



Office of the
Chief Data Officer

Emerging Opportunities and Challenges with Central Bank Data

For the Sveriges Riksbank Conference – September 2015

Note: These slides are intended only as a primer on the basic topics covered; they reflect the author's views and not necessarily those of the Federal Reserve Board or anyone else associated with the Federal Reserve System.



Federal Reserve Board Missions

- Conducting the nation's **monetary policy** by influencing the monetary and credit conditions in the economy in pursuit of maximum employment, stable prices, and moderate long-term interest rates
- **Supervising and regulating banking institutions** to ensure the safety and soundness of the nation's banking and financial system and to protect the credit rights of consumers
- Maintaining the **stability of the financial system** and containing systemic risk that may arise in financial markets
- Providing financial services to depository institutions, the U.S. government, and foreign official institutions, including playing a major role in **operating the nation's payments system**

To provide the nation with a safer, more flexible, and more stable monetary and financial system.

Background on FRB's use of Data for Economic Measurement

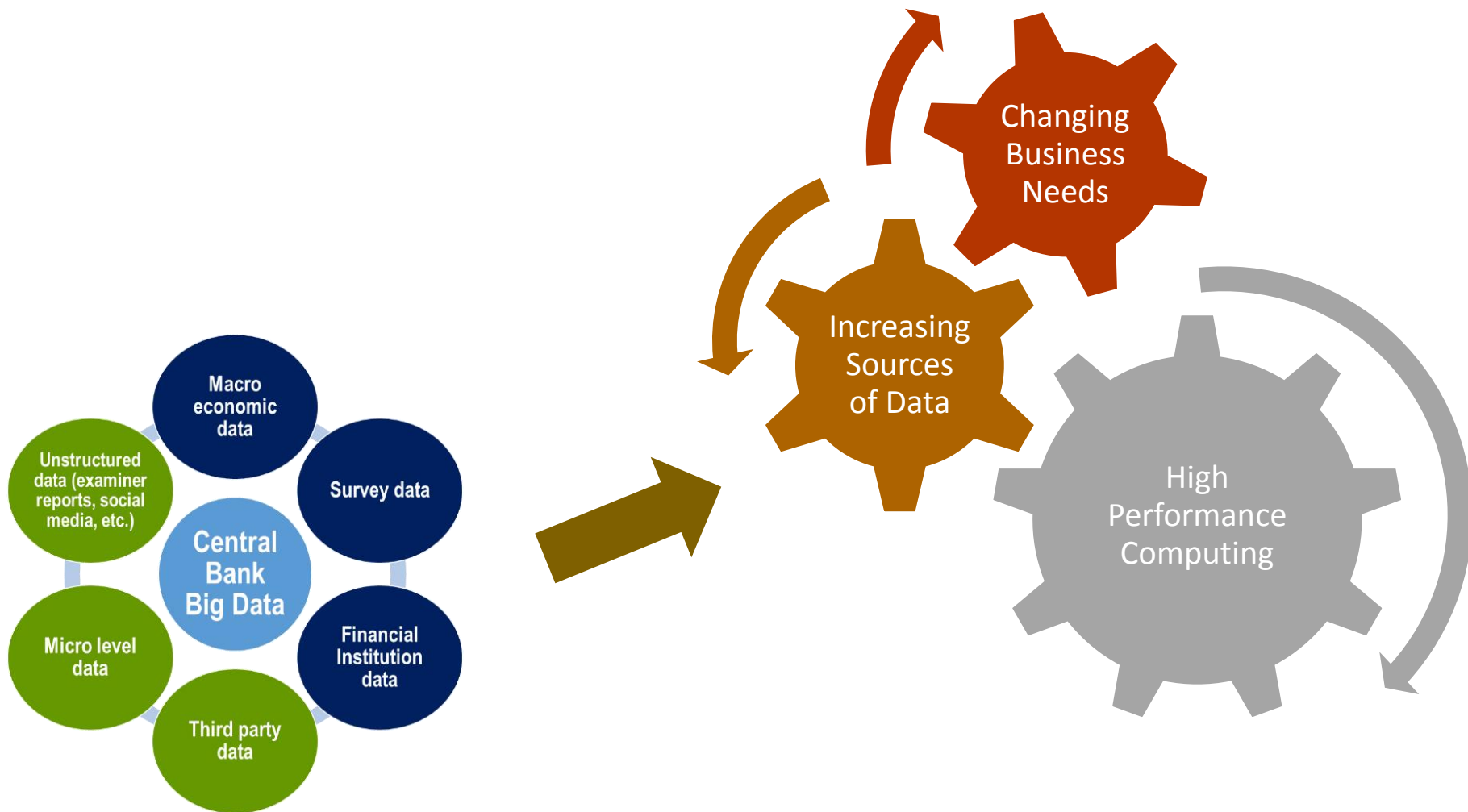
- Board staff have an insatiable appetite for immense quantities of economic data.
 - We need to have the best possible understanding, in real-time, of the cyclical position of the domestic and world economies, of emerging price pressures, of nascent imbalances in the financial system, and so on.
- In addition, because changes to monetary policy can take several months to several quarters to have their intended effects on the broader economy, the staff and the Board need to forecast economic activity through a combination of models and judgment.
 - This process is also heavily based on a wide variety of data series and that includes a seemingly never-ending search for new forward-looking indicators of economic activity.

New Vision for Economic Measurement at the FRB

Board staff have begun to expand the orbit of the sorts of data we are investigating, both to give us better reads on the current and likely future state of the nonfinancial economy or better insight into emerging imbalances, as well as to improve the data that the Board compiles and publishes.

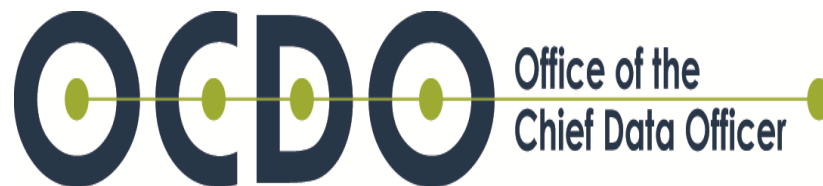
- Monetary policy faces a difficult signal extraction problem: The publication of macroeconomic data lag – often considerably – the reference period they are measuring; these data typically are subject to – often considerable – revisions.
- We are exploring the possibility of using new sources of information, including administrative data, “big data,” or indicators derived from big data.

Changing Dynamics for Central Bank Data



Federal Reserve Strategic Framework, Theme 2

- Launch the Board Data Council comprised of key enterprise stakeholders to support enterprise wide data governance policies, processes, definitions, standards, and metrics



- Create the OCDO mission, charter, goals, competencies
- Develop the enterprise data strategy and infrastructure to share data to strengthen the Board's data environment

Key Data Management Risks and Opportunities

- Transforming the culture to data-centric and data driven
- Developing common, best-practice focused data governance and data management
- Creating integrated, distributed information architecture and set of platforms for increasingly complex data and information sharing needs (internally and externally)
- Working together to develop common ontologies, data architecture, data dictionaries, and other data standards
- Optimizing the analytic environment for insights across domains, data types, business processes
- Embracing transparency and open data for engagement and efficiencies

OCDO Vision

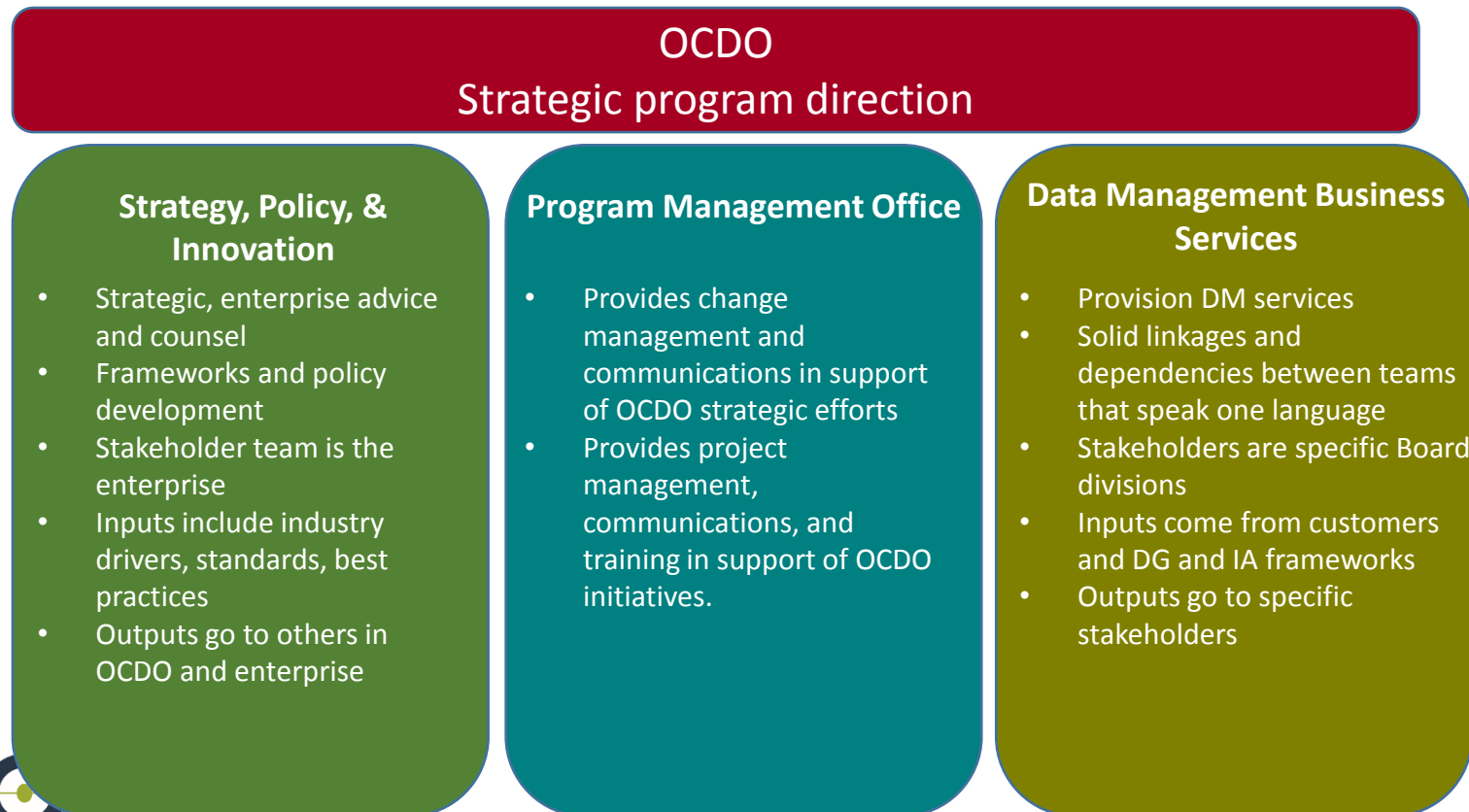
Enable the seamless use of data as a strategic asset in support of the Board's missions



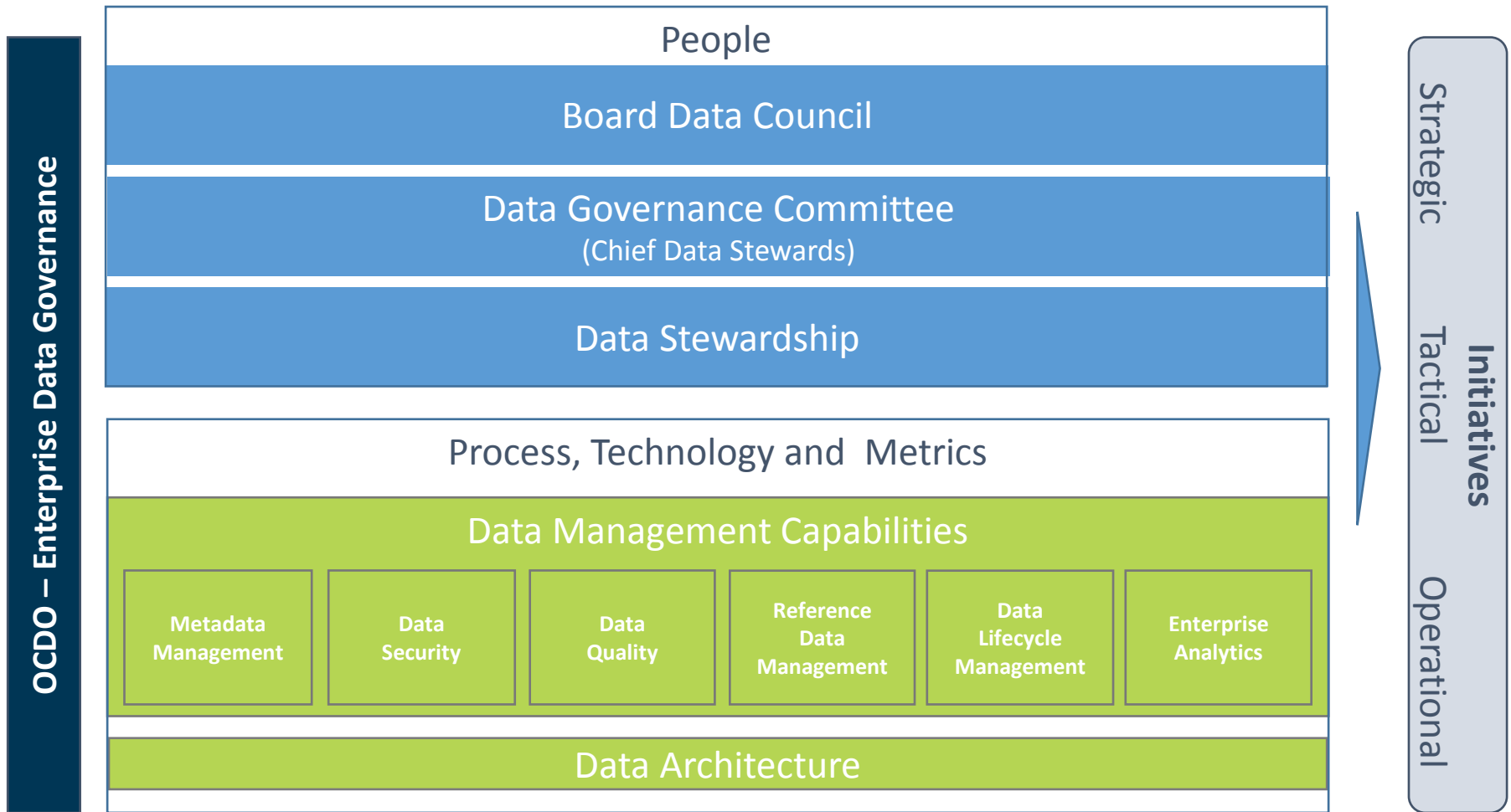
Federal Reserve OCDO Organization

Mission – OCDO supports the Board’s interdisciplinary approach to monetary policy, supervision, and financial stability through strategic thought leadership, policy setting, advisory services and collaborative outreach to optimize enterprise data and information assets.

Scope - Enterprise data governance and data management services across Board and Board-delegated functions.



Enterprise Data Governance Framework



Early Benefits of These Services

Architecture and Platforms Section – Benefits and Impacts

Solution Architecture

Metadata Capability

EDI Lite

Tax Lite

EDI

Discoverability

Governance Support

Accessibility

Common Vocabulary

Data Architecture Foundations

Semantic Development

Controlled Vocabulary

Business Glossary

Enterprise Taxonomy

Common Vocabulary

Discoverability

Controlled Sharing

Interoperability

Integration

Information Value Chain Analysis

Data Models

Enterprise Information Architecture Framework



Seamless: we all use the same standards and practices, enabled by the Framework

OCDO Vision

Enable the **seamless** use of data as a strategic asset in support of the Board's Mission

Strategic Framework Theme 2

Operational Flexibility
Efficient Data Management

Improved **Data Governance**

Infrastructure to **Share Data**

Improve **Data Integration**

EDG Roadmap

Improve **Discoverability**

Enable **Controlled Sharing**

Enhance **Quality**

Improving Data Infrastructure

- Modernizing the current methods for ingesting and managing data
- Managing and working with high volumes of unstructured data
- Data architecture to support data integration and fluidity
- Creating a high performance computing environment
- Developing an innovation lab
- Enhancing data analytics environment



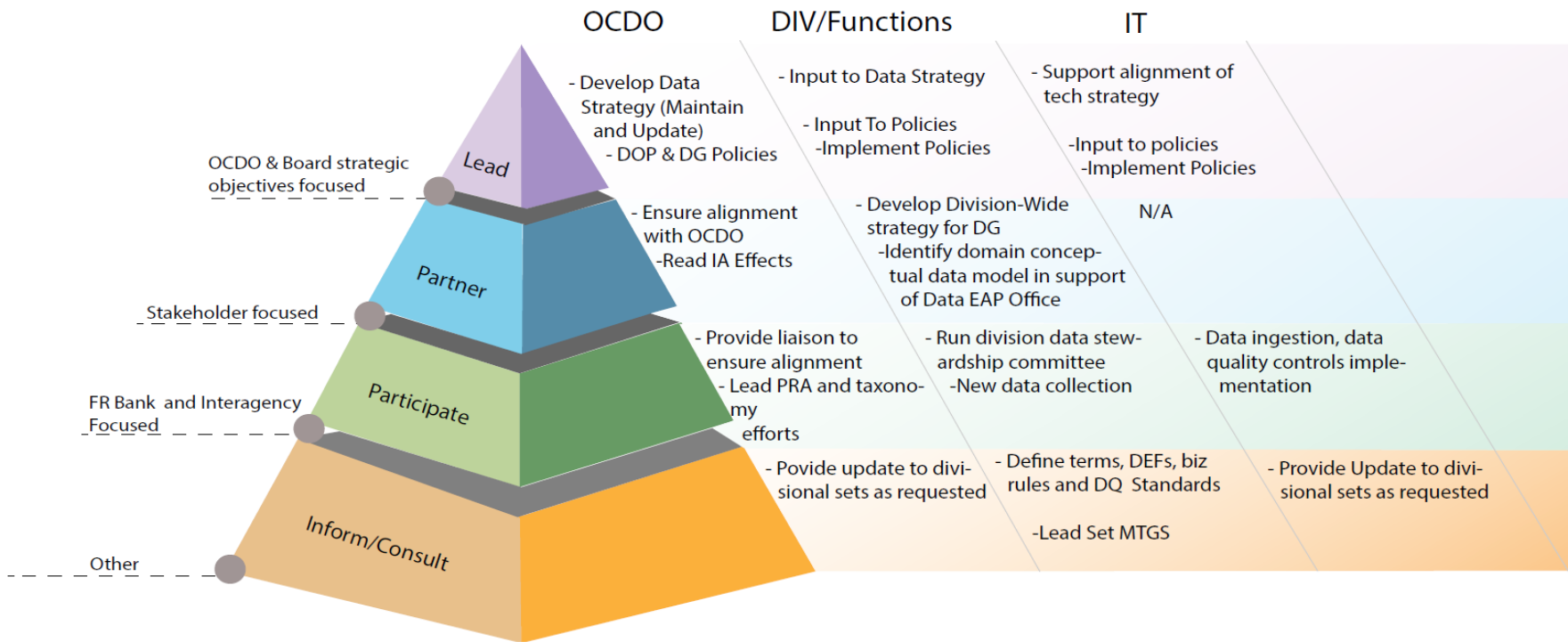
Culture and Change Management

- This is not about a change in technology and processes but a change of the hearts and minds
- A change in how we think and deal with a changing world with different issues and data sets
- A change in focusing on “US” instead of “me” or “my group”
- A change in how we perceive/define data
- Data is no longer the means but a means that delivers strategic advantage to achieve the desired end state



Building Organizational Collaboration & Capabilities

OCDO Engagement Model



The level of OCDO engagement or involvement is determined based on the criteria below:

SI-Strategic Importance: Delivers value beyond current state or objectives towards the achievement of Board objectives/Strategic Theme 2, OCDO mission and operating plan.

P-Priority: Important based on stakeholder needs or objectives and the Board's mission.

CCI-Cultural Change & Impact: Ability to affect a sizeable number of board wide/system stakeholder groups that are regarded as key OCDO stakeholders while supporting FRB values and change in how it conducts business or delivers value to key stakeholders.

The Data Strategy supports the current Board Strategic Framework and aligns with the 2016-2019 Strategic Plan

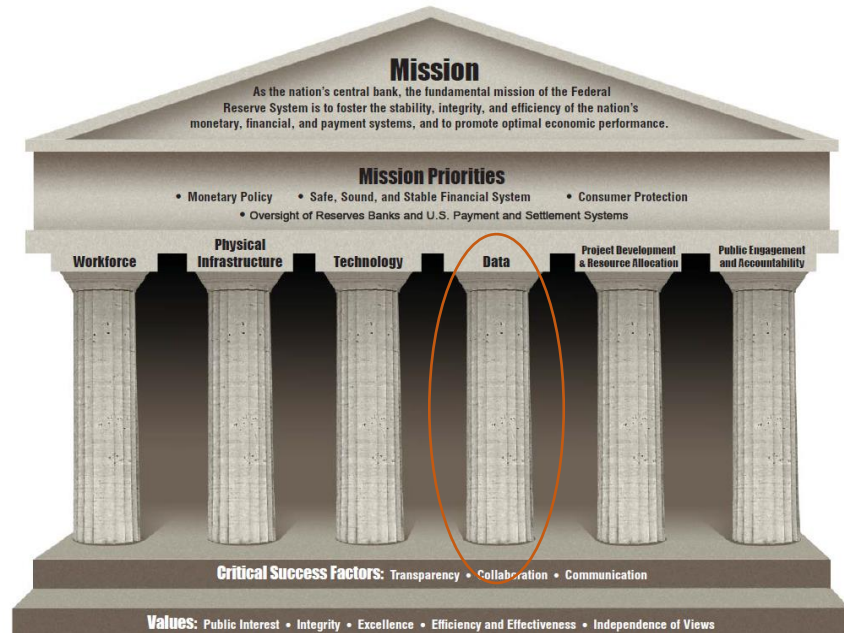
2012-2015 Strategic Framework

The Board's Strategic Framework, Theme 2, specifically outlines the strategic objectives to be undertaken to redesign data governance and data management processes to enhance the Board's data environment. The development of a Board-wide enterprise Data Strategy is a keystone component for successful implementation of Theme 2.

2016-2019 Strategic Plan

The Board's Boardwide Strategic Plan has Data as one of its key pillars.

2016-19 Strategic Plan Model



The Data Strategy purpose and scope prioritize key data management activities and explain how these enable Board outcomes

Purpose:

- ✓ Provide *programmatic strategy* for governing, maintaining, improving data quality, integrity, security, and access over the lifecycle of data. A data strategy flows from the business needs and supports enterprise goals.
- ✓ Define *goals, objectives, strategies*, initiatives, business value, prioritization, metrics, and sequence plan for the data governance and data management program.
- ✓ Determine how *data management* is defined, organized, funded, governed, and embedded into operations. It defines the long-term vision, including a description of stakeholder functions and how these must be aligned.
- ✓ Demonstrate *business value* that the program will achieve. It will become the blueprint describing how the organization will evaluate, define, plan, measure, and execute a mature data management program.

Scope:

- ✓ Focus is Board enterprise data assets, those which support the Board's mission, and which meet other criteria such as volume, complexity, extent of sharing and use, etc.
- ✓ Relates to all five mission areas outlined in the Board's Strategic Framework and related pillars.
- ✓ Data Management within the Federal Reserve Banks is not included in the scope. National lines of business that play a role in managing the board's data (such as Supervision and Regulation) will be impacted by the Board's Data Strategy.
- ✓ The Board participates in inter-agency information sharing efforts which will be taken into consideration.
- ✓ This is not a technology strategy; a strong technology strategy or roadmap will be required for success.

The Data Strategy is a key component to helping the Board achieve critical Target Data Outcomes

- ✓ Increased trust and confidence in Board data
- ✓ Increased usage and optimization of Board data
- ✓ Ability of Board staff to analyze and make decisions more quickly
- ✓ Improved capability to connect data producers and consumers
- ✓ Improved data security and reduced reputational risk due to inappropriate data usage
- ✓ Reduced time to market for end user in purchasing or collecting new data
- ✓ Enhanced governance and management of enterprise data as assets for the good of the Board
- ✓ Increased Board innovation for emerging data and data tools
- ✓ Minimized duplicative purchases, management, and movement of data
- ✓ Transparent/open data as appropriate

The 2016-2019 Strategic Plan set the Data Vision, Goal, and Objectives for the Data Strategy

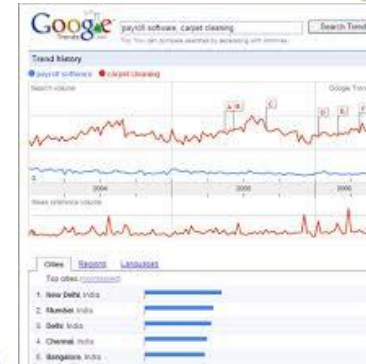
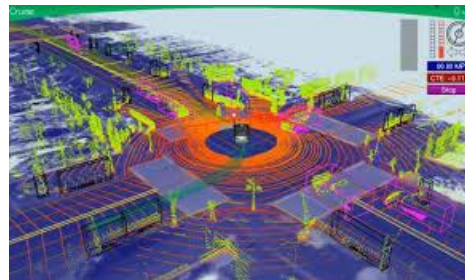
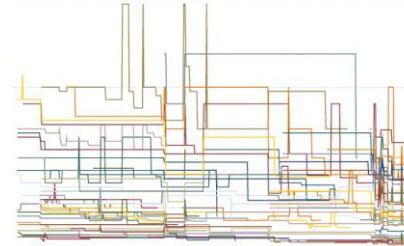
Data Vision Enhancing data analytics tools, policies, and procedures to conduct monetary policy, supervisions, regulation, and oversight responsibilities effectively.

Data Goal Accelerate Board's ability to obtain, integrate, share, interpret, and analyze data through next generation data management tools, established governance, and adaptive policies.

Data Objectives

1. Strengthen the Board's governance of its data assets
2. Improve the data architecture, process, and data storage technology
3. Create and maintain a research and development culture
4. Improve the Board Staff's ability to discover what data are available
5. Enhance the transparency of Board data

The Future of Economic Measurement



Key Questions

- How can we use existing data in new ways?
- How can we use new data to support current measurements?
- What aren't we measuring that perhaps we should be?
- How can we use new data types to answer known and as-of-yet unknown questions?

Implementing the New Measurement Vision

We are taking a multi-pronged approach

- We are exploring what data are available and what might be possible
- We are looking for collaborative opportunities with companies and other government agencies
- Skill development
- The new Office of the Chief Data Officer

These new alternative sources of data bring risks as well

- They likely have short histories – without much history, business-cycle-frequency inference could be problematic.
- There could be a lack of representativeness, sample-selection issues.
- There could be a lack of temporal consistency, and what is collected could change unexpectedly.
- These could be expensive data to receive or to access, but providers could be fickle.



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Thank you!

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