



Master Data Management as a Solution – Using SAP MDM and Complementing Technologies



SAP MDM provides typical features of Data Consolidation, Management and Data Harmonization to be able to meet most of the Master Data Management needs. However, sometimes SAP MDM is not capable of providing end-to-end Master Data Solution on its own. This paper explains how other technologies can be complemented with MDM to overcome the challenges and provide a complete solution.

Background

SAP MDM (Master Data Management) supports Master data management and governance scenarios by features like, import, syndication, workflows and

matching and merging. Most of the typical master data management implementation needs are met with these out-of-the-box features. However, it falls short of meeting

certain customer specific requirements of an end to end master data solution.

For better explanation in this paper, let us define terms MDM implementation and MDM Solution:

MDM implementation : Implementation of Master data management by using out of the box features of SAP MDM.

This fits well in, green-field implementation of MDM which include establishing interfacing systems that provide the data to MDM and receive the data from MDM. Business Processes may need to be revised to suit features of SAP MDM.

MDM solution : An end to end solution that satisfies customer-specific application logic around the master data before it is made available for operational usage. This fits well in, scenarios where Master Data Management is introduced into the already existing system landscape. And there is no possibility to revise the business processes to suit feature of SAP MDM.

SAP MDM Provides features which are required for an MDM Implementation, but fails to satisfy the needs of an MDM Solution. This paper outlines, with an example scenario, how features of CE and SAP PI can be complemented with MDM to provide an MDM Solution.

Scenario

Figure 1 below depicts a typical New Product Development and Introduction (NPDI) at a high level.

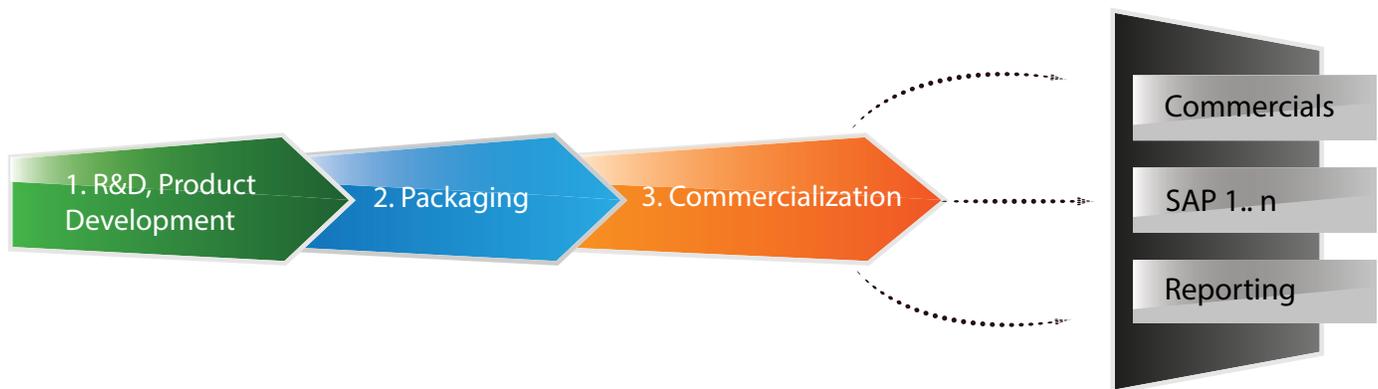


Figure 1: New Product Development and Introduction (NPDI)

1. R&D and development of the core product, Chemical (C) – E.g. A Beverage.
2. Suitable packaging development, Pack (P) – E.g. A Bottle and associated elements.
3. Creating SKU (S) by provisioning of commercial information – E.g. Brand Names.
4. Making all the above information available to the systems that enable delivery to the end customers and support reporting.

The core product could be packed in multiple configurations (A Bottle of 1 L, A Can of 600 ML etc.) and these could further have varying commercial information to suit the land where a product is sold as depicted in Figure 2 below.

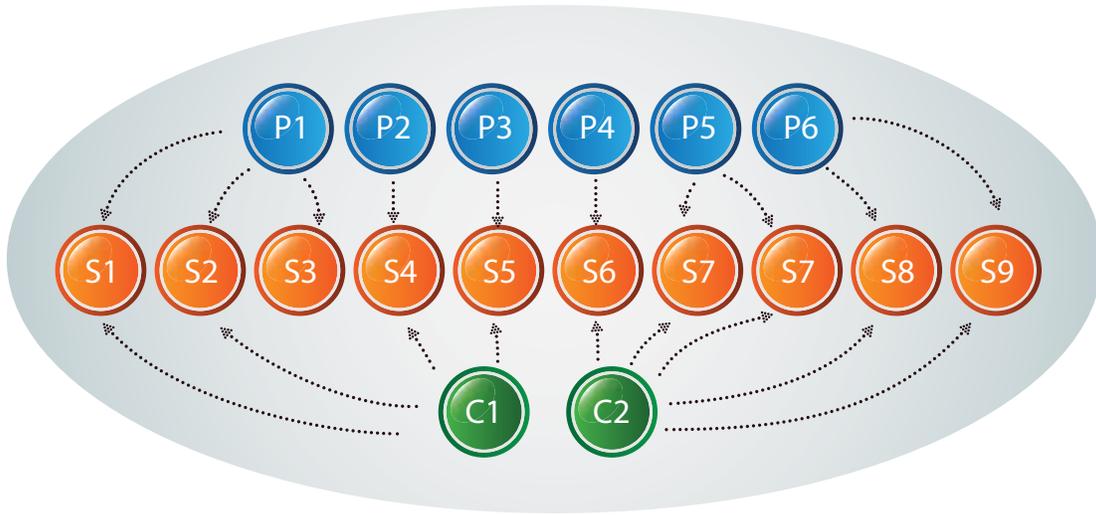


Figure 2: SKU material association structure – simplified for illustration purposes

Core Product (C), Packaging (P) and SKU (S) are products (or intermediates) and these are records on their own with associated data. There is often a need to see Core product information, Packaging

information and the Commercial information on a given SKU in SAP and other target systems.

In MDM Repository, C, P and S are modelled to be stored as separate

records as they need to be managed independently. The relationship between these record types is maintained using Lookup main field.

What SAP MDM can do?

SAP MDM Syndication process can provide record specific information to the target systems at the independent record level (S or P or C). But, it does not support the need of distributing SKU (S) along with information of Pack (P) and Core Product (C). This is due to the reason that MDM can syndicate the individual main table records but not associated records based on the established relationship.



What is the Solution?

One should look at the below features of complementing technologies to arrive at an MDM Solution for the described scenario.

- **SAP Composition Environment (CE) :** Provides infrastructure to create enterprise class web service which in

turn can consume MDM web services that are deployed on CE.

- **SAP MDM :** Provides the ability to create Web Services to expose its data to external systems.
- **SAP Process Integration (PI) :** Provides infrastructure to invoke a Web Service

that is deployed on the SAP CE.

Exploit these features (along with others) and complement them with SAP MDM as depicted in Figure 3 below to provide an MDM solution.

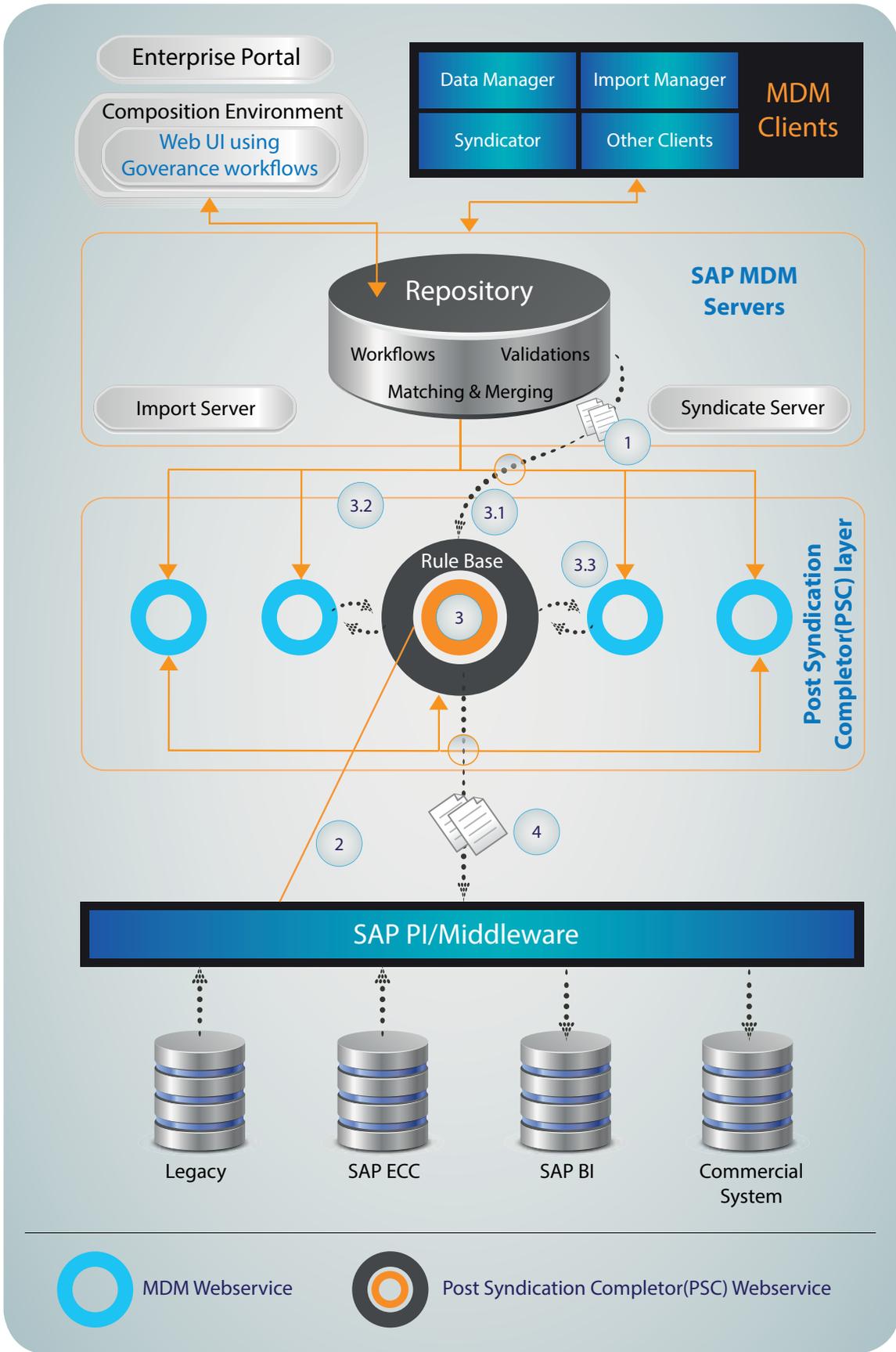


Figure 3: Master Data Solution with Post Syndication Completer (PSC)

Steps involved in creating CXM are described in detail below:

No.	Step
1	<p>XML Message generated whenever an SKU record is created or updated. XML Message contains all the information that is maintained on the SKU. This includes associated product numbers of Packaging and Core Product.</p> <p>Example syndicated XML message :</p> <pre><Product> <Product_Type>P</Product_Type> <Product_Number>4444</Product_Number> <Product_Name>A bottle of beverage</Product_Name> <Pack_Product_Number>8888</Pack_Product_Number> <CoreProduct_Number>5555</CoreProduct_Number> </Product></pre>
2	<p>When a syndication event is triggered by MDM and XML message is generated, SAP PI identifies this event and invokes PSC by making a Web service call. Scheduling the web service calls by SAP PI provides better control and flexibility. Other scheduling tools can be looked at depending on the infrastructure availability.</p>
3.1	<p>PSC Reads the XML message from the MDM outbound folder. And based on Product type, it reads the rule base to find out how to complete the XML message for the incoming product type (S or C or P). In our example incoming product type is S. Typical rules are:</p> <ul style="list-style-type: none"> • net weight of the SKU (S) = capacity property of the Packaging (P) • product colour of SKU (S) = colour property of Core product (C)
3.2	<p>Rule base is defined with qualifiers (like product type and few other product properties) to make it scalable.</p>
3.3	<p>Standard wizard generated MDM Web services are used to read the data from MDM. In this example, read data of Packaging and Core product which are associated with SKU.</p>
4	<p>A complete xml message (CXM) is created by PSC by,</p> <ul style="list-style-type: none"> • Retaining the information syndicated by MDM for SKU • Adding additional segments with values from Packaging and Core product <p>Produced CXM is then placed into PSC's processed folder. After that CXM is picked up by SAP PI and distributed to the target systems.</p> <p>Example CXM :</p> <pre><Product> <Product_Type>P</Product_Type> <Product_Number>4444</Product_Number> <Product_Name>A bottle of beverage</Product_Name> <Pack_Product_Number>8888</Pack_Product_Number> <CoreProduct_Number>5555</CoreProduct_Number> <Net_Weight>10Kg</Net_Weight > <CoreProduct_Colour>White</CoreProduct_Colour > </Product></pre> <p>Segments in <i>italic font</i> above are added by PSC.</p>

In this paper PSC is explained with a simple scenario for the ease of explanation. The infrastructure established with PSC here is scalable to accommodate further customer-specific business logic on the data before its distribution. Implementing such logic on standard MDM is not possible.

Conclusion

SAP MDM has all the features that are required for a typical Master Data Management Implementation. What it lacks is an application development infrastructure. SAP MDM can be complemented with other technologies to fill this gap in creating Master Data Solutions as described with an example, in this paper.

As multiple technologies are involved, the SI partner should be experienced enough to exploit the right tool to the right extent else, one could end up with more issues than solutions.



About the Author

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S.S. Swamycharan Avunooru has 15 years of IT and solution architecture experience in the manufacturing and life sciences domain. His experience includes architecting and delivering the solutions in enterprise information management, product lifecycle management, and related areas, using technologies like SAP, PTC, Microsoft and Java. He holds a master's degree in engineering from Indian Institute of Science.



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