Master Data Is the Key To Successful S/4HANA Transformation

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1. Introduction

First launched in 2015, SAP S/4HANA represented a significant shift in the way SAP's ERP works, greatly improving speed and performance thanks to the introduction of in-memory simplifications. When it was launched, Forbes noted that SAP S/4HANA represented "the biggest update to SAP's Enterprise Resource Planning (ERP) platform in over two decades."

Since that initial launch, many organizations have made the transition to SAP S/4HANA from SAP ECC. The organizations with successful digital transformations have unlocked benefits from SAP S/4HANA , including simplified IT management and administration, increased cost effectiveness through better decision making, and improved speed based on access to live data.

Implementing a new ERP is always a complex, with many opportunities for the project to go off the rails. This is true whether you're moving to S/4HANA from SAP ECC or a completely different system, such as Oracle or Maximo. No organization would undertake a project of this magnitude without expecting major benefits.

In addition to our asset management solutions, Prometheus Group offers implementation services for both SAP and Oracle. One thing we've noticed is the expected benefits vary from company to company, but the maintenance department almost always wants the same thing:

1 **Better Maintenance History:** More accurate and complete maintenance history can help you build better budgets, reduce your overall maintenance costs, and make better purchasing decisions.

2 **Better Preventative Maintenance:** This can help improve planning and scheduling and increase equipment life. More accurate PM tracking will help you to fine tune your program and make it more effective. We're also seeing more organizations try to make the leap to a more predictive model.

In short, maintenance departments want better outcomes. The problem is that implementing a new ERP is not going to provide those on its own. What you really need to achieve either of those aims is high-quality data, and no ERP implementation is going to give you that. If your data is bad now, it will still be bad in the new system. Bad data means the expected benefits may never materialize. Even if the new ERP has advantages over the old system, it will still not provide all of the benefits it could.

Data is fundamental to realizing the benefits of your new ERP. S/4HANA serves a digital core for your processes, ensuring all applications are interconnected. This capability allows access and use of detailed data in real time with no loss of information. We'll detail some of the specific benefits of S/4HANA below but unlocking any of them relies on having high-quality data to begin with. The quality of your data impacts both the benefits you

can expect to receive, and the length of time it will take for you to realize them.

In short, data is the single most valuable currency when it comes to successful deployments of S/4HANA. In this paper, we'll examine the benefits of S/4HANA transformation, the risks associated with these implementations and the best ways to overcome them, and how to ensure the master data used as a foundation is complete and free of errors.

2. Comparing S/4HANA to SAP ECC

S/4HANA is often viewed as the successor of SAP ECC, but it is not an update. It is a completely new system with several critical differences.

The roots of SAP ECC go back to SAP R/3, officially launched in 1992. SAP brought out various releases of the software throughout the 90s. SAP ECC, released in 2004, was a new version with revised technical architecture. SAP released new versions and enhancement packs until 2015 when SAP S/4HANA was launched.

As we mentioned above, several key items distinguish S/4HANA from its predecessors. For example, ECC could be run on multiple databases, such as Oracle and DB2. In contrast, S/4HANA can only be run on a HANA database. S/4HANA does away with summary, index, and history tables, replacing them with line-item tables. In addition, HANA database tables are column-based in S/4HANA. This increases speed as a result of parallel processing and fewer distinct values.

Prometheus Group created the infographic shown to the right to highlight the differences between SAP ECC and S/4HANA from the perspective of data migration. As you can see, there are critical differences in how these systems collect and process data.

3. The Benefits of S/4HANA

Most companies using SAP ECC are likely to transition to S/4HANA sooner or later. If nothing else, SAP has indicated they will stop supporting ECC in 2027, with options for customers to extend support up to 2030. A few organizations will elect to keep using ECC past that date, but for most companies currently using ECC, an

S/4HANA transformation lies in their future. Given the need for this transformation, it's a good thing there are clear benefits to implementing S/4HANA.

The precise benefits you realize will depend on your organization, your needs and, of course, your data. However, the greatest value for any organization comes from how SAP S/4HANA allows you to streamline processes and workflows.

This is because, in developing S/4HANA, SAP moved away from traditional databases and their inherent technical restrictions.

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14 Major Differences
between SAP ECC and SAP S/4HANA

1	S/4HANA can be run either in the cloud or on premise
2	S/4HANA can only run on a HANA Database, while ECC can be run on multiple databases (Oracle, DB2, etc.)
3	SAP FIORI Apps are available in In S/4HANA for performing activities and generating reports in real time
4	HANA database tables are column based in S/4 HANA, resulting in speed from fewer distinct values and parallel processing
5	In S/4HANA there are so summary tables, index tables or history tables - instead on line item tables are used
6	S/4HANA employs a single line item table ACDOCA-Universal Journal, combining GL, AP, AR, FI, AA, CO & ML tables
7	Inventory management is reduced from 26 tables to a single table, MATDOC (Material Document line item)
8	Material Ledger is mandatory and helps for valuation in two additional currencies in S/4HANA
9	In S/4HANA, parallel ledger is a prerequisite for new asset accounting
10	Cost Elements are merged as GL accounts in S/4HANA, resulting in no need for reconciliation from CO to FI
11	In S/4HANA, customer and vendor are integrated as "Business Partner"
12	Material numbers have been increased to 40 characters in S/4HANA **+40**
13	In S/4HANA pricing table "KONV" is replaced by new table "PRCD_ELEMENTS"
14	S/4HANA includes migration cockpit.

Simplified Landscape, Mobile Ready

S/4HANA eliminates data silos and enables a seamless digital core by running in-memory, with all data stored in columns. This allows for real-time analytics and improved decision making by giving all departments a clear view of pertinent data. In turn, the ability to generate reports and analytics based on live data improves your responsiveness and performance.

The IT landscape at your organization is likely very complex. This complexity can make it difficult to integrate applications. S/4HANA simplifies this landscape enormously, enabling centralization of network resources and hardware. As noted above, S/4 uses column-based tables to increase performance and speed.

Hand-in-hand with the ability to present reports based on live data, the user interface for S/4HANA is built around SAP Fiori, ensuring that the insights generated by the system can be viewed on any mobile device. The user experience in S/4HANA is also role-based, helping to increase productivity and reduce training time by ensuring users see the data they need without having to scroll through page after page of irrelevant reports.

4. Mitigating the Risks of Implementation

Data migration is the biggest risk you face when implementing SAP S/4HANA. Much of the benefit of S/4HANA comes from access to live data. However, these benefits will not materialize if the data enabling the system is inaccurate or otherwise of poor quality. Both master and transactional data must be smoothly migrated from the old system to the new one. A failed data migration can scuttle the entire project. Even if it doesn't end the implementation completely, it will certainly cause delays in getting the system running and extend the time it will take to realize the benefits of S/4HANA.

The data migration process touches every part of the S/4 transformation. These are just a few of the problems caused by a poorly executed data migration process:

- **Reduced efficiency:** Staff spend significant time trying to work around incomplete or inaccurate data, instead of accessing clean trustworthy data to gain valuable insights into processes and workflows.
- **Budget overruns:** Many organizations choose to address data issues by adding more resources or extending the time for the project. Some organizations will do both. These costs can be avoided by ensuring reliable, accurate master data is available before, during, and after the migration.
- **Missed deadlines:** Data that isn't in business-ready form causes further delays and leads to missed deadlines on operational commitments. In some cases, this can end up delaying the entire implementation, with a corresponding loss in production, efficiency, and revenue.

Developing a Data Migration Strategy

A data management and migration strategy are essential for a successful transition to SAP S/4HANA. Data residing in existing systems should be assessed, and a plan developed that outlines how it will be moved and maintained. Your data management strategy will play a large part in how quickly you realize a return on investment from implementing S/4HANA.

- **Key stakeholders:** Identify who the key data stakeholders are and how they will be involved before, during, and after data migration.
- **Standards:** Standard must be defined for data quality, data mapping, and transformation. Once these standards are defined, an automated tool can be used to execute these tasks in a way that is sequential and properly structured. The new system should enforce these standards for any new data entered into the system.
- **Data quality and monitoring:** : Use a "4C" approach to data quality: completeness, consistency, conformity, and compliance. Set up monitoring to identify any potential problems with the data, and then take action to remediate that issue.

All data must be meticulously prepared and cleansed before migrating to S/4HANA. Data cleanup is the most critical aspect of any implementation, and it is the one that is most often overlooked.

While every organization is different, there are only three scenarios to be considered when looking at SAP S/4HANA implementations. Your approach will likely change depending on the scenario that is closest to your situation, but accurate master data is required for all of them.

Installing a New SAP S/4HANA System

In this case, your organization is implementing S/4 HANA without legacy data, giving you something of a fresh start. This data is migrated from the legacy system into SAP S/4HANA after implementation.

This scenario allows you to test the system in a "clean" environment to ensure all workflows and processes are properly configured. You will still need to load it with your legacy data to derive the greatest benefits.

Cleansing of the legacy data, both master and transactional, must take place before the data migration. S/4HANA's analytics and predictive modelling are only as good as the data you feed into it. You can help to ensure satisfactory results by only migrating the data once it is clean, consistent, and reliable.

This is also essentially the process used for a "greenfield" implementation of S/4HANA. Note that this is no guarantee of success. For example, Target famously entered the Canadian market in March 2013,

built a network of over 130 stores by January 2015, and shut its doors by April 2015. We cannot blame bad master data for everything that went wrong at Target Canada, but it certainly did not help. The master data entries in the company's S/4HANA System were entered by hand, usually by entry-level employees. Estimates prepared after the fact indicate that only about 30 percent of the data in the system was actually correct.

Converting Existing SAP Systems to S/4HANA

This may look simple until you're directly involved in the process. Underlying complications can arise if you're running customized legacy environments.

The steps in this scenario depend on whether you're already using a HANA database. Organizations running on a HANA database can use Software Update Manager. Note that the master and transactional data in the HANA database may still need cleansing in this scenario. The best time to perform that data cleanse is before the data is deployed into the HANA database. The second-best time is now.

Transition to S/4HANA from SAP ECC 6.0 with a non-HANA database takes two steps. The first step is to cleanse your existing data and then migrate it from the current database to the new HANA database. The second step is to use the SAP Software Update Manager to install the new code.

Transforming the Landscape Into SAP S/4HANA

This scenario applies to an organization consolidating a regional landscape into one global system. Consolidating regional instances of SAP Business Suite into a single SAP S/4HANA system provides real-time views and insights into the entire organization, breaking down previous data silos. Clean master data helps to smooth this transition, but you must still undertake compatibility checks to ensure customizations will still function effectively.

5. Using MDaaS To Support S/4HANA Transformation

Master data is crucial to the success of your S/4HANA deployment. Without a source of clean, accurate master data, you cannot unlock all the operational benefits possible with S/4HANA. In fact, without clean data sources, you may find that you are even further behind.

Managing master data is a major undertaking and should be treated as an ongoing effort rather than a project. There is tremendous effort required to build a taxonomy and clean and deduplicate the existing data. This is a specialized and labor-intensive affair, which is why so many organizations call in expensive consultants to do the heavy lifting. While this will result in clean and accurate master data, this will not keep the data clean. The sustainment phase is where many organizations fail. Old habits die hard, and staff may create new records that are not compatible with the current taxonomy. Before too long, the data needs to be cleansed again.

Prometheus Master Data as a Service (MDaaS) overcomes these challenges by providing a standardized taxonomy and offering both cleansing and sustainment as subscription services. The taxonomy leverages governed standards like ISO 14224, PIDX, UNSPC, and others to ensure it can handle the terms and definitions used in your industry.

Across different companies and industries, individual business processes are unique and complex. However, you may be surprised to find out that your master data needs are not as different as you might think. Below we list master data categories and show how most of them are not that different from company to company.

1. **Functional Locations:** We chose to start with this one, as your functional locations have the greatest chance of being unique, based on your business, location, and process.

2. **Equipment:** Your equipment is not unique, apart from serial numbers, and any rare modifications that have been done. We do not mean that modifications themselves are rare - they are not. Similar modifications to machines are made to the same machines across companies. At the end of the day, pumps are pumps, across industries. In fact, they are often from the same manufacturer. Regardless, whatever modifications you make can be easily captured in the history of the equipment through MDaaS by appending your work order history to the BOM.

3. **Materials:** These will not be unique, with the rare exception of customized materials. Any customized materials you are using can easily be added to the database.

4. **Plans, Items, BOMs (Bill of Materials), Tasks Lists, and Measuring Points:** These will all be uniform to start, although they may be customized as you move towards a predictive maintenance goal. This may seem surprising at first, but if you think about it there are only so many ways a pump can fail, and a limited number of root causes for that failure. There are only so many measurements and measuring points you can have, as defined by the equipment.

We are all unique, but our data really is not. MDaaS leverages this all this non-unique data to give you a standardized taxonomy that follows industry best standards. Here is a short list of what MDaaS currently covers:

- Long and short descriptions, as well as abbreviations

- Translations

- Materials, classes, and characteristics

- Equipment and catalog profiles

- Object parts, damage, case, and activity codes

- Standardized maintenance plans and tasks lists

- Standardized measurement points and value thresholds

Your situation is unique and the standardized maintenance plans and tasks lists may not be entirely suited to your organization, but they are going to be close. For example, say you have a type of valve. Unless it is a unique custom build, that valve is replicated in thousands if not millions of locations throughout the world. Why not start with the basic maintenance that you are supposed to do already loaded into the system? You will have to tweak it a bit, but modifying an existing plan is much easier than building it from scratch.

A key strength of MDaaS is that it is a service, rather than a project. This helps your organization break the costly cycle of repeated cleansing and sustainment initiatives. Your database is always up to date and incorporates items such as task lists, preventive maintenance procedures, and more. The database is continuously improved by our team of data scientists, who also review new and duplicate records. A fully populated master data record is automatically integrated with your instance of S/4HANA.

The Benefits of MDaaS in S/4HANA Implementations

- Master data is cleansed and standardized without an expensive and lengthy cleansing project

- Eliminates the need to create a standalone taxonomy for your organization

- All data is integrated with S/4HANA. Optimization and standardization enable easy and efficient searches

- Aggregate database is continuously improved by functional consultants and data scientists

- Sustainment is continual and consistent, increasing the performance of your S/4HANA system by ensuring clean master data

- Eliminates sustainment issues arising from the creation of new records that do not match your standards

6. Conclusion

Your organization gains access to vast new abilities through S4HANA, but only if the data you are feeding into the system is accurate. S/4HANA leverages technology and a different method of database design to provide you with real-time insights into your processes. While S/4HANA can greatly simplify your IT landscape and give you the information needed to streamline your workflows, the time, effort, and money used to implement the system will be wasted without continual access to accurate data.

The "digital core" nature of SAP S/4HANA ensures all your applications are interconnected, but without clean master data you will not realize the greatest possible benefit. If history is any guide, lacking a dependable source of master data may stop your S/4HANA transformation before it even gets started.

The quality of your data determines both the results you will get out of S/4HANA and the amount of time it will take you to realize those results. When it comes to successful S/4HANA implementations, data quality is fundamental.

Prometheus Group's MDaaS can ensure that your S/4HANA transformation goes as smoothly as possible, while allowing you to maximize the benefits of real-time access to the analytical data and insights you need to improve your processes.
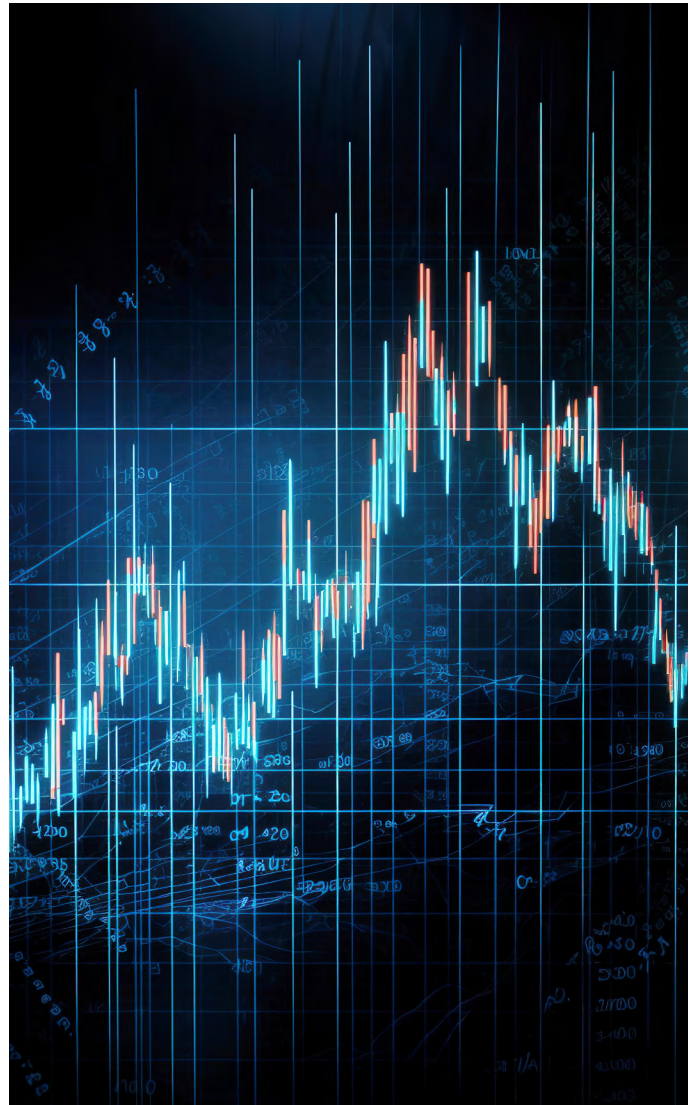
For more information on Prometheus MDaaS, please see our product page.

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