

U.S. DEPARTMENT OF LABOR  
WASHINGTON, DC 20210

# **Gold Standard Science**

## **Initial Implementation Report**

U.S. Department of Labor



22 August 2025

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**Note:** *Some of the documents cited in this report are currently undergoing revision to remove unconstitutional language introduced under the prior administration. Updated versions will be posted to the same URLs as they are finalized. We appreciate your understanding as the Department ensures all materials comply with current legal and constitutional standards.*

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## Introduction

In response to the June 2025 guidance from the White House Office of Science and Technology Policy (OSTP) on implementing [\*Gold Standard Science \(GSS\)\*](#), this report describes how the U.S. Department of Labor (DOL) is integrating the nine tenets of GSS into its scientific activities. These tenets—reproducibility, transparency, communication of uncertainty, collaboration and interdisciplinarity, skepticism of findings and assumptions, falsifiability of hypotheses, unbiased peer review, acceptance of negative results as positive outcomes, and absence of conflicts of interest—are essential to ensuring that federal science is rigorous, credible, and policy-relevant.

DOL's scientific work spans economics, statistics, program evaluation, regulatory analysis, and public health. It is carried out across multiple agencies and offices. DOL's approach to science is mission-driven, problem-focused, and dedicated to protecting the safety and dignity of work, advancing opportunity for workers, and supporting a thriving, competitive economy. Scientific rigor and integrity are core to the Department's responsibilities, particularly in statistical production, grantmaking, research evaluation, and regulatory development.

This report is organized around five domains of DOL's scientific activity:

1. Labor Market Data
2. Program Evaluation
3. Regulatory Impact Analysis
4. Data Governance and Infrastructure Modernization
5. Policy Research, Innovation, and Science Leadership

### 1. Labor Market Data

#### **(Lead: Bureau of Labor Statistics)**

The Bureau of Labor Statistics (BLS) is the Department's principal statistical agency and a cornerstone of federal economic measurement. It produces high-frequency, policy-relevant data on employment, wages, prices, productivity, workplace safety, and other labor market indicators. Key programs include the Current Population Survey, Current Employment Statistics, Consumer and Producer Price Indexes, Occupational Employment and Wage Statistics, and the Survey of Occupational Injuries and Illnesses. BLS also collects data on union membership, unemployment durations, and time use.

As a federal statistical agency, BLS adheres to OMB Statistical Policy Directives and is subject to periodic methodological review and external peer validation. Its work supports

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evidence-based decision-making across government, industry, the research community, and the public. In alignment with the OSTP's *Gold Standard Science* framework, BLS has evaluated its policies and procedures across the nine tenets of scientific excellence.

### 1.1 Reproducibility

BLS maintains rigorous protocols to ensure the reproducibility of its statistical outputs. All BLS programs have clear, standardized protocols, comprehensive documentation, and robust statistical methods. While confidentiality restrictions limit the availability of raw data, some microdata access is available to approved researchers, which allows for the reproduction of published estimates. In addition, several BLS programs provide public use microdata files.<sup>1</sup>

BLS has been transitioning the Restricted Data Access program to a Virtual Data Enclave, with the goal of expanding secure remote access to restricted BLS data while protecting confidentiality and improving researcher efficiency. As of June 5, 2025, however, BLS has suspended access to most restricted data for the foreseeable future, citing limited resources and compromised ability to support new or existing data projects except those using only restricted National Longitudinal Survey of Youth data. The Department is exploring options to work with BLS to ensure that reproducibility and secure data access remain core priorities in future planning. The suspension of restricted data access underscores a significant vulnerability: a stronger framework for coordination with DOL is needed to ensure that limited resources do not compromise a foundational tenet of Gold Standard Science.

### 1.2 Transparency

Transparency is a central principle of BLS operations. The agency provides extensive documentation of data collection instruments, sampling frames, estimation procedures, and revisions through its Handbook of Methods, program web pages, and technical notes.<sup>2</sup> BLS discloses known limitations of its datasets, including nonresponse bias, sampling error, and periodic benchmarking adjustments, ensuring users understand the strengths and constraints of each product. For example, where appropriate, BLS applies imputation methods to address missing or inconsistent data, and documents these procedures to clarify how they may affect estimates beyond sampling error.

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<sup>1</sup> See: [BLS Researcher Access](#); [CPS Microdata Access](#); [BLS Time Use Survey Microdata](#).

<sup>2</sup> See: [BLS Handbook of Methods](#).

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There are some limits on transparency that could warrant review and that may not be necessary to safeguard data privacy. For example, seasonal adjustment methodologies are publicly documented, though BLS does not routinely release the exact specification files used for each series. As a result, the adjustment process is transparent at the framework level but not always fully reproducible at the series level. DOL recommends that BLS pursue greater disclosure of methodological details—such as specification files—where feasible, balancing maximum transparency with the continued protection of confidential respondent data.

### 1.3 Communication of Error and Uncertainty

BLS reports confidence intervals, standard errors, and other uncertainty measures for most major estimates. For example, the monthly Employment Situation release includes charts showing confidence intervals around industry-level employment changes.<sup>3</sup> Internal research teams also investigate the statistical properties and assumptions underlying estimation models, and publish findings on benchmark revisions, imputation error, and other methodological concerns.<sup>4</sup> These practices enhance the Department’s ability to quantify and clearly communicate the limits of inference from its data.

At the same time, there are concerns that certain measures may be subject to systematic bias or measurement error that is not fully captured in current documentation. For example, the current CES “birth–death” model relies on historical business formation patterns that can be different during turning points in the economy, leading to large benchmark revisions. Similarly, while core household surveys collect data on nativity, independent population estimates used to produce labor force estimates do not account for the native- and foreign-born. This puts limitations on the usefulness of level estimates like population and number of people in the labor force by nativity; however, rates and ratios, such as the labor force participation rate, are much less affected. Greater transparency about these limitations and clearer communication of their potential effects on published estimates would strengthen user confidence in BLS products.

### 1.4 Collaboration and Interdisciplinarity

BLS employs a multidisciplinary workforce—including economists, statisticians, survey methodologists, and information technology specialists—who work collaboratively to design and manage data systems. The agency actively engages with external experts

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<sup>3</sup> See: [Confidence Intervals Chart](#).

<sup>4</sup> See: [Benchmarking and Methodology Research](#); [CPS Reliability Documentation](#); [LAUS Standard Errors](#); [Office of Survey Methods Research](#).

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through technical working groups and federal-state cooperative programs. For example, BLS supports State Labor Market Information Offices through policy councils and joint governance structures. It also contributes to international statistical forums and collaborates on cross-agency methodological harmonization.<sup>5</sup>

Even with these efforts, greater collaboration with states could materially improve BLS statistics. More timely reporting of unemployment insurance wage records, standardized inclusion of occupational codes, and integration with state-administered workforce data would enhance both accuracy and efficiency. DOL is exploring ways to provide a structured venue for sustained state-federal coordination on labor market data modernization.

### 1.5 Skepticism of Findings and Assumptions

BLS institutionalizes constructive skepticism through dedicated research units that challenge and refine core assumptions underlying its estimates. Research economists and statisticians routinely conduct replication studies, sensitivity analyses, bias assessments, and pilot tests of alternative methodologies. These efforts often lead to improvements in data quality, collection procedures, and estimation models. For example, BLS has conducted empirical comparisons of contact protocols to reduce nonresponse and improve efficiency in data collection.<sup>6</sup> Ongoing challenges highlight the limits of incremental testing alone. Broader structural changes—such as supplementing surveys with administrative data or commercial digital sources—are increasingly necessary to address the scale of nonresponse bias and rising collection costs. When such data sources exist, using them can pose new problems, however, such as quality, coverage, continued availability, and access.

### 1.6 Falsifiability of Hypotheses

The methodological research agenda at BLS is grounded in theory-driven, testable hypotheses. New initiatives—including changes to sampling, editing, or imputation procedures—are subjected to experimental tests or simulations designed to detect measurable differences in outcomes. Structured field experiments, such as A/B tests of collection strategies, are regularly used to validate improvements.<sup>7</sup> These activities ensure that scientific claims embedded in BLS methodologies can be systematically challenged and revised based on evidence.

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<sup>5</sup> See: [BLS Regional Councils](#); [International Technical Cooperation](#).

<sup>6</sup> See: [Price Index Research](#); [Office of Survey Methods Research](#); [Economic Research Staff](#).

<sup>7</sup> Example: [Field Experiment on Contact Protocols](#).



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### 1.7 Unbiased Peer Review

BLS staff contribute to and participate in peer-reviewed scholarly publishing, with many researchers serving as journal editors or referees. In addition to external academic review, BLS research is frequently subject to audits and evaluations by oversight bodies, including the Government Accountability Office (GAO) and the Department of Labor's Office of Inspector General.<sup>8</sup> This multilayered review structure helps safeguard against methodological bias and supports continuous improvement in program design.

### 1.8 Acceptance of Negative Results as Positive Outcomes

Consistent with the principles of scientific integrity, BLS publishes research findings even when results are null or contradict prior expectations. Comparative studies of alternative methods often identify techniques that fail to improve data quality or reduce costs.<sup>9</sup> These negative results are disseminated through outlets such as the *Monthly Labor Review*, the BLS website, and peer-reviewed journals, contributing to the broader body of scientific knowledge and informing future methodological decisions.

### 1.9 Absence of Conflicts of Interest

All research conducted by BLS personnel is carried out as part of their official duties as federal employees. Staff do not accept external funding, consulting fees, or other forms of compensation from outside entities. This structure helps safeguard the agency's work from financial or institutional conflicts of interest so that it remains solely focused on the public interest.

## 2. Program Evaluation

### **(Lead: Chief Evaluation Office)**

The Chief Evaluation Office (CEO), housed within the Office of the Assistant Secretary for Policy (OASP), leads the Department of Labor's efforts to generate independent, methodologically rigorous evidence on the effectiveness of its programs and policies. CEO works closely with all DOL agencies to design, sponsor, and oversee evaluations that align with Departmental priorities and the Secretary's strategic goals.

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<sup>8</sup> See: [GAO Review of BLS Programs; List of BLS Authors in Peer-Reviewed Publications.](#)

<sup>9</sup> See: [MLR: Alternative Data Sources in the CPI; MLR: Comparison of Work-at-Home Estimates.](#)

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Most CEO evaluations are conducted by independent, third-party research organizations, selected through competitive procurement.<sup>10</sup> These evaluations include randomized controlled trials, quasi-experimental impact studies, implementation research, and cost-benefit analyses. All projects adhere to the Department's Evaluation Policy, which emphasizes rigor, relevance, transparency, independence, and ethics. CEO maintains a public library of current and completed studies organized by topic and program area and disseminates results through reports and briefings.

In addition to formal evaluations, CEO helps DOL agencies test behaviorally informed strategies aimed at improving program effectiveness and user experience. These rapid-cycle experiments are typically low-cost and designed to optimize communications, application processes, or compliance interventions. CEO also provides public-facing resources to help practitioners incorporate behavioral science into program design.

Through these capabilities, CEO supports the Department's commitment to evidence-based policymaking, continuous learning, and program accountability. This section describes how CEO integrates Gold Standard Science into program evaluations and knowledge dissemination.

### 2.1 Reproducibility

CEO requires that all evaluations using experimental or quasi-experimental methods include pre-specified design plans that detail research hypotheses, data sources, analytic methods, and outcome measures. These Evaluation Design Pre-Specification Plans are publicly posted to promote transparency and reproducibility.<sup>11</sup> CEO also provides technical standards through its Checklist for Evaluation Products, which outlines expectations for documenting methods, data analysis, and findings. When appropriate, CEO releases public-use data files and code on the DOL website and restricted-use files through the Department's Restricted Use Data Program.

### 2.2 Transparency

Transparency is embedded in DOL's evaluation policy and culture. CEO publishes all final evaluation reports online, regardless of findings, and requires contractors to disclose methods, limitations, and funding sources.<sup>12</sup> CEO makes evaluation data available either as public-use files or through the Restricted Use Data Program, as appropriate. Transparency is further strengthened through CEO's Clearinghouse for Labor Evaluation and Research

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<sup>10</sup> See: [CEO Research Development Process](#)

<sup>11</sup> See: [Example 1](#); [Example 2](#); [Example 3](#).

<sup>12</sup> See: [CEO Website](#).

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(CLEAR), a systematic evidence review platform that summarizes, rates, and categorizes labor-related studies.<sup>13</sup>

### 2.3 Communication of Error and Uncertainty

CEO evaluations explicitly quantify uncertainty through confidence intervals, robustness checks, and other statistical metrics. These requirements are codified in CEO's technical checklists and enforced through third-party review.<sup>14</sup>

### 2.4 Collaboration and Interdisciplinarity

CEO engages external experts throughout the evaluation lifecycle via Technical Working Groups (TWGs), which include scholars and practitioners in economics, statistics, public policy, health, and data science. These groups advise on study protocols, data collection, and analytic strategies.<sup>15</sup> CEO also convenes expert roundtables to assess the current state of knowledge on selected topics. It works closely with other federal agencies, such as in the joint evaluation of the Retaining Employment and Talent After Injury/Illness Network (RETAIN) demonstration with the Social Security Administration and the Office of Disability Employment Policy. CEO participates in interagency workgroups, including the Federal Employment, Training, and Education Research Working Group, which shares information on research methods, initiatives, and findings. CEO also supports interaction with the broader scientific community through publishing in peer-reviewed outlets, presenting at professional meetings, and releasing public-use datasets.

### 2.5 Skepticism of Findings and Assumptions

DOL's evaluation policy promotes critical scrutiny of findings, requiring scientific products to include disclaimers, sensitivity analyses, and discussions of limitations. CEO employs iterative review processes and consults independent reviewers and TWGs to challenge assumptions throughout the evaluation cycle.<sup>16</sup> CEO also conducts meta-analyses to assess patterns, biases, and competing hypotheses across studies. CLEAR complements this effort by validating and synthesizing evidence from the research literature. Its causal evidence guidelines provide a rigorous standard for evaluating claims of causality and have shaped best practices across the evaluation field.

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<sup>13</sup> See: [CLEAR Website](#).

<sup>14</sup> See: [CEO Resources](#).

<sup>15</sup> See: CEO Website, [About CEO](#).

<sup>16</sup> See: CEO Website, [About CEO](#).

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### 2.6 Falsifiability of Hypotheses

CEO-funded studies test explicit hypotheses using experimental and quasi-experimental designs, typically employing regression-based approaches to evaluate the statistical significance of estimated effects. All CEO causal studies must register their design in advance and publish Evaluation Design Pre-Specification Plans. These plans describe study methods, hypothesis tests, comparison groups, and anticipated challenges. Resources such as CLEAR guidance and the CEO checklist help ensure that evaluations meet these standards.

### 2.7 Unbiased Peer Review

Peer review is a cornerstone of CEO's quality assurance process. Evaluation plans and reports undergo internal and external review, including third-party technical assessments.<sup>17</sup> CEO enforces high standards for scientific review and independence, and ensures research is judged based on merit and methodological rigor. Its multi-step review framework guards against influence from program staff or political leadership.<sup>18</sup>

### 2.8 Acceptance of Negative Results as Positive Outcomes

CEO mandates publication of findings regardless of their statistical significance or direction. Null and negative results are routinely reported and synthesized in CLEAR reviews.<sup>19</sup> CEO's Evaluation Design Pre-Specification Plans are posted publicly before studies begin to prevent selective reporting and ensure methodological transparency. CEO checklists reinforce this norm by requiring disclosure of inconsistent results, limitations, and alternative interpretations. This commitment is foundational to DOL's evaluation culture.

### 2.9 Absence of Conflicts of Interest

CEO's evaluation procedures require disclosure of potential conflicts by staff, reviewers, and contractors. Contracts include standard language prohibiting assignments that could create an appearance of bias.<sup>20</sup> CEO also discloses funding sources in all reports and uses competitive procurement to ensure that evaluations are awarded to qualified, independent researchers.

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<sup>17</sup> See: [Evaluation Policy](#).

<sup>18</sup> See: [CEO Research Development Process](#).

<sup>19</sup> See: [CLEAR Website](#); [Evaluation Policy](#), "Transparency" section.

<sup>20</sup> See: [Evaluation Policy](#), "Independence" section.

### 3. Regulatory Impact Analysis

**(Leads: Office of the Assistant Secretary for Policy (OASP), Employment and Training Administration (ETA), Occupational Safety and Health Administration (OSHA), Wage and Hour Division (WHD), Employee Benefits Security Administration (EBSA), Mine Safety and Health Administration (MSHA), Office of Federal Contract Compliance Programs (OFCCP), Office of Disability Employment Policy (ODEP))**

Regulatory Impact Analysis (RIA) is a cornerstone of scientific rigor and transparency in DOL rulemaking. RIAs are required under Executive Orders 12866 and 13563 for all “significant” and “economically significant” rules. They are designed to assess the costs, benefits, and alternatives to regulatory action, and provide an evidence-based rationale that is testable and transparent. DOL’s guidelines require that RIAs be methodologically rigorous, clearly documented, and reviewed through a combination of internal and external processes embody the principles of Gold Standard Science in assessing costs, benefits, risks, and alternatives.

#### 3.1 Reproducibility

RIAs follow a structured analytical framework that includes consistent modeling procedures, baseline selection, incremental cost estimation, and benefit quantification. These steps are outlined in DOL’s internal RIA Guidelines and supplemented by standardized checklists. The Department strives to incorporate sensitivity testing and model transparency, which enable independent replication by internal reviewers and external stakeholders.

#### 3.2 Transparency

DOL publishes its RIAs—including supporting technical appendices, data sources, and methodological details—alongside proposed and final rules in the Federal Register and at regulations.gov. These materials allow the public to evaluate how assumptions were applied and how conclusions were derived, in line with the Department’s commitment to open government.

#### 3.3 Communication of Error and Uncertainty

DOL RIAs routinely include scenario modeling and sensitivity analyses to reflect uncertainty in compliance behavior, industry response, and health outcomes. For example, OSHA and WHD often present multiple cost and benefit scenarios to reflect uncertainty regarding compliance behavior, industry variability, and health outcomes. Discount rates of both 3% and 7% are applied per OMB Circular A-4 to reflect opportunity costs for consumption and capital in the private sector.

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A recurring challenge in estimating the costs and benefits of proposed regulations is that they often address novel or emerging issues for which there are no directly applicable studies in the academic or policy literature. As a result, analyses must rely on assumptions about behavioral responses, implementation timelines, and indirect or downstream effects—introducing additional uncertainty into quantitative estimates. Agency and OASP economists draw on available empirical evidence, related case studies, and expert judgment to construct reasonable assumption ranges and bound the analysis accordingly. Where data do not allow for quantitative estimates, agency and OASP economists include qualitative discussions to describe the impacts. To further strengthen consistency, the Department is exploring development of a shared labor market simulation model.

### 3.4 Collaboration and Interdisciplinarity

RIA development draws upon economic, legal, health science, actuarial, and engineering expertise. Program agencies work with OASP economists to ensure that analyses are grounded in the best available data and disciplinary methods. OSHA, for instance, integrates detailed exposure-response assessments developed in partnership with NIOSH and other scientific agencies.

### 3.5 Skepticism of Findings and Assumptions

RIAs undergo internal reviews within OASP, which can involve multiple iterations and red teaming of key assumptions. The Department welcomes public comment on every aspect of its proposed rules, including the assumptions and methodologies used in accompanying RIAs. These comments frequently identify data sources, alternative modeling approaches, or practical considerations that inform revisions to both the final rule and its economic analysis.

Retrospective evaluations are occasionally undertaken to compare projected outcomes with observed post-implementation results. These evaluations help assess the accuracy of key assumptions and improve the quality of future RIAs. To promote accountability and continuous improvement, retrospective evaluation should become standard practice—especially in cases where realized costs or benefits diverge significantly from projections. Paired with a common labor market simulation model, these efforts would help ensure more consistent forecasting and build public trust in the rulemaking process.

### 3.6 Falsifiability of Hypotheses

Each RIA includes a formal statement of need that identifies the market failure or systemic problem the regulation aims to correct (e.g., externalities, information asymmetries, labor

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market distortions). This justification is paired with causal logic linking the rule to measurable outcomes, enabling ex post testing of rule effectiveness.

### 3.7 Unbiased Peer Review

All RIAs for “significant” and “economically significant” rules are reviewed by the Office of Information and Regulatory Affairs (OIRA) and subject to public comment through the notice-and-comment rulemaking process. DOL incorporates substantive comments into final rule RIAs and, in some cases, seeks external technical peer review (e.g., OSHA health risk assessments, EBSA actuarial inputs).<sup>21</sup>

### 3.8 Acceptance of Negative Results as Positive Outcomes

DOL has revised, delayed, or withdrawn proposed rules when evidence suggests that projected benefits do not justify costs, or when stakeholder feedback challenges key assumptions. Changes from proposed rules to final rules based on updated analysis are documented in preambles and agency decision records.

### 3.9 Absence of Conflicts of Interest

RIA development is conducted by federal staff who are subject to strict ethics rules and standards of professional conduct. Analyses are typically developed by interdisciplinary teams of economists and subject-matter experts, which provides internal checks and reduces the likelihood that any single individual could unduly influence the outcome. Draft RIAs undergo multiple layers of internal vetting within DOL, including legal review by the Office of the Solicitor and scrutiny by the OASP, before being submitted to the OIRA for interagency review.

The potential for judicial review further reinforces analytic integrity. If a rule is challenged in court, the Department must demonstrate that its assumptions were reasonable and supported by evidence. Analyses that appear unbalanced or speculative can undermine the Department’s credibility and threaten the legal durability of the rule. Together, internal safeguards paired with the external discipline imposed by judicial review and litigation risk help ensure that DOL’s regulatory analysis is conducted free from conflicts of interest and insulated from political interference.

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<sup>21</sup> OIRA and public comment procedures under [EO 12866](#).



## 4. Data Governance and Infrastructure Modernization

### **(Leads: Office of the Assistant Secretary for Policy (OASP), Office of Enterprise Data and Analytics (OEDA))**

The Office of Data Governance (ODG), established by Secretary's Order 02-2019, is responsible for treating DOL data as a strategic asset—maximizing its accuracy, usefulness, privacy protection, and availability in alignment with the Foundations for Evidence-Based Policymaking Act. ODG oversees the DOL Data Governance Board and manages agency-wide coordination of data lifecycle policies, open data initiatives, and disclosure avoidance practices.

However, internal assessments and cross-agency consultation have revealed that DOL's current data infrastructure remains fragmented and often insufficient to support advanced analytics, AI deployment, or efficient interagency evidence-building. To address these gaps, the Department is implementing a series of structural reforms:

- Elevating ODG into the Office of Enterprise Data and Analytics (OEDA) encompassing a Division of Data Governance and a Division of Data Analytics, with expanded leadership and scope;
- Creating a unified Chief Data and AI Officer (CDAIO) role to integrate AI oversight into the Department's data strategy<sup>22</sup>;
- Transferring the Data Analytics Unit from the Chief Evaluation Office to the new OEDA to enhance analytical capability and cross-cutting support;
- Investing in enterprise-wide infrastructure such as AI-ready cloud platforms, automated metadata tools, and a modern data cataloging system.

This reorganization is expected to foster cross-agency collaboration, reduce redundancy, and improve transparency. It will also accelerate the Department's ability to respond to emerging labor market challenges, support program evaluations, and deliver greater value to the American public. The section below outlines how the Department's data modernization strategy aligns with the principles of scientific integrity and supports secure, scalable, and reliable evidence-building.

### 4.1 Reproducibility

Current policies support reproducibility in principle but fall short of requiring public release of code and raw data. The new OEDA will address this gap by institutionalizing best practices in version control and standardized pipelines. By shifting from ad hoc reporting to

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<sup>22</sup> See [Data Strategy](#).



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systematized pipelines, DOL will increase the reproducibility of internal dashboards, labor market forecasts, and program evaluations. These improvements align with FAIR data principles (Findable, Accessible, Interoperable, Reusable) and the federal Enterprise Data Strategy.

### 4.2 Transparency

ODG leads DOL's Open Data Plan, ensuring datasets—where legally permissible—are accessible through public platforms such as Data.gov and DOL's Consolidated Data Portal. Planned modernization efforts include deployment of an enterprise data catalog tool (e.g., Atlan or Collibra), which will enhance discoverability and documentation of available assets. Additionally, to enhance data findability, the Division of Data Governance will launch an update on Department-wide data assets' taxonomy, and CDAIO will oversee consistent implementation of metadata standards across agencies.

### 4.3 Communication of Error and Uncertainty

The Office of Data Governance (ODG) plays an important role in helping DOL agencies identify and address gaps in their data, including inconsistencies, missing values, and outliers that can distort analysis. It supports agencies in setting data quality standards, reviewing disclosures, and flagging anomalies in sensitive datasets, particularly in areas like wage reporting and program performance tracking.

As part of the Department's modernization strategy, the proposed OEDA will build on this foundation by expanding the use of shared data validation tools and improving documentation of dataset limitations. This includes scaling up the use of automated checks, statistical quality metrics, and visual dashboards to detect issues in real time.

These efforts are critical in policy areas—such as unemployment insurance, wage enforcement, and workforce training—where key decisions rely on timely and accurate data. By making the limitations of our data more visible and explicit, the Office can help the Department avoid overreliance on uncertain findings and promote a more transparent, cautious, and humble approach to evidence-based policymaking.

### 4.4 Collaboration and Interdisciplinarity

The restructured OEDA will include a core team of dedicated staff but will also operate as a hub for collaboration across the Department to improve information-sharing on inference methods, data integrity, and the integration of AI tools for analysis. It will offer rotational and detail opportunities for staff from agency data teams—creating hands-on learning experiences, spreading best practices, and accelerating adoption of new tools and methods.

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In addition, the office will chair DOL's Data Board, which brings together Chief Data Stewards from across the Department's agencies to share technical expertise and align data modernization efforts. Through these mechanisms, the office will foster a more connected and interdisciplinary data community that supports both centralized initiatives and agency-specific priorities.

### 4.5 Skepticism of Findings and Assumptions

The CDAIO-led governance structure will oversee rigorous validation of data inputs, enforce documentation requirements for analytical models, and conduct post hoc audits of AI-driven forecasts. This includes coordinating AI governance with OMB and GAO standards.

### 4.6 Falsifiability of Hypotheses

AI models used for enforcement targeting, fraud detection, and policy forecasting will include embedded test sets and blind validation strategies. They will also feature documented logic flows to make the underlying hypotheses clear and testable. These steps help ensure results are not driven by data dredging. Enabling external replication is also a long-term goal.

### 4.7 Unbiased Peer Review

DOL encourages outside researchers to review and test its data and analysis. Under the new structure, the OEDA plans to make it easier for qualified reviewers to access sensitive data—while protecting privacy—through secure research environments and synthetic datasets. These tools will help ensure that DOL's evidence and models can be independently validated.

### 4.8 Acceptance of Negative Results as Positive Outcomes

OEDA will institutionalize a culture of learning by tracking model performance, reviewing unmet predictions, and using unexpected results to inform system improvements.

### 4.9 Absence of Conflicts of Interest

The CDAIO and OEDA staff will operate independently from program offices, and according to documented best practices and procedures. Teams will be multidisciplinary and subject to Department-wide ethics policies. The visibility of code repositories, data dictionaries, and governance logs will further ensure transparency and accountability.

## 5. Policy Research, Innovation, and Science Leadership

### **(Lead: Office of the Chief Economist (CHECO))**

The Chief Economist serves as the Department’s principal economic advisor, responsible for ensuring that labor policy is grounded in rigorous, data-driven analysis. Under current leadership, the Office of the Chief Economist (CHECO) is advancing a department-wide agenda to strengthen the scientific foundation of policy development by promoting greater transparency, replicability, and methodological integrity in the Department’s economic research.

A central component of this strategy is the proposed development of a labor market microsimulation model—built to generate testable, falsifiable projections of how wage, employment, and regulatory policies affect workers, employers, and the broader economy. The model will incorporate disaggregated labor market data and supports simulations grounded in real-world complexity and tradeoffs.

Ideally, the model would serve as a common analytical platform for use across RIAs, program evaluations, and other research efforts throughout the Department. This initiative reflects a broader commitment to building durable analytical infrastructure that enhances the Department’s capacity for objective, evidence-based decision-making and implements the tenets of GSS.

### 5.1 Reproducibility

The Office of the Chief Economist is leading the design of a labor market microsimulation model with open documentation of model architecture, data pipelines, and source code. The model will use standardized DOL datasets—including QCEW, CPS, OEWS, and BLS price series—ensuring reproducibility of simulation results and enabling external replication by academic researchers and agency partners.

### 5.2 Transparency

All assumptions, parameters, and elasticities used in the model will be published in a technical methodology document. Model outputs, such as predicted employment and price effects of policy interventions, will be released alongside confidence intervals and scenario definitions. Pilot studies will include logic models and clear articulation of mechanisms to facilitate transparency and public trust.

### 5.3 Communication of Error and Uncertainty

The microsimulation platform will feature scenario-based sensitivity analyses, allowing analysts to examine the impact of varying key assumptions—such as substitution

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elasticities between different categories of workers (e.g., authorized domestic labor vs. nonimmigrant guest workers on temporary visas) or between labor and capital, as well as differing degrees of employer demand responsiveness. All outputs will include measures of uncertainty and clear language explaining model limitations, aligned with best practices in scientific communication.

### 5.4 Collaboration and Interdisciplinarity

Model development will be co-designed with an interagency and academic advisory group that includes representatives from the Council of Economic Advisers (CEA), the Census Bureau, the Congressional Budget Office (CBO), leading research institutes, and universities. Additional consultations will engage state workforce agencies, labor economists with expertise in specific market segments, and policy practitioners across DOL subagencies to ensure the model reflects real-world needs and use cases.

### 5.5 Skepticism of Findings and Assumptions

All parameter values used in the model (e.g., labor demand and supply elasticities, wage pass-through rates, and cross-price elasticities of substitution) will be subject to ongoing validation against historical data and new research findings. Iterative testing of predictions against real-world outcomes will be built into the model maintenance plan, ensuring adaptive improvement over time.

### 5.6 Falsifiability of Hypotheses

Each policy simulation will be grounded in a clear, testable theory of change. The microsimulation model will enable comparisons of predicted vs. observed impacts across multiple dimensions (employment, wages, hours, prices, productivity), fostering a culture of evidence-informed policy that welcomes challenge and revision.

### 5.7 Unbiased Peer Review

All major model releases and revisions will undergo external peer review by independent economists and methodologists. Pilot findings and regulatory impact analyses using the model will be reviewed through the Chief Evaluation Office's scientific quality assurance protocols.

### 5.8 Acceptance of Negative Results as Positive Outcomes

Once the model is developed and widely adopted across the Department, the goal is for simulations that reveal unintended consequences—such as job losses in adjacent occupations or consumer price increases—to be viewed as valuable inputs. These insights can help refine rulemaking and mitigate potential harms. This approach can help enshrine a

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culture of scientific humility, iterative learning, and continuous policy improvement across the Department.

### 5.9 Absence of Conflicts of Interest

Although DOL has scientific integrity standards, key assumptions and cost-benefit frameworks vary widely across RIAs. A core goal of the microsimulation model is to promote consistency, transparency, and rigor that transcend individual administrations.


Model development will comply with federal procurement rules and ethical safeguards to ensure independence from industry or ideological bias. Code repositories and parameter sources will be made public to allow for external scrutiny and to minimize the influence of proprietary black-box modeling.

## Conclusion

The U.S. Department of Labor is committed to embedding the principles of Gold Standard Science not as a compliance exercise, but as a durable foundation for public trust and policy excellence. Across its statistical, evaluative, regulatory, data, and research functions, the Department is aligning its scientific work with the highest standards of transparency, rigor, and independence. From modernizing labor market data systems to developing replicable microsimulation models, these reforms are designed to produce evidence that is not only technically sound but also actionable, credible, and resilient across political and institutional contexts.

Implementing the Gold Standard Science framework has revealed both strengths to build upon and areas where further investment and cultural change are needed. As this report demonstrates, DOL has taken concrete steps to institutionalize reproducibility, communicate uncertainty, support interdisciplinary collaboration, and welcome results—positive or negative—that sharpen our understanding of what works and what doesn't. Scientific integrity is a continuous process, driven by learning, refinement, and accountability.

The table below provides a high-level summary of DOL's current level of achievement for each tenet:

GSS Tenet	Current Status
Reproducibility	

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Transparency	●
Communication of Error & Uncertainty	●
Collaboration & Interdisciplinarity	●
Skepticism of Findings & Assumptions	●
Falsifiability of Hypotheses	●
Unbiased Peer Review	●
Acceptance of Negative Results as Positive Outcomes	●
Absence of Conflicts of Interest	●

### Strengths

The Department has made notable progress in implementing key tenets of Gold Standard Science. Several areas stand out as particular strengths:

- **Transparency**
  - The Bureau of Labor Statistics (BLS) and Chief Evaluation Office (CEO) have established robust systems for transparent documentation and reporting. Across the Department, agencies consistently disclose methodologies, assumptions, and findings—including null results—in public reports, dashboards, and data products.
- **Collaboration and Interdisciplinarity**
  - Many scientific activities within the Department are carried out by multidisciplinary teams that bring together economists, statisticians, data scientists, and subject-matter experts. This collaborative approach strengthens the design, execution, and interpretation of evaluations, research, and regulatory analysis.
- **Skepticism of Findings and Assumptions**
  - Agencies actively encourage internal challenge and critical review of results. BLS, CEO, and several policy offices routinely test alternative assumptions, conduct sensitivity analyses, and document the limitations of their findings. This culture of methodological rigor helps safeguard against confirmation bias.

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- **Unbiased Peer Review**
  - The Department applies formal processes for both internal and external peer review. BLS and CEO in particular invite qualified reviewers to assess draft reports, methodologies, and findings prior to publication, enhancing the objectivity and scientific quality of final outputs.
- **Acceptance of Negative Results as Positive Outcomes**
  - Agencies recognize that null or negative results can yield valuable insights. Evaluation offices routinely publish inconclusive or unexpected findings to inform program design, policy decisions, and future lines of inquiry.

### Areas for Improvement

Despite important progress, several challenges remain in fully institutionalizing Gold Standard Science across the Department's scientific activities:

- **Reproducibility**
  - Limited access to anonymized data, code, and model documentation continues to constrain independent replication and secondary analysis.
  - Inconsistency in analytical assumptions and methods—especially across Regulatory Impact Analyses over time—undermines reproducibility and increases the risk of selective interpretation or political influence.
  - Researchers also face barriers when attempting to merge historical datasets or access them in machine-readable formats. The Department should facilitate bulk downloads of data in formats such as JSON, XML, or structured databases to reduce friction in longitudinal research and support replicability.
- **Communication of Error and Uncertainty**
  - A culture of transparency is already well-established at BLS and CEO, but should be strengthened across the Department. This includes broader adoption of standardized methods for reporting uncertainty—such as confidence intervals, robustness checks, and sensitivity analyses—and greater caution against overgeneralizing or extrapolating results beyond what the data support.
  - This includes greater use of confidence intervals, robustness checks, and sensitivity analyses, as well as caution against overgeneralizing or extrapolating results beyond what the data support.
- **Falsifiability of Hypotheses**

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- Falsifiability is not yet a universal design principle in program evaluations or regulatory analysis. Studies often lack structured hypotheses or defined criteria for ex post testing.
- To better align with this tenet, the Department should adopt procedures such as study registration, pre-specification, and proactive dissemination of null results.
- **Absence of Conflicts of Interest**
  - Although ethics policies exist, a stronger internal culture of conflict identification and management—particularly within program-adjacent offices—remains a work in progress.
  - Standardizing and enforcing these safeguards across all Department components would further protect the integrity of scientific outputs.

As the Department continues to modernize its scientific functions, it recognizes that trust in public institutions depends on transparency, humility, and methodological discipline. Institutionalizing Gold Standard Science will not only improve the quality of individual studies and analyses, but will also strengthen the foundations of long-term policymaking—especially in areas such as AI, workforce transformation, skills-based hiring, and American labor market competitiveness.

Going forward, the Department will continue to expand peer engagement, strengthen cross-agency coordination, and invest in analytical infrastructure that supports falsifiable, testable, and policy-relevant research. In doing so, DOL will help ensure that decisions affecting millions of workers, employers, and families are grounded in the best available evidence—evidence that is worthy of the public’s trust.