RIZING

SAP EAM DATA CONVERSION

Keys to Success

RIZING

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Introduction

One of the most critical elements of any SAP EAM implementation is a successful data conversion. The amount of effort required for data conversion is often underestimated, as the attention of the project team is focused on business process reviews, development specifications and other implementation activities. Without sufficient planning and preparation, the data conversion can become a significant risk to the success of the implementation. The purpose of this document is to identify some keys to success for an SAP EAM data conversion project — keys that will help minimize risk and deliver accurate conversion results in the allotted timeframe.

This document will address the following keys to success:

1. Data Conversion Strategy
   Clearly define the scope of the data conversion and overall plan
2. Tracking Conversion Progress
   Monitor the progress of the data conversion
3. Communication
   Important channels of communication for the data conversion team
4. Testing and Verification
   Ensure sufficient testing and verification prior to production loads
5. Cut-Over Plan
   Carefully script all conversion activities during the Final Prep and Go-Live

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1. Data Conversion Strategy

There are many factors to consider in the initial stages of data conversion planning in order to effectively formulate a conversion strategy. Prior to the commencement of any conversion activities, the implementation, data governance, and conversion teams (consisting of both client and consultant representatives) should jointly document the elements described below.

Establish Guiding Principles for Data Conversion

Defining a set of guiding principals at the beginning of any data conversion project will help establish a framework for planning and decision-making early on in the process. Some examples of data conversion guiding principles are as follows:

- Dedicated data teams should be utilized for the data conversion project. Data conversion should not be an additional role on top of other project/BAU responsibilities.
- Focus on data that is critical for go-live. Establish a list of critical data elements that must be available at the time of project go-live. Prioritize these key data elements early in the project to avoid potential go-live impacts.
- Load data as early as possible. There are many benefits to this including the earlier understanding of data issues, improved understanding of SAP, establishing user confidence, improved accuracy and timing of conversion process, etc.
- Data cleansing activities should, to the extent possible, be performed in the legacy system application. This helps reduce the risk and complexity associated with the conversion process.
- Involve the business. Participation by key business stakeholders is paramount to ensure a complete understanding of the data – e.g. how data should be mapped to SAP, impacted business processes, where data quality issues exist, and any existing cleansing activities.
- Figure 1 below illustrates how knowledge and understanding of the data dramatically increases after the first data load test. This ensures that any tactical changes in the data cleanup efforts and conversion process can be implemented early on, rather than uncovering these issues late in the project and scrambling to have the data ready by go-live. This strategy of loading data early and often decreases overall conversion timeline risk and helps increase confidence heading into go-live.

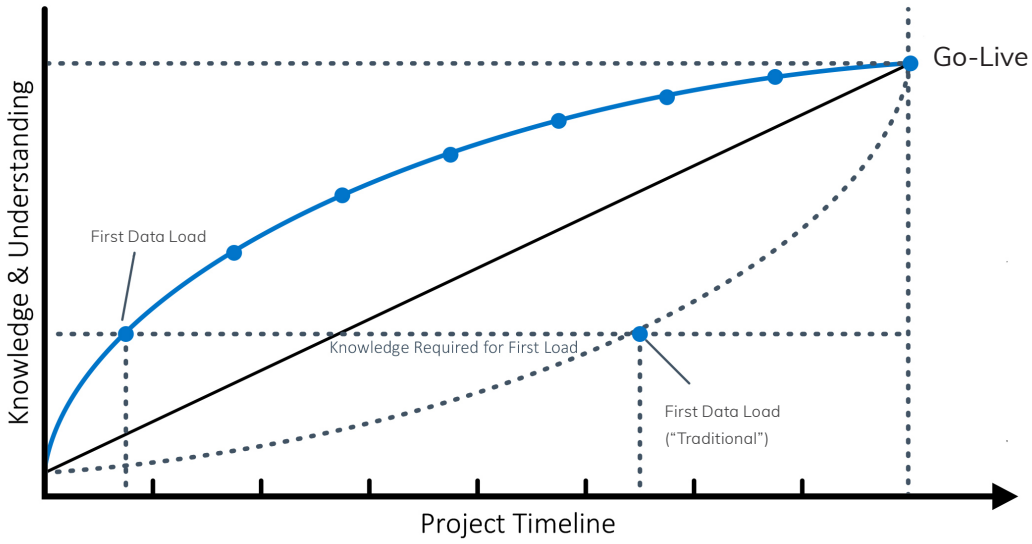


Figure 1

Data Objects and Dependencies

List the data conversion objects that are in scope for the project, as they are known at the current time. This list will also become useful later in the process when creating a tracking document (see: Tracking Conversion Progress). Although the list will vary between implementations, examples include work centers, functional locations, equipment, material masters, etc.

It is also beneficial to document the relationship between the various conversion objects, either in a list or a flow diagram (example in Figure 2). As with the list of conversion objects discussed above, the object relationships will be useful at a later juncture – when developing the detailed steps required in the final go-live preparation (see: Cut-Over Plan). Documenting these relationships should also be viewed as a valuable training tool for those that are unfamiliar with SAP master data.

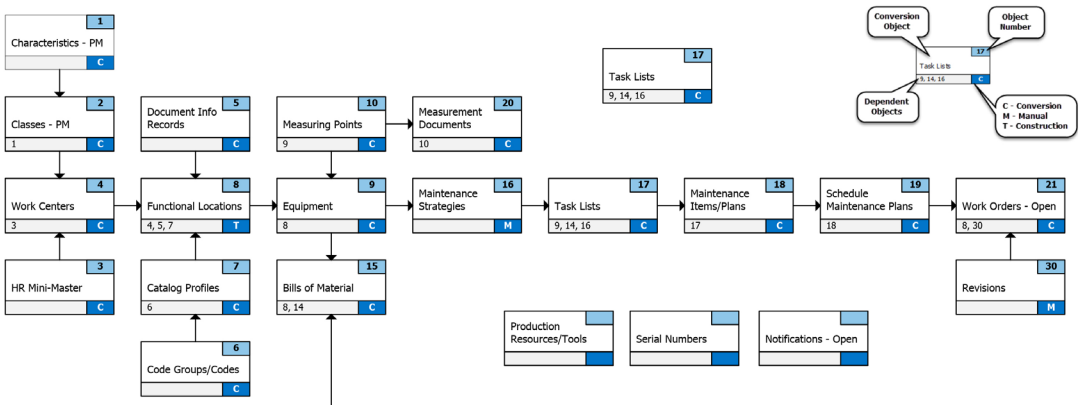


Figure 2

Baseline Data Profiling and Data Health Assessment

Data profiling is a strategy or set of common methods to analyze existing legacy data, down to a very detailed field-level (for those field to be determined as in-scope by the Legacy System Owner). The objective of data profiling is to help identify, early in the process, data that needs to be cleansed or otherwise corrected to ensure the success and quality of the overall data conversion. Data profiling also gives organizations an opportunity to establish a baseline snapshot of the overall health of critical data elements. This allows organizations to monitor the health of their data post go-live using something like SAP Information Steward and measure the ongoing health of their data against the baseline snapshot. This will quickly allow for identification of areas where the data health begins to deteriorate over time and will enable organizations to quickly fix process and data gaps that appear, ensuring the efforts during the data cleansing activities do not go to waste.

Resource Requirements

Define roles and responsibilities for all individuals and groups that will be involved with the data conversion. It will be necessary to dedicate some internal resources to the conversion effort in the form of IT and Business Subject Matter Experts (SME). Consideration needs to be given to whether or not the current positions of the dedicated SME resources should be back-filled during the conversion effort to sustain normal business productivity. In order to clearly communicate roles, responsibilities, and required resources for the different conversion activities, a RACI chart is typically created as part of the conversion planning process. An example of a RACI chart is included on the next page.

83% of data migration projects either fail or exceed their budgets and schedules.

Gartner

RACI Code	Definition
R – Responsible	Takes full responsibility for the quality, completeness and punctuality of the assigned task. The party with the “R” responsible role produces the main activity deliverables, and obtains approval. Full ownership of the deliverable.
A – Approving	Validates the task results, Approval Sign off. The party having the "A" role may also assign approval responsibility to the appropriate resources.
C – Consulting	Provides Expertise, ensuring correct advice is given to drive the best decision / best solution.
I – Informed	Is informed about the task content and uses the information to correctly synchronize activities under their responsibility.

Deliverable	Description	RACI		
		Customer IT	Customer Business SME	Rizing
Data Conversion Strategy	Sub-section of overall project conversion strategy	A	C	R
Data Conversion Landscape	Stand up and maintain data conversion systems, database(s), and interfaces.	R	I	C
Data Profiling	Identify data criticality and existing data quality issues in the source legacy system.	C	A	R
Field Data Mapping	Identification of field-to-field mapping rules, data translation rules, default values, and exclusions.	C	A	R
Data Extraction	Source data is extracted from the legacy system into the repository used to transform the data.	R	A	C
Data Collection	Collect missing data from the field (e.g. nameplate data).	A	R	C
Data Cleansing	Categorize, standardize, enhance and resolve missing data.	R	A	C
Data Transformations	A series of rules or functions are applied to the extracted data in order to prepare it for loading into SAP.	R	A	C
Conversion Validation	Reconcile data to be loaded into the target SAP system.	R	A	C
Mock Data Conversions	Test conversion process and scripts to validate the conversion procedure. Each mock conversion will simulate the real go-live process with actual data volumes.	A	C	R
Data Loading	Load data into the target SAP system.	C	A	R

Documentation Requirements

Determine what documentation will be required from the data conversion team. This may vary by industry, but could include:

- Data mapping, including transformation rules (legacy/source to SAP)
- Unit testing scripts
- Execution plan
- Data validation plan
- Data progress reports

Defining Data Sources and Collection Methods

One of the more important objectives early in the process is to identify all of the data sources that need to be considered for conversion to SAP; an effort that takes on increased complexity in multi-site implementations. It is not uncommon, however, to discover additional data sources within an individual plant well into the conversion process (e.g. a planner keeping track of spare parts in an Excel spreadsheet). The earlier these sources are identified in the process, the easier it will be to include the data in the conversion .

Additional question to consider during this process:

- How will legacy data be extracted (directly from the database, through reports, etc.)?
- Will data clean-up be done in the legacy system - or will it be extracted just once and then managed externally?
- Are some SAP required data objects not available in the legacy system? If so, where will those be developed?

Timeline and Milestones

As with other teams involved in the implementation, the conversion team needs to be fully aware of how their deliverables fit into the overall project timeline. Examples of this include:

- Completion of conversion program development
- Mock conversion cycle schedule (in support of formal testing)
- Cut-off dates for data clean-up and collection

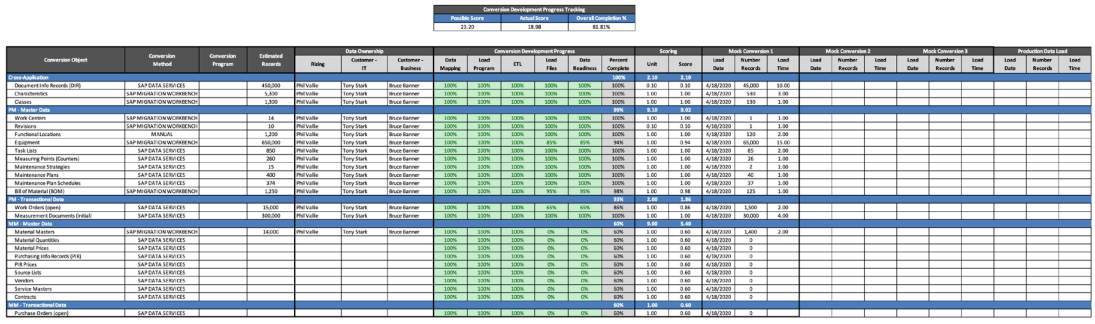
2. Tracking Conversion Progress

After the conversion objects have been identified and the timeline has been established, it is then the responsibility of the conversion team to track and report the progress of both the technical development and the data cleansing/collection effort .

Technical Development Progress

As illustrated in Figure 3, a conversion tracking document should include the following:

- Conversion objects
- Responsibility for each object (both business and technical)
- Conversion method for each object (e.g. SAP Migration Workbench, SAP Data Services, LSMW, manual, etc.)
- Completion percentages for table definition, program development and load file creation
- Mock conversion cycle information (dates, records, load times, etc.)



Conversion Development Progress Tracking		
Possible Score	Actual Score	Overall Completion %
23.20	18.98	81.81%

Conversion Object	Conversion Method	Conversion Program	Estimated Records	Data Ownership			Conversion Development Progress						Scoring		Mock Conversion 1			Mock Conversion 2			Mock Conversion 3			Production Data Load		
				Rizing	Customer - IT	Customer - Business	Data Mapping	Load Program	ETL	Load Files	Data Readiness	Percent Complete	Unit	Score	Load Date	Number Records	Load Time	Load Date	Number Records	Load Time	Load Date	Number Records	Load Time	Load Date	Number Records	Load Time
Cross-Application												100%	0.10	0.10												
Document Info Records (DIR)	SAP DATA SERVICES		450,000	Phil Vuille	Tony Stark	Bruce Banner	100%	100%	100%	100%	100%	100%	0.10	0.10	4/18/2020	45,000	10.00									
Characteristics	SAP MIGRATION WORKBENCH		5,300	Phil Vuille	Tony Stark	Bruce Banner	100%	100%	100%	100%	100%	100%	1.00	1.00	4/18/2020	530	0.90									
Classes	SAP MIGRATION WORKBENCH		1,300	Phil Vuille	Tony Stark	Bruce Banner	100%	100%	100%	100%	100%	100%	1.00	1.00	4/18/2020	130	1.00									
PM - Master Data												94%	0.10	0.10												
Work Centers	SAP MIGRATION WORKBENCH		14	Phil Vuille	Tony Stark	Bruce Banner	100%	100%	100%	100%	100%	100%	1.00	1.00	4/18/2020	1	1.00									
Revisions	SAP MIGRATION WORKBENCH		10	Phil Vuille	Tony Stark	Bruce Banner	100%	100%	100%	100%	100%	100%	0.10	0.10	4/18/2020	1	1.00									
Functional Locations	MANUAL		1,200	Phil Vuille	Tony Stark	Bruce Banner	100%	100%	100%	100%	100%	100%	1.00	1.00	4/18/2020	120	2.00									
Equipment	SAP MIGRATION WORKBENCH		650,000	Phil Vuille	Tony Stark	Bruce Banner	100%	100%	100%	85%	85%	94%	1.00	0.94	4/18/2020	65,000	15.00									
Task Lists	SAP DATA SERVICES		850	Phil Vuille	Tony Stark	Bruce Banner	100%	100%	100%	100%	100%	100%	1.00	1.00	4/18/2020	85	2.00									
Measuring Points (Counters)	SAP DATA SERVICES		260	Phil Vuille	Tony Stark	Bruce Banner	100%	100%	100%	100%	100%	100%	1.00	1.00	4/18/2020	26	1.00									
Maintenance Strategies	SAP DATA SERVICES		15	Phil Vuille	Tony Stark	Bruce Banner	100%	100%	100%	100%	100%	100%	1.00	1.00	4/18/2020	3	1.00									
Maintenance Plans	SAP DATA SERVICES		400	Phil Vuille	Tony Stark	Bruce Banner	100%	100%	100%	100%	100%	100%	1.00	1.00	4/18/2020	40	1.00									
Maintenance Plan Schedules	SAP DATA SERVICES		374	Phil Vuille	Tony Stark	Bruce Banner	100%	100%	100%	100%	100%	100%	1.00	1.00	4/18/2020	37	1.00									
Bill of Material (BOM)	SAP MIGRATION WORKBENCH		1,250	Phil Vuille	Tony Stark	Bruce Banner	100%	100%	100%	95%	95%	98%	1.00	0.98	4/18/2020	125	1.00									
PM - Transactional Data												84%	2.00	1.84												
Work Orders (open)	SAP DATA SERVICES		15,000	Phil Vuille	Tony Stark	Bruce Banner	100%	100%	100%	65%	65%	83%	1.00	0.86	4/18/2020	1,500	2.00									
Measurement Documents (initial)	SAP DATA SERVICES		300,000	Phil Vuille	Tony Stark	Bruce Banner	100%	100%	100%	100%	100%	100%	1.00	1.00	4/18/2020	30,000	4.00									
MM - Master Data												92%	1.10	1.01												
Material Masters	SAP MIGRATION WORKBENCH		14,000	Phil Vuille	Tony Stark	Bruce Banner	100%	100%	100%	0%	0%	92%	1.00	0.92	4/18/2020	1,400	2.00									
Material Quantities	SAP DATA SERVICES						100%	100%	100%	0%	0%	92%	1.00	0.92	4/18/2020	0										
Material Prices	SAP DATA SERVICES						100%	100%	100%	0%	0%	92%	1.00	0.92	4/18/2020	0										
Purchasing Info Records (PIR)	SAP DATA SERVICES						100%	100%	100%	0%	0%	92%	1.00	0.92	4/18/2020	0										
PIR Prices	SAP DATA SERVICES						100%	100%	100%	0%	0%	92%	1.00	0.92	4/18/2020	0										
Source Lists	SAP DATA SERVICES						100%	100%	100%	0%	0%	92%	1.00	0.92	4/18/2020	0										
Vendors	SAP DATA SERVICES						100%	100%	100%	0%	0%	92%	1.00	0.92	4/18/2020	0										
Service Masters	SAP DATA SERVICES						100%	100%	100%	0%	0%	92%	1.00	0.92	4/18/2020	0										
Contracts	SAP DATA SERVICES						100%	100%	100%	0%	0%	92%	1.00	0.92	4/18/2020	0										
MM - Transactional Data												92%	1.00	0.84												
Purchase Orders (open)	SAP DATA SERVICES						100%	100%	100%	0%	0%	92%	1.00	0.68	4/18/2020	0										

Figure 3

Data Quality Progress

Reporting on the progress of data quality can come in several forms. Data analysis can be done manually (e.g. how many records have been collected or updated), but the preferred method is to automate the analysis so that it can be performed on a regular interval throughout the project. Using tools like SAP Information Steward will allow project teams to define target data quality scores, then continuously monitor the scores after each mock conversion to ensure data quality is on track to meet the production go-live schedule. These scorecards can always be used after the conversion project to continuously monitor data health in the production system.

These metrics will need to be defined for each implementation and should be in alignment with the enterprise data standards that have been defined by the organization's data owners and data stewards; however, some examples may include:

- Records with fields violating SAP length requirements
- Required fields that have no values entered
- Equipment without an associated bill of material
- Material master records without a manufacturer part number

3. Communication

As with all aspects of the implementation, communication plays a critical role in data conversion. Specifically, communication between the conversion/functional teams and the conversion/legacy teams has a direct impact on the quality and efficiency of the conversion process.

Data Governance Organization

In order to protect data integrity, SAP often utilizes drop-down lists and other table-driven fields in which the user is presented a defined list of values from which to select. These values are normally defined by the data stewards and subject matter experts during the explore (design) phase of an implementation but can often change during the Realization phase due to updated client requirements.

Communication between the data stewards, subject matter experts, and the conversion team then becomes crucial, as changes in these validated fields could directly impact the success of subsequent data loads.

For example, if the data steward decided to update the enterprise data standards to add a prefix before all of the previously defined work center values but did not communicate that change to the conversion team, then all of the function locations with a work center reference (which should be nearly all of them) would fail during the next data load.

Legacy Data Owners

When testing conversion scripts and performing mock conversion cycles, it is strongly advised as a best practice for the conversion team to provide regular feedback to the legacy data owners on the status of their data cleansing efforts (see: Data Quality Progress). A cyclical process by which legacy owners are repeatedly receiving feedback from the conversion team and the conversion team is also repeatedly receiving updated legacy extracts has been found to be an extremely effective and efficient process.

The diagram in Figure 4 illustrates the data conversion testing process in which data is extracted from a legacy system, imported into an ETL (Extract-Transform-Load) database and then analyzed for quality and completeness. The results of the analysis are then forwarded back to the legacy data owners — and addressed in the legacy system. The next extract and analysis would ideally reveal that the errors had been corrected.

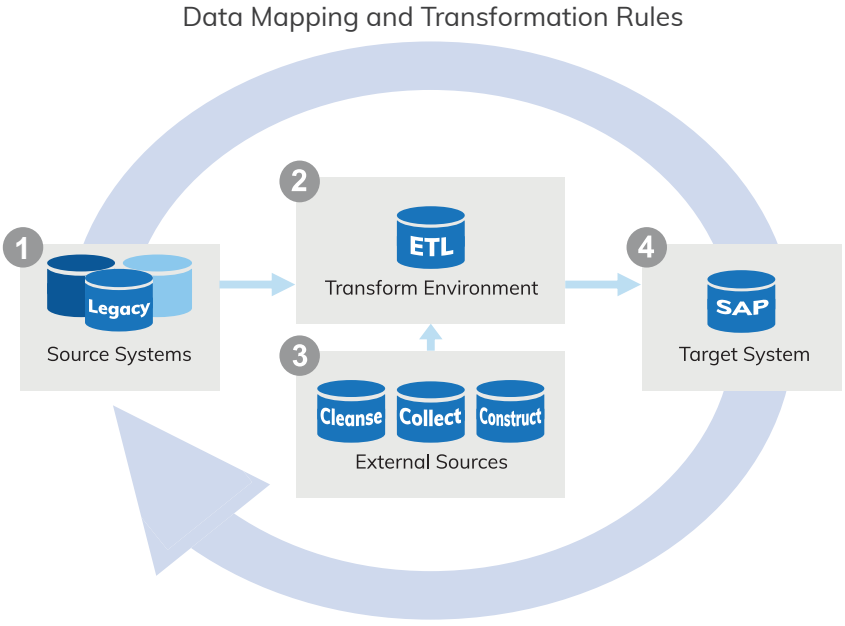


Figure 4

4. Testing and Validation

A robust reconciliation process should ensure the data was migrated correctly.

The data conversion testing and verification process should be on equal footing with the application testing. Accordingly, a successful mock conversion cycle is often a prerequisite to integration testing — to prove that the application works as expected with a data set very similar to that which will be used in the production system.

At the point in the project when most mock conversion cycles are scheduled, there should be few, if any, exceptions and surprises during the data load. If previously discussed processes and methodologies are followed, conversion scripts should be well tested using actual legacy data source information. Typically, a minimum of two formal mock conversion cycles should be performed, along with additional information test loads in a dedicated conversion client during unit testing. As referenced in the Technical Development Progress section, during the mock conversion cycles it is important to document the number of records converted for each object type and the time it takes to execute each conversion. These values will become important factors during creation of the cut-over plan.

Mock conversion validation test cases should verify that the correct quantity of records have been converted. In addition, a robust reconciliation process should ensure the data was migrated correctly, using data transformation rules, the data mapping document, etc. A common approach to validating field level data is to use a statistical sampling set of records to ensure a representative cross-section of data.

5. Cut-Over Plan

Data conversion activities need to be carefully scripted out in the implementation cut-over plan. Detailed steps should include specific tasks, responsible parties, and expected durations based on mock conversion cycle performance. In order to ensure the integrity of the data, these cut-over steps should also reflect the exact order in which data conversion objects need to be loaded - according to their relationships defined in the previously discussed data dependency diagrams. The cut-over plan should also encompass activities for transactional data processes. Consider the following questions:

- When should users stop entering new work orders in the legacy system?
- Which open purchase orders are valid and should be converted to SAP?
- When should all legacy system goods receipts be completed?
- Who will verify the value of the inventory after it is converted to SAP?

Data that is relatively static (e.g. work centers, functional locations), can normally be loaded well ahead of other time-sensitive components such as material prices or inventory balances that may require data modification blackout periods during the migration and cutover activities.

Conclusion

The success of a data conversion can be measured by the timeliness and accuracy of the conversion results. While often a very complex and labor-intensive process, proper planning and preparation can help mitigate the uncertainty and risk that often accompanies data conversion efforts. The keys to success discussed in this document are an essential starting point for consideration prior to embarking on your EAM data conversion.

For more information on SAP EAM data conversion, contact us today!