

## **Overview of an Approach to Data Quality**

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### **Executive Summary**

Data quality issues have been faced by a number of Deloitte & Touche (D&T) clients in a variety of contexts. Practical challenges arising out of these experiences motivated the development of an integrated approach to data quality. This approach includes three key phases: 1) Build a Foundation 2) Transform 3) Sustain.

Client examples (with names changed) are used to illustrate key points of each of these phases:

- 1) Build a Foundation -- Data definitions and business rules are discussed in the context of the real estate industry.
- 2) Transform -- Data cleansing can require a massive work effort, but risk assessment can be used to better prioritize work and allocate resources.
- 3) Sustain -- Planning and effort is required to support continued return on investments in data quality.

Lessons learned from these and other client experiences are discussed, including insights into business decisions around people, processes, and technologies.

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## Discussion Topics

- Background and History
- Challenges Experienced in Practice
- An Integrated Approach
  - ❖ Building the Foundation
  - ❖ Data Quality Transformation
  - ❖ Sustaining Data Quality
- Lessons Learned

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## D&T's Data Quality and Integrity (DQI) Practice

- Our Genesis - supporting the complex data needs of audit teams
  - ❖ Data extraction
  - ❖ Data analysis
- Growth through support of system integration projects
- Broad client experience has confirmed:
  - ❖ Complexity of data quality issues
  - ❖ More than just supporting system integration
  - ❖ Need for a broad, integrated approach
  - ❖ Need to mobilize people with a variety of competencies

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## Clients

Recent clients served include:









**LEHMAN BROTHERS, INC.**

*Other:*

*Major Real Estate Organization*

*Major Securities Firm*

*Child Support State Disbursement Unit*

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## Challenges Experienced in Practice

- Need to address data quality issues at an enterprise level and at a detailed level
- Data quality issues cross organizational boundaries
- Executive commitment
- Data definitions
- Business rules – early and often
- Difficulty integrating disparate systems
- Prioritization of work efforts / addressing resource constraints
- Sustaining ROI

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## Approach to Data Quality

Build Foundation
➔
Sustain

|                                     |                                |  |
|-------------------------------------|--------------------------------|--|
| Governance                          | Sourcing/Mapping               | Design Continuous Monitoring Process         |
| Build Business Case for DQ          | Data Risk Assessment           | Construct Continuous Data Monitoring Process |
| Define DQ Requirements              | Data Analysis                  | Implement Continuous Data Monitoring Process |
| Understand Business Process         | Corrective Actions & Cleansing |  |
| Understand Data Model               | Testing                        |  |
| Data Definitions and Business Rules | Conversion/Transformation      |  |
| Change Management                   | Optimization                   |  |

*Prior implementation challenges have led us to develop an integrated approach to addressing data quality issues.*

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### Building a Foundation: Importance of Data Definitions

**Example: Real Estate Company Implementing a Data Warehouse**

|                                     |
|-------------------------------------|
| Governance                          |
| Build Business Case for DQ          |
| Define DQ Requirements              |
| Understand Business Process         |
| Understand Data Model               |
| Data Definitions and Business Rules |
| Change Management                   |

**Issue:** Redundant and conflicting data definitions (e.g., several different definitions of "square footage")

- Different systems
- Different internal users and external requirements

**Impact:** Difficulty comparing & consolidating information

- Comparing information across enterprise
- Consolidating information within data warehouse

**Solution:** Business rule definition and analysis

- Rationalize data definitions around property maintenance and portfolio development (from 500+ to 150)
- Expand data definitions for square footage

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### Building a Foundation: Importance of Business Rules

**Example: Real Estate Company Implementing a Data Warehouse**

|                                     |
|-------------------------------------|
| Governance                          |
| Build Business Case for DQ          |
| Define DQ Requirements              |
| Understand Business Process         |
| Understand Data Model               |
| Data Definitions and Business Rules |
| Change Management                   |

**Issue:** Difficulty populating certain data fields, when there are more than 5 different levels of ownership. For example, need to report "primary" geographic location of a property.

**Impact:** Inefficiency without automated business rules

- Users making manual, time-consuming, and inconsistent decisions
- Rules can be complex

**Solution:** Business Rule analysis

- Test potential business rules & analyze impact
- Implement business rules within application

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### Transform: Importance of Risk Based Approach

**Example: Fortune 500 Client Implementing a New System**

|                                |
|--------------------------------|
| Sourcing/Mapping               |
| Data Risk Assessment           |
| Data Analysis                  |
| Corrective Actions & Cleansing |
| Testing                        |
| Conversion/Transformation      |
| Optimization                   |

**Issue:** Client sourcing data from over 200 data sources and over 15 functional areas of the company

**Impact:** Difficult to prioritize and assess data quality risks

**Solution:** Using interviews and risk assessment templates, assessed risk for conversion & interface files based on key drivers

- Impact of Errors
- Likelihood of Errors
- Perceived Level of Control in Source System

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### Sustain: Importance of Continuous Monitoring

**Example: Major Securities Company concerned about ongoing Data quality of a CRM system**

|  |
|--|
| Design Continuous Monitoring Process         |
| Construct Continuous Data Monitoring Process |
| Implement Continuous Data Monitoring Process |

**Issue:** Recent CRM implementation did not meet the users' needs, because system did not deliver reliable information.

**Impact:** Users lost faith in system, and the investment in the system was compromised.

**Solution:** Implement a new system, based on lessons learned.

- Begin with Foundation issues, such as buy-in and ownership
- Design infrastructure for maintaining high data quality
  - ❖ People & processes
  - ❖ System edits
  - ❖ Data quality dashboard for data quality group monitoring (Generates emails to users related to exceptions / fixes)
- Also perform detailed data analysis prior to implementation

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### Lessons Learned

- People
  - ❖ Broad spectrum of skillsets
  - ❖ Sustained focus important
- Process
  - ❖ Prioritize and focus on problem areas
  - ❖ Maintain broad perspective while working with detailed data
  - ❖ Both point-in-time view and maintaining ongoing quality important
- Tools
  - ❖ Essential for efficiency
  - ❖ Should not drive the approach

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### Questions?

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