

# Master Data Management (MDM) in the Public Sector

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## Agenda

What is MDM?

What does MDM attempt to accomplish?

What are the approaches to MDM?

- Operational
- Analytical

Questions

# What is Master Data?

*“A process that spans an organization’s business processes and application systems, enabling the ability to create, store, maintain, exchange, and synchronize a consistent, accurate, and timely ‘system of record’ for core business. Addresses the harmonization and integrity of enterprise data which is vital to ensuring a consistent and complete view of business entities across the enterprise.” – Department of Public Welfare, Pennsylvania*

The characteristics of master data are:

- Shared across systems
- Fundamental to the proper execution of processes
- Owned and governed by functional groups
- Uniquely identified entities

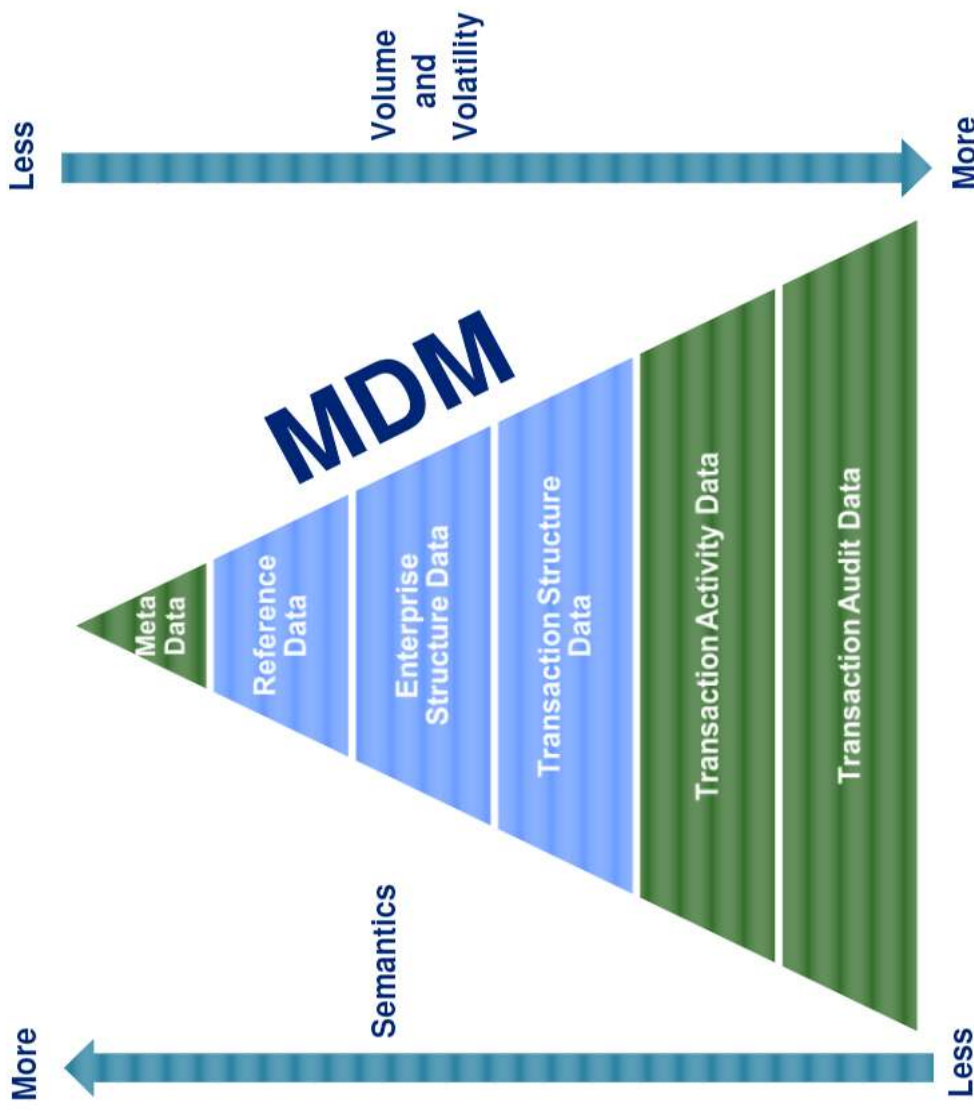
While the above definition of master data may be acceptable, there are many different interpretations of master data

	Point of View	Enterprise Applications (SAP, Oracle)	MDM Vendors
Master Data elements	Data elements that form the foundation of an organization's processes that are in its enterprise systems	Reference data that is referred to by transactions and the system configuration	Data fields that are infrequently modified and shared throughout the enterprise
Common fields across all definitions	Customer name; program, service, and provider; customer Social Security Number, parent or legal guardian; service location's address		
Examples of differences		Language code of user interface, flag to determine system feature enablement	System of origin description, time tag of field that was updated

# Master Data — A Subset of Structured Data

## Types of Structured Data\*

- **Metadata** — Structure, meaning, and relationships of data. (column cusname stands for customer name and has a size of VARCHAR(50)).
- **Reference Data** — Codes describing state and behavior of organization entities and transactions. (list of States, address types, etc.)
- **Enterprise Structure Data** — Hierarchies within the enterprise (organization hierarchy)
- **Transaction Structure Data** — Organization entities in which transactions act upon (customer data, provider data)
- **Transaction Activity Data** — Operational transactions used in applications (case entries for a child welfare worker)
- **Transaction Audit Data** — String of transactions executed to bring about a process flow (transaction logs showing execution of driver license creation)



\* Source:

BeveNetwork, Malcolm Chrisholm



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# Identifying Master Data Attributes

The differing definitions of master data make it challenging for governance organizations to determine what data elements qualify for management.

## Identifying Master Data

The scoring system can be used to assist in answering the question of whether data in question is master data

Criteria	Description	Rating
Shared	Is the data used by more than one business process/system?	0 – Data used in a single system/process 1 – Data used by two systems/processes 2 – Data used by more than two systems/processes
Value	The element is fundamental to a business process, subject area, or business system.	0 – Data is useful to individuals only 1 – Data is critical to a single business process 2 – Data is critical to multiple business processes
Volatility	Data modification behavior	0 – Transaction data 1 – Reference data 2 – Data added to or modified frequently, but the data is not transaction data
Total		
Results		
Attribute is not master data (or any criteria is rated 0)		
If any criteria is rated 0, attribute is not considered master data. Otherwise, attribute minimally meets criteria for master data and further investigation should be considered		
Attribute is master data		
0-2		
3-4		
>4		

## Type of Attribute

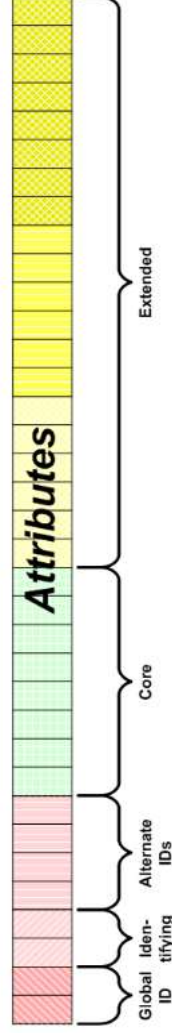
There are also different categories of master data attributes.

Identifier — ID, Alternate IDs, Cross-reference.

Core — Core fields shared across many processes

Extended — Business process specific

Most MDM solutions manage identifier, core, and a subset of extended attributes



# MDM

MDM is accomplished through the implementation of an overarching governance structure, business processes, data organization, data architecture, and enabling technology.

## What Is MDM ?

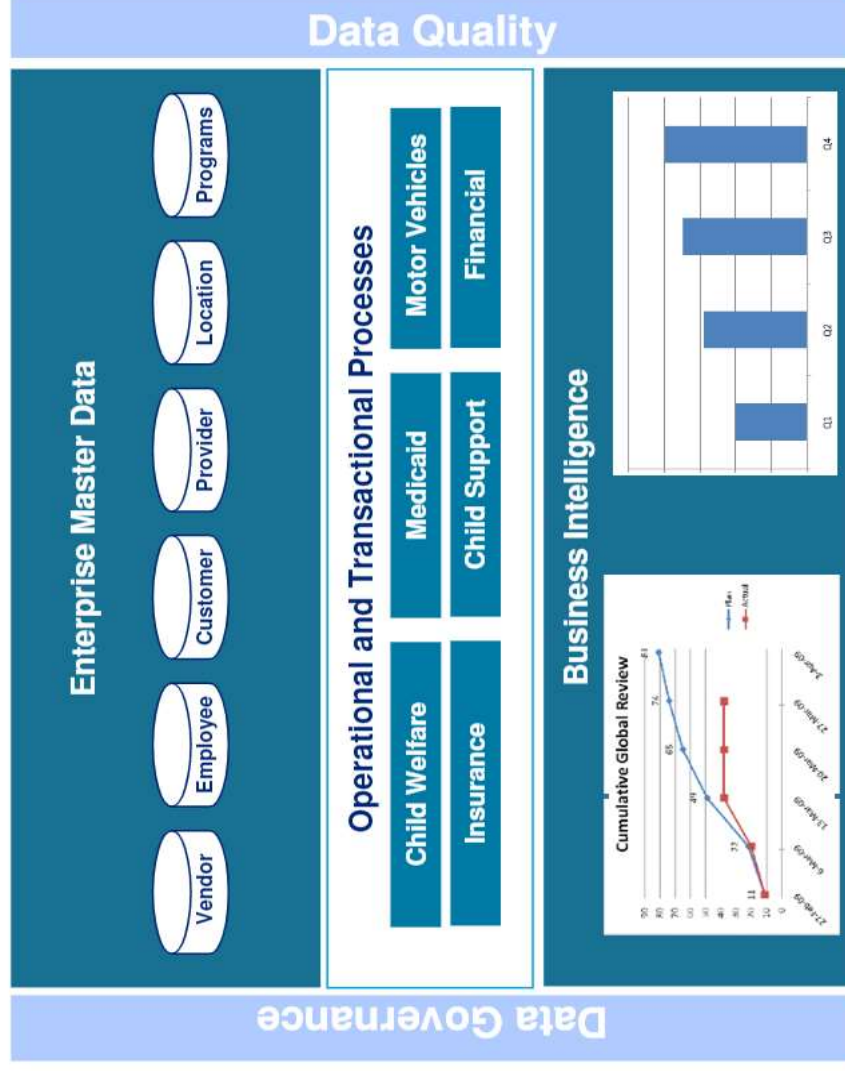
- A maintainable “system of record” for core business entities
- The single source for core business entities for the enterprise

## Efficiencies From MDM

- Improved data management resulting in better performance
- Increased efficiencies resulting from reduced data error

## Decision Support Benefits From MDM

- Increased confidence in decisions resulting from better understanding of data
- Reduced risk



## Approaches to MDM

Given the nature of MDM and the various groups promoting its efficacy, there are several approaches to its implementation:

- Operational: An application- or system-based approach that attempts to centralize and standardize the collection of subject area data into a single solution, to which other applications publish and subscribe.
- Analytical: A logical or physical data structure approach that attempts to centralize and standardize the view of subject area data into a single solution, with which users may see data that spans across applications or programs.



# Operational MDM

An application- or system-based approach that attempts to centralize and standardize the collection of subject area data into a single solution, to which other applications publish and subscribe.

People: Enterprise Architects (e.g., Architecture, Data, Software)

Process:

- Gathering information about current data standards and usage in an organization from documentation, application owners.
- Defining hierarchy of applications and their priority on updates
- Addressing anomalies and constraints – Lends to data governance discussions and data quality discussions

Technology:

- New application development associated with primary subject areas (e.g., customer and provider)
- Modification of existing systems to publish and subscribe

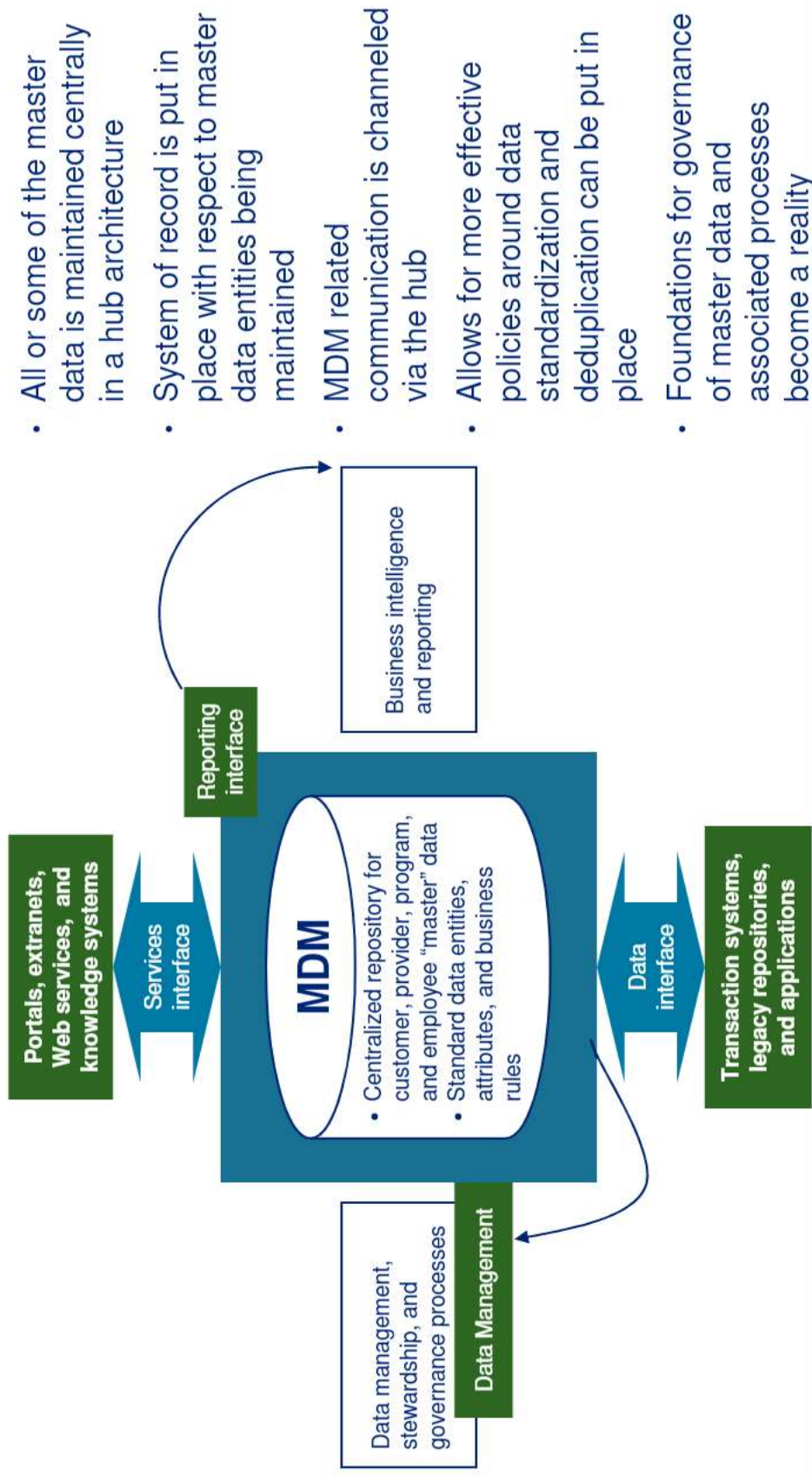


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# MDM Architecture — Hub and Spoke

The Hub and Spoke integration approach is the most effective high level architecture approach used in MDM solutions today.



## Analytical MDM

A logical or physical data structure approach that attempts to centralize and standardize the view of subject area data into a single solution, with which users may see data that spans across applications or programs.

People: Data Architects, Report Developers

Process:

- Top-Down Approach for definition of Subject Areas
- Bottom-Up Approach for definition and conformance of Dimensions

Technology:

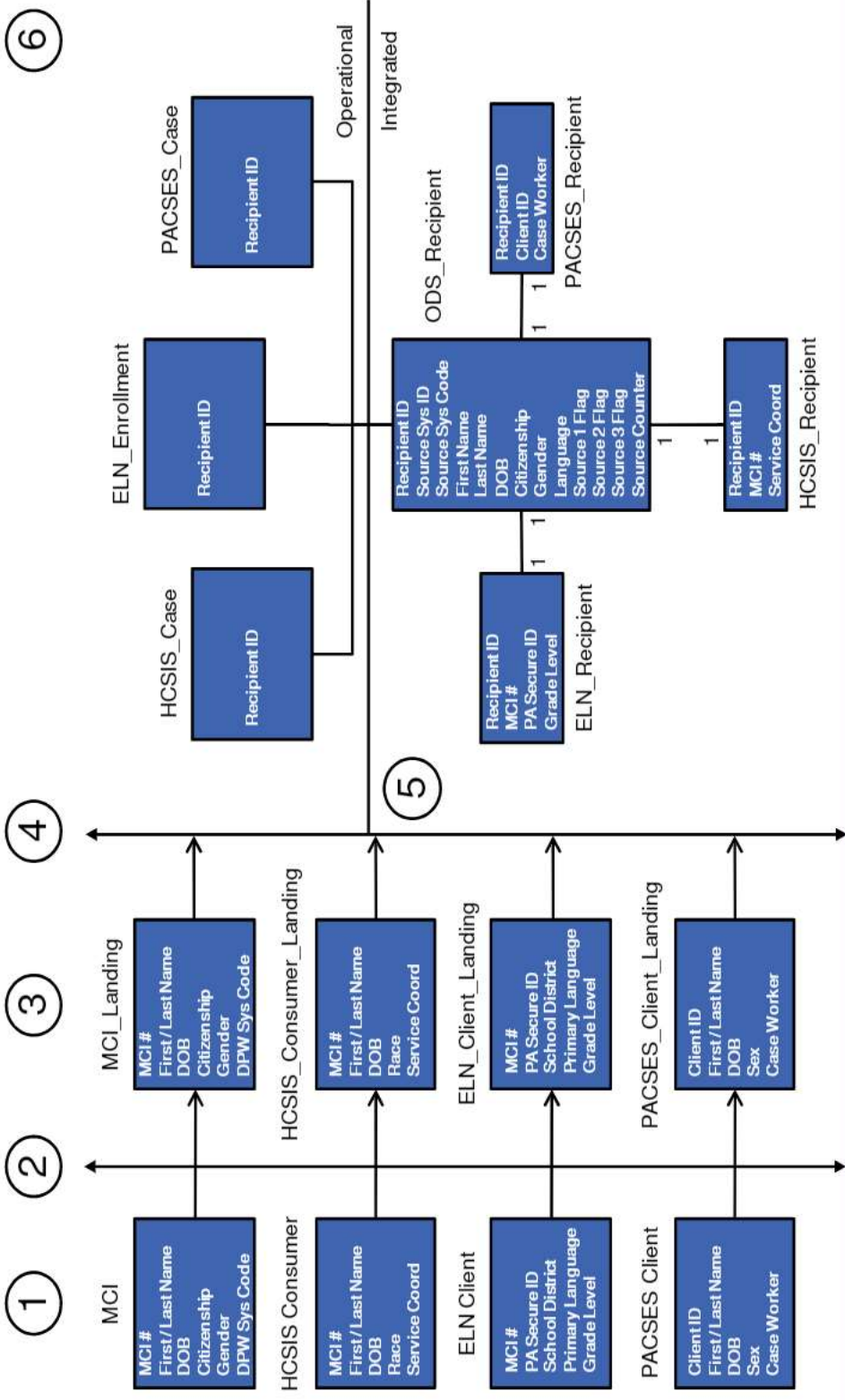
- Unified modeling
- Data Dictionary/Metadata
- Extraction, Transformation and Loading (ETL) tools



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# Analytical Unified Modeling

Integrating core data in a logical and physical environment for data analysis provides for a singular customer view across programs.





## Lessons Learned

Our experiences with large master data management programs have provided us with many lessons learned.

**Business value, leadership, and team**

**Scope, communications, and governance**

**Process and architecture**



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