

The Emerging Field of Financial Data Quality Management

An Oracle White Paper
Updated July 2008

The Emerging Field of Financial Data Quality Management

Executive Overview	3
Introduction	3
Challenges with Current Practices	4
Added Complexity Due to Regulatory Changes and Multidimensionality	4
Heavy Reliance on Manual Controls.....	5
Overly Complicated Tools	6
Convolutd Audit Trails	6
The Emerging Field of Financial Data Quality Management.....	7
Improved Control, Auditability, and Compliance	7
Data Ownership Returned to Finance.....	9
Increased Visibility and Collaboration.....	9
Accelerated Reporting Timescales.....	9
Two Companies' Experiences with Financial Data Quality Management.....	10
Anglo American	10
TRW Automotive	12
Conclusion.....	13

The Emerging Field of Financial Data Quality Management

Whereas a grandfather clock, whose hands have stopped on 12 o'clock, can be guaranteed to be correct twice a day, an error in structural information (such as an account code or cost center) or transaction data can be guaranteed to be wrong forever—unless it is trapped and corrected.

EXECUTIVE OVERVIEW

In recent years, financial reporting processes have become tightly intertwined with other key management processes thanks to sophisticated Web-based software solutions. Until recently, the limited capabilities of existing data management tools left organizations exposed to slow, fragmented processes; questionable data; and incomplete audit trails. The emergence of a new breed of financial data quality management (FDQM) tools, however, promises to change that.

INTRODUCTION

With consumers lavishing most of their attention on the latest portals, reporting tools, and dashboards, data quality management takes its place at the less-glamorous end of the reporting supply chain. Yet mismanagement or neglect of underlying balance information or interfaces can place the integrity of the entire process in jeopardy. High-quality data is thus the lifeblood of all reporting applications—especially now that those applications are linked to processes such as budgeting, planning, forecasting, scorecarding, and analytics to provide a broad performance management platform with common data structures.

But one wrong turn anywhere in this information's tortuous journey from source system to Microsoft PowerPoint presentation can create a ripple effect felt throughout the system, resulting in incorrect data across the board—and severe embarrassment for those in charge. Thus, it's not surprising that many managers are hesitant to rely on such data.

Efficient data quality management, however, is not just about error detection, control, and prevention. It also speeds reporting close cycles; provides deeper traceability and insight into the numbers; results in a more-auditable and compliant process; and boosts management's confidence in financial statements, budgets, and performance scorecards. In the end, every person-hour carved out of the process through better data quality or improved interfaces translates to an extra person-hour spent on value-added activities. This is the possibility afforded by today's emerging FDQM software tools.

This white paper describes the benefits of these tools and explains why they're poised to transform data management from an informal assemblage of technologies, tools, and processes into a streamlined and dependable process.

CHALLENGES WITH CURRENT PRACTICES

As early as 2001, PricewaterhouseCoopers' survey of European CFOs, *European Survey 2001: Consolidation and Reporting Functions in Multinational Enterprises*, highlighted the plight of group finance departments. Although many of the survey participants acknowledged they needed to spend more time on "value-added" activities such as decision support, analysis, and presentation of information, most were bogged down in the unrewarding tasks of reviewing data for completeness, requesting missing information from business units, correcting errors, and rekeying data. As much as 80 percent of management's time could simply evaporate in this fashion.

Two years later, IBM Business Consulting's *2003 CFO Survey: Current State and Future Direction* revealed that data management remained a high priority, with 70 percent of CFOs calling information a "major asset" requiring significant investment, but conceding that it's an asset that needs to be better managed.

So why does data management remain such a significant issue for so many companies? Read on, and you'll see, as the following sections detail the challenges entailed in managing financial data.

Added Complexity Due to Regulatory Changes and Multidimensionality

Driven by regulators' inexorable drive for more disclosure as well as an enlightened management culture's demand for broader business insights, the sheer volume of data in today's management information systems presents one of the greatest challenges of data management. Another, perhaps less obvious, challenge stems from the increase in multidimensional information brought about by the convergence of internal and external reporting. Both U.S. generally accepted accounting principles (US GAAP) and International Financial Reports Standards (IFRS) require multifaceted views of a business (in other words, segmental reporting). Likewise, the ability to "slice and dice" information represents an important aspect of performance reporting. But unlike growth in volumes, multidimensional reporting adds significant complexity to an organization's data—complexity that needs to be captured and managed through successive interfaces in performance reporting.

John Adams, a director at Deloitte Consulting and a seasoned implementer of group financial reporting systems, believes the complexities of multidimensional reporting are often underestimated.

Says Adams, "First, there's the issue of whether reporting entities throughout the group have access to the additional data required to support the extra dimensions and how that information will be furnished. Second, there's the complexity of mapping multidimensional information from one system to another.

For the past few years, reported demands have shifted to an unprecedented degree.

In addition to moving to IFRS, organizations have had to adjust to the added disclosures required by the EU Accounts Modernization Directive, Basel 2, and Sarbanes-Oxley—all of which add to the volume of information under management. Even mature standards such as US GAAP are voluminous and subject to constant change.

“Managing one-to-many or many-to-one relationships, such as those involving a hodgepodge of spreadsheet mapping tools, is a task fraught with difficulty and prone to error. If calculations have to be performed to derive new values or complex validation logic has to be applied, the burden of maintaining interfaces grows disproportionately.”

—John Adams,
Director, Deloitte Consulting

According to Adams, multidimensionality gives rise to many potential points of system intersection and overlap—especially when the relationships among data elements are complex. One example might be when a data item such as a chart of accounts line is mapped to several other data items, or when several of such lines are mapped to a single line in the target system.

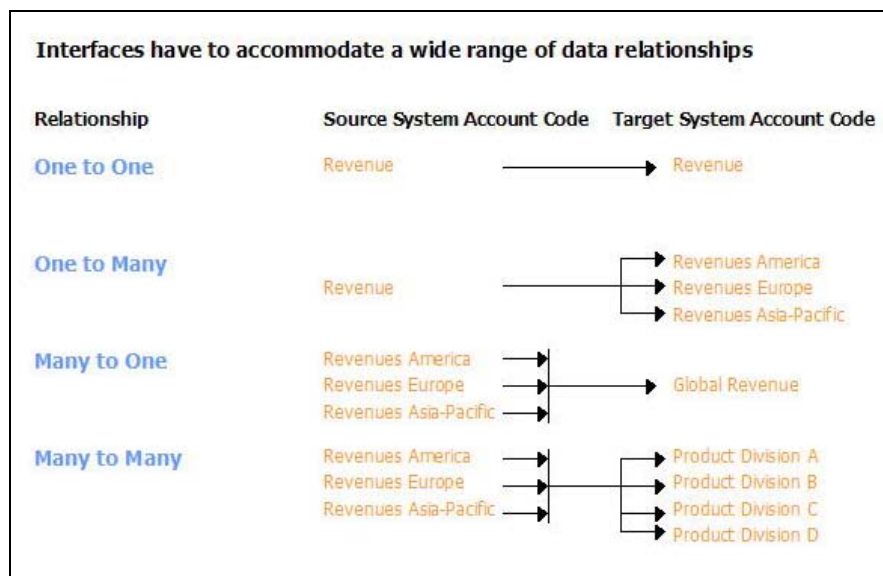


Figure 1: With added data and extra dimensions, today's data management applications accommodate a wide range of relationships.

Heavy Reliance on Manual Controls

Most multinational businesses represent geographically dispersed organizations that use a variety of operational systems and charts of accounts. For more than two decades, such organizations have been using consolidation systems to impose a level of standardized group reporting over disparate enterprise resource planning (ERP) and financial systems. More recently, they've begun deploying Web-based budgeting and forecasting tools in a similar fashion.

Using this technique, local operational information is either entered locally in a front-end data capture system (sometimes nothing more than a spreadsheet) or updated automatically via an interface that maps that information into the group standard. Over the years, improved technology (such as Citrix Presentation Server) and Web-based techniques have made it easier to enter data online, helping to displace less-than-reliable spreadsheets. Even with these improvements, however, data capture remains a fractured process that relies heavily on manual intervention to ensure that information is correctly mapped and processed from operational systems into group reporting systems. This poses a problem because manual controls are not able to provide the consistency offered by automatic controls, which once established, provide the basis of repeatable and dependable processes.

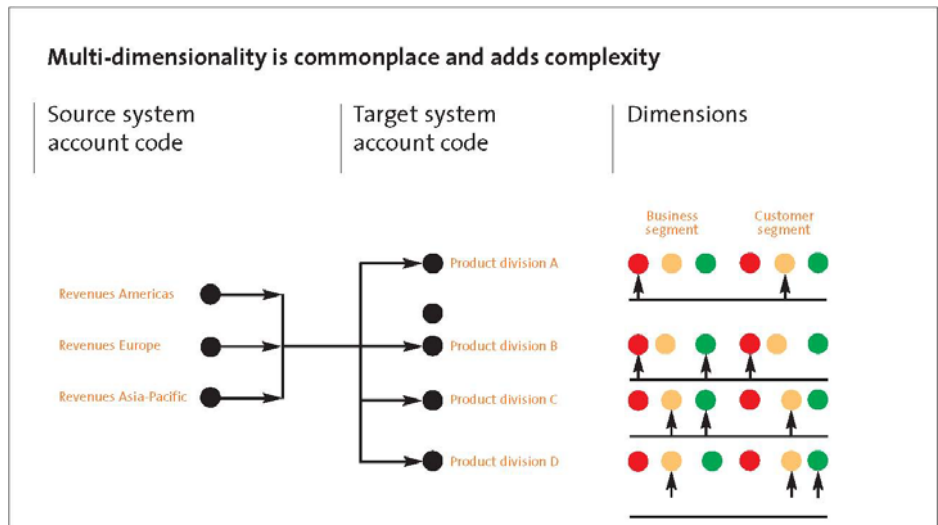


Figure 2: Multidimensional data relationships occur frequently in IT systems. Their presence adds complexity to managing the data.

Overly Complicated Tools

In the past, both the finance and IT departments of major organizations regarded managing disparate system interfaces as a technical requirement. And indeed, many of the extract, transform, and load (ETL) tools for specifying interfaces and marshalling data from host system to target system are designed for IT specialists rather than finance users—despite the fact that the finance function is typically responsible for the quality of the data transferred.

The reason for this is that ETL tools have their roots in the bulk transfer of very high data volumes between source and target systems—a practice that’s at odds with the exchange of data in something like a group reporting application, where intimate knowledge of data dictionaries, accounting rules, and charts of accounts is vital to success.

This is not to say that ETL tools cannot handle data transfers; they’re simply designed for a more-generic approach to the task. As such, they’re difficult and time consuming to design, configure, and test. Similarly, such tools are ill suited for the frequent changes in mapping that are commonplace in an accounting environment where information requirements change frequently (especially in budgeting, planning, and forecasting applications).

Convoluting Audit Trails

Typically used to bridge the gap between source and target systems (for example, human resource systems and budgeting applications), ETL tools provide controls to ensure that data transfers have been completed (for example, audit reports to confirm records transfer or rejection). They do not, however, provide a window

into data on either side of the bridge. Emphasizing technical transfers, such tools provide limited opportunities for tracing data from origin to final destination. The result is an audit trail that has to be pieced together laboriously, one process at a time, to prove the accuracy of reporting.

Costly and time consuming for auditors, “walking through” the process in this fashion is also limiting for finance professionals who need to, say, understand the makeup of a final balance in the group accounts. Furthermore, this lack of cohesion in the audit trail makes it more difficult to provide proof of a rigorous and controlled process as required by Sarbanes-Oxley (SOX) Section 404 assessments and SOX 302 subcertifications.

THE EMERGING FIELD OF FINANCIAL DATA QUALITY MANAGEMENT

The improved controls and compliance demanded by early implementations of SOX exposed the shortcomings of traditional financial processes and prompted the development of a new generation of products in the area of financial data quality management (FDQM). The earliest of these products focused primarily on identifying, documenting, and testing the controls surrounding financial processes, but did very little to change the underlying process. A new generation of FDQM products is starting to appear, however, which not only improve control, auditability, and compliance, but also simplify data ownership, accelerate reporting timescales, and place data ownership back in the hands of the finance function by making the entire process more transparent.

In describing this new breed of FDQM solution, IDC Program Manager Christina Steenboe says, “By eliminating data integrity risks associated with collecting, mapping, validating, and moving critical financial data from across the enterprise, FDQM solutions provide a new and much-needed level of visibility into financial data workflows that are not visible through traditional data quality or data integration tools.”

Improved Control, Auditability, and Compliance

Although ETL tools are useful for bridging source and host systems, the resulting interface is limited in scope and unidirectional in nature. Limited to providing a technical solution, ETL tools ensure that the data flows from feeder (or source) systems to target systems are complete and accurate; however, they don’t provide much information in the reverse direction, nor do they retain data’s context as part of a broader series of connected processes, or workflow.

Recently developed FDQM products, in contrast, are designed to preserve the provenance of data throughout the process. Modern FDQM solutions, for example, not only manage the interface (as do ETL tools), they also tell users who generated the data and when, as well as who might have changed the mapping tables and when. Most important, rather than restrict this information to the interface, such tools share the information across the reporting supply chain so that figures appearing anywhere in the process can be traced to their origins.

“Unlike ETL solutions, which focus on moving data to the right place, financial data quality management solutions focus on moving the *right data* to the right place. This helps companies better mitigate risk in their closing process, promote trust in their reporting, improve auditability, and lower the cost of compliance.”

**—Christina Steenboe,
Program Manager, IDC**

The 2001 PricewaterhouseCooper’s survey cited earlier documents the value that group finance departments place on being able to access the original figures submitted by geographically dispersed reporting entities. However, ETL tools fall short in this area, offering no way to inquire about balance figures or trace their composition to the source system—critical capabilities whether you’re managing a financial consolidation, budget, or performance dashboard.

ISSUE	ETL TOOLS	FDQM APPROACH
Origins	Generic tools designed for bulk data transfers	Created for complex performance management applications where interfaces are intricate, precision is vital, and emphasis is on compliance and control
Audience	Intended for programmers who create and maintain interfaces	Intended for members of the finance community (who use its visualization techniques to create and maintain financially oriented interfaces)
Scope	Limited to a technical interface “bridge” between source and target systems	Provides a bridge similar to that created by ETL solutions but also provides critical visibility into processes across the board
Auditability	Audit trail limited to data transferred and rejected through interface	Establishes workflow processes and traces transactions throughout the reporting supply chain
Traceability	Unidirectional audit trail (from source to destination)	Makes transactions fully traceable backward and forward throughout the reporting supply chain

Table 1: At-a-glance view of FDQM solutions versus ETL solutions.

The new FDQM tools solve this problem by binding all the related interfaces, mapping table documentation, and controls into a single environment, or workflow. Thus, group finance professionals who construct their interfaces in an FDQM environment will gain on-demand access to bidirectional inquiries that

allow them to trace data backward or forward across complex multidimensional mapping tables and interfaces.

What's more, organizations seeking "sign-off" from subsidiaries can incorporate electronic signatures into the process to ensure that their monthly reporting packs or latest forecasts have been checked and are complete.

Data Ownership Returned to Finance

By eliminating technical complexity and improving user interfaces, today's FDQM solutions shift data management responsibility from the IT department to group finance. This means that although IT skills are required to implement FDQM solutions, the design, configuration, and testing of mapping tables fall squarely within the domain of finance—a key factor, thanks to the complexity of the data relationships and the need for deep accounting and group finance disciplines to establish a competent solution. In the meantime, the IT department is relieved of supporting intricate interfaces more easily maintained by the finance community.

In addition, FDQM solutions more-subtly shift data management back to local operating units, where problems and errors are easier to remedy. They do this by drawing together all the automated and semiautomated interfaces (a mix of spreadsheets, Open Database Connectivity links, ETL tools, and more) that finance departments have been using in recent years. With a single contiguous system in place, appropriate controls and validations can then be set locally, allowing organizations to trap errors earlier in the process and raising the quality of data submitted for consolidation.

Increased Visibility and Collaboration

By linking all stages of performance management into a single workflow environment, FDQM solutions provide end-to-end views of the entire process—a first within many organizations. This means that when changes in information requirements or operations require metadata to be altered, those changes can be shared much more easily among users and across departments. This increased visibility also means that interfaces can be changed with the full participation of both local and group finance departments, ensuring that changes (such as mapping of new data requirements) are executed completely and accurately.

And the collaboration capabilities aren't limited to group reporting. You can also apply FDQM principles to the management of related processes such as the annual budget cycle or quarterly reforecasts—both of which represent processes that draw on data from reporting units and can require complex interfaces between local operational systems and the group pack.

Accelerated Reporting Timescales

When it comes to meeting reporting deadlines, data quality is key, according to the 2001 PricewaterhouseCoopers survey cited earlier. Specifically, that survey cites the following factors as the "big three" blockages to meeting reporting deadlines: late

delivery of information from reporting units (reported by 70 percent of multinationals), data with errors from reporting units (58 percent), and intercompany balance reconciliation and elimination (45 percent)—a stance consistent with Deloitte’s *1991 Survey of Consolidation Systems*, which concluded that choice of consolidation system had no material impact on overall performance. The reason for this is that the time taken to perform the consolidation represents a very small portion of the overall reporting timescale. Both surveys also showed that neither the size of the group (expressed as the number of reporting entities) nor the head count of group finance had a material effect on the speed of reporting. The message, then, becomes clear: The process is the culprit.

Today’s FDQM solutions go after that culprit by addressing the primary fault line in the consolidation process: data quality. By imposing validation routines on mapping tables, encouraging reporting units to automate the interface with their operational system, and improving process visibility, this new breed of software makes it possible to trap and correct errors much earlier in the processing cycle.

And shifting error detection and correction from group finance to local reporting entities (where processing errors generally arise) assists greatly in their timely correction—a trend documented by Deloitte’s *2003 Budgeting Systems Usage Survey*, which showed that improving the visibility of the process (and in particular allowing group, division, and local management to view early budget submissions and correct assumptions) reduced both the number of budget iterations and the time required to finalize the annual budget.

TWO COMPANIES’ EXPERIENCES WITH FINANCIAL DATA QUALITY MANAGEMENT

To give you a sense of how today’s FDQM solutions fit into organizations’ current reporting environments—and the benefits companies can derive from using them—the following sections detail the real-life experiences of two organizations making the move toward modern FDQM solutions.

Anglo American

As a global leader in the mining and natural resource sectors, Anglo American has significant interests in gold, platinum, diamonds, coal, base metals, ferrous metals, industrial minerals, and paper and packaging as well as operations and developments in Africa, Europe, South and North America, and Australia. Not surprisingly, Anglo American also has demanding financial reporting requirements.

Like many large enterprises, Anglo American is composed of a multitude of reporting entities located around the world and employs a variety of operational and ERP systems. As a result, gathering the monthly reporting pack is a major undertaking. Although the group has used a distributed consolidation system for a number of years, the trend toward more-sophisticated multidimensional internal and external reporting supported by the Hyperion financial consolidation tool has

provided the organization with an opportunity to further streamline data capture while simultaneously improving the processes' auditability and dependability.

“We don't have the luxury of spare time in our reporting process, so the upload of reporting packs has to be swift and dependable.”

**—Kim Maughan,
Manager of Financial Consolidation
Systems, Anglo American**

According to Kim Maughan, manager of financial consolidation systems for Anglo American, the increasing complexity of multidimensional reporting is a major factor in the group's move to an FDQM approach. Says Maughan, “Our old consolidation system could easily be represented in two dimensions, so data entry was a relatively straightforward process. But multidimensional data entry is quite difficult to visualize, and mapping from source systems into the monthly reporting pack is intricate. Now, we use the multidimensionality to analyze intercompany counterparties, movements on balance sheet items, UK GAAP-to-IFRS adjustments, and so on. Modeling and mapping complex data relationships like these in the correct combinations is challenging.”

To address this challenge, Maughan and her team explored a variety of tools and approaches, including proprietary data transfer tools (which came with the consolidation system), traditional ETL tools, spreadsheets, and the Hyperion package for financial data quality management (Hyperion FDM).

After a bit of research, the team quickly dismissed spreadsheets because of concerns over controls. And although the ETL and proprietary toolsets offered some advantages, the Hyperion FDM approach placed ownership of data transfer firmly back in the finance domain—and this was of paramount importance to the folks at Anglo American. As Maughan explains, “The Hyperion FDM approach allows end users to maintain the interfaces to their operational systems, so if they add new accounts locally, they can immediately change the mapping—without having to raise a change request on a central support unit, which might not be familiar with the business and the purpose of the change. Furthermore, once the mapping is changed, the process can be relied upon to deliver the correct upload and transfer of data month after month.”

The Hyperion FDM approach also provides visibility into the process. Says Maughan, “Values in the consolidation system can be traced back to the underlying mapping and source files. We can have a comprehensive audit trail.”

And finally, ownership of the process is a key advantage as far as Maughan and her colleagues are concerned. “If you're not in control of the process,” she says, “it's more difficult to meet targets and deadlines. With the Hyperion FDM approach, responsibility can rest with finance.”

TRW Automotive

TRW Automotive is among the world's 10 largest automotive suppliers with 2005 sales of US\$12.6 billion and approximately 63,000 employees operating out of more than 200 facilities in 25 countries. In addition, the company supplies more than 40 major vehicle manufacturers and holds leading positions in primary product categories such as braking systems, steering and suspension systems, cruise control, and inflatable restraint systems.

As you might expect with an organization of this scale, managing monthly reporting and data collection is a massive undertaking, yet the TRW group manages to report within three working days of month's end. Melissa Benoit, senior manager of financial systems at TRW, counts approximately 85 general ledgers from the group, which makes validating and mapping financial data from the operational systems to the reporting pack a significant challenge.

An early adopter of FDQM techniques, TRW used an in-house-developed data management application to validate data submitted by reporting units, load it into the group reporting application, and track progress. Though useful, the application was time consuming to maintain. Says Benoit, "We wanted an out-of-the-box solution that would replace the functionality we enjoyed in-house but that would also provide the benefits of technical support, enhancements, and upgrades supplied by a proven software vendor."

With 83 separate validation checks on incoming data, Benoit and her team also needed a more-immediate and effective means of implementing reporting changes. "Using the Hyperion FDM solution, finance can make any necessary changes to the data load process with minimal assistance from IT support," says Benoit. "It's easy to add new validation rules, change existing rules, or make exceptions. Also, the Hyperion FDM system we use is very flexible, making it possible to read any file format from a general ledger and map it into the group consolidation system."

It's the extra control provided by the modern FDQM approach, however, that Benoit's team is most appreciative of. "Once the data is submitted by the reporting units," says Benoit, "they can't change it in the consolidation system, and we can see at a glance where every business is in the reporting process. Audit trails tell us about each change—for example, when it was made and by whom—which is very welcome from a Sarbanes-Oxley point of view. Furthermore, because reporting units can no longer make direct changes to the central consolidation system, we have improved transparency and control of the process, and we don't have to wait for them to exit the system before we run a consolidation."

By implementing FDQM principles, Benoit and her team have managed to transform an already speedy monthly close into a smoother and more-streamlined process with even greater control and visibility.

CONCLUSION

Although reporting and performance management processes have been continuously refined over the years, insufficient data management tools have left management exposed to slower and fragmented processes, imperfections in data quality, and incomplete audit trails. At the same time, increasing data volumes and complexity coupled with rising concerns over compliance and audit costs have increased the pressure for a more-comprehensive and dependable approach to data quality management.

Modern FDQM tools provide a timely and significant solution, enabling the finance function to once again assume full responsibility for the data in its charge. By allowing users to trap and correct errors earlier in the reporting process and smoothing interfaces between operational and other performance management processes, FDQM tools promise to accelerate a wide range of performance reporting processes. In addition, it's likely that the increased collaboration facilitated by the technology will drive down the costs of data management and compliance while simultaneously driving up dependability, traceability, and ultimately management's confidence in reported numbers.



The Emerging Field of Financial Data Quality Management

Updated July 2008

Author: Gary Simon

Oracle Corporation
World Headquarters
500 Oracle Parkway
Redwood Shores, CA 94065
U.S.A.

Worldwide Inquiries:
Phone: +1.650.506.7000
Fax: +1.650.506.7200
oracle.com

Copyright © 2006, 2007, 2008 Oracle Corporation and/or its affiliates. All rights reserved.

This document is provided for information purposes only and the contents hereof are subject to change without notice.

This document is not warranted to be error-free, nor subject to any other warranties or conditions, whether expressed orally or implied in law, including implied warranties and conditions of merchantability or fitness for a particular purpose. We specifically disclaim any liability with respect to this document and no contractual obligations are formed either directly or indirectly by this document. This document may not be reproduced or transmitted in any form or by any means, electronic or mechanical, for any purpose, without our prior written permission.

Oracle is a registered trademark of Oracle Corporation and/or its affiliates.

Other names may be trademarks of their respective owners.