



# The Road to Financial Transparency

A Strategic Approach to Agile Financial Reporting and Analytics in Government



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## Executive Summary

The drumbeat of calls for increased financial transparency has become deafening for CFOs in virtually every industry, especially Government. Intense Congressional oversight, greater transparency, and more informed data consumers require governments to do a better job of providing answers about how money is being spent—and who is benefiting. Yet all this must be done on restricted budgets, and often with IT infrastructures that are not designed to meet these goals.

Leading Government CFOs are finding new ways to meet these conflicting goals. By deploying highly streamlined, automated next-generation finance system architectures and embracing best practices, executives are simplifying existing IT infrastructures, while meeting stakeholders’ transparency demands and providing better analytic insights to the business.

This white paper examines three key building blocks for next-generation financial reporting and analytics. It also reviews the ways a common data foundation can be deployed to help create an optimal finance systems architecture. Case studies illustrate how leading customers have deployed these solutions for significant, quantifiable business benefit.

### The Charge to the CFO: “Do More with Less”

As governments adjust to a “new normal” in the wake of continued political and budgetary uncertainty, most CFOs are experiencing growing pressure to expand their capabilities without impacting the department’s cost structure. Stakeholders are demanding greater transparency, improved analytics, and expanded consultative services to the business—along with increases in corporate financial controls and reduced costs. New regulations (i.e., the DATA Act), require more frequent, detailed reporting.

Most finance chiefs have already taken conventional steps to increase efficiency by deploying new ERP systems, launching shared service centers, and implementing point solutions for consolidation and planning. Yet savvy Government CFOs and Executives must do more to effectively serve and advise the business.

Although ERP systems are valuable for recording business transactions, they are not designed to provide robust analytics or deliver the insight needed to navigate rapidly

changing regulatory and management mandates. Seeking a quick fix, some governments install reporting and analytics point solutions.

Often this investment is counterproductive, adding to costly, complex IT infrastructures. In fact, over 50 percent of finance executives surveyed by CFO Research Services say their decision-making is limited by symptoms of IT complexity, such as overlapping, conflicting data stores, multiple disconnected ERPs, and poorly linked financial and non-financial data<sup>1</sup>.

For CFOs striving to deliver enhanced reporting transparency, the need for change is clear: they need a lower-cost, agile, IT environment built to support current and future analytic needs.

### Barriers to Efficiency

Which technology and human resource issues keep CFOs from creating the agile, transparent IT systems that would increase operational efficiency in the finance department? Recent studies point to four core shortcomings:

- **No Time for Analysis:** According to a recent TDWI study, over 60 percent of respondents say that finance spends too much time on data collection, validation and reconciliation<sup>2</sup>. As a result, “financial analysts” in these organizations might more appropriately carry the title “data jockeys.” Leading organizations are seeking to automate these manual data integration tasks, hoping to free analysts to perform the more valuable tasks for which they were hired.

<sup>1</sup> CFO Publishing LLC, Gearing Up for Growth: Financial Analytic Capabilities for Changing Times, 2011

<sup>2</sup> TDWI Research, Transforming Finance: How CFOs use Business Intelligence to Turn Finance from Record Keepers into Strategic Advisors, 2010



- **The “Excel Wars”:** Nearly 70 percent of TDWI respondents stated that their finance departments “do most of their work in Excel.” This is the result of years of inadequate data integration, which commonly drives a proliferation of Excel spreadsheets and other isolated analytic tools used by an ever-growing “Excel Army.” Non-integrated data often creates clashes over which revenue, cost, or expense numbers are correct. It also breeds a culture where data is “owned,” hoarded, and used as a weapon rather than shared as an organizational asset.
- **Beyond ERP—the Data Granularity Challenge:** Although ERP systems can create significant transaction processing benefits, they do not typically improve finance’s ability to address current analytic challenges. A major reason: considerable quantities of insight-provoking granular data (such as profitability, operational and risk drivers) reside outside the ERP system, in transactional source systems, data marts, or within analytical modelling engines.
- **Connecting the Dots—Transparency Limitations between Transactional Systems and the General Ledger:** Increased demands to analyze key drivers of performance—at greater levels of granularity, across multiple dimensions of the business—necessitate access to data that lies outside the General Ledger. Pressure for greater transparency between aggregate General Ledger balances and the underlying transactional data that generated them is driving a need to link the transactional data and General Ledger in a clear, auditable manner that can be queried and reported upon. The fragmented operational processes used to generate General Ledger entries—often operating as “black boxes” running on the operational systems—are an additional obstacle to growing transparency requirements for both accounting rules and journals. The resulting fragmentation results in an inability to drill from a General Ledger journal entry to the underlying transactional detail. With this disconnection, users struggle to reliably reconcile the detailed transactions maintained within a data warehouse with the General Ledger-based financial performance data reported to stockholders.

## The Way Forward: Common Goals for CFOs

Faced with these shortcomings, leading CFOs are working to transform their departments’ capabilities by pursuing:

- **Reduced Cost and Complexity via Simplification and Data Centralization:** World-class CFO organizations focus on standardization and centralization of data as well as accounting and reporting processes<sup>3</sup>, according to consulting firm The Hackett Group. These firms are employing a centralized data repository to reduce the inherent complexity of integrating multiple finance applications and data sources. According to Hackett, these leaders are realizing lower costs (measured by finance cost as a percent of revenue) and are outperforming their competitors (as indicated in their Indexed Return on Equity).
- **“Single Version of the Truth” Data Strategy to Drive Reporting Consistency:** Of the TDWI survey respondents, only 16 percent stated that their finance departments were highly effective at “delivering consistent data via reports.” Leading firms are seeking to build and maintain a centralized data warehouse containing all key operational and financial data, which can be leveraged by all finance and non-finance constituents. Leaders in this area view the CFO organization as the owner and champion for defining, developing, and maintaining a consistent set of data, metrics, and self-service reporting capabilities that drive measurement and analysis of all key aspects of the business.
- **Transparency, Reconciliation, and Linkage of Financial and Management Reporting:** As new and evolving statutory and regulatory reporting requirements continue demanding greater levels of granularity, many CFOs are realizing that General Ledger and planning platforms are insufficient to meet the future reporting and management requirements of the business. Leading firms are seeking to integrate and reconcile the systems, data definitions, data flows, and business processes used to report the business to shareholders, regulators and internal constituents. This requires rationalizing various fragmented processes and systems currently in place. Governments must also architect a future state, one that enables a consistent approach to linking operational systems to the General Ledger. This approach must also enable consistent reporting and analytics across varying levels of business granularity and dimensionality. By doing so, these firms are reducing the number of integration points, increasing transparency across transactional source systems and ERP systems, and providing greater reporting consistency, while improving operational flexibility.

<sup>3</sup> The Hackett Group, Best Practices Conference Enterprise Presentation, 2011

## Rationalizing the Finance Architecture

To achieve these goals, many leading CFOs are deploying highly streamlined, next-generation finance system architectures. At their foundation, these architectures share a centralized data repository that integrates transactional, ERP, sub-ledger, and other data. This repository enables data sharing, which supports external statutory and regulatory reporting, as well as internal management reporting and analytics. It also provides transparency between externally reported results and the transactional drivers of those results.

By supporting data integration and data management across applications and business processes, a rationalized finance architecture sets the stage for success. As AMR research director John Hagerty observed in a Teradata Magazine article: “Internal transparency and external disclosure should both be driven off the same engine. There may be internal and external versions with different levels of details, but they really need to come from a single source... It is very important for governments to have a unified view of all information that serves multiple masters<sup>4</sup>.”

## Key Building Blocks for Next-Generation Financial Reporting

Firms seeking to transform their finance architectures often struggle to define the appropriate role for key applications across the architecture. It can also be difficult to establish how those applications should work together, so that the architecture doesn’t create new data management challenges.

Three key building blocks for improved financial transparency and best practice reporting are:

- **Accounting hub**—Provides transparent, consistent rules-based treatment and reconciliation between transactional source systems, GL, and the data warehouse
- **Calculation engine platform**—Enables the creation of custom metrics, as well as allocation of costs and revenues based on both transactional and GL data
- **Hierarchy management**—Provides the ability to analyze the business based on a multi-dimensional view

The following sections describe each of these key building blocks.

## Best Practices for a Next-Generation Finance Architecture

- Make all required data available from a **single data repository**
- **Leverage a data warehouse (DW)-centric accounting hub** for automatic, drill-down data reconciliation between the GL and transactional systems
- Centralize **calculation engines** on a single platform for detailed cost allocations that inform profitability insights
- **Implement a robust sub-ledger** using a warehouse-centric approach, maximizing the granular detail available
- **Integrate finance and risk reporting** using the data warehouse as a common source of truth
- **Harness exploding data volumes** with a warehouse-centric solution that can handle hundreds of millions of weekly transactions
- Produce key reports and analytics through a common portal, **hierarchies and delivery processes**
- **Institute end-to-end data lineage and governance** to ensure quality, transparency, and traceability

## Accounting Hub

The escalating demands for reporting transparency are forcing CFOs to tackle a long-standing struggle: to effectively reconcile source systems, GLs, and any related data repositories upon which Finance relies for accounting, reporting, and analytics. Today the processes for generating automated GL journal entries from various operational systems are often fragmented. These systems include those that generate and manage the transaction-intensive portions of the business, such as point-of-sale, call detail records, back-office banking

<sup>4</sup> Bill Tobey, “Meet the Challenges and Seize the Opportunities of Corporate Disclosure,” Teradata Magazine, December 2009.

## Key Elements for a Next-Generation Finance Reference Architecture

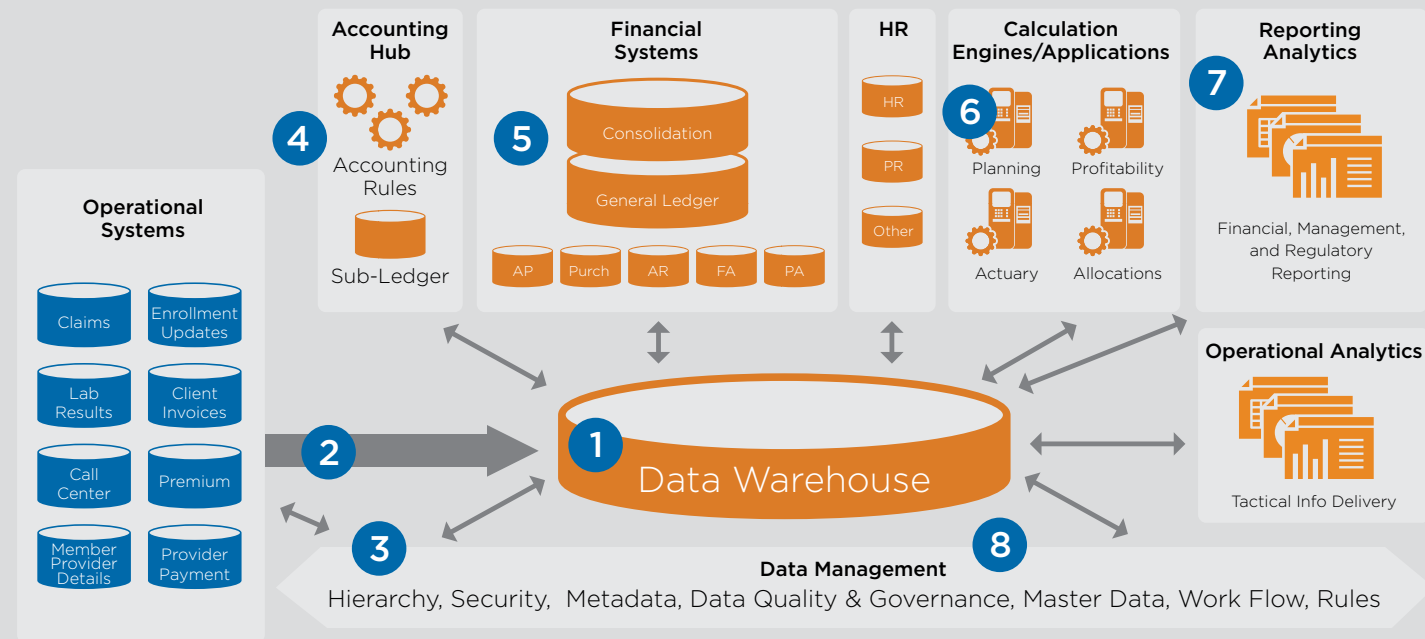


Figure 1. A next-generation finance architecture seamlessly integrates eight key elements required by a leading-edge finance analytics platform:

- 1. Data Warehouse Foundation:** Consisting of the finance-specific elements of an enterprise data environment, a finance data warehouse (FDW) is uniquely capable of serving as a systems integration platform that links financial details to the operational data, and simplifies provision of consistent data to countless applications and users.
- 2. Data Sourcing:** User confidence is ensured by moving data from source systems into the FDW where it is transformed. This provides the transparent audit trail needed to tie exact copies of source transactions to the transformed data in the FDW.
- 3. Hierarchy Management:** Increasingly, firms need the ability to view and manage the business at varying levels of detail, aggregated across multiple dimensions or classifications, while ensuring these different “views” reconcile and are driven from a common core set of data. To support financial reporting, business

users must be able to flexibly view and manage these dimensions and hierarchies and change the underlying data structures that drive reporting across the broader architecture, without IT involvement.

- 4. Accounting Hub:** To ensure integrity of the FDW, it must reconcile source transaction and journal line detail reliably to the GL. An accounting hub enables control, consistency, audit trail, and transparency in the complex accounting rules, treatments, mappings, sets of books, reporting dimensions, and aggregations that turn operational system transactional data into summary, automated and substantiated, postings in the GL. This provides for a three-way reconciliation among the FDW, GL, and operational systems while providing major efficiency improvements from having your accounting treatments centralized and managed consistently in one point in the architecture.

- 5. Financial and Human Capital Management Analytics and Data Integration:** General ledger, human resource, and other key enterprise resource planning (ERP) data are critical elements of financial analysis. Data integration and analytics capabilities source and organize this data in the FDW into a business context for different finance functions (e.g., GL, procurement, or payroll) to speed analysis and report generation.
- 6. Calculation Engines:** A complete infrastructure must integrate pre-packaged software applications and highly flexible calculation engines with powerful business rules that deliver enterprise-wide profitability, risk, planning, forecasting and allocation capabilities. By leveraging the same data model and strategic platform, these calculations can be shared across the enterprise to gain a competitive business insight edge.
- 7. Business Intelligence and Reporting Tools:** To field ever-evolving information requests, analysts need an ad-hoc environment that provides access to data from multiple sources. If several BI tools exist within an enterprise environment, a common data warehouse foundation where metrics and calculations are managed helps drive consistent results across tools.
- 8. Data Management:** To ensure that analytic recommendations are as sound as possible, firms need transparency, data quality, and common rules application throughout the data lifecycle. A well-executed data management strategy secures an auditable trail from source to end report.



and trading systems, and various partnered and online sources. What’s more, these processes provide limited transparency, have inconsistent accounting treatments that are difficult to maintain and update, and inhibit analysis across the GL and the transactional systems.

Many firms are considering technology solutions that address these fragmented processes. By serving as the sole linking interface between source, GL, and other potential data repositories, an Accounting Hub or Accounting Rules Engine ensures control, consistency, and drill down from the summary financial data in the GL into the detailed financial data that analysts and power users leverage for deeper analytics. Key benefits of using an accounting hub include:

### Reduced Cost

- Supports move to consolidation of systems and service centers
- Offers flexible, cost-effective method of adjusting accounting changes from a single, centralized location
- Eases addition/incorporation of new operational systems
- Reduces time spent investigating reconciliation issues

### Increased Control

- Improves transparency and auditing
- Ensures consistency between Finance, Risk, and Liquidity reporting
- Enables drills from summary balances, to detailed balances, to transactions
- Increases automation of key tasks

An Accounting Hub provides a common platform for transparently administering product life cycle, accounting rules, logic, and mapping from all transactional sources to the GL. This approach persists the linkages in each step of the process in a common data repository with the transaction detail and reference data. Users can easily drill through from GL journal line items to the underlying accounting events and transactions associated with the entry. Figure 2 depicts how a simple mortgage payment transaction on a financial institution’s books would be handled through the accounting treatment process within an accounting hub. This approach ensures transparency in financial reporting and consistent analytics across the enterprise.

## Hierarchy Management

To effectively support a best-practice financial architecture, governments need to choose a hierarchy management system that provides the following capabilities:

- **Multiple (or alternative) hierarchy support for each dimension:** Business users across the finance department—as well as their operational peers throughout the enterprise—have a diversity of analytical and reporting needs. For this reason, they need to be able to view data along any valid dimension such as customer, prospect, vendor, region, location, product, or organization. The solution should support alternate hierarchies and multiple levels within a hierarchy to allow data roll-up along either finer or coarser hierarchies.
- **Balanced, unbalanced and ragged hierarchy support:** Balanced hierarchies are “normal” ones, in which all nodes within a level have something in common and are symmetrically organized. Unbalanced, hierarchies contain nodes that are uneven—that is, some extend

down three levels while others extend down only one or two. Ragged hierarchies include paths that skip entire levels. These three key hierarchy types each require separate, nuanced workflow, approval, and reorganization processes.

- **Date-effective, time-stamped hierarchy versions:** To analyze both past performance and forward-looking scenarios, management must be able to compare today’s financial results to past periods when master data was organized in a completely different fashion. “When-effective” time stamps allow users to track master data organization as it existed at any point. With this capability, users can re-create previous reports in today’s hierarchies and prepare hierarchical changes with precise control over when updates go live.

## Is Your Finance System Architecture Next-Generation or Last-Generation?

Global market forces will continue to push firms to respond quickly to environmental changes—including both risks and opportunities. Which tests will your

## Data Warehouse-Based Accounting Hub

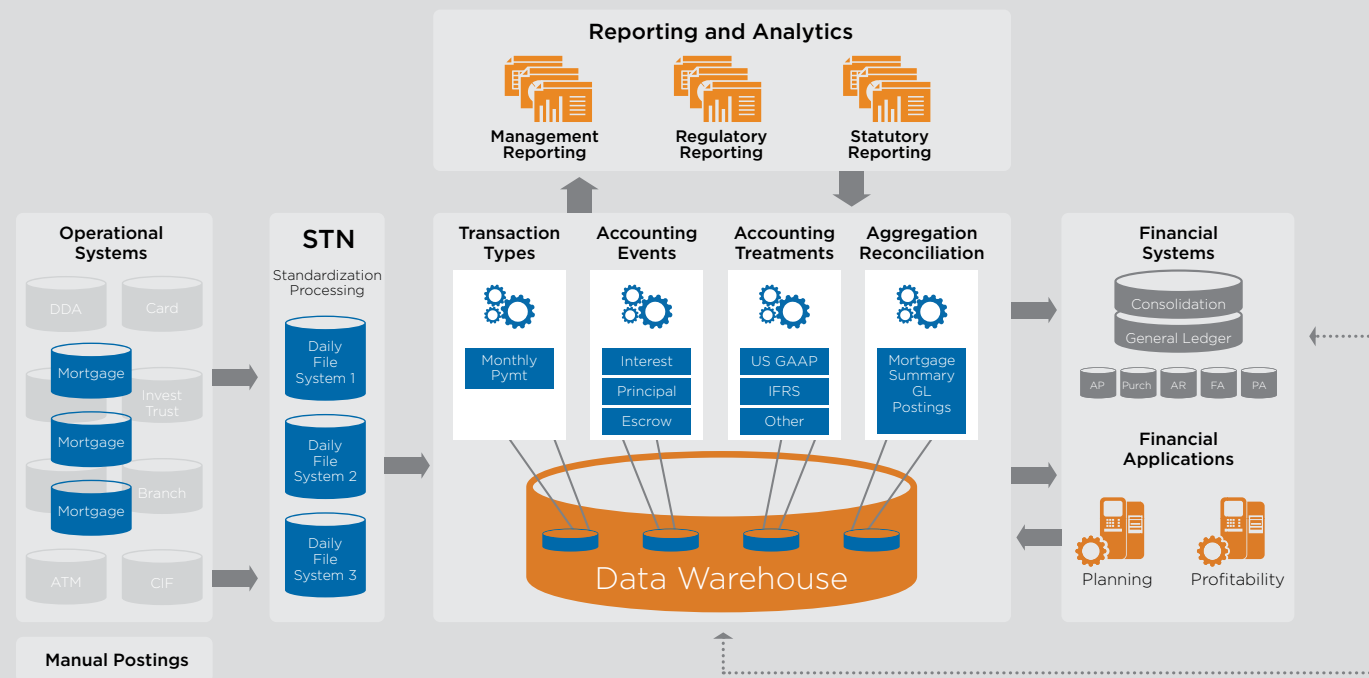


Figure 2. How a mortgage payment transaction would be handled within an accounting hub.

Do-It-Yourself Accounting Hub	ERP-Based Accounting Hub	Data Warehouse-Based Accounting Hub
<b>Description</b>		
A financial validation database, which is collaboratively built by internal finance and IT resources.	A packaged database solution, which uses an accounting rules engine to validate transactions and perform transformations for posting to an ERP application.  Examples: <ul style="list-style-type: none"> <li>• Oracle Fusion Accounting Hub</li> <li>• SAP Bank Analyzer</li> </ul>	An integrated data warehouse based solution, which uses an accounting rules engine to validate transactions and perform transformations for posting to the General Ledger <ul style="list-style-type: none"> <li>• Features a true double-entry sub-ledger for full financial transparency</li> <li>• Example: Microgen with Teradata</li> </ul>
<b>Pros</b>		
<ul style="list-style-type: none"> <li>• Governments can dive in quickly and take a phased approach</li> <li>• The familiarity of internal resources with corporate operations allows the team to “build to order”</li> </ul>	<ul style="list-style-type: none"> <li>• A user interface supports the auditable building of rules for various accounting events</li> <li>• Users can drill back from the specific balances in the GL or sub-ledgers to the supporting transactions</li> <li>• When new accounting requirements surface, programmers can add updated rules with effective dates to trigger the proper accounting treatment</li> </ul>	<ul style="list-style-type: none"> <li>• Provides flexible rules templates for auditable management of accounting treatments from source systems to GL</li> <li>• Allows users to drill back from the specific balances in the GL or sub-ledgers to the supporting transactions</li> <li>• Lets programmers meet new accounting requirements by adding updated rules with effective dates to trigger the proper accounting treatment</li> <li>• Offers persisted double-entry, multi-currency, multi-entity, multi-chart, and multi-GAAP sub-ledger accounting</li> <li>• Improves linkage to rich data warehouse transaction detail for analytics, reporting and development of other calculation-driven processes</li> <li>• Delivers market-leading scalability and performance, allowing processing of sub-ledger balances at the granular business event level</li> </ul>
<b>Cons</b>		
<ul style="list-style-type: none"> <li>• Project time frequently underestimated</li> <li>• Many specialized skill sets are scarce</li> <li>• Maintenance of the tool often requires hiring of high-cost third-party consultants</li> <li>• Functionality becomes “black-boxed,” opaque, and dreaded by IT</li> <li>• Costly to re-engage resources to amend the self-built system when new regulations emerge</li> </ul>	<ul style="list-style-type: none"> <li>• Increased data movement and need for operational data store add to cost</li> <li>• Accounting rules are costly to build from scratch and maintain</li> <li>• Poor scalability and speed prohibits governments from retaining detailed history</li> <li>• System components are not well integrated</li> <li>• The ERP-based hub sub-ledger is not a true double-entry accounting environment</li> </ul>	<ul style="list-style-type: none"> <li>• Legacy ETL (extract, transformation and load) processes may need revision</li> <li>• Fewer system integrator options for implementation exist as compared to the ERP-based accounting hub option</li> <li>• Data warehousing may be an unfamiliar technology to the enterprise</li> <li>• Data warehouse may not be suited to the high availability service level agreements demanded for the environment</li> </ul>



organization face? Heightened regulatory reporting obligations? Actively managing unprecedented levels of risk or business loss? Adapting to new business models and significant growth opportunities? Whatever comes your way, you need a financial systems architecture that can handle the challenge.

To help improve reporting transparency as well as risk and performance management, we recommend asking the following questions when evaluating your financial system architecture:

1. What solutions do we have in place to provide transparency and reconciliation between source systems, GL and our data warehouse?
2. Are our accountants and their IT liaisons satisfied with the visibility they have to the rules used to generate transactional journal entries? What is the reported quality of visibility into sub-ledger detail?
3. How well-synchronized and well-reconciled is the data in our various calculation engines?
4. How do the costs of creating, deploying and maintaining our various engines compare to industry best practice?
5. When a calculation engine produces results—such as cost allocations for corporate resource-to-business unit or customer service-to-product—that are surprising or concerning, do business users and management have the necessary granularity of both GL and transactional data access to effectively analyze the variances?
6. Are we equipping business users with the ability to flexibly view and manage data dimensions and change the underlying data structures and rules that drive reporting across the broader architecture?



To capitalize upon opportunities, effectively balance risk, and operate with true reporting transparency, your finance organization requires a simplified, streamlined data management infrastructure. Teradata and Microgen offer an industry-leading, innovative solution that can help you meet these goals.

Teradata empowers companies to achieve high-impact business outcomes. Our focus on business solutions for analytics, coupled with our industry leading technology and architecture expertise, can unleash the potential of great companies. For more information on developing a next-generation finance architecture, visit us at [Teradata.com/Government](http://Teradata.com/Government).

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