COURSEWARE

DATA QUALITY MANAGEMENT

BASED ON CDMP

Van Haren PUBLISHING

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Data Quality Management
Based on CDMP

Colophon

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Publisher about the Courseware

The Courseware was created by experts from the industry who served as the author(s) for this publication. The input for the material is based on existing publications and the experience and expertise of the author(s). The material has been revised by trainers who also have experience working with the material. Close attention was also paid to the key learning points to ensure what needs to be mastered.

The objective of the courseware is to provide maximum support to the trainer and to the student, during his or her training. The material has a modular structure and according to the author(s) has the highest success rate should the student opt for examination. The Courseware is also accredited for this reason, wherever applicable.

In order to satisfy the requirements for accreditation the material must meet certain quality standards. The structure, the use of certain terms, diagrams and references are all part of this accreditation. Additionally, the material must be made available to each student in order to obtain full accreditation. To optimally support the trainer and the participant of the training assignments, practice exams and results are provided with the material.

Direct reference to advised literature is also regularly covered in the sheets so that students can find additional information concerning a particular topic. The decision to leave out notes pages from the Courseware was to encourage students to take notes throughout the material. Although the courseware is complete, the possibility that the trainer deviates from the structure of the sheets or chooses to not refer to all the sheets or commands does exist. The student always has the possibility to cover these topics and go through them on their own time. It is recommended to follow the structure of the courseware and publications for maximum exam preparation.

The courseware and the recommended literature are the perfect combination to learn and understand the theory.

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	Data Management	Data literacy, Data visualization, DMBOK
	IT Asset Management	HAM, ITAM, SAM
	IT Security Management	BIO, ISO/IEC27001, NIS2
	Test Management	CTAP
	Application Management	ASL
	Other	eCF, IT-CMF, Scrum
Project Management	Project Management	Half Double, ICB, ISO/IEC21500, P3.express, PM2, PMBOK Guide, Praxis, PRINCE2
	Agile	Agile, Agile PM
	Other	PMO
Business Management	Operations Management	Lean, Lean Six Sigma, OBM, OMC, RASCI
	Contract Management	CATS CM, CATS RVM, IACCM World
	Business Information Management	BiSL, DID
	Artificial Intelligence	AI, Generative AI
	Outsourcing	OPBOK
Enterprise Architecture	Enterprise Architecture	BIAN, TOGAF
	Modeling	ArchiMate, BPMN
	Software Architecture	ISAQB
	Other	Open Agile Architecture

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Table of Content

Self-Reflection of understanding Diagram

'What you do not measure, you cannot control.'' – Tom Peters

Fill in this diagram to self-evaluate your understanding of the material. This is an evaluation of how well you know the material and how well you understand it. In order to pass the exam successfully you should be aiming to reach the higher end of Level 3. If you really want to become a pro, then you should be aiming for Level 4. Your overall level of understanding will naturally follow the learning curve. So, it's important to keep track of where you are at each point of the training and address any areas of difficulty.

Based on where you are within the Self-Reflection of Understanding diagram you can evaluate the progress of your own training.

Level of Understanding	Before Training (Pre-knowledge)	Training Part 1 (1st Half)	raining Part 2 (2nd Half)	After studying / reading the book	After exercises and the Practice exam
Level 4 I can explain the content and apply it .					
Level 3 I get it! I am right where I am supposed to be.					Ready for the exam!
Level 2 I almost have it but could use more practice.					
Level 1 I am learning but don't quite get it yet.					

(Self-Reflection of Understanding Diagram)

Write down the problem areas that you are still having difficulty with so that you can consolidate them yourself, or with your trainer. After you have had a look at these, then you should evaluate to see if you now have a better understanding of where you actually are on the learning curve.

Troubleshooting

Problem areas:	*Topic:*
Part 1	
Part 2	
You have gone through the book and studied.	
You have answered the questions and done the practice exam.	

Data Quality Management

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Effective Data Foundation

Not-for-profit collective, which enables **professionals** to **leverage data** to make **sustainable business decisions**

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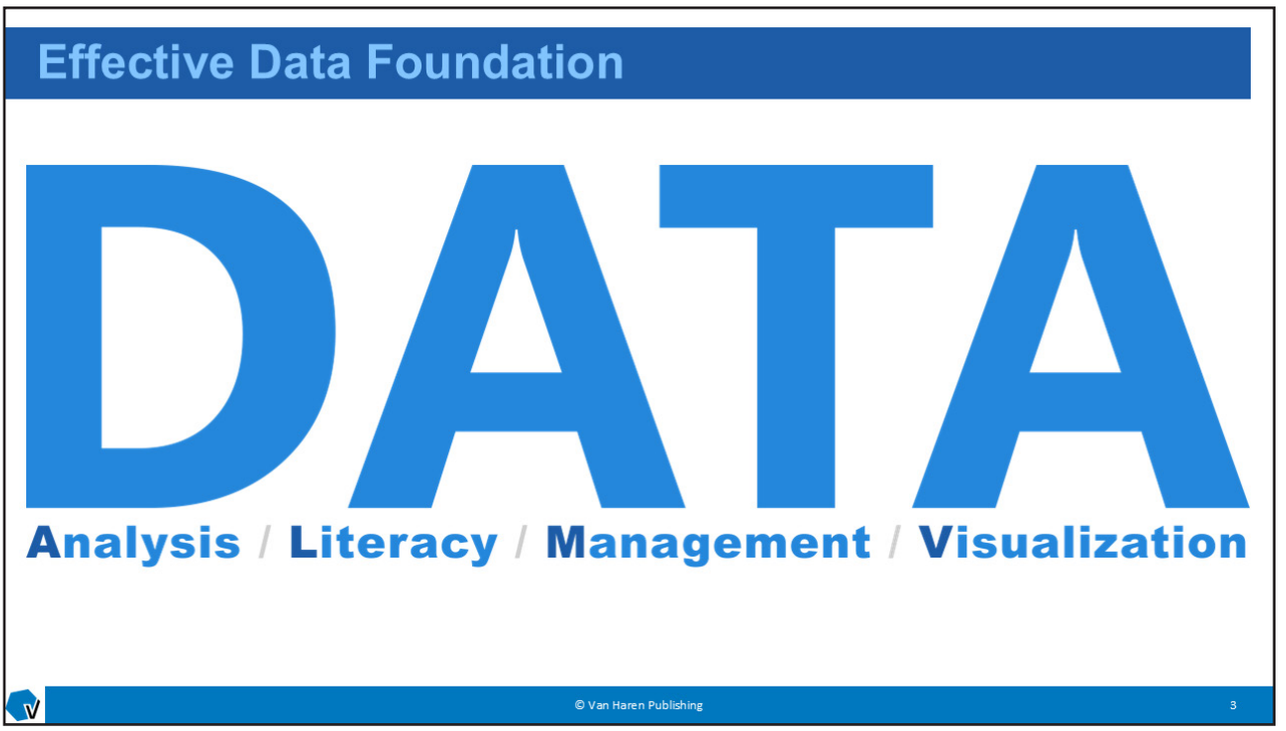
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DATA
Analysis / Literacy / Management / Visualization
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Data Management
Data management is about
people, processes,
and technology,
in that order.
Source: unknown
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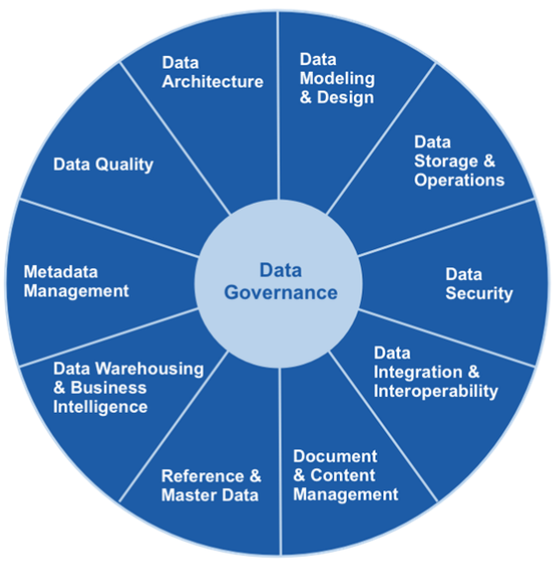
DAMA Wheel



Source: Dama.org

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Certification

ASSOCIATE	PRACTITIONER	MASTER	FELLOW
CDMP Associate	CDMP Practitioner	CDMP Master	CDMP Fellow
Membership: Central	Membership: Central	Membership: Central	Membership: Central
Industry experience: 6 months > 5 years	Industry experience: 2 years - 10 years	Industry experience: Minimum 10 years^	Industry experience: 25 years plus
Requirements: 60% pass Data Management Fundamentals exam	Requirements: 70% pass in Data Management Fundamentals exam and 70% pass in 2 specialist exams	Requirements: 80% pass in Data Management Fundamentals exam and 80% pass in 2 specialist exams	Requirements: Globally recognised & respected thought leadership; Significant contribution to Data Management profession; CDMP Master Contribution to CDMP & DMBOK; By nomination

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Training Agenda

- Introduction
- Essential concepts
- Activities
- Tools & Techniques
- Implementation
- Governance

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What is Data?

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Data & Reality

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What is Data?

Describes a ***quality*** *or* ***quantity*** *of some* ***object*** *or* ***event****.*

Source: unknown

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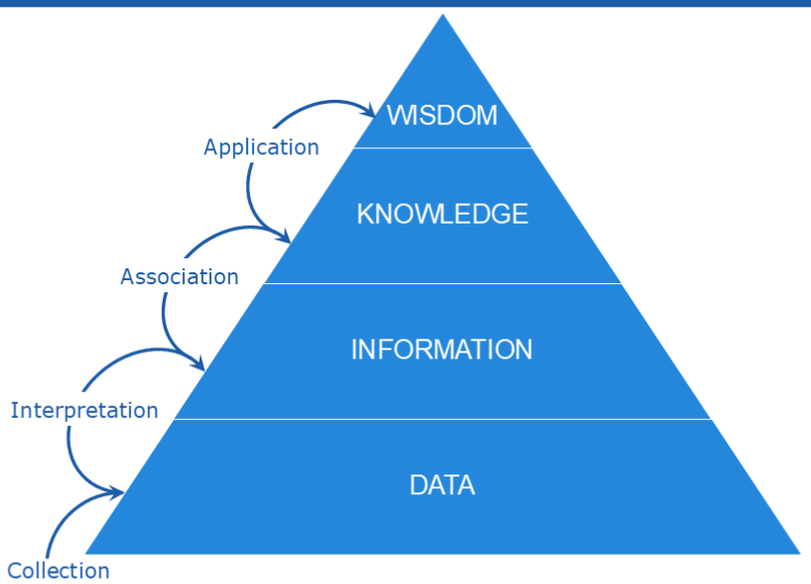
Why do we use Data?



Source: Jones, Ben. Data Literacy Fundamentals: Understanding the Power & Value of Data

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First principle for understanding data

Source: Wheeler, Donald J. Understanding variation – the key to managing chaos

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Second principle for understanding data

While **every data set** contains **noise**, **some data sets** may contain **signals**.

Therefor, before you can **detect a signal** within any given data set, you must **first filter out the noise**.

Source: Wheeler, Donald J. Understanding variation – the key to managing chaos

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Data Quality

Data is of high **quality**, if the data is **fit for** the intended **purpose** of use

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Data Quality

Data is of high **quality**, if the data correctly **represents the real-world** construct that the data describes

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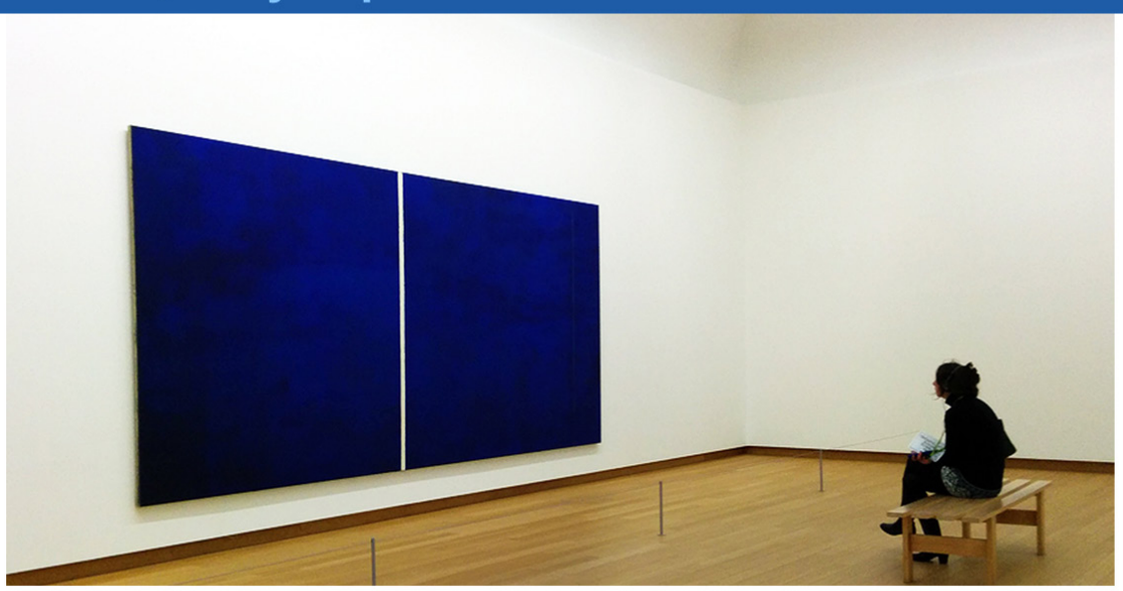
Data Quality is personal



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Data Quality is situational

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Definition Data Quality Management

The planning, implementation, and control of activities that apply techniques for collecting and handling data ensuring it **addresses the needs** of the enterprise and local consumer and is **fit for use**.

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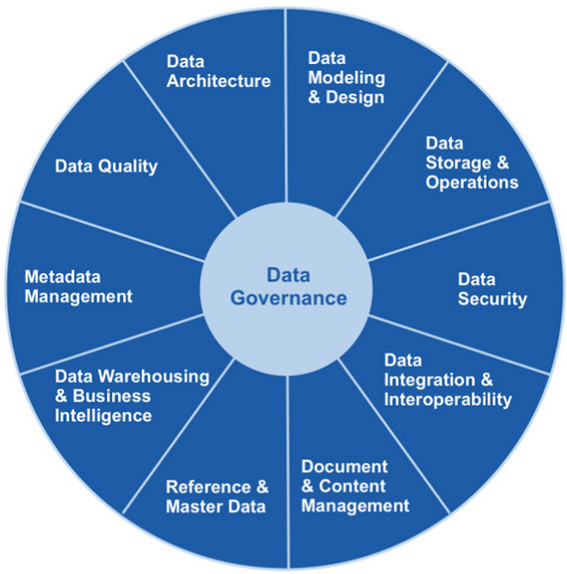
Relations with other knowledge areas



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Relation with Data Governance

Ownership

Stewardship

Resolving/prevent issues

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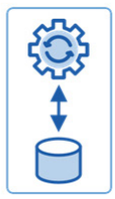
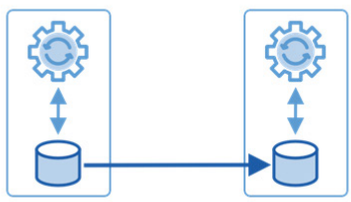
Relation with Data Architecture

Data at rest



Data in motion



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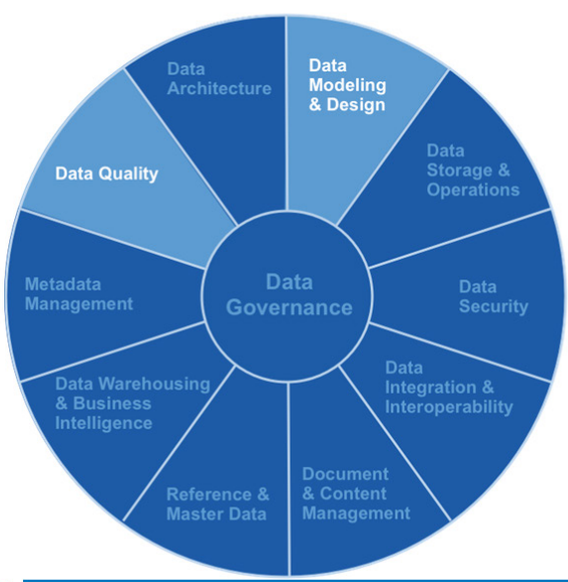
Relation with Data Modeling & Design



Keys (uniqueness)

Referential integrity

Normalization

Include DQ values

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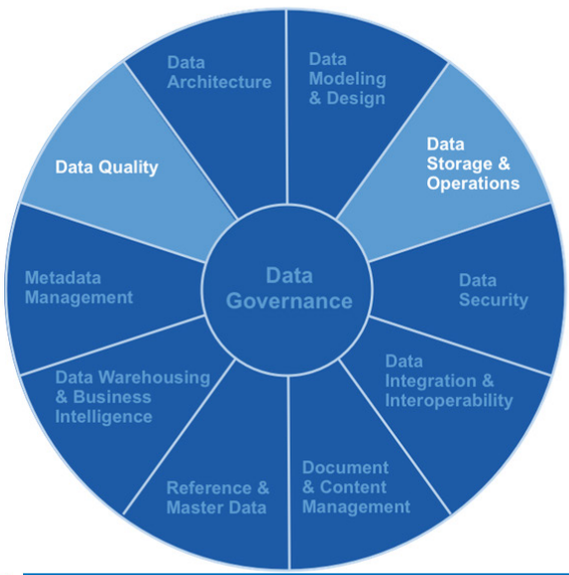
Relation with Data Storage & Operations



Operations vs Quality

Legacy

Assurance vs Scalability

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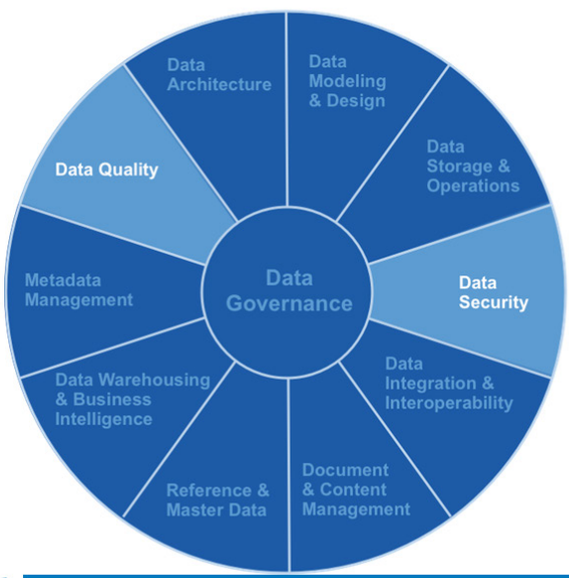
Relation with Data Security



Integrity

Encryption/masking

CRUD

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Relation with Data Integration & Interoperability

Keep the metadata (linked)

Test and reconcile

Cause of DQ issues

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Relation with Document & Content Management

Unstructured data

Content vs Record

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Relation with Reference & Master Data

Critical data

Domain values

Source for rule enforcement

Change management

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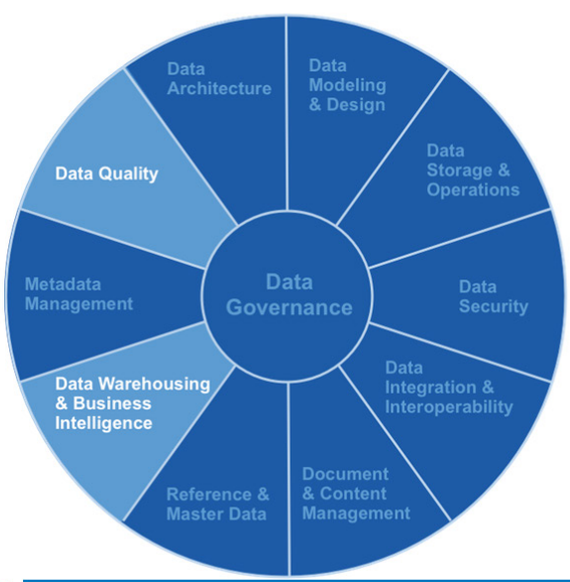
Relation with Data Warehousing & Business Intelligence



End of the value stream

Aggregate data

Changes over time

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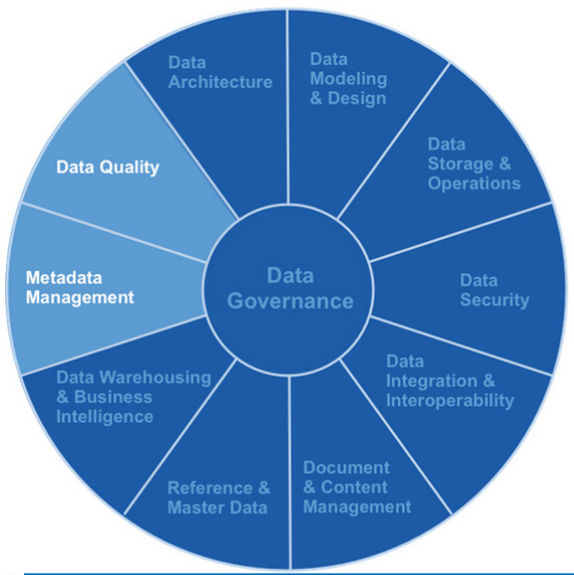
Relation with Metadata Management



Data Quality is about meeting expectations.

Metadata is a primary means of clarifying expectations.

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Business Drivers

- Enhancing stakeholders **experience** and organizations's **reputation**
- Increase the **effectiveness** of the organization
- Reducing **risks** and **costs** associated with poor quality data
- Improving organizational **efficiency** and **productivity**

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Goals

Make data **fit for purpose** based on data consumers' requirements

Defining **standards** and **specifications** for Data Quality controls as part of the data lifecycle

Defining and implementing 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

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Principles

Criticality

Embedded in business processes

Standards-driven

Objective measurement

Prevention

Transparency

Connected to service levels

Root cause remediation

Systematically enforced

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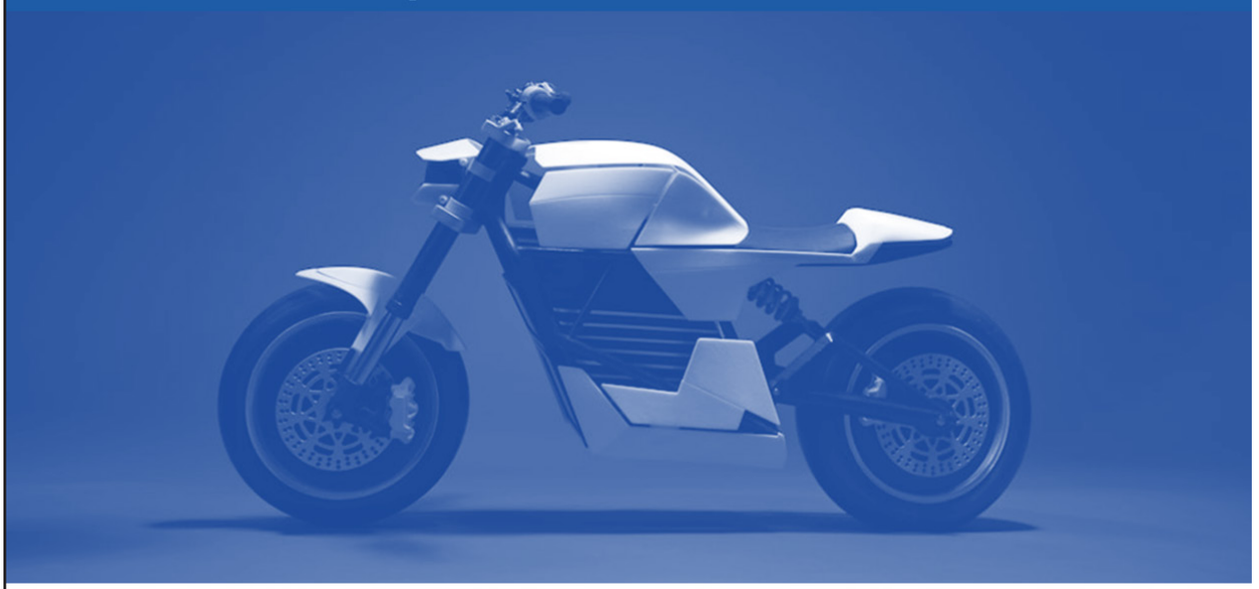
Essential Concepts



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First principle of Data Quality Management

*Focus improvement efforts on **data** that is **most important** to the organization and its customers.*

Source: DAMA DMBoK

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Critical data

- (Regulatory) compliance
- Business operational needs
- Measuring product quality and customer satisfaction
- Business strategy

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Data Quality Dimensions

a measurable feature or characteristic of data

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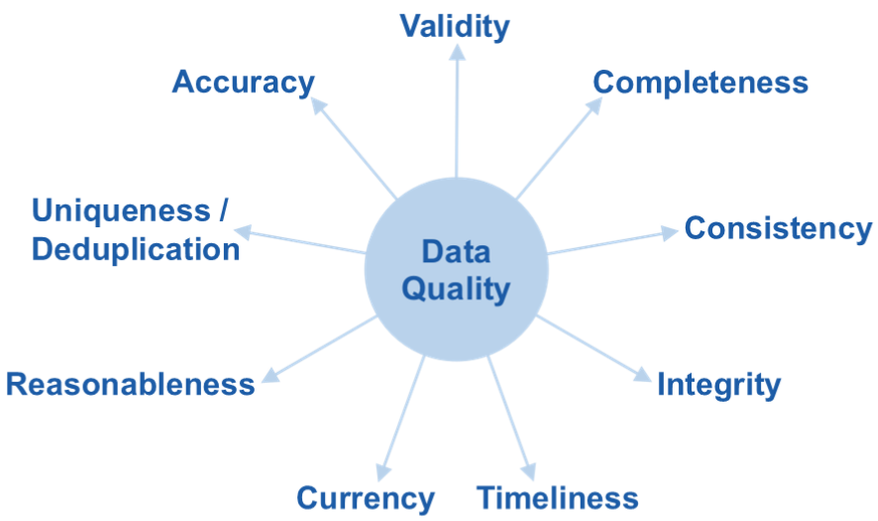
Data Quality Dimensions



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Dimension - Validity

whether data values are **consistent** with a **defined domain** of **values**

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Dimension - Completeness

whether **all** the **required** data is **present**

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Dimension - Consistency

ensuring that data values are **coded** using the **same approach**, **assessment** and **valuation** criteria

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Dimension - Integrity

the **lack of incoherent** values and **broken relationships** in data

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Dimension - Timeliness

the **time** that data needs to become **accessible** to a **user** after its **capture** or **update**

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Dimension - Currency

the date that the data was **last updated** relative to now and the **likelihood** that it is still **correct**

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Dimension - Reasonableness

whether a data **pattern meets expectations**

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Dimension – Uniqueness / Deduplication

no real-world entity exists **more than once** within the data set

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Dimension – Accuracy

the degree that data **correctly represents** 'real-life' entities

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Data Quality Dimensions

Dimension	Description
Validity	whether data values are consistent with a defined domain of values
Completeness	whether all the required data is present
Consistency	ensuring that data values are coded using the same approach, assessment and valuation criteria
Integrity	the lack of incoherent values and broken relationships in data
Timeliness	the time that data needs to become accessible to a user after its capture or update
Currency	the date that the data was last updated relative to now and the likelihood that it is still correct
Reasonableness	whether a data pattern meets expectations
Uniqueness/Deduplication	no real-world entity exists more than once within the data set
Accuracy	the degree that data correctly represents 'real-life' entities

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Which DQ dimension fits best?

1. The value in the "Customer age" field is "11001"

a. Validity
b. Completeness
c. Consistency
d. Integrity
e. Timeliness
f. Currency
g. Reasonableness
h. Uniqueness/Deduplication
i. Accuracy

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Which DQ dimension fits best?

2. Each student must have a date of birth

a. Validity
b. Completeness
c. Consistency
d. Integrity
e. Timeliness
f. Currency
g. Reasonableness
h. Uniqueness/Deduplication
i. Accuracy

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Which DQ dimension fits best?

3. All sales transactions have a timestamp

a. Validity
b. Completeness
c. Consistency
d. Integrity
e. Timeliness
f. Currency
g. Reasonableness
h. Uniqueness/Deduplication
i. Accuracy

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Which DQ dimension fits best?

4. Employee A354 from Germany is 12 years old and has a driving license (car)

a. Validity
b. Completeness
c. Consistency
d. Integrity
e. Timeliness
f. Currency
g. Reasonableness
h. Uniqueness/Deduplication
i. Accuracy

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Which DQ dimension fits best?

5. Citizen D345 is registered as married to K693. Citizen K693 is registered as being single.

a. Validity
b. Completeness
c. Consistency
d. Integrity
e. Timeliness
f. Currency
g. Reasonableness
h. Uniqueness/Deduplication
i. Accuracy

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Which DQ dimension fits best?

6. Our total sales in the month of January is 500 according to our ERP system. For this same period our Data Warehouse shows a total sales of 935

a. Validity
b. Completeness
c. Consistency
d. Integrity
e. Timeliness
f. Currency
g. Reasonableness
h. Uniqueness/Deduplication
i. Accuracy

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Which DQ dimension fits best?

7. 85% of all employee records have “null” as a value for the field “Reports to”

a. Validity
b. Completeness
c. Consistency
d. Integrity
e. Timeliness
f. Currency
g. Reasonableness
h. Uniqueness/Deduplication
i. Accuracy

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