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Commerce Technology

Connecting Ecommerce to Your ERP: What Has to Work Beyond the Initial Integration

Moving products and orders between two systems is only the beginning. A dependable B2B ecommerce operation needs accurate prices, usable inventory information, reliable order processing, and a clear way to handle the moments when something goes wrong.

A wholesale customer signs in to an online store and places an order for 200 units of a familiar product.

The website displays the customer's negotiated price and confirms that the product is available. The customer submits the order and receives a confirmation number.

A few minutes later, a customer service representative searches the company's ERP system. The order isn't there.

Perhaps the integration is delayed. Perhaps the ERP rejected the transaction because of a credit hold, a missing customer reference, or a pricing discrepancy. Or perhaps the order was accepted, but the response never made it back to the website.

From the customer's perspective, these situations may look identical. The order appears to have been placed.

From the supplier's perspective, they are very different and may require entirely different actions.

This is why connecting a B2B ecommerce platform to an ERP cannot be judged solely by how quickly the initial connection is established or whether products successfully appear in an online catalog.

The integration has to preserve the meaning and integrity of the transaction, from the customer's first view of a price through fulfillment and any subsequent changes.

The ERP and the storefront have different jobs

An ERP system and an ecommerce platform share information, but they don't necessarily perform the same functions.

The ERP typically maintains some combination of product records, inventory, customer accounts, sales orders, purchasing, fulfillment, invoicing, and financial controls. The exact responsibilities depend on the company and its software.

The storefront provides the purchasing experience: customers identify products, view applicable terms, construct orders, and interact with the supplier without necessarily involving an employee.

Between them lies an important design question: which system is responsible for each piece of business information?

A company may manage product descriptions and images in its commerce platform while keeping item identifiers and stock records in its ERP. Contract prices might originate in the ERP, while certain online

promotions are controlled by the commerce team. Customer delivery locations could be maintained in one system or synchronized across both.

No universal rule requires every business to organize its data identically.

But when two systems can change the same information independently, discrepancies become a predictable risk.

Imagine that the ERP records a customer's negotiated price as $48 per unit. The storefront still holds last month's price of $51. A representative prepares a quotation using the ERP, while the customer sees something different online.

Both systems may be functioning exactly as designed. The integration still isn't delivering a coherent buying experience.

The first step in a reliable integration is therefore to establish **data ownership**: which system defines each record, which systems may modify it, and how changes reach the places where the information is used.

This sounds administrative. In practice, it determines whether customers can trust what they see.

Inventory availability is not simply a stock number

Inventory is one of the clearest examples of why moving data is not enough.

Suppose an ERP reports 500 units in a warehouse.

That doesn't necessarily mean a customer can order all 500.

Some stock may be reserved for existing orders. Some could be damaged, awaiting inspection, or otherwise unavailable for sale. A supplier might restrict certain products to particular customers or warehouses. Incoming stock could be available for future delivery without being physically present today.

The ecommerce platform needs an availability figure that makes sense for the buying decision.

That may involve available-to-sell inventory, allocation rules, warehouse-specific stock, expected receipts, or delivery-date calculations. The particular method depends on the business and what its ERP or order management system supports.

The timing of the information matters, too.

A stock figure refreshed every 30 minutes may be sufficient for products that rarely run short. For scarce items that several customers are ordering simultaneously, the same delay could result in promises the supplier cannot keep.

Even a real-time availability check doesn't guarantee that stock will remain available between viewing the product and submitting an order. Another customer may purchase it in the meantime.

That is why some workflows revalidate availability at checkout or reserve stock when the order is accepted. Others accept orders subject to later allocation or confirmation.

These approaches serve different commercial models.

A supplier selling readily available consumables may prioritize speed and convenience. A manufacturer selling constrained components may need more explicit reservation or promise-date controls.

The correct integration is the one that supports the company's actual commitments to buyers.

SAP's Commerce Cloud documentation illustrates this distinction. Its integration capabilities include access to real-time stock availability and order information, and its availability services can support future-stock visibility and sourcing decisions.

Those capabilities are valuable precisely because the commercial question isn't merely how many units exist. It's what the supplier can responsibly promise.

The price must be correct for this customer and this order

B2B prices often depend on customer identity, negotiated agreements, quantities, discounts, and other transaction conditions.

An integration that copies a general price list may work for some businesses. It may be inadequate for a distributor whose customers operate under individual commercial agreements.

Consider a buyer ordering ten cases of a product.

The ERP holds an account-specific contract price, a quantity rule, and a credit status. The storefront has a promotion that may or may not apply to contract customers.

The integration needs a defined method for determining the accepted price.

One approach is to request a price from the ERP whenever a customer constructs or submits an order. Another is to synchronize relevant agreements and calculate the price within the commerce platform. Some implementations use a separate pricing service.

Each can work, provided the rules are clear and both systems agree on the outcome.

Problems arise when the storefront and ERP calculate prices independently without reconciling their differences.

A customer could confirm an order at $4,800 while the ERP calculates $5,050. If the ERP rejects the order, customer service has a problem. If someone manually overrides the price, the business has created an exception that may be difficult to track. If the order proceeds at the wrong amount, there may be a margin loss or customer dispute.

A well-designed process establishes when a displayed price is provisional, when it is revalidated, and when it becomes an agreed commercial commitment.

It also specifies what happens if circumstances change before fulfillment.

Correct pricing isn't simply a front-end feature. It is part of preserving the agreed transaction.

An order is not complete just because the customer clicked Submit

Returning to the opening example, suppose the buyer submits an order and receives confirmation number 10482.

At that moment, several distinct things might have occurred:

- The storefront saved the order locally.
- The integration accepted the order for processing.
- The ERP received the request.
- The ERP validated and created the corresponding sales order.

- The ERP accepted the order for subsequent fulfillment.

These are not equivalent states.

A website may display an order receipt before the ERP has accepted the transaction. That can be legitimate, provided the customer-facing language accurately reflects what has happened.

For example, “Order received; awaiting confirmation” means something different from “Your order is confirmed for delivery on Thursday.”

The distinction becomes critical if the ERP can reject an order because of account restrictions, credit limits, inventory rules, or invalid data.

The system should not promise what the underlying business process has not yet accepted.

There are two common integration models.

In a **synchronous workflow**, the storefront submits the transaction and waits for the ERP or another authoritative order system to respond before presenting the relevant result.

In an **asynchronous workflow**, the storefront records the request, sends it for processing, and subsequently receives or retrieves the result.

The choice is not merely about technical speed. It affects the customer's experience and the reliability requirements of the integration.

Synchronous processing can provide immediate feedback, but the buyer's transaction may depend on ERP response times and availability.

Asynchronous processing can absorb temporary delays and support workflows that take longer, but it requires accurate order states, background processing, monitoring, and customer notifications.

SAP Commerce Cloud supports asynchronous order replication to SAP back-end systems. Oracle NetSuite's REST API also documents asynchronous request processing, with job identifiers that can be queried to obtain the result.

Neither model is inherently more reliable. Both need appropriate error handling, transaction identifiers, and recovery mechanisms.

The important requirement is that the customer and supplier can determine what actually happened to the order.

The most dangerous failures are often ambiguous

Imagine the ecommerce platform sends an order to the ERP.

The ERP successfully creates it, but the network connection fails before the confirmation response reaches the storefront.

The storefront now has an unresolved request.

If the integration simply submits the order again, the ERP might create a duplicate. If it assumes the first request succeeded, it might leave an actual failure unresolved.

Both outcomes are undesirable.

This is a common distributed-systems problem: a failed response does not necessarily mean the underlying operation failed.

A robust integration needs a way to identify repeated requests and determine whether an order has already been created.

That generally involves a stable external order identifier, a stored relationship between storefront and ERP records, and an appropriate idempotency or deduplication mechanism.

Idempotency means that repeating the same intended operation does not create an additional unintended result.

Its importance is recognized directly in major platform documentation.

Oracle NetSuite supports idempotent retries for asynchronous REST requests, helping clients avoid duplicate jobs and locate work following a connection failure. Shopify documents idempotent API requests and advises application developers to handle duplicate webhook deliveries safely.

These mechanisms are not always implemented in exactly the same way, and API-level idempotency does not automatically establish that every downstream business operation is duplicate-proof.

An integration must still consider the boundaries between systems and whether the ERP supports an appropriate external transaction reference.

The business requirement is simple even if the engineering is not:

One customer's order should not become two ERP orders merely because a response was lost.

The same principle applies to cancellations, refunds, payment actions, and other operations where repeating a request may have financial or operational consequences.

A successful initial transfer doesn't guarantee reliable synchronization

Integrations often depend on events: a price changes, an order is created, stock is allocated, or a shipment is dispatched.

A system may publish an event so that another system can update its records.

But what happens if the source system saves the change and fails before it sends the event?

The business record has changed, yet the downstream system may never learn about it.

What happens if an event is delivered twice? Or if two changes arrive in the wrong order?

These are familiar reliability problems in distributed software, and they matter directly to B2B commerce.

AWS's Prescriptive Guidance describes the transactional outbox pattern as one way to address failures when an application must both update a database and publish an event. The technique records the event as part of the same local database transaction, allowing it to be delivered later without losing the relationship between the change and its notification.

That is a relevant engineering approach, not a requirement that every ERP integration use a transactional outbox.

Other architectures may use change data capture, managed integration services, event queues, polling, or periodic reconciliation.

The general principles are more important than any particular mechanism.

An integration should be able to recognize duplicate messages, avoid applying older information over newer information where ordering matters, retry recoverable failures, and expose unresolved discrepancies.

It should also have a way to reconcile records periodically.

That last point is easily overlooked.

Even carefully designed event handling can fail because of configuration errors, revoked permissions, API outages, malformed records, or unexpected changes in source data.

Periodic reconciliation (comparing authoritative records with their downstream representations) provides a way to discover issues that ordinary event processing missed.

Reliable synchronization is not just the process of moving updates. It is the ability to detect and recover when updates do not arrive as expected.

Order changes make bidirectional integration essential

Creating an order is only one part of the order lifecycle.

After submission, the customer might request a different quantity, cancel an item, change a delivery address, or ask for an updated delivery date.

The warehouse may partially fulfill the order. The ERP may place it on hold, generate an invoice, or record a credit adjustment.

If the ecommerce platform sends orders to the ERP but never receives subsequent changes, customers may see outdated or incomplete information.

They could believe an order is awaiting fulfillment when it has already shipped, or assume that the original quantity is still available when the supplier has allocated only part of it.

Bidirectional integration allows information to move in both directions where the business process requires it.

That does not mean both systems should be allowed to edit every record.

In fact, unrestricted bidirectional editing can introduce conflicts.

A company might allow customers to request cancellations through the storefront while requiring the ERP to determine whether cancellation remains possible. The storefront sends the request, the ERP applies its business rules, and the resulting status is returned.

Similarly, the ERP or warehouse management system might own shipment records, while the ecommerce platform displays them to the buyer.

The direction of communication and the authority to change a record are separate decisions.

SAP's documentation provides a useful reminder that such capabilities depend on the specific implementation. One documented asynchronous order management configuration, for example, restricts where cancellations can be initiated and how items can be canceled.

These differences matter when choosing a commerce architecture. A feature labeled “order synchronization” does not necessarily imply support for every change a business expects to make.

Integration performance matters, but reliability matters more

An integration can be technically correct at low volume and struggle during normal business peaks.

Perhaps customers place large numbers of orders early in the morning. Perhaps inventory updates become especially frequent at the end of a shift. Or perhaps a seasonal promotion triggers far more price and stock requests than usual.

The ERP may have limits on concurrent API requests or the resources available to process them.

Oracle NetSuite, for example, documents account-level concurrency governance for web services and RESTlets, covering requests from multiple integrations.

That becomes important when ecommerce is not the only application connected to the ERP.

The same environment may also support warehouse software, accounting integrations, customer portals, reporting services, or external applications.

A design that works when the storefront is the sole API consumer may behave differently when all those systems are active.

Performance testing should therefore reflect expected transaction volumes, peak conditions, and competition for shared resources.

The response to resource limits isn't necessarily to add more infrastructure.

An integration may need to cache information that doesn't require immediate recalculation, batch suitable updates, queue background work, or limit concurrent requests.

But those optimizations introduce decisions about freshness and processing order.

Caching stock can make product browsing faster while increasing the risk of outdated availability. Queuing order updates can protect an ERP from overload while delaying downstream processing.

The right choices depend on the commercial consequences of stale or delayed information.

The objective isn't the lowest possible technical latency in every interaction.

It is an acceptable customer experience backed by correct business outcomes.

Direct APIs, connectors, and middleware: choose by the actual work

Integration architecture is often presented as a competition between direct API connections and middleware.

That framing is too simple.

A direct connection can reduce the number of components involved, particularly when the ERP exposes suitable APIs and the ecommerce platform can use them without extensive custom development.

A connector can provide reusable mappings and workflows for a particular system combination.

An integration platform can help when a business has numerous applications, needs complex orchestration, or requires centralized monitoring across different interfaces.

Each approach may also introduce costs and responsibilities.

Direct integration still needs authentication, data mapping, error handling, monitoring, and adaptation when interfaces or business requirements change.

Connectors may require configuration and maintenance, and their supported operations might not cover every customer-specific requirement.

Middleware can simplify some integration challenges while adding another service, operational dependency, and cost category.

There is no reason to assume that every integration platform necessarily slows down transactions or that every direct API connection is automatically simpler.

The more useful evaluation concerns the total work required to operate the integration.

How many components must be maintained? Who updates mappings when data structures change? How are failures detected? How easily can the business modify a workflow? What happens during an ERP upgrade? Who is responsible for resolving an order that becomes stuck between systems?

These questions are more informative than counting how many boxes appear in an architecture diagram.

For smaller businesses without a large IT team, administrative independence can be especially valuable. An integration that is straightforward to configure and diagnose may offer benefits beyond its initial installation cost.

For larger businesses with complex application landscapes, centralized integration management may be equally important.

The right architecture should reflect the business's needs, not an abstract preference for one integration style.

A connected ERP can serve more than the ecommerce storefront

There is another opportunity that businesses sometimes overlook.

Once secure, reliable access to ERP information exists, other systems may need some of the same information.

A customer service application could retrieve order status. A sales tool might need customer purchasing history or available inventory. An authorized AI assistant could use ERP-backed information to answer a question or prepare a transaction.

Providing each application with its own independently maintained ERP integration can duplicate mapping, security, and maintenance work.

An appropriately designed integration layer or API gateway can make selected ERP capabilities available to other authorized applications while enforcing access controls and consistent business rules.

That does not mean exposing the ERP directly to the public internet or allowing every connected application unrestricted access.

It means treating ERP connectivity as reusable business infrastructure rather than merely a one-time link to an online store.

The distinction becomes increasingly relevant as companies add automation, analytics, customer service tools, and AI systems.

A supplier might initially connect ecommerce to its ERP to support online ordering, then discover that the same governed access to prices, stock, accounts, and orders can support other parts of the business.

That broader value belongs in the integration decision from the beginning, even if additional applications are introduced later.

Test a real order, not just the connection

How should a manufacturer or distributor determine whether its proposed ERP integration is ready?

The most useful test is not whether the API reports a successful connection. It is whether representative business transactions behave correctly, including when circumstances change or something fails.

Start with an ordinary order from an established account.

Confirm that the storefront presents the right customer-specific prices and purchasing rules, that the ERP receives the intended order exactly once, and that the customer receives an accurate acknowledgement.

Then introduce complications.

Change an account's price shortly before checkout. Attempt to order more stock than is available. Submit an order from an account that has been placed on credit hold. Interrupt the connection after the ERP receives an order but before the storefront receives confirmation.

Ask the system to recover.

Can it determine whether the order exists? Does it avoid creating a duplicate? Does it communicate the true order state? Can an administrator identify the failure and resolve it without searching through unrelated technical logs?

Next, test what happens after acceptance.

Partially fulfill an order. Change its shipping status. Request a cancellation. Process a return where the relevant business systems support that workflow.

The customer, salesperson, and operations team should receive consistent information, even if they interact with different applications.

This is a more demanding test than importing a catalog or successfully posting a sample order.

But it reflects what the integration is actually supposed to accomplish.

The integration is successful when the business can rely on it

ERP integration is frequently discussed in technical terms: APIs, connectors, mappings, middleware, synchronization intervals.

Those details matter. But the customer doesn't care which software component transferred the order.

The customer wants the correct price, dependable availability information, an order that reaches the supplier, and accurate updates about what happens next.

The sales team wants to know that online transactions follow the same commercial agreements as assisted orders.

The operations team wants records it can trust, without repeatedly correcting data or reconciling systems by hand.

And management wants the integration to continue working as the business grows, commercial requirements change, and software evolves.

The first successful data transfer proves that two systems can communicate.

A successful ERP integration proves that the business can depend on that communication to conduct real transactions.

That's the standard worth applying before choosing a platform and long after the first online order has been placed.