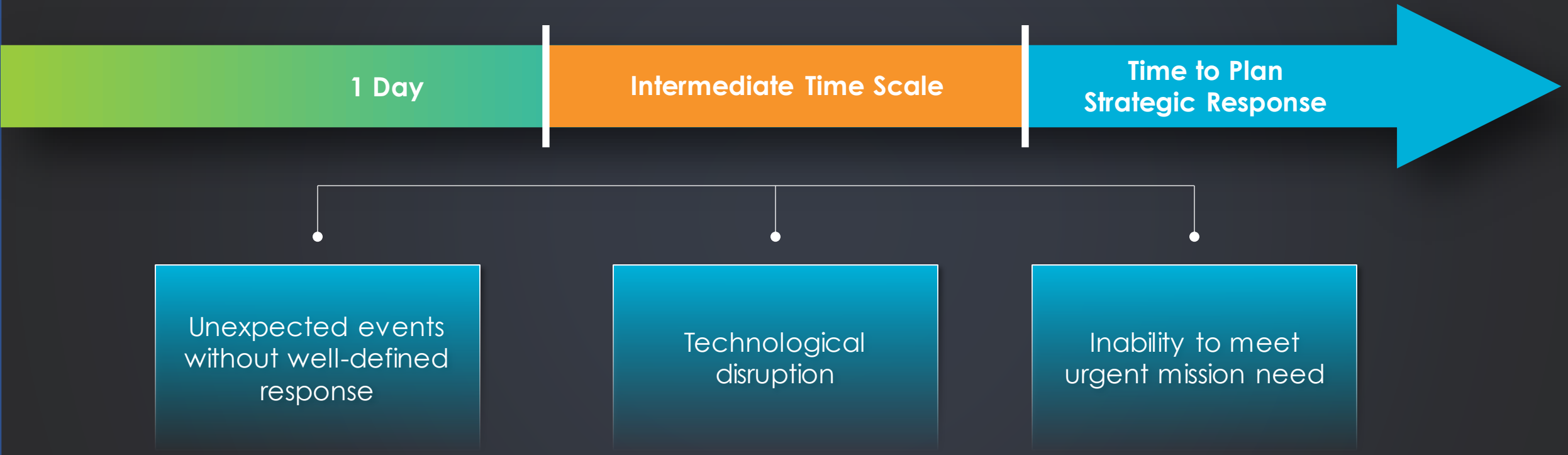
- Develop a plan for future collaboration with the OLN and other leadership program.
- Establish a comprehensive skills list.
- NLDC Subcommittees share their annual priority list.
  - Connects current and former think pieces
  - Provides feedback on their priorities

Sustaining the DOE-Lab Complex Collective Brain Trusts

Strategic Action Network

How do we play offense against unexpected technology disruption or events?

Alexandra Hakala on behalf of OSELP Cohort 6 Think Piece



Framework for the DOE S.A.N.

Complete a stocktake of the S.A.N. response framework to determine the readiness level of response to future disruptive events

Immediate Decisions	Active S.A.N.	Long-Term Considerations
Is it a "black swan" ?	Information Sharing Capability at All Levels	IP Protection
Identify management team	Developing SME team across DOE	Liability Protection (Methods & Results)
Align Networks (OLN!)	Collaboration beyond DOE	Establish Longer-Term Working Group
Funding & Authorization	Utilizing S&T Resources	Exercise capability with simulated disruptive event/technology
	Provide input for short term guidelines	Opportunity to leverage disruptive technology for positive benefit

Leveraging OSELP Alumni: Pilot a Strategic Peer Review

Colin Judge on behalf of OSELP Cohort 6 Think Piece

December 18, 2023

Pilot Strategic Peer Review: Data for Decisionmakers

Why a Strategic Peer Review (SPR)?

- Leverages Existing Framework (Battelle Continuous Commissioning Review)
- Provides early review of new mission or expanded mission area
- Complements other assessments, audits, and external advisory committees
- Delivers broad DOE National Laboratory perspective

Identifies blind spots and opportunities

Provides supplementary data needed to make strategic decisions and investments

Strategic Peer Review Approach: Focused on Mission Areas

Proposal

Requesting Laboratory:

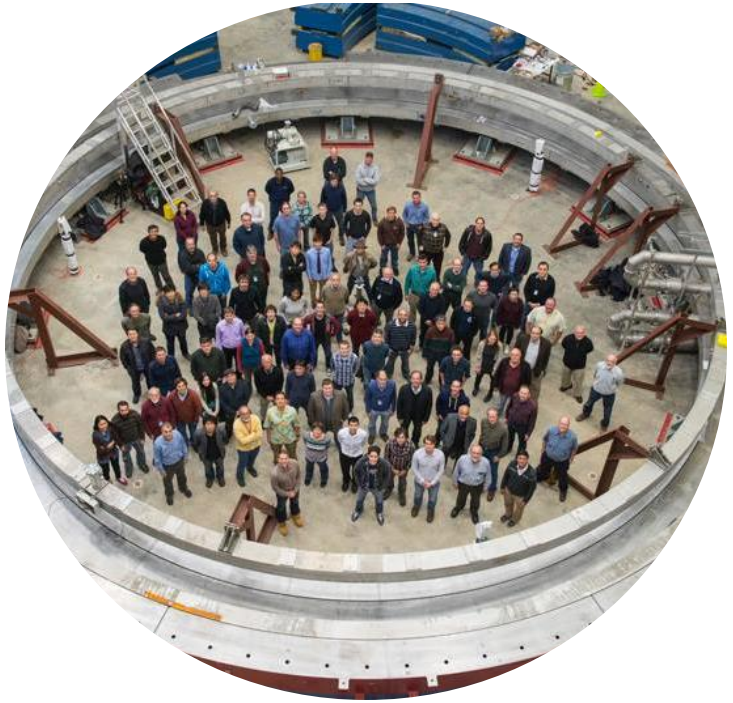
- Specifies focus areas
- Selects team
  - ✓Tailored to meet specific need
- Team observations & recommendations provided
  - ✓No findings or required action
  - ✓Can inform investment planning

Leverage & Engage Alumni

- Unique expertise
- Ecosystem
- New perspectives

Accelerate Mission Outcomes

“Big science”
is
People trusting people while embracing innovation and diversity



Oppenheimer science and energy leadership Program Cohort 6

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"*Coming together is a beginning,*
staying together is progress,
and working together is success."

Henry Ford