



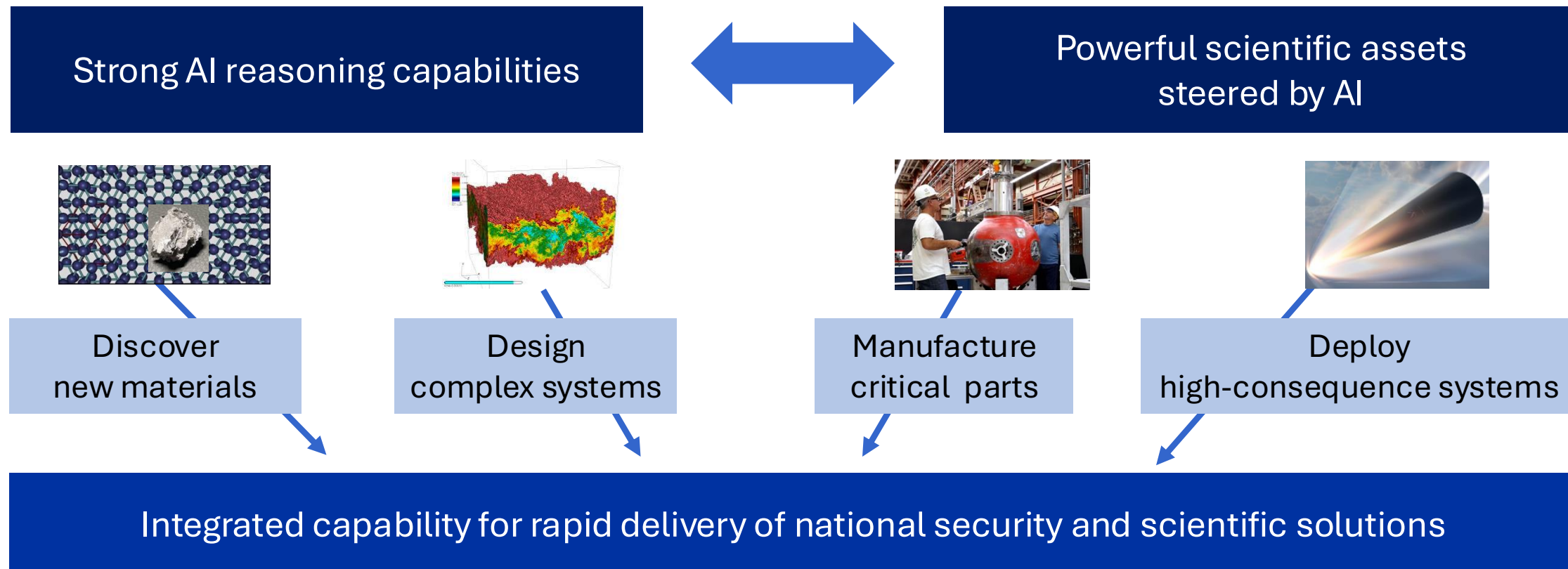
A National Security AI Platform Driving accelerated science with AI

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AI is disrupting national security science



We require concerted effort from the **national labs and the US AI ecosystem** to develop enduring national advantage

The Manhattan Project II will deliver US AI-driven innovation overmatch for national security, science, and energy missions by 2028

Theory of victory in the AI race:

Rapid AI-driven platforms for the development and production of solutions leading to worldwide security and technoeconomic advantage

Agile Deterrence

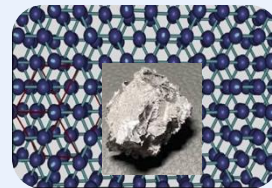
Surpass adversaries in weapon design, production, and reaction time by integrating AI, computation and physical assets



Nimble systems
Rapid response systems

Critical materials

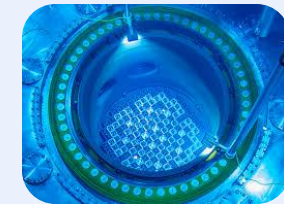
Secure leadership in material sourcing by developing innovative alternatives for rare elements



Magnets for high-consequence applications

Energy Dominance

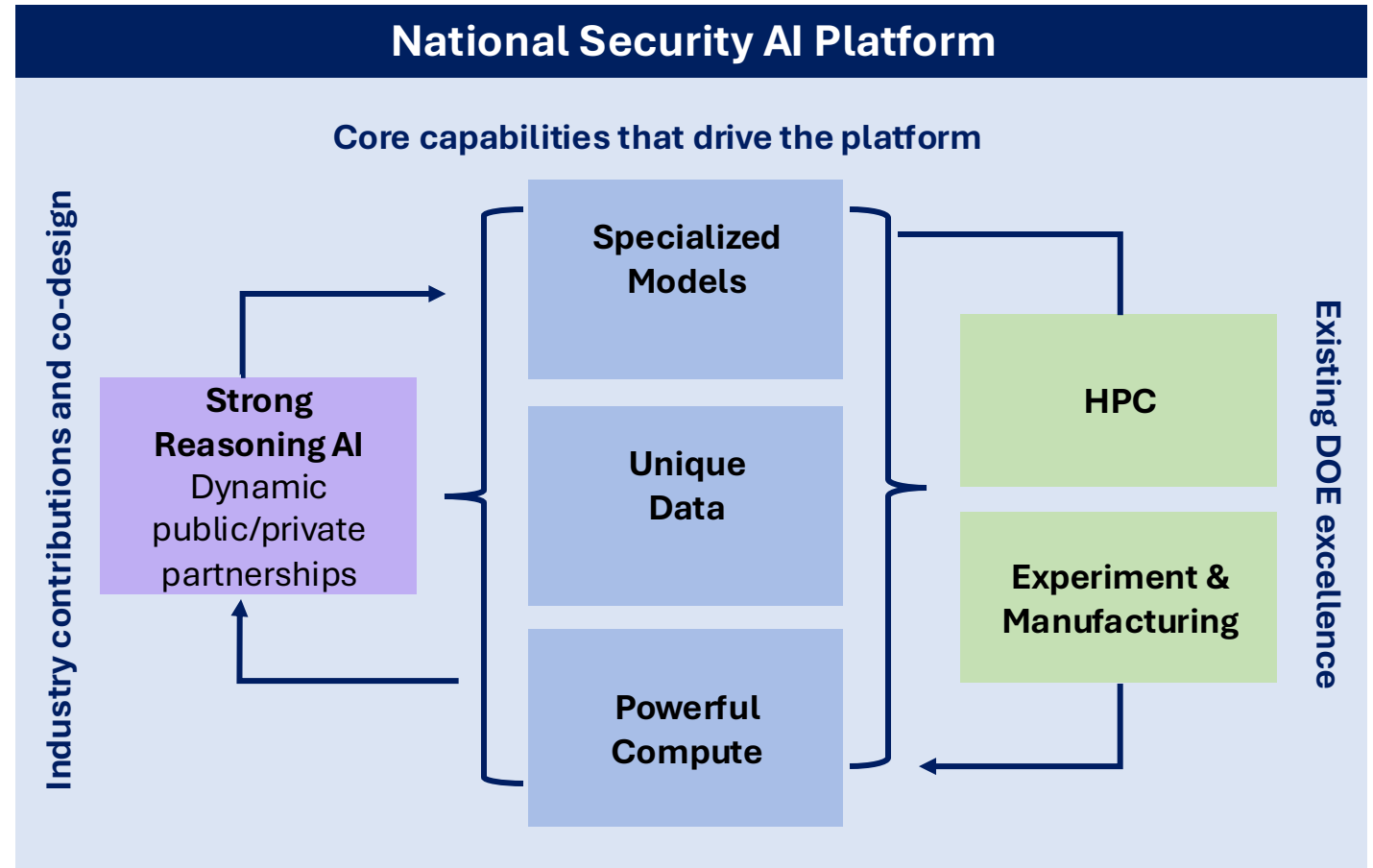
Establish energy dominance through AI-designed and AI-operated nuclear reactors



Nuclear-powered data centers behind the meter

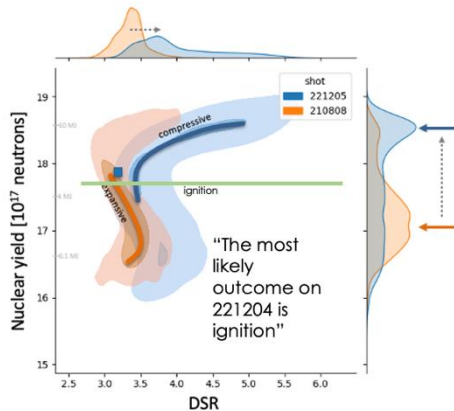
A National Security AI Platform will accelerate innovation and production across missions

- A closed loop driven by expertise and computational intelligence
- Coupling unique capabilities across sectors
- Immediate application to lighthouse national security problems



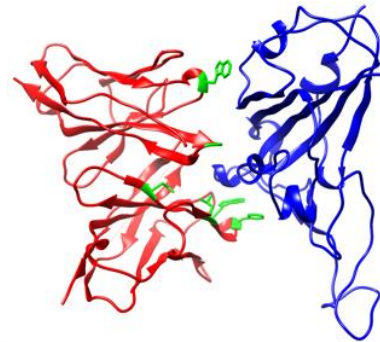
LLNL is delivering mission impact with AI expertise

Fusion ignition

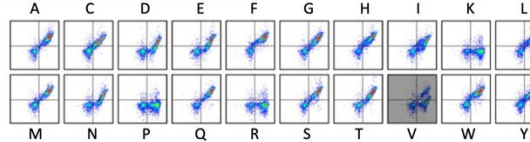


AI-driven prediction of critical systems

Biodesign

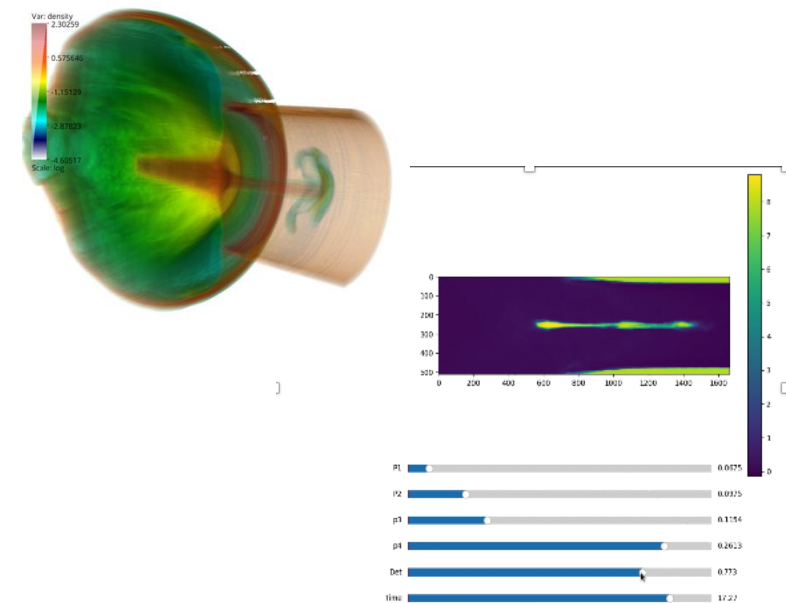


Top computationally redesigned mAb:



AI acceleration for biodefense and national security materials

Weapon design and certification



AI-enabled innovation and production

We must now scale this up for transformation of our critical missions

We are in a race, and China aims to win



- Emerging nuclear peer
- 100,000 GPUs
- Thousands of staff
- Peng Cheng and other defense AI labs

The US leads in industrial AI progress, but we are slipping behind in defense science applications

We must not do this alone

DOE starts where industry stops

Industry AI

ANTHROPIC

OpenAI

Meta



NVIDIA

Microsoft

AMD

Deep AI
reasoning

Specialized
frontier AI
models

Connections
to science
systems

Advanced
science
systems

DOE science

Lawrence Livermore
National Laboratory



Sandia
National
Laboratories

Los Alamos
NATIONAL LABORATORY

Need rapid scientific
data loops to solve
the data shortage
and improve models

The US must
build this bridge

Need frontier reasoning
models to accelerate
science and production
loops

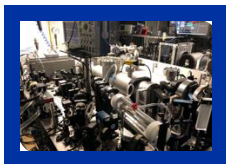
NNSA has developed mutually beneficial partnerships with key AI industry players

Self-driving Labs

ANTHROPIC

 Claude

Self-driving laser labs
AI and science at 1 Hz



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New computing opportunities



Matrix
Nvidia, Unclassified

Tuolumne
AMD, Unclassified

El Capitan
AMD, Classified

AMD 



Frontier AI for Mission

 **OpenAI**
 **NVIDIA**

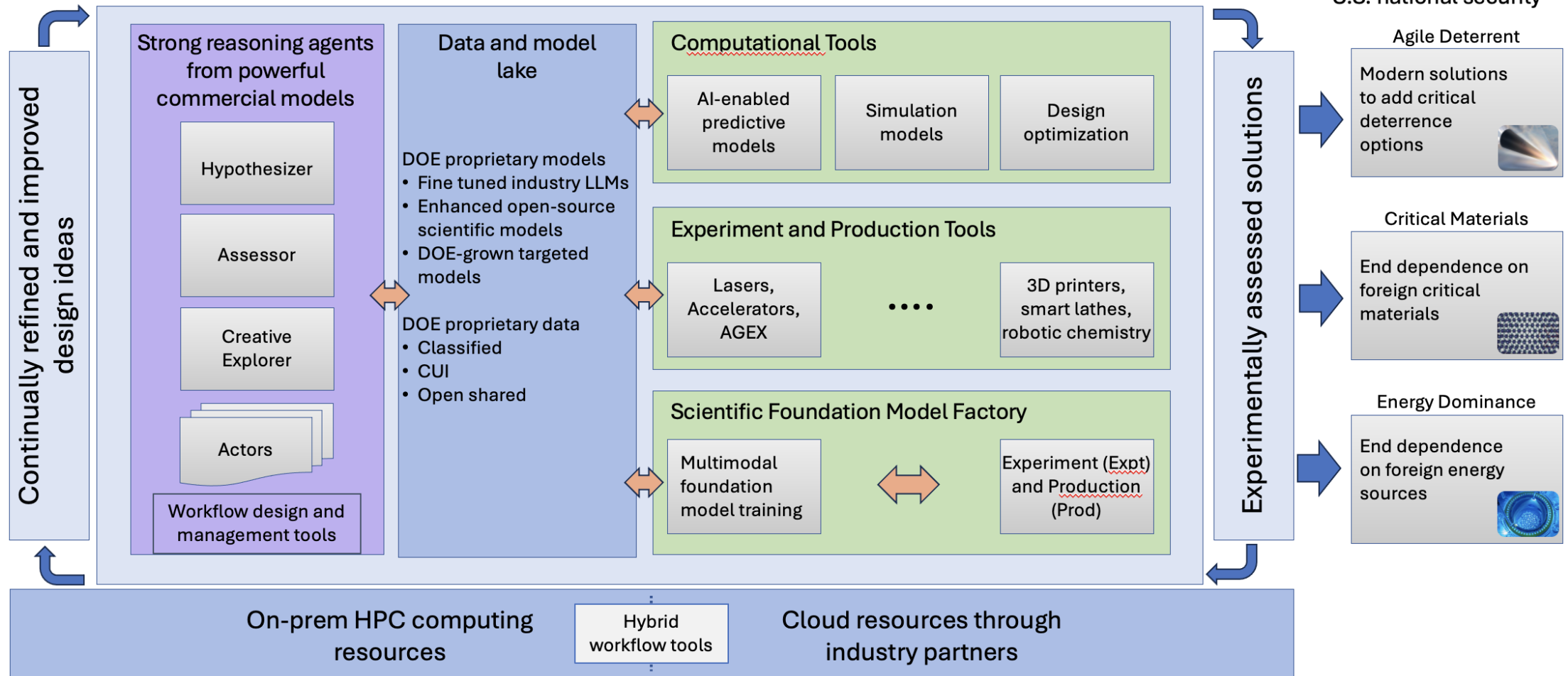


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AI Platform for self-improving feedback and accelerated solution development

Solutions to lighthouse problems provide enduring advantage for U.S. national security



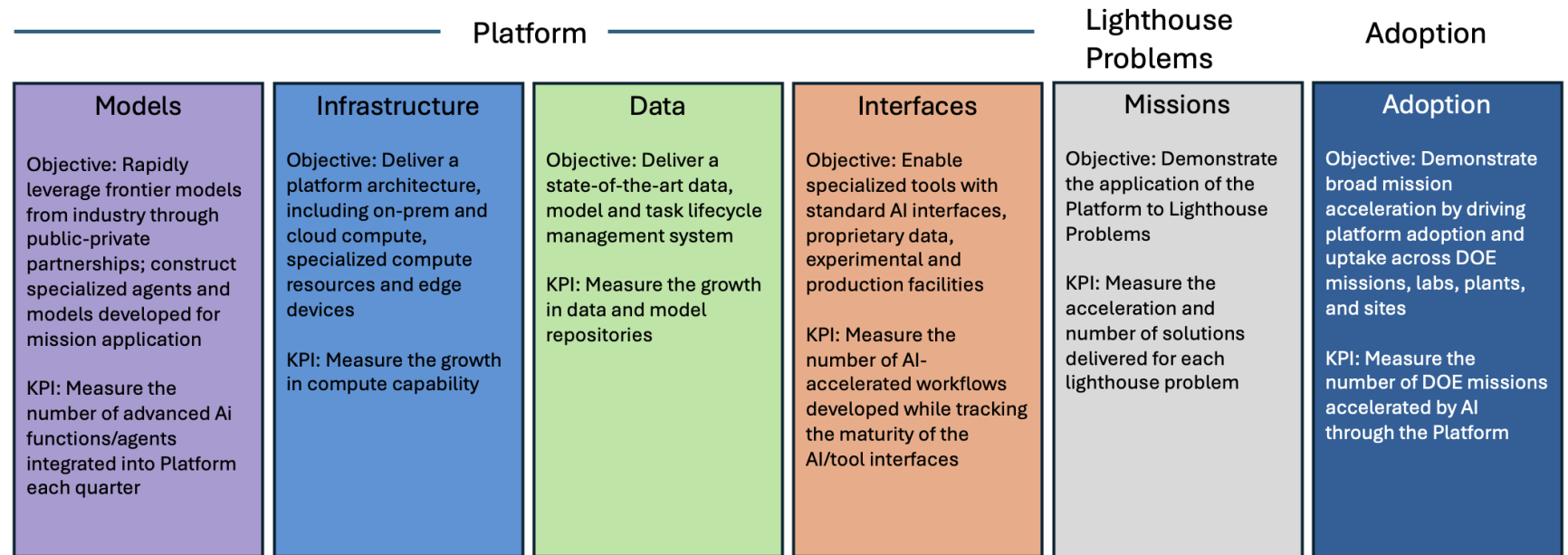
Next generation ModSim and its AI components will remain a key pillar in the AI strategy

- Simulations remain a key data source for
 - Observing otherwise inaccessible phenomena
 - Planning and interpreting experiments
 - Design optimization and planning
- Large scale 3D design ensembles depend on AI-driven scale bridging
- AI acceleration needs additional advances
 - Surrogate modeling
 - Failure detection and uncertainty quantification

Many of the key ModSim needs will not be covered by LLMs

Each module in the platform can be launched and developed by focused teams starting in FY25

- Jumpstart funds (\$115M NNSA & \$150M SC) will kick off these efforts and build a robust project framework that could be accelerated with FY27 base funding expansion
- Each module will be responsible for an early win in FY26



The Manhattan Project II can build a superior AI ecosystem through public-private partnership

National Security AI Platform

Strong AI reasoning capabilities

Novel public-private partnerships

Powerful scientific assets steered by AI

Accelerate our critical missions

Agile Deterrence

Critical Minerals

Energy
Dominance

We need executive demand for activation and funding now

Together with public and private partners we will address critical national security, science, and energy challenges

- A national AI provides a unique opportunity to connect disparate efforts as part of a general Digital Transformation
- The DOE has key capabilities and is rapidly building more
- Addressing national challenges will lead to a lasting technological advantage
- Partnerships are crucial as no single entity has sufficient expertise, enough high quality data, or compute to succeed

We can and must outcompete our adversaries

Thank you