

INFORMATION LIFECYCLE MANAGEMENT (ILM)

Definition

Managing data from creation to disposal, ensuring it is protected, stored properly, and disposed of securely according to legal and business requirements.

Stages of Information Lifecycle

- **Creation:** Data is generated from people, systems, or devices.
- **Storage:** Data is securely stored for future use.
- **Use:** Data is accessed or processed to support operations.
- **Archival:** Inactive data is moved to long-term storage.
- **Disposal:** Data is permanently deleted when no longer required.

Reasons for Data Retention

- **Business:** Supports decision-making and planning.
- **Legal:** Required by law to retain certain records.
- **Regulatory:** Required by industry rules and standards.

Data Management Tools

- **DMS:** Organizes digital documents.
- **Cloud Storage:** Automatically manages data storage based on age.
- **Encryption:** Secures data with passwords and access controls.
- **Backup Systems:** Protects against data loss due to disasters.

Challenges

- Data complexity
- Costs of storage
- Security threats
- Legal compliance risk

DATA QUALITY MANAGEMENT (DQM)

Definition

Ensures data is correct, complete, consistent, and up-to-date.

Key Dimensions

- Accuracy
- Completeness
- Consistency
- Timeliness

Standards

- **ISO 8000:** Ensures global data quality.
- **DAMA-DMBOK:** Provides guidelines for managing data.

Methods

- Validation checks
- Data profiling
- Audits

Improvement Techniques

- Data cleaning
- Standardization
- Deduplication
- Data enrichment

Governance Strategies

- Clear policies
- Regular monitoring
- Roles and responsibilities
- Employee training

MASTER DATA MANAGEMENT (MDM)

Definition

Creates one accurate and consistent version of core data for the organization.

Importance

- Eliminates duplicates
- Improves reporting accuracy
- Enhances system efficiency

Reference Data Management (RDM)

Ensures standardized codes and categories across systems.

MDM Components

- Data Sources
- Integration Layer
- Master Data Hub
- Data Quality Tools
- Data Consumers

MDM Processes

- Data Collection
- Data Consolidation
- Data Validation
- Monitoring and Maintenance
- Data Distribution

Governance Roles

- Data Owners
 - Data Stewards
 - Data Administrators
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DATA INTEGRATION

Definition

Combining data from different sources into a single unified view.

Principles

- Data quality
- Governance
- Scalability
- Flexibility
- Metadata management

Integration Methods

- ETL (Extract, Transform, Load)

- ELT (Extract, Load, Transform)
- Data Pipelines (Batch or Real-Time)

Challenges

- Variety of data types
 - Ensuring quality
 - Managing large volumes
 - Real-time processing
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DATA PROVENANCE (Data Lineage)

Definition

Tracking the origin, movement, and transformation of data.

Purpose

- Ensures transparency
 - Helps in auditing and compliance
 - Builds trust in data
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END OF NOTES

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