



# Training Evaluation: A Case Study of Measuring Impact and ROI

February 2025

*Changing the World's Energy Future*

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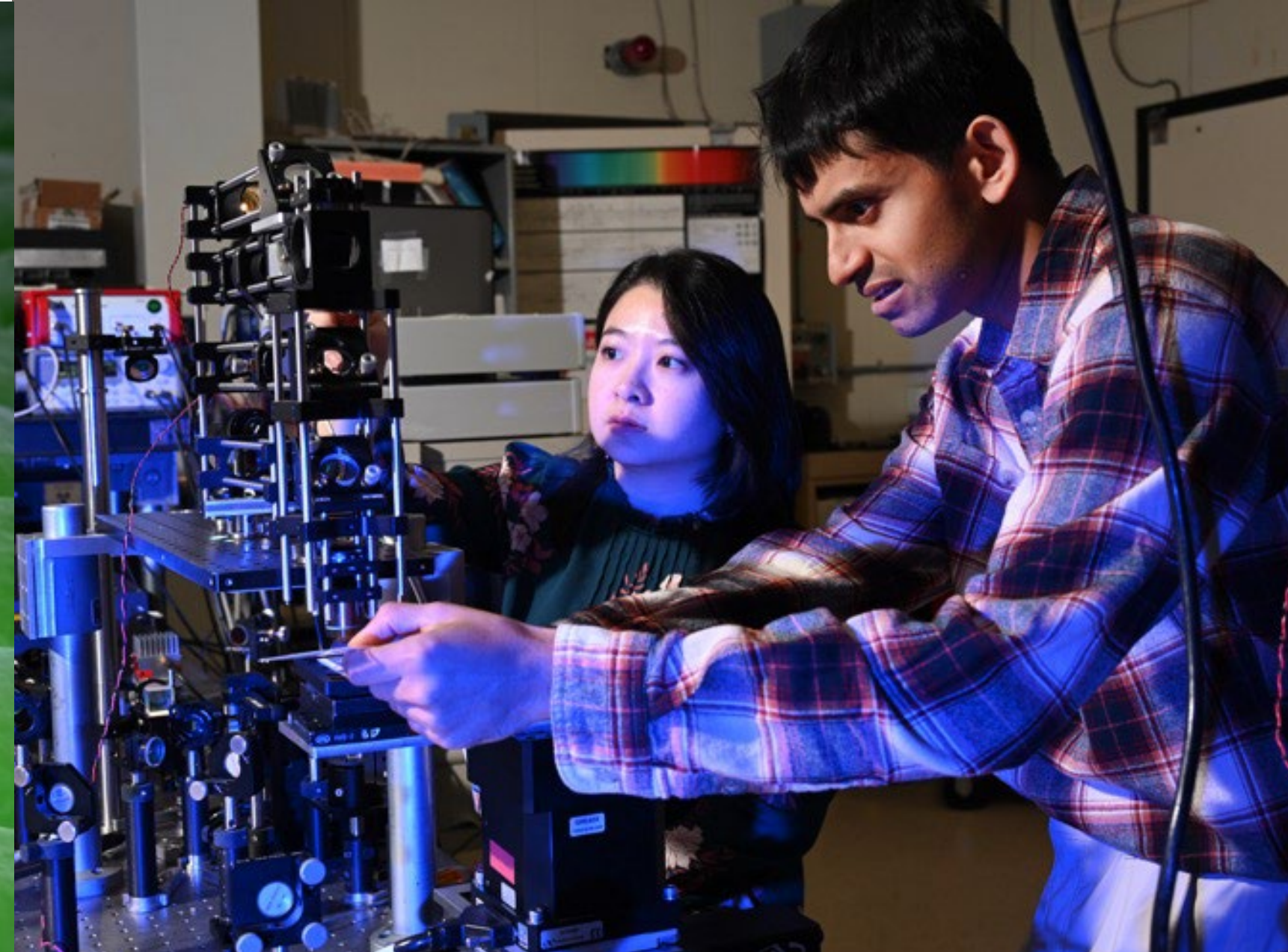
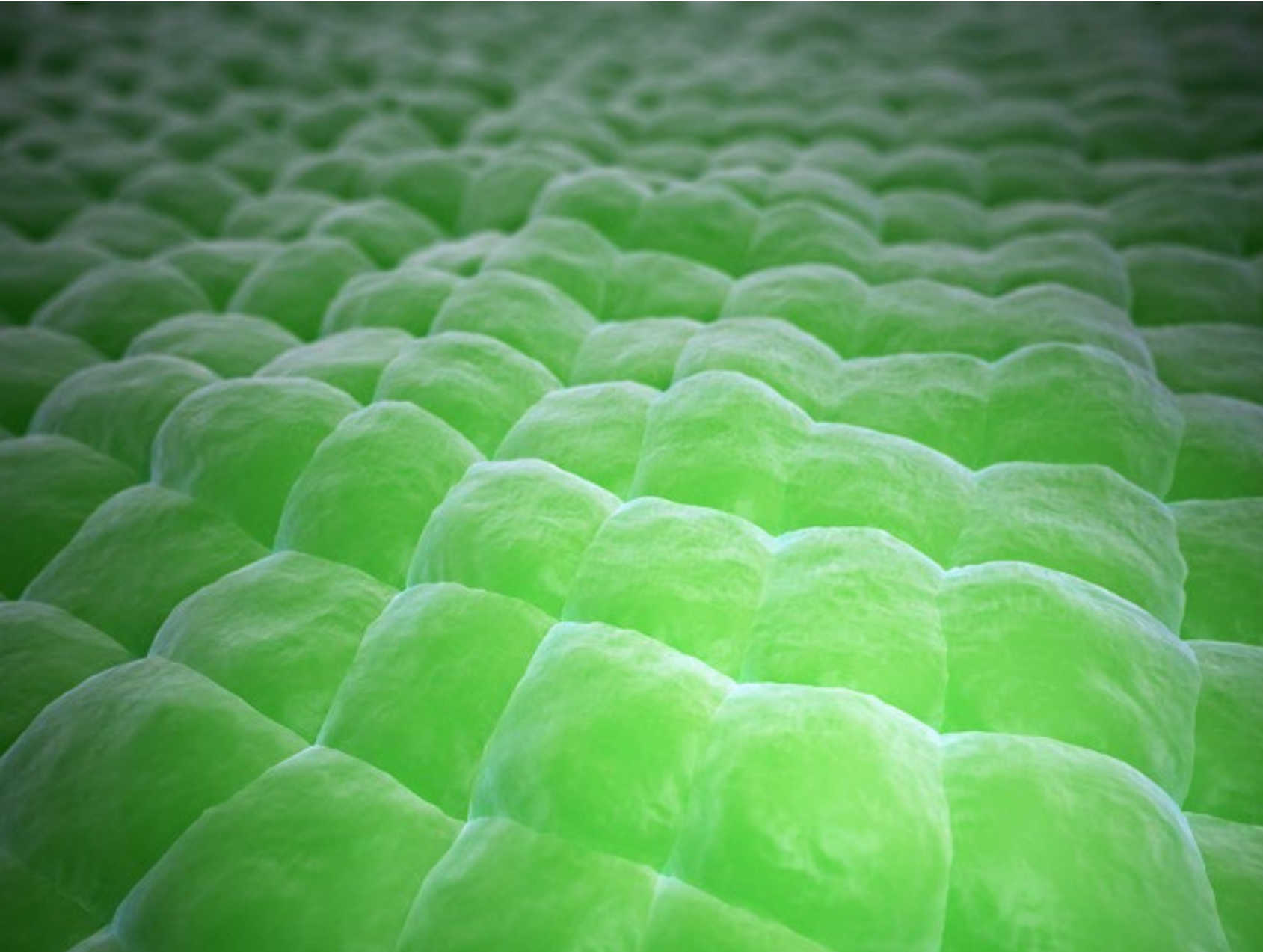
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Battelle Energy Alliance manages INL for the  
U.S. Department of Energy's Office of Nuclear Energy





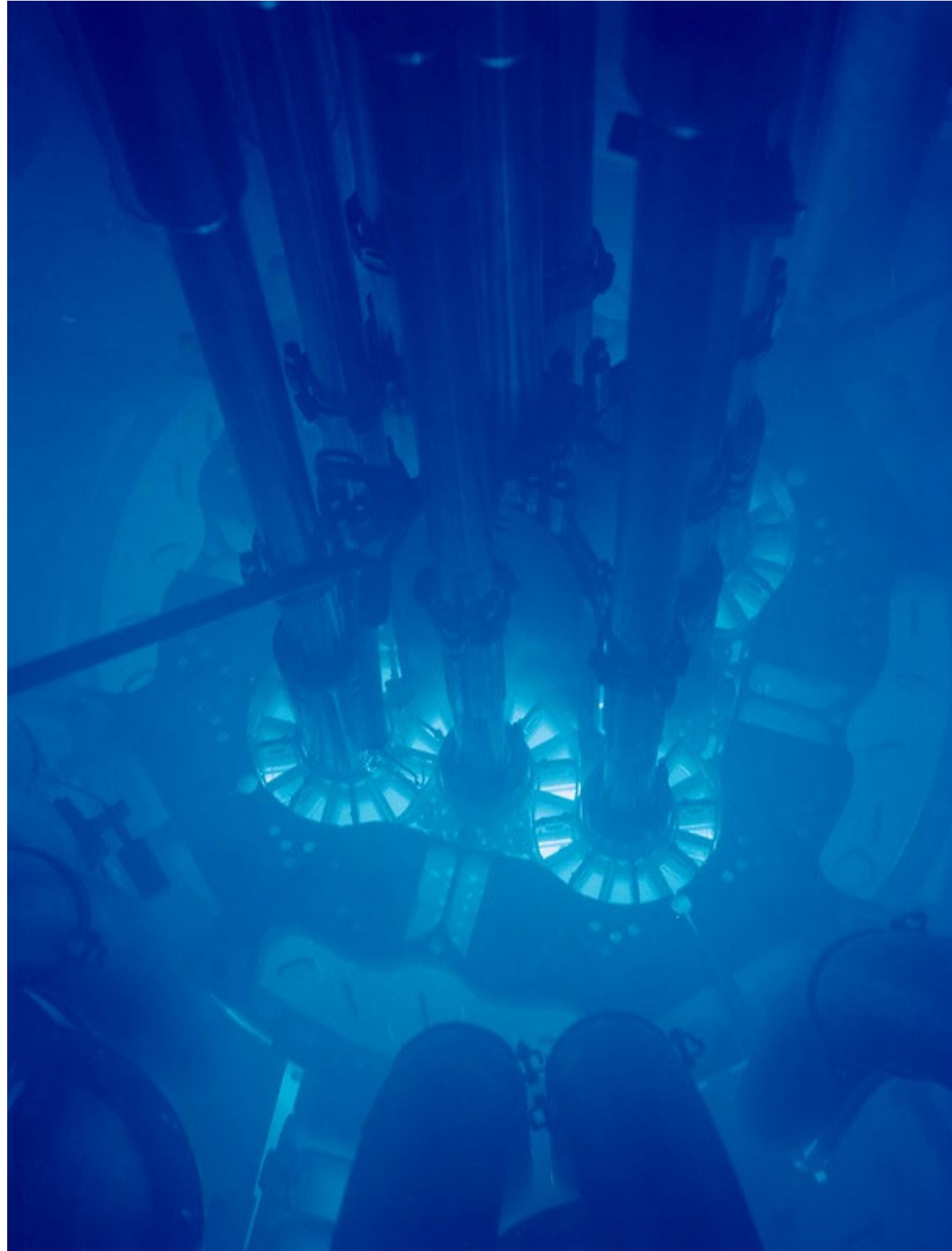
# Session Road Map

- Background & the Why/How?
- ROI Methodology & Guiding Principles
- Alignment Model & Planning Tools
- Results
  - Reaction
  - Learning
  - Application
  - Impact
  - ROI
  - Intangibles
- Recommendations
- ROI Lessons Learned
- Q & A





# Background Information

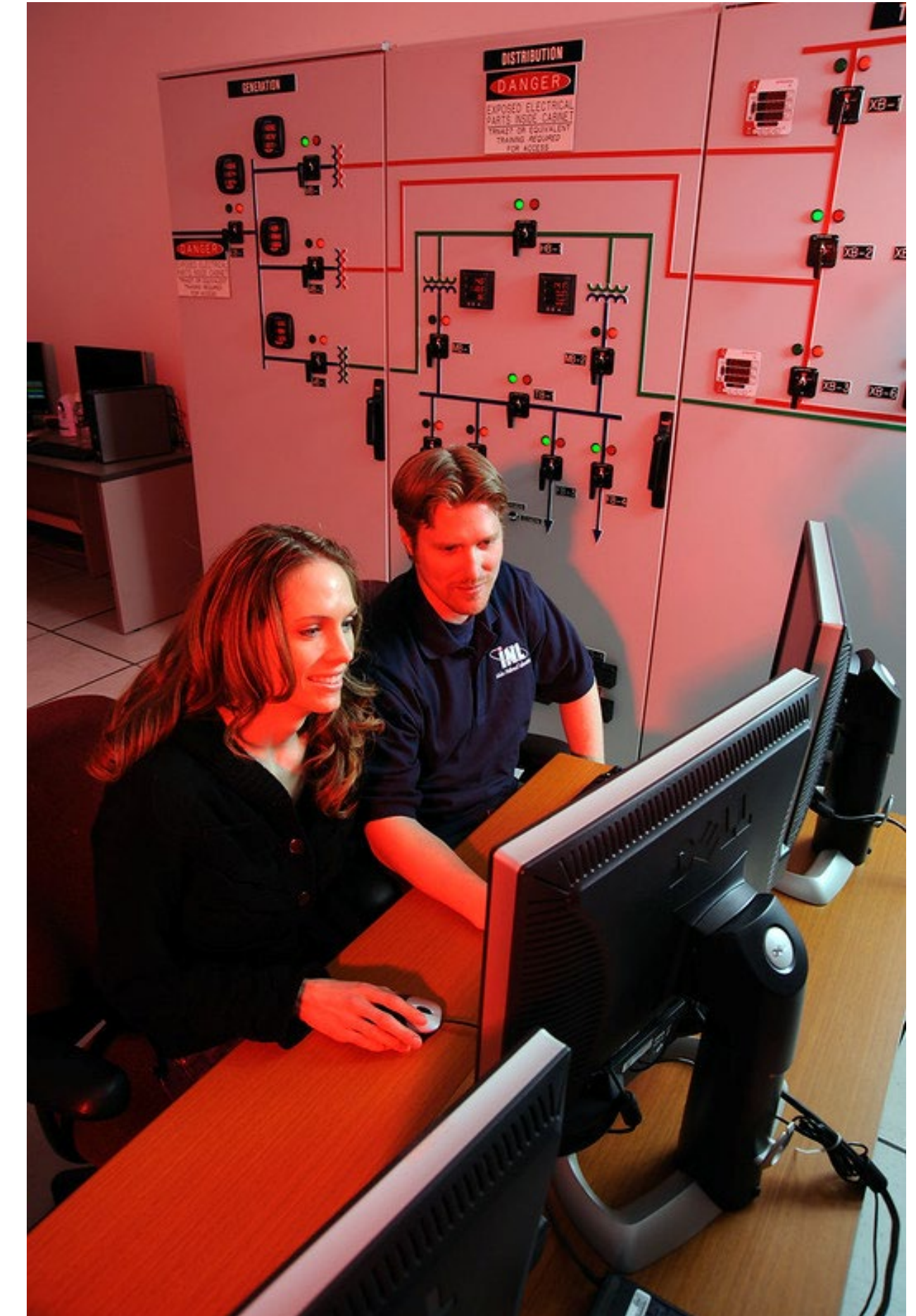


- Idaho National Laboratory (INL): **Discover, demonstrate and secure** innovative nuclear energy solutions, other clean energy options and critical infrastructure.
- The INL Safety and Security DOE Regulatory Program (**SSDRP**) ensures regulations are implemented, and noncompliant conditions are identified, disclosed, and resolved in an **effective** and **timely** manner.
- **Appointed** SSDRP Compliance Officers/Coordinators (CO/CC) **screen** for noncompliance, **initiate** noncompliance reports, **review** non-reportable noncompliance for trends, and **notify** management of reportable noncompliance to develop corrective action plans.

# The CO/CC Role Evaluation – Why? How?

The SSDRP Manager requested:

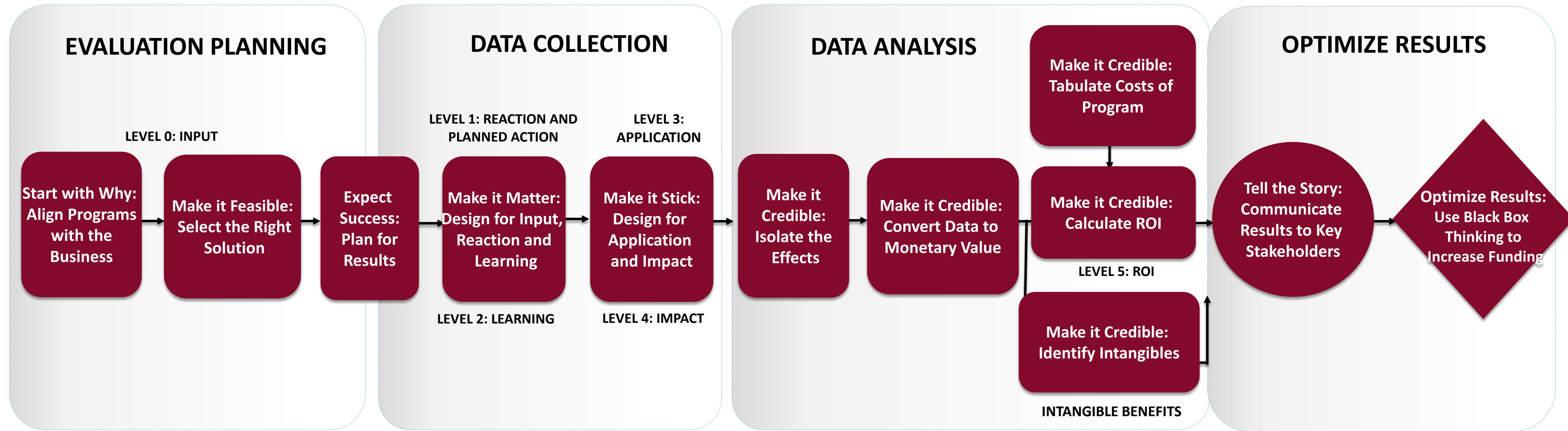
- **revise** CO/CC training
- gather **feedback** from current CO/CC about the training and their experiences
- a **justification** to provide additional recognition/compensation for personnel appointed this ancillary role





# The ROI Methodology Process Model

## Designing for the Delivery of Business Results

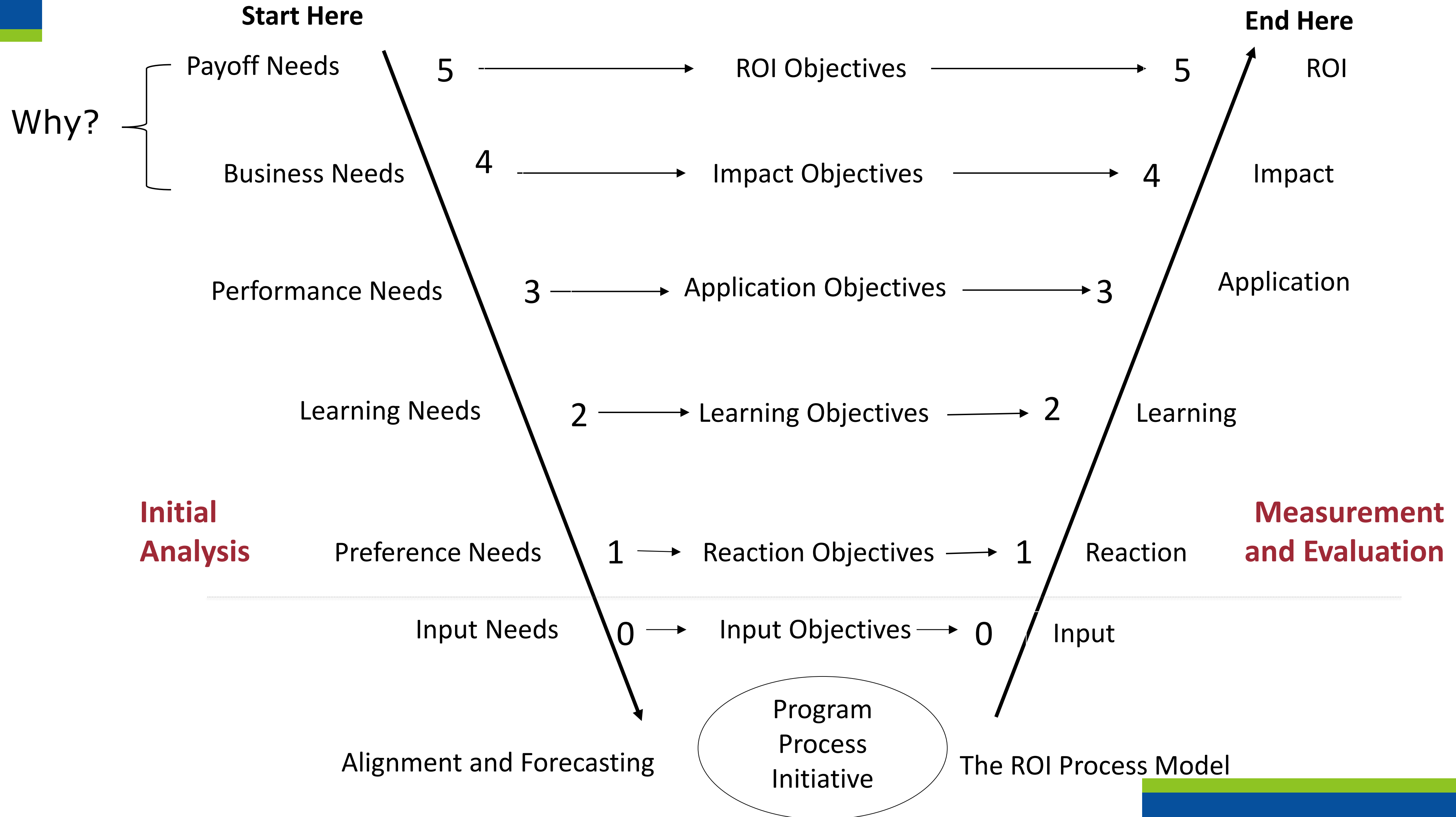




## 12 Guiding Principles

1. Report the complete story
2. Conserve evaluation resources
3. Use the most credible sources of data
4. Choose the most conservative alternatives
5. Isolate the effects of the program
6. Assume no data, no improvement
7. Adjust estimates for error
8. Throw out the extreme and unsupported claims
9. Use first year benefits for short-term programs
10. Include fully-loaded costs
11. Report intangible benefits
12. Communicate results to all stakeholders

# Alignment Model





# Business Alignment Planning Tool

Level	Needs	Objectives
<b>Payoff Opportunity</b> (L5)	<ul style="list-style-type: none"> <li>Sustain compliance with regulatory requirements</li> <li><b>Cost Savings (Cost Avoidance)</b> – avoid/minimize fines and penalties</li> </ul>	<ul style="list-style-type: none"> <li>Target ROI: <b>0%</b></li> </ul>
<b>Business Needs</b> (L4)	<ul style="list-style-type: none"> <li>Improve <b>accuracy and efficiency</b> of noncompliance screenings (quality, time)</li> <li>Timely <b>self-reporting and responsiveness</b> to regulators (time, costs, reputation)</li> <li><b>Prompt</b> corrective action plans developed/implemented (time, client service)</li> </ul>	<ul style="list-style-type: none"> <li>Accuracy/efficiency of screenings</li> <li><b>Monetary benefit</b> of CO/CC role</li> <li>CO/CC impact to screenings/reports</li> <li>Perceived individual and corporate intangible benefits</li> </ul>
<b>Performance Needs</b> (L3)	<ul style="list-style-type: none"> <li>Perform regulatory screens for noncompliance issues</li> <li>Determine if issue meets noncompliance tracking system (NTS) reporting thresholds</li> <li>Generate accurate NTS reports</li> <li>Utilize LabWay Issues Management System to assist in managing the response</li> </ul>	<ul style="list-style-type: none"> <li>Identify <b>enablers</b> (and barriers) to apply knowledge/skill</li> <li><b>Confidence and competency</b></li> </ul>
<b>Learning Needs</b> (L2)	<ul style="list-style-type: none"> <li>How to screen incoming condition reports for noncompliance and NTS reportability</li> <li>How to prepare NTS reports</li> <li>How to monitor the development and implementation of corrective actions</li> </ul>	<ul style="list-style-type: none"> <li><b>Understanding</b> of course objectives</li> <li>Familiarity with procedures, forms, tools</li> </ul>
<b>Preference Needs</b> (L1)	<ul style="list-style-type: none"> <li><b>Hands on, collaborative approach</b> to discuss and practice screening process</li> <li>Introduce screening and reporting processes to newly appointed Compliance Officers/Coordinators (CO/CC)</li> </ul>	<ul style="list-style-type: none"> <li>Training <b>content aligns</b> with current regulatory requirements, procedures, processes, and forms</li> <li>One-time eight-hour instructor-led training session taught by SSDRP manager</li> </ul>

# Data Collection Plan

Level	Objectives	Success Measures	Data Collection Methods	Data Sources	Timing	Responsibilities
1	<b>REACTION</b> <ul style="list-style-type: none"> <li>Training content aligns with current regulatory requirements, procedures, processes, and forms</li> </ul>	<ul style="list-style-type: none"> <li>Positive feedback</li> </ul>	Focus Group Interviews	Participants	1-3 months	Learning Performance Consultants
2	<b>LEARNING</b> <ul style="list-style-type: none"> <li>No formal learning assessment</li> <li>Understanding of course objectives</li> </ul>	<ul style="list-style-type: none"> <li>4 out of 5 on a 5-point Semantic Differential Scale</li> </ul>	Focus Group Interviews	Participants	1-3 months	Learning Performance Consultants
3	<b>APPLICATION</b> <ul style="list-style-type: none"> <li>Identify barriers and enablers</li> <li>Confidence and competency to perform role</li> </ul>	<ul style="list-style-type: none"> <li>Multiple enablers for success</li> <li>80% or greater in confidence and competency</li> </ul>	Focus Group Interviews	Participants	1-3 months	Learning Performance Consultants
4	<b>BUSINESS IMPACT</b> <ul style="list-style-type: none"> <li>Accuracy/efficiency of screenings</li> <li>Monetary benefit of CO/CC role</li> <li>CO/CC impact to screenings/reports</li> <li>Perceived individual and corporate intangible benefits</li> </ul>	<ul style="list-style-type: none"> <li>No significant screening revisions</li> <li>Benefit &gt; costs</li> <li>Intangible benefits rating 4.0 out of 5 on a 5-point Semantic Differential Scale</li> </ul>	Interviews	Office of Enforcement  Participants  SSDRP Manager	1-3 months	Learning Performance Consultants
5	<b>ROI</b> <ul style="list-style-type: none"> <li>0%</li> </ul>	<b>Comments:</b>				



# ROI Analysis Plan

Data Items	Methods to Isolate Program Effects	Methods of Converting Data to Monetary Values	Cost Categories	Intangible Benefits	Communication Targets for Final Report	Other Influences/Issues During Application	Comments
Accuracy & efficiency of screenings  Monetary benefit of CO/CC role  CO/CC impact to screenings and reports  Individual and corporate intangible benefits	<b>Expert Estimates</b>  <b>Participant Estimates</b>	<b>Standard Value</b>  <b>Participant Wages</b>	Needs Assessment  Training Revision  Training Delivery  Participant Costs to perform role  Evaluation Costs	<b>Improved Employee Engagement</b>  <b>Improved Corporate Responsibility</b>  <b>Career Progression</b>  <b>Stress Reduction</b>  <b>Risk Mitigation</b>  <b>Reputation</b>	Participants  Instructional Designer  SSDRP Manager  Learning Services Management Team  Senior Leadership	SSDRP Manager Measurements  Compliance Officer/Coordinator Commitment	SSDRP Manager is fully supportive and committed for the evaluation

# Results – Reaction

## Strengths about CO/CC training

- Group work helped with understanding.
- Latest course revision vast improvement compared to previous revision.
- CFR module well presented.
- Beneficial and necessary to prepare individuals to perform role.

## Other

- Monthly walk-through meetings with SSDRP Manager were beneficial.
- Suggestion for refresher training or requalification checklist to maintain proficiency.

**Success Measure = Positive Feedback**





# Results – Learning

## Level of understanding of course objectives

Course Objectives	Semantic Differential Scale 1 = very low 5 = very high
Correctly screen incoming condition reports for PAAA and WS&H non-compliance status according to the applicable CFRs	4.7
Correctly screen condition reports for NTS reportability.	4.9
Prepare basic NTS reports for NTS reportable conditions using the approved template.	4.7
Monitor and encourage thorough and transparent development and progress on corrective actions within their organization to ensure accurate and timely resolution.	4.7

**Success Measure = 4+**

# Results – Application

## Self-reported Confidence and Competency Level

Item	Confidence Level
Ability to locate the appropriate Code of Federal Regulation (CFR)	85%
Ability to use Electronic Document Management System (EDMS)	81%
Ability to use tools and resources to perform CO/CC role	94%
Overall percentage of confidence and competency in the CO/CC role	88%

**Success Measure = 80%**



# Results – Application

## Enablers/Barriers to Apply Knowledge and Skills

Enablers	Barriers
Support and feedback from SSDRP Manager	CO/CC role perceived as “the bad guy”
Walk-through monthly meetings with other CO/CCs and SSDRP Manager to discuss screenings	Infrequent screenings
Clear expectations from SSDRP Manager and SLT	Inefficient systems to generate regulatory screening reports
Access to SMEs to identify non-compliance and applicable documents	Inconsistent document formatting to trace back to requirements

**Success Measure = Multiple Enablers Identified**

# Results – Business Impact – Cost Savings

The CO/CC provides monetary business value through their potential to mitigate or decrease civil penalties, reduce settlement agreement costs or influence DOE reimbursement of investigation costs occurred by the contractor.

## Business Impact – Program Monetary Benefits

- Determined by comparing INL's history of civil penalties, settlements and investigation costs vs. other similar national labs (FY22-FY24).
  - **0** = Number of penalties/settlement agreements incurred by INL (indicative of CO/CC performance)
  - **\$236,857** = Average cost per penalty/settlement using data from six similar national labs
  - **4** = Average number of penalties/settlements for the two labs most like INL
  - **\$473,715 penalty costs/year** (4 penalties x \$236,857 = \$947,430 over two-year period)
  - **\$125,000** = Average investigation cost. (Note: DOE can choose to reimburse up to 80% of costs)
    - Average reduction data unavailable. Assuming 25% as a conservative adjustment = \$31,250
    - 4 investigations from like labs x \$31,250 = **\$125,000** in investigation cost savings
  - \$598,715 = Penalty/Settlement Agreement (\$473,715) and Investigation Cost Savings (\$125,000)
  - Total monetary benefit (cost avoidance) from INL CO/CC role = **\$598,715**



# Results – Business Impact – Cost Savings

How much does the CO/CC role contribute to financial savings?

## Isolation Method – Participant Estimates

- Participants estimate 55% of screenings can be closed with no responding action. (all work by CO/CC)
- Participants estimate 40% of screenings results in a nonreportable noncompliance. (all work by CO/CC)
- Participants estimate 5% of screenings result in a reportable noncompliance. (requires input from cause analyst, and a corrective action plan documented by the manager)
- Isolate impact using 95% of the process only involves a CO/CC. Apply a confidence estimate of 83%.
  - Adjusted Impact:  $95\% \times 83\% = 0.79$

Adjusted Benefits = Program Benefits x Adjusted Isolation Estimate

Adjusted Benefits = \$598,715 x 0.79

Adjusted Benefits = **\$472,985**

## Results – Costs

Item	Amount
CO/CC Role (salary + benefits)	\$346,398
Program Evaluation	\$19,287
CO/CC Training (tuition, seat time)	\$27,995
CO/CC Training revision (needs assessment, design, development)	\$11,296
<b>TOTAL</b>	<b>\$404,976</b>



## Results – ROI

$$\text{BCR} = \frac{\text{Program Benefits}}{\text{Program Costs}}$$

$$\text{BCR} = \frac{\$472,985}{\$404,976}$$

$$\text{BCR} = 1.168$$

$$\text{ROI} = \frac{\text{Net Program Benefits}}{\text{Program Costs}} \times 100$$

$$\text{ROI} = \frac{\$472,985 - \$404,976}{\$404,976} \times 100$$

$$\text{ROI} = 16.8\%$$

**Target ROI = 0%**

# Results – Intangible Benefits (Individual)

To what extent has the Compliance Officer/Coordinator role influenced your

Intangible Measures	1 = no influence 5 = very significance
Employee Engagement	4.6
Corporate Responsibility	4.3
Career Progression	2.8
Stress	3.3
Risk Mitigation	2.6

**Success Measure = 4+**

## Results – Intangible Benefits (Organizational)

- INL/Battelle Reputation – DOE and Public
- Reduced DOE Scrutiny and Oversight
- Enhanced Safety Culture
- Increased Awareness of Organizational Weaknesses





# Summary about the CO/CC Role

- CO/CC is a value-add role; key resource/POC to their organizations.
- Outstanding leadership and support from SSDRP Manager.
- CO/CC peer network crucial to SSDRP success.
- Challenges with time management and workload distribution.
- Suffers from the perception of the “bad guy” but is slowly gaining a more positive reputation.



# Recommendations

- Review processes to improve screening efficiency and quality (Form 410.07A Review).
- Formalize a mentoring program to recruit/retain high potential performers to fulfill the appointed CO/CC role.
- Establish a requalification pathway or checklist to maintain proficiency.
- Add incentive (compensation, career progression) to CO/CC role.



# ROI Lessons Learned

- Clarity of ROI Evaluation Project.
  - Evaluating the CO/CC training or the CO/CC role.
- Deploy other data collection methods.
- Plan isolation of impact method earlier in the project.
- Integrated ROI Analysis Plan three weeks into project forced us into less-than-ideal data collection plan.







# Idaho National Laboratory

*Battelle Energy Alliance manages INL for the U.S. Department of Energy's Office of Nuclear Energy. INL is the nation's center for nuclear energy research and development, and also performs research in each of DOE's strategic goal areas: energy, national security, science and the environment.*