

White Paper

DATA INTEGRATION CONSIDERATIONS FOR SAP CENTRAL FINANCE

REQUIREMENTS, CHALLENGES AND
OPPORTUNITIES ON THE CENTRAL
FINANCE JOURNEY



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INTRODUCTION

One of the top challenges of corporate finance is to provide a simple and complete view of corporate financial information. Typically, this involves pulling information from multiple systems and finding some way to integrate it – intensive, manual, error-prone work that often falls short of the objective.

Fortunately, SAP has introduced SAP S/4HANA for Central Finance Foundation (more commonly known as 'SAP Central Finance') to solve this problem. The core value proposition of SAP Central Finance is that it can pull together data from multiple financial systems and present it in a single, unified system for maximum visibility and control – a worthy and most valuable objective, to be sure.

Data integration requirements for implementing SAP Central Finance are many and diverse. Whatever your specific situation, your data integration requirements are worthy of serious consideration before embarking on the Central Finance journey.

In a survey of companies implementing or considering SAP Central Finance:

- All have SAP ECC as a source, with an average of 4 to 10 instances, although some have 30 or more
- 85% have non-SAP data sources with anywhere from 1 to 400 instances to be integrated
- There is a significant diversity on non-SAP data sources, with an average of 3 non-SAP ERPs (Oracle EBS, JD Edwards, Microsoft Dynamics, and so on), although some have 6 or more ERP types

5 KEY DATA INTEGRATION REQUIREMENTS

In considering an implementation of SAP Central Finance, it is worth looking at all the data sources that may be needed and determining the integration tasks required for each. In other words, how the data will be extracted, harmonized and synchronized between systems. It should be noted that where SAP ECC is the source system, many of these integration

requirements are met by pre-built SAP integrations. However, there are no such pre-built integrations for 3rd party ERPs. For most Central Finance implementations, there will be more than one non-SAP source system, so consideration of the following requirements, challenges and opportunities is essential. Let's look at the five main integration tasks:

1. SOURCE DATA EXTRACTION

Each source system holds financial transaction data in its own proprietary formats, and it is spread across multiple tables and views each with its own processes, definitions and operating nuances. This information must be extracted from the source, so it can be made available to Central Finance. Clearly, writing these scripts requires significant knowledge of the source system and it should be noted that there is no single 'transaction' to be integrated, but depending on the source, there can be up to 23 financial transaction types that must be understood and supported! Naturally, this can drive a considerable amount of effort and complexity.

2. UPLOAD TO SAP

Data from the respective source systems must be validated and transformed into an SAP-specified format for loading into Central Finance. This requires intimate knowledge of the load formats into the multi-table structure within the SAP SLT interface.

5 KEY DATA INTEGRATION REQUIREMENTS (CONTINUED)

3. MASTER DATA HARMONIZATION

Often overlooked are the many data disparities within and between source systems. Customer and supplier names, as well as product names, are misspelled, abbreviated and contorted in innumerable different ways. If left in this state and loaded into Central Finance, the reports will be dubious at best and dangerous at worst, so they must be reconciled (harmonized) to a single version of the truth. Some companies do have unique customers and products that are clearly identified by unique IDs, but these rarely cover all master data entities across all systems, so some harmonization is still generally needed. Longer term, the source systems should really be reconciled through a Master Data Management (MDM) program, but can you wait that long to implement Central Finance? In the short term, it is much faster to take the 'master' data from all the source systems and create a cross-reference table that can be loaded into Central Finance to link the customers, suppliers, product and other information that should be linked. As a bonus, this cross-reference information can later be used to kick-start a future MDM project that can properly reconcile the source systems at a more fundamental level.

4. TRANSACTION-LEVEL DRILLDOWN

Of necessity, Central Finance only holds financial transaction information. When a Central Finance user needs to drill down on an item to investigate it, they can try to find it in the original source system (if they even have access), or the original source details can be kept in a small data warehouse for click-through access direct from Central Finance. Of course, this requires creation and maintenance of a data warehouse, but with good planning, that can be a simple addition to the integration work that is already being undertaken.

5. WRITE-BACK TO SOURCE

The Holy Grail of financial systems is that any changes made in Central Finance (payments, adjustments, etc.) should be reflected in the various source systems. A 'write-back' capability enables payments authorized in Central Finance to be cleared in the source ERPs so all systems are kept in sync. This process requires complex calls to available APIs while satisfying the business rules in the various source systems.

The five items listed above are the most common data integration tasks. Not every item may be needed on day one, but over time, most will become requirements if Central Finance is to be used to its best effect.

It should be clear from the above, that integrating data into SAP Central Finance from 3rd party systems is not a trivial undertaking!

CONSIDER YOUR SOURCES

Having established the five key integration requirements above, let us now go a little deeper and consider the many source systems that may need to be integrated, and how they can be handled. First though, it is worth noting that most companies have a LOT of source systems. Part of the value of introducing Central Finance in the first place, is that financial systems are gathered over time, through acquisitions and reorganizations and they tend to be very 'sticky', meaning they are difficult to remove without a lot of concerted effort. So, companies end up with many systems that comprise of many different versions and instances – and a deep need for Central Finance!

Each situation is different, but surveys show that 85% of companies need to integrate data from non-SAP sources. On average, these companies have somewhere from 1 to 100 different non-SAP instances to integrate (although we have seen up to 400!), across an average of 3 non-SAP ERPs (Oracle EBS, JD Edwards, Microsoft Dynamics, and so on), although some have 6 or more ERP types. Integrating this many instances from a variety of unique ERP systems is obviously not a small task. If you are a corporate finance manager, your life can quickly become very complicated!

Recognizing the effort and complexity inherent in integrating many source systems in Central Finance, Magnitude, in consultation with SAP, has built a complete product offering – known as Magnitude SourceConnect – for exactly this purpose. The chart below summarizes the integration tasks discussed above and shows how Magnitude SourceConnect can help with each.

Integration Task	Data Source		
	SAP ECC	SourceConnect Primary Sources	SourceConnect Secondary Sources
1) Source Data Extraction	SAP Provides	SourceConnect Direct Connection	SourceConnect Universal Flat File
2) Upload to SAP	SAP Provides	SourceConnect Transaction	SourceConnect Transaction
3) Master Data Harmonization	SourceConnect Harmonization	SourceConnect Harmonization	SourceConnect Harmonization
4) Transaction-level Drill Down	SAP Provides	SourceConnect DrillDown	N/A
5) Write-back to Source	SAP Provides	SourceConnect SyncBack	N/A

3 SOURCE SYSTEMS CATEGORIES:

1. SAP ECC

This is in a category of its own as it is the only source for which SAP provides pre-built integration. If your only source is SAP ECC then count yourself lucky! (although master data harmonization may still be an issue – see above)

2. SOURCECONNECT PRIMARY SOURCES

These are the data sources for which Magnitude SourceConnect has a direct connector. These are pre-built connectors that for the most part work out of the box. They 'know' the tables, views, transaction logs, definitions and nuances required to extract financial information directly from the source and deliver it in the correct format for consumption in SAP Central Finance. SourceConnect

CONSIDER YOUR SOURCES (CONTINUED)

has direct connectors for most popular ERPs and the list is constantly expanding. It should be noted that even if a direct connector is available for a system, if the system has been heavily customized, or if the integration requirements will only ever be 'simple' (upload only, with no drilldown or write-back requirements), then treating it as a 'secondary source' (see below) can also be considered.

3. SOURCECONNECT SECONDARY SOURCE

There are many other less common financial systems in the world with numerous versions of each: many have been heavily customized by customers over the years. To provide a complete view of financial data, we must bring in data from them too. But in this case, a direct connection may be impractical, or overkill, if the integration requirements are simpler. In this case, SourceConnect provides a 'Universal Flat File' (UFF) load format that enables the core integration capabilities for upload. To use this, the customer can have Magnitude (or a certified implementation partner) build a custom script to extract the requisite data into the UFF format. SourceConnect validates and transforms the financial data, and uploads it to SAP staging tables for load into Central Finance. It should be noted that this may be the preferred integration method even if a SourceConnect direct connector is available for the ERP, if 1) the source is highly customized or 2) the sources may belong to a different subsidiary or partner and/or be on a different network where data access is restricted.

KEY CONSIDERATIONS - BUILD OR BUY?

Having considered the five types of data integration and the impact of data sources in enabling SAP Central Finance, now we must determine the build vs. buy decision required to enable 3rd party data in SAP S/4HANA Central Finance.

The allure of SAP Central Finance for Finance organizations to completely reimagine business processes for the digital age is compelling. SAP rightly claims some significant benefits from Central Finance, and the impact of pulling together all financial information as a single source of truth is strategic and powerful.

In moving forward with your Central Finance implementation, you will quickly discover that SAP does not provide source system connectors - so the question of how to integrate 'external' source data quickly becomes a hot topic. Any company considering Central Finance has certainly done many system integration projects before. At first glance it may seem natural to tackle this project as a typical in-house (or system integrator-led) custom development effort, but with a little consideration, you will see that custom development is fraught with risk!

“IT’S JUST DATA INTEGRATION... HOW HARD CAN IT BE?”

A common conclusion amongst companies that have tried to build custom connectors to non-SAP data sources is that IT IS NOT EASY! In fact, in many cases, it has proven to be non-viable.

Let’s look at some of the reasons why:

- Source System Complexity
- Multiple Transaction Types
- Target System (SAP) Evolution
- Specialized Skills

KEY CONSIDERATIONS - BUILD OR BUY? (CONTINUED)

SOURCE SYSTEM COMPLEXITY

Most companies have multiple source systems (Oracle EBS, JD Edwards, PeopleSoft, Microsoft Dynamics, Infor, and many more). Each requires an automated connector to identify relevant journal entries, extract them, transform them into the required SAP SLT format, and then load them into the SAP SLT staging area for load into Central Finance. This requires an intimate knowledge of the source system – the physical and logical way transactions are stored in the system, as well as how they are managed and updated over time. But it doesn't stop there:

- Consider that all this may change during source ERP upgrades, requiring new connector rewrites when new releases are implemented.
- Do you know how to apply CDC (change data capture) on each source system?
- Do you know how summary and detailed financial postings are handled in each system? (hint: nearly every system is different!)
- What about how tax information is treated?
- What about something as seemingly simple as date types? (Hint: Different ERPs actually handle dates differently!)

MULTIPLE TRANSACTION TYPES

To the layman, a journal entry is a journal entry – right? There are a range of journal transaction types that must be supported – from sales invoices to purchase invoices, from materials transactions to transfers, from depreciation to retirement and revaluation, and a whole lot more. Each has its own nuances in how they are recorded and represented in each source system, and each must be correctly mapped into the required SAP format. We have found that on average, there are 23 transaction types that must be understood, developed and tested per source system. And here are a few more even less obvious issues to consider:

- The maximum document length in SAP is 999 lines, so if you have more, you have to split the document
- SAP holds 2 significant figures (digits past the decimal point) which can cause reconciliation errors that must be resolved
- Entries must be validated prior to load or risk creating errors in SAP
- Balances migration – initial balances must be migrated to set up SAP – non-standard and non-trivial integration task
- Tax codes often have to be standardized (max 2 characters in SAP)

TARGET SYSTEM (SAP) EVOLUTION

SAP Central Finance is a relatively young product that is still growing and changing, so changes to the load formats are by no means unheard of. This means that connectors must change too, in order to deliver the right information in the right format. But it's not just change that creates complexity.

Here is a sampling of other issues to consider:

- SAP Central Finance has a data extensibility framework – does your integration environment synchronize with the extended structures?

KEY CONSIDERATIONS - BUILD OR BUY? (CONTINUED)

- Voided documents and reversals requires special treatment (due to duplicated document IDs)
- Credit documents require special treatment
- Withholding tax requires special treatment
- Maximum document name length of 10 often requires special handling

SPECIALIZED SKILLS

Clearly, building all this requires specialized skills in multiple areas: integration work, source and target system knowledge, and functional interpretation of the transactions, to name a few. Most companies do not have these skills, and if they do, they already have a job, so cannot be immediately reassigned to this project. New hiring takes time and is of course an additional cost. Even experienced system integrators struggle to assemble the broad set of functional and technical expertise required across all source ERPs, the SAP target ERP, and technologies involved.

CONCLUSION

Developing these integrations is not easy work, and some early companies who tried to do so, found out the hard way that the 4 to 6-month development task that they had anticipated was actually much more – a reality that not only inflated costs, but also pushed out go-live dates. This realization only reaffirmed what these companies already knew – that they didn't really want to be in the software development business in the first place.

WHY BUYING IS THE RIGHT CHOICE

The good news is that SAP anticipated these issues and reached out to Magnitude Software to co-innovate a solution. Magnitude has over 20 years of experience in system connectivity for financial reporting and has used that experience to develop Magnitude SourceConnect – a family of solutions designed to solve the problem of integrating non-SAP source systems and data.

Magnitude Source Connect is an off-the-shelf solution that has:

- Pre-built Source Connection: Covers the most common ERPs, with integration via flat file also supported
- Broad transaction support: Supports the 23 most common transaction types
- Near real-time operation: Source system change data capture updates Central Finance in near real-time
- Fast go-live: Most source systems can be integrated and brought on-line in 2-3 weeks
- Built on architecture validated and supported by SAP

And perhaps most important of all, Magnitude SourceConnect lets you focus on implementing and using Central Finance to drive your business – not getting distracted by getting into the software development business!



Magnitude's transformative approach to unified application data management delivers vast operational efficiencies to business application data access, management, analytics and reporting for the modern enterprise. Magnitude's portfolio of products includes: simplified application data access to any data source; data management solutions for SAP and commerce verticals; simplified master data harmonization and governance; and packaged application analytics and reporting solutions for SAP and Oracle. The company helps thousands of business users simplify management of their data and deliver on the substantial productivity gains these applications originally promised. For more information about Magnitude SourceConnect, please visit www.magnitude.com/SAP

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