Information Resources Management Strategic Plan 2024

December 2024

BOARD OF GOVERNORS OF THE FEDERAL RESERVE SYSTEM

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Introduction

The *Information Resource Management (IRM) Strategic Plan* describes how the Board develops long-term investment strategies and how it ties those strategies to annual operations planning, budgeting, and reporting activities. The Board recognizes the key roles that its information technology (IT) resources—and its data—play in meeting its responsibilities. This *IRM Strategic Plan* defines the Board's approach for identifying IRM activities that align with its strategic goals and annual plans, including how it

- conducts strategy development efforts that incorporate Boardwide input;
- uses those strategies to drive planning and budgeting;
- enforces high standards in enterprise architecture, privacy, information security, and other areas related to information resources management;
- governs and manages Board data in a manner that makes it easily available and fit for use by the Board and the public;
- develops the workforce needed to stay on the leading edge of IT and data management trends; and
- reports publicly on the results of the Board's work.

These processes ensure that the Board's chief information officer (CIO) and chief data officer (CDO) work in partnership with business stakeholders from across the Board to identify, prioritize, and fund technology and information management investments that align with the strategic direction of the Board.

The *IRM Strategic Plan* is updated annually to reflect progress toward meeting the goals and objectives it describes, including changes in the Board's strategic priorities and new compliance or regulatory requirements. The *IRM Strategic Plan* also reflects the new goals and objectives described in the Board's *Strategic Plan*, which is updated every four years.

Finally, the *IRM Strategic Plan* also incorporates the Board's *Open Data Plan* as required under Open, Public, Electronic, and Necessary (OPEN) Government Data Act (OGDA).[1] The *Open Data Plan* lists the Board's planned actions in creating a publicly available data inventory and making data assets available in open format. It also describes how the Board leverages technology, training, and setting procurement standards to enable open data collection, management, usage, and collaboration with the public.

[1] Title II of the Foundations for Evidence-Based Policymaking Act of 2018.

Board Strategy and Information Sharing

The Government Performance and Results Act of 1993 (GPRA), as amended by the GPRA Modernization Act of 2010, requires federal agencies to prepare a strategic plan covering a multiyear period.[2] Although the Board is not covered by GPRA, the Board follows the spirit of the Act and, every four years, following a collaborative strategic planning process that includes senior leaders and key stakeholders, publishes a plan that identifies the Board's strategic goals and supporting objectives for the next four-year period.

This year, the Board published a new strategic plan covering the years 2024–27 and outlines the Board's priorities within five functional areas.[3] Relevant to the *IRM Strategic Plan*, Goal 5: *Mission Advancement* of the Board's *Strategic Plan* states that the Board will seek to "Advance operations and capabilities to sustain a high-performing workforce; promote diversity, equity, and inclusion; ensure effective stewardship of resources; modernize infrastructures; and provide impactful communication and outreach." Under Goal 5, the Board's *Strategic Plan* identifies several objectives related to technology, information resources management, and the workforce to support the technology. They include the following:

- attract, retain, and develop an agile, diverse, and high-performing workforce while fostering an ethical, equitable, and inclusive workplace culture
- ensure effective stewardship and management of resources by maximizing the utility of data and technology investments to support effective, efficient, and secure operations
- evolve data and data analytics capabilities to accelerate the ability to innovate and respond to business needs
- accelerate the adoption of cloud services, automation, foundational platforms, and related technologies
- strengthen cybersecurity, privacy, and risk-management capabilities in alignment with current and future federal requirements and leading industry practices
- invest in an advanced enterprise architecture that addresses needed technical capabilities
- evolve core technology infrastructure to support a scalable and flexible environment

In addition, a new Board Technology Strategy that covers the time period from 2024 to 2027 was developed to support the Board's strategic objectives related to IT and resources. This

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[2] GPRA Modernization Act of 2010, Pub. L. No. 111-352 (2011), https://www.congress.gov/111/plaws/publ352/PLAW-111publ352.pdf.

[3] *Strategic Plan 2024–27*.

IRM Strategic Plan aligns with the new Board Technology Strategy. For this plan period, the *IRM Strategic Plan* sets forth strategic improvements in six goals:

- Goal 1: Optimize IT Operating Model
- Goal 2: Modernize Product and Service Delivery
- Goal 3: Invest in a Strong Workforce and Culture
- Goal 4: Enhance Enterprise Security, Privacy, and Threat Mitigation Services
- Goal 5: Accelerate Cloud Adoption
- Goal 6: Leverage Innovation and Emerging Technology

Annual Planning and Reporting

Each year, the Board publishes an *Annual Performance Plan*, which provides greater detail regarding the specific initiatives the organization will undertake and allocate resources to, in order to accomplish the objectives in the Board *Strategic Plan*. The Board also publishes an *Annual Performance Report*, which summarizes the Board's progress toward achieving the objectives identified in the Board *Strategic Plan*. Both the *Annual Performance Plan* and the report are available on the Board's website.[4]

Freedom of Information Act

The Freedom of Information Act (FOIA), 5 U.S.C. § 552,[5] generally provides that any person has a right of access to federal agency records, unless the records (or any portion of the records) are protected from disclosure by one of FOIA's nine exemptions or by one of three special law enforcement record exclusions.

The Board maintains public and nonpublic records:

- **Public** records are available at the Board's conventional reading room and electronic reading room.[6] A FOIA request is not required to obtain these materials.
- A FOIA request must be submitted to obtain **nonpublic** records, according to the processes described on the Board's website.[7] Requests may be submitted in writing, via the electronic request form, or via https://www.foia.gov/ (the government's central website for FOIA request submissions).[8] Internally, the Board uses a cloud-based solution to track and manage both written and electronic requests.

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[4] See https://www.federalreserve.gov/publications/gpra.htm.
[5] See https://www.justice.gov/oip/freedom-information-act-5-usc-552.
[6] See https://www.federalreserve.gov/foia/readingrooms.htm.
[7] See https://www.federalreserve.gov/foia/request.htm.
[8] See https://foia.federalreserve.gov/app/Home.aspx.

To continue providing high-quality, timely, and efficient FOIA services, the Board is making investments in versatile and adaptable technology solutions that ensure compliance with relevant regulatory and statutory requirements. A multiyear effort is focused on modernizing the portfolio of systems used to respond to requests.

Public Feedback

The Board complies with applicable statutes and policies governing the disclosure or dissemination of information, including the Information Quality Act, the Privacy Act and E-Government Act of 2002, other laws, and related Office of Management and Budget (OMB) guidance.

The Board's website describes how the organization reviews and substantiates the quality of its information before it is disseminated to the public.[9] It also outlines how affected persons may seek, and when appropriate, obtain correction of information that the Board disseminates.[10]

The public may submit comments on the Board's proposed regulations either through the website, by email, or in writing, as explained on the Board's website.[11] This process covers comments on rulemaking proposals such as those under the Dodd-Frank Wall Street Reform and Consumer Protection Act and the Economic Growth Regulatory Paperwork Reduction Act (EGRPRA), and information collection proposals.

[9] See https://www.federalreserve.gov/iq_guidelines.htm.
[10] See https://www.federalreserve.gov/iq_correction.htm.
[11] See https://www.federalreserve.gov/apps/foia/proposedregs.aspx.

IRM Governance: Technology Oversight Committee

The Board established a Technology Oversight Committee (TOC) to support the Board's chief operating officer's (COO) delegated responsibility and authority for administrative oversight of the Board's operations and resources, and the Board's CIO delegated responsibility and authority for IT and information security. The TOC is co-chaired by the COO with standing members including the CIO, CDO, chief financial officer (CFO), and other senior technology leaders.

The TOC is responsible for

- shaping the vision and approving the enterprise strategy for technology at the Board;
- identifying the technology capabilities that best support our shared mission and business goals;
- identifying the gaps between current and desired technology capabilities;
- identifying and prioritizing investments intended to achieve desired capabilities;
- accepting and managing the risks of its prioritization and decisions;
- evaluating the effectiveness of investments and decisions, and adjusting as necessary; and
- holding technology providers across the Board accountable for executing the technology strategy and vision.

The TOC chartered six working committees to govern key components of technology operation management:

- Enterprise Architecture
- End-User Experience
- Information Security and Privacy
- Technology Financial Management
- Technology Portfolio Management
- Technology Talent

Plan Goals and Objectives

Working with the CIO, TOC, and senior leadership from across the organization, Board staff developed this *IRM Strategic Plan* to identify the Board's top technology and data management priorities.

The development process was guided by a common strategic technology vision, "One Board Forward," that seeks to empower the highest level of employee productivity, innovation, and contributions through a future-ready technology landscape and operating model. The vision can be realized through the guidance of a set of strategic themes that drive technology objectives and investments. The strategic themes are:

- **Operational Excellence:** Improve foundational elements of IT management and associated service delivery to drive organizational and business success
- **Technology Financial Management:** Implement consistent technology financial management practices to maximize the value of technology investments.
- **Technology Talent:** Empower and foster the potential of the Board's technical workforce.
- **Technology Advancement:** Advance technology capabilities to transform product and service delivery to meet ever-accelerating business demands.

The goals that follow in this *IRM Strategic Plan* are the expected outcomes of this development process. To provide clearer strategic implementation guidance, each goal was expanded to include three to five objectives with indicators of success for each objective. The objectives and key results serve two purposes: (1) to provide actionable expectations to measure the implementation of this strategy, and (2) to reflect the most frequently emphasized needs across the organization.

During implementation, the goals and objectives are assigned to sponsors who are accountable for determining how to accomplish these strategic goals, objectives, and key results. Sponsors are also accountable for taking an enterprise perspective to plan, gather resources, develop measures, and report on those measures to increase transparency and strategic alignment across the enterprise.

Goal 1: Optimize IT Operating Model

To improve its business agility and the ability to respond to a fast-changing technology landscape, the Board seeks to optimize its IT operating model. The operating model serves as a blueprint on how the Board plans, organizes, and allocates IT resources to maximize the value of technology investments. It encompasses the processes, technologies, organizational structures, roles,

responsibilities, and governance practices that guide the management of IT resources and operations.

Objective 1.1: Define an Enhanced IT Operating Model

To support digital transformation and an optimal work distribution model for delivering technology services, the Board will define an enhanced enterprise operating model that helps the organization better align IT strategies with business goals and manage IT resources efficiently.

- **Identify a future-state operating model and develop implementation plans to progressively transition to this new model:** The Board has established a team of subject matter experts who are tasked with researching and developing a new operating model that maximizes synergy across organization lines. Once the initial model is developed, it will be piloted with selected teams to identify further areas of improvement.
- **Develop robust communications and change management strategies to collect feedback on the new operating model and ensure alignment at all levels:** The Board has an IT transformation function whose role is to ensure change management activities are communicated and coordinated well and sequenced to minimize impact to Board operations while achieving the desired results of the transformation.

Objective 1.2: Implement Boardwide Portfolio Management

The Boards plans to orient its technology investment through a product-portfolio approach to align and optimize the collection of IT products and services with strategic business goals. Technology portfolios are established to maximize the value of technology investment, ensure alignment to business strategy, and identify duplicative efforts or functional overlap.

- **Technology portfolios are established with a clearly defined scope, core roles filled, and divisional stakeholders aligned to plan and execute portfolio strategies:** Through the TOC's Technology Portfolio Management working committee, a portfolio framework and a set of technology portfolios have been established that cover all the Board's strategic business areas. Key roles within the portfolios have been filled, and scoping of technology products and services under each portfolio's purview is underway.
- **The Board's capabilities, assets, and services are assigned to appropriate portfolios:** The Board has developed capability models and asset inventories. This information is maintained in inventory and service catalogs. As part of the scoping of each technology portfolios, the business and technical capabilities, as well as data and IT assets, will be assigned to the appropriate portfolios.
- **Establish and implement portfolio governance and management practices, including performance metrics and iterative planning, which aligns with investment decisions:** The TOC's Portfolio Management working committee and the key roles within each technology portfolio are developing a set of processes and tools to mature portfolio management governance and

practices. Once these processes are ready, technology investments and resource management will be prioritized and managed through the portfolios.

Objective 1.3: Enterprise Investment Allocation and Financial Transparency

As part of the operating model transformation, the Board is revamping how it allocates financial resources for information resource operations and investment to enable more enterprise-wide priorities.

- **Develop standardized financial reporting models that capture total cost of ownership:** Having a clear and consistent total cost of ownership of IT products, services, and initiatives would streamline investment and divesture decisions. The TOC's Technology Financial Management working committee in coordination with the CFO will develop a standardized and transparent financial reporting framework that captures all human capital, vendor, and technology cost as total cost of ownership.
- **Apportion the Board's existing technology spend by portfolio:** As part of the transition to the product-portfolio approach for managing IT resources, the Board's existing technology spend will be baselined and apportioned to each portfolio.
- **Establish an enterprise investment decision framework:** The TOC's Technology Financial Management working committee has been established to mature the Board's technology investment through an enterprise-wide framework. The framework will holistically evaluate performance, value, and cost while identifying opportunities for innovation investment.

Objective 1.4: Enterprise Architecture

Enterprise-wide technology alignment and governance is accomplished through the Board's Enterprise Architecture function. Enterprise Architecture defines future target-state architectures, creates governance for enterprise-level tools, and ensures consistency of architectural solutions across the organization. Key to achieving success in these areas—as well as in meeting information resources management goals—are a set of enterprise architecture principles that guide decisionmaking.

- **Define and implement enterprise architecture governance models to enable the adoption of common technologies and services:** The TOC's Enterprise Architecture working committee, in collaboration with architecture teams, are defining architectural standards and patterns in multiple architectural domains. The Enterprise Architecture working committee has also established an Architectural Review Board (ARB) and a Software Review Board (SRB) to validate compliance with architectural standards. Efforts are underway to streamline the ARB and SRB to support modern delivery practices such as Agile and DevOps.
- **The Board's business, data, and technology capabilities are identified, fully mapped to assets, and continuously maintained:** A comprehensive set of business, data, and technology

capabilities are under development and will be maintained in catalogs as part of the enterprise architecture knowledge repository.

- **Develop future-state architecture in alignment with enterprise strategic priorities:** Target architecture that prescribes architectural strategies, processes, technology, and tools are being developed. Such target architecture serves as a roadmap to mature the business, data, cloud, security, and application architectures at the Board.

Goal 2: Modernize Product and Service Delivery

The Board seeks to modernize its product and service delivery processes to become more agile, while maintaining high quality and usability standards. The transformations in Product and Service delivery would enable the Board to deliver new and modern business capabilities, enhance the user experience, and adapt to new and changing business and technology environments faster.

Objective 2.1: Modernize Delivery Practices

Broader and consistent adoption of product management and Agile solution delivery practices at the Board improves product quality and time to market.

- **Broader adoption of Agile product delivery methods is implemented:** Dedicated, multi-disciplinary product teams are established to share responsibilities for solving business problems and addressing user needs. Lean, agile culture and practices are standardized across product teams to ensure consistency and faster responses to changing needs. Metrics around performance, planning, predictability, and engagement are developed and adopted by product teams to enable reliable work planning, estimation, delivery predictability, and job satisfaction.
- **Value management is consistently applied across all product teams:** A continuous and structured process of aligning product and solution value against organizational needs, user needs, and enterprise best practices is being developed and matured. This process emphasizes uniformity of principles, value definition, methodologies, and standards for accessing and delivering value. It also highlights performance measurements as a basis for continuous improvement.
- **DevOps is leveraged to enhance productivity and reduce errors:** The Board is modernizing its DevOps strategies and practices and onboarding new tools to improve efficiency of its software development and operations processes. Key areas of focus include the integration of development and operations to promote seamless coordination between these two traditional silos; continuous integration and continuous deployment (CI/CD) practices to automate the process of code integration, testing and deployment; and continuous monitoring to track performance and health of applications in real time.

Objective 2.2: User-Centered Practices

The Board plans to improve the adoption of user-centered practices and standards to improve ease-of-use of technology products. The practice involves conducting user research to understand user needs, developing user experience (UX) blueprints to harmonize designs into intuitive experience, and employing usability testing to gather feedback.

- **User research, user feedback, and usability testing are incorporated into the design blueprints and the product life cycle:** Through the sponsorship of the TOC End-User Experience working committee, a UX Center of Excellence was established to provide leadership and develop guidelines and standards on user research, design, and accessibility. The UX Center of Excellence prepared an initial guide on how to incorporate UX into product development life cycle and developed a playbook that describes common UX activities and deliverables. Through the UX Center of Excellence's thought leadership, the Board will continue to advance UX designs and standards to improve the usability of its technology products.
- **Continuously collect feedback on enterprise technology user experience:** The Board has conducted internal "voice of user" surveys to collect feedback. A roadmap has been developed to continuously adopt the feedback received. The TOC End-User Experience working committee is developing and utilizing enterprise user segments and profiles of products' typical customers to inform improvements to user experiences across the organization.

Objective 2.3: Accessibility

The Board emphasizes the importance of incorporating accessibility practices and standards into all its technology products to ensure an equitable working environment and broaden the reach of technology products and services.

- **Increase knowledge, awareness, and adoption of accessibility requirements:** Communications and training are being developed to increase the technology workforce's knowledge and awareness of accessibility requirements. The Board also plans to establish metrics and practices to track accessibility compliance across the enterprise.
- **Improve accessibility compliance:** The Board will improve accessibility compliance by leveraging reusable design patterns, technology components, and testing tools. Accessibility requirements are also incorporated into the development process early so that they can be properly planned and designed into the applications.

Objective 2.4: Modern Workspaces

Modern workspaces that make it easier to create, share, preserve, and find information securely through enterprise tools and services are vitally important to the Board's mission. The Board's efforts focus on improving multiple aspects of a digital workspace— adopting cloud-based tools and collaboration platforms; building integrated applications; and providing enhanced accessibility, flexibility, and reliability.

- **Computing environment allows staff to effectively perform their work, and leverage various technologies to increase productivity:** The Board's work environment requires always connected, near instant access to the information that staff require to perform their work. The Board continues to deploy technology that enables staff to work collaboratively and productively. This includes efforts underway such as the upgrade and refresh of telephone technology and enhancements of wireless access points.
- **Board staff can easily and securely collaborate with both internal colleagues and external stakeholders:** The Board is exploring and adopting technology tools, particularly cloud-based offerings, that allow Board staff to securely collaborate with internal and external stakeholders. Conferencing technology and integrated technology tools in conference rooms are deployed to provide seamless internal and external collaboration whenever needed by staff.
- **Evolve infrastructure, applications, and critical services to be resilient and performant to meet mission essential functions:** The Board is migrating the backup data center to a new location. The migration will continue to provide system resilience and high availability for the Boards mission critical workloads. The migration will also leverage the native resilience capabilities that cloud infrastructures offer. In addition, new standards are being developed on service-level agreements to incorporate performance and availability requirements into new technology product design from the very beginning.

Objective 2.5: Information Management

The volume and complexity of information is ever increasing. The Board advances its information management capabilities through comprehensive and efficient information management processes that ensure the right information is provided securely to the right decisionmakers at the right time.

- **Enhance information management technologies to advance the implementation of the Board Data Strategy:** The Board Data Council (BDC) in partnership with TOC's Enterprise Architecture working committee has sponsored a working group to define the target-state enterprise data architecture. The data architecture workgroup will define how the Board's information assets are organized and life cycle is managed through conceptual flows and technology tools. The Board is also continuing to design and build out technology solutions for the analytics and research data platform, data governance functions, data catalog, and taxonomy definitions.
- **Implement solutions to seamlessly embed legal, regulatory, and internal policy mandates on information management into business processes through automation:** The BDC has sponsored data governance activities to develop policies and practices on a data governance framework to ensure the Board's information assets are managed using consistent governance processes that enhance discoverability, access, and quality and comply with legal and regulatory mandates. Technology solutions are being explored, designed, and implemented to facilitate the automation of data governance activities.

- **Ensure technology assets appropriately retain, dispose, or archive information in accordance with Board requirements:** The Board continues to progress in implementing information preservation strategies consistent with 44 U.S.C. 3102[12] to promote the economical and efficient management of records. New records are continuously added to the Board's record management system. Records are also decommissioned after a review and approval process to reduce technology resources utilization.

Goal 3: Invest in a Strong Workforce and Culture

The Board is committed to maintaining a highly skilled, adaptable, and motivated technical workforce to meet its mission. This involves attracting; retaining; and developing agile and high-performing talent. The Board also maintains an environment of open collaboration, inclusion, and continuous growth opportunities.

Objective 3.1: Enterprise-wide Technical Talent Management

By taking a holistic "one Board" view to manage and advance the technology workforce, the Board can achieve significant efficiency and synergies, while providing more opportunities for our workforce to grow.

- **Develop and implement an enterprise-level strategy and framework for technical talent management:** The TOC Technology Talent working committee is leading the enterprise-level talent management strategy. It is establishing a framework—inclusive of skills development, career progression, recruitment, and retention—to provide consistent outcomes for talent management across all divisions at the Board. The TOC Technology Talent working committee conducted benchmarking activities with the Federal Reserve System and other federal agencies to inform the development of the framework.
- **Establish strategic governance to enable holistic technical talent decisions and priorities:** Under the guidance of the TOC Technology Talent working committee, the Board has completed modernization and standardization of technology job descriptions. The Board also aligned current technology staff's job titles and responsibilities with updated and standardized job descriptions. Further work is underway to shape technical talent development and utilization at the enterprise level.

Objective 3.2: Skills to Enable Transformation and Innovation

Technology is evolving rapidly. Thus, the Board must continue to provide upskilling, reskilling, and development opportunities to staff to accomplish digital transformation and innovation activities.

- **Technology leaders and practitioners have undergone training to better position them toward leading transformational activities:** The Board is developing an enterprise-wide upskilling

[12] Records Management by Federal Agencies, 44 U.S.C. 3102.

framework that involves training tracks for various technical disciplines, from entry- to expert-level. The Board also provides staff with resources to help them attain technical professional certifications. Beyond training, the Board offers rotational opportunities that enable staff to develop expertise in other IT roles. The Board also encourages its IT staff to seek external opportunities that support their professional growth.

- **Individual development plans are created and implemented to build targeted, future-ready skills within the technical workforce:** The Board's annual performance evaluation process encompasses goals for individual development. Staff working with their managers can build out a pathway to further skill and career advancement.

Objective 3.3: Retain and Attract Talent

The Board views technical talent as a strategic and enterprise asset that is critical to meeting its mission. The Board will continue to enhance its human resource practices to attract the best talent to join the Board while continuing to promote growth and job satisfaction for its current workforce.

- **Emerging technology skills and expertise are acquired using industry recruitment practices for technical talent:** The TOC Technology Talent working committee is partnering with Board's human resource function—People, Strategy & Operations (PSO)—to continuously evaluate recruitment practices, identify key talent gaps, and devise strategies on how to fill talent gaps.
- **Equitable and competitive wages and other work-related benefits are continuously aligned with technology evolution and skills demand:** The TOC Technology Talent working committee in partnership with PSO assesses pay and benefits against those of organizational peers. The Board also holds focus groups with managers and IT staff to discuss compensation matters as it pertains to attracting and retaining talent.
- **Enable career advancement and create clear career pathways for people managers and technical experts:** Career growth practices are regularly evaluated and aligned with best practices. Additional discovery and planning are underway to provide staff with more opportunities to develop their career paths.
- **Support the Board's Diversity, Equity, and Inclusion Strategic Plan by following standards for workforce diversity, workplace inclusion, and technology supplier diversity:** The Board published a *Diversity and Inclusion Strategic Plan* that frames its strategic focus on diversity, inclusion, and equity, which is a shared responsibility of all Board employees.[13] It describes how the Board develops and implements activities and training for staff to encourage growth and better understanding of diversity, equity, and inclusion issues. The plan also describes outreach and recruitment programs aimed at drawing a diverse range of technology professionals to the Board.

[13] Board of Governors of the Federal Reserve System, *Diversity and Inclusion Strategic Plan 2022–25* (Washington: Board of Governors, December 2022), https://www.federalreserve.gov/publications/files/distrategicplan_202211.pdf.

Goal 4: Enhance Enterprise Security, Privacy, and Threat Mitigation

The Board has implemented comprehensive, agencywide information security and privacy programs to identify and mitigate risks to confidentiality, integrity, and availability of the Board's enterprise IT services and protect the Board's resources, data, and mission from modern adversarial tactics. Overseen by the Board's information security officer and Senior Agency Official for Privacy (SAOP), the programs comply with federal information security requirements and follow industry standards.

As the Board continually enhances both programs, changes to its information security tools and controls (cybersecurity architecture) as well as its governance, processes, and training (cyber, risk, and privacy programs) are aimed at reducing the overall risk of cybersecurity incidents, mitigating the impact of incidents, and improving the Board's ability to respond to incidents when they do occur.

Objective 4.1: Zero Trust Maturity

Executive Order 14028 outlined a new vision for agency information security models,[14] a vision that was further defined in OMB M-22-09.[15] That memo defined a Zero Trust Architecture (ZTA) paradigm shift for agencies, one that will require the Board to move away from a traditional focus on the network perimeter and toward users, assets, and data. The Board views ZTA as an opportunity to transform not only its information security architecture but also the Board's approaches to infrastructure management, application development, and data management.

- **Determine desired enterprise Zero Trust maturity goals:** In line with this guidance, the Board has created a ZTA workgroup, conducted a ZTA maturity assessment, and developed a high-level ZTA implementation plan. It is also developing a target-state ZTA design. The ZTA planning and road mapping consider all the major pillars: (1) identity, (2) devices, (3) networks, (4) applications and (5) data, as well as the cross-cutting capabilities: (1) governance, (2) automation, and (3) visibility and analytics.
- **Formulate and implement an organization-wide approach to achieving desired Zero Trust maturity:** Through the Zero Trust Maturity Program, the Board has implemented network access and segmentation to support a Zero Trust Proof of Concept. Additional work is underway to prototype, design, and implement solutions for identity management, data access, multifactor authentication (MFA), application security, encryption, and continuous diagnostic and mitigation (CDM) practices in line with M-22-09 guidance.

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[14] "Improving the Nation's Cybersecurity," 86 Fed. Reg. 26,633 (May 12, 2021), https://www.govinfo.gov/content/pkg/FR-2021-05-17/pdf/2021-10460.pdf.

[15] See OMB Memorandum M-22-09, "Moving the U.S. Government Toward Zero Trust Cybersecurity Principles," https://www.whitehouse.gov/wp-content/uploads/2022/01/M-22-09.pdf.

Objective 4.2: Cybersecurity Operations

The Board's cybersecurity operations program actively monitors and proactively anticipates threats to the Board's technical resources. The program is continuously improved through the introduction of new technology and capabilities in the environment, adoption of cloud security solutions, and continuous monitoring of the environment for evidence of intrusions. Cybersecurity operations are aligned with current federal requirements and leading industry practices and will adapt to meet anticipated needs in order to ensure operational security for the Board's mission critical business lines.

- **Incorporate new cybersecurity technologies and advanced analytic capabilities into Board infrastructure to enhance cybersecurity operations:** Efforts are underway to evaluate, develop, and integrate new technologies in intrusion prevention, detection, and incident response for the Board's enterprise IT services. Threat-hunting processes are under evaluation for adoption to identify potential cyber-threat actor activities in Board systems and better defend all Board users. The Board is also investigating approaches that apply data science, machine learning, and AI to augment cybersecurity operations.
- **Develop cybersecurity forensic analysis capabilities:** The Board is evaluating and developing a cybersecurity forensics analysis capability as part of an enterprise-wide service for comprehensive incident response and recovery.
- **Enhance vulnerability management:** Efforts are underway to expand and evolve existing vulnerability management practices, provide services for Board users to reduce vulnerabilities within the enterprise environment, and provide a better service for Board stakeholders.

Objective 4.3: Secure Identity, Credentials, and Access Management (ICAM)

The Board has established an ICAM program, which oversees the policies and technologies that ensure that Board information and resources are only accessed by the appropriate individuals for the purpose of conducting Board business. A framework of ICAM policies built into the Board's technology infrastructure enables staff to securely share information across the organization as well as with external partners.

- **Establish and implement an enterprise-wide ICAM strategy that aligns with Zero Trust principles:** The Board is updating its existing ICAM policies and governance to support cloud technology and ZTA. Strategic areas of focus include strengthening access control via centralized identity management solutions, modernizing the Board's MFA model, and investigating longer-term enhancements to the privileged access management (PAM) solution.
- **Design and operate an enterprise identity governance and administration capability:** The Board is developing an enterprise capability to consolidate the various methods and tools that are used to request access to applications and data resources hosted both on-premises and in the cloud. The enterprise identity and administration capability also reviews access on a periodic and timely basis. This new capability will enhance a user's experience through a consistent

approach while also aiding the Board in aligning with the overall ZTA strategy and meeting federal security mandates.

- **Design and deliver modern authentication and access management solutions:** The Board is focusing efforts on expanding the use of MFA and phishing resistant authenticators including through use of login.gov for external-facing systems.

Objective 4.4: Information Security and Privacy Programs

The Board's Information Security program is overseen by the Board's Information Security Officer and complies with federal information security requirements as established by the Federal Information Security Modernization Act (FISMA) as well as with National Institute of Standards and Technology (NIST) standards and guidance issued in accordance with FISMA.

The Board's privacy program is overseen by the SAOP, who, among other activities, monitors federal laws, regulations, and policies for changes that impact the Board's privacy program. As needed, the SAOP ensures that the Board's practices are adjusted to reflect new laws and regulations as well as emerging business needs.

These programs continue to evolve toward data-driven, risk-based programs that balance security risks and stakeholder priorities.

- **Adopt a continuous compliance and authorization process that aligns with Agile and DevOps release cadences:** To realize the benefits of a lean, agile delivery method, the Board recognizes that security compliance reviews and authority to operate (ATO) processes must keep pace with the frequency of agile delivery. The Board is instituting DevSecOps practices and technology to support the goals of Modern Delivery Practices (Objective 2.1) while still maintaining high security standards that meet FISMA requirements. A continuous authorization program is underway to allow business owners and security personnel to have an enhanced, ongoing method to monitor system security.
- **Increase awareness, adoption, and agility of enterprise security policies, standards, and procedures to ensure consistent knowledge and practices across teams:** The Board administers mature information security and privacy training programs. The Board evaluates and enhances these training programs annually to incorporate the latest information about policies, procedures, and risk-management practices.
- **Maintain high ATO coverage for Board systems and enhance annual security assessments to maintain ATOs and address plans of action and milestones (POA&Ms):** All information systems at the Board must attain and maintain ATO before being deployed to production. Through new tooling and improved inventory systems, the Board tracks information system's ATO and POA&M statuses. Continuous enhancements to the information security and privacy dashboards with additional metrics support the annual FISMA review process and other internal

processes. Executive Order 14028 put a spotlight on the cybersecurity risks posed by the software supply chain,[16] and the Board has already taken steps toward identifying and assessing the security posture of critical software, as defined by NIST.[17] Understanding and managing the risks associated with critical software will continue to remain an important focus.

- **Continually enhance privacy program to fully support the SAOP's responsibilities:** The Board continually enhances the privacy program to ensure the integrity and security of the personally identified information (PII) collected by or on behalf of the Board. The Board creates and publishes Privacy Impact Assessments and System of Records Notices on the Board's website in accordance with the Privacy Act[18] and section 208 of the E-Government Act of 2002. A privacy and risk information dashboard continues to be built out to provide the most up-to-date information to stakeholders.

Goal 5: Accelerate Cloud Adoption

The Board looks to strategically incorporate additional cloud computing into its technology environment to take advantage of the scalability, resiliency, advanced data integration, analytics, and external collaboration capabilities that the cloud provides. The Board is accelerating the adoption of cloud services to increase the pace at which we implement solutions to enhance business processes, foster innovation, better manage risks, and give Board employees access to more modern and agile systems.

Objective 5.1: Cloud Migration

The Board has a large catalog of applications and data assets that will take years to migrate to the cloud. A migration of such scale will be risky without proper planning. To mitigate this risk, the Board has established a Cloud Taskforce encompassing stakeholders and experts from multiple divisions to plan and execute the cloud migration. The taskforce will be supported by established teams responsible for architecture, engineering, and operations of the Board's cloud infrastructure, services, and security.

- **Develop a cloud migration assessment and roadmap:** The Cloud Taskforce is evaluating the entire inventory of applications and data at the Board and prioritizing them for cloud migration. The Board's cloud migration will focus on creating value by maximizing the benefits of the cloud and reducing technical debt by re-engineering applications to be optimized for the cloud. Based on these goals, the Cloud Taskforce will develop a roadmap with year-by-year goals of workloads migrated to the cloud along with resource needs to accomplish the task.

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[16] 86 Fed. Reg. 26,633 (May 12, 2021).

[17] "Critical Software – Definition & Explanatory Material," National Institute of Standards and Technology, last modified July 9, 2021, https://www.nist.gov/itl/executive-order-improving-nations-cybersecurity/critical-software-definition-explanatory.

[18] Privacy Act of 1974, 5 U.S.C. § 552a.

- **Identify cloud migration roles and required skills and establish a comprehensive structured cloud training program:** A skilled workforce is required to successfully adopt large-scale cloud services. The Board has established a technology and cloud upskilling framework, where training programs are established along multiple cloud tracks, such as infrastructure, DevOps, security, data, cost optimization, etc. Each training track will have a progression path as the employees advance from foundational to proficient to expert levels. Vendor-led trainings are also available for specialized cloud tooling to support staff in implementing cloud solutions.
- **Decommission legacy workloads that are migrated to the cloud as per the warranty governance established by the Cloud Center of Excellence (CCOE):** Cloud migration of mission critical workloads may introduce additional costs and staff support burden during a transition period where legacy workloads and new cloud workloads are run in parallel. The Board is developing policies and practices to ensure that legacy workloads are decommissioned in a timely manner without increasing operational risk to critical functions.

Objective 5.2: Cloud Governance

The Board has established a CCOE consisting of cross-divisional cloud subject matter experts who are tasked with developing cloud policies, procedures, and best practices. The CCOE ensures that cloud resources are shared with all relevant stakeholder groups and collaborates with technical training staff to identify and facilitate educational opportunities for Board employees.

- **Define business rationalization processes to enable development teams to optimize their usage of cloud services:** The Board aims to leverage cloud migration as an opportunity to streamline business processes and reduce duplications and technical debt. The CCOE is developing a set of processes and guidelines that require each development team to conduct business value rationalization and enterprise architecture optimization of their application prior to migration to the cloud. Duplicative workloads that achieve similar business capabilities are to be merged into shared services to be reused across the enterprise.
- **Develop reference architecture and associated platform-level tooling to make them available for self-service:** The cloud offers a wide range of technology and tools. The Board's CCOE and Enterprise Architecture functions are developing standard tooling, reference architecture, configuration baselines, blueprints, infrastructure-as-code, and security-as-code to allow business and development teams to streamline the design and build out of cloud workloads.

Objective 5.3: Cloud Platforms

The Board has established teams responsible for architecture, engineering, and maintenance activities needed to support the Board's cloud infrastructure, services, and security. It has built out a multi-cloud infrastructure that incorporates best-in-class service offerings of infrastructure as a service, platform as a service, and software as a service from multiple cloud providers.

- **Reduce time to adopt new cloud services through streamlined review, procurement, and onboarding processes:** The CCOE working in concert with the Procurement function is updating procurement practices to adapt to the agile and pay-as-you-go nature of cloud services, while incorporating supply-chain security requirements. The Board is also exploring and implementing policy automation and policy-as-code capabilities to reduce compliance burden and improve time to market.
- **Manage or deploy migrated cloud workloads through automation pipelines and infrastructure-as-code:** To maximize the benefits of the cloud and ensure speed, security, and quality of cloud workloads, the Board is investing in maturing cloud automation through application deployment pipelines, containerized workloads, infrastructure-as-code, policy-as-code, and security-as-code. The Board has deployed new applications and migrated existing applications using these automation capabilities and continues to validate and enhance them.
- **Engineer all cloud workloads to meet the availability and reliability requirements of the business:** The flexibility and variable cost of cloud workloads requires careful planning of cloud resources utilized to meet business needs. The CCOE is working with cloud teams to ensure all workloads have clear availability and reliability metrics defined, and to optimize the design to ensure efficient use of cloud resources.

Objective 5.4: Cloud Financial Operations (FinOps)

To manage the implications of cloud growth at the Board, it is essential to establish FinOps processes to mitigate risks of unplanned budget overrun and ensure that maximized value is derived from the cost of cloud workloads. The Board has progressively matured its FinOps practices through a series of workgroups. The Board is also in the process of creating a FinOps team and onboarding FinOps tools to comprehensively manage its cloud spend.

- **Cloud spend tracking, allocation, and reporting are readily available:** The FinOps workgroup and cloud infrastructure teams have established account hierarchy to organize and group cloud financial transactions. Resource tagging strategies has also been developed and are being widely implemented across all cloud accounts. Cost-reporting dashboards are built out using visualization tools to enable fast feedback loops to understand usage behavior and identify opportunities to optimize.
- **Cloud budgeting and forecasting are proactively performed:** As opposed to traditional forecasting that is static and largely driven by capital expenditure, cloud forecasting is dynamic and is largely driven by operational expenditure. The Board plans to update its cost budgeting and forecasting capabilities that reflects the variable spend nature of the cloud while also fitting into the Board's budget planning framework.
- **Establish the governing structure and processes to continuously assess and compare value delivered against the marginal cloud cost of the solution:** A FinOps team, noted previously, will coordinate the activities of cloud infrastructure, cloud engineering, finance, and procurement to

plan and manage cloud costs. The Board has established a cost-tiering framework that optimizes cloud spend toward the highest priority cloud workloads. The FinOps team will also support the organization in progressively optimizing cloud costs through discounts, architectural optimization, and divesture of on-premise solutions.

Goal 6: Leverage Innovation and Emerging Technology

Fostering a culture of innovation has always been instrumental to the Board's success in identifying, evaluating, and implementing solutions that address some of its largest challenges. The Board's innovation approach focuses on both process and technology. In the process area, maturing the technology innovation operations allows innovation activities to be applied more consistently to real business capabilities. In the technology area, the focus is to leverage the best innovation in the industry, such as AI and automation, to enhance the Board's business and technology capabilities and improve operational efficiency.

Objective 6.1: Technology Innovation Life Cycle

Transitioning from innovation to production in carrying out the Board's research, development, and innovation activities is a complex process that involves many steps and requires coordination between teams. While the Board is able to bring innovations into production use, the process can be further streamlined to improve the outcome.

- **Define and standardize the technology innovation life cycle processes across the enterprise:** The Boards aims to standardize a technology innovation process that provides a smooth transition between proof of concept to production deployment of tangible technology products. The process will detail how prototypes can be made consistent with enterprise architecture standards, scaled up to production use, and transitioned to product teams for further development and life cycle management.
- **Match emerging technologies with valid business cases and strong value propositions:** The Board recognizes that any new technology or innovation must demonstrate strong business value. Updated processes will incorporate feasibility assessments to evaluate the applicability of emerging technologies before research and prototyping takes place.
- **Improve approval time for new technologies to as close to real time as possible:** In order to keep up with the pace of innovation in the industry, the Board will enhance its review and approval process for new technology.

Objective 6.2: Artificial Intelligence (AI)

AI offers transformative benefits for the Board to improve productivity, optimize workflows, and design new methodologies. The Board established an AI Program in 2024 to advance responsible AI innovation, maintain robust AI governance, and manage the risks associated with the use of AI.

The Board appointed a chief AI officer (CAIO) in 2024 to lead AI efforts and oversee compliance with applicable government directives, such as OMB M-24-10 "Advancing Governance, Innovation and Risk Management for Agency Use of Artificial Intelligence."[19]

- **Enable responsible AI innovation through the delivery of secure, flexible, and scalable IT infrastructure:** The Board has established several AI enablement technology platforms upon which multiple AI working prototypes are being explored and tested. The Board has developed an AI strategy as part of the overall IT strategy for coming years to ensure AI progress is resourced and identifying synergies with existing IT infrastructure wherever possible. Finally, the Board is providing training for staff to increase their AI skills and will implement targeted recruitment strategies to attract AI talent.
- **Maintain robust AI governance processes that are consistently communicated and implemented to balance business value and potential risk:** The Board's AI Program is responsible for advancing, governing, and communicating permissible use of a range of AI methodologies to ensure AI model deployment is ethical, fair, bias-free, and transparent. Additional AI governance processes are being developed in alignment with portfolio management processes (Objective 1.2) to ensure both business value and risks are appropriately considered. An inventory of AI use cases will be published and updated annually, in line with requirements outlined by OMB M-24-10. Further information about the AI Program can be found at https://www.federalreserve.gov/ai.
- **Conduct robust risk-management practices and reporting structures to meet government-wide AI compliance requirements:** The Board AI Program is working with the Board's enterprise risk-management function to create and update an AI risk register. All AI use cases will be evaluated for potential rights- and safety- impact, based on the definition of AI and requirements in OMB M-24-10. AI policies will be regularly reviewed and updated to reflect new developments in the field of AI to encourage responsible innovation, and to ensure that the Board's risk-management posture is appropriately calibrated.

Objective 6.3: Automation

Software automation has significantly improved how the Board manages its technology services by enhancing efficiency and reducing human error. By leveraging tools and scripts to automate repetitive business processes and IT tasks, teams can focus on more strategic initiatives rather than routine activities. Automation streamlines workflows, accelerates deployment processes, and ensures consistent performance across systems. Additionally, it facilitates rapid scaling and adaptability, essential in today's fast-paced digital landscape. As a result, businesses benefit from increased reliability, reduced operational costs, and the ability to swiftly respond to emerging challenges and opportunities.

[19] See OMB M-24-10, "Advancing Governance, Innovation and Risk Management for Agency Use of Artificial Intelligence," https://www.whitehouse.gov/wp-content/uploads/2024/03/M-24-10-Advancing-Governance-Innovation-and-Risk-Management-for-Agency-Use-of-Artificial-Intelligence.pdf.

- **Assess and prioritize opportunities to implement automation to increase staff capacity for innovation and higher-value activities:** As the Board looks to automate more manual processes, it begins with identifying tasks and processes that are time-consuming and prone to human errors. Once these opportunities are identified, the portfolio process (Objective 1.2) would evaluate their value based on factors such as potential time and cost savings from automation, the complexity of engineering automated solutions, and impact on overall productivity to prioritize and then implement the automated solutions.
- **Establish measures and report on annual targets for automation adoption, resource savings, and value metrics:** To systematically implement digital automation strategies, the Board intends to adopt targets and metrics. Such metrics include the number of processes automated, percentage reduction in manual task time, reductions in labor hours, decreased error rates, etc. These metrics will be regularly documented and compared to established targets to track progress.

Open Data Plan

The Board believes that adopting robust open data standards and practices as well as collaborating with the public on the use of the agency's data promotes transparency and understanding of the Board's mission and activities.[20] Accordingly, the Board works proactively and collaboratively to advance open data objectives, including those codified in OGDA.[21] The Board's CDO is formally charged with implementing OGDA's requirements and provides an annual report to Congress on the compliance of the Board. The CDO collaborates with the Board Data Council (BDC) which consists of senior leaders across the Board and is responsible for developing, influencing, and approving enterprise-level strategy, priorities, and policies regarding the Board's data management, governance, and capabilities.

The Board's *Open Data Plan* describes the Board's annual accomplishments with regards to data, ongoing data activities, and plans directed toward future actions. The *Open Data Plan* addresses the Board's efforts in the following areas:

- Data Collection Mechanisms
- Collaboration with the Public
- Data Asset Usage Evaluation
- Open Government Data Asset Quality Evaluation and Improvement
- Open Data Enablers: People, Processes, and Innovation
- Priority Data Assets, Comprehensive Data Inventory, and Federal Data Catalogue

Data Collection Mechanisms

In accordance with OGDA, the Board's data collection mechanisms generally are available in an open format.[22] In particular, the Board collects data from supervised financial institutions in an open format as set forth in the Board's reporting instructions.

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[20] As set forth in the Office of Management and Budget Circular No. 130, *Managing Information as a Strategic Resource*, "'Open data' means publicly available data that are made available consistent with relevant privacy, confidentiality, security, and other valid access, use, and dissemination restrictions, and are structured in a way that enables the data to be fully discoverable and usable by end users. Generally, open data are consistent with principles, explained in OMB guidance, of such data being public, accessible, machine-readable, described, reusable, complete, timely, and managed post-release."

[21] Pub. L. No. 115-435 § 201 et seq. (2019).

[22] OMB defines "an open format" as "one that is platform independent, machine readable, and made available to the public without restrictions that would impede the re-use of that information." Open Government Directive, OMB Memorandum M-10-06 (2009) available at https://obamawhitehouse.archives.gov/sites/default/files/omb/assets/memoranda_2010/m10-06.pdf.

In-progress activities:

- The Board continues to streamline its business processes and is replacing its legacy automation systems with cloud-ready technology for its data collection mechanisms. One of the efforts is launching a new electronic system, Structure Central, to support the collection of the Annual Report Holding Companies, Report Form FR Y-6. Structure Central will provide standardized templates, a user-friendly interface, and the ability to electronically submit open format files.

Collaboration with the Public

The Board conducts outreach and engagement activities with the public and industry in connection with its publicly available data publications. Industry outreach initiatives include communications with trade groups, financial institutions, and third-party consultants and vendors. The public is also invited to submit questions and comments concerning data on the Board's website.[23]

Completed activities:

- The Board engaged with the public through an online survey to gather the public's sentiment about Data Download Program (DDP) website's functionalities and to understand the end-user preferences such as data format. The results will inform decisions about the project's target state and roadmap for the next two years.
- The Board also conducted a survey to solicit feedback from the public regarding how the Large Commercial Banks statistical release is currently used and what enhancements would increase user satisfaction. The survey results will provide guidance on what updates will be made to the statistical release.[24]
- The Board finalized a joint Notice of Proposed Rulemaking (NPR) along with the other agencies specified in the Financial Data Transparency Act (FDTA).[25] The NPR proposed to establish data collection standards that would be consistent across the agencies. The Board engaged the public to provide comment on the joint NPR by publishing the notice in the *Federal Register*.

[23] See the Board's feedback web page at https://www.federalreserve.gov/apps/ContactUs/feedback.aspx.

[24] "Large Commercial Banks," Board of Governors of the Federal Reserve System, last modified August 16, 2024, https://www.federalreserve.gov/releases/lbr/.

[25] The Financial Data Transparency Act (FDTA) is designed to modernize the collection and dissemination of financial data by federal financial regulators, making that information more accessible, more uniform, and ultimately more useful to investors and consumers. The nine agencies specified in the statute are: the Consumer Financial Protection Bureau, Board of Governors of the Federal Reserve System, Commodity Futures Trading Commission, Federal Deposit Insurance Corporation, Federal Housing Finance Agency, Office of the Comptroller of the Currency, National Credit Union Administration, Securities and Exchange Commission, and the U.S. Department of the Treasury.

In-progress activities:

- The Board maintains a rigorous clearance process to clear information collections subject to the Paperwork Reduction Act (PRA).[26] The Board is enhancing the Industry Engagement Program to create a formal model for proactive outreach to industry participants during the clearance process. The program will inform the current public comment process to obtain feedback on proposed revisions to data collections and ongoing data collection efforts, as well as the burden, utility, and other dimensions of data quality for data collections. The Board plans to assess and utilize the feedback received to improve data collected under the PRA.

Data Asset Usage Evaluation

Currently, the Board's evaluation of public data asset usage is based on monitoring and tracking activities on the Board's website, including page views and downloads.

Completed activities:

- The Board developed processes and procedures to respond to public inquiries about quality issues, usability issues, recommendations for improvements, and complaints related to open data within a reasonable timeframe.
- Based on an analysis of the Board's website traffic coupled with the results of the DDP user feedback survey and information gathered from focus groups, the Board gained better insight into the public's familiarity with the Federal Reserve Bank of St. Louis's (FRB St. Louis) Federal Reserve Economic Data (FRED) online database and the features of FRED that users valued.[27] The Board uses FRED as a secondary resource for making Board data available to the public. As a result of the feedback survey, the Board partnered with FRB St. Louis and requested that FRB St. Louis make certain enhancements to FRED aimed at improving the way the Board's data is provided to the public.[28] The Board's continued partnership with FRED will improve the usability of the DDP's statistical releases by leveraging FRED's robust service offerings and large repository of public data. Earlier this year, the Board and FRED announced the launch of a new landing page within FRED for Board data. The new landing page provides an easy to navigate user-interface. In addition, FRB St. Louis made enhancements to the accessibility of the FRED site allowing a wider audience to utilize the published data more easily. The Board's website remains the official source for Board data, and users are still able to access the Board's

[26] The Board, under delegated authority granted by OMB, conducts a rigorous review process (also known as the "clearance process") of proposed information collections subject to the PRA. The Board uses the PRA clearance process to promote improved quality and practical utility of information collected while seeking to minimize the overall response burden.

[27] Federal Reserve Bank of St. Louis Federal Reserve Economic Data (FRED)'s Federal Reserve Board Data homepage at https://fred.stlouisfed.org/collection/federal-reserve-board-data.

[28] See the announcement about the Board's partnership with FRED at https://www.federalreserve.gov/data/data-download-fred-information.htm.

existing DDP service, including the ability to download preformatted release packages or customized subsets of releases.

In-progress activities:

- The Board is developing a plan to publish non-government user data asset statistics.

Open Government Data Asset Evaluation and Improvement

The Board ensures the timeliness, completeness, consistency, accuracy, usefulness, and availability of open government data assets principally through the Statistics Data Quality Program (DQP).[29] Under the DQP, data quality controls are implemented at the pre-submission, submission, and post-submission phases of the Board's data collections.

The Board also focuses on finding ways to manage and use data more efficiently and effectively. As part of the Board's Data Strategy, initiatives are underway to support timely decisionmaking and the availability of robust data. One example is the Board's development of a new metadata management strategy aimed at improving the discovery, access, and use of data.

Completed activities:

- The Board conducted the inaugural formal review on the DQP to confirm that defined data quality processes are meeting the Board's objectives. The Board will review the DQP annually to ensure that the collected data continues to adhere to the overarching data quality processes.
- The Board continued to enhance its internal cloud-based data and analytics hub as part of the Integrated Research and Analytics Platform (IRAP) initiative. The Board developed a user portal that provides users with an intuitive interface where they can easily find the data management and analytics tools they need. This platform enables Board users to perform data analytics and share created datasets. The portal includes an access management function that makes it easier and more efficient for users to control and manage the access of collaborators across the Board and the Federal Reserve System for each created dataset.
- The Board also issued its Data Governance policy that serves as the foundational cornerstone for the Board's Data Governance Program. The foundational data governance policy establishes a minimum set of roles and responsibilities to manage and use data efficiently and effectively throughout the data life cycle. It also identifies the roles that have OGDA responsibilities, to ensure data sponsors and stewards are aware of their role in complying with OGDA requirements.

[29] OGDA defines an "open government data asset" as "a public data asset that is (A) machine-readable; (B) available (or could be made available) in an open format; (C) not encumbered by restrictions, other than intellectual property rights, including under titles 17 and 35, that would impede the use or reuse of such asset; and (D) based on an underlying open standard that is maintained by a standards organization." See 44 U.S.C. §3502(20).

- The Board also issued its Data Access policy, which defines data access management responsibilities and formulates a process in setting access requirements. The policy aims to prevent unauthorized access, enhance data security compliance, and manage risks while enabling users to access necessary data to perform their job functions.
- The Board published Data Usage Guidelines to raise awareness around permitted and prohibited uses of data. The guidelines aim to help data users better understand data terms of use and promote awareness around whom to contact for help.
- The Board launched its internal data governance website, which is accessible to the entire Federal Reserve System. The website centralizes data governance resources including related policies, guidelines, guidance, and frequently asked questions.
- The Board made significant progress in implementing its metadata management strategy. As part of the deployment work, the Board developed a metadata schema that incorporates the Federal Data Catalogue's standards as well as the Board's foundational data governance policy requirements.

In-progress activities:

- The Board is developing additional guidelines and guidance on data quality, data sharing, and data lineage to enable the implementation of data governance roles and responsibilities.

Open Data Enablers: People, Processes, and Innovation

The Board recognizes that the people, processes, and innovation will help the Board meet its open data goals, including timely decisionmaking and the availability of robust data.

The Board's Procurement Office is instrumental in sourcing both professional services talent and IT products in support of open data objectives. Basic ordering agreements are used to efficiently procure consulting services.

The Board offers various relevant training opportunities for staff on topics, such as data science, data management, and data analytics. The Board continually invests in training and upskilling staff to enhance open data capabilities.

Completed activities:

- The Board recruited and hired new staff with advanced skills to implement the metadata management strategy while supporting the goals of the Board's open data objectives.
- As part of the Board's talent management efforts, the Board standardized job descriptions, including the data management specialist and data engineer job families, to better align the IT workforce and each division's objectives and strategic priorities.

In-progress activities:

- The Board has established the Data Professional Talent Development workgroup to provide recommendations on training curriculums and work opportunities that would accelerate the development of data-related skills. The workgroup is examining the Board's current data skills inventory and various data talent management programs across the Federal Reserve System while developing ideas to expand upskilling opportunities for data professionals at the Board.
- The Board is exploring tools to enhance the management of data taxonomy and ontology. The enhanced data taxonomy and ontology will allow Board data users to have common data vocabularies, share data knowledge more easily, and understand the data relationships holistically.

Priority Data Assets, Comprehensive Data Inventory, and Federal Data Catalogue

The goal of the Comprehensive Data Inventory (CDI) is to create an inventory of Board data assets as required by OGDA. The technology platform that supports the metadata program provides data users with a single portal for search and discovery of the Board's data assets and serve as the Board's CDI.

Completed activities:

- The Board developed and implemented processes for compiling and maintaining the Federal Data Catalogue to ensure that updates are made when necessary.[30]
- The metadata schema developed under the Board's metadata management strategy was incorporated into the Board's CDI. Multiple business lines at the Board were onboarded to the technology platform that serves as the portal of the Board's CDI. The Board also delivered functionality training for the technology platform to the CDI end users.

In-progress activities:

- The Board is developing the strategy and plan for future iterations of the Federal Data Catalogue. The Board will add new data assets to the catalogue along with any necessary updates to the existing data assets.
- The initial migration of the disparate data catalogues from the onboarded business lines into the CDI has begun. The Board is planning to consolidate different divisional data catalogues into the CDI through various methods. A user-friendly landing page for CDI end users is also being developed.

[30] See the Board's Federal Data Catalogue at https://catalog.data.gov/organization/board-of-governors-of-the-federal-reserve-system.

Find other Federal Reserve Board publications at www.federalreserve.gov/publications/default.htm, or visit our website to learn more about the Board and how to connect with us on social media.

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