



# Best Practices Workflow for Master Data Management

**Applicable Releases:**

**SAP NetWeaver Master Data Management 7.1 SP5**

**SAP NetWeaver Composition Environment 7.2 SP3**

**Topic Area:**

**Enterprise Information Management**

**Capability:**

**Master Data Management**

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## Document History

Document Version	Description
1.20	Updates with respect to MDM 7.1 SP5, see SAP NetWeaver MDM 7.1 release notes <a href="http://help.sap.com/saphelp_nwmdm71/helpdata/en/48/fcc65162944e88e1000000a421937/frameset.htm">http://help.sap.com/saphelp_nwmdm71/helpdata/en/48/fcc65162944e88e1000000a421937/frameset.htm</a> Updates with respect to CE 7.2, see Changes and Updates in SAP NetWeaver Composition Environment 7.2 <a href="http://help.sap.com/saphelp_nwce72/helpdata/en/ad/b4938a21b04fe58502206d09b92471/frameset.htm">http://help.sap.com/saphelp_nwce72/helpdata/en/ad/b4938a21b04fe58502206d09b92471/frameset.htm</a> Guided Procedures section have been removed
1.10	Changes with MDM 7.1 SP4 with respect to MDM Web Services scope and MDM Web Dynpro Components
1.00	First official release of this guide

## Typographic Conventions

Type Style	Description
<i>Example Text</i>	Words or characters quoted from the screen. These include field names, screen titles, pushbuttons labels, menu names, menu paths, and menu options. Cross-references to other documentation
<b>Example text</b>	Emphasized words or phrases in body text, graphic titles, and table titles
Example text	File and directory names and their paths, messages, names of variables and parameters, source text, and names of installation, upgrade and database tools.
<b>Example text</b>	User entry texts. These are words or characters that you enter in the system exactly as they appear in the documentation.
<b>&lt;Example text&gt;</b>	Variable user entry. Angle brackets indicate that you replace these words and characters with appropriate entries to make entries in the system.
EXAMPLE TEXT	Keys on the keyboard, for example, F2 or ENTER.

## Icons

Icon	Description
	Caution
	Note or Important
	Example
	Recommendation or Tip

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# 1. Introduction

In general, business process management helps to standardize and to optimize operational processes in order to reduce costs, improve quality, and increase agility. For SAP NetWeaver Master Data Management (MDM), business process management enables governance of your master data maintenance processes necessary to ensure data integrity, to allow unification of procedures across data segments, to automate your processes, and to facilitate the approval and review process.

When implementing business process management for MDM, SAP offers a wide range of workflow tools. Often, it is not clear which workflow tools are the right choice to address your specific requirements. The goal of this paper is to shed light into this uncertainty. In this paper we will evaluate different workflow options, and will provide best practices and recommendations about which workflow tool fits best to your specific requirement. The workflow tools which are relevant here, and which we will focus on are MDM Workflow (MDM WF), SAP NetWeaver Business Process Management (NW BPM), and SAP Business Workflow (Business WF).

We will start with a summary in chapter 2 which provides you with overall recommendations. For the reader who is interested in more details, please take a look at the subsequent chapters.

Chapter 3 evaluates the various workflow tools in general. This provides you an overview of the major characteristics, advantages, limitations, and typical use cases for each workflow tool.

In chapter 4 we analyzed how the various workflow tools can be implemented based on a benchmark use case. This provides you with hints, recommendations, guidelines, tips & tricks about if and how a typical MDM use case can be implemented.

## 2. Summary

In the following, we sum up the general recommendations of the various workflow tools based on the findings which are detailed in the subsequent chapters.

Criteria	MDM WF	Business WF	NW BPM
Integration to SAP			
Integration to non-SAP			
Integration to MDM			
Implementation Effort			
Modeling Environment			
Flexibility			
Monitoring			

Scale: low fair best

- Integration
  - In general, MDM Workflow is focused on “closed” solutions, i.e., scenarios running within the MDM environment, providing close integration to repository content
  - Due to limited integration with external services such as web services calls to ERP systems in order to call validations for instance, MDM Workflow is not well suited for cross-system, and cross-application scenarios. However, via the Enrichment Architecture data cleansing services can be called
  - SAP Business Workflow is mainly suited for scenarios within one SAP system, tightly integrated to organization structure
  - On the other hand, the openness of SAP NetWeaver BPM makes it better suited to build cross application business processes
  - As mentioned above, Web Services calls within MDM Workflow are not supported, the remaining workflow tools however do so. Besides this, SAP Business Workflow can be integrated to SAP MDM via ABAP API
- Implementation Effort
  - For MDM Workflow, implementation effort is low providing close integration to repository content
  - For NetWeaver BPM, you can leverage the newly introduced MDM Web Dynpro Components providing configurable Web-based Data Governance UI components on a low footprint. If the currently shipped MDM Web Dynpro Components do not meet all of your requirements, user interface development effort is more costly since WebDynpro coding is required.

- Further features have been introduced with SAP NetWeaver CE 7.2 which help to reduce the effort implementing NetWeaver BPM processes, e.g., automatic UI generation based on tasks, simplifying web services, Visual Composer support, etc
- MDM Workflow also comes with a number of configurable iViews that you can use in Enterprise Portal with low implementation effort
- Modeling Environment
  - NetWeaver BPM and SAP Business Workflow provide a more flexible modeling environment which allows you to implement complex business processes
- Flexibility
  - In case of changes during runtime such as ad-hoc assignment or rule changes, the design of the MDM workflow has to be changed
  - Whereas for NetWeaver BPM the integrated BRM allows you to change rules on the fly
- Monitoring
  - SAP Business Workflow comes with a complete set of tools to monitor, control, and operate your workflows
  - With SAP NetWeaver CE 7.2, NetWeaver BPM monitoring and reporting capabilities have been improved, such as monitoring the process instances and their tasks, providing real-time access to process data, creating dashboards in SAP BW, etc

#### Recommendation

To conclude:

- For processes that stay within SAP NetWeaver MDM, use MDM Workflow
- For cross-component processes involving non-SAP systems as well as processes that require rich business rules management functionality, use SAP NetWeaver BPM
- For processes within SAP systems requiring close interaction with the SAP object model, use SAP Business Workflow

## 3. General Assessment

### 3.1 SAP NetWeaver BPM

SAP NetWeaver BPM can be seen as the next generation of Business Process Management providing a common design and runtime environment for different user roles such as developers, process architects, and business process experts. It has been shipped with SAP NetWeaver Composition Environment (CE) 7.1 Enhancement Package 1. It is used to build composite business processes, mainly service-based processes that support human-centric workflows.

#### Characteristics / Major Advantages

- New common BPM tool for process modeling, design, runtime, and monitoring
- Shipped starting with SAP NetWeaver CE 7.1 EhP1
- Covers mainly human-centric processes (collaboration)
- Used to create composite business processes
- Leverages the Enterprise Services Repository for SOA Design Governance which is also part of SAP NetWeaver CE
- It enables you to build cross-application processes
- Includes SAP NetWeaver Business Rules Management (BRM) which enables you to create rules that can be called from any application.
- Human-centric composite processes focusing on human interactions and process collaboration. These processes are delivered through a new building block of BPM capabilities that is integrated into SAP NetWeaver CE
- Supports standard-based modeling environment (BPMN: Business Process Modeling Notation)
- Tight integration to MDM via MDM Web Dynpro Components with minimal or even without any coding required. MDM Web Dynpro Components have been introduced with MDM 7.1 SP4, and enhanced with MDM 7.1 SP5. It can be seen as a sort of wizard that guides you through the creation of Web Dynpro components for MDM.

#### Limitations

- Portal's iViews are not supported. However, as mentioned above, the MDM Web Dynpro Components provide similar functionality.

#### Sample Scenarios

- Cross-application processes
- Processes where there is a white-space, i.e., when you need to extend or enhance the SAP process
- Processes that include both SAP and non-SAP service calls
- Processes that require business rules (external business rules, leveraging on SAP NetWeaver BRM)
- Creating master data for a customer as a self-service process which enables customers to request the creation of their master data themselves. For details, please refer to <https://www.sdn.sap.com/irj/scn/go/portal/prtroot/docs/library/uuid/005808cd-59b1-2b10-b589-c7016d221092>

- Central creation of business partner master data. For details, please refer to <https://www.sdn.sap.com/irj/scn/weblogs?blog=/pub/wlg/12810>  
<https://www.sdn.sap.com/irj/scn/weblogs?blog=/pub/wlg/12842>  
<https://www.sdn.sap.com/irj/scn/weblogs?blog=/pub/wlg/12945>

### Future Direction

- SAP NetWeaver BPM is the long-term approach for business process modeling and runtime targeting human-centric, system-centric, and ad-hoc workflows
- New capabilities will be added in future releases

## 3.2 SAP Business Workflow

SAP Business Workflow can be used to automate your business processes. It is particularly suitable for processes that are often repeated, or where many users have to carry out their tasks in a specific sequence. It is fully embedded in SAP systems. It allows you to define executable processes which can be carried out either by a user via a dialog task or automatically in the background.

You define a workflow within the Workflow Builder. A workflow definition consists of a sequence of steps that either directly control the workflow or refer to a task. A task refers to an object in the Business Object Repository (BOR), e.g., the object type Material. For all object types, methods are defined which specify how the underlying objects are processed, e.g., create material.

A workflow can be started either manually or automatically. For latter, the start of the workflow is triggered via an event, e.g., the event that material has been created.

You can use the organizational structure of your SAP system to assign the right people to the workflow tasks. The work items are displayed in the user's Business Workplace. If you have an SAP Enterprise Portal running, you can access your work items from within the Universal Worklist (UWL). This provides a central overview of all activities that you have to carry out.

SAP provides several preconfigured workflow scenarios which can be reused in your applications without much implementation effort.

For more details about SAP Business Workflow, please refer to SAP Help Portal

[http://help.sap.com/saphelp\\_nw70/helpdata/EN/a/1/172437130e0d09e10000009b38f839/frameset.htm](http://help.sap.com/saphelp_nw70/helpdata/EN/a/1/172437130e0d09e10000009b38f839/frameset.htm)

### Characteristics / Major Advantages

- Business Workflow comes with a number of tools for defining, analyzing, and monitoring workflows
- Enables you to build repeatable business processes, and to automate your processes
- Allows you to implement complex business processes
- Takes care that each step of your workflow is assigned to the right person
- It is tightly linked to Business Object Repository
- Workflows can be started whenever a predefined event occurs
- You can use an existing organizational structure to have the relevant users carry out the individual activities
- You can display your work items in the portal's UWL
- You can run detailed reports on the workflow process itself, such as how often each workflow was executed, what was the average execution time, how long did it take people to react to items in their inbox, etc.
- For each step, you can define deadline monitoring

- Many SAP applications such as ERP, CRM, SRM, and others, deliver predefined workflows. You can either use them without any changes or do minor changes according to your company's requirements. This significantly brings down implementation time.
- There is a huge number of existing knowledge on SAP Business Workflow worldwide.

### Limitations

- SAP Business Workflow can do external calls, however it works best and is mainly used to handle business processes within one SAP system.
- No record authorization management (check-out)

### Recommended Skillset for MDM and SAP Business Workflow Integration

- SAP Business Workflow solution, SAP NetWeaver MDM solution, SAP NetWeaver MDM ABAP API

### Sample Scenarios

- Approval processes, e.g., purchase order approval, leave request
- Governance of data through managed processes
- Creating master data, e.g., material master, business partner. Usually, this involves many departments, e.g., when a business partner is created, additional information which comes from different departments have to be added such as credit limit, contact information, etc.
- You can also use Business Workflow to respond to errors and exceptions in other, existing business processes
- Processes that are repeated often, e.g., for each new hire, a specific process must be carried out
- Processes where you have to accomplish governance regulations, e.g., Sarbanes Oxley compliance (SOX)

## 3.3 MDM Workflow

MDM Workflow is shipped with SAP NetWeaver MDM. MDM workflows consist of a sequence of steps that are carried out either for one or more master data records. With MDM workflows, you can orchestrate a series of data management operations such as user tasks, validations, assignments, syndication, matching, and approvals which helps you to automate your business processes at the data management level.

The design-time environment is based on Microsoft Visio which is plugged in into MDM. During design-time, you have to create your flow diagram using an MDM specific set of steps. From within an MDM workflow one can call a validation for instance which runs through all involved records. If the validation is violated, the workflow resumes at the previous step enforcing the user to fix the issue. Furthermore, the MDM workflow can invoke an approval step which can be either a single approval or the unanimous approval of many approvers.

During run-time, the various steps are carried out step-by-step showing up as tasks in each user's inbound box. Here, multiple records can be assigned to one workflow job. Users can be assigned to a step either directly or role based.

For more details, please refer to the MDM Data Manager Reference Guide on SAP Service Marketplace, alias instguides <http://service.sap.com/instguides>.

## Characteristics / Major Advantages

- Enables you to process activities on a group of records in an automated and consistent manner
- Enforcing validations and approvals to ensure data integrity
- Tightly integrated with MDM tools since you create the process flow directly in MDM
- Low footprint since it automatically comes with an MDM installation
- Lean functionality, simple to use if limited features are sufficient
- MDM workflow tasks can be accessed from Universal Worklist
- Provides APIs for Java, ABAP, Web Services, and .NET, e.g., to invoke a workflow from within a Java application, to assign records to a workflow, to retrieve a list of workflows, etc
- Integration to data cleansing services via the MDM Enrichment Architecture

## Limitations

- In most cases not dynamic/flexible enough.
  - Missing interfaces to ERP, e.g., to refer to an HR Organization structure
  - Routing based on an organizational structure (e.g., to determine the approver based on an organizational hierarchy), or on an attribute (e.g., to determine the approver according to the product's group) is not supported
  - No flexible jumps supported, i.e., it is not possible to route to any workflow step (e.g., in case of a disapproval, the approval step can only return to the previous workflow step)
  - Changing business rules at runtime is not supported (e.g., in case that an approver is determined depending on product group, it should be possible to change the mapping at runtime)
- Workflow monitoring.
  - Status monitoring and tracking supported
  - However, reports not supported, such as report about all records awaiting my approval, average time to approve, workflows that I have started, workflows with my participation
  - Deadline Monitoring limited
- Missing support for ad-hoc assignment / ad-hoc enhancement (Ad-Hoc user assignment at runtime or enhancement of workflow is not possible)

## Recommended Skillset for MDM Workflow

- SAP NetWeaver MDM solution consultant

## Sample Scenarios

- You have a set of master data records that need the same approvals in MDM
- You have a set of master data records that must be dealt with in a consistent manner
- Introduce governance for the creation of new master data records, e.g., check that the creation of the master data record won't create any duplicates or invalid values
- Introduce governance for the import of many master data records, e.g., in an MDM consolidation scenario
- Trigger syndication of master data. For details, please refer to <http://www.sdn.sap.com/irj/sdn/go/portal/prtroot/docs/library/uuid/60a2b4e4-6993-2a10-0e9a-c6d720f1571b>

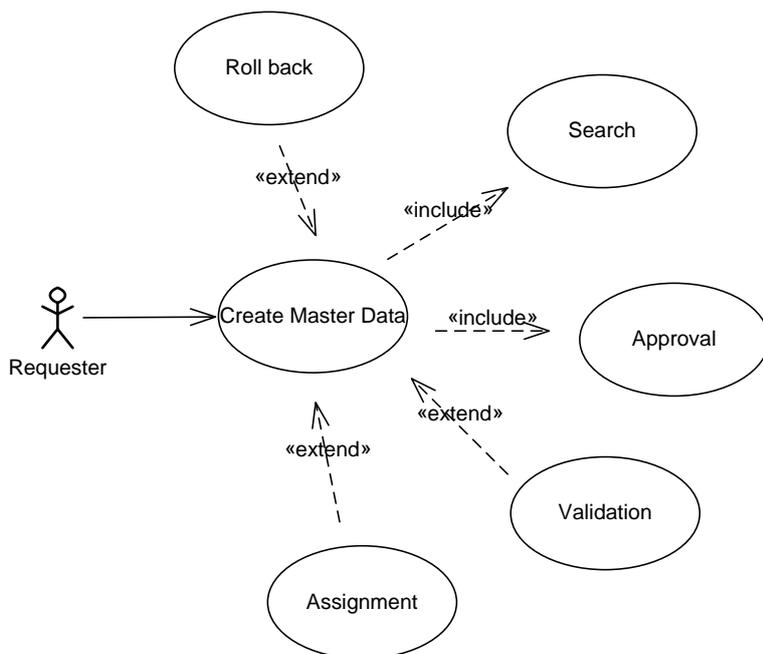
## 4. Benchmark

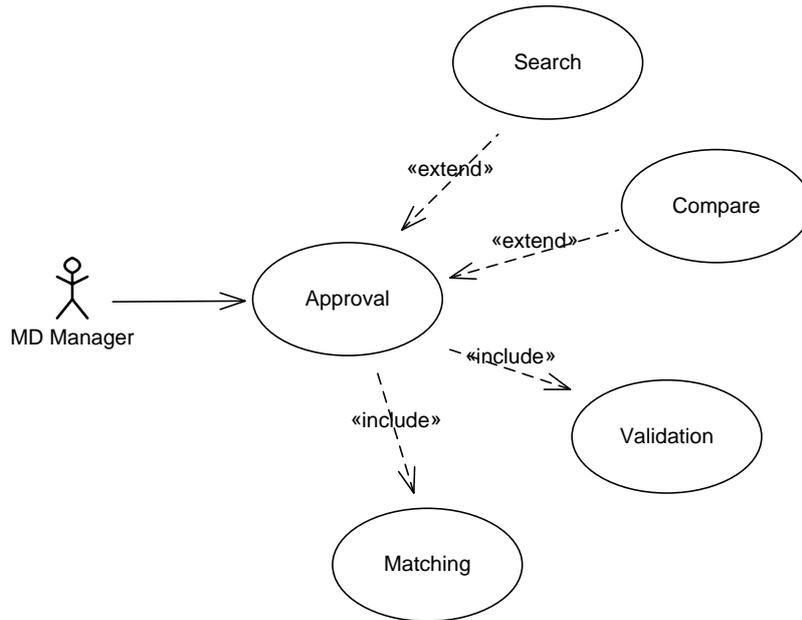
In this chapter, the various workflow tools are used to implement an MDM benchmark use case. Here, we refer to the creation of master data. Goal is to give you a rough idea about how this process can be implemented within the constraints of your respective environment. We will clarify for each workflow tool if and how the several workflow steps can be realized, where we face limitations, and where we interact with other tools. The here gained findings should be easily applicable to other use cases such as update master data, matching & merging, or data enrichment, etc.

### 4.1 Sample Use Case

In the following, we use UML notation (Unified Modeling Language) to describe our process.

The figures below show the use case diagrams. The central use case that we refer to is 'Create'. It always includes the use cases 'Search' and 'Approval'. The other uses cases 'Validation', 'Assignment', and 'Rollback' are optional, hence the extended connection between the activities. For the 'Approval' use case, usually a 'Matching' step is applied to find duplicates. Each matching requires a 'Validation' to run beforehand to ensure that the data is complete. Optionally, the requester can 'Search' and 'Compare' the data to make a decision.

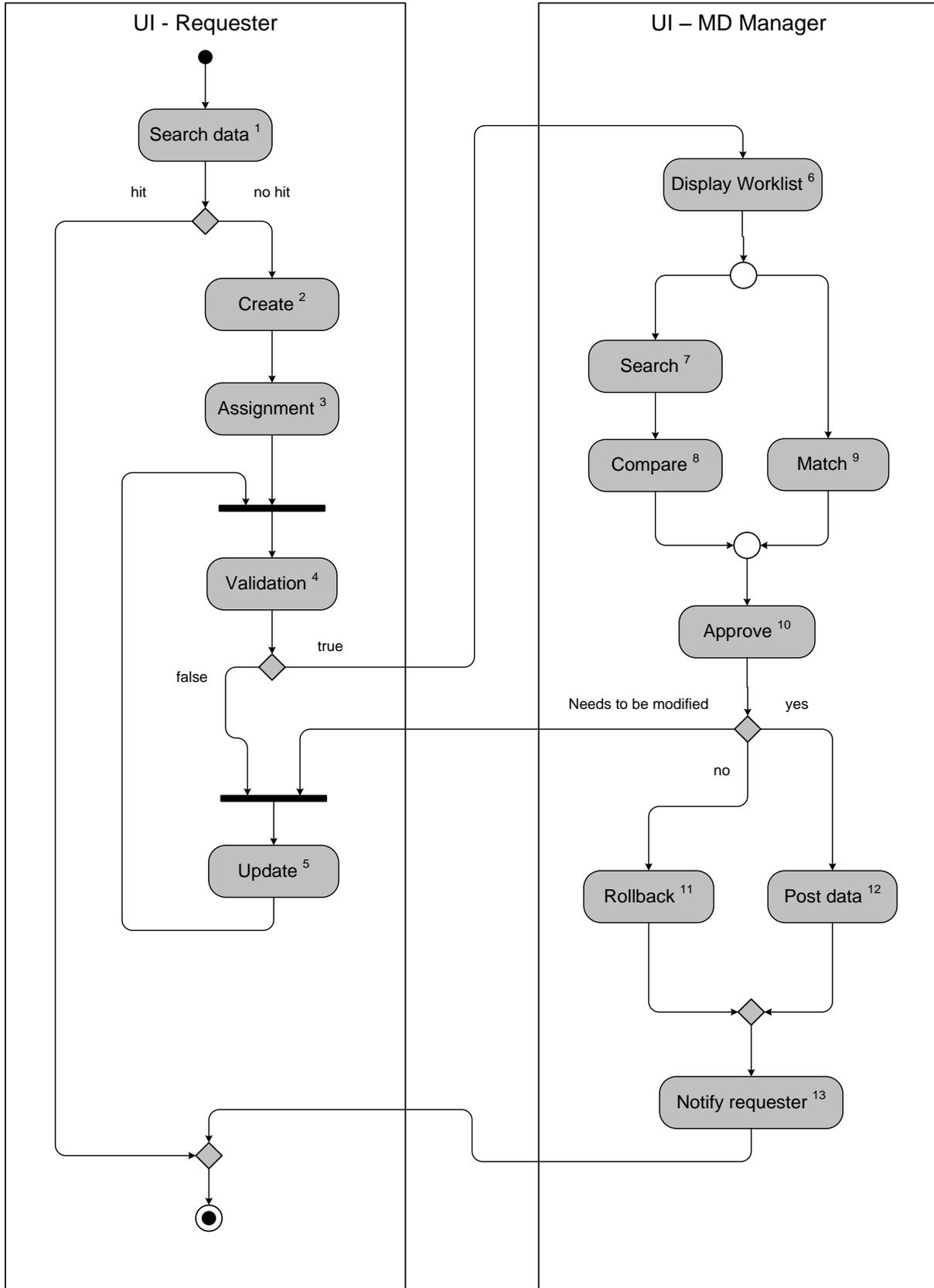




In the activity diagram below, we distinguish between two roles, the requester and a master data manager who has to provide approval. The business process starts with the requester searching for an existing master data record. If the record is available, the workflow branches to the final state of the process. In case of missing master data, the requester will create a new record. After having entered the new record, it might run through assignments to update empty fields, and through validation rules. In case of validation violation, the record is pushed back to the requester who has to update the same. Once the data record passes the validation, it is forwarded to the MD manager's work list for approval. The approver can either run a matching strategy or a search and comparison to ensure that no duplicates exist. After having reviewed the data, and also taking into account the results of the duplicate check, the approver can make following decisions: data needs to be modified, data creation is approved, or data creation is rejected. Depending on the decision, the data is either posted or a rollback is done. Finally, the requester is notified about the decision made.

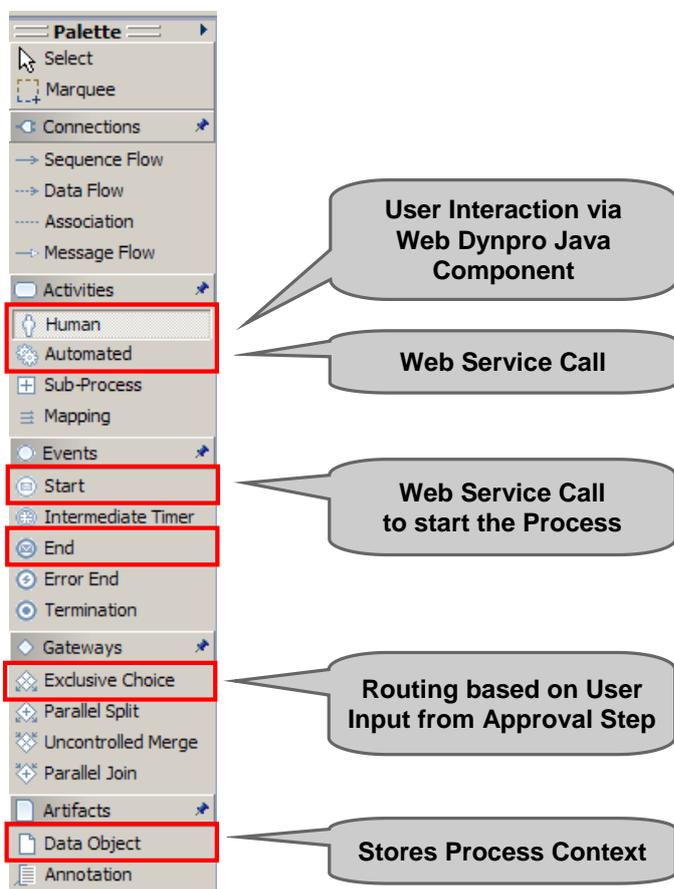
 **Note**

All activities in figure below are given a footnote which is used to refer to the same in following chapters



## 4.2 SAP NetWeaver BPM

The use case is modeled within the process composer of SAP NetWeaver BPM. Here, you can choose from a set of process steps accessible from the so called palette. In general, the use case comprises events, user activities, automated activities, and gateways.



As can be seen in figure below, the process starts with a start event which can be exposed as web service. To start the process, you have to call the respective web service. This can be done from within a Java Web Dynpro UI for instance. In the specific use case, the search and create steps can be implemented as one Java Web Dynpro UI which calls the web service passing the reference to the newly created master data record as parameter to the start event.

As of SAP NetWeaver CE 7.2, both Web Dynpro Java and Visual Composer are supported, i.e., for each human activity you need to develop either a Web Dynpro Java component or a Visual Composer composite view.

As mentioned above, MDM Web Dynpro Components have been shipped with MDM 7.1 SP4. MDM Web Dynpro Components are reusable UI building blocks that are configured via the MDM Web Dynpro Configurator. The MDM Web Dynpro Configurator connects to the respective MDM repository to read its schema, and guides you through the creation of Web Dynpro components for MDM. The resulting Web Dynpro components can be consumed by BPM with less or even without any coding although coding is supported if required. For more details, please refer to the following articles on SDN:

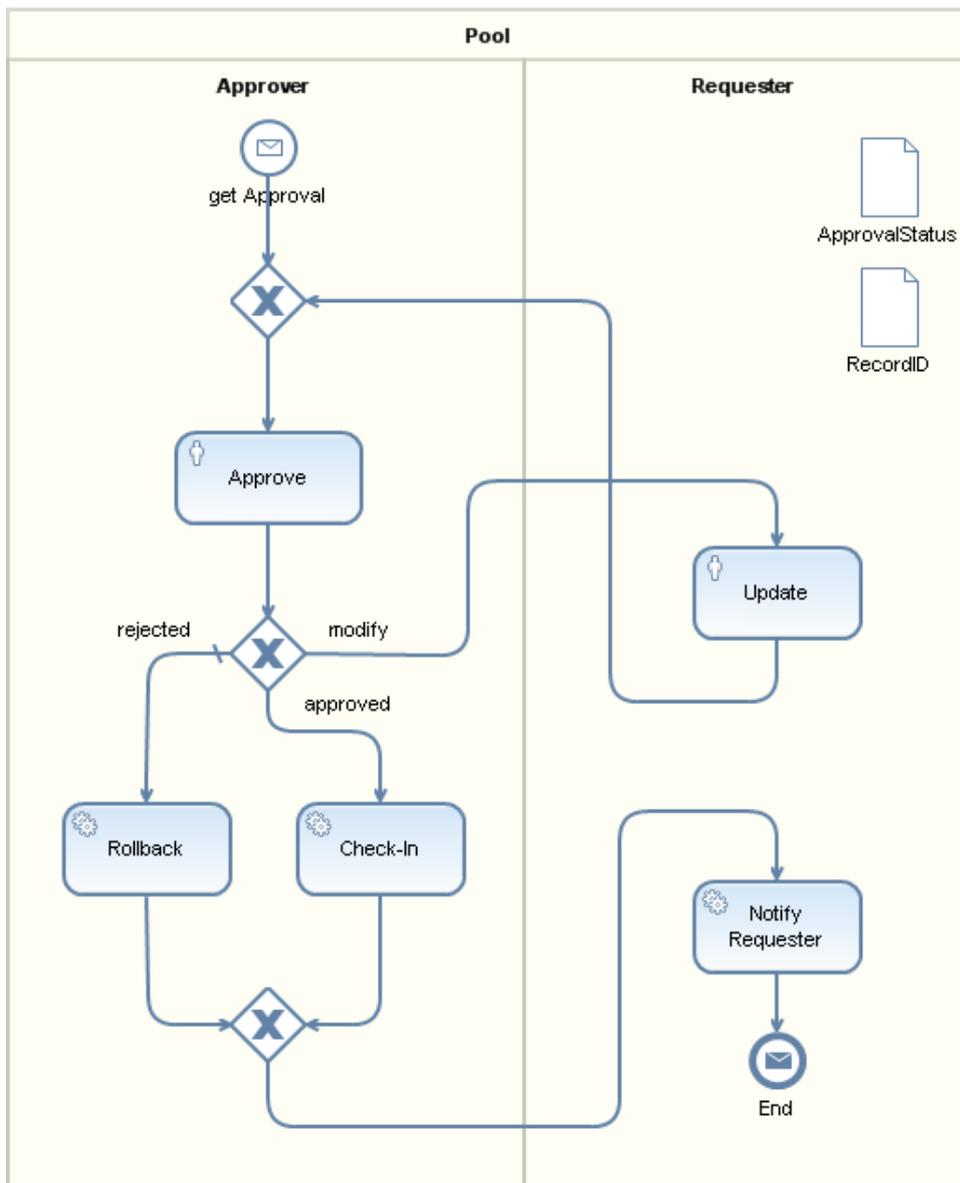
- How to Integrate Master Data Management (MDM) and Business Process Management (BPM) <http://www.sdn.sap.com/irj/scn/index?rid=/library/uuid/50d7ad1f-6b27-2d10-448e-9c115ce7f5b3>
- How to Build Web Applications Using MDM Web Dynpro Components

<https://www.sdn.sap.com/irj/scn/index?rid=/library/uuid/600333e0-9bf7-2c10-1f99-bf5dcf661949>

- Error-Free, Consistent Master Data Starts at the Source  
<http://www.sdn.sap.com/irj/sdn/nw-mdm?rid=/library/uuid/50cdf4f7-ef28-2d10-1bba-d332f7082032>

As of MDM 7.1 SP5, the following MDM Web Dynpro Components are supported:

- Search: free-form, lookup, mask, and named search
- Result Set: displaying records based on search settings
- Item Details: creating, deleting, updating, enriching, duplicating, and validating a record
- Match: running matching strategies to find potential duplicates
- Compare: comparing several records
- Merge: merging duplicates



The Web Dynpro Java component is linked to the human interaction step via task. The user who should take on the task is assigned either directly or via role. Human tasks can also be passed to

portal's UWL. The substitution functionality from UWL can also be applied to a BPM task. Once a person defines his/her substitute in the UWL, the substitute is also assigned to the task, and also receives the task in his/her UWL, e.g., a manager can assign in advance another user to receive notification and to be able to handle his/her task. The substitution handling is designed like assigning an additional potential owner for a task. So, once the substitution is completed the original owner of the task and also his/her substitute have access to complete the task. The substitution variant of forwarding responsibilities for tasks for certain period of time is currently not supported.

Integration to SAP MDM is usually done via web services call in an automated activity. This allows code free integration, and is more flexible in case that workflow has to be redesigned. In SAP NetWeaver CE 7.1 EhP1, synchronous web service calls are supported. As of SAP NetWeaver CE 7.2, asynchronous web service calls are supported via WSRM. However, for some activities, it rather makes sense to integrate to MDM within Web Dynpro via Java API, e.g., for search and compare.

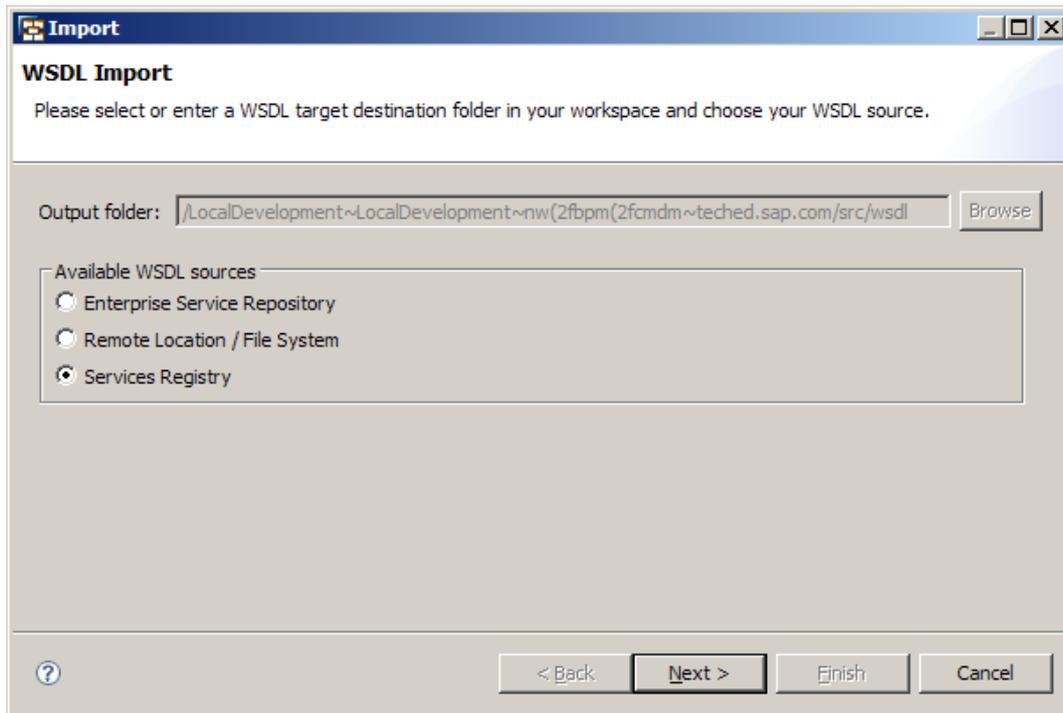
With the MDM Web Services Generator you can define which operations are supported when defining the Web Service. In general, a generated Web service offers CRUD services that run against the respective repository table:

- Create records & add key mapping
- Retrieve records & get key mapping
- Update records
- Delete records
- Search records

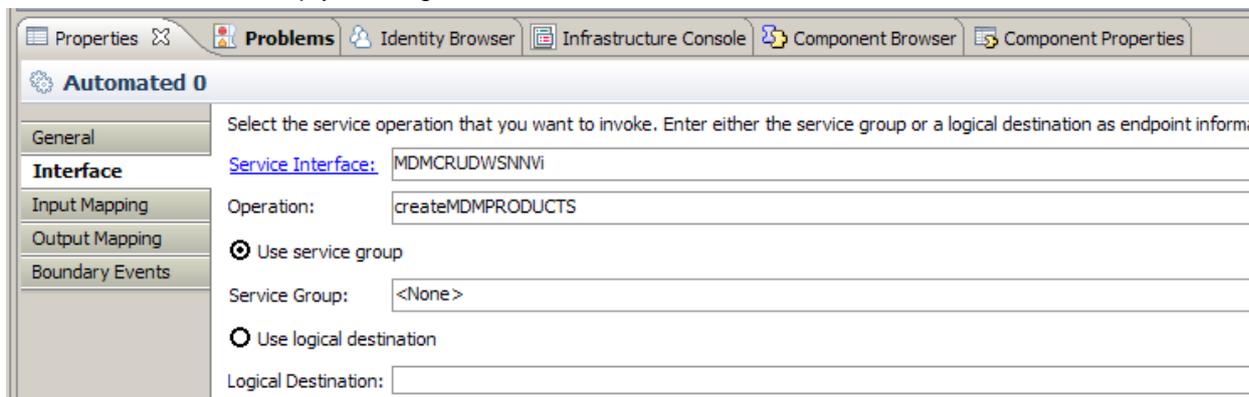
As of MDM 7.1 SP4, following additional operations are supported:

- Check-out, check-in & rollback records
- Join check-out & unjoin check-out records
- Retrieve & modify join check-out permissions
- Execute validations
- Launch workflow & get workflow status
- Execute assignments
- Matching operations: run matching strategy, retrieve matching results, get matching status, match new record, etc

You can import Web Services WSDL either via file upload or directly accessing the Services Registry. For latter, assuming that you have published the MDM Web Services in the Service Registry.



Within the automated step you assign the service interface to the same.



Use data objects to store the process context. We distinguish between data which controls the process such as the approval/rejection status, and the actual data which represents the master data information. For performance reasons, it is recommended to minimize the size of the process context which is passed from step to step. So, it is recommended not to keep the whole master data information in the BPM context, and rather to persist the master data on MDM so that only an MDM record identifier has to be kept in the BPM context. This approach requires check-out, check-in, and rollback functions to ensure data integrity.

In order to pass parameters from step to step, you have to define mappings, e.g., a mapping to map output of the create UI to the process context.

An exclusive choice gateway is needed where workflow processing is branched, e.g., in case of the approval step (Step 10 of figure above, page 12) where further processing is routed according to the decision made, or in case of the validation (Step 4).

You can apply business rules to dynamically control the process flow, i.e., you can make changes to the rules during runtime of the process without changing the workflow itself. For instance, you can create a decision table within the rules composer of BRM to dynamically route workflow processing to

the appropriate approver depending on a product category. The business rule can be exposed as web service which can be called within an automated activity.

For the following steps, you need to create a human activity:

- Search & Create (Step 1, Step 2)
  - As mentioned above, this is realized via an external Web Dynpro Java component which calls the start event as web service (Note, that the additional pool holding the search and create steps is not displayed in the process flow diagram above)
  - Data is written to MDM, and checked-out either via Java API or Web Services API. The record ID is passed to the start event and kept in the process context
  - Use of MDM Web Dynpro Components Search, Result Set, and Item Details
- Update (Step 5)
  - Data has to be read from MDM, and modified
  - Use of MDM Web Dynpro Component Item Details
- Display worklist (Step 6), here part of Approval step
  - Use of MDM Web Dynpro Components Result Set
  - Web Dynpro component is displayed in UWL
- Search & compare (Step 7, Step 8), here part of Approval step
  - Use of MDM Web Dynpro Components Search, and Result Set
- Match (Step 9)
  - Calling MDM matching strategies supported by both Java API and Web Services API
- Approve (Step 10)
  - Web Dynpro component is displayed in UWL

Following steps are automated activities:

- Assignment (Step 3)
  - Can be implemented using functions in BPM transformations
  - By using BRM, rules can be changed during runtime, hence dynamic assignment is achievable
  - Optionally, you can execute an assignment via Web Services API
- Validation (Step 4)
  - For usability reasons, should be rather put in Web Dynpro application before creation
  - Use of MDM Web Dynpro Component Item Details
  - Optionally, you can execute a validation via Web Services API
- Rollback (Step 11)
  - Via Web Services call, see above
- Post data (Step 12)
  - Via Web Services call, see above
- Notify requester (Step 13)
  - Via email, need to call email service
  - Optionally, display approval via Web Dynpro component or via UWL

## 4.3 SAP Business Workflow

SAP Business Workflow can be used to model the sample use case within a SAP system. Master data is locally created in the SAP system, and synchronized with SAP MDM. MDM is called to prevent the creation of duplicates.

Interoperability with MDM is done via MDM ABAP API which supports besides others the following operations:

- Check out / check in
- Query (Step 1, Step 7)
- Create (Step 12)
- Invoke matching (Step 9)
- Invoke validations (Step 4)

For more details about the MDM 7.1 ABAP API, please refer to MDM ABAP API guide and MDM ABAP API Examples on SAP Service Marketplace <http://service.sap.com/instguides> → SAP NetWeaver → SAP NetWeaver MDM → SAP NetWeaver MDM 7.1 → Programming Interfaces.

You can model data entry screens such as search and create (Step 1, Step 2) as well as search and compare (Step 7, Step 8) using various technologies:

- ABAP Dynpro
- ABAP Web Dynpro
- Form step type / web forms
- Adobe forms
- Standard transaction such as MM01 for material master creation

You can start the workflow after having entered and saved the master data. This is done via an event, e.g., after having created material master data in transaction MM01, an event is automatically triggered invoking the workflow. Another option is to first start the workflow and then implement the entry page as step in the workflow, e.g., selecting in a drop down menu the type of material master that should be created which determines the workflow to be called. This is especially recommended in a data enrichment scenario where many users maintain parts of the master data. When using forms, you can automatically generate a transaction which can be called to start the workflow.

For performance reasons it is not recommended to keep the entered master data in the workflow context since you have to pass the complete master data from step to step. The workflow container only keeps the data that controls the execution of the workflow. The master data will be saved either in the respective data base tables or in a sort of staging area (custom tables). For former, you have to set a temporary status which will be updated once the data is approved and posted (Step 12). The data record is then created in MDM via create method of the MDM ABAP API. The rollback (Step 11) is done by changing the status to 'to be deleted' for instance. A background job will delete the rejected records.

By default, all dialog work items such as display worklist (Step 6), and user decision step for approval (Step 10) are displayed in the Business Workplace. As mentioned above, you can also connect SAP business workflow with UWL of your enterprise portal.

You assign users to a work item by defining agent determination rules. This allows most flexible user assignment. For the specific use case, the request for approval can be routed to the right person depending on a product category for instance. The rules can also rely on an organization plan, e.g., to forward tasks to the line manager of a user. Furthermore, it is possible to name a substitute which processes your work items for the duration of your absence.

It is possible to notify the requester about the approval decision made (Step 13). Another option would be to add a notification step to the process in order to notify the approver about work items that need

to be processed (Step 6). Notifications can be sent as email or SMS messages. Optionally you can display the approval in the Business Workplace.

### 4.4 MDM Workflow

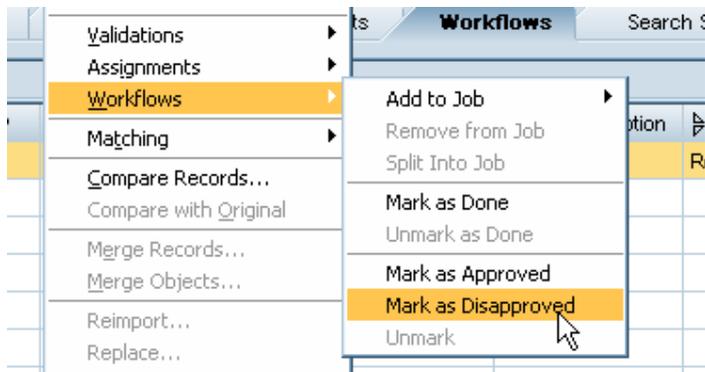
The sample use case usually runs in MDM Data Manager. Optionally, you can run it in Enterprise Portal using the configurable iViews and UWL. From within an MDM workflow, there is no workflow step provided to call a web service for instance. The only possibility to interact with other workflow tools would be via syndication of data records or using Enrichment Controller. However, for this specific use case there is no need for interoperability.

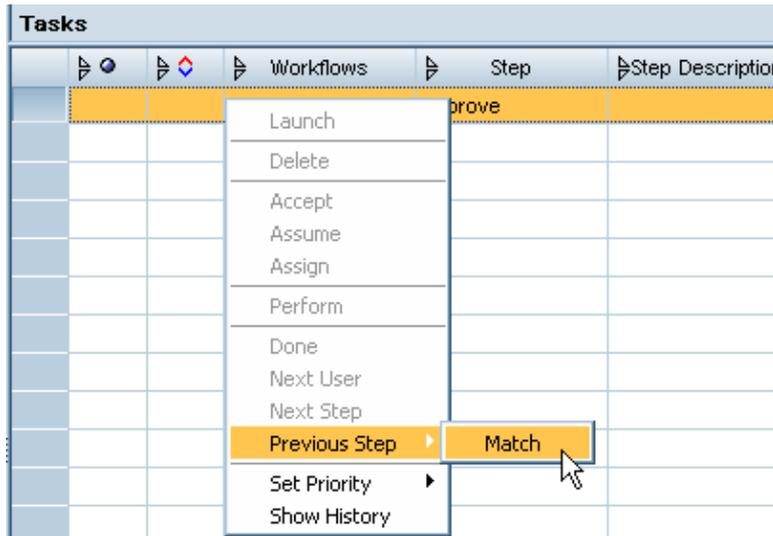
On the other side, it is possible to manage an MDM workflow from within a Java application applying MDM's Java API (packages com.sap.mdm.workflow.commands, and com.sap.mdm.workflow). However, for the MDM ABAP API and Web Services API, managing an MDM workflow is not supported.

The complete workflow would look like displayed below.

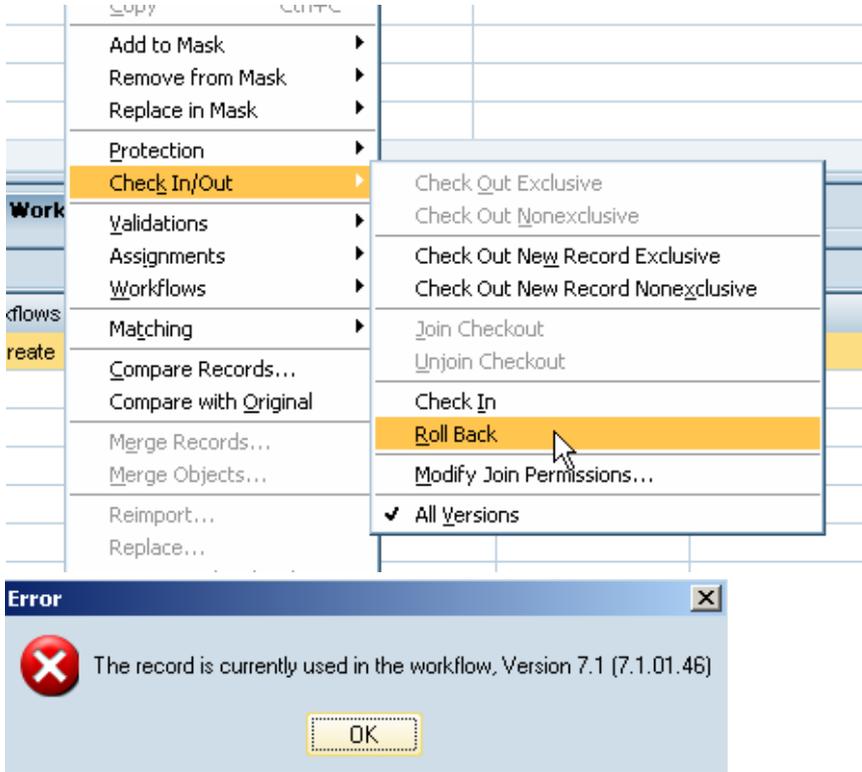


The matching and approval steps are carried out by the MD manager whereas the previous step is run by the requester. In case of a rejection, it is intended to push back the task to the requester. The issue here is that when the approval is rejected, the processing cannot be routed to any arbitrary step. It is only possible to route to the previous step, in this case this is the matching step which is assigned to the MD manager. To swap the matching step with the approval step would not work either.

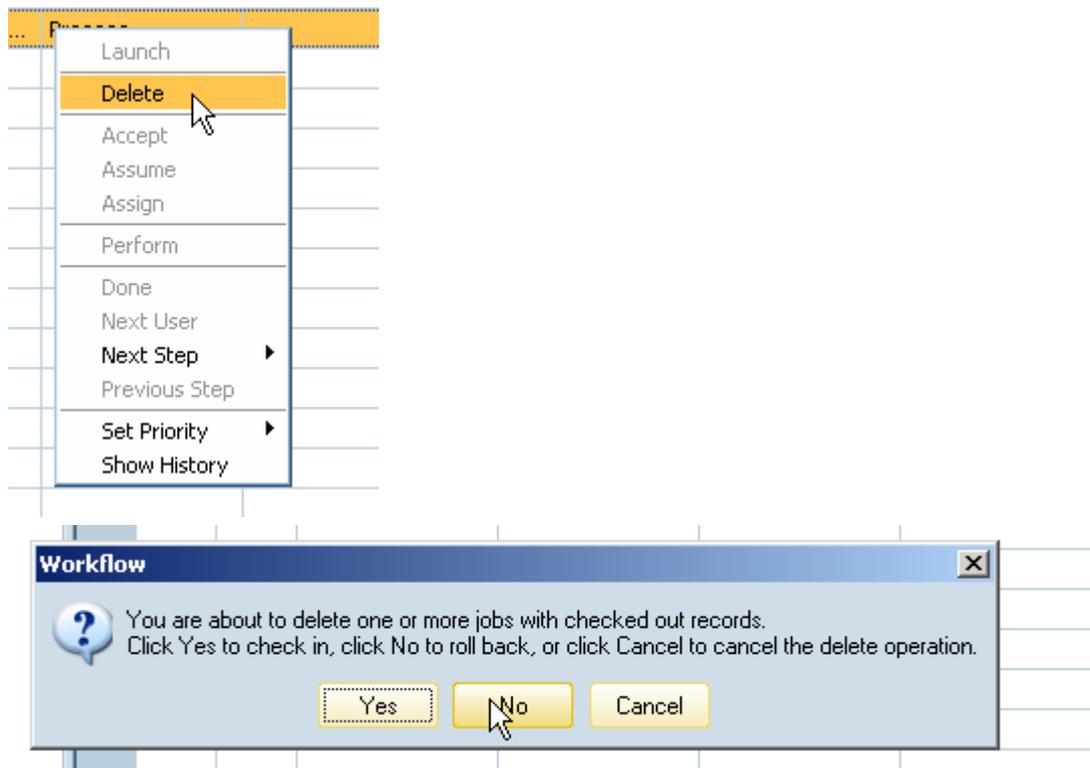




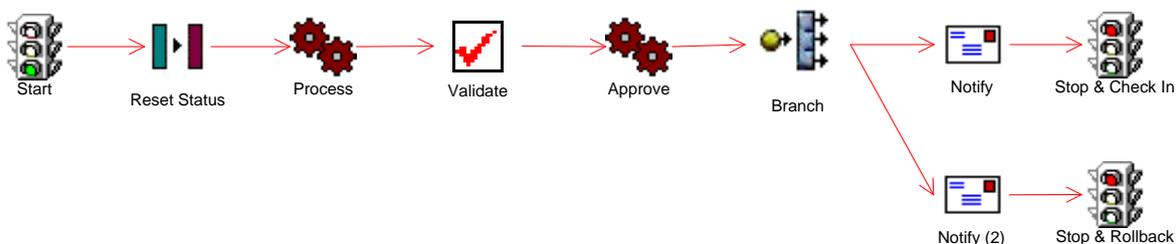
In case that the approver rejects the creation of the record, the standard rollback via context menu cannot be carried out since the record is already used and locked within the workflow.



The rollback can only be carried out by deleting the workflow, however in this case no status tracking and recording of the workflow is kept. Furthermore, only the workflow owner is allowed to delete the workflow. In most cases the workflow owner is an administrator rather than the actual approver or the requester. So, the business user needs to ask the owner to delete the job.



So, it is rather recommended to model the process by replacing the approval step with a regular process step and a branch step. The approver has to manually run either a matching strategy or a search and comparison to come to a decision. The idea is that the approver maintains a status field in the master data record. Within the branch, the status is validated which splits the course of action, either continue with approval or disapproval. You can also add a log field in the record which can carry notes from the processor such as reason of rejection or instructions.



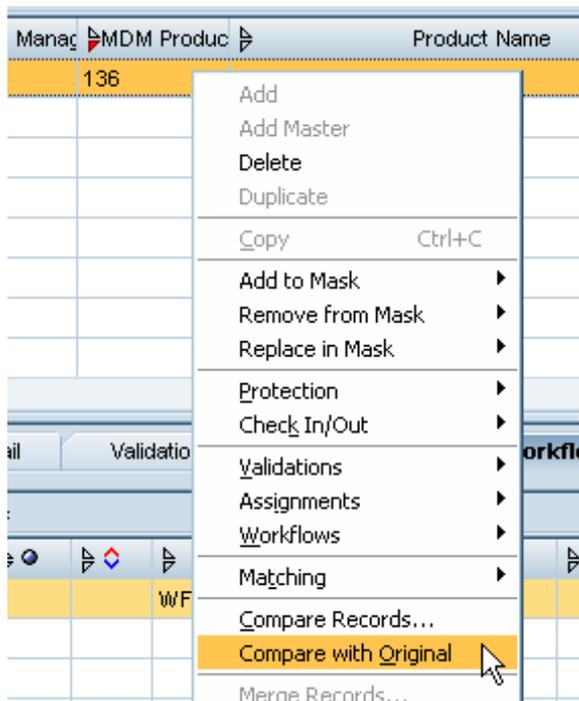
### Workflow Steps

- Search (Step 1, Step 7): is fully supported in MDM Data Manager, MDM provides very strong search capabilities.
- Create (Step 2): is done in Data Manager or via import.  
After having created the master data, the workflow is automatically launched. The workflow can be automatically launched whenever a record has been created, updated, or imported. Besides this, the workflow can be manually triggered.

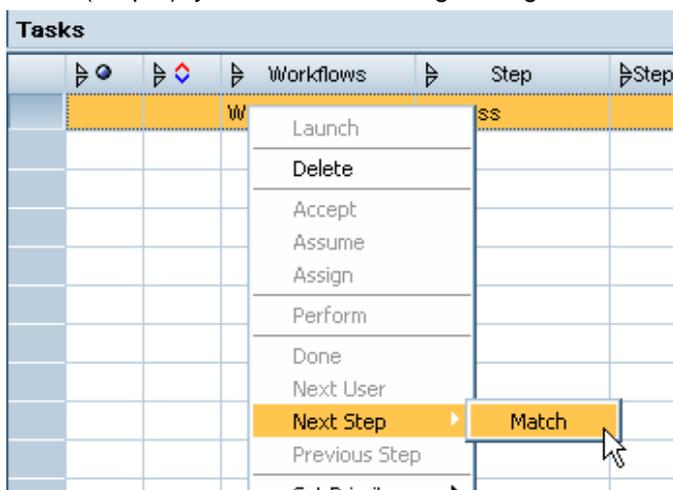
Active	Yes
Trigger Actions	Record Add; Record Update; Record Import
Autolaunch	Immediate

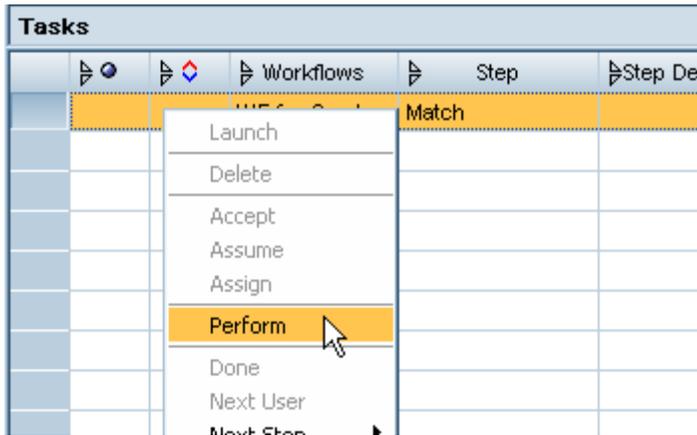
- Assignment (Step 3): can be called from within the workflow.
- Validation (Step 4): can be called from within the workflow.

- Update (Step 5): if any validation fails or approval is rejected, workflow processing is pushed back to requester who has to update the data in the Data Manager, and forward to approver again. However, notes with instructions about what has to be added or changed are not directly supported unless you add a log field, see also above.
- Display work list (Step 6): your tasks are displayed on the Workflows tab in Data Manager. Tasks are assigned to users either directly or via role assignment. There is no possibility to access an existing organization structure from your SAP system nor is it possible to define a substitute unless via role assignment to many users. The user who is available will take on the task.
- Compare (Step 8): compare new record with results of your search from context menu. In case of a record change, you can compare with the original record. Prerequisite is that data has been checked out before, see also below.

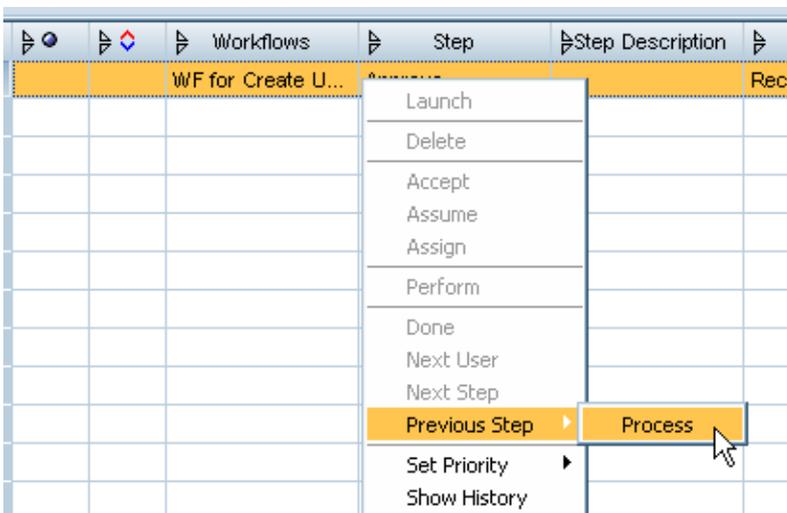
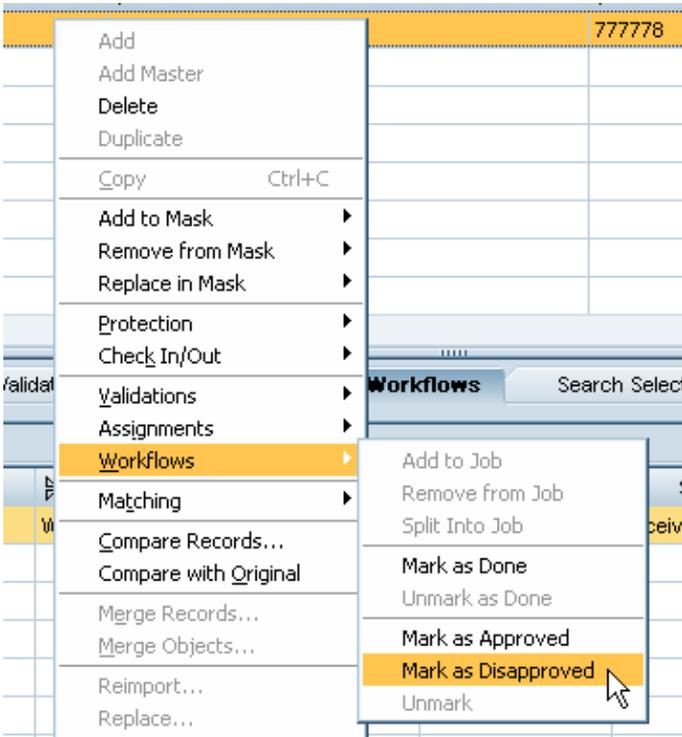


- Match (Step 9): you can run matching strategies from within the workflow.



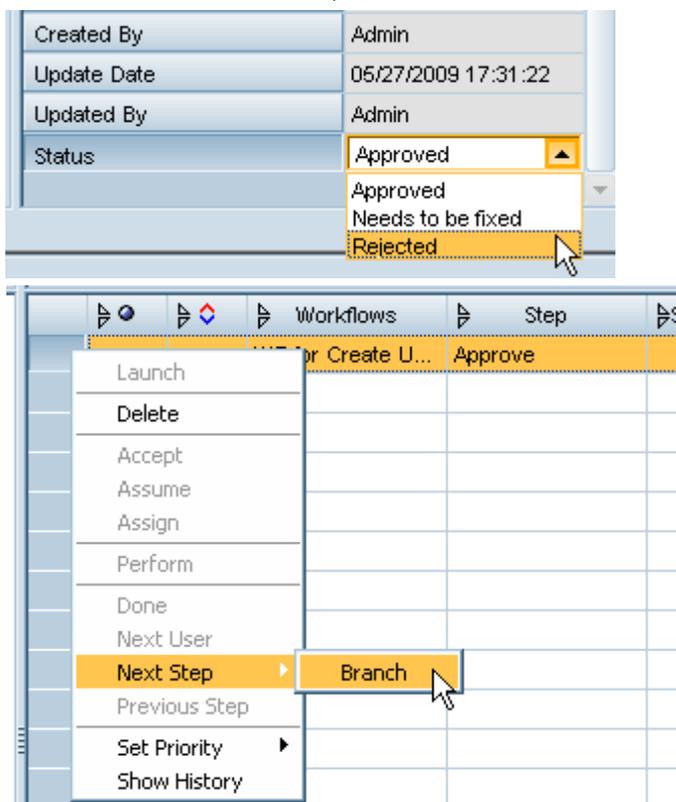


- Approve (Step 10): to approve or reject using an approval step, the record has to be marked accordingly, and then sent to either the next or the previous step.



It is not possible to branch to any arbitrary step depending on approver's decision made other than going one step forward or backward.

If you use a regular process step acting as approval step instead, the approver has to maintain the status field of the record, and then send the workflow task to the branch step.



- Rollback (Step 11): in order to be able to rollback, the newly created data has to be checked out at the beginning of the workflow. This is especially important in case of a data update to keep the original data.

Name	Start
Check Out Records	Yes
Duration Timeout	1 wk
CC: Notification	[Owner]
Send Next Step	[Anyone]
Split Job	[Anyone]

As mentioned above, when using the standard approval stencil, you have to delete the workflow to run the rollback. Otherwise when using the regular process step, the branch routes the task to the final step where the record is rolled back. In this case, the recording of the workflow is kept, pointing to no records.

<b>Step Properties</b>	Name	
	Name	Stop & Rollback
	Launch	
	Record Checkout	Roll Back

- Post Data (Step 12): as seen before, the newly created data has to be checked out at the beginning of the workflow. To post the data, the task is sent to the final step where the record is checked in.

<b>Step Properties</b>	Name	
	Name	Stop & Check In
	Launch	
	Record Checkout	Check In

- Notify Requester (Step 13): You can add a notify step in order to inform the requester that the data has been posted

<b>Step Properties</b>	Name	
	Name	Notify
	Description	
	To	Requester
	Subject	Records checked in
	Body	[E-Mail Body Text]

**E-Mail Body Text**

Hi dude,  
 records have been changed and checked in  
 Regards  
 Jeff

Besides this, MDM Workflow supports deadline monitoring, i.e., notifications can be sent in case that the processing time of a workflow step has been exceeded.

Iteration Threshold	2
CC: Notification	[Owner]
Duration Timeout	1 h
CC: Notification	MD Manager

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