Factsheet Critical Data Element

Factor Rating Method
Factor Rating Matrix

Content

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Introduction

This factsheet describes knowledge about Critical Data Elements (CDE's) and a CDE Factor Rating Matrix in a nutshell. These are highlighted from different angles in a structured way.

Definition

- A Data Element (DE) is a unit of data that is considered in context to be indivisible (ISO 11179:2015).
- Note: Equivalents of a Data Element are field, column, attribute, property. It is possible that a data element is considered indivisible in one context (e.g., telephone number) may be divisible in another context (e.g., country code, area code, local number).

- A Critical Data Element (CDE) is a Data Element that is determined to be vital to the successful operation of the organization (Loshin, 2009).
- Note: For example, an organization may define its critical data elements as those that represent protected personal information, those that are used in financial reports (both internal and external), regulatory reports, the data elements that represent identifying information of master data objects (e.g., customer, vendor, or employee data), the elements that are critical for a decision-making process, or the elements that are used for measuring organizational performance.

- The Factor Rating Method is method for deciding between two or more items (Data Elements).
- The Factor Rating Matrix is the output of the Factor Rating Method.

Purpose

The purpose of CDE's is to prioritize efforts to improve and ensure the quality of the most valuable data in the organization.

Lifecycle of a CDE

- To select a CDE
- To deselect a CDE

Procedure to manage CDE's

Phase	Activity
Plan	• Determine the scope of the selection procedure. • Collect the Data Elements within the scope. • Select a method to determine the CDE's. • Select or deselect CDE's by the method. • Establish the CDE's.
Do	• Use the CDE's as input for actions to improve and assure the quality of the CDE's.
Check	• Evaluate the set of CDE's.
Act	• Decide whether the set of CDE's should be amended.

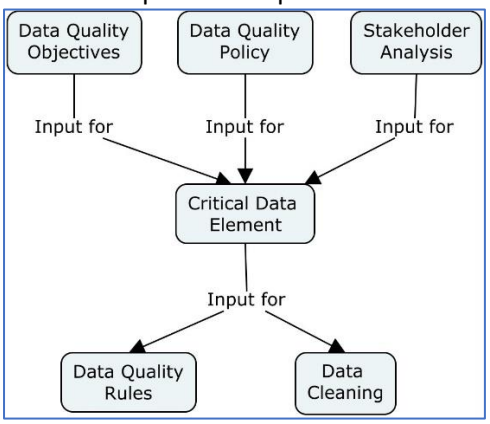
The procedure to manage CDE's is part of a data quality management system.

Characteristics and requirements

Characteristic	Requirement
Criticality of a Data Element	A CDE is a data element that exceeds a threshold for criticality.
Completeness of the set of CDE's	The set of CDE's is complete within the scope of the management system.
Actuality of the set of CDE's	The set of CDE's is up to date, e.g., it is not ten years old.

Relationships

- The **Data Quality Policy, Data Quality Stakeholders Analysis** and **Data Quality Objective** are input for the procedure to manage CDE's.
- CDE's are input for the procedure to manage **DQA Rules** and **Data Cleaning.**



Methods to select CDE's

Method 1: Simple method

The simplest method to select the CDE's is that the data owner selects and establishes the CDE's.

Method 2: Factor Rating Method

The Factor Rating Method is a method the select CDE's in more objective way and is appropriate when more stakeholders have a say in the selection.

The next procedure is followed:

- Determine the factors for selection the CDE's.
- Determine the weight of each factor.
- Determine the rating classification (levels of criticality).
- Determine the algorithm to calculate the score (Score = Weight x Rate).
- Determine the criticality threshold for the score.
- Rate each combination of Data Element and factor.
- Calculate the scores.
- Compare the scores with the threshold.
- Select the CDE's.
- Document the Factor Rating Matrix.

Table 1: Factors for selection of Data Elements

Label	Factor for selection a Data Element	Weight
Regulatory	Is used for regulatory reporting.	3
Compliance	Contributes to compliance to laws and regulations	3
Accounting	Is used for financial/management accounting	2
Operational	Has impact on the operational process and the quality of the product or service.	1

Table 2: Rating classification

Rate	Description
0	No impact
1	Low impact
2	Medium impact
3	High impact

Table 3: Factor Rating Matrix

Data element	Factor and Weight								Score	CDE? >10
	Regulatory Weight: 3		Compliance Weight: 3		Accounting Weight: 2		Operation Weight: 1			
	Rate	Score	Rate	Score	Rate	Score	Rate	Score		
Customer number	3	9	3	9	3	6	2	2	26	Yes
Birth date	3	9	3	9	0	0	3	3	19	Yes
Acceptance status	3	9	3	9	3	6	3	3	27	Yes
Mobile phone	0	0	0	0	0	0	1	1	1	No
Gender	0	0	0	0	0	0	2	2	1	No

Threshold is 10.

Story

The customer database of telephone company CallMe is contaminated. This resulted in customer dissatisfaction and avoidable bill disputes, causing extra workload for Client Services. Efforts to clean up the database failed because of the amount of work involved. The owner of the database then decided to select data elements that matter. He invited a few key players (stakeholders) to determine which data elements these would be. They all agreed that the name of the customer was the most important data element (critical data element). This selection was also fully in line with the data quality policy and data quality objectives.

The owner of the database then first tightened the data quality rules around names, to prevent further contamination. Furthermore, he hired a name specialist to clean up the names automatically where possible and, where necessary, to approach customers personally to ask for their correct name. This action was highly appreciated by customers because they felt seen by CallMe. It has also helped its own organization to realize improvements in data and a reduction of the workload.

References

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Authors

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