

S u p p l y C h a i n R e s e a r c h · C o r n e r s t o n e R e f e r e n c e

EDI and B2B

Integration

What Is EDI, and Is It Still Relevant?

EDI is a structured message format for exchanging business documents between companies, standardized since 1979. It persists not through inertia but because it is settled, auditable, and mandated by large trading partners. The realistic question is not whether to replace it but how many connectivity methods you can afford to run.

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01 The short answer

Electronic data interchange is a set of standardized formats for exchanging business documents between organizations, such as purchase orders, shipping notices, and invoices, in a structure both sides agree on in advance. It remains widely used because the standards are stable, the message set is settled, transactions are auditable, and large trading partners frequently mandate it as a condition of doing business. EDI is not competing with APIs so much as coexisting with them, and most supply chain organizations will run direct connections, a managed network, and APIs simultaneously for years.

1979 ANSI chartered ASC X12 to standardize interindustry EDI	1986 the United Nations approved the UN/EDIFACT standard	3 connectivity methods most organizations run at once
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Key takeaways

- **EDI is a format, not a technology generation.** The message structures are standardized by accredited bodies and have been stable for decades.
- **It persists because it is mandated and settled.** Large partners require it, and a format everyone already implements has real value.
- **APIs solve a different problem.** They excel at real-time queries; EDI excels at agreed, auditable document exchange at volume.
- **The cost is in onboarding, not licensing.** Per-partner mapping and testing dominate, which is why partner count predicts cost better than message volume.
- **Treat circulated adoption figures with caution.** The widely repeated claim that over 300,000 companies use X12 appears only on vendor pages, undated and without a primary source.

02 What is EDI, and who defines it?

EDI replaces a document that would otherwise be sent as paper, fax, or email with a machine-readable message in an agreed structure. A purchase order becomes a defined sequence of segments and elements that the receiving system can process without a human reading it. The value is not the transmission but the agreement: both parties know in advance what every field means.

Two standards dominate. In North America, ANSI chartered the Accredited Standards Committee X12 in 1979 to develop uniform interindustry standards for electronic exchange of business transactions, and X12 remains a non-profit, ANSI-accredited standards organization maintaining that work. Internationally, the United Nations Economic Commission for Europe approved UN/EDIFACT in 1986, maintained through UN/CEFACT. Industry subsets sit on top of both, and a United States government analysis comparing the two standards has existed since the mid-1990s, which is itself an indication of how settled this ground is.

One number deserves a caution rather than a citation. The claim that more than 300,000 companies worldwide use X12 standards appears across the EDI industry, but the instances SCR can trace appear on the sites of companies selling EDI software and services, undated and without a stated source or method. It may be approximately right. It is not checkable, and SCR does not treat it as evidence.

03 Why has EDI not been replaced by APIs?

Because replacement would require every trading partner to move at once, and no single party can compel that. A retailer with thousands of suppliers cannot switch connectivity method without imposing a project on each one, and a supplier serving several large customers implements whatever each customer requires. The result is a standoff that favors the incumbent format, and the incumbent format works.

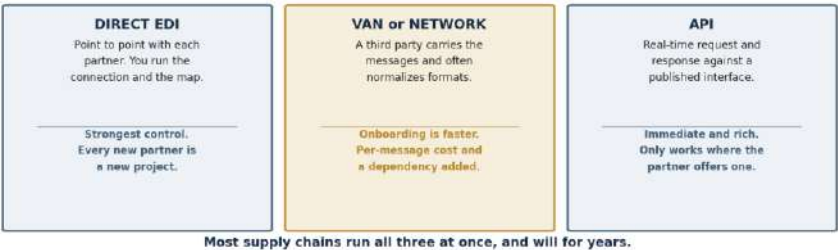
There are also properties EDI holds that are frequently undervalued. The message set is settled, so a purchase order means the same thing across partners and years. Transactions carry acknowledgements and an audit trail suited to commercial dispute. Batch exchange handles high volume efficiently, and much of supply chain document flow is periodic rather than real-time. A daily inventory position does not benefit from being available in milliseconds.

The fair case for APIs is strong where the requirement is a query rather than a document. Checking availability, retrieving a live shipment status, or confirming a price is work that suits a request and response interface, and forcing it into a batch document exchange produces latency nobody wants. The honest conclusion is that these are complementary rather than competing, and organizations treating API adoption as an EDI replacement program usually discover that the trading partners, not the technology, set the pace.

04 EDI, managed networks, or APIs: how do I choose?

Rarely as a single choice. Direct connections give the most control and the lowest marginal cost per message, at the price of running every connection yourself. A managed network or value-added network carries messages on your behalf and often normalizes formats, which shortens onboarding considerably but adds per-message cost and a dependency. APIs give immediacy where a partner publishes one.

Three connectivity options, and what each one costs you



The choice is rarely made once for the whole trading base. Large partners dictate their preferred method, small partners often support only one, and the practical question for most organizations is how many methods they can afford to operate rather than which single method is best.

Figure 1. The three connectivity options and what each one costs. Most organizations run all three, because large partners dictate their preferred method and small partners often support only one.

The practical decision is usually about partner segmentation rather than technology preference. High-volume strategic partners frequently justify direct connections. The long tail of smaller partners is where a managed network earns its cost, because onboarding effort dominates and a network absorbs it. APIs get added where a partner offers one and the use case is a query rather than a document.

	Direct EDI	Managed network	API
Best suited to	High-volume strategic partners	The long tail of smaller partners	Real-time queries where a partner publishes one
Onboarding	Slow. A project per partner	Faster. The network absorbs format differences	Fast where documented, impossible where absent
Cost shape	Upfront build, low marginal cost	Lower upfront, ongoing per-message fees	Build per interface, low marginal cost
Main exposure	You own every connection and every change	Dependency on the provider and its pricing	Partner may change or withdraw the interface
Audit trail	Strong, with acknowledgements built into the standard	Strong, and usually reported by the provider	Varies. Depends entirely on the interface design

Table 1. The three methods compared. The row that most often decides the outcome is onboarding, because partner count rather than message volume drives the effort in most estates.

05 What does B2B integration actually cost?

Cost tracks partner count and format variation far more closely than message volume. Each new partner requires a map from their interpretation of the standard to yours, a test cycle, and an ongoing support obligation. Standards permit variation, and partners use it, so two companies exchanging the same document type under the same standard can still require separate mapping work.

Three costs are habitually underestimated. Partner onboarding, because it is repeated and each instance looks small. Exception handling, since failed messages need people to resolve them and that load is continuous rather than one-time. And change absorption, because trading partners alter requirements on their own schedule and the cost of responding is not yours to control. Budgeting integration as a project with an end date rather than a standing operational capability is the most common planning error in this area.

06 How should I plan a connectivity estate?

Start with an inventory: which partners, which documents, which method, which system on your side, and who owns each connection. Most organizations discover during this exercise that they cannot produce the list, which is itself the finding. Connections accumulate over years, are frequently owned by individuals rather than teams, and are documented only in the memory of whoever built them.

Then segment by strategic importance and volume, and match method to segment rather than pursuing uniformity. A single connectivity method across a whole trading base is an appealing target and an unrealistic one, because partners have their own constraints and no leverage exists to move all of them. The achievable goal is a small number of deliberate methods with clear ownership, rather than one method everywhere or an undocumented estate that grew by accident.

07 Frequently asked questions

Is EDI obsolete?

No. The standards are actively maintained by accredited bodies, large trading partners continue to mandate it, and the document flows it handles have not changed in nature. It is mature rather than obsolete, and maturity in an interchange format is a strength because both sides already know what every field means.

What is the difference between EDI and an API?

EDI is a message format for exchanging agreed business documents, often in batches. An API is an interface for requesting and receiving data, usually in real time. They suit different work: documents that constitute a commercial record versus queries that need an immediate answer. Most organizations need both.

Do we need a VAN?

It depends on partner count rather than volume. A network earns its cost where onboarding many smaller partners would otherwise consume internal effort, and earns less where a handful of large partners dominate. Model the cost against the number of connections you expect to add each year rather than against messages sent.

Who maintains the EDI standards?

In North America, the Accredited Standards Committee X12, a non-profit chartered by ANSI in 1979. Internationally, UN/EDIFACT, approved by the United Nations Economic Commission for Europe in 1986 and maintained through UN/CEFACT. Industry-specific subsets sit on top of both and are maintained by their own bodies.

Can we require partners to use our preferred method?

Only to the extent you have commercial leverage, which usually means large buyers can and suppliers cannot. Requiring a method from a partner who cannot support it either adds cost you will absorb elsewhere or removes a supplier. Leverage should be spent where the volume justifies it.

Where does EDI sit relative to our ERP or OMS?

It is the connectivity layer beneath them. Documents arriving by EDI become orders, receipts, or invoices inside those systems, and the integration question is where translation happens and which system owns the resulting record. Placing translation inside an application that may later be replaced creates a dependency worth avoiding.

How long does partner onboarding take?

It varies widely with the partner's own process and how far their implementation departs from the base standard. SCR does not publish a benchmark, since credible public data on onboarding timelines does not exist and the figures in circulation come from parties selling onboarding services.

08 Method, sources, and where to go deeper

Method

- Standards history and governance are taken from the standards bodies themselves and from a United States government technical analysis, rather than from vendor summaries.
- Process placement follows the SCOR Digital Standard, which locates partner connectivity within Orchestrate as an enabling capability spanning the other processes.
- Supply Chain Research is independent and vendor-neutral. We accept no payment from the vendors or categories covered, and this page names no products.

Caveats

- The frequently cited figure of more than 300,000 companies using X12 standards is not used as evidence in this page. Every instance SCR can trace appears on the site of a company selling EDI software or services, without a date, sample, or method. It is reported here only as an example of a claim that circulates without support.
- No reliable public data exists on EDI onboarding timelines, integration costs, or the split between EDI and API traffic in supply chain document flows. Figures in circulation originate with interested parties.
- Table 1 and Figure 1 are structural comparisons rather than measured data. The suitability judgments reflect common practice.

Where to go deeper

Two SCR guides cover the systems on either side of this layer. The supplier collaboration networks guide addresses multi-party connectivity and the managed network model in depth, including how onboarding is priced and what the dependency involves. The order management guide covers what happens to a document once it arrives and becomes an order, and where translation should sit relative to the systems that may later be replaced. Readers scoping across categories should start with the SCR supply chain software category map.

Sources

- [1] X12. [Standards development organization home](#). Non-profit, ANSI-accredited standards body chartered in 1979.
- [2] National Institute of Standards and Technology. [An analysis of ANSI ASC X12 and UN/EDIFACT electronic data interchange standards, NISTIR 5631](#). US government technical analysis.
- [3] Association for Supply Chain Management. [SCOR DS model reference, Orchestrate process including technology enablement](#).
- [4] Association for Supply Chain Management. [SCOR Digital Standard overview](#).
- [5] EDI Basics. [EDI document standards](#). Interested source: operated by an EDI services provider. Cited as the origin of the unattributed 300,000 company figure, not as evidence for it.

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