DATA QUALITY MANAGEMENT: FEATURES, CAPABILITIES, AND BENEFITS

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ABSTRACT

// RESPEC presents basic information about the challenges of Data Quality Management (DQM) and our approach to ensuring data quality. DQM is a data-management system that addresses concerns related to data source, collection, collation, analysis, monitoring, reporting, and use. RESPEC's DQM services ensure your organization's data quality and emphasize the importance of high standards in data capture, verification, and analysis. RESPEC's philosophy is that data quality is at the core of business and organizational success.

This white paper describes the components of DQM and demonstrates how data quality can improve business results in a cost-effective manner. Because your organization needs DQM expertise to remain competitive in the future, we are pleased to present a DQM explanation, along with definitions, concepts, features, capabilities, and all of the associated benefits described by professionals at RESPEC, an Oracle Gold Partner.

INTRODUCTION

In today's marketplace of quickly changing data products and capabilities, businesses are at risk of making mistakes when choosing solutions for information systems and data management. Many companies prefer to rely on RESPEC for total expertise, rather than navigate the variable world of technology providers. Our professionals understand the breadth and depth of technology options and solutions for traditional and big data scenarios. We provide the right combination of architecture and analytics to support your operation, improve your data, and turn data into business intelligence.

Forty percent of all business initiatives fail to achieve their targeted benefits because of their poor data quality. Enterprises that lack a data quality strategy will be hindered from achieving greater growth, agility, and competitiveness. To avoid these poor data quality, businesses and organizations rely on RESPEC for data solutions expertise.

RESPEC plays a critical business role in providing data quality management (DQM) and delivering the benefits of high-quality data. By describing the attributes of data quality and control, we encourage and empower business users and decision-makers to use RESPEC's DQM solution to improve their enterprise.

RESPEC improves every aspect of your organization's information, including DQM, data governance, architecture and design, data warehousing, business intelligence, database administration, information presentation, online transaction processing, and unstructured data management.

DATA QUALITY MANAGEMENT: FEATURES, CAPABILITIES, AND BENEFITS

RESPEC's know-how in storing and processing data contributes to your business success. We understand that accurate information and data are the lifeline of an organization and are instrumental in improving business processes and performance. We strive to empower organizations with useful, meaningful information by implementing reporting and business-intelligence systems that allow clients to derive meaningful business insights. Our clients have quickly realized and measured the positive effects that improving data have on related practices. RESPEC's data and information systems division, which is known for collaboration, has a strong track record of providing excellence and keeping the client informed.

By creating client confidence with proven data solutions and information systems, RESPEC's data management experts help clients gain complete visibility into their organizations and access the right data at the right time. RESPEC has extensive experience in various data integration, migration, and warehousing projects. Our scalable solutions allow our clients to implement a single platform approach to accessing, transforming, and delivering data at any latency.

DATA GOVERNANCE

Data Quality Analysis

Data Matching & Cleansing

Data Conversion

Continuous Monitoring & Reporting

DATA ARCHITECTURE & DESIGN

Value Chain Analysis

Enterprise Data Modeling

Enterprise Data Integration

DATA QUALITY MANAGEMENT

Data Ownership & Protection

Master Data & Metadata Management

Data Dictionary & Standard Maintenance

Logical Layer Security & Audit Validation

Data Lifecycle Management

Compliance and Privacy Management

ONLINE TRANSACTION PROCESSING DEVELOPMENT

Relational Database Modeling

Stored Procedure Design, Development, & Quality Assurance

Query Optimization

INFORMATION

DATA WAREHOUSE & BUSINESS INTELLIGENCE

Relational & Dimensional Data Modeling

Extract, Transform, & Load (ETL) Development

Analytical Cube Development

Business Rules Development

ETL Quality Assurance

UNSTRUCTURED DATA MANAGEMENT

Content Management & Discovery

Retrieval, Searching, & Indexing

Security & Protection

Storage & Protection

Backup & Recovery

INFORMATION PRESENTATION

Dashboard & Interactive Reports

Software Application Components

Precision Printed Output

Historical Reporting & Productive Analytics

DATABASE ADMINSTRATION

Database Setup, Mirroring, & Sharing

Performance Analysis & Tuning

Physical Layer Security & Audit Validation

Disaster Recovery & Availability Planning

Retention & Capacity Planning

DBMS Release Migration

Data Encryption & Data Masking

RESPEC offers data-management design, architecture, and implementation for data quality, master data management, and data governance. Our experts have implemented enterprise data integrations across multiple sources and multivendor big data projects that use Oracle, Informatica, and Hortonworks. RESPEC also developed big data solutions with the Hadoop ecosystem and streaming data platforms that use Apache Kafka, Storm, and NiFi.

RESPEC's data-management experts are regarded as industry thought leaders and often share their knowledge with clients via industry white papers, conference panels, technical workshops, and customized training sessions. By partnering with Qlik, Tableau, and Spotfire, our team delivers robust data analytics, visualization, and dashboards with the highest quality of visualization tools.

With a focus on delivering Informatica Platform software and professional services, RESPEC's team specializes in master data management, data security, data governance, and enterprise data integration solutions. We have implemented sustainable data-management solutions for public- and private-sector projects for organizations in various industries, including mining and energy, water quality and environment, technology management, construction, retail, logistics, finance, healthcare, transportation, and information technology.

WHAT IS DATA QUALITY MANAGEMENT?

With today's enormous databases, many incorrect or duplicate records exist. This poor data quality affects business efficiency and profitability. DQM is an administrative tool that assists in role establishment; role deployment; policies; responsibilities; and processes regarding data acquisition, maintenance, monitoring, disposition, and distribution. For DQM efforts to be effective, RESPEC facilitates a clear, communicative relationship between your organization's information technology team and your decision-makers.

RESPEC's business intelligence platforms incorporate all of the roles that are required for a robust DQM. Our effective DQM philosophy establishes the comprehensive
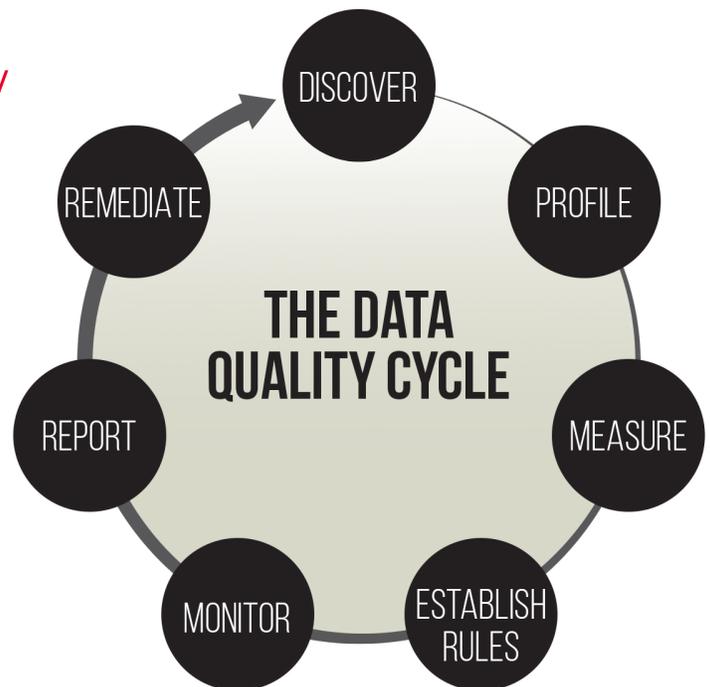

Figure 2. RESPEC's Data Quality Cycle.

governance, identifies all roles and responsibilities, and forms quality standards and expectations. We implement a technical

platform that supports strategy and facilitates best practices to control the environment and acquire, maintain, disseminate, and dispose of electronic data assets.

By staying ahead in the industry, RESPEC delivers a competitive advantage to clients who understand the impact of data quality on their business and optimize its management in every way possible. Using RESPEC's DQM services, clients quickly identify data anomalies, increase productivity, condense timelines, reduce duplication, and achieve a single version of truth. Our clients can realize and measure the positive effects that improving data has on related practices.

WHY DATA QUALITY ASSESSMENT?

For every operation, maintaining data quality is an ongoing activity. RESPEC's rigorous approach to data quality improvement focuses on continuously gathering intelligence from people, processes, events, and technology to increase business benefits. RESPEC professionals evaluate scientific and statistical data to determine the fit and standard for projects or processes. We assure clients that their data quality and quantity support the intended use. RESPEC's DQM process exposes data problems and weaknesses, and our DQM assessment allows clients to plan strategies and focus on data cleansing, system maintenance, compliance, and quality assurance standards.

High-quality, clean data mean accountability in business. Many companies unknowingly make poor decisions based on bad data because customer records are often incomplete, outdated, or incorrect. RESPEC asks key questions by using a basic data

RESPEC asks key questions by using a basic data quality assessment that is designed to help you understand the state and quality of your organization's data.

quality assessment that is designed to help you understand the state and quality of your organization's data. Our professional team ensures that your data conform to your business rules. We also quantify how much change has taken place since the last profiling.

In addition to typical data profiling, RESPEC goes beyond the standard assessment and actually performs quality-enhancing techniques for your data. We demonstrate how your organization can function better with clean data. With best practices that are evolving continuously, clients should regard data as a valuable electronic asset that are obtained and managed as closely as possible to the authoritative source. RESPEC's team detects complex and technical issues regarding the structure of poor (or missing), data, default data, and data-field errors.

The Impacts of Poor Data

Large and small businesses need DQM because the impact of poor data is costly. Because of poor data quality, 40 percent of all business initiatives are failing to achieve their targeted benefits. RESPEC's highly skilled professional team helps organizations create a data-quality strategy that significantly affects vital business initiatives for achieving growth, agility, and competitiveness.

Possible reasons for poor quality data may include excessive amounts of collected data, no incentive to improve quality, or no known use for the data. Organizations with poor data strategies can be directly and indirectly impaired. When using poor, polluted, or outdated data, organizations run the risk of noncompliance with quality standards as well as internal and external regulations. By using a record with incorrect profiling and segmentation, businesses can inadvertently miss selling opportunities.

Correcting duplicate or undelivered invoices or messages is also expensive. Poor data can harm a company's reputation and weaken customer relationships (e.g., misspelled or incorrect names, emails, shipping addresses, payments, and products). By upgrading an enterprise's data, RESPEC delivers the many benefits of high-quality data.

Key Characteristics of High-Quality Data

By measuring and improving key characteristics, DQM is defined as the process that ensures that data are clean and fit for the intended use. RESPEC's DQM approach includes maintaining the privacy, accuracy, reliability, completeness, serviceability, validity, and recency of data. Our professional team establishes accessibility, availability, soundness of methodology, and data cohesiveness. We filter out redundancy and ensure that high-quality data are available to appropriate users and protected against inappropriate access.

RESPEC'S DATA QUALITY ASSESSMENT PROCESS

RESPEC works with organizations to determine areas of data concern through a three-step process: identification, profiling, and correction.

1. Identification
We work with clients to determine the areas of concern within company data by working with the following six main categories of data quality:

- » Uniqueness
- » Completeness
- » Timeliness

- » Validity
- » Accuracy
- » Consistency.

2. Profiling
We process a sample dataset and profile this dataset based on the six quality aspects. We then provide clients with a data quality scorecard and analysis of our findings.

3. Correction
As part of the assessment, RESPEC's team works with sample data to correct inconsistencies and discrepancies. This process, which is based on clean data, yields a higher efficiency and results in fewer issues.

Quality Control of Data

Organizations must be able to measure digital initiatives to manage them. Because controlling data quality is critical to business, companies invest in analytics to obtain the most accurate data possible. At RESPEC, we strive to ensure data completeness by populating all core variables through routine data capture. We design-in recency, so clients can maintain the most current information via validation updates. We avoid creating duplicate customer records by using a deduplication function for batch cleansing and real-time matching. To ensure your data quality, we use appropriate standards and key performance indicators.

Holistic Framework Ensures Data Quality

Because the quality of an organization's "digital decisioning" depends on the quality of its electronic data, RESPEC uses a holistic framework to ensure data quality. In the early phases of assessment and planning, we review the baseline of a company's data

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MAIN CATEGORIES OF DATA QUALITY:

- » Uniqueness
- » Completeness
- » Timeliness
- » Validity
- » Accuracy
- » Consistency

Removing and reducing the impact of problems that prevent data from being used effectively include identifying, defining, quantifying, prioritizing, tracking, reporting, and resolving data.

quality to understand the level of data health, define any problems, and assess how these issues affect performance. Removing and reducing the impact of problems that prevent data from being used effectively include identifying, defining, quantifying, prioritizing, tracking, reporting, and resolving data.

In our data quality action plan, we collaborate closely with clients to assign roles and responsibilities that best suit the organizational objectives. Using a structured approach, we set up monitoring and reporting steps to focus on data that are important to your growth. Our team achieves continuous data quality improvement and sustainability by using a multifaceted approach. RESPEC's DQM approach is supported by the best tools, which significantly reduce the time, effort, and cost required to manage data quality and realize a return on your investment.

Benefits of Data Quality Management

Knowing your current data condition is very useful and helps you realize benefits, such as an increase in information accuracy, a single version of truth, confidence of information, and correct and timely information to support business decisions. An additional benefit includes reducing compliance violations that result in regulatory penalties. RESPEC's goals are to increase customer confidence and

drive business performance with insightful, informed, and intelligent decision-making.

RESPEC's team optimizes the huge impact of data on the enterprise. With large amounts of clean data, businesses can better predict and influence customers and consumer behaviors. Data quality also provides a valuable basis for inventory control, product management, and timely decisions.

Benefits of High-Quality Data

A thorough data quality assessment generates many organizational benefits when diverse departments and team members use a single version of truth and are confident in using clean data. High-quality data provide the following business benefits:

» Make more informed decisions
» Energize sales channels
» Increase customer satisfaction
» Increase sales
» Measure outcomes more accurately
» Manage customer and vendor data easily
» Ensure compliance
» Evaluate performance
» Mitigate risk and error
» Maximize efficiency.

SECURITY, COMPLIANCE, AND INDUSTRY STANDARDS

With almost 50 years of experience, RESPEC's professional team fully understands compliance and adheres to the industry standards and regulations. We implement all aspects of security for cloud-computing security, which enables businesses to use and benefit from internet-based services. For digital businesses, RESPEC professionals have solutions for security challenges, including data ownership, privacy, mobility, quality of service, and data protection. By protecting our clients from the risks of data management and cloud computing, we verify and protect customer data and ensure regulatory and General Data Protection Regulation compliance.

IN PARTNERSHIP WITH INFORMATICA

RESPEC leverages the Informatica Data Quality solution to perform thorough and innovative assessments. RESPEC uses the leading data quality platform to provide clients with a trusted view of their data. Informatica's data quality tools demonstrate their strength with a full range of functions, which include profiling, parsing, standardizing, cleansing, matching, monitoring, and enriching data.

OTHER VALUABLE PARTNERS

RESPEC appreciates many of our other valuable partnerships when creating best-fit solutions, including:

- » Oracle
- » Hortonworks
- » Hadoop ecosystem
- » Apache Kafka
- » Storm
- » NiFi
- » Qlik
- » Tableau
- » Spotfire.

CONCLUSION

For large or small, public or private organizations, with traditional data or big data needs, RESPEC has a powerful strategy for your data quality management. As data and information systems experts, RESPEC's professional team can apply our vast know-how and experience to help your organization.

For more detailed technical information or advice, RESPEC's professional team is pleased to consult with your team about all of your data quality and information system needs.

ABOUT RESPEC

Founded in 1969, RESPEC is a global leader in geoscience, engineering, data, and integrated technology solutions for major industry sectors. As award-winning collaborators in full-service data and information system solutions, RESPEC is an Oracle Gold Partner and specializes in Billing and Revenue Management, Business Process Management, Business Intelligence, and Custom Software Development. RESPEC is known for our focus on client satisfaction, and our professional team helps clients get the most from their business systems by:

» Integrating and enhancing client's existing enterprise software applications.

» Implementing master data management.

» Consolidating revenue management solutions.

» Developing custom software.

» Unifying business processes.

» Creating integrated technology solutions.

As leading-edge innovators in mission-critical technology solutions, RESPEC transforms organizations for peak performance. We bridge the gap between technology and business processes to integrate every function of the company, so our client's companies work smoothly and efficiently. RESPEC's mission is to conduct business with the highest integrity, employ the best standards of practice, fully understand our client's needs, and serve as a trusted technology resource.