DMM261 – Rule-Based Workflow – A Flexible Tool Used in SAP Master Data Governance

SAP TechEd && d-code

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DMM261 – Rule-Based Workflow: A Flexible Tool used in SAP MDG

About this session

This session provides a very practical experience of SAP Master Data Governance (MDG) and is based on the new MDG chapter in the 3rd edition of the SAP Press book "Practical Workflow for SAP". The general concept of workflow in SAP MDG and the components of the Rule-Based Workflow (RBWF) will be explained. Each attendee will build a workflow for their own change request type. With this they will be able to run the process and post a first change request to create a new material.

Agenda

Short Introduction to SAP Master Data Governance

MDG's Workflow Concept and Overview of Rule-Based Workflow

Blueprinting and Implementing a Change Request Process

Today's exercise

Short Introduction to
SAP Master Data Governance

SAP Master Data Governance

Consistent high-quality master data for your entire organization

SAP Master Data Governance is a **state-of-the-art master data management application**, providing **preconfigured**, domain-specific master data governance to **monitor and remediate** eventual data quality issues, to **centrally** create, change, and distribute, or to **consolidate** master data across your **complete enterprise system landscape**.

There are **two versions**: **SAP Master Data Governance on SAP S/4HANA** and **SAP Master Data Governance** (technically on SAP ERP 6.0).

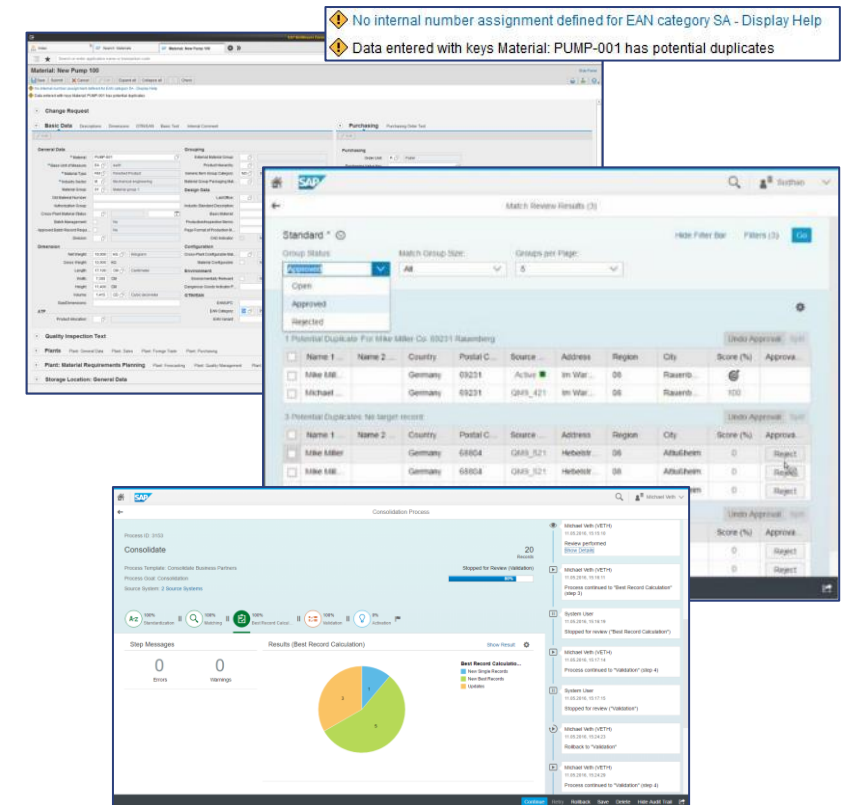## Central governance or consolidation for consistent master data

- Enables centralized governance, compliance, and transparency of master data during creation and change through integrated staging, approval, and central audit trail
- Delivers consistent definition, authorization, and replication of key master data entities
- Eliminates error-prone manual maintenance processes for master data in multiple systems
- Supports consolidation of decentralized master data in any enterprise system landscape to create best records and key mapping between duplicates
- Optionally combines consolidation with central governance for sustained master data quality

Data quality

- Analyze process quality, manage and monitor data quality, and optionally integrate with SAP HANA smart data quality, SAP S/4HANA Cloud for data enrichment, or SAP Data Services for quality, enrichment, and remediation
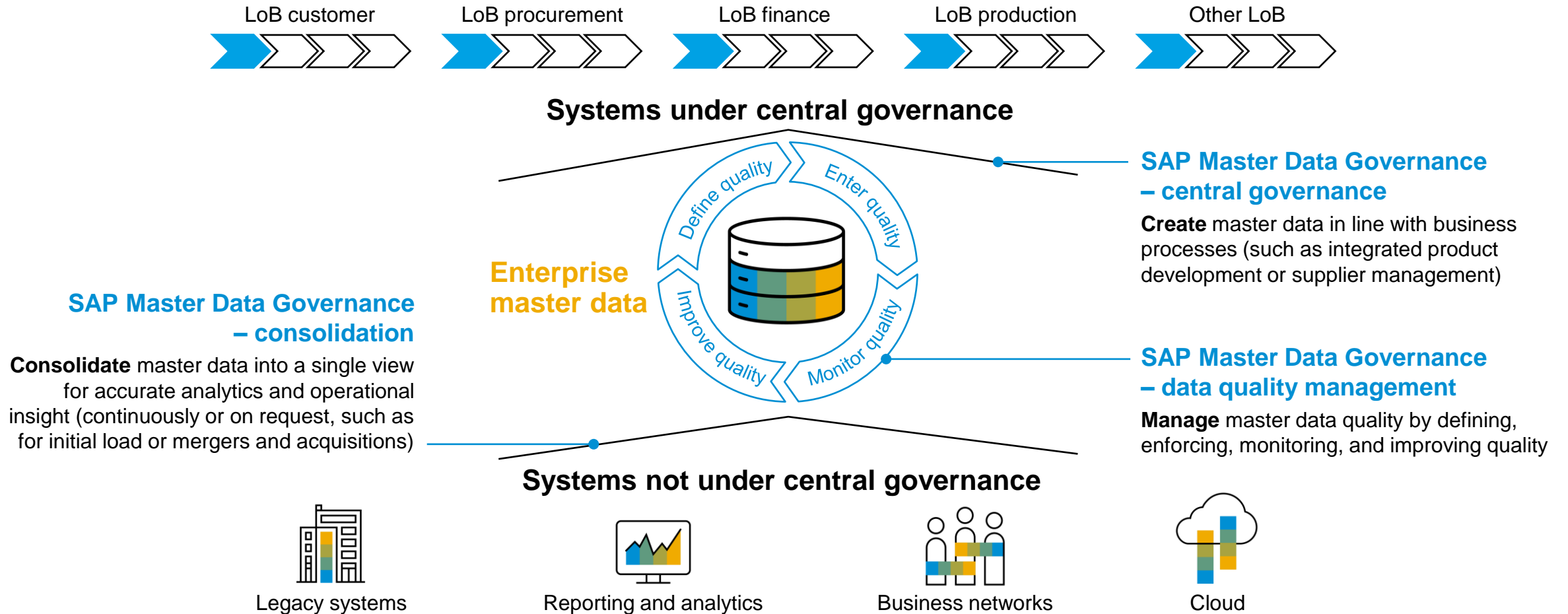
Integration and reuse

- Native integration and openness to integrate 3rd-party services
- Reuse of SAP data model, existing business logic, and configuration for data validation
- Open application to manage your own master data flexibly also for non-SAP environments

Typical approaches to master data management
Central governance and distribution / de-central ownership and consolidation

LoB customer   LoB procurement   LoB finance   LoB production   Other LoB

Systems under central governance

Define quality · Enter quality · Improve quality · Monitor quality

Enterprise master data

SAP Master Data Governance – central governance

Create master data in line with business processes (such as integrated product development or supplier management)

SAP Master Data Governance – consolidation

Consolidate master data into a single view for accurate analytics and operational insight (continuously or on request, such as for initial load or mergers and acquisitions)

SAP Master Data Governance – data quality management

Manage master data quality by defining, enforcing, monitoring, and improving quality

Systems not under central governance

Legacy systems   Reporting and analytics   Business networks   Cloud

All typical approaches are supported: central governance with distribution, decentralized ownership with consolidation, data quality monitoring with remediation

Introduction to SAP Master Data Governance, Central Governance
Summary of the Key Capabilities

Master Data Governance for Financial Data

- Create or change Chart of Accounts, GL Accounts, Companies, Profit and Cost Centers, Cost Elements and respective hierarchies
- Data distribution to operational systems via Services (SOA) or ALE

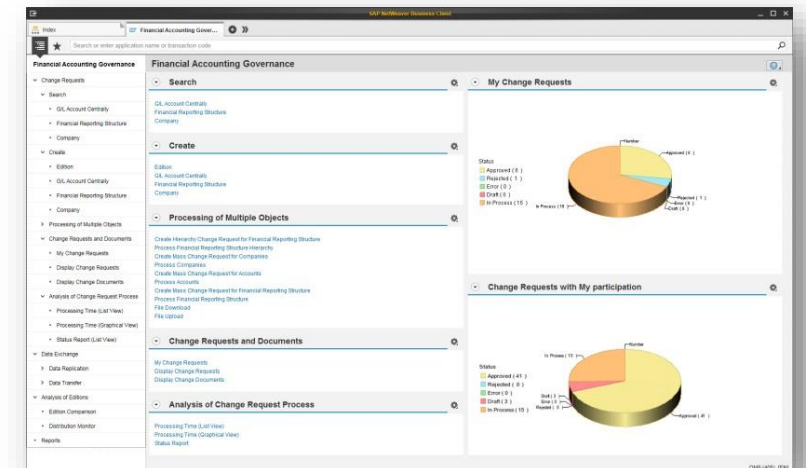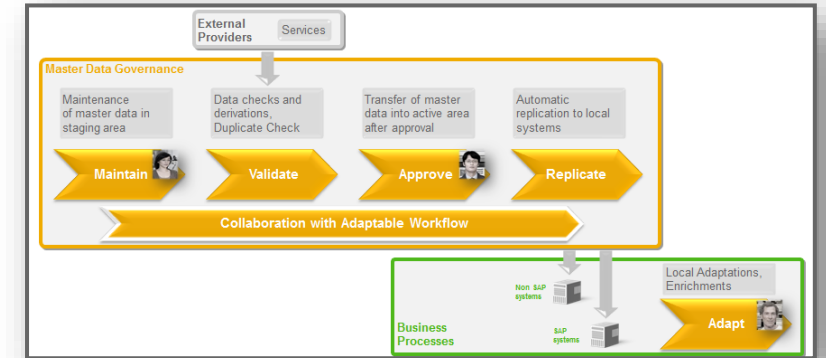## Master Data Governance for Material Data

- Create or change a broad range of material master data attributes and classification
- Mass data upload and mass change capabilities
- Data quality services such as duplicate check
- Data distribution to operational systems via ALE

Master Data Governance for Supplier and Customer Data

- Create or change a broad range of supplier or customer master data attributes as well as the underlying business partner attributes
- Mass data upload and mass change capabilities
- Data quality services such as duplicate check and address validation
- Data distribution to operational systems via SOA or ALE

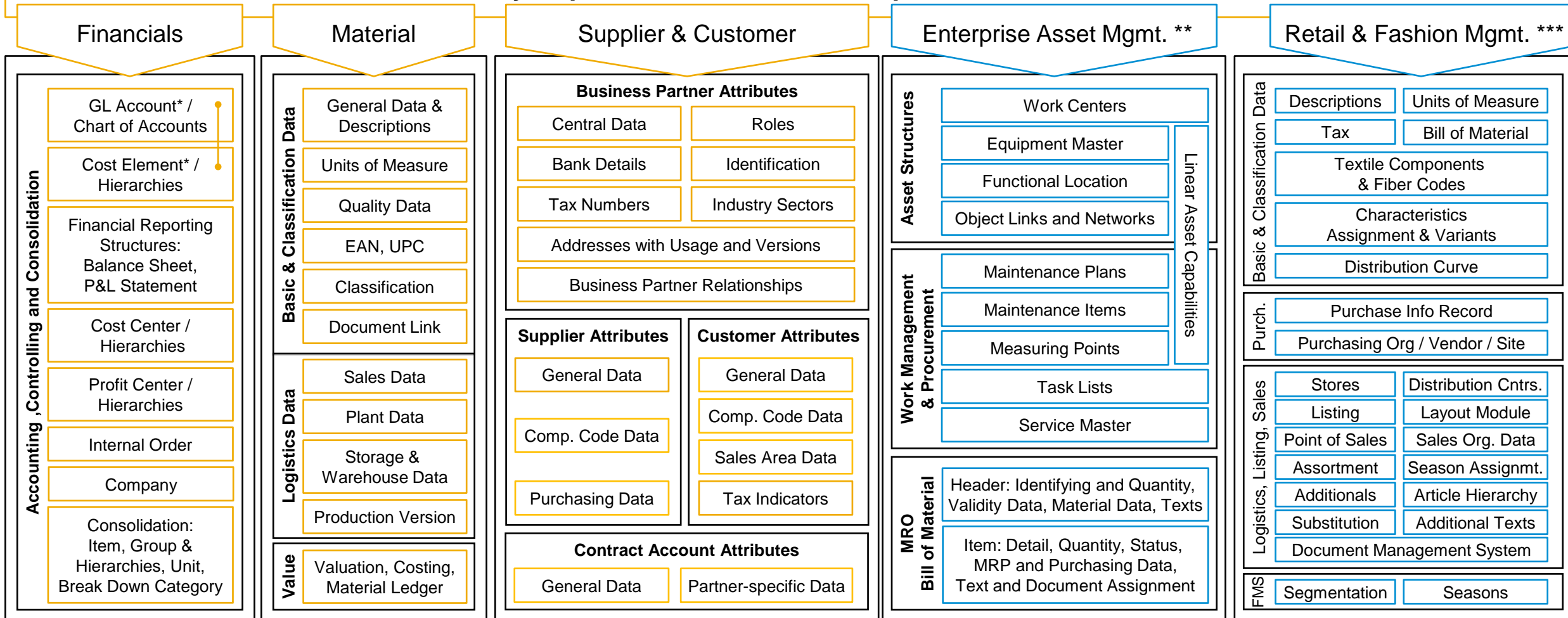## Master Data Governance for Custom Objects

- Framework for data modeling, UI configuration, validation, and distribution of custom-defined master data objects

SAP Master Data Governance

Integrated Object Model

Out-of-the box delivery of proven data models for operational and financial master data

Financials	Material	Supplier & Customer	Enterprise Asset Mgmt. **	Retail & Fashion Mgmt. ***

Financials — Accounting, Controlling and Consolidation
- GL Account* / Chart of Accounts
- Cost Element* / Hierarchies
- Financial Reporting Structures: Balance Sheet, P&L Statement
- Cost Center / Hierarchies
- Profit Center / Hierarchies
- Internal Order
- Company
- Consolidation: Item, Group & Hierarchies, Unit, Break Down Category

Material

Basic & Classification Data
- General Data & Descriptions
- Units of Measure
- Quality Data
- EAN, UPC
- Classification
- Document Link

Logistics Data
- Sales Data
- Plant Data
- Storage & Warehouse Data
- Production Version

Value
- Valuation, Costing, Material Ledger

Supplier & Customer

Business Partner Attributes

Central Data	Roles
Bank Details	Identification
Tax Numbers	Industry Sectors
Addresses with Usage and Versions	
Business Partner Relationships	

Supplier Attributes	Customer Attributes
General Data	General Data
	Comp. Code Data
Comp. Code Data	Sales Area Data
Purchasing Data	Tax Indicators

Contract Account Attributes

General Data	Partner-specific Data

Enterprise Asset Mgmt. *

Asset Structures
- Work Centers
- Equipment Master
- Functional Location
- Object Links and Networks

Linear Asset Capabilities

Work Management & Procurement
- Maintenance Plans
- Maintenance Items
- Measuring Points
- Task Lists
- Service Master

MRO Bill of Material
- Header: Identifying and Quantity, Validity Data, Material Data, Texts
- Item: Detail, Quantity, Status, MRP and Purchasing Data, Text and Document Assignment

Retail & Fashion Mgmt. *

Basic & Classification Data

Descriptions	Units of Measure
Tax	Bill of Material
Textile Components & Fiber Codes	
Characteristics Assignment & Variants	
Distribution Curve	

Purch.
- Purchase Info Record
- Purchasing Org / Vendor / Site

Logistics, Listing, Sales

Stores	Distribution Cntrs.
Listing	Layout Module
Point of Sales	Sales Org. Data
Assortment	Season Assignmt.
Additionals	Article Hierarchy
Substitution	Additional Texts
Document Management System	

FMS

Segmentation	Seasons

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* User interface integration between GL Account and Cost Element only supported in SAP MDG on SAP S/4HANA   * SAP MDG, enterprise asset mgmt extension by Utopia   ** SAP MDG, retail & fashion mgmt. extension by Utopia
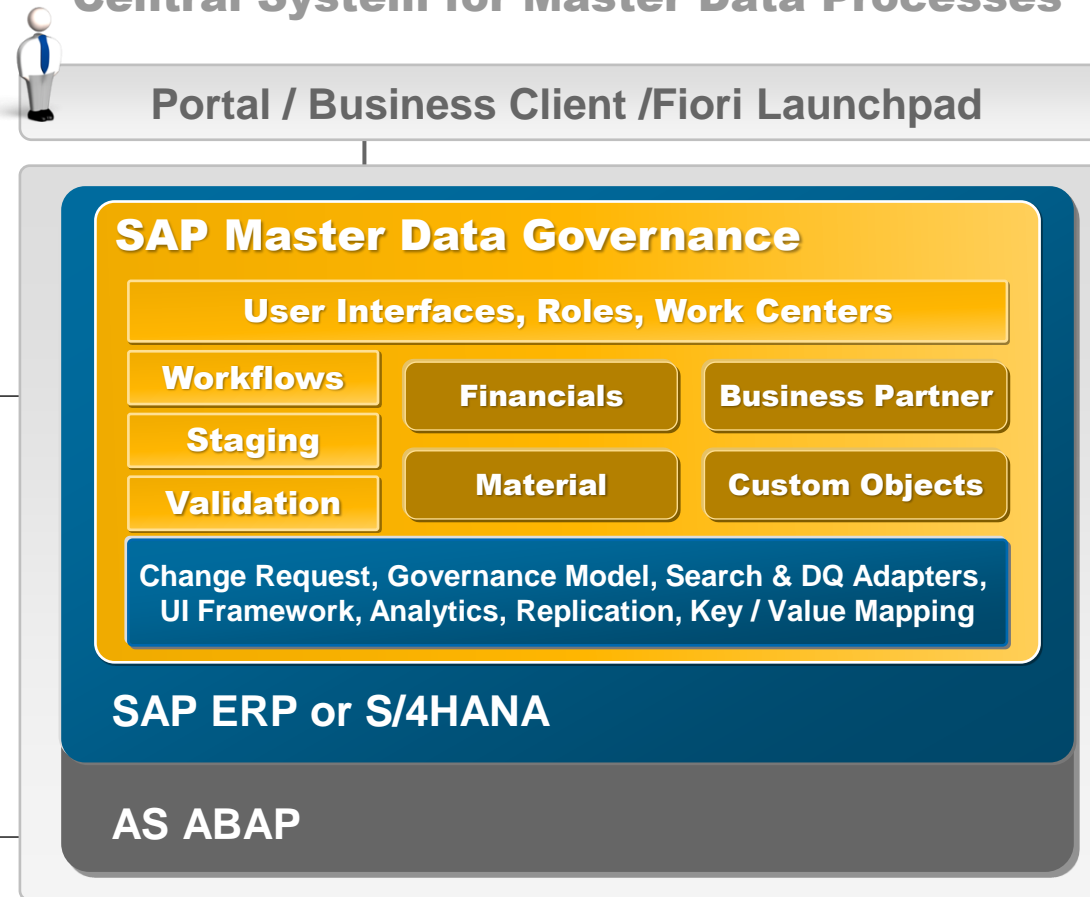
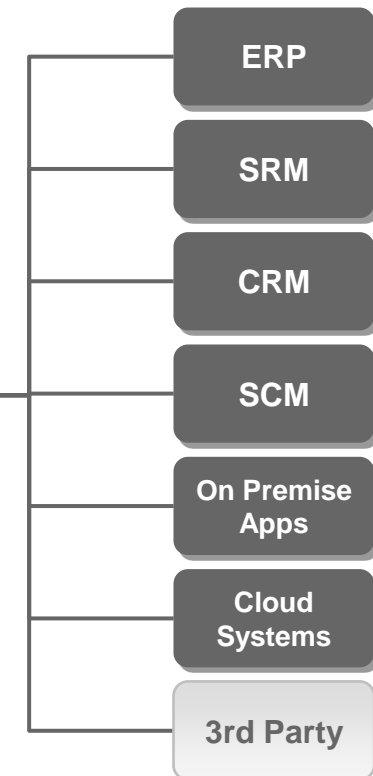# Introduction to SAP Master Data Governance

High-level Architecture Overview

Optional Parts

Central System for Master Data Processes

Client Systems

Portal / Business Client /Fiori Launchpad

SAP Master Data Governance

User Interfaces, Roles, Work Centers

Workflows	Financials	Business Partner
Staging		
Validation	Material	Custom Objects

Change Request, Governance Model, Search & DQ Adapters, UI Framework, Analytics, Replication, Key / Value Mapping

SAP ERP or S/4HANA

AS ABAP

- Information Steward
- Data Services
- Enterprise Search

SAP Information Management Solution

SAP HANA

- ERP
- SRM
- CRM
- SCM
- On Premise Apps
- Cloud Systems
- 3rd Party

Integrate services for data cleansing & matching, use HANA for similarity ranked search & aggregation

Tight integration of the governance process into SAP business logic and leveraging standard SAP Application Server for ABAP

Client systems are integrated via various channels (like SOA, ALE, RFC, File) across on premise and cloud

MDG's Workflow Concept and
Overview of Rule-Based Workflow

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MDG's Workflow Concept
Overall Process Flow

External Providers | Services

Master Data Governance

| Maintenance of master data in staging area | Data checks and derivations, Duplicate Check | Transfer of master data into active area after approval | Automatic replication to local systems |

Maintain → **Validate** → **Approve** → **Replicate**

Collaboration with adaptable Workflow

Business Processes

Non SAP systems

SAP systems

Local Adaptations, Enrichments

Adapt

Overview of Rule-Based Workflow
Components

Customizing

Type of Chg. Request	Data Model	Description (medium text)	Objects Re...	Single	Main Entity Type	Workflow
MAT01	MM	Create Material	☐	☑	MATERIAL	WS60800086
MAT02	MM	Process Material	☐	☑	MATERIAL	WS60800086
MAT06	MM	Mark Material for Deletion	☐	☑	MATERIAL	WS60800086
MAT0A	MM	Process Multiple Materials	☐	☐	MATERIAL	WS60800086

Workflow Template
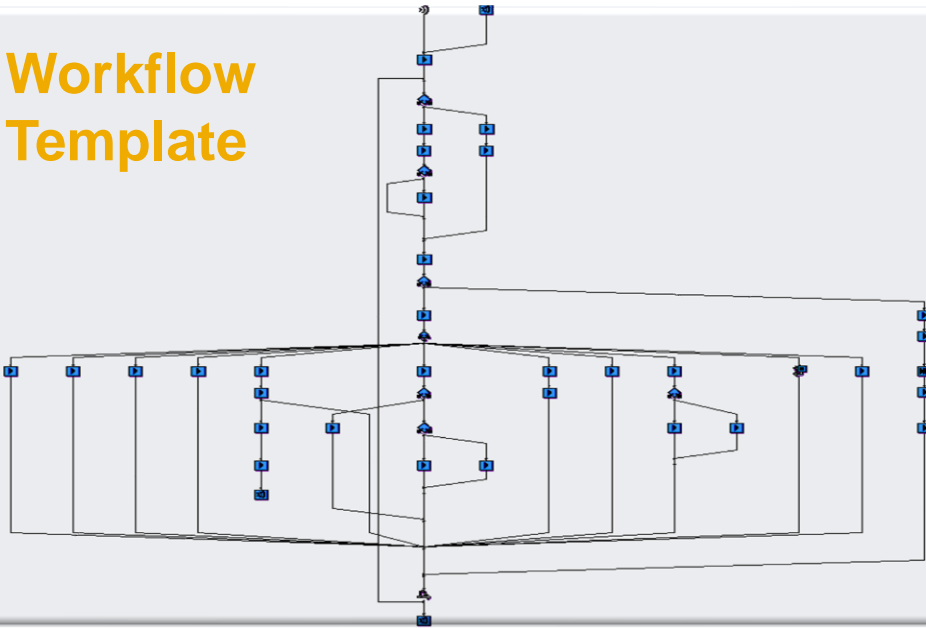
BRFplus Decision Tables

Decision Table: DT_SINGLE_VAL_MAT01
Table Contents

CR Previous Step	Previous Action	Condi...	New Chng. Req....	New CR Status
00 (Processing)		1	90 (Final Check)	02 (Changes to Be Executed)
90 (Final Check)	09 (Activate)	2	91 (Activation)	02 (Changes to Be Executed)
90 (Final Check)	10 (Send for Revision)	3	95 (Revision Pro...	02 (Changes to Be Executed)
91 (Activation)	31 (Activation successful)	4	99 (Complete)	05 (Final Check Approved)
91 (Activation)	<>31 (Activation successful)	5	90 (Final Check)	11 (Process Errors After Activation)
92 (Revision)		6	99 (Complete)	06 (Final Check Rejected)
95 (Revision Proces...	07 (Submit Request)	7	90 (Final Check)	02 (Changes to Be Executed)
95 (Revision Proces...	08 (Withdraw)	8	92 (Revision)	02 (Changes to Be Executed)

Decision Table: DT_USER_AGT_GRP_MAT01
Table Contents

Condition ...	User Agt ...	Step Type	User Agent T...	User Agent Value
1 ; 5 ; 7	001	5 (Activate Change Request)	US (User)	ANZEIGER
3	001	4 (Revise Change Request)	US (User)	ANZEIGER

Decision Table: DT_NON_USER_AGT_GRP_MAT01
Table Contents

Condition Al...	Agent Group	Process Pattern
2	001	05 (Activation (Do Not Bypass Snapshot))
4 ; 6	001	99 (Complete (Sub-)Workflow)
8	001	08 (Roll Back Change Request)

Overview of Rule-Based Workflow

Rule-Based Workflow Template

Rule-Based Workflow Template

The generic workflow template (WS60800086) is the foundation of the RBWF. The different processes are reflected by BRFplus decision tables, which are maintained in the customizing for each change request type.

The combination of this workflow template with the BRFplus decision tables allows you to easily set up many different processes that can be flexibly changed through customizing.
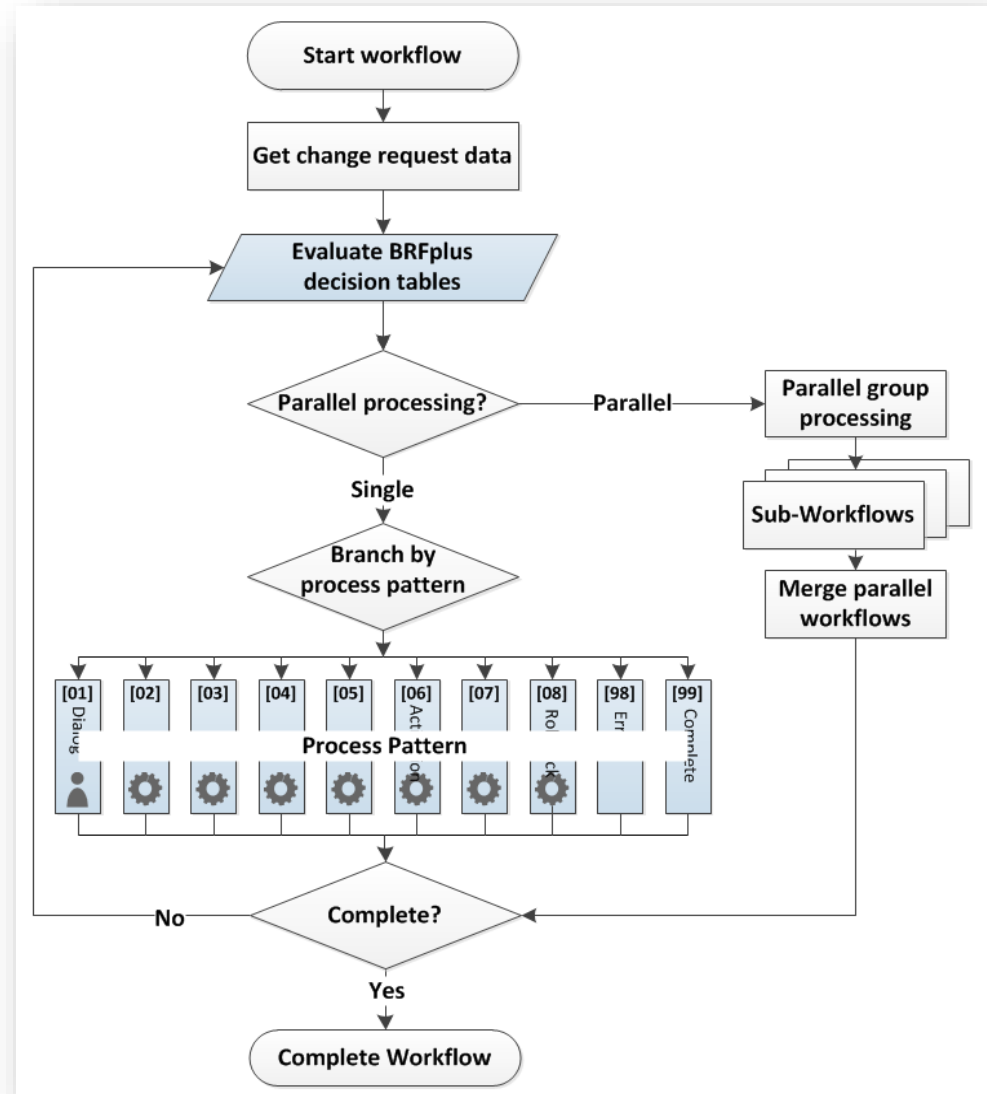
Overview of Rule-Based Workflow
Single Value Decision Table

Single Value Decision Table

- The single value decision table (DT_SINGLE_VAL_<Change Request Type>) defines the flow between the change request steps. Based on the previous step, the action, and other parameters, this table returns the next step and other result parameters, most importantly, the condition alias that links to the other tables.

Decision Table: DT_SINGLE_VAL_MAT01 | Display Mode

◄ Back | ✎ Edit | ⚙ Check | 💾 Save | ⬆ Activate | 🗑 Delete ◢ | More ◢

General

Detail

Export To Excel | Context Overview | Start Simulation

Table Contents

	CR Previous Step	Previous Action	Cond...	New Chng. Req. Step	New CR Status
	00 (Processing)		1	90 (Final Check)	02 (Changes to Be Executed)
	90 (Final Check)	09 (Activate)	2	91 (Activation)	02 (Changes to Be Executed)
	90 (Final Check)	10 (Send for Revision)	3	95 (Revision Processing)	02 (Changes to Be Executed)
	91 (Activation)	31 (Activation successful)	4	99 (Complete)	05 (Final Check Approved)
	91 (Activation)	<>31 (Activation successful)	5	90 (Final Check)	11 (Process Errors After Activation)
	92 (Revision)		6	99 (Complete)	06 (Final Check Rejected)
	95 (Revision Processing)	07 (Submit Request)	7	90 (Final Check)	02 (Changes to Be Executed)
	95 (Revision Processing)	08 (Withdraw)	8	92 (Revision)	02 (Changes to Be Executed)

Overview of Rule-Based Workflow
User Agent and Nonuser Agent Decision Tables

User Agent Decision Table

- The user agent decision table (DT_USER_AGT_GRP_<Change Request Type>) determines the users involved in the change request process and which actions they can execute.
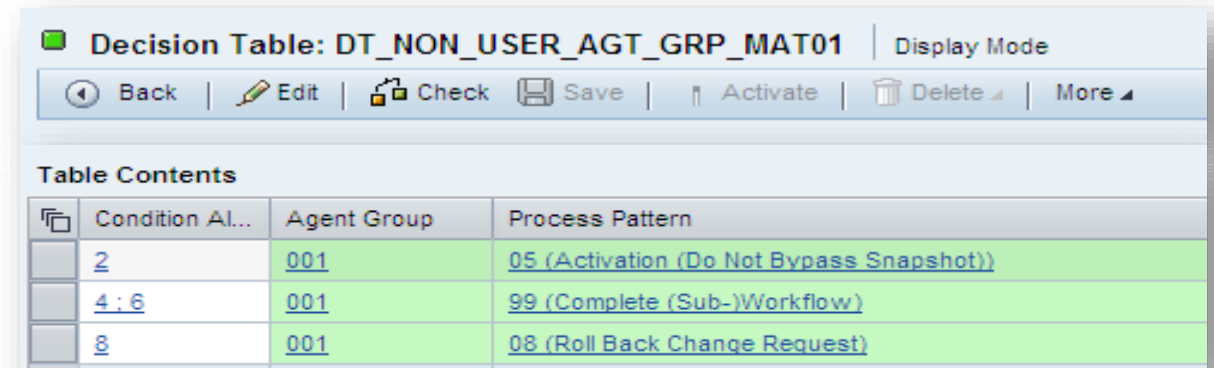
Nonuser Agent Decision Table

- The nonuser agent decision table (DT_NON_USER_AGT_GRP_<Change Request Type>) contains the background steps involved in the change request process that don't have end-user participation.

Decision Table: DT_USER_AGT_GRP_MAT01 | Display Mode

Back | Edit | Check | Save | Activate | Delete | More

Table Contents

	Condition ...	User ...	Step Type	User Agen...	User Agent Value
	1 ; 5 ; 7	001	5 (Activate Change Request)	US (User)	ANZEIGER
	3	001	4 (Revise Change Request)	US (User)	ANZEIGER

Decision Table: DT_NON_USER_AGT_GRP_MAT01 | Display Mode

Back | Edit | Check | Save | Activate | Delete | More

Table Contents

	Condition Al...	Agent Group	Process Pattern
	2	001	05 (Activation (Do Not Bypass Snapshot))
	4 ; 6	001	99 (Complete (Sub-)Workflow)
	8	001	08 (Roll Back Change Request)

Blueprinting and Implementing the Change Request Process

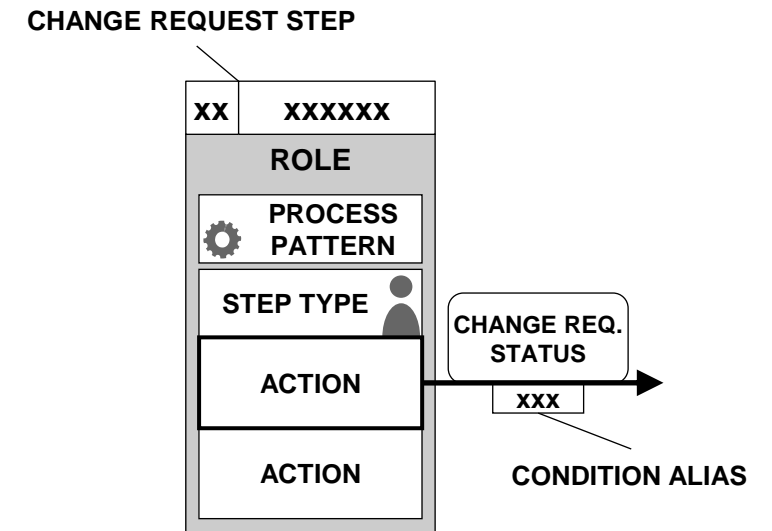# Blueprinting the Change Request Process

Notation for the Process Diagram

Notation

If you want to create a blueprint for the process, you must specify the following information in the process diagram:

- All steps and connections
- Change request step types or process pattern
- Change request actions
- Change request statuses
- Condition alias

In order to create a diagram that is easy to read, we use the shown notation. This includes all relevant information needed to implement the process in SAP MDG.

CHANGE REQUEST STEP

XX	XXXXXX

ROLE

PROCESS PATTERN

STEP TYPE

ACTION

CHANGE REQ. STATUS

XXX

ACTION

CONDITION ALIAS

Blueprinting the Change Request Process
Method with Rule-Based Workflow

> ➢ A change request process can include several approval and revision phases
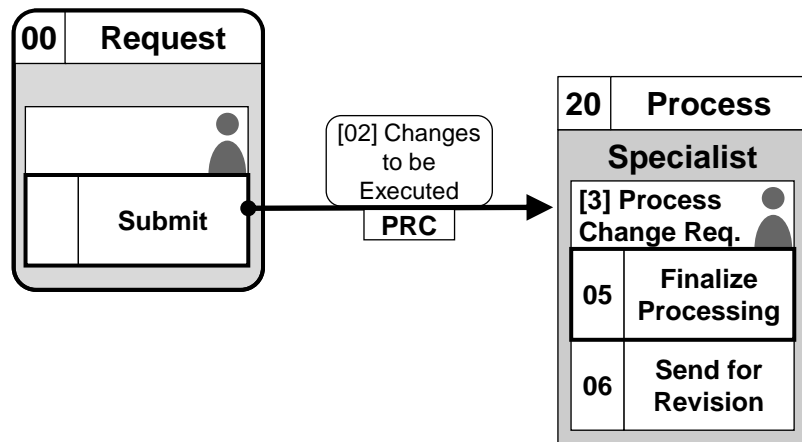
Blueprinting Your Change Request Process

- Define the process flow and decide which steps and loops are needed
- Decide which step types are needed for the dialog steps and enhance the flow diagram with out coming actions of each step
- Enhance the flow diagram with process pattern for the background steps
- Enhance the flow diagram with status
- Enhance the flow diagram with condition alias

Blueprinting the Change Request Process

Process Diagram
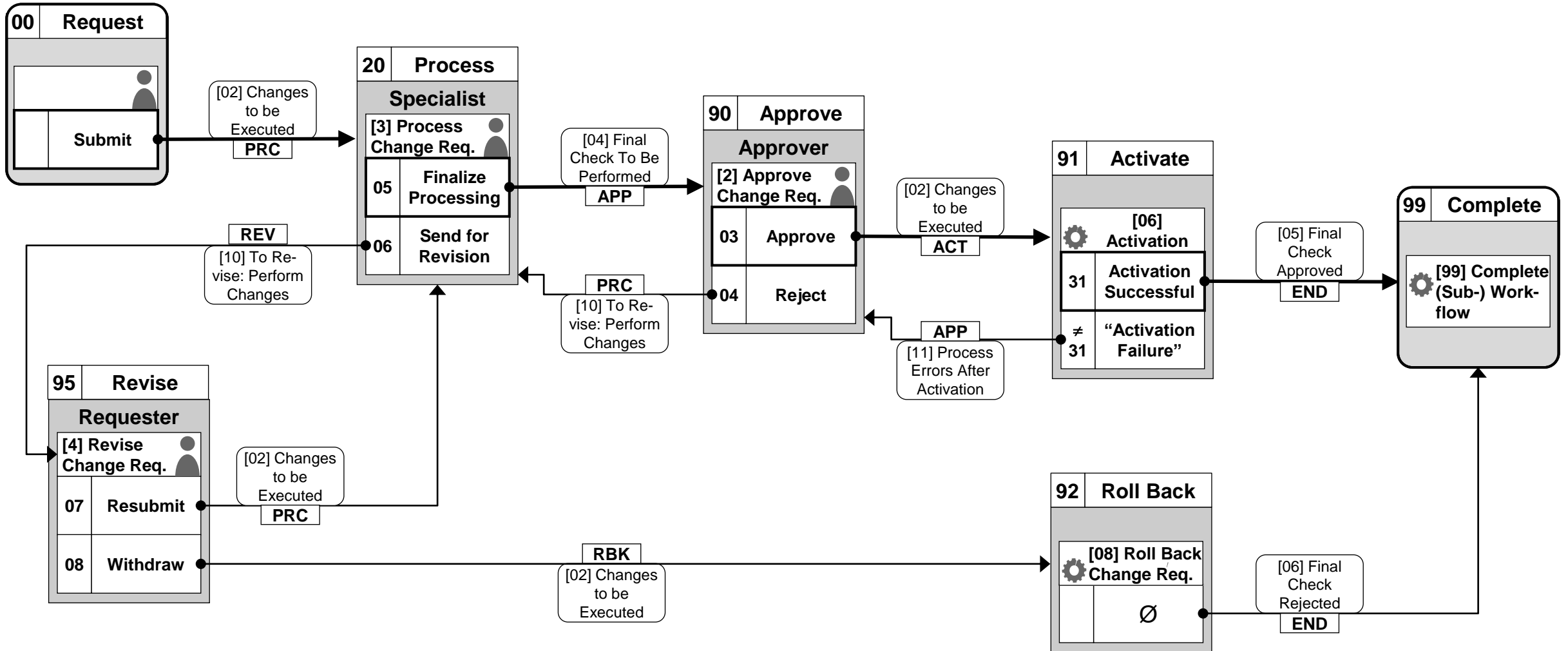
Implementing the Change Request Process
Method with Rule-Based Workflow

> ➢ Rules-Based Workflow offers you a quick and easy way to build the change request process!
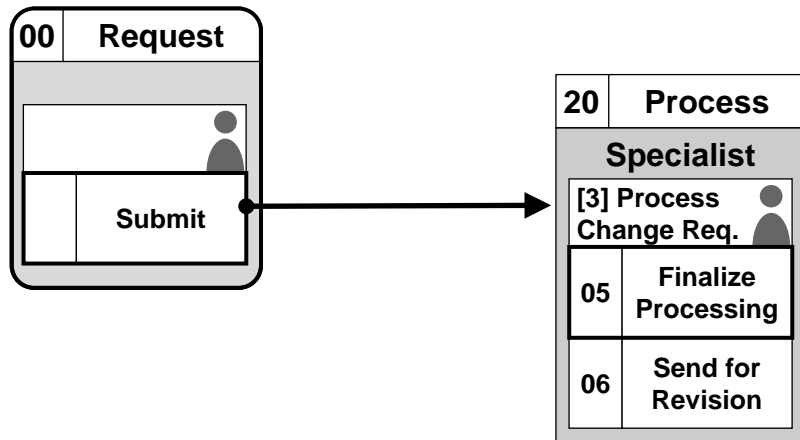
Implement Your Change Request Process

- Customizing: Create a New Change Request Type
- Customizing: Define Change Request Steps
- Build the decision tables
  - Single Value Decision Table
  - User Table
  - Non User Table

Implementing the Change Request Process
Customizing

Create a New Change Request Type

Change View "Type of Change Request": Overview

New Entries | BC Set: Change Field Values

Dialog Structure
- ▼ Type of Change Request
  - ▼ Entity Types
    - • Scope on Entity Type Level
  - • Business Activities
  - • Service Level Agreement for Change Requ...

Type of Change Request

Type of Chg. Request	Data Model	Description (medium text)	Objects Requi...	Single Object	Parallel	Main Entity Type	Workflow
Z261_150	MM	Create Material (Simple)	☐	☑	☐	MATERIAL	WS60800086
ZCONTMAS	ZS	Mass Processing of Contractors	☐	☐	☐	CONTRCTOR	WS60800086
ZCRCL	Z6	Create Clip	☐	☑	☐	ZRECORD	WS60800086

Define Change Request Steps

Change View "Workflow Step Numbers": Overview

New Entries | BC Set: Change Field Values

Workflow Step Numbers

Type of Chg. Request	CR Step	Keys	Validation	Description (
Z261_150	0	☐	☐	Request
Z261_150	20	☐	☐	Process
Z261_150	90	☐	☑	Approve
Z261_150	91	☐	☐	Activate
Z261_150	92	☐	☐	Roll Back
Z261_150	95	☐	☐	Revise
Z261_150	99	☐	☐	Complete

Exercise 1 – Introduction and Customizing

In this exercise you will:

– Understand the naming convention

– Logon to the system M34

– Customizing: Create a new change request type

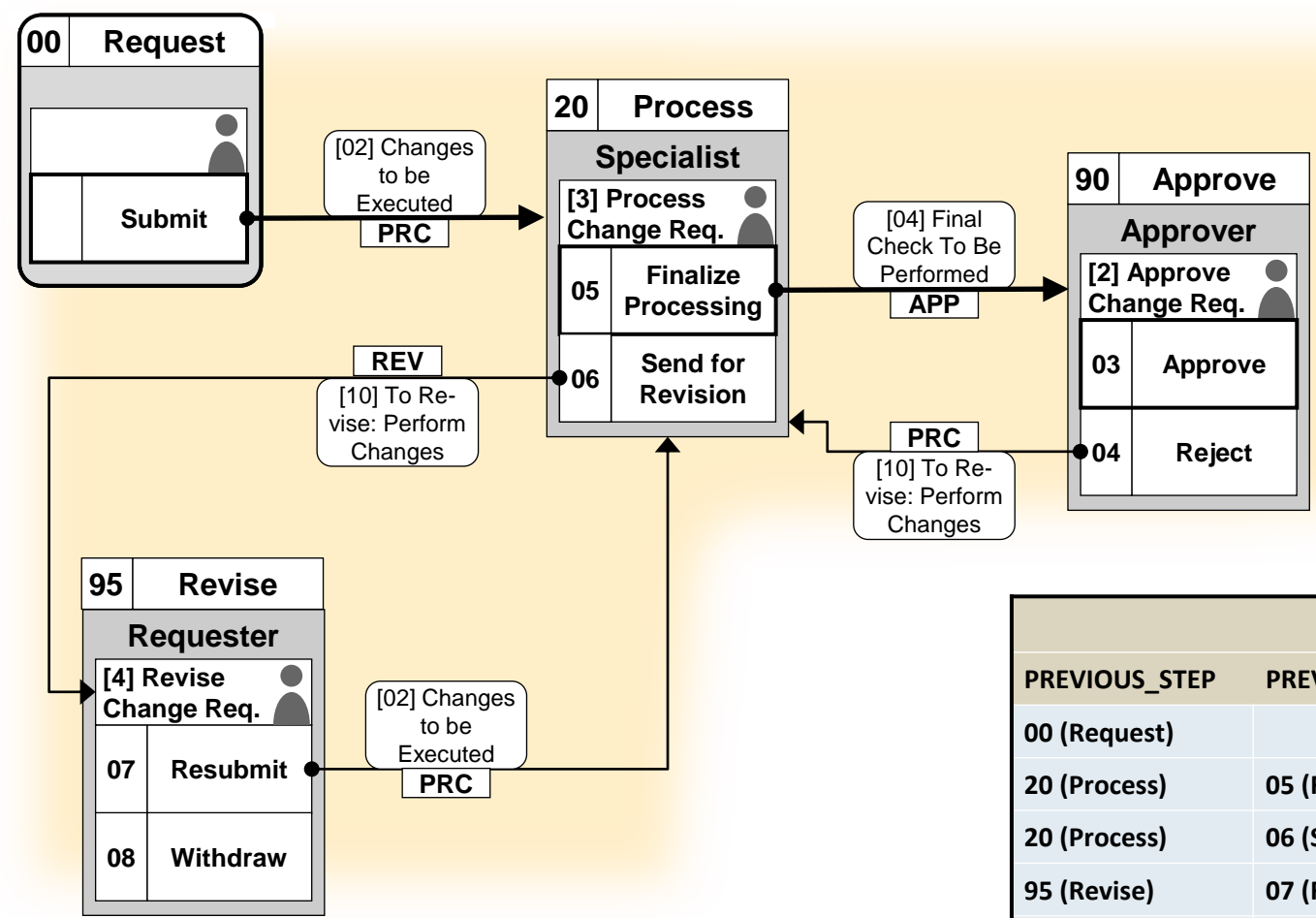– Customizing: Define the change request steps

Logon to the PC

– User: Student, Domain: Fair

– Password: Welcome14

Exercise 1

15 min

In all exercises, please make sure that you only work on **your own objects**. Here, please ensure to really pick the data reserved for your group number.

Implementing the Change Request Process
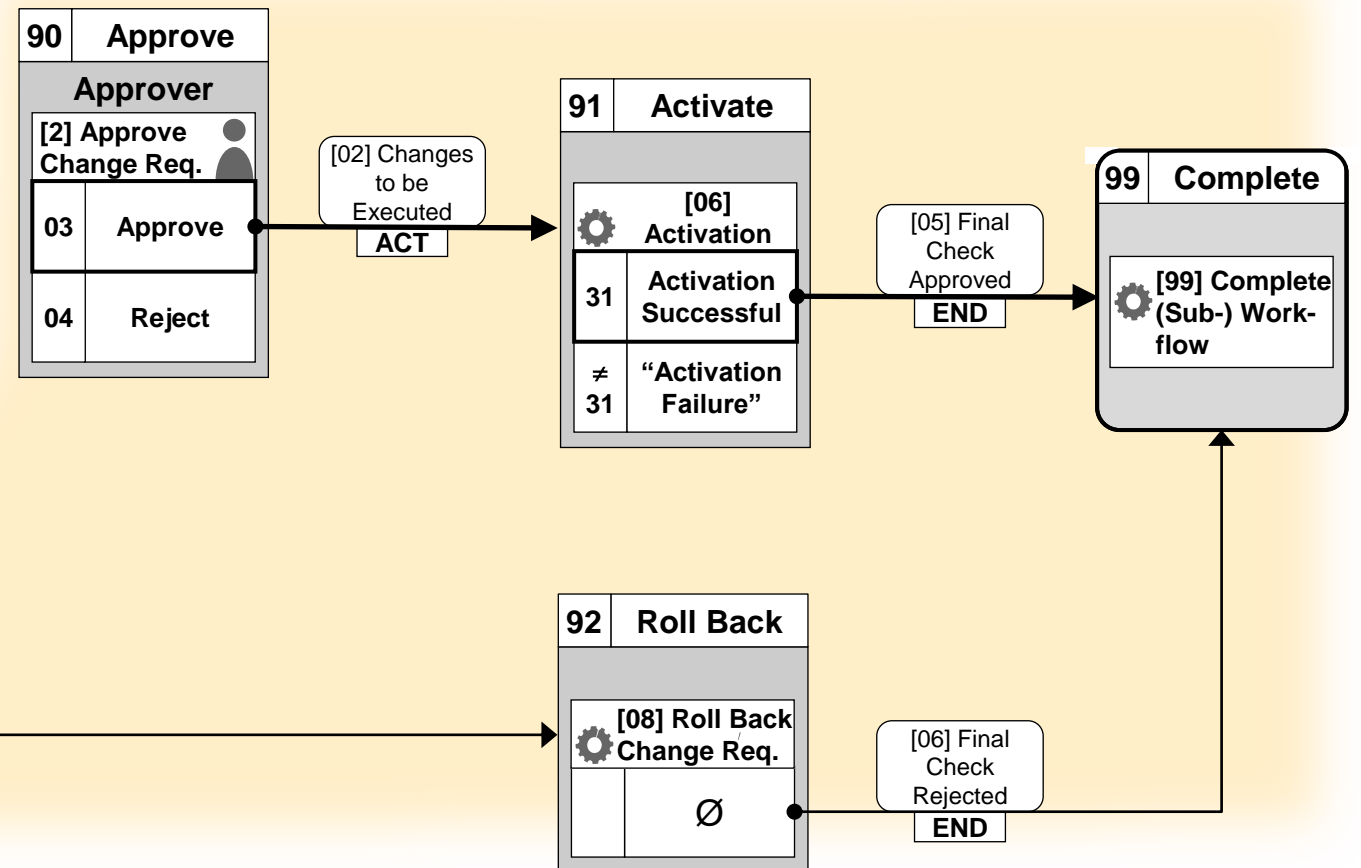Build the Single Value Decision Table

Single Value Decision Table				
PREVIOUS_STEP	PREVIOUS_ACTION	COND_ALIAS	NEW_STEP	NEW_CR_STATUS
00 (Request)		PRC	20 (Process)	02 (Changes to Be..)
20 (Process)	05 (Finalize Processing)	APP	90 (Approve)	04 (Final Check to Be..)
20 (Process)	06 (Send for Revision)	REV	95 (Revise)	10 (To Revise: Perform.)
95 (Revise)	07 (Resubmit)	PRC	20 (Process)	02 (Changes to Be..)
95 (Revise)	08 (Withdraw)	...	...	...
90 (Approve)	03 (Approve)	...	...	...

Implementing the Change Request Process

Build the Nonuser Agent Decision Table

Nonuser Agent Decision Table

Condition Alias	Agent Group	Process Pattern
ACT	001	06 (Activation)
RBK	001	08 (Roll Back)
END	001	99 (Complete (Sub-) Workflow)

90 Approve

Approver

	[2] Approve Change Req. 👤
03	Approve
04	Reject

[02] Changes to be Executed
ACT

91 Activate

⚙	[06] Activation
31	Activation Successful
≠ 31	"Activation Failure"

[05] Final Check Approved
END

99 Complete

⚙	[99] Complete (Sub-) Work-flow

Requester

	[4] Revise Change Req. 👤
07	Resubmit
08	Withdraw

RBK
[02] Changes to be Executed

92 Roll Back

⚙	[08] Roll Back Change Req.
	Ø

[06] Final Check Rejected
END

Exercise 1 – Introduction and Customizing

In this exercise you will:

– Understand the naming convention

– Logon to the system M34

– Customizing: Create a new change request type

– Customizing: Define the change request steps

Logon to the PC

– User: Student, Domain: Fair

– Password: Welcome14

In all exercises, please make sure that you only work on **your own objects**. Here, please ensure to really pick the data reserved for your group number.

Exercise 1

15 min

Exercise 2 – Configuration

In this exercise you will:

- Maintain the single value decision table to implement the change request process, that we've blueprinted previously
- Maintain the user agent decision table
- Maintain the nonuser agent decision table
- Understand the design of the rule-based workflow built via the decision tables

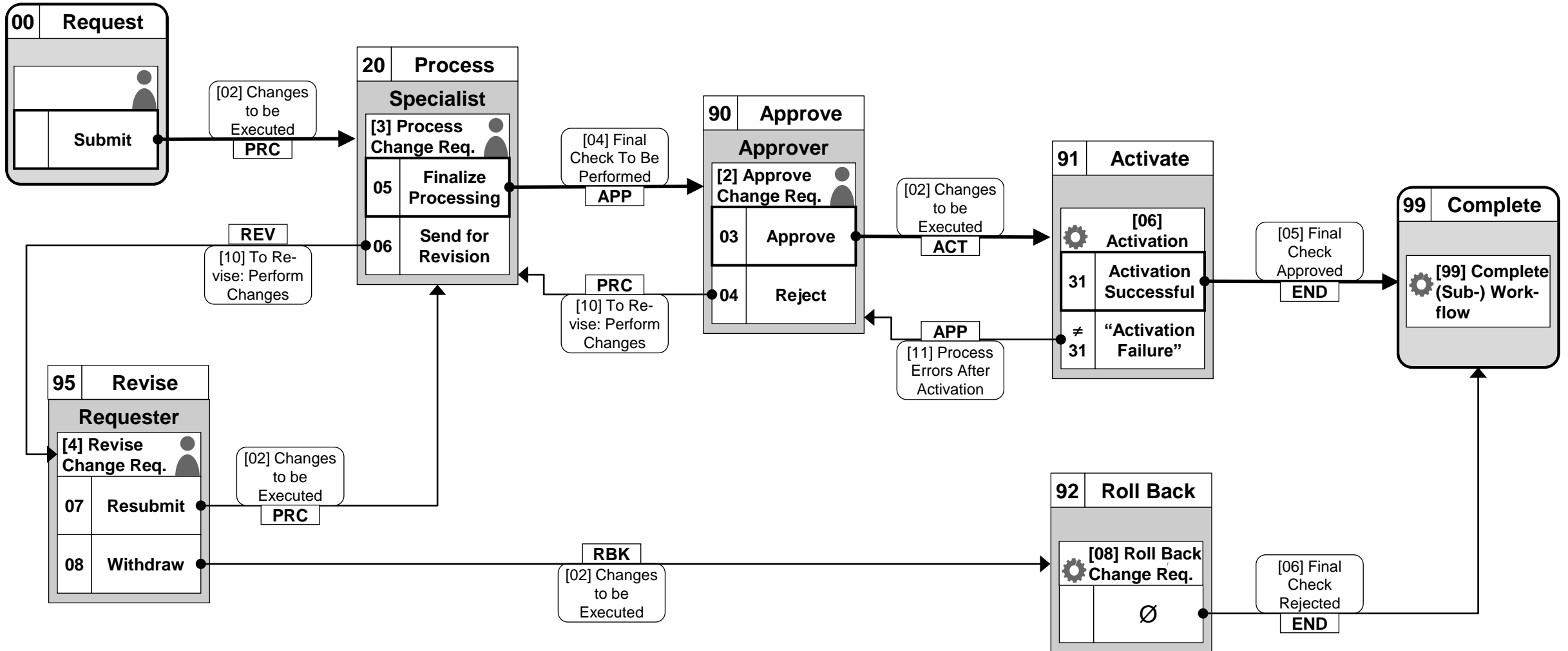## In order to do so, you will execute the following steps:

- Maintain your content in the decision tables, using the process diagram
- You can also use Transaction *USMD_SSW_RULE.*

In all exercises, please make sure that you only work on **your own objects**. Here, please ensure to really pick the data reserved for your group number.

Blueprinting Your Change Request Process
Process Diagram for the Exercise 2

Exercise 3 – Run the process

In this exercise you will:

– Logon to the system using SAP NetWeaver Business Client -Desktop (NWBC)

– Create a material using your new change request type

**In order to do so, you will execute the following steps:**

You will have 3 different roles:

– As a product manager you request a new material number

– As a product specialist you maintain additional data

– As a product approver you check and approve the data

In all exercises, please make sure that you only work on **your own objects**. Here, please ensure to really pick the data reserved for your group number.

Exercise 3

20 min

Resources: Practical Workflow for SAP – including SAP MDG
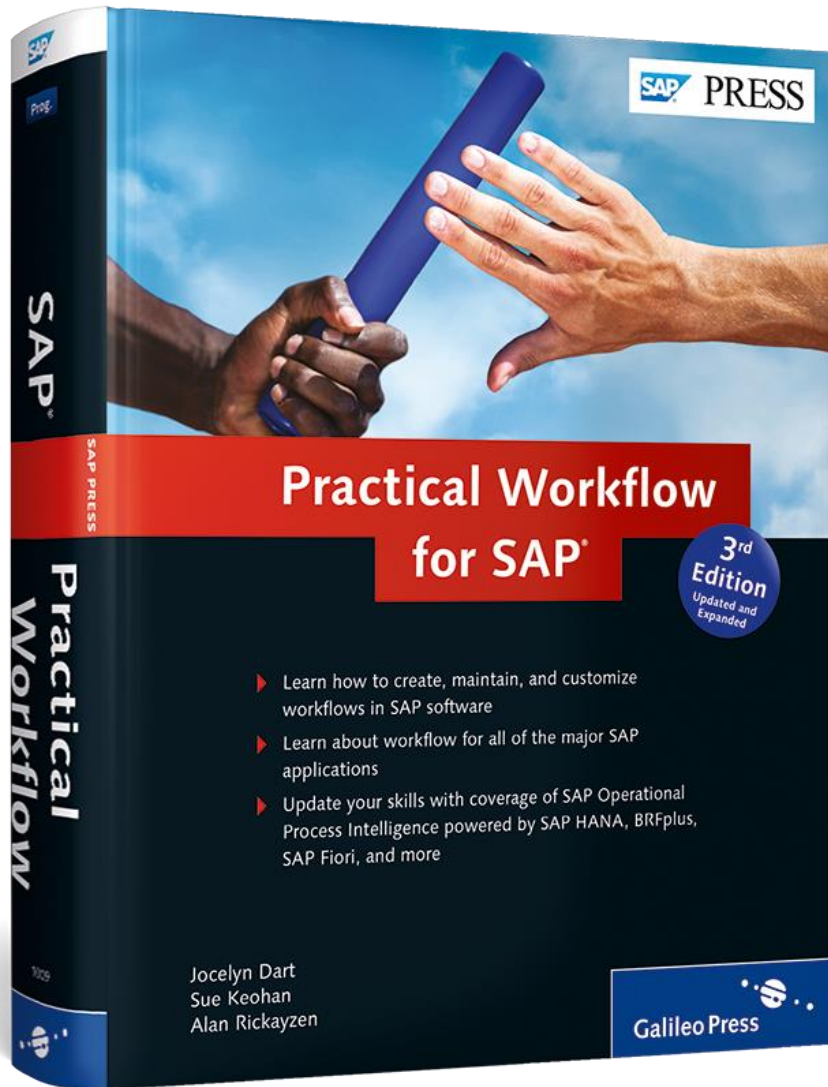
- Get the whole story on creating, maintaining, and customizing workflows in SAP
- Learn about workflow for all the major SAP applications, including SAP Master Data Governance
- Update your skills with coverage of SAP HANA, SAP Fiori, BRF+, and more
- 3rd edition, updated and expanded
- All royalties donated to Doctors Without Borders

https://www.sap-press.com/practical-workflow-for-sap_3615/

Resources: SAP Master Data Governance Community
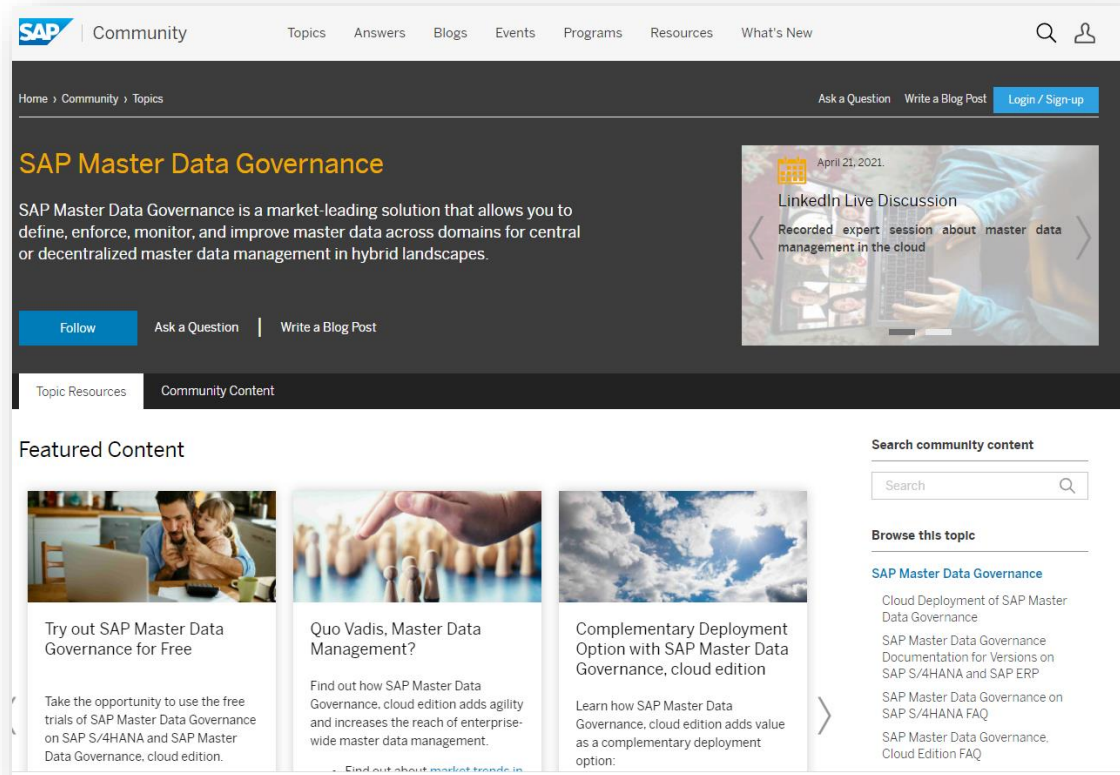
Community Homepage

Executive MDG Demos

- Financial data
- Material data
- Supplier data

Presentations

MDG Process, Configuration and Extensibility

- How-to Videos About MDG Processing Tasks
- Extensibility and Configuration Options for SAP Master Data Governance

Online Help

Further Information

SAP Public Web

https://community.sap.com/topics/master-data-governance

https://www.sap.com/products/master-data-governance/features.html

SAP Education and Certification Opportunities

www.sap.com/education

training.sap.com/search?query=master+data+governance

Watch SAP Teched

https://pages.sapteched.com/