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# Misaligned Master Data Is a Compromised Corporate Asset

## Streamline Master Data in Heterogeneous Landscapes with SAP NetWeaver Master Data Management



**Markus Ganser** is a member of the product management team for SAP NetWeaver Master Data Management. He can be reached at [markus.ganser@sap.com](mailto:markus.ganser@sap.com).

Just as defective machines cannot produce high-quality goods, inconsistent and unstable information can compromise the sound operation of a business, creating tiresome quality gaps and error-prone business processes. Companies are becoming increasingly aware that data is a corporate asset – just like machinery – with enormous cost-saving potential. Accordingly, they're looking for ways to improve the integrity and maintenance of their master data (see sidebar below).

But maintaining high-quality, cleansed, operational master data is often complicated by heterogeneous IT landscapes – even in stable company structures – where each individual application runs on its own local base of master data. Company mergers and acquisitions can further aggravate the problem (see **Figure 1** on page 68).

To streamline master data in these heterogeneous IT environments, enterprises would be well served to reevaluate their master data strategy with a renewed

focus on data quality and synchronization – and to ensure they have the technology infrastructure in place to support it. Though some may have considered single-purpose solutions – such as extract, transform, and load (ETL) or product information management (PIM) solutions – for maintaining their master data, what's needed is a more holistic, integrated master data solution.

### Remember the Master Data Fundamentals

When evaluating their master data strategy, companies should focus on two of master data's essential characteristics:

- 1. It's nonredundant.** As heterogeneous IT landscapes become more common due to mergers, acquisitions, and the tendency toward globalization, redundant data can quickly become a rampant concern. An acquired company, for example, will likely have wholly different ways of storing supplier data than the purchasing company. Or a company

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Whether you're trying to optimize acquisition costs, identify new cross-sales possibilities, or create product categories efficiently, unified data — as a result of a sound data management strategy — is key to decisive competitive advantage.

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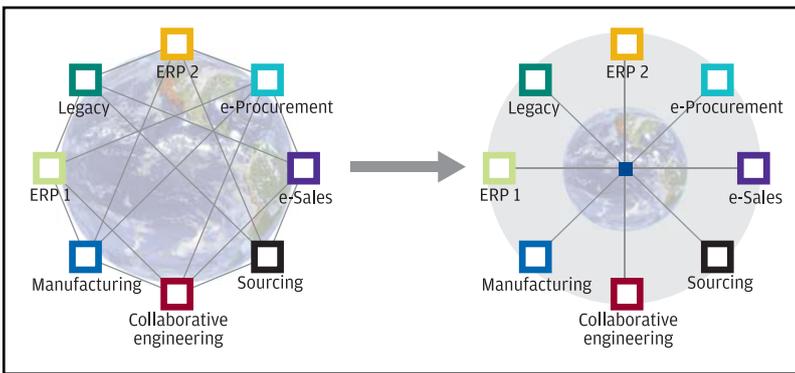
### Master Data – Consider It a Corporate Asset

Master data, or reference data shared by several disparate IT systems and groups, forms the basis for all enterprise operations. Master data can include:

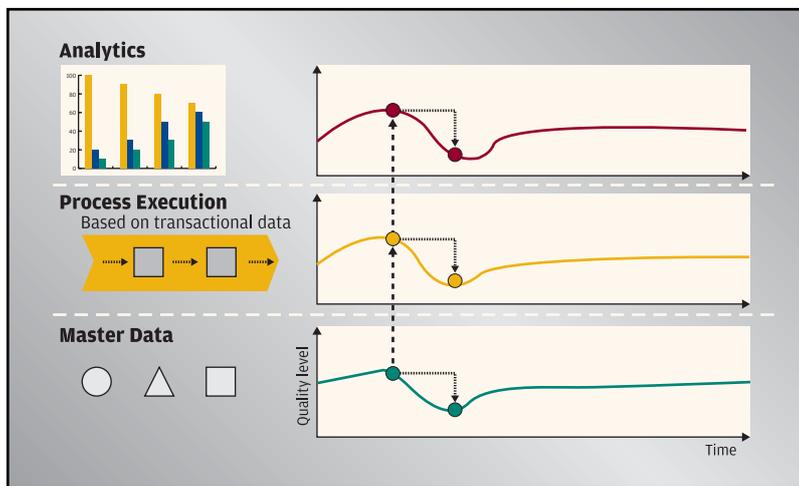
- Business partner (customer and supplier) objects
- Product (material) objects
- Article objects
- Employee objects
- Any kind of custom-developed object types

Without high-quality master data, companies find themselves unable to reliably and consistently answer simple questions – *What products do we offer? Who are our customers? Who are our suppliers?* – that are critical to a company's ability to improve operational efficiency and significantly reduce costs.

Consider, for example, a company that must ask its own supplier how much material it typically buys in a year because it lacks a single source of accurate supplier data to reference. This company will be in a poor – if not embarrassing – negotiating position when drawing up next year's supplier contract.



**FIGURE 1** ▲ With multiple countries and diverse business functions relying on master data, rigid, point-to-point data connections are vulnerable to redundancy and quality issues; but a consolidated underlying layer of information paves the way for clean, high-quality master data



**FIGURE 2** ▲ The bottom-up impact of master data: Master data quality affects the quality of process execution and analytics

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Maintaining a single source of up-to-date and high-quality data in varied scenarios requires a consolidated underlying layer of information. This is exactly where SAP NetWeaver Master Data Management comes in.

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may maintain supplier information in a legacy system using one ID and maintain that same information in SAP ERP using a different ID. Companies can benefit from considerable savings by detecting and eliminating duplicates in their master data and storing that data in a central repository.

- 2. It's consistent and of high quality.** Business processes all across the company rely on master data, so its quality is of paramount importance. Maintaining *high-quality* data means matching that data with given business rules. For example, if you can ensure that your customer address data is correct prior to launching a marketing campaign, you can save a lot of money by avoiding double shipments and returns. The graph of critical enterprise data shown in **Figure 2** paints a picture of how the quality of master data affects the quality of transactional data (the data used for business

process execution) as well as analytical data. If the master data quality decreases temporarily during a merger and acquisition phase, for example, business processes and related enterprise analyses will very likely have similar quality issues.

Maintaining a single source of up-to-date and high-quality data in varied scenarios requires a consolidated underlying layer of information. This is exactly where SAP NetWeaver Master Data Management (SAP NetWeaver MDM) comes in.

### SAP's Holistic Approach to Master Data Management

Because of companies' unique, versatile, and multi-layered processes, single-purpose solutions – such as ETL or PIM solutions – cannot sufficiently eliminate redundant data or improve data quality in heterogeneous system landscapes. ETL and PIM solutions approach the master data issue by focusing only on certain aspects, like streamlining data imports, or on specific object types, such as product data.

Companies instead need a holistic approach to master data consolidation that accounts for the ability to process different master data objects, deliver predefined business content, and model new master data objects.

To protect the investments that companies have already made in their infrastructures, SAP NetWeaver MDM follows such a holistic approach to tackle master data issues. It provides predefined business content that can be used in both SAP and non-SAP systems thanks to its model-driven concept, which provides full flexibility in modeling custom master data objects.

SAP NetWeaver MDM can easily be integrated into existing IT landscapes with little deployment effort. It integrates with SAP NetWeaver's usage types, including its business intelligence, process integration, and portal capabilities, while its modular approach allows it to function as an almost fully independent, standalone engine. SAP NetWeaver MDM can be operated either in an administrative environment (through rich front-end clients) or through the portal (a thin client).

### Scale MDM to Your Needs: 6 Options for Unifying Your Data

SAP provides six scenarios – or approaches to working with SAP NetWeaver – to help companies maintain their master data while at the same time

supporting a flexible, innovative IT environment (see sidebar below). Companies should evaluate these scenarios based on the scope and goals of their particular MDM effort.

**1. Master Data Consolidation** – In this scenario, users wield SAP NetWeaver MDM to collect master data from several systems at a central location, detect and clean up duplicate and identical objects, and manage the local object keys for cross-system communication. With this consolidated data, users can access the information they need to perform company-wide analyses and consolidated reporting.

**2. Master Data Harmonization** – This scenario enhances the Master Data Consolidation scenario by forwarding the consolidated master data information to all connected, remote systems, thus depositing unified, high-quality data in heterogeneous system landscapes. With this scenario, you can synchronize central data contents – that is, globally relevant data – based on your results. For example, you can assign the same address to all occurrences of a particular customer.

**3. Central Master Data Management** – Whereas the emphasis in the Master Data Harmonization scenario is on local data maintenance, the Central

✓ **NOTE!**

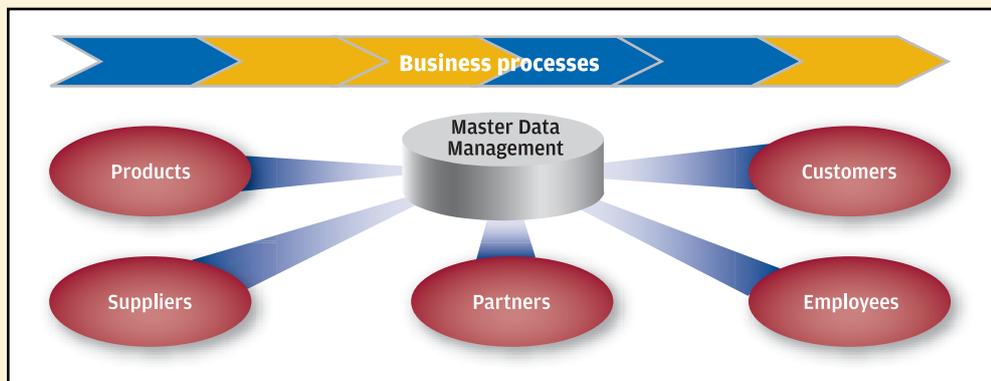
The IT, data consolidation, and industry scenarios discussed in this article are available with the current MDM release, SAP NetWeaver MDM 5.5 SP5. The Global Data Synchronization scenario also requires SAP NetWeaver MDM Global Data Synchronization software.

## Moving to SOA? Then Consider Master Data Management for Service-Oriented Success

IT landscapes today are quickly gravitating toward dynamic environments enabled by service-oriented architecture (SOA), where specific master data strategies play an important role. Business processes work successfully within the context of dynamic services only if they are founded on reliable information – that is, consistent reference data. Why? Because processes cannot successfully exceed application boundaries if they do not know how key master data should be translated and interpreted in these systems. Prior to shifting to service-oriented architectures, companies must cleanse their data across system boundaries; otherwise business processes will get stuck on these issues.

Unifying data through SAP NetWeaver Master Data Management supports and significantly speeds up this process. Through the IT scenarios associated with the IT practice Data Unification,<sup>1</sup> SAP NetWeaver MDM compares and harmonizes central master data in system landscapes, ensuring that your enterprise services access is up to date and your data is consistent. As a result, cross-company business processes can be fully integrated and can all function from a single version of data (see figure below).

SAP NetWeaver MDM also provides direct support through ID mapping, especially in heterogeneous environments. Utility services based on SAP NetWeaver MDM guarantee easy access to this ID mapping information and to mapping mechanisms for enterprise services, ensuring, for example, that a credit review is accurate – even if the customer is known in multiple systems by different or duplicate IDs.



▲ Cross-system business processes can all function from the same data, thanks to SAP NetWeaver MDM

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“Without a Master Data Management (MDM) capability, we believe it will be challenging for any company to move to a service-oriented architecture.”

— JP Morgan Chase

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<sup>1</sup> For more on SAP's IT practices and scenarios, please see <http://service.sap.com/it-scenarios>.

## Tailor MDM to Your Industry-Specific Needs

Besides its ability to scale according to data unification needs, SAP NetWeaver MDM can be flexibly streamlined to specific industry requirements through each of the MDM-related IT scenarios. Industries and sample use cases include:

- **Consumer goods:** Consolidating product and vendor data
- **Health care:** Harmonizing patient data among hospitals, health insurance companies, and doctors' practices
- **Public service:** Consolidating residents' data across multiple administrations and administrative instances
- **Automotive:** Combining and structuring product data according to standard classifications

Thanks to the open integration capabilities of SAP NetWeaver, the possibilities for integrating processes and data across industries could be endlessly extended.

Master Data Management scenario focuses on cleansing data in the central data repository. It then distributes the cleansed data to the connected application systems.

**4. Rich Product Content Management** – This scenario is intended for the product information management (PIM) market, as it offers many functions for managing product data and corresponding image files centrally via SAP NetWeaver MDM. It can also be used to prepare for publishing product catalogs, either in electronic Web format or in print.

**5. Customer Data Integration** – The Customer Data Integration scenario lets you harmonize customer master data records across heterogeneous systems.

**6. Global Data Synchronization** – Through Global Data Synchronization, unified object information is synchronized with data pools, such as UCCnet and Transora, in a standard industrial format, then provided to trading partners.

Through these different ways of using the capabilities of SAP NetWeaver MDM, companies can structure a master data strategy around their data unification goals – based on their unique business processes, organizational structure, or industry (see sidebar at left).

### A Closer Look at the Data Consolidation Scenario

To give you a sense of what these IT scenarios mean in practice, let's drill down into the data consolidation example, which is a great starting point to unify data. Here's a quick overview of how you might use this scenario to consolidate and clean up your company's master data:

**1. Identify master data duplicates.** Beyond its ability to merge specific master data records into a central repository, SAP NetWeaver MDM provides an interactive way to detect similar master data objects: a fully parametric search. In this context, a comparison screen shows you the level of similarity between different records (see **Figure 3**).

SAP NetWeaver MDM also enables semi-automated matching. In a specific matching mode (see **Figure 4**), you can define transformations, substitutions, and matching rules – and bundle these rules into matching strategies. According to a matching strategy, for

Manufacturer	Company 1	Company 1	Company 1	Company 1
Part Number	15-515	15-220	16-193	27-942
Name	½" 12-Point Socket Set	¼" Socket Set	Drive Set	Ignition Wrench Set
Category	Assembly & Fastening Tool Sets	Assembly & Fastening Tool Sets	Assembly & Fastening Tool Sets	Assembly & Fastening Tool Sets
Specialty Area				Automotive
Contains	Socket/s; Handle/s; Ratchet Handle/s; Adapter/s; Extension/s; Combination Wrench/es; Plier/s	Socket/s; Bit Socket/s; Handle/s; Ratchet Handle/s; Spinner Handle/s; Adapter/s; Extension/s; Plier/s	Socket/s; Handle/s; Adapter/s; Plier/s	Plain Wrench/es; Plier/s
Unit System	Inch	Inch	Inch	Inch
Drive Type	Square	Square	Square	
Drive Size [Nom]	½ in	¼ in	¼ in	
Quantity	27 per case	53 per case	53 per box	9 per roll
Weight	19.080000 lb	6.270000 lb	6.270000 lb	0.640000 lb
UNSPSC	Nut drivers	Nut drivers	Nut drivers	Nut drivers
Creation Date	11/23/2004 18:59:42	11/23/2004 18:59:50	11/23/2004 18:59:28	11/23/2004 18:59:59
Update Date	08/26/2005 11:43:44	08/26/2005 11:43:44	11/24/2004 12:13:26	11/24/2004 12:23:48
Updated by	admin	admin	admin	admin
Item Status	Active	Active	Active	Active
Images				
Features	Steel case.	Steel case. Designed with the professional in mind.		Vinyl roll.

**FIGURE 3** ▲ SAP NetWeaver MDM reveals similarities and differences between records through its parametric search, and displays the objects in a comparison view

example, SAP NetWeaver MDM will calculate scores for the probability that specific records are duplicates. You can then compare potential duplicates and merge any objects that are in fact repeated.

**2. Use a validation framework to check the consistency of your master data.** With SAP NetWeaver MDM, you can use validations to help ensure that your centrally stored master data is accurate and can be consumed by the connected remote systems. You can use validation expressions, such as the one shown in **Figure 5**, to perform all sorts of specific quality tests. These tests implement sophisticated business logic into your validation, making them far more advanced than simple data integrity checks.

**3. Ensure the quality of your master data across systems.** SAP NetWeaver MDM enables you to seamlessly integrate services of third-party business information providers to optimize the quality of data.

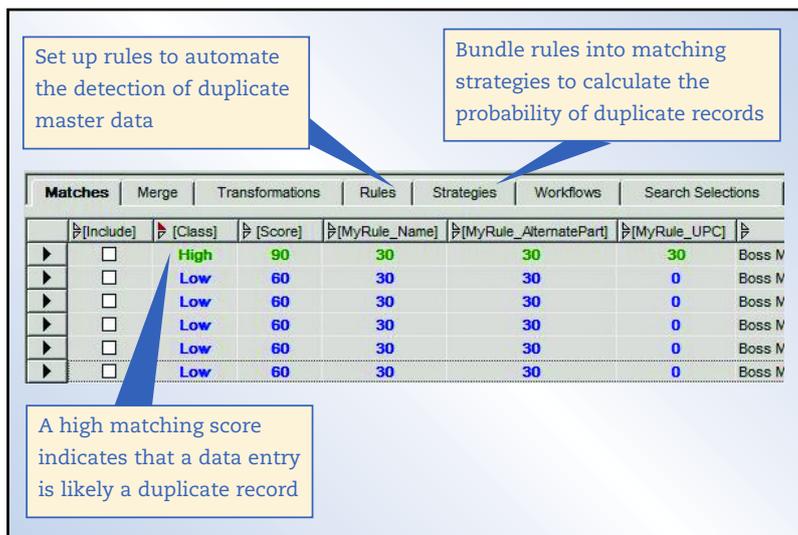
**4. Ease master data maintenance.** All major processing steps in master data maintenance can be supported through MDM workflow mechanisms. For example, the MDM workflow design-time environment, which is based on Microsoft Visio, allows you to set up a process workflow for master data maintenance by choosing from a series of workflow steps (see **Figure 6**). With a clear workflow, master data maintenance becomes easily repeatable – an essential characteristic of a successful MDM strategy.

These are just a handful of ways the Master Data Consolidation IT scenario can help you apply targeted SAP NetWeaver MDM functionality to your master data strategy.

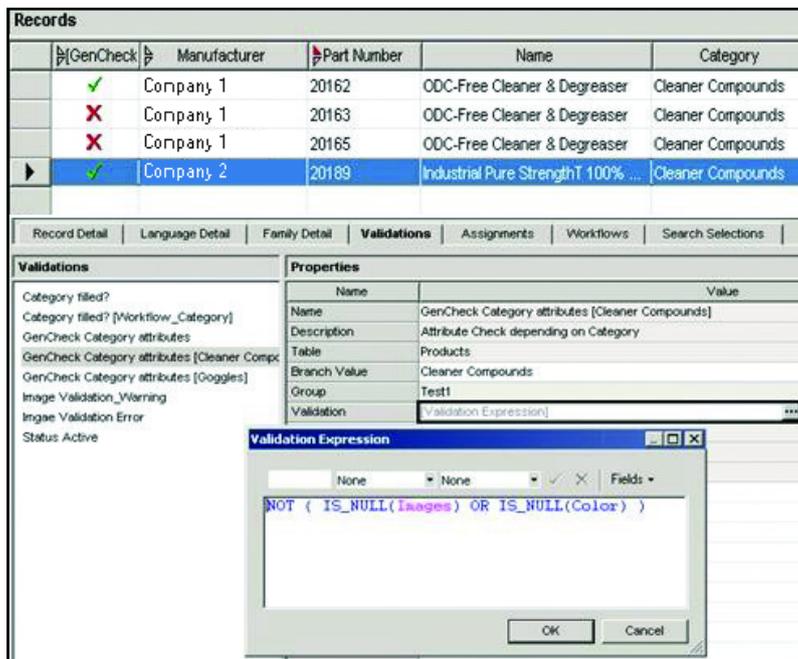
### Conclusion and a Look Ahead

To exploit the cost-saving potential and business value of enterprise information, companies must carefully consider their master data. Is it consolidated and being used to run business processes more efficiently? Or is it redundant and of low quality, leading to an inability to pinpoint the most accurate, up-to-date information? If it's the latter, your company will not be able to capitalize on strategic opportunities, nor will you be able to optimize the business processes you already have in place.

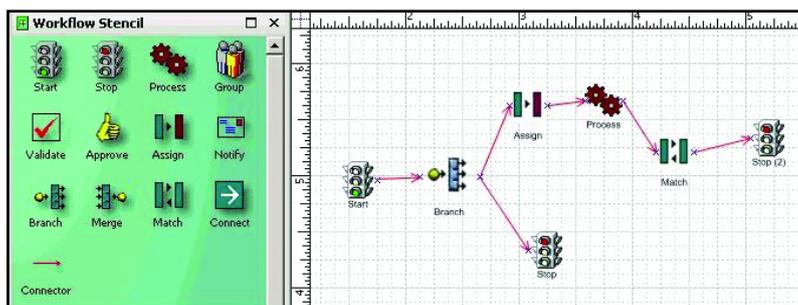
SAP NetWeaver Master Data Management enables enterprises to maintain the integrity of their master data – and get the most value from it. SAP



**FIGURE 4** ▲ A matching mode within SAP NetWeaver MDM partially automates the detection of duplicate records



**FIGURE 5** ▲ Validations help ensure the consistency of your master data



**FIGURE 6** ▲ The SAP NetWeaver MDM design-time environment, displayed through Microsoft Visio, offers workflow options and visually depicts the MDM maintenance workflow you create

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NetWeaver MDM's related IT scenarios support organizations from a variety of industries to consolidate and harmonize master data, even across heterogeneous landscapes. As a result, companies can make strategic decisions with confidence, knowing they are relying on accurate, consistent data. And they will have the foundation in place to move effectively toward a service-oriented architecture.

SAP will continue to develop its scenario-driven approach to SAP NetWeaver MDM; our product definition, product management, and software development teams are collaborating to further enhance the product according to market requirements. They'll also evaluate new scenarios and business content for integration with the next major release of SAP NetWeaver MDM.

For more about what you can expect from SAP NetWeaver MDM, please visit [www.sdn.sap.com/irj/sdn/mdm](http://www.sdn.sap.com/irj/sdn/mdm). You can find information specific to consolidating data by clicking on the *Data Consolidation* link. ■

## Additional Resources...

...from **SAP** insider 

- "Intel Masters Master Data" by Evan J. Albright (*SAP NetWeaver Magazine*, Winter 2007, [www.NetWeaverMagazine.com](http://www.NetWeaverMagazine.com))
- "Centralize, harmonize, and distribute your master data with SAP NetWeaver Master Data Management (MDM)" by Klaus David (*SAP Professional Journal*, May/June 2006, [www.SAPpro.com](http://www.SAPpro.com))
- *SAP NetWeaver Master Data Management* by Loren Heilig, Steffen Karch, Roland Pfennig, and Christiane Hofmann (SAP PRESS, [www.sap-press.com](http://www.sap-press.com))
- The **Administration and Infrastructure 2008** conference in Orlando, March 26-28, 2008 ([www.sapadmin2008.com](http://www.sapadmin2008.com))