Critical data elements

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 critical data element is a data element that is determined to be vital to the successful operation of the organization (Loshin, 2009).

Abbreviaton

CDE

Notes

- 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, 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 data elements.
- The Factor Rating Matrix is the output of the Factor Rating Method.

Purpose

The purpose of critical data elements is to prioritize efforts to improve and ensure the quality of the most valuable data in the organization.

Lifecycle

- To select a critical data element
- To deselect a critical data element

Phase	Activity
Plan	* Determine the scope of the selection procedure. * Collect the data elements within the scope. * Select a method to determine the critical data elements. * Select or deselect critical data elements by the method. * Establish the critical data elements.

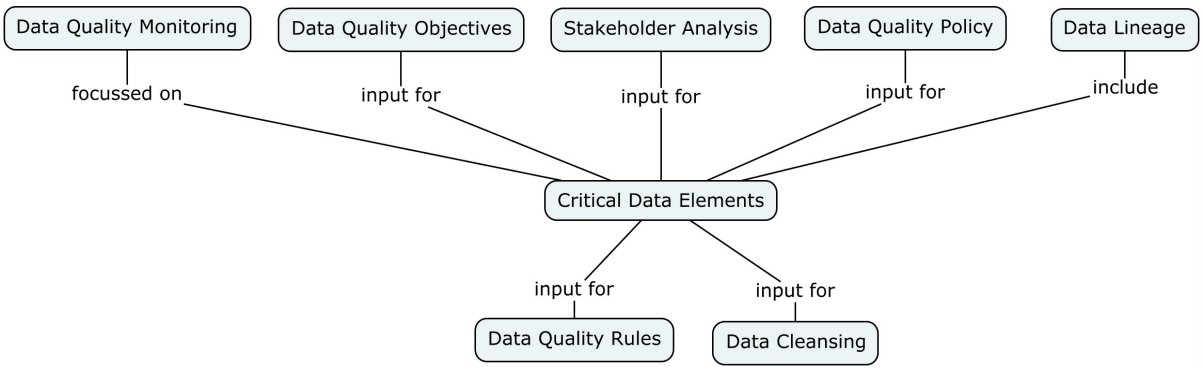
Phase	Activity
Do	* Use the critical data elements as input for actions to improve and assure the quality of the critical data elements.
Check	* Evaluate the set of critical data elements.
Act	* Decide whether the set of critical data elements should be amended.

Characteristics

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

Relations

- Critical data elements are an element of a data quality management system.
- The data quality policy, stakeholder analysis, and data quality objective are input for the procedure to manage critical data elements.
- Critical data elements are input for the procedure to manage data quality rules, and data cleansing.
- Data lineage include all data elements but especially critical data elements.
- Data quality monitoring can be focussed on critical data elements.



Methods to select critical data elements

Method 1: Simple method

The simplest method to select the critical data elements is that the data owner selects and establishes the critical data elements.

Method 2: Factor Rating Method

The Factor Rating Method is a method the select critical data elements 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 critical data elements.
- 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 critical data elements.
- 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	Critical data element? >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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