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WHITE PAPER

ERP integration strategies for cloud, API, and AI readiness

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Executive summary

Companies have spent plenty of time and money implementing enterprise resource planning (ERP) solutions to automate specific business processes, such as finance, purchasing, inventory management and operations. This has had a positive impact on business performance, but the monolithic design of traditional ERP systems, as well as heavy customizations over time have made the systems inflexible and continued innovation a major challenge.

Best-of-breed cloud applications are rapidly replacing the different modules of legacy ERP systems as users demand seamless “anytime, anywhere” access to data and functionalities that optimally support their business processes. Using a collection of independently designed cloud applications instead of a single modular ERP suite provides flexibility but also makes integration between the different applications extremely important.

Adding to the complexity of ERP integration, modern supply chains require increasingly deeper collaboration across entire ecosystems of buyers, suppliers, logistics providers, financial institutions, and other parties around the globe, which relies heavily on automated data exchange between an organization’s ERP and external partner systems.

Along with these considerations, today’s dynamic and uncertain economic conditions require resilient and agile business models and work practices. According to the American SAP User Group (ASUG), ERP integration holds the key to a successful response for organizations worldwide. However, “Shifting from on-premises ERP environments to the cloud, and embracing emerging technologies like artificial intelligence (AI), will prove complex and time consuming for many intelligent enterprises.”[1] This paper examines the pivotal role that integration plays when transitioning to a modern ERP environment and how critical it is to consider how to navigate the complexities of B2B integration while mitigating risks, ensuring security and compliance, and innovating for long-term business growth.

1 ASUG, *Pulse of the SAP Customer Research*, 2024

Defining the modern ERP ecosystem

Gartner's ERP strategy report highlights the shift from monolithic to modular, cloud-first ERP architectures, emphasizing that ERP is now an ecosystem of cloud-native applications and APIs.[2] Over that time, organizations have moved from massive, modular, on-premises ERP suites towards a collection of best-of-breed cloud applications designed to address specific ERP functionalities where they select their applications from a broad range of options to best meet their business and operational requirements.

The modern ERP can be characterized as a collection of mostly cloud-based applications that use modernized code and APIs to deliver always-on capabilities to users anywhere, anytime. The industry is witnessing major players, such as SAP, Oracle, and Microsoft, re-inventing their enterprise suites and delivering ranges of cloud-based ERP solutions to businesses of all sizes. But this ERP re-definition also provides space for smaller, nimbler cloud-native ERP providers to offer innovation and industry-specific applications. An organization can literally pick and choose the ERP environment it wants to create.

In the last decade, organizations haven't just used digital systems to replace paper-based processes but also implemented disruptive digital technologies to re-imagine their business models and strategies. These digital transformation initiatives have called for connecting to and leveraging new forms of data from more source systems and applications than ever before—many of which must work seamlessly with the ERP at the heart of the business.

Given the dynamic and complex nature of this environment, the scale of the integration challenge becomes clear. To gain full benefit from ERP and digital investments, organizations need seamless integration to enable effective information flows across business applications and their extended partner ecosystem.

2 Gartner, *2024 Strategic Roadmap for ERP*, October 2024

Transitioning to the cloud has many benefits, but after years of incrementally enhancing legacy ERP systems with third-party and homegrown applications, databases, point solutions and add-ons, enterprises are discovering the compound cost of running such a massive landscape and the difficulty of migrating to a new system. This can take a significant amount of time, and particularly large organizations may need to manage a mix of modern and legacy solutions in parallel for an extended period while systematically driving modernization across the enterprise.

Today's ERP environments are no longer single-vendor suites, they are ecosystems of cloud-native applications and APIs. To keep these environments synchronized, organizations must invest in robust API integration and EDI integration capabilities that connect core ERP systems with external platforms, such as CRM, logistics, procurement, and financial services.

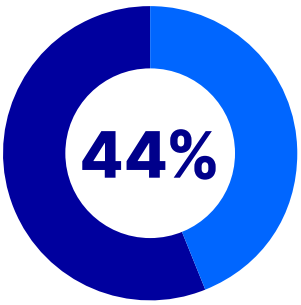
Highlighting the magnitude of the challenge, McKinsey estimates that up to 70 percent of digital transformation projects fail in some respect.[3] CIO.com notes that the cost of an ERP project is typically higher than expected, citing a local government ERP project that ballooned from $48 million to $114 million.[4]

Key capabilities of a modern ERP

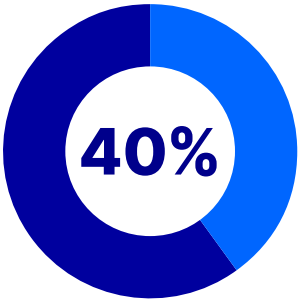
- **Cloud based:** ERPs from traditional ERP vendors are increasingly deployed in the cloud and new cloud-native ERP solutions are gaining popularity.
- **Mobile ready:** Modern ERPs support mobile access and productivity as more organizations work remotely.
- **Flexible:** ERP capabilities are increasingly delivered as collections of discrete applications focusing on specific business functions or areas. This can include specific industries, such as manufacturing or finance, or a specific business process, such as customer experience.
- **Scalable:** ERP is no longer the reserve of large enterprises but is available for small and mid-sized companies with the ability to easily scale the solution in alignment with business growth.
- **Centralized:** In connection with ERP modernization, many organizations are consolidating their ERPs from various regional or business unit instances onto centralized, global instances.
- **Secure:** Cloud-based ERPs offer robust security features, from encryption to endpoint security to leading edge identity and access management.

3 McKinsey & Company, *Why do most transformations fail? A conversation with Harry Robinson*, 2019

4 CIO, *How Birmingham's $48M Oracle ERP project turned into an epic failure*, 2025



44% of the transactional data in ERPs comes from outside the organization.[5]



40% of ERP implementations underachieve as a result of underinvestment in integration.[7]

The pivotal role of ERP integration

The shift from modular ERP systems to collections of best-of-breed cloud applications places more focus on ERP integration, which is needed for synchronizing data and automating processes between the ERP and other applications and data sources. The challenge is that integration requirements come in many shapes and sizes.

For common, repeatable use cases, it is often easy to find pre-configured integration solutions that are easy to deploy. However, system customizations, advanced processing rules, and niche or bespoke applications often make integrations difficult to configure, support, and maintain.

External B2B integrations that enables seamless data exchange with suppliers, customers and other business partners add further complexity, as they require coordination of activities between discrete organizations, all of whom have their own individually configured systems, preferences, and ways of working. With 44 percent of the transactional data in ERPs coming from external sources,[5] efficiently managing this complexity is crucial for operating a modern business.

As ERP systems become more fragmented, it's virtually impossible to digitize and automate key business processes and workflows without integration, as many tasks would have to be done manually, leading to high levels of inefficiency, errors, cost, and risk. Many organizations find out the hard way that operational and technical challenges with their integration strategy result in serious business repercussions, such as losing revenue, losing customers to competitors and having difficulty optimizing processes.

Integration also plays a key role in transitioning to modern ERP systems. According to Gartner, 40 percent of ERP implementations underachieve specifically because of underinvestment in integration.[6] Integration is also often cited as one of the major factors hindering overall digital transformation success.[7]

As integration plays an increasingly significant role in an organization's ERP strategy, implementing a modern ERP system, such as SAP S/4HANA®, Microsoft® Dynamics 365 Business Center, Oracle® NetSuite, and Oracle Fusion, often acts as a catalyst to also modernize its integration capabilities.

5 IDG MarketPulse, *ERP Modernization and Growing Data Challenges Drive 91% of Enterprises to Modernize*, 2021

6 *Gartner, *Magic Quadrant for Cloud ERP for Product-Centric Enterprise*, June 2020

7 RT Insights, *Poor integration hinders digital transformation success*, March 2022

Top 5 focus areas for API and EDI integration in ERP projects

In terms of integration, organizations should focus on these five areas when modernizing their ERP systems:

Minimizing risk and disruption

ERP migrations typically involve significant risks for organizations. The average cost of a greenfield migration to an ERP, including operational costs over seven years, is around $24 million US,[8] but large organizations can easily spend much more given their business complexities. In addition to the high cost, ERP migration projects are often complex to manage, require collaboration across various stakeholders, and take several years to complete.

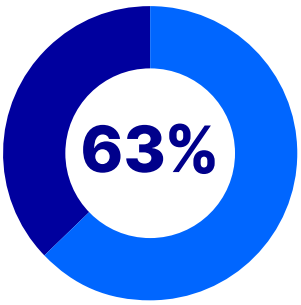
With so much at stake, ensuring the minimum level of business disruption possible during the transition is essential. For example, almost 80 percent of SAP customers state managing disruption to business operations as a key requirement for their ERP migration.[9]

Minimal business disruption is the No. 1 requirement for companies implementing SAP S/4HANA.[9]

Still, many companies report operational disruption when they go live. When applied from the start, a strategic approach to integration can significantly reduce the likelihood and impact of disruptions through careful requirements gathering and comprehensive testing.

8 Business IT, *Should you say no to SAP S/4 and HANA?*, April 2021

9 SAPinsider, *SAP S/4HANA migration benchmark report*, May 2022



63% of companies have experienced ERP connectivity loss due to integration issues.[14]

Minimizing ERP customization

Over the years, ERP implementations have been greatly customized to meet specific business needs. The American SAP user group (ASUG) found that 91 percent of its members use customized code.[10]

Customizations can be difficult to maintain and often complex to handle during modernization. For example, another recent study of SAP users found that 92 percent felt existing customizations were problematic to their migration to SAP S/4HANA.[11]

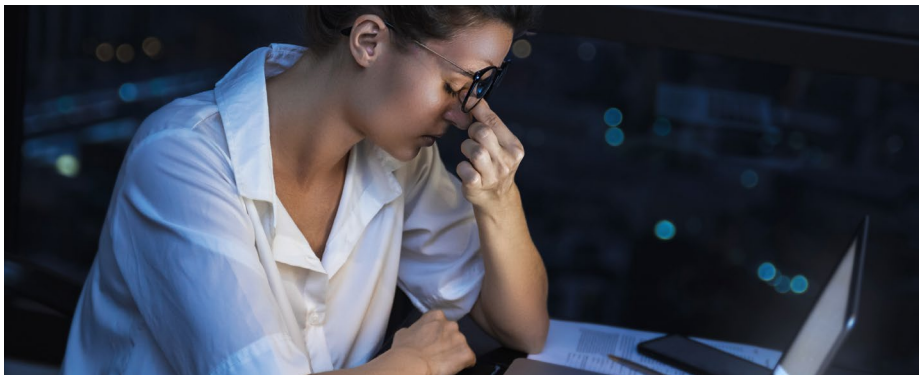
Customization goes against the overall principles around cloud applications, which means that organizations transitioning to a cloud-based ERP solution should look to minimize custom code and features when designing and deploying a new ERP. Instead, the desired functionalities and logic should be handled mostly outside the ERP.

This can be done in separate, bespoke applications, but modern integration solutions can also support advanced logic for adding business rules, data validation or other processing steps where it makes sense to meet specific requirements.

Avoiding project delay and budget overrun

Project delays are costly and produce knock-on effects for business strategies. Experience suggests that ERP implementations can cost three to four times their original budgets and can take up to 30 percent longer than expected to deliver.[12]

A robust integration strategy can help minimize the chances of costly delays for ERP projects through detailed insights and planning. One of the key aspects of this is ensuring sufficient resourcing throughout the project, which is easily overlooked if integration is not treated as a strategic consideration early in the ERP project.



10 Forbes, *What does modernization mean to CIOs?*, February 2022

11 Computer Weekly, *UKISUG 2021: S/4 Hana skills deficit and legacy custom code hamper migration*, November 2021

12 Oracle, *50 Critical ERP Statistics: 2020 Market Trends, Data and Analysis*, May 2021

Avoiding creation of integration “spaghetti”

As organizations digitally transform their business and modernize their ERP strategies, they are faced with a proliferation of applications and systems across the enterprise. According to different estimates, the average number of applications used by an organization range from slightly less than 200 to almost 1,000, and the numbers are growing.[13]

Not all these applications need to be integrated, of course, but the growing complexity of the enterprise application landscape is reflected in ERP integration. A survey by IDG found that 63 percent of companies have experienced ERP connectivity losses due to integration issues[14] and many organizations feel their current tools are not sufficient for meeting all their needs.

The challenges can, at least in part, be attributed to an integration strategy where multiple tools and platforms with overlapping capabilities are leveraged without centralized governance. The same IDG survey also found that only 33 percent of respondents are using a centralized platform for most integrations, whereas 59 percent used a mix of tools and eight percent had no centralized platform at all.[15]

Over the years, it’s possible an ERP’s implementation has been greatly customized to meet the unique business needs of the organization using it. Unifying the organization’s integration strategy and consolidating integration technologies where possible can help to improve governance, increase efficiency and gain better visibility into operations while also reducing ecosystem complexity.

Addressing the skills challenge

Integration of ERP and other applications or external systems often requires specialist skills that may not be available internally, especially for organizations looking to modernize their integration capabilities at the same time as their ERP solution.

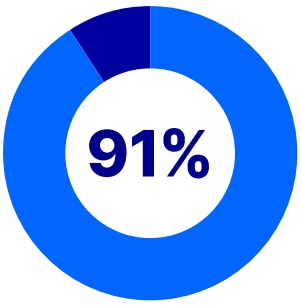
For many organizations, a shortage of integration skills is one of the biggest challenges during ERP modernization. According to IDG research, 86 percent of organizations have experienced delays with ERP integration, with a lack of integration expertise reported as the No. 1 reason.[16]

13 Elastica.io, *12 New Application Integration Statistics and Trends for 2022*, 2022

14 IDG MarketPulse, *ERP Modernization and Growing Data Challenges Drive 91% of Enterprises to Modernize Integration Solutions*, 2021

15 ibid

16 ibid



91% of organizations are looking for new solutions to integrate their ERP.[19]

Lack of integration expertise is the No. 1 reason behind ERP integration project delays.[17]

Securing the right integration skills is therefore essential for successful ERP migrations, particularly since ERP projects are already suffering from lack of skilled staff across the board. Furthermore, Gartner predicts that by 2027, only 30 percent of companies will have sufficient data quality to leverage advanced AI in ERP, due in part to skills and integration challenges.[18]

The future of ERP integration

As integration needs increase so does their variety. There is a growing need for simple integration tasks that can be performed by business users using a new generation of self-service tools. At the same time, the need for complex integration—involving capabilities such as calls to several applications on a single flow, performing advanced data transformations and configuring different types of business logic and rules—is also increasing and is critical to optimizing digital business processes. With 91 percent of organizations looking for new solutions to integrate their ERP,[19] the need for modern integration solutions seems apparent.

Today, any size business needs a future-proofed integration strategy to meet current needs while allowing for agility and scalability as requirements evolve. This calls for careful selection of integration partners and solution providers, as well as extensive coordination across the enterprise. For organizations it also means taking stock of existing integration solutions and devising a roadmap that helps develop the required capabilities while systematically navigating the transition in line with the organization's overall digital transformation goals.

17 IDG MarketPulse, *ERP Modernization and Growing Data Challenges Drive 91% of Enterprises to Modernize Integration Solutions*, 2021

18 Gartner, *Gartner Predicts 2025: Revisit ERP Strategies to Prepare for the Future*, May 2025

19 IDG MarketPulse, *ERP Modernization and Growing Data Challenges Drive 91% of Enterprises to Modernize Integration Solutions*, 2021

Simplifying ERP to enable AI

Optimizing ERP, systems, and data sources through integration

As organizations modernize their ERP environments, they often face a complex landscape of legacy systems, custom applications, and disparate data sources. Integration plays a pivotal role in simplifying this ecosystem. By consolidating integration technologies and adopting centralized governance, organizations can reduce the number of point-to-point connections and eliminate redundant middleware. This not only streamlines operations but also enhances visibility and control across the enterprise. Integration-led simplification enables companies to decouple tightly coupled systems, replace customizations with configurable logic, and rationalize their application portfolios. These efforts reduce technical debt and lay the groundwork for a more agile and scalable digital backbone for any organization.

How B2B integration supports AI readiness

B2B integration is a critical enabler for organizations aiming to become AI ready. Modern integration platforms ensure high-quality, timely, and consistent data exchange across internal systems and external partners. This data integrity is essential for training and deploying AI models. Furthermore, integration platforms act as a unified data access layer, aggregating structured and unstructured data from ERP, CRM, SCM, and partner systems. This unified view simplifies feeding data into AI pipelines.

Real-time B2B data exchange also supports predictive analytics and AI-driven automation, such as demand forecasting and exception handling. As enterprises scale their AI initiatives, the scalability and flexibility of modern integration platforms becomes indispensable.

Future-proof your ERP with OpenText B2B integration

OpenText™ Business Network integration solutions offer a scalable and secure platform that connects both internal systems and external trading partners, enabling seamless and intelligent data flow across the enterprise. This helps organizations modernize their integration environments and prepare for future needs, regardless of the complexity or diversity of their systems.

OpenText delivers scalable, secure **EDI solutions** and advanced **integration services** that support every phase of ERP modernization. Whether migrating to SAP S/4HANA, Oracle, or Microsoft Dynamics 365, OpenText enables rapid connectivity between internal systems and external partners.

Our platform supports:

- Secure and compliant **EDI integration** with more than one million global partners.
- Robust **API integration** with ERP, SCM, CRM, and custom applications.
- Centralized **data integration** management to reduce errors and latency.
- AI readiness through high-quality, real-time data flows.

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Additionally, OpenText supports organizations in redesigning business processes and adopting advanced integration capabilities to enhance efficiency and unlock new opportunities. Whether working with SAP S/4HANA, Microsoft Dynamics 365, Oracle NetSuite, or custom systems, OpenText provides the expertise and tools needed to improve data quality and ensure ERP systems are ready for AI-driven innovation.

Learn more about EDI solutions.