

# AI Skills Development Project - Supplemental

## Building AI Capabilities In-House for OT



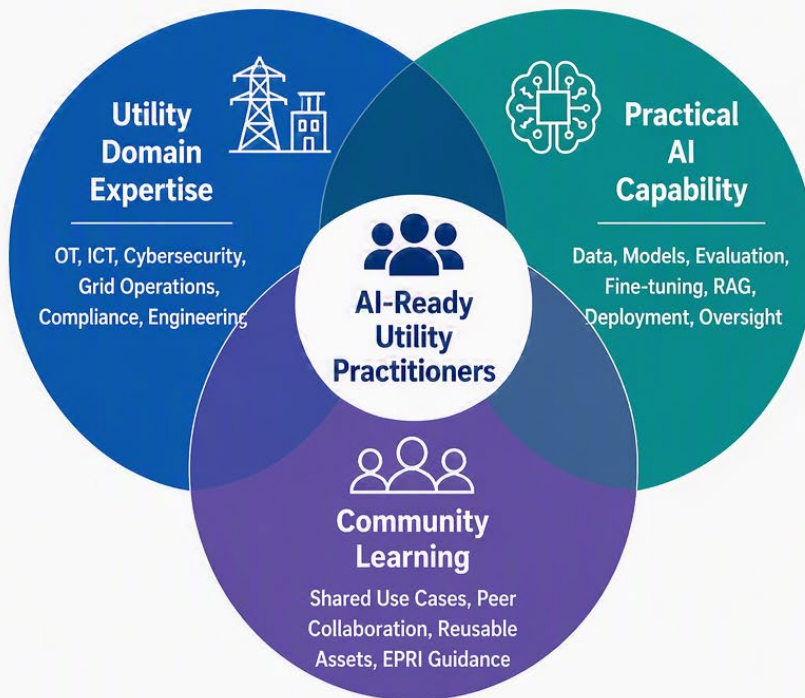
### EPRI ICCS

The project complements OPAI's broader model and deployment efforts by helping utility practitioners build the **hands-on skills** needed to evaluate, adapt, deploy, and govern AI-enabled systems in operational contexts.

# The Vision

## A Community of Utility Practitioners with Hybrid Domain + AI Skills

— Building the internal translation layer between utility operations, vendor AI, cybersecurity, and governance —



### What This Community Enables



#### Evaluate and Guide

Confidently assess AI-enabled products and solutions



#### Govern and Oversee

Apply governance, security, and oversight in operational environments



#### Develop and Deploy

Build and adapt AI solutions that meet utility requirements



#### Learn and Grow Together

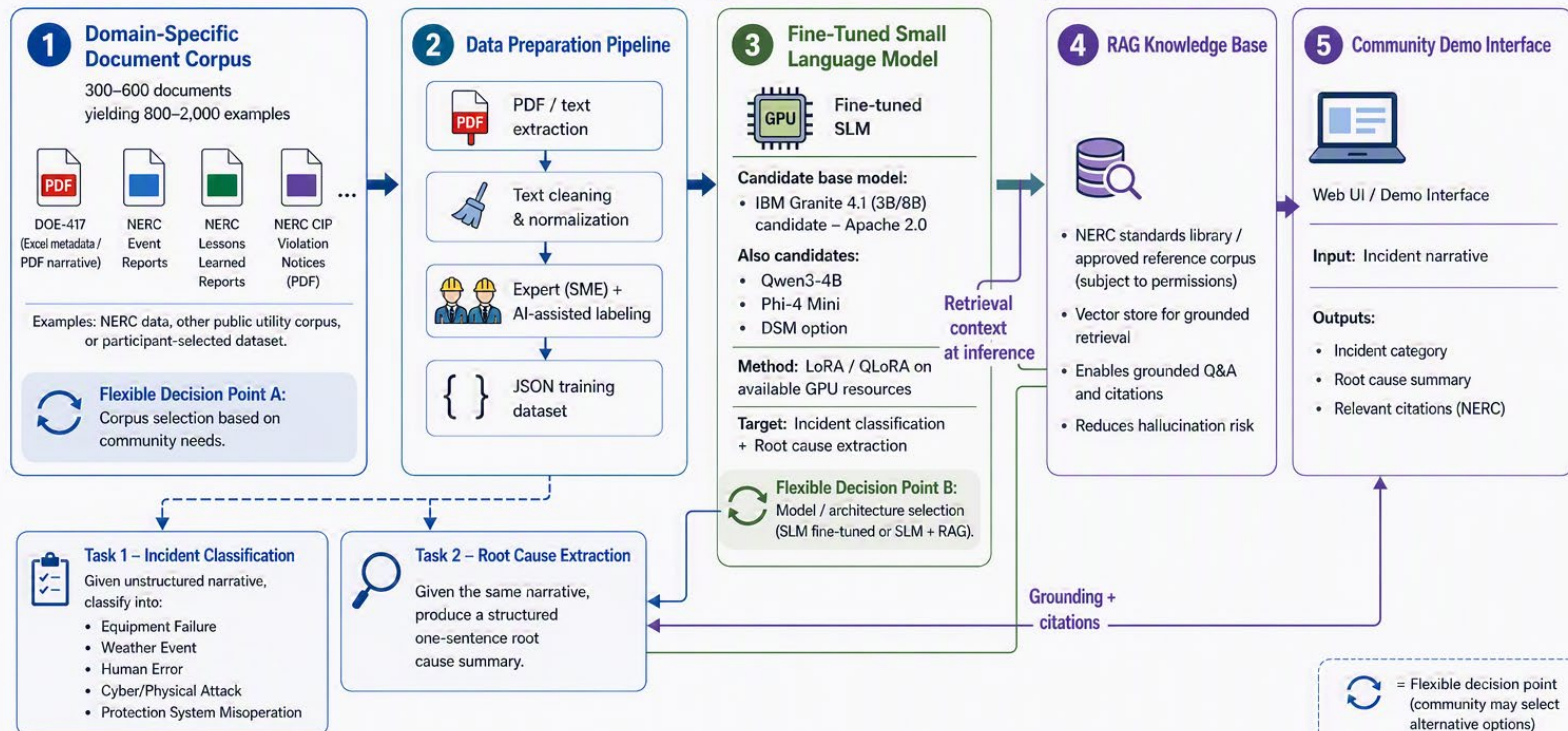
Share lessons, solve real challenges, and continuously build capability



Hybrid domain + AI skills become the **internal translation layer** between vendor AI, utility operations, cybersecurity, and governance.

# Community-based AI Skills Development Project

*A Fine-Tuned Small Language Model on a Domain-Specific Corpus*



A working, evaluated, deployable model – trained by the EPRI-led community of utility practitioners, on data the community understands, for tasks the community needs.



**Notes:** Public-domain training and lab environments (e.g., Kaggle / RunPod / Lambda) are used for development. No sensitive utility data used. deployment pathway is validated on-premises / offline.



On-premises  
Deployability



**Benchmark Target**  
≤ 2 sec / document  
(INT4 GGUF)\*



**Evaluation**  
Gates Apply\*\*

\* Measured on defined reference hardware  
\*\* See program schedule for details

# AI Skills Development Program – Master Schedule

26 Sessions • Sep 2026 – Sep 2027



From first principles of machine learning to a working, evaluated, on-premises small language model (SLM) with a RAG knowledge base over NERC grid-incident data.

## PHASE 1



### FOUNDATIONS & SETUP

- Environment & tooling setup
- ML/LLM fundamentals
- Prompting baselines
- SLM landscape

Sessions 1–7

Sep – Dec 2026

## PHASE 2



### DATA & LABELING

- Corpus sourcing & governance
- Data prep & extraction
- Expert & AI-assisted labeling
- Data quality & dataset publication

Sessions 8–12

Jan – Mar 2027

## PHASE 3



### FINE-TUNING & EVALUATION

- Model selection & LoRA/QLoRA
- Fine-tuning
- Evaluation & benchmarking
- Model optimization

Sessions 13–17

Apr – Jun 2027

## PHASE 4



### RAG & INTEGRATION

- Knowledge base & vector store
- RAG pipeline & grounding
- Citations & hallucination reduction
- End-to-end integration

Sessions 18–22

Jul – Aug 2027

## PHASE 5



### DEPLOYMENT & DEMO

- On-prem deployment
- Performance validation
- Demo interface & use cases
- Community showcase & roadmap forward

Sessions 23–26

Sep 2027



### SCHEDULE

Biweekly Tuesday sessions  
(90 minutes)

Optional 60-minute backup  
session the following Tuesday



### COMMITMENT

~4–5 hours per week  
per participant

~200–250 total hours over  
the program



### NO SESSIONS

Thanksgiving week  
Christmas break  
(Dec 20 – Jan 5)  
or otherwise excluded weeks



### WHO

Utility & network engineers  
ICT, Cybersecurity, OT,  
Operations, Architecture,  
Comms professionals



### SUCCESS GATES



$F1 \geq 0.80$   
Incident  
Classification



$ROUGE-L \geq 0.45$   
Root Cause  
Extraction



$\leq 2 \text{ sec / document}$   
Inference speed  
(INT4 GGUF)



Pass  
On-premises  
Deployability



$IAA \geq 0.75$   
Data Quality  
(before acceptance)

# AI Skills Development

Building AI Capabilities In-House for OT



## How to Engage

Have questions, want to learn more, or interested in participating? Reach out to any of our technical advisors.



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Technical Advisor



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We look forward to collaborating with you to build the skills and solutions that power our industry.



For additional information  
please reach out to:

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2026

# Southern Company Technical Conference

Helping make, move and serve energy better



August 17 – 21, 2026 | Birmingham, AL

# Southern Company Technical Conference

The conference will bring together more than 1,500 internal and external participants to share insights on operational best practices, equipment performance, fleet initiatives, standards, and emerging technologies. Over 40 technical tracks, led by Southern Company subject matter experts, will facilitate high-value discussions with peers from across the utility and energy sectors.



# Southern Company Technical Conference Tradeshow



The accompanying tradeshow will feature more than 300 vendors showcasing innovative solutions across Generation, Nuclear, Power Delivery, and other utility areas, providing a focused forum for engagement with suppliers and decision-makers.

Limited booths are still available

# Vendor Tradeshow Registration

## 2026 Southern Company Technical Conference

Helping make, move and serve energy better



Registration for the 2026 Southern Company Technical Conference is now open.

**Tuesday, Aug. 18 through Thursday, Aug. 20, 2026**

Birmingham-Jefferson Convention Complex  
2100 Richard Arrington, Jr. Blvd. N.  
Birmingham, Alabama 35203

[Register Here](#)



# I&C General Track — Call for Presentations

Theme Bridging the Future: Emerging Tech, AI & Innovation in Automation

We invite control system vendors and partners to present on one of three topics:

## 1 Emerging Technologies

- New sensors & IIoT architectures
- 5G in manufacturing
- Advanced industrial cybersecurity

## 2 AI & Machine Learning

- Predictive maintenance
- Process optimization
- Autonomous tuning

## 3 Innovation Showcase

- Groundbreaking project case studies
- “Failed-forward” lessons learned
- Novel hardware & software

## Preferred Focus: System-Agnostic Solutions

- Integrate across multiple DCS / PLC platforms
- Built on open standards (OPC UA, MQTT)
- Flexible across diverse hardware ecosystems

## Presentation Format

- 30-minute slot
- Educational, technical content only
- No sales or marketing pitches

# Topic Submittal Link



[Topic Submittal for the 2026 Southern Company Technical Conference!](#)

Make sure you select the I&C General Track when submitting your Topic

# Non-Vendor - Attendee Registration



[2026 Southern Company Technical Conference | Attendees](#)

Attendees must be approved by submitting your name and contact information to EPRI

or

To: [jmfaurot@southernco.com](mailto:jmfaurot@southernco.com)

# Hotels Near the BJCC



★★★★☆ | 4.400000095367432 | Private rate

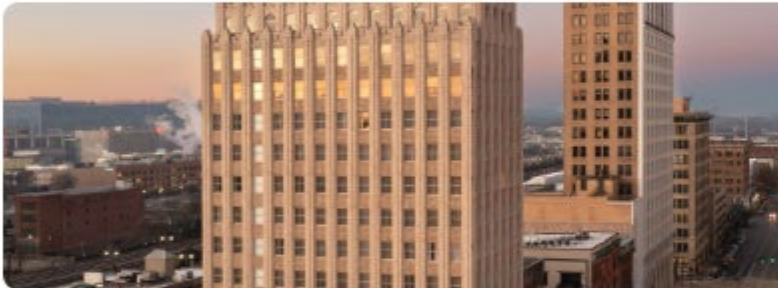
## Fairfield Inn & Suites Birmingham Downtown

ADA-Friendly • Dining Options • Fitness • Internet • Laundry Facilities + 8 more

Average sustainability

0.8 mi | Preferred

From  
**\$196**  
per night



★★★★☆ | 3.700000047683716 | Private rate

## The Kelly Birmingham, Tapestry Collection by Hilton

ADA-Friendly • Bar • Child Friendly Facilities • Fitness • Internet + 7 more

More sustainable • Eco Certified

0.9 mi | Preferred

From  
**\$169**  
per night



★★★★☆ | 4.099999904632568 | Private rate

## Hilton Garden Inn Birmingham Downtown

ADA-Friendly • Air Conditioning • Bar • Child Friendly Facilities • Coffee Maker + 16 more

More sustainable • Eco Certified

1.2 mi | Preferred

From  
**\$168**  
per night





Nuclear, Powered by Data + AI

**Accelerating Nuclear Innovation with Data, Analytics & AI**



HELLO@XCIS.AI



XCIS.AI



XCIS AI



# Who We Are

At **XCIS AI**, we design and deploy solutions that **accelerate nuclear innovation** through **data, analytics, and AI**.

We're a 35+ person team of data scientists, engineers, developers, and project managers who work exclusively in nuclear innovation

Since 2017, we've delivered more than 175 Data and AI projects, building deep domain expertise and a proven track record across operations, engineering, cyber, and enterprise functions.

**Our Mission:** Enable safer, smarter, more efficient nuclear operations through practical, scalable AI

**175+**

Projects Delivered

**25+**

Clients Served

**20+**

Production AI &  
Analytics use cases

**35+**

Data & AI  
Professionals

**10+ years**

Experience in nuclear and critical  
infrastructure

# Our Core Service Pillars

## **AI & Automation**

Turn manual work into smart, automated workflows, using AI, machine learning and copilots that help teams move faster and make better decisions

## **Data Transformation**

Create a trusted data foundation, secure, governed and scalable – so reporting is reliable, analytics is faster, and AI actually works in production

## **Digital Strategy & Advisory**

Set a clear technology direction with roadmaps, architecture, and change support so investments deliver measurable business value

## **Smart Systems Enablement**

Bring operations into real time with IoT, digital twins, and automation controls, unlocking visibility, predictive insights, and safer, more efficient execution.

## **Cyber Strategy & Advisory**

Protect critical systems and new technologies with practical cyber strategy, security architecture, and compliance support—built for real operational environments

## **Business Enablement**

Keep the lights on, and improve performance through managed services and expert support that strengthens delivery, adoption, and day-to-day execution

# Practical AI in Nuclear Operations

**Six domains** where we deliver **practical, scalable AI** in **nuclear environments**:

**Supply Chain, Materials & Inventory**

**Equipment Reliability & Plant Availability**

**Work Execution & Field Safety**

**Engineering Quality & Governance**

**Environmental & Remote Monitoring**

**Enterprise Enablement**

# From AI Experiments to Enterprise Value

Most utilities have AI pilots. Very few have created a repeatable engine for delivering operational value.

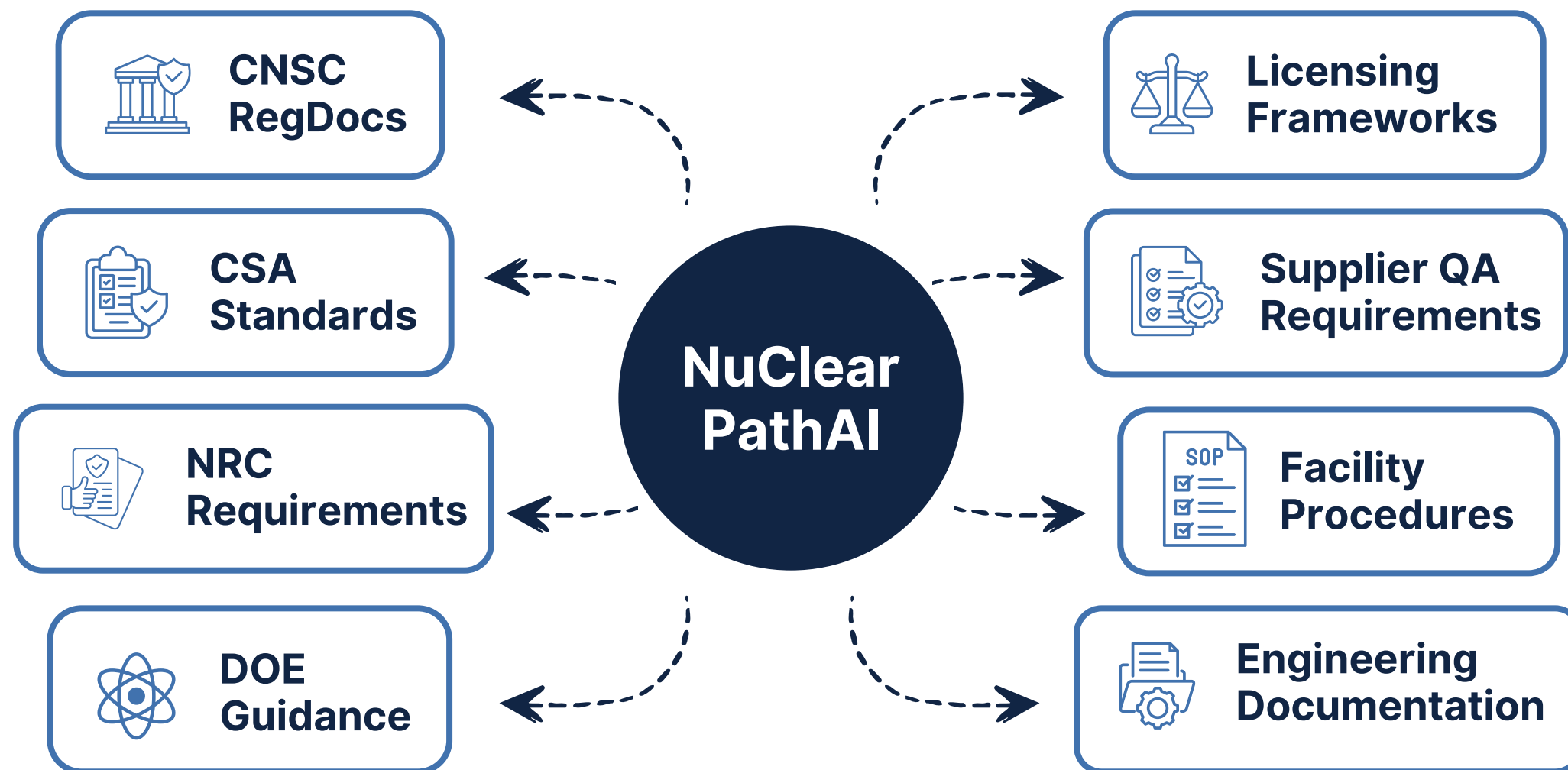


**Build shared capabilities once.**

Reuse them across business domains. Deliver more value at lower cost.

# What is NuClear PathAI?

**Open-Source Regulatory Intelligence for the Nuclear Lifecycle**



## It is...

- AI-Powered Search
- Regulatory Traceability
- Document Intelligence
- Lifecycle Compliance Support

**Built as an open-source initiative to help accelerate new nuclear deployment through AI-driven regulatory navigation, compliance traceability, and lifecycle intelligence.**

# Impact on the Nuclear Industry

## Accelerating New Nuclear Through Regulatory Intelligence



### Faster Deployment

- Reduce licensing preparation effort
- Accelerate regulatory readiness
- Support new reactor programs



### Workforce Enablement

- Preserve institutional knowledge
- Accelerate onboarding
- Support knowledge transfer



### Reduced Risk

- Improve requirement traceability
- Reduce compliance blind spots
- Strengthen audit readiness



### Industry Collaboration

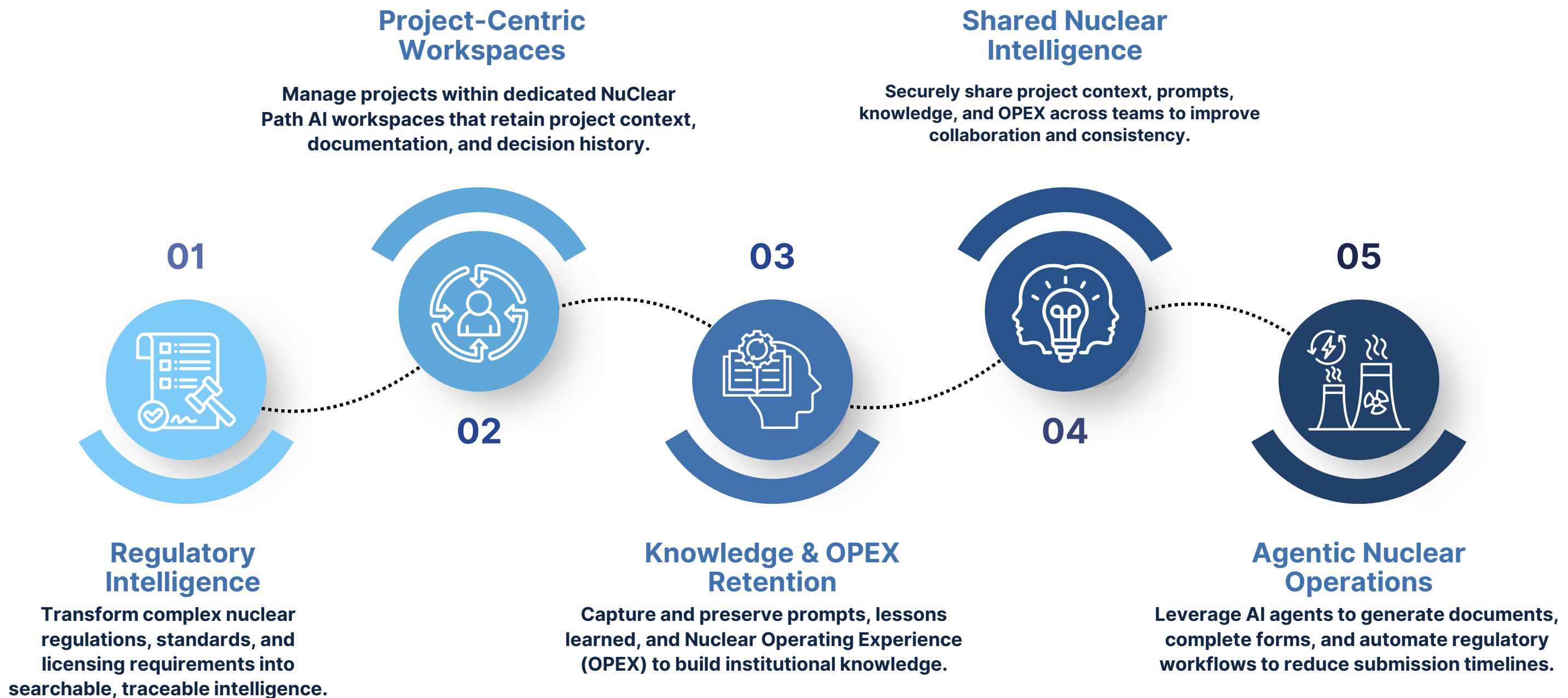
- Open-source foundation
- Shared regulatory intelligence
- Expandable across jurisdictions

## Accelerating New Nuclear

Making regulatory knowledge more accessible, traceable, and actionable across the nuclear ecosystem.

# NuClear PathAI Roadmap

**From Regulatory Intelligence to Project-Centric Nuclear Workspaces**





# Thank You!

