MDG for Reference Data, Custom Objects and
MDG Framework supporting analytical scenarios

October 2021

THE BEST RUN **SAP**
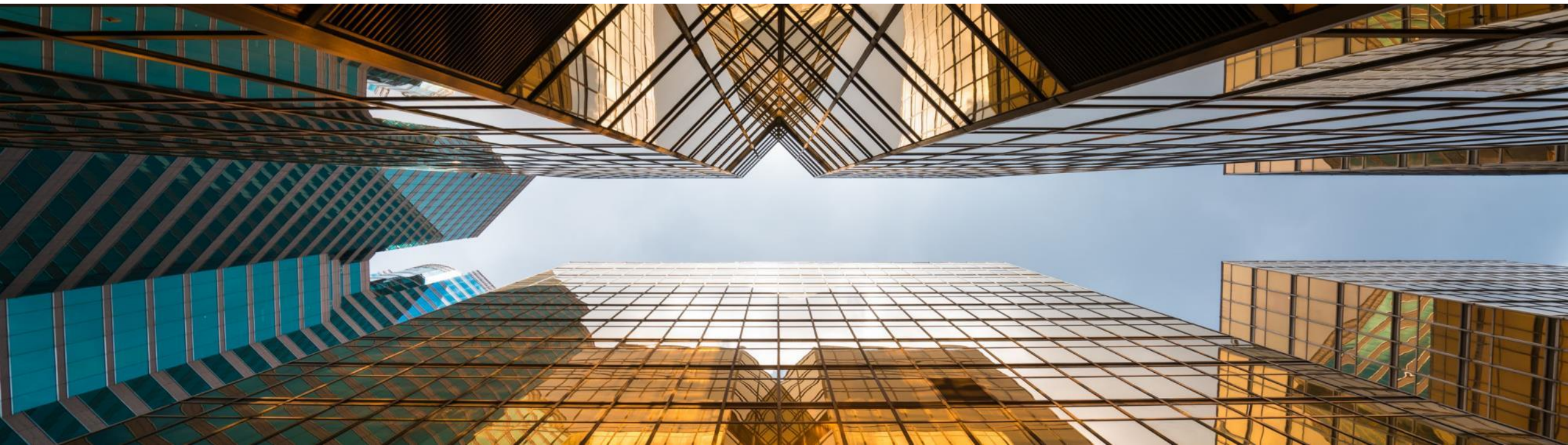
MDG for Reference Data and Custom Objects

Definition of and Introduction to Reference Data

MDG for Reference Data

MDG Custom Object for Reference Data

Support of Analytical Scenarios through Generic Datasources

Definition of and Introduction to Reference Data

The need for data quality and governance is everywhere

SAP MDG standard solutions augmented by SAP MDG-CO based solutions

Customer **Supplier** **Material** **Financials**

Out-of-the-box, domain-specific solutions delivered by SAP: SAP MDG-C, SAP MDG-S, SAP MDG-M, SAP MDG-F

SAP MDG-CO based solutions delivered by SAP (RDS), SAP Partners, or implemented on a project basis

| Asset	Warehouse	Location		Legal Entity		Site
Country Code	Tax Code	Sales Organization	Material Group	Distribution Channel	Activity Type	Document Type
Order Type	Bank Code	Currency Code	Dunning Key	Divisions	Commodity Code	Inco Terms
...						

SAP MDG, for Reference Data
Reference Data – what is it?

Reference Data – Characteristics

- Harmonized definition and values across the corporate group
- Sometimes compliant with external standards (such as ISO)
- Often referenced by diverse master data and processes
- Often stored as SAP Configuration Data
- Simpler in structure
- Lower in volume
- Less frequently changed

Examples

Country Code, Currency Code, Material Group, Plant, Location, Payment Terms, Purchasing Organization, …

Degree of sharing

Frequency of changes

Reference Data

Master Data

Transaction Data

Reporting

Logs
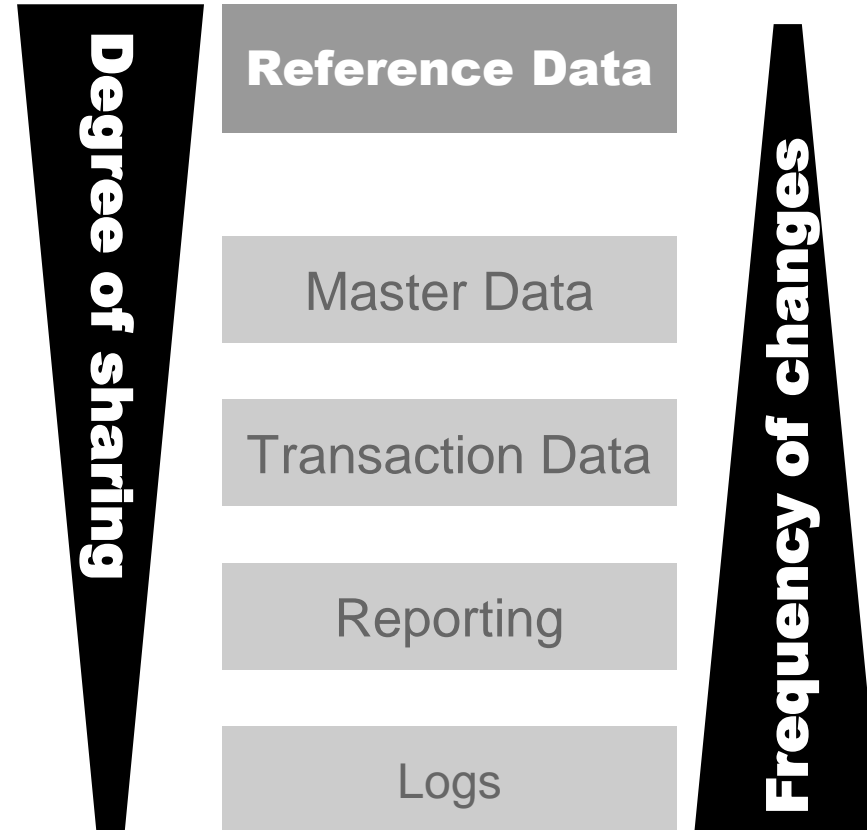
Controlling Corporate Reference Data

Why?

- **Efficiency**: only maintain once centrally
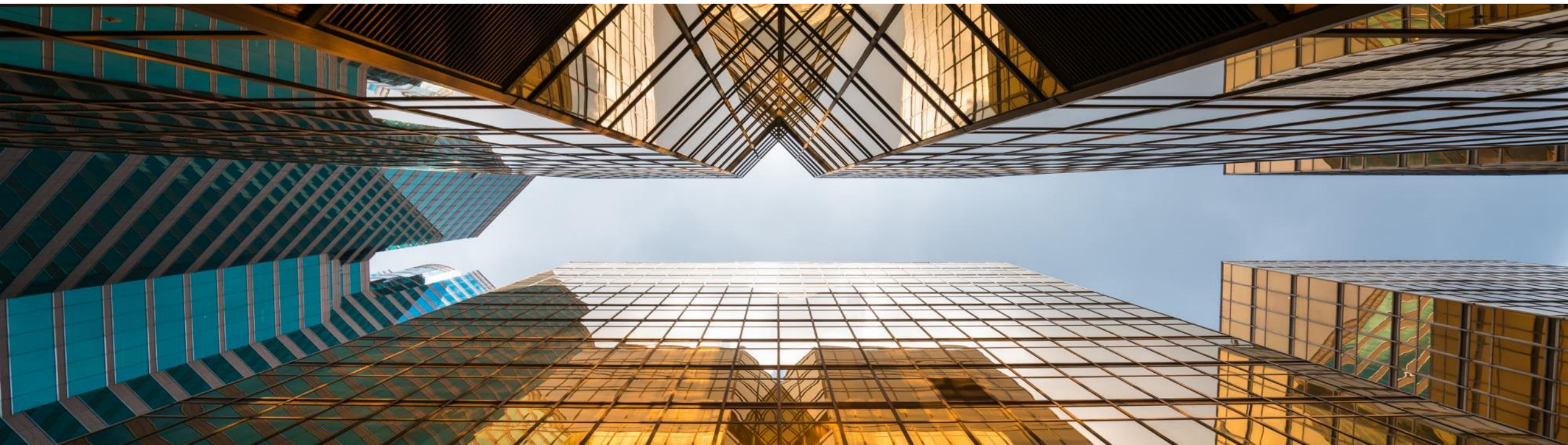- **Consistency**: distribute same values for use across all business processes

How?

– **Make one person/organization responsible** (per „reference data type")

– **Run a well-defined maintenance process** (per „reference data type")

Business Benefit

– **Avoid breakdowns across distributed business processes**

– **Foster corporate best-practice**
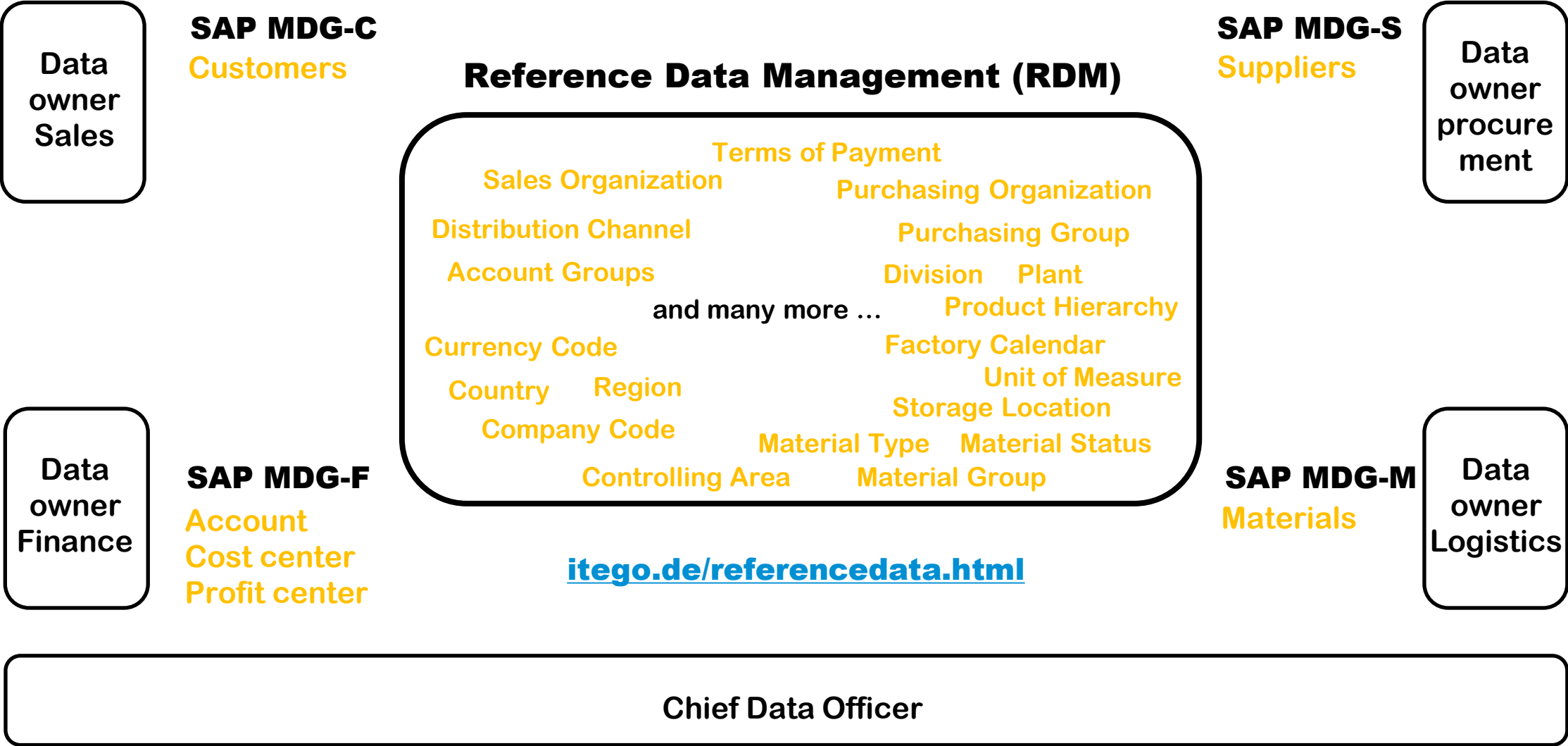
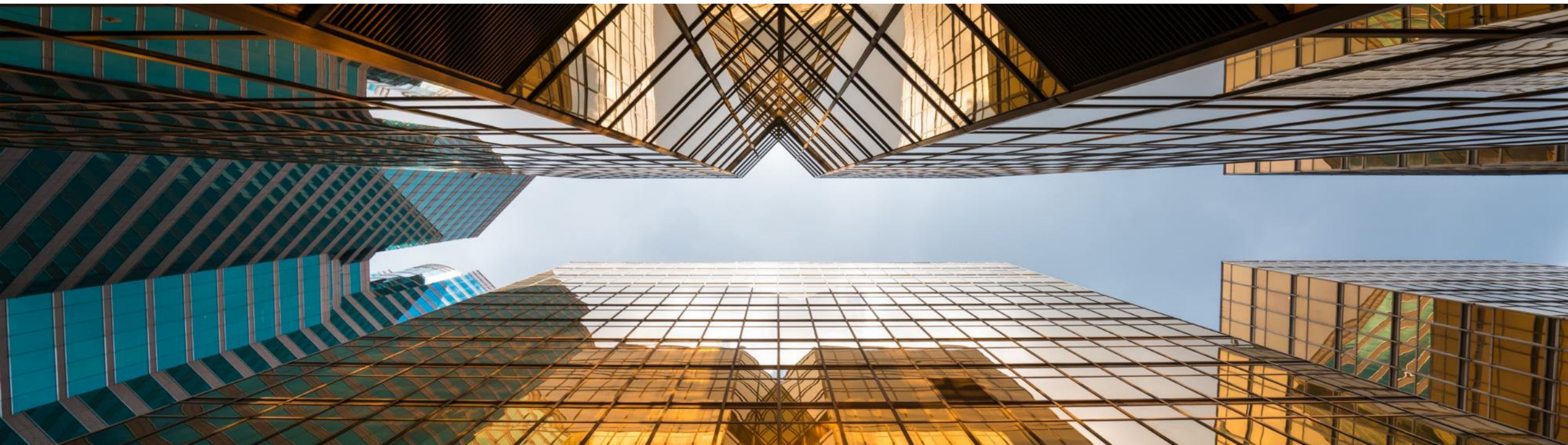– **Enable company-wide reporting**

MDG for Reference Data

Reference Data Management for SAP MDG by Itego

SAP certified Partner Solution

Itego

Data owner Sales

SAP MDG-C
Customers

Reference Data Management (RDM)

Terms of Payment

Sales Organization

Purchasing Organization

Distribution Channel

Purchasing Group

Account Groups

Division   Plant

and many more …

Product Hierarchy

Currency Code

Factory Calendar

Country   Region

Unit of Measure

Storage Location

Company Code

Material Type   Material Status

Controlling Area   Material Group

SAP MDG-S
Suppliers

Data owner procure ment

SAP MDG-F
Account
Cost center
Profit center

Data owner Finance

SAP MDG-M
Materials

Data owner Logistics

itego.de/referencedata.html

Chief Data Officer
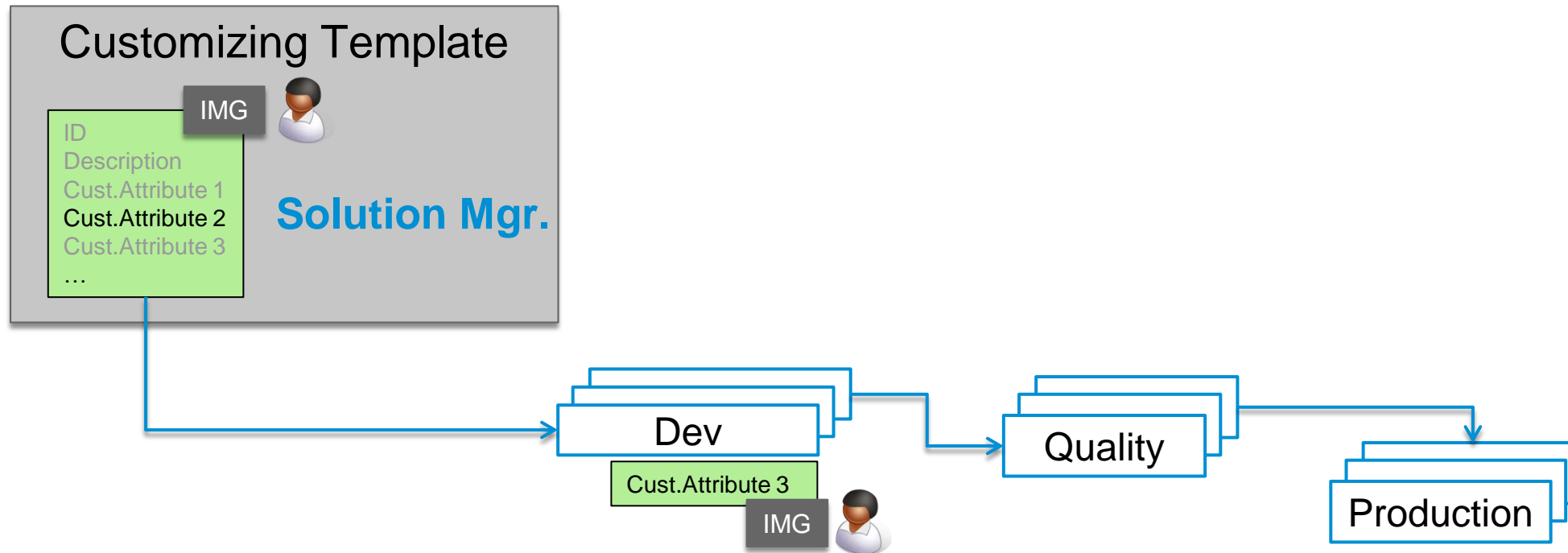
MDG Custom Object for Reference Data

Change Request Management with SAP Solution Manager

Process example
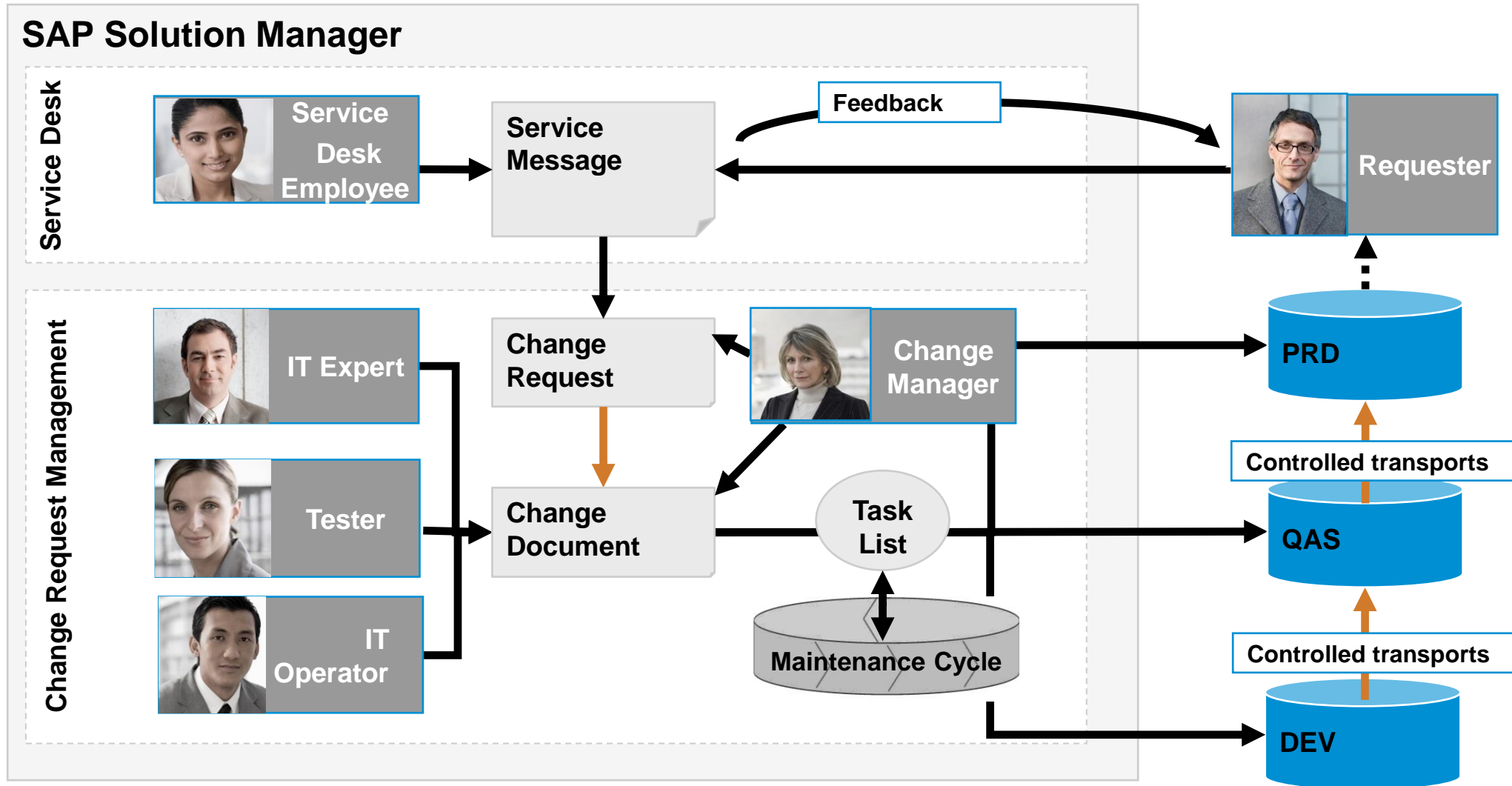
Distribution of Customizing Data with Solution Manager

Solution Manager controls the distribution of the "SAP Template"
- Maintain global attributes in the IMG in the customizing master system
- Transport the changes to Development, later Test, later Production systems
- Complement local attributes (that are different per system landscape)

Findings of the Customer Engagement Initiative
Some needed capabilities go beyond SAP Solution Manager

Some Reference Data is not SAP Customizing and Cannot be Transported
– Solution Manager controls and monitors reference data in customizing views in a Template system that shall be replicated via BC-Sets or transports to local operational systems

Different Data Should be Governed Than Defined in SAP
– Additional attributes needed that are not in standard customizing view, perhaps the data is not even stored in any SAP system

Consistent Distribution to SAP and Non-SAP
– Reference data should only be maintained once and then consistently distributed to SAP and non-SAP systems, using the appropriate distribution channel for each system

Well-defined Governance Processes, but Each Optimized for Different Data
– Sometimes many different types of references data: How can I achieve the needed flexibility and still keep control of the maintenance processes?

Different User Interfaces for Different Contributing People
– E.g. requestors need much simpler user interfaces than specialists that maintain the data

Ensuring Compliance of Changes on Reference Data
– Who changed what, when, why? (SAP and non-SAP attributes, regardless of distribution means)

Example: Different Data Types Need to be Treated Differently

Different handling in SAP, for example

- **Plant** (SAP "fundamental customizing", can be transported to SAP systems)
- **Material Group** (SAP customizing, can be transported to SAP systems)
- **Bank Code** (not SAP customizing, cannot be transported)

Implications

- Different **system of origin:** Customizing Master, Development System, Production System, …
- **Different ways of distribution** across systems: SAP (Customizing) Transports, ALE, …

SAP Solution Manager

Ref. Data Hub

Custom. Master

Dev.

Quality

Production
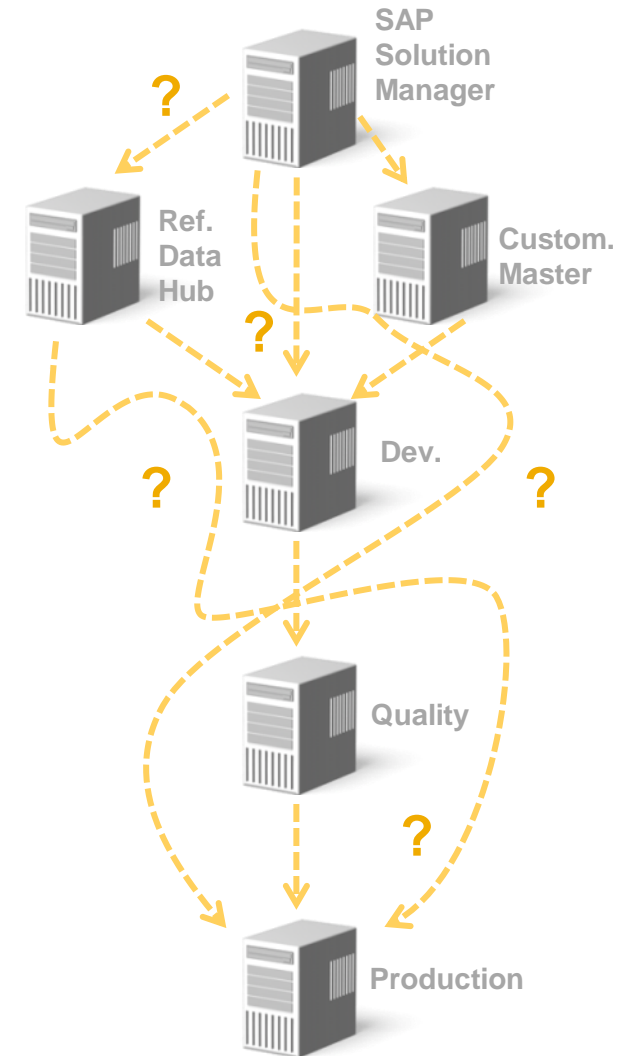
SAP Master Data Governance
Identify and consolidate master data spread across multiple systems

Eliminate Duplicates

Maintain Single View
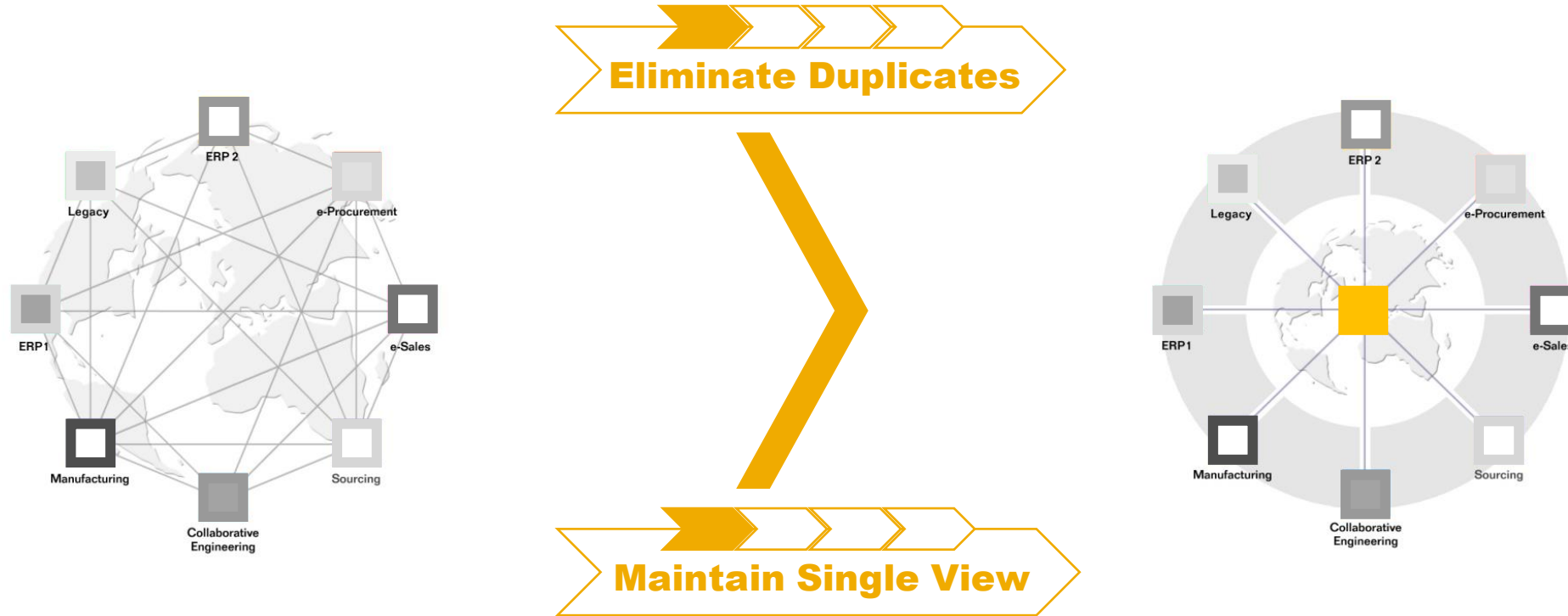
SAP Master Data Governance is intended to facilitate data consistency across multiple systems for streamlined business processes (Operational MDM) as well as enterprise reporting (Analytical MDM).
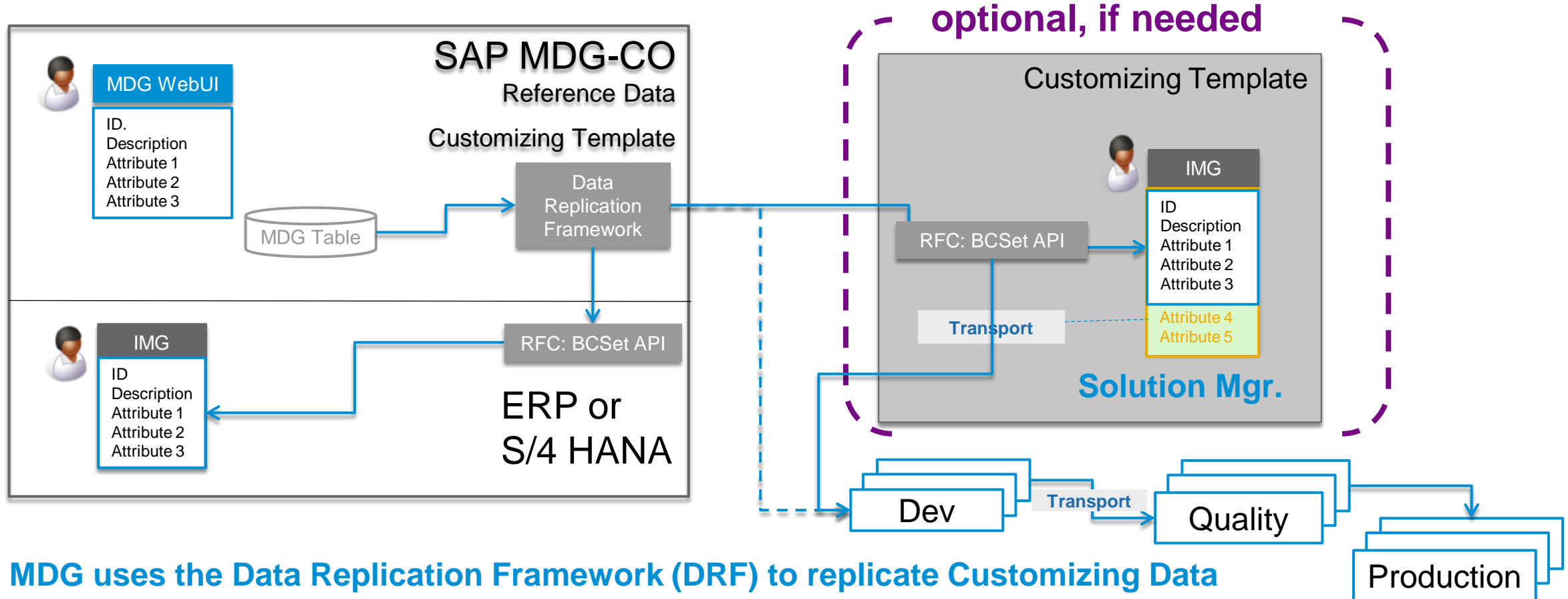
Combining and maintaining the master data formerly in multiple systems in a single hub and linking the records in the different systems into a cross-reference are the key goals.

MDG Process

SAP Master Data Governance (Central Maintenance)

Maintain → Validate → Approve → Replicate

Active

Staging

SAP ERP or S/4 HANA → Adapt
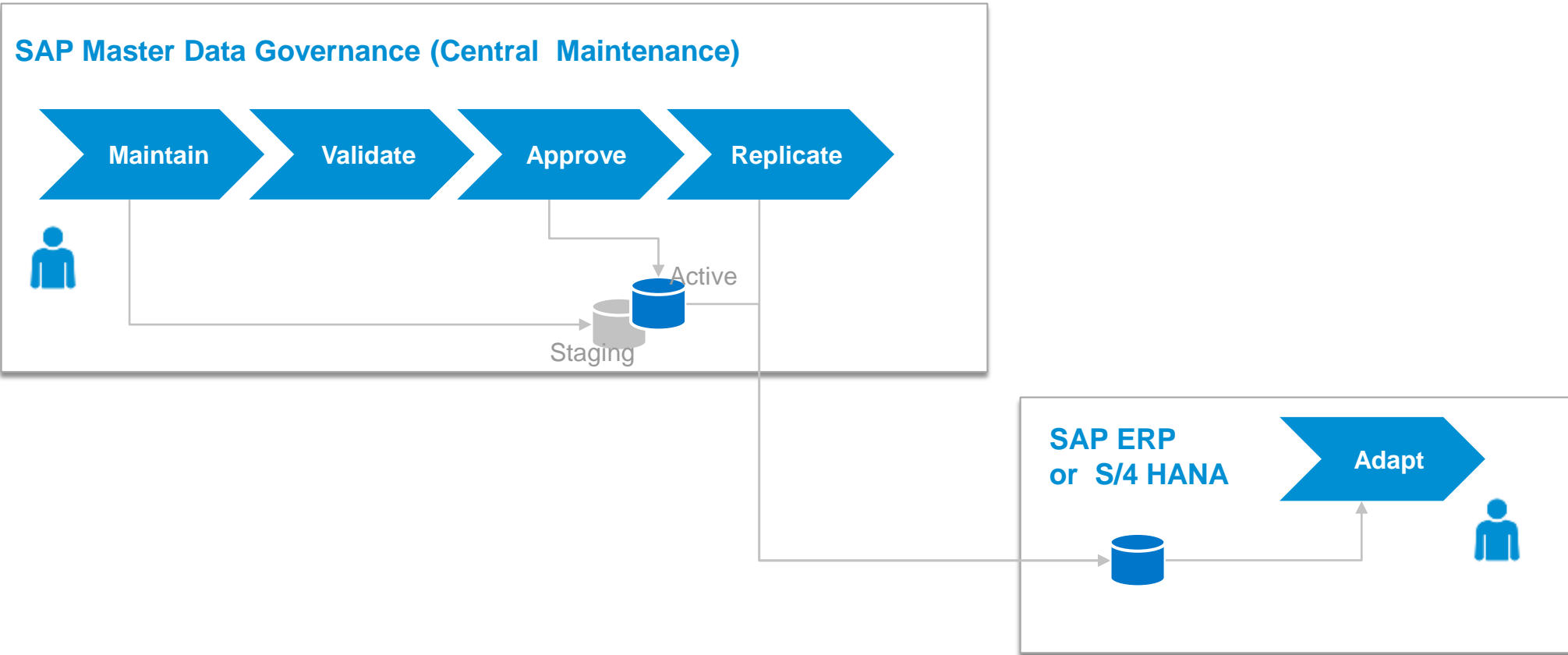
Replication Reference Data from MDG Hub

Option 1: for only Customizing data (e.g. plants)

MDG uses the Data Replication Framework (DRF) to replicate Customizing Data

- Generated outbound and inbound completely
- The Outbound calls Business Configuration API to write customizing tables and creates a transport in target system

- The creation of the transport can be decoupled if needed
- Key mapping can be applied if needed

Replication Reference Data from MDG Hub

Option 2: for customizing(e.g. plants) **or none transportable data**(e.g. bank master)
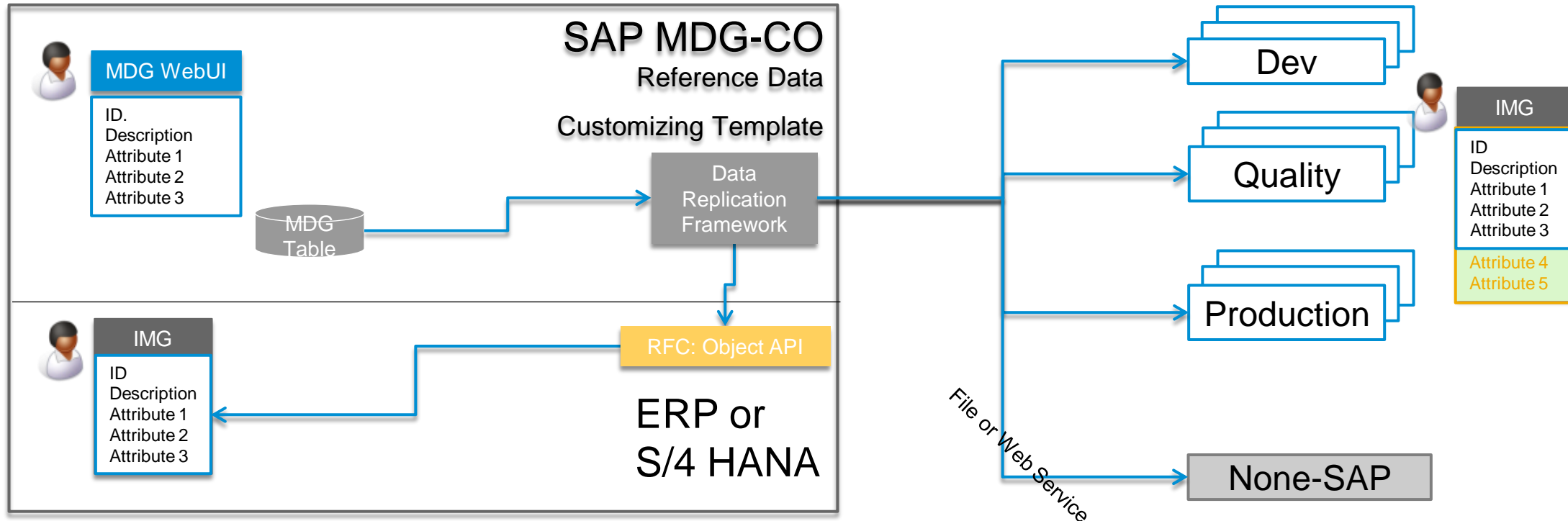
MDG uses the Data Replication Framework (DRF) to replicate non-customizing Data

– Outbound is completely generated, and need additional coding to cope object receiver inbound, but mostly there is API writing the data into ERP systems.

• Key mapping can be applied if needed

Consistent Distribution to SAP and Non-SAP

Maintain Only Once

- Maintain reference data only once **regardless of target systems**

Keep SAP and Non-SAP in Synch

- **Replication to SAP** systems (**regardless of type or release level**)

- Replication **to non-SAP systems**

- **Use established / appropriate** technical channels: ALE, RFC, Web service, ABAP transports,…

- Also support scenarios were the receiving system triggers the distribution ("pull")

Reference Data Hub

Home-Grown Systems

SAP Landscape

Other Vendor
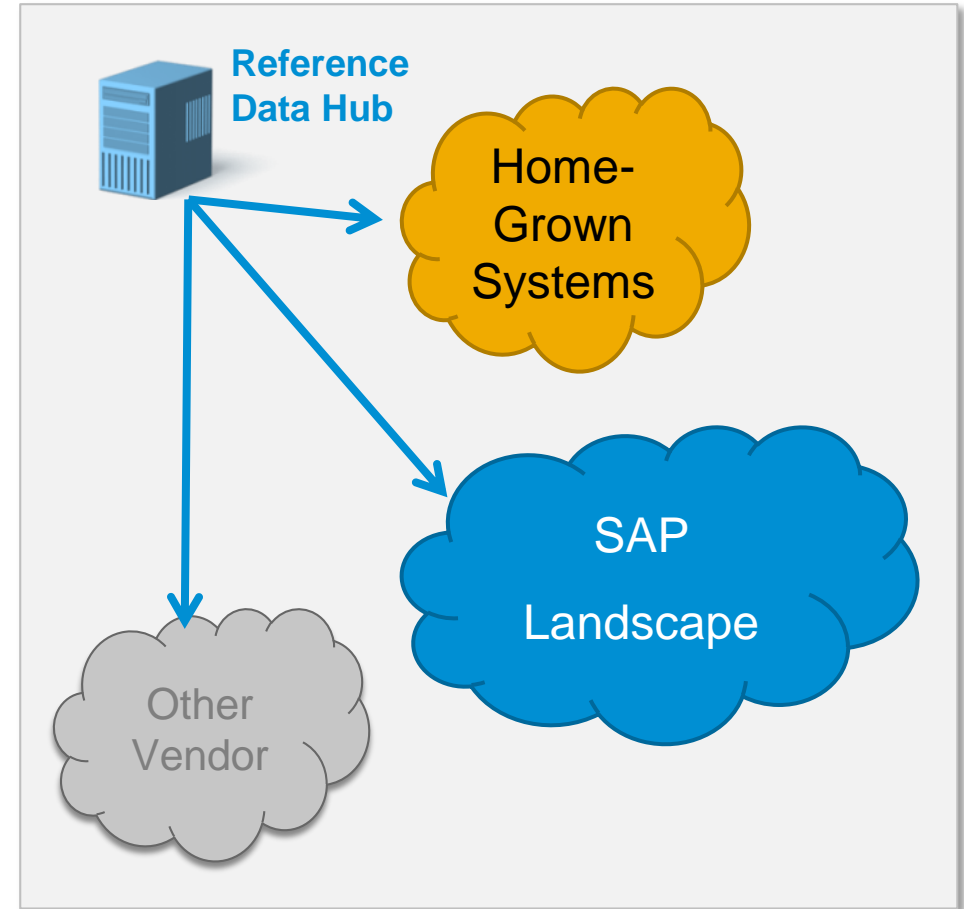
Master Data Governance Application Framework

Adapting standard or creating your own governance

Standard models provided

Pre-configured data models, user interface configurations, workflows, and data distribution are available – today with focus on some master data domains.

Changes expected

You can extend existing models with your own attributes, change UI configurations to your users' needs, and customize the workflow and distribution to define your specific governance processes.

Define your own

Tools allow you to define new objects and related processes in order to govern your additional data domains.

The framework is integrated in SAP ERP, provides full DDIC re-use, and allows to make use of your existing additions to SAP. But it is also flexible enough to model attributes that do not exist in SAP.
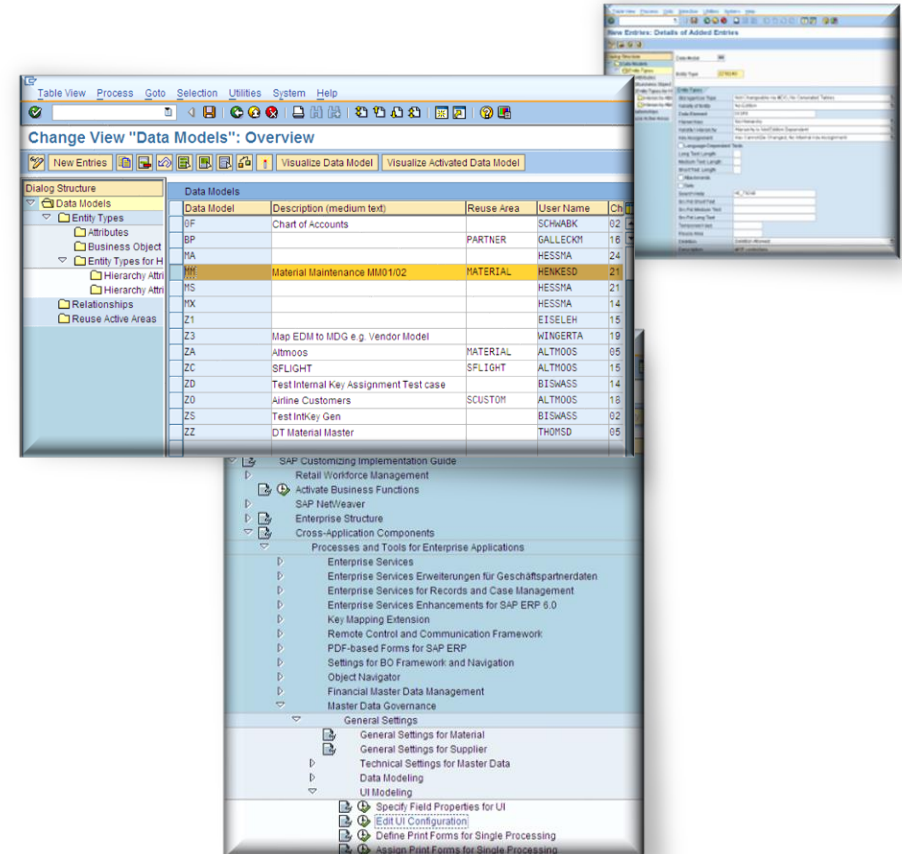
Managing the Governance Process for MANY Types

84 Reference Data Types, – and Still Counting

– 84 different types of corporate reference data identified with the need for governance in one company. More expected.

...

5 Process Patterns

- At the same time only 5 different process patterns were identified

Sequential Assessments

Parallel Assessments

Initial Approval and Parallel Assessments

Parallel Assessments and Final Approval

Parallel Assessments, Initial / Final Approval
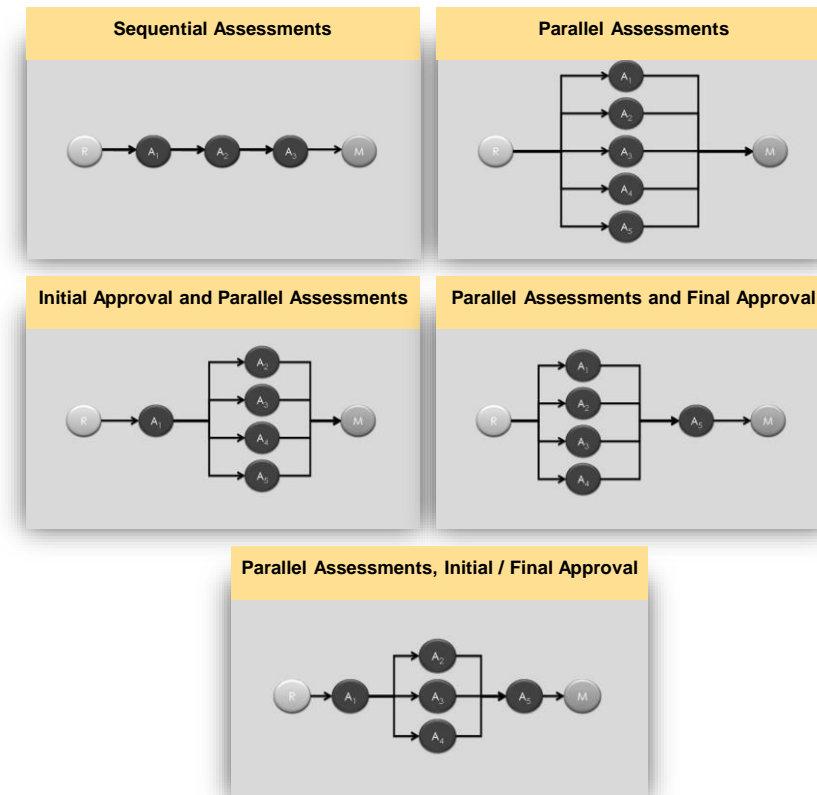
Managing the Governance Process for MANY Types
SAP MDG allows for process control and flexibility

Define the Patterns Only Once
– Use **different workflow templates for each process pattern** (5) and re-use them across multiple reference data types
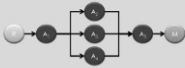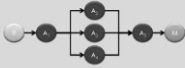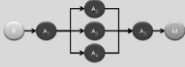
Define Specifics where Needed
– **MDG "Change Request Types"** allow for specific data models, user interfaces, assignment of processors appropriate **for each reference data type**

Benefits
– Well-defined governance processes, **optimized** for each Reference Data Type
– **Small number of workflow templates** to be managed

Reference Data Type	Change Request Type	Workflow Template
Purchasing Organization	PUR_ORG	
Functional Area	FUNC_AREA	
Fiscal Year Variant	FISCY_VAR	
Activity Type	ACT_TYPE	
Currency Code	MAT_GRP	

Task-specific User Interfaces

People along the Process Need Different User Interfaces

- For example, very **simple UI for the requestor** of new reference data

- **Complete UI for the specialist to** maintain all attributes

Create different UI configuration along MDG's governance process

– When creating an MDG process for specific reference data, the system will generate a complete user interface, which can then be adapted to users' needs

– You can overrule that process' UI by configuring a dedicated UI for a task

Request

Business Partner ID	
Street	
House Number	
Postal Code	

New Organization

Maintain
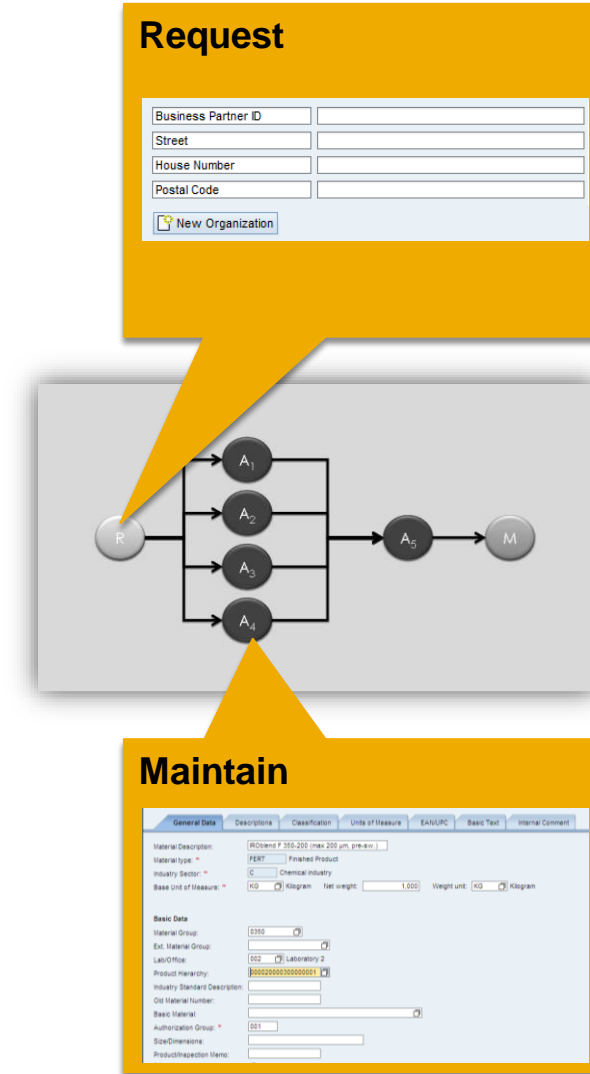
Ensuring Compliance of Changes on Reference Data

Tracking Changes

- Provide information who changed what, when, and why?
- Auditing across SAP and non-SAP attributes, regardless of distribution channels

SAP MDG provides...

- Attachments to MDG change requests (**why**?)
- History of change requests per object (**when**?)
- List of individual changes on attribute level (**what**?)
- Track of processors and approvers (**who**?)

Support of Analytical Scenarios through Generic Datasources

Overview

Simplified Model-Specific Enablement of BW DataSource Generation

and

Provision of DataSource for Key Mapping

Applicable to Master Data for Custom Objects (MDG-CO)

Overview	Types of Generated Data Sources (Naming Conventions)	DataSource Enablement Process
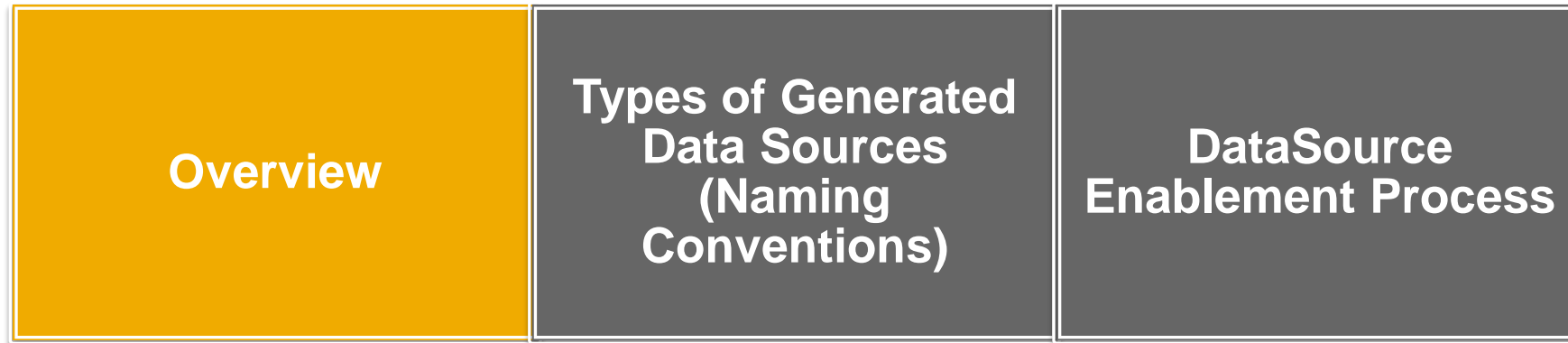
Overview: *Simplified Model-Specific Enablement of BW DataSource Generation* and *Provision of DataSource for Key Mapping*

Feature description

Support for analytical reporting by a simplified generation of model-specific DataSources for master data in Custom Objects and by the provision of the DataSource for key mapping.

Business value

Simplified Generation of Model-Specific BW DataSources
You can generate BW Master Data Sources for Flex Entity Types (*Storage / Use Type* 1) and related business object types. You can generate DataSources for hierarchies, texts, and attributes.

Provisioning of DataSource for Key Mapping
You can enable *Global Spend Analysis*, which allows you to:
- Visualize global spend
- Compare vendor prizes
- Collaborate with suppliers
- Measure actual compliance
- Evaluate supplier performance

Types of Generated Data Sources

Simplified Model-Specific Enablement of BW DataSource Generation

and

Provisioning of DataSource for Key Mapping

Applicable to Master Data for Custom Objects (MDG-CO)

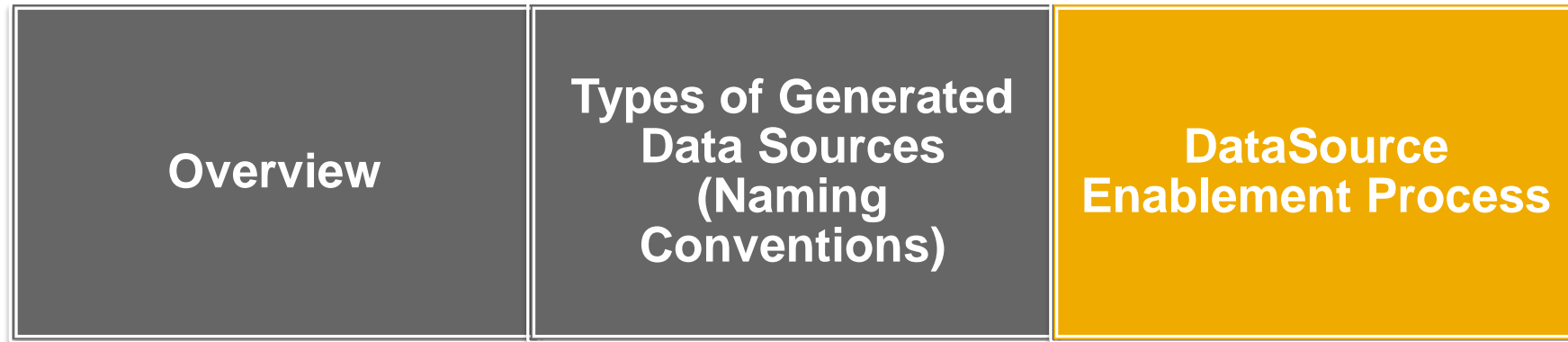| Overview	Types of Generated Data Sources (Naming Conventions)	DataSource Enablement Process
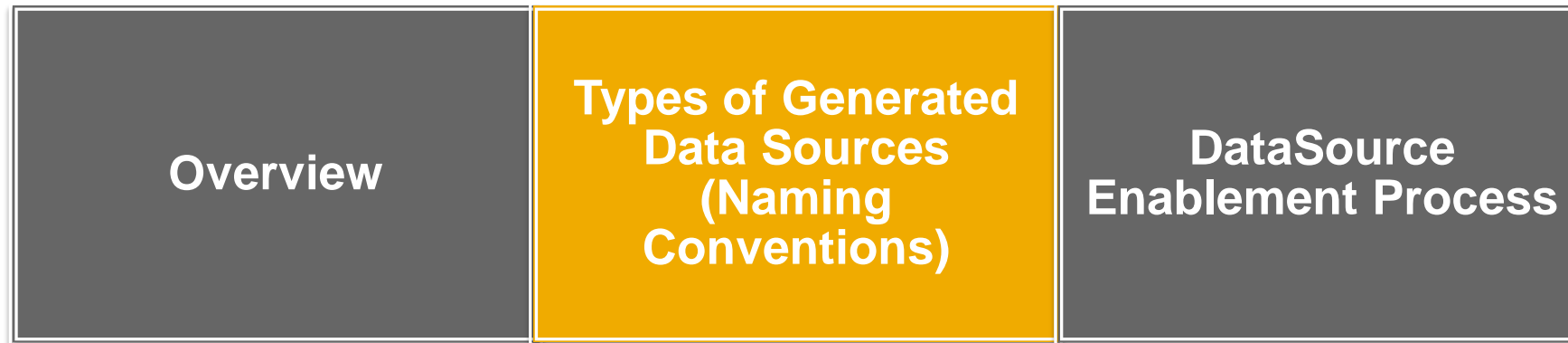
Types of Generated Data Sources (Naming Conventions)

You can
generate the
following types
of
DataSources:

- Hierarchies:
  `<namespace>_<datamodel>_<entity>_HIER`
- Texts:
  `<namespace>_<datamodel>_<entity>_TEXT`
- Attributes:
  `<namespace>_<datamodel>_<entity>_ATTR`

DataSource Enablement

Simplified Model-Specific Enablement of BW DataSource Generation

and

Provisioning of DataSource for Key Mapping

Applicable to Master Data for Custom Objects (MDG-CO)

Overview	Types of Generated Data Sources (Naming Conventions)	DataSource Enablement Process

DataSource Enablement Process

Maintain and activate data model	Activate data sources	Check generated structures	Maintain DataSources	Check DataSources	Check key mapping

1. (Cross-Client) Maintain and activate data model.
- You do this in Customizing for *Master Data. Central Governance* under *General Settings -> Data Modeling -> Edit Data Model*

Data Model	Description (medium text)	ActiveArea	Prefix/Namespace	Package	
TU	MDG Upgrade Test model	SFLIGHT			KOEHL
X0	EKT Workshop MDG 9.0 CO (X0)	MDG	ZEKT	ZEKT_MDG_CO_X0	SEIFR
XY	EKT Workshop MDG 9.0 CO (MASTER)	MDG	ZEKT	ZEKT_MDG_CO	SEIFR
XZ	EKT Workshop MDG 9.0 CO (Ref.Sol.)	MDG	ZEKT	ZEKT_MDG_CO	
YF	MDGFoundation Example: Flight Data Model	SFLIGHT			HEITL

DataSource Enablement Process

Maintain and activate data model	Activate data sources	Check generated structures	Maintain DataSources	Check DataSources	Check key mapping

2 Activate the data sources from which you want to extract data
- The relevant transaction is `RSA5`.

APCO-OLTP_MDG	Application Component for MDG
0MDG_ANLY_DS	Application Component for MDG Analytics Data Sources
ZMDG_XY_CARRX_ATTR	ZMDG_XY_CARRX_ATTR
ZMDG_XY_PFLIX_ATTR	ZMDG_XY_PFLIX_ATTR
ZMDG_XZ_ALLIANCE_ATTR	ZMDG_XZ_ALLIANCE_ATTR
ZMDG_XZ_ALLIANCE_TEXT	ZMDG_XZ_ALLIANCE_TEXT
ZMDG_XZ_CARRXH_ATTR	ZMDG_XZ_CARRXH_ATTR
ZMDG_XZ_CARRXH_TEXT	ZMDG_XZ_CARRXH_TEXT
ZMDG_XZ_CARRX_ATTR	ZMDG_XZ_CARRX_ATTR
ZMDG_XZ_CARRX_HIER	ZMDG_XZ_CARRX_HIER

DataSource Enablement Process

| Maintain and activate data model | Activate data sources | Check generated structures | Maintain DataSources | Check DataSources | Check key mapping |

3. Check the generated structures used for data extraction
- The relevant transaction is `SE80`.
- Structures use syntax: `<namespace>_S_<datamodel>_EX_<entity>`
  `S` represents the structure. `EX` represents the extracted entity.

Package ⌄

ZEKT_MDG_CO ⌄ 👓

Object Name	Description
• ZEKT_S_XY_PDF_PFLIX	Generated Struct.
• ZEKT_S_XZ_EX_ALLIANCE	Generated Structure for Data Extraction
• ZEKT_S_XZ_EX_CARRX	Generated Structure for Data Extraction
• ZEKT_S_XZ_EX_CARRXH	Generated Structure for Data Extraction
• ZEKT_S_XZ_EX_PFLIX	Generated Structure for Data Extraction

DataSource Enablement Process

| Maintain and activate data model | Activate data sources | Check generated structures | **Maintain DataSources** | Check DataSources | Check key mapping |

4. Maintain DataSources
- The relevant transaction is `SM30`.
- The relevant view is `MDGV_ANLY_DSOURC`

Display View "Asssign Business Object to Datasource": Overview

Asssign Business Object to Datasource

DataSource	BO Type	Entity Type	Datasource Type
ZMDG_XZ_ALLIANCE_ATTR	XZ_ALLIA		Attributes
ZMDG_XZ_ALLIANCE_TEXT	Z_XZ_ALLIA		Texts
ZMDG_XZ_CARRXH_ATTR	Z_XZ_CAHRY		Attributes
ZMDG_XZ_CARRXH_TEXT	Z_XZ_CAHRY		Texts
ZMDG_XZ_CARRX_ATTR	Z_XZ_CARRX		Attributes

DataSource Enablement Process

Maintain and activate data model	Activate data sources	Check generated structures	Maintain DataSources	Check DataSources	Check key mapping

5. Check extracted DataSources using Extractor Checker S-API
- The relevant transaction is `RSA3`

DataSource Enablement Process

Maintain and activate data model	Activate data sources	Check generated structures	Maintain DataSources	Check DataSources	Check key mapping

6. Check key mapping using *Extractor Checker S-API*
- The relevant transaction is `RSA3`

Extractor Checker S-API

DataSource	OMDG_KEY_MAPPING

Settings

Request ID	TEST
Data Records / Calls	1000
Display Extr. Calls	1
Update mode	F
Target	

Execution Mode
- ☐ Debug Mode
- ☐ Auth. Trace

Selections (Internal Format)

Field	From value	To value	Short Text
OTC	154		Business Object Type

☐ Information

ℹ 15 data records selected

⊕ Extraction   ⊞ ALV Grid

Result of Extraction of DataSource 0MDG_KEY_MAPPING

Data Package (Number of Recs)	1 (15)

Mapping Group ID	BO Type	OIT	Bus. Sys.	ID Value
3440B5B11C4A1EE483866E3AAA960245	979	916	QM9_405	0001
3440B5B11C4A1EE483866E3AAA960245	979	916	S3F_480	O 50000613
3440B5B11C4A1EE4838670CA88884245	979	916	QM9_405	0002
3440B5B11C4A1EE4838670CA88884245	979	916	S3F_480	O 50000615
3440B5B11C4A1ED484D193ADD9A09A3A	980	917	QM9_405	0001
3440B5B11C4A1ED484D193ADD9A09A3A	200	227	QHD_461	O 50000658
3440B5B11C4A1ED484D193ADD9A09A3A	200	227	QHD_470	O 50000001
3440B5B11C4A1ED484D19A8A199E1A3A	980	917	QM9_405	0002
3440B5B11C4A1ED484D19A8A199E1A3A	200	227	QHD_461	O 50000666
3440B5B11C4A1ED484D19A8A199E1A3A	200	227	QHD_470	O 50000004
3440B5B11C4A1ED488DB49714C05F803	229	931	QM9_405	0001UKPC
3440B5B11C4A1ED488DB49714C05F803	229	931	QM9_410	0001UKPCMAP
3440B5B11C4A1ED489DB81BE31C1157D	229	931	QM9_405	0001WB-PC010
3440B5B11C4A1ED489DB81BE31C1157D	229	931	QM9_410	0001WB-PC01
3440B5B11C4A1ED489DB81BE31C1157D	229	931	QM9_421	0001WB-PC10

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