

Data Management Fundamentals – The How

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Data Management Fundamentals – The How

R. Raymond McGirt

Bachelor of Science

Major: Computer Science

Minor: Information Processing

Worked for five different organizations since 1992.

COBOL programmer with database connectivity

Designed, built, maintained inventory and shipment tracking database

Lead team that designed and built sensor database

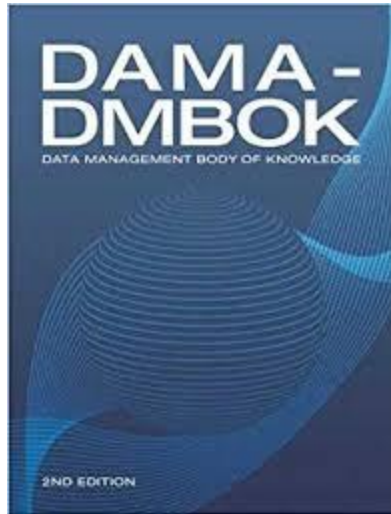
Designing and building project management database

DAMA member since 2012.

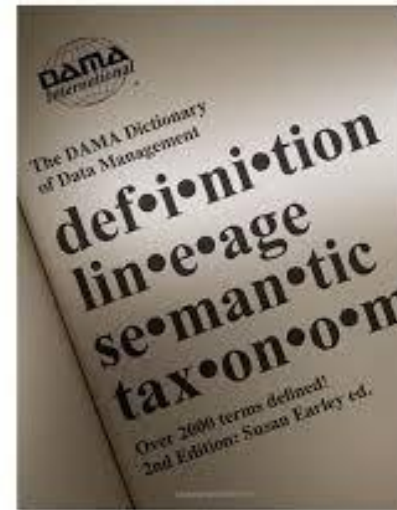


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Sources



DAMA - Data Management Body of Knowledge, Second Edition, 2017



The DAMA Dictionary of Data Management, Second Edition, 2011

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The Knowledge Areas

Similar to many Software Engineering (SWE) principles

Keeping track of what is where

Determine if the product is correct

Determine if product satisfies the need

Apply proper safeguards

Recommend improvements opportunities

The Data Management Knowledge Areas, much like SWE principles, interact with each other.

Data Architecture

Data Development

Data Quality

Data Operations

Business Intelligence and Warehousing

Data Security

And a couple of others

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Data Management

The development, execution, and supervision of plans, policies, programs, and practices that deliver, control, protect, and enhance the value of data and information assets throughout the lifecycle.

Goals

- Understanding and supporting the information needs of the enterprise and its stakeholders, including customers, employees, and business partners
- Capturing, storing, protecting, and ensuring the integrity of data assets
- Ensuring the quality of data and information
- Ensuring the privacy and confidentiality of stakeholder data
- Preventing unauthorized or inappropriate access, manipulation, or use of data and information
- Ensuring data can be used effectively to add value to the enterprise

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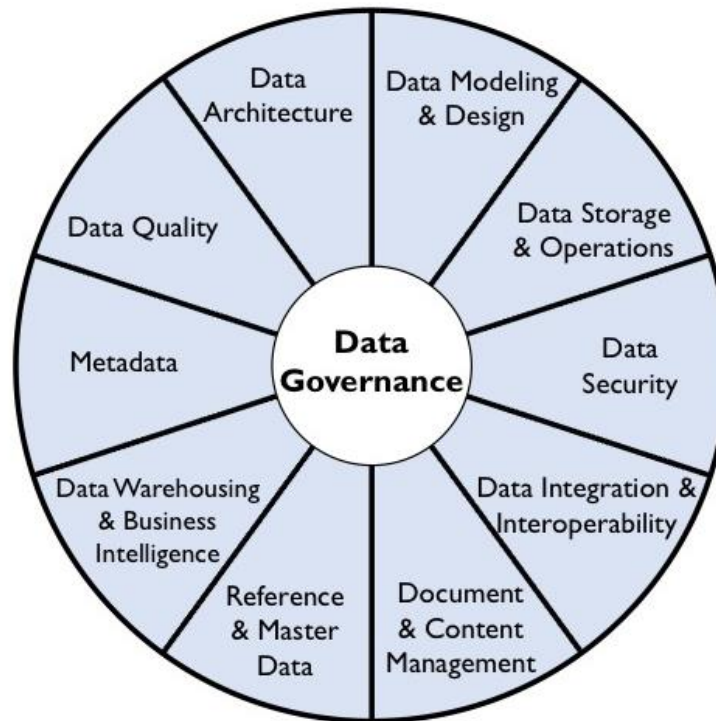
Principles

- Data is an asset with unique qualities
- The value of data can and should be expressed in economic terms
- Managing data means managing the quality of data
- It takes metadata to manage data
- It takes planning to manage data
- Data management is cross functional; it requires a range of skills and expertise
- Data management requires an enterprise perspective
- Data management must account for a range of perspectives
- Data management is lifecycle management
- Different types of data have different lifecycle characteristics
- Managing data includes managing risks associated with data
- Data management must drive Information Technology decisions
- Effective data management requires leadership commitment

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Data Governance and Stewardship

The exercise of authority, control, and shared decision-making (planning, monitoring, and enforcement) over the management of data assets.

Goals

- Enable an organization to manage data as an asset.
- Define, approve, communicate, and implement principles, policies, procedures, metrics, tools, and responsibilities for data management.
- Monitor and guide policy compliance, data usage, and management activities.

Activities

- Define Data Governance for the Organization
- Define the Data Governance Strategy
- Implement Data Governance
- Embed Data Governance

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Data Architecture

Identifying the data needs of the enterprise (regardless of structure), an designing and maintaining the master blueprints to meet those needs. Using master blueprints to guide data integration, control data assets, and align data investments with business strategy.

Goals

- Identify data storage and processing requirements.
- Design structures and plans to meet the current and long-term data requirements of the enterprise.
- Strategically prepare organizations to quickly evolve their products, services, and data to take advantage of business opportunities inherent to emerging technologies.

Activities

- Establish Enterprise Data Architecture
- Integrate with Enterprise Architecture

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Data Modeling and Design

Data modeling is the process of discovering, analyzing, and scoping data requirements, and then representing and communicating these data requirements in a precise form call the data model. This process is iterative and may include a conceptual, logical, and physical model.

Goals

- To confirm and document an understanding of different perspectives, which leads to applications that more closely align the current and future business requirements, and creates a foundations to successfully complete broad-scoped initiatives such as master data management and data governance programs.

Activities

- Plan for Data Modeling
- Build the Data Models
- Review the Data Models
- Manage the Data Models

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Data Storage and Operations

The design, implementation, and support of stored data to maximize its value.

Goals

- Manage availability of data throughout the data lifecycle (Plan, Design & Enable, Create/Obtain, Store/Maintain, (Dispose), Use, Enhance, repeat).
- Ensure the integrity of data assets.
- Manage performance of data transactions.

Activities

- Manage Database Technology
- Manage Database Operations

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Data Security

Definition, planning, development, and execution of security policies and procedures to provide proper authentication, authorization, access, and auditing of data and information assets.

Goals

- Enable appropriate, and prevent inappropriate, access to enterprise data assets.
- Understand and comply with all relevant regulations and policies for privacy , protection, and confidentiality.
- Ensure that the privacy and confidentiality needs of all stakeholders are enforced and audited.

Activities

- Identify Relevant Data Security Requirements
- Define Data Security Policy
- Define Data Security Standards
- Assess Current Security Risks
- Implement Controls and Procedures

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Data Integration and Interoperability

Managing the movement and consolidation of data within and between applications and organizations.

Goals

- Provide data securely, with regulatory compliance, in the format and timeframe needed.
- Lower cost and complexity with managing solutions by developing shared models and resources.
- Identify meaningful intelligence, analytics, master data management, and operational efficiency efforts.

Activities

- Plan and Analyze
- Design DII Solutions
- Develop DII Solutions
- Implement and Monitor

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Document and Content Management

Planning, implementation, and control activities for lifecycle management of data and information found in any form or medium.

Goals

- To comply with legal obligations and customer expectations regarding Records management.
- To ensure effective and efficient storage, retrieval, and use of Documents and Content.
- To ensure integration capabilities between structured and unstructured Content.

Activities

- Plan for Lifecycle Management
- Create Content Handling Policies, including E-discovery approach
- Define Information Architecture
- Manage the Lifecycle
- Publish and Deliver Content

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Reference and Master Data

Managing shared data to meet organizational goals, reduce risks associated with data redundancy, ensure higher quality, and reduce costs of data integration.

Goals

- Enable sharing of information assets across business domains and applications within an organization.
- Provide authoritative source of reconciled and quality-assessed master and reference data.
- Lower cost and complexity through use of standards, common data models, and integration patterns.

Activities

- Identify Drivers and Requirements
- Evaluate and Assess Data Sources
- Define Architectural Approach
- Model Data
- Define Stewardship and Maintenance Processes
- Establish Governance Policies
- Implement Data Sharing/Integration Services

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Data Warehousing and Business Intelligence

Planning, implementation, and control processes to provide decision support data and support knowledge workers engaged in reporting, query, and analysis.

Goals

- To build and maintain the technical environment and technical business processes needed to deliver integrated data in support of operational functions, compliance requirements, and business intelligence activities.
- To support and enable effective business analysis and decision making by knowledge workers.

Activities

- Understand Requirements
- Define and Maintain the DW and BI Architecture
- Develop the Data Warehouse and Data Marts
- Populate the Data Warehouse
- Implement the Business Intelligence Portfolio
- Maintain Data Products

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Metadata Management

Planning, implementation, and control processes to enable access to high quality, integrated metadata.

Goals

- Provide organizational understanding of business terms and usage.
- Collect and integrate metadata from diverse sources.
- Provide a standard way to access metadata.
- Ensure metadata quality and security.

Activities

- Define Metadata Strategy
- Understand Metadata Requirements
- Define Metadata Architecture
- Create and Maintain Metadata
- Query, Report, and Analyze Metadata

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Data Quality

The planning, implementation, and control of activities that apply quality management techniques to data, in order to assure it is fit for consumption and meets the needs to data consumers.

Goals

- Develop ad governed approach to make data fit for purpose based on the data consumers' requirements.
- Define standards, requirements, and specifications for data quality controls as part of the data lifecycle.
- Define and implement processes to measure, monitor, and report on data quality levels.
- Identify and advocate for opportunities to improve the quality of data, through process and system improvements.

Activities

- Define High Quality Data
- Define a Data Quality Strategy
- Define Scope of Initial Assessment
- Perform Initial Data Quality Assessment
- Identify & Prioritize Improvements
- Develop and Deploy Data Quality Operations

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Summary

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Questions