

# PUBLIC SUBMISSION

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**Comment On:** NSF-2025-OGC-0001-0001  
Request for Information: Development of a 2025 National Artificial Intelligence Research and Development Strategic Plan

**Document:** NSF-2025-OGC-0001-DRAFT-0167  
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## Submitter Information

**Organization:** Lieberthal & Associates, LLC

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## General Comment

See attached file(s)

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## Attachments

Response to NSF AI Strategic Plan RFI\_LieberthalAndAssociates

# **Lieberthal & Associates' Response to the NSF RFI on Development of a 2025 National AI R&D Strategic Plan**

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## **Insurance Industry Transformation and Economic Resilience Perspective**

**May 29, 2025**

**Submitted by:**

Robert Lieberthal, PhD  
Founder and Senior Principal  
Lieberthal & Associates, LLC  
Pittsburgh, PA

**Docket ID:** NSF-2025-OGC-0001

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## **About Lieberthal & Associates**

Lieberthal & Associates, LLC specializes in healthcare, insurance, and nonprofit strategy with expertise in value-based models and health economics. Drawing from extensive work with insurers, employers, and government agencies, we bring insights to the challenges facing the \$1.4 trillion insurance sector.

## **Executive Summary**

The United States must prioritize the insurance industry as a critical focus for federal AI R&D investment to enhance economic resilience. Insurance represents a \$1.4 trillion sector essential to American economic stability but faces significant market challenges in unstructured data analysis, systemic shortfalls in coverage decisions, and regulatory burden requiring federal leadership.

We propose four key federal AI R&D priorities for 2025-2030: (1) claims data integration and analysis across companies; (2) insurance innovation to expand access through microinsurance and parametric coverage; (3) advanced risk modeling incorporating economic, behavioral and location data; and (4) regulatory technology development for improved oversight. Implementation requires federally facilitated data collaboratives and public-private partnerships with specific short-term (1-2 years), medium-term (3-5 years), and long-term (5+ years) objectives.

These efforts align with national priorities for maintaining U.S. leadership in AI while addressing critical challenges in economic resilience, data integration, privacy-preserving technologies, and robust decision-making under uncertainty.

## **Strategic Context: Insurance as National Infrastructure**

The insurance industry functions as a key economic engine by financing a wide range of risks, from healthcare to natural disasters. However, AI adoption within insurance remains limited compared to other sectors, primarily due to proprietary data silos and legacy claims processing systems.

## **Federal AI R&D Priorities for Insurance (2025–2030)**

### **1. Claims Data Integration and Analysis**

AI frameworks that aggregate and analyze insurance claims data across companies can identify emerging health and safety risks, detect fraud patterns, and uncover trends that improve market efficiency. Due to competitive pressures and data privacy concerns, and the need to coordinate with multiple regulators across state lines, federal coordination is essential to create secure, anonymized data-sharing platforms that protect proprietary information while delivering public benefits.

### **2. Insurance Innovation and Access Expansion**

AI applications can drive insurance innovation by enabling scalable product designs such as microinsurance and parametric coverage. These products address existing coverage gaps and expand access, supporting greater market stability and potentially improving affordability for populations and regions currently underserved by traditional insurance offerings.

### **3. Advancements in Risk Modeling and Preparedness**

Developing AI tools for comprehensive risk modeling is essential to integrate economic factors along with behavioral and location data. Improved systemic risk assessments can enable better capital allocation and coordinated responses, potentially reversing recent trends of coverage withdrawal in areas with perceived high risk, such as California, Texas, and in the Northeast.

### **4. Regulatory Technology for Oversight**

State insurance regulators require advanced AI tools to monitor complex products and business practices in real time. Federal investment can provide scalable regulatory technologies to improve solvency monitoring, market oversight, and early risk detection, thereby enhancing financial stability and consumer protection. These technologies also can lead to new business solutions for consumers and insurance companies, leading to economic development and a safer society.

### **Enabling Partnerships and Implementation**

Progress depends on a federally facilitated data collaborative that enables secure sharing of anonymized claims data to support AI model development. Regulatory sandboxes and public-private research centers will foster responsible innovation and accelerate AI advancement.

Our implementation timeline includes:

- **Short term (1-2 years):** Pilot projects for risk modeling, data-sharing frameworks, and AI applications for existing data
- **Medium term (3-5 years):** Deploying regulatory AI tools, implementing coordinated early warning detection and response systems, and scaling innovative insurance models
- **Long term (5+ years):** Real-time national risk monitoring and positioning the U.S. as a global leader in insurance AI

### **Alignment with National AI R&D Priorities**

The advancement of AI within the insurance sector addresses critical economic resilience challenges and serves as a catalyst for foundational AI research in algorithms, data integration, privacy-preserving technologies, and robust decision-making under uncertainty. These efforts align with national priorities to maintain U.S. leadership in AI by pushing the boundaries of data-sharing architectures and AI system robustness. Investing in AI tools for regulatory oversight and market innovation supports workforce productivity by augmenting human expertise and creating new capacities within public and private sectors. Such investments in infrastructure and workforce development are vital for sustaining long-term innovation and national competitiveness in AI research and deployment.

### **Conclusion**

Federal investment in insurance AI R&D will strengthen risk management, improve regulatory oversight, and foster product innovation—enhancing economic stability and potentially expanding access to affordable insurance coverage in critical markets. By establishing the United States as a global leader in insurance AI innovation, we can create a resilient economy that benefits all Americans.

### **Addendum Attached (Capability Statement, Resume)**

# Capability Statement

## Lieberthal & Associates, LLC

Pittsburgh, PA, 15217

### Company Profile

Lieberthal & Associates delivers cutting-edge economic and policy analysis to help federal agencies design, evaluate, and scale impactful healthcare programs.

### Core Competencies

Capability Area	Description
Health Economics	Develop comprehensive health economic models that quantify both clinical and financial impact of technologies and interventions.
Value-Based Care	Build and implement sustainable business models for health and healthcare programs. Design health reimbursement approaches
Modeling and Analytics	Design and deploy predictive models and econometric analyses to improve forecasting and optimize resource allocation decisions.
Healthcare Policy	Evaluate healthcare program and policy impact using rigorous methodologies for decision-making and iterative improvement.
AI/ML in Healthcare	Apply advanced AI/ML techniques to extract actionable insights from complex healthcare data, supporting fraud detection, process improvement, and clinical decision support.
Partnering with:	Actuaries, doctors, project managers, data scientists, lawyers, and health policy experts.

### Differentiators:

- **Multidisciplinary team** including economists, actuaries, physicians, and data scientists.
- **Public-private translation** of economic modeling tools to government policy design.
- **Cross-sector expertise** in healthcare, insurance, transportation, and energy.

Agency and Project	Approach
National Institutes of Health / National Institutes of Aging AD/ADRD Real-World Data Expert Panel	Using real-world data rigorously, with a proven process for expert validation and stakeholder engagement.
Advanced Research Projects Agency for Health Cost of Goods Sold for Cell and Gene Therapies	Combine economic modeling expertise with technical capabilities in coding, life sciences, and analytics
CMS Center for Consumer Information and Insurance Oversight Marketplace Forecast	Models that blend behavioral economics with actuarial logic—going beyond standard actuarial projections.
CMS Center for Clinical Standards and Quality Acute Care Hospital at Home Analysis	Design evaluations with stakeholder value and long-term outcomes to produce evidence for policymakers.



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# ROBERT D. LIEBERTHAL, PhD

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Pittsburgh, PA

Lieberthal & Associates, LLC

## STRATEGIC HEALTH ECONOMIST

### Designing Models that Maximize Value in Health and Spending

Bringing expertise in cost analysis, health technology assessment (HTA), and global health economics. Skilled at translating complex, ambiguous problems into clear, actionable solutions that guide smarter investments, improve outcomes, and launch innovative solutions. Thrives in independent, data-driven work environments while bringing clarity and focus to cross-functional teams. Known for a disciplined, analytical approach, strong communication skills, and a collaborative spirit that drives both efficiency and impact.

## EXPERTISE

**Health Economics | Modeling & Analytics | Healthcare Policy | Value-Based Care**  
**AI/ML in Healthcare | Research Leadership | Strategic Advisory | Cross-Functional Collaboration**

## EDUCATION

**Doctor of Philosophy (PhD)**, Health Economics,  
University of Pennsylvania - Wharton School, Philadelphia, PA  
**Bachelor of Arts (BA)**, Mathematics, Boston University, Boston, MA

## EXPERIENCE

**LIEBERTHAL & ASSOCIATES, LLC**, Pittsburgh, PA

2006 – Present

### Founder and Senior Principal

Develop and oversee strategic consulting and research projects across health economics, HTA, and data analysis for healthcare and industry clients. Provide subject matter expertise (SME) and actionable insights through predictive modeling, funded research, and econometric analysis to support new products and innovative healthcare solutions.

- Wrote "What Is Health Insurance (Good) For? An Examination of Who Gets It, Who Pays for It, and How to Improve It", a textbook published by Springer (<https://link.springer.com/book/10.1007/978-3-319-43796-5>).
- Built HTA model for value of a new digital health technology, identifying \$1B+ in savings from reductions in prescription drug abuse.
- Designed ML methods to identify healthcare fraud for the Society of Actuaries. Matched physician-expert assessment, with demonstrated savings of 6 months per claim (2M total claims reviewed for fraud, waste, and abuse) and up to \$160M in total claims review costs.
- Collected global data and built econometric models to identify cost control benchmarks for insurance companies, reducing forecast errors and improving actuarial pricing.

**THE MITRE CORPORATION**, Baltimore, MD

2019 – 2025

### Senior Principal Health Economist

2024 – 2025

Planned and executed technical projects within Health Center and Corporate Internal Research and Development (IR&D) program. Provided SME and strategic analysis to research projects as an individual contributor.

- Built cost of goods sold (CoGS) model to determine key drivers of the cost of mRNA and pDNA based therapies. Identified modifiable high-cost drivers, enabling sponsor to invest in cost reductions for these components of the production process.
- Investigated validated insurance industry approaches to risk analysis and management. Transferred key technologies from health insurance industry to federal government and launched public / private partnership for improving on pilot mental health.

### Department Manager

2023 – 2024

Led business development, quality assurance (QA), and contracting for \$25M health policy and operations work program. Managed 17 health and healthcare experts.

**THE MITRE CORPORATION** (continued)

- Enabled technical and operational advances in artificial intelligence (AI), robotic process automation, and change management for federal health departments.
- Shaped and won multimillion-dollar program evaluation to determine effectiveness of CMS Acute Hospital Care at Home (AHCAH) program. Evidence on outcomes improvements and cost savings generated led to 5-year program extension.

**Group Leader****2020 – 2023**

Provided SME and championed health economics capability. Hired, developed, and mentored a group of 14 diverse staff members.

- Developed a model to predict signups in Affordable Care Act (ACA) health insurance marketplaces. Predicted enrollment of 12M beneficiaries with over 99% accuracy and earned 4.9 out of 5 on Contractor Performance Assessment Reporting System (CPARS) scores.
- Led multidisciplinary team that synthesized real-world data on dementia patients and families and validated results with expert panel. Launched \$350M real world data (RWD) platform based on 7 clinical, economic, and social data domains.

**Principal Health Economist****2019 – 2023**

Shaped and directed client-funded and internal research and development projects with teams of up to 100 members and budgets up to \$10M. Implemented statistical and econometric analyses and managed multidisciplinary project teams.

- Applied ML / AI tools to state all-payer claims database to generate “red flags” that a given individual’s death had not been recorded. Devised method for identifying death based on ICD-10 and CPT codes.
- Implemented economic analysis to determine market size for radioisotope-based diagnostic tests in oncology and cardiovascular disease. Enabled patient access to medical procedures and achieved national security outcomes.

**PCRM SYSTEMS, INC.** (Early-stage start-up), Alexandria, VA**2018 – 2019****Chief Financial Officer and Founder**

Implemented strategic financial planning, budget development, and financial projections. Prepared business plan and ROI analysis for investors and funders.

- Established ownership structure to attract early investment and foster long-term growth. Applied cap table model to establish \$2.5M valuation and 40% return on investment (ROI) for investors.

**UNIVERSITY OF TENNESSEE**, Knoxville, TN**2016 – 2019****Assistant Professor**, Department of Public Health

Principal investigator of health economics and policy lab. Delivered courses at graduate levels in person and online.

- Submitted and won federal and private proposals for \$2M+ in research funding.
- Built ROI model for primary care practice transformation for US Agency for Healthcare Research and Quality (AHRQ). Patient-centered medical home (PCMH) designation for small practices led to better care and higher revenues.
- Won College of Education, Health, and Human Sciences Dean’s Rising Star Award in recognition of media appearances to explain health policy issues for NBC-affiliate WBIR 10News and Inside Tennessee programs and ABC-affiliate WATE News.

**EARLIER RELEVANT EXPERIENCE**

**THOMAS JEFFERSON UNIVERSITY**, Philadelphia, PA, **Assistant Professor, Health Economist**

**PRICEWATERHOUSECOOPERS, LLP**, New York, NY, **Actuarial Benefits Consultant**

**CREDIT SUISSE FIRST BOSTON**, London, UK, **Strategic Planning and Implementation Analyst**