Overcoming Integration Challenges to SAP ECC
Introduction

As it relates to ERP, SAP is 100% focused on moving ECC customers to S/4, its latest ERP offering. With the move to S/4, SAP claims integration with modern clouds can be facilitated using CPI (Cloud Platform Integration). What about the 30,000+ customers still on ECC? There are myriad issues with using traditional approaches to innovating on legacy SAP ERP and examples of CPI success with today’s modern CRM, eCommerce or CPQ offerings are not available. And while iPaaS vendors clamber to fill the gap, these tools leave much to be desired for interfacing with complex, customized SAP ERP systems. In this paper we review the common challenges to integrating SAP ECC to front-end systems and how they can impede digital transformation efforts for enterprises. We will cover the main pitfalls of traditional integration approaches and demonstrate an easier way to integrate ECC to achieve the modern customer experience enterprises are striving for today.
Gartner, IDC, and Forrester are all aligned in their call for deeper, pre-built integrations for today’s cloud-based front-ends such as CRM, CPQ, eCommerce, service workflow, etc. A front end without the necessary, relevant data creates an irrelevant and disconnected experience for the customer/user. Imagine a call center representative trying to find an order status when the integration between your ERP system and CRM is broken or non-existent. They would flounder while trying to get the system to retrieve the information they are searching for and not be able to find it, forcing them to check a different system (or even ask someone else to do it for them). This would cause long hold-times, and ultimately, a dissatisfied customer. Similarly, a sales rep would not be able to get a quote out of their CPQ system in a timely manner, or worse provide unnecessary discounts due to inaccurate pricing, leading to significant margin erosion.

Customers want to buy from companies that are easy to do business with, so any glitch in their experience can cause them to look elsewhere. According to this PWC study¹,

“One in three consumers (32%) say they will walk away from a brand they love after just one bad experience.”

The last best experience anyone has anywhere, becomes the minimum expectation they want everywhere. That means having access to ERP data easily, quickly, and without interruption no matter what application employees (or customers) are using. Consider when banking apps first came to your cell phone. There was some value – ATM locations, bank phone numbers and hours, etc. But what made the banking app a truly valued offering from your bank was when relevant data and transactions (account balances, transactions, bill pay, etc.) became accessible in real-time. Today’s B2B offerings are no different. The ERP data must be accessible in real time – no different than a B2C experience.

The Integration Challenge

You need key data in your ERP to be easily accessible for modern applications to provide value to your employees, customers, and partners, but you don’t want to have to duplicate all this data (and business logic!) in those systems. According to Forbes\(^2\), 97% of executives say COVID-19 has accelerated their Digital Transformation efforts, but 84% of these projects are stalled by integration challenges (according to CIO Dive\(^3\)). SAP ECC is a powerful system that has been used by companies for decades, but it was not built for today’s cloud-based modern world and its need for real-time, data-rich integrations. This is what makes integration so difficult for companies trying to achieve the seamless digital experience their executives and customers are seeking.

SAP’s Recommendation

SAP recognizes these integration difficulties, but their recommendation is to move to S/4HANA. Integration to ECC is hard, and SAP doesn’t see any value in continuing to invest in improving a platform they are trying to stop supporting. Moving to S/4 is a huge undertaking for any organization and can take several months to years to complete. IDC Reports less than 14% of ECC customers have made the move to S/4HANA\(^4\), and SAP rolled back their mandate to move or risk losing support to 2027, or 2030 for customers who extend their contracts. More companies are making the choice to stay on ECC longer due to economic uncertainty, cost, complexity, and manageability of the transition. While the decision to make the move has been delayed in many enterprises, customer and employee expectations are not waiting for a better experience. According to PWC\(^1\),

“The payoffs for valued, great experiences are tangible: up to a 16% price premium on products and services, plus increased loyalty.”

Waiting to address these integration challenges until moving to S/4HANA is no longer an option for companies to meet immediate digital transformation directives.

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Chapter 2
Integration approaches: The good, bad, and ugly

Most Settle for the Traditional Integration Approach

So, what is an ECC customer to do? In most companies, the complexity of the business logic built up in SAP over the years extends across every area of the business including raw materials, products, inventory, quotes and orders, pricing, production planning, and more. Each one of these contains unique data and processes your company needs to operate effectively. For example, creating an order involves pricing that may depend on the customer, the sales channel, the combination of products, and more. It also involves tax and shipping calculations that might be prepared using custom functions or third-party modules. There may be a requirement to include a purchase order number – or a credit check before an order can be placed. What approaches have been considered to deliver this demanding complexity in front-end applications?
The traditional approach has been to create all the integrations company needs from scratch using SAP tools (PI/PO), or third-party ETL (extract-transact-load), iPaaS (internet platform-as-a-service) or other middleware tools. This is problematic for several reasons.

It typically requires building complex business logic in middleware or, even worse, front-end systems.

This is a time-consuming task that can overwhelm your internal resources and lengthen project timelines to many months, or even years.

When you take into account that each one of these business functions corresponds to several areas of customization like customer-specific pricing, workflows, geography-specific pricing, currency conversion, tax calculations, and inventory status, the data mapping exercise multiplies exponentially.

Even with iPaaS tools, every integration is different, and generally less than 40% of the work is typically reusable across applications, so the work required compounds for every application you need to integrate. Plus, if you do all the integration work your business is demanding now, and move to S4/HANA down the road, you will have to do it all again, as the S/4 API suite is different than ECC. For the costs associated with that – please re-read above.
The Scope of the Integration Challenge

To deliver the modern digital experience your customers are demanding, you must make sure all external applications that need SAP data are integrated correctly for your business processes to run smoothly. Typical applications that need data from your ERP system include CRM, eCommerce, CPQ, Call Center/Service, and Partner or Distributor Portals/Communities/Experience platforms.

Each one of these modern applications requires you to build the integrations to SAP from scratch. After completion of re-building the SAP logic within your CRM, you must repeat this process for your eCommerce platform, and every other application, to have the same level of detail available there. In addition, testing these integrations to make sure they produce the same results as SAP in every possible scenario is so time consuming it is nearly impossible.

You may end up deciding to shortcut the testing and risk errors, or not do the project altogether. These hurdles to integration extend project timelines even more and aggravate stakeholders looking to achieve business outcomes from digital transformation. Time always adds project risk.
Integration

Maintenance Issues

Another pain traditional integration projects create is maintaining all of these connections over time. This multitude of connection points results in what equates to spaghetti-code, making it very difficult to maintain because there are so many potential fault points that can cause system processes to break down or error out. If you have built business logic in the front end or the integration layer, you must make changes in multiple places (SAP and wherever else you built it) whenever something changes. This has the added potential to irritate customers or cause operating problems since these are critical business processes needed to run your company. Finding these errors can be difficult because developers must dig through lengthy error reports to find the fault point in the integration. This wastes valuable time and effort of your teams and can have serious consequences to your customer experience.

And many “errors” won’t show up as errors at all – they are logic errors that just result in orders being created (for example) with wrong prices or products being configured in ways that can’t actually be produced. This can mean having to go back to a customer to explain a price change, inventory issue, or other challenge even after they thought they had a completed order. It all adds up to a disjointed and unsatisfactory customer experience. But testing all these scenarios is impossible, making it extremely difficult to ever know that your front-end logic matches SAP.
Chapter 3
The Modern Approach

There is a better way to approach integration to SAP ECC - use a third-party, pre-built integration solution like enosix. This approach reduces the time required to develop the integration, since 80-90% of the work has been done ahead of time. enosix provides a suite of pre-built Rapid Integration Objects (RIOs) that run inside your ECC system at the application layer and allow for integration to front-end applications 70-90% faster than other approaches because the hard work of integrating all the complexity in SAP has been done for you. This innovative integration solution minimizes the need for replication because most data is virtualized and only synced to provide data where needed (typically for performance or reporting purposes). By leveraging the SAP business logic and processes in a customer’s ECC ERP, data is displayed natively in real time, creating the relevant interactions for your customer. That shortens integration timelines, reduces maintenance, and eliminates errors from trying to reproduce business logic.

It is not just data display, however, but also transaction execution. This same enosix platform executes transactions in SAP in real-time, all validated by SAP, guaranteeing acceptance of the transactions. This allows for common transactions like creating an order or updating a customer record to be seamlessly done from your front-end.

This way all your employees, customers, partners, and end-users can have access to the data they need from SAP when they need it. They can access accurate information, including line items details, orders, invoices, deliveries, materials/products, customer-specific pricing, available-to-promise dates and much more.
Sound too Good to be True?

Let’s explore how it works. The heart of the enosix solution is an SAP Certified add-on which allows for native, real-time, bi-directional communication between SAP and your front-end applications. There is minimal effort to set up, configure, and manage this integration. The add-on runs in the ERP’s application layer and encapsulates common business processes, including SAP’s rule sets, governance, and business logic, including custom tables, fields, and functions.

Two benefits here:

This means that you are leveraging the SAP business logic already built in SAP, not replicating it by re-building it in the front end as with other solutions. And because the platform covers 80% of your functionality out of the box, you can get started in days to weeks – not the 9-18 months typical of other integration approaches.

Moves to S/4 from ECC do not have to be re-built, simply moved as enosix reinstalls in S/4, bringing all of your front-end connections with it.

APIs can be consumed by any front end via REST API or through our SDK (and prebuilt apps) for Salesforce integrations. Given this portability to S/4 from ECC, you can spread your integration development effort over the years between now and when you do an S4/HANA conversion rather than needing to do all those projects simultaneously when the conversion begins. This significantly reduces the time, cost, and risk of a conversion project.
calls and database queries are made inside SAP, and all of the logic that combines the results is in SAP too. This means we only need to pass out to the front-end system the data that it needs and not all the intermediate results. This greatly reduces the number of needed API calls, bandwidth, and run-time. The overall result of our approach is significantly reduced load on your SAP system and network compared to traditional approaches of calling standard SAP RFCs and BAPIs and piecing together the results in middleware or on the front-end. It also means far greater code reusability across different front-end systems (nearly 100% vs. typically 40% for ETL/iPaaS solutions or 0% for solutions that live in the front-end). Lack of deep, scalable and re-usable integration to ECC significantly reduces the value of a front end by forcing users to access multiple systems
and various systems containing different answers to the same question. This can cause issues like long wait times to answer questions or providing customers with inaccurate quotes that need to be corrected before the quote can be entered into ERP – not the experience customers expect.

Achieving an ideal integration end state for your organization is extremely difficult. We’ve discussed the main integration challenges including: replication of the complexity built up in ECC, rework for each system you need to connect to, the testing and maintenance requirements to ensure it works, and the limitations of traditional integration tools.

The enosix platform addresses all the barriers to achieving this ideal integration end state now and sets you up for an easy path to any future system integrations. When you compare traditional integration approaches to enosix, it is easy to see what will benefit your organization most in the long run. The time savings and risk avoidance provide significant justification to use a third-party integration solution like enosix instead of trying to muddle through with traditional integration approaches.

To learn more visit www.enosix.com

Chapter 9
Conclusion