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The Silent Revolution in Enterprise Supply Chain Collaboration

By: [Bernd Baier](#), [Alexander Paulus](#)

We often do not fully recognize how subtle changes can shift paradigms over a longer period of time. Supply chains have been in the spotlight since COVID, providing an opportunity to shine a light on how many small changes and developments over time have silently and fundamentally changed the way supply chain systems are operated.

Global supply chains have been on the top of consumers' minds and, more so, a significant headache for producers, especially since the recent disruptions. Supply chain issues may not be temporary but rather systematic and more permanent than many anticipated. The pandemic accelerated the underlying trend of low global reliability and demonstrated the fragility of always-available, just-in-time supply chains.

So how do organizations' IT systems, solutions, networks, and digital processes cope with and manage supply chains today, and how did we wind up here, where supply chains are driven by collaboration? This article looks closely at supply chain systems through the lens of the world's largest enterprise resource company, SAP SE. We explain how supply chain solutions quietly evolved from loosely coupled supply-chain-related solutions into an integrated ecosystem of solutions for supply chain collaboration.

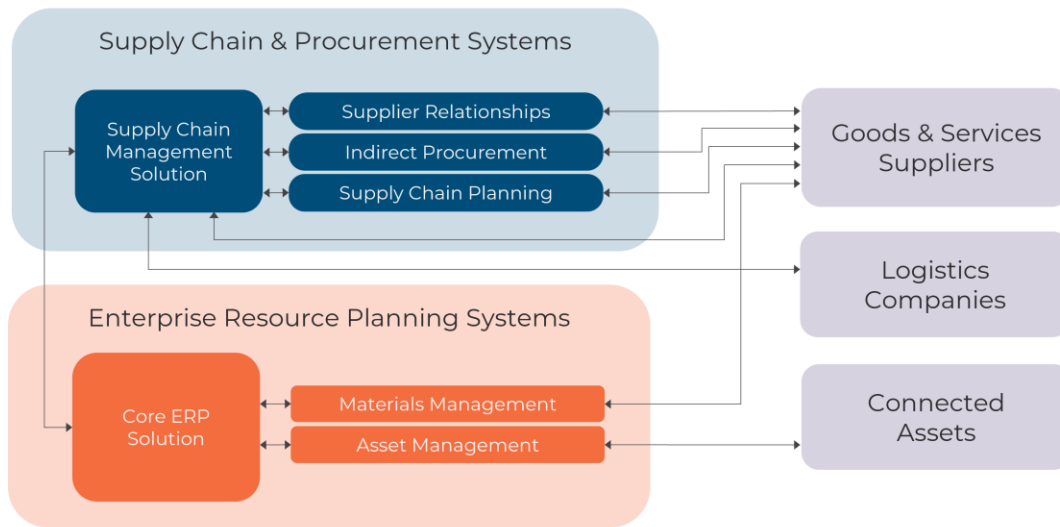
Supply chain basics

Before we dive into the different aspects of an agile, adaptive, collaborative, and fully integrated digital supply chain collaborative system, here is a brief overview of the basics of supply chains and how the different components fit together.



Supply chains are generally defined as the end-to-end processes of producing products and distributing them to the final buyer. They involve a network of entities, people, information, resources, and functions.

Procurement is acquiring the supplies needed to run the business operation. Procurement is typically categorized into direct and indirect spend. Direct spend relates to acquiring everything directly related to producing goods and services, often also referred to as core supplies. Conversely, indirect spending covers expenses associated with running the business, such as materials, maintenance, services, repairs, and operations. With that, procurement is a subset of the supply chain.



Coupled Supply Chain Systems of the Past

Figure 1: Coupled supply chain systems of the past
[click to enlarge](#)

Next, let us look at how supply chains were managed in the past and what the future holds using SAP as an example.

The past: coupled supply chain systems

SAP has been leading the business software domain for the last 50 years with no end in sight. While the company itself only generated a modest €27.8 billion annual revenue in 2021, the total SAP ecosystem is [anticipated to generate \\$90 billion](#) annually by 2026, and its customers generate 87 percent of total global commerce which is a staggering [sum of \\$46 trillion](#) (see figure 1 above). In short, SAP is the most significant single player in enterprise business software with the world's most integrated software and service ecosystem. With that in mind, the company has played an important role in supply chain information systems and is a perfect lens to describe supply chain solutions' past, present, and future. Their enterprise software has been around the block the longest: with the current integrated business planning and supply chain systems centered on the flagship ERP system, SAP S/4HANA.

For supply chains, since one of the early versions of SAP, management of material purchases has been embedded in a suite of solutions in its ERP system called Material Management (MM). Interestingly, the core MM solution is still there—quite evolved, of course, into a sophisticated solution driving logistics and supply chain operations.

The next step in the evolution of material management is a traditional supply chain solution (SCM) covering forecasting, planning, collaboration, and logistics, somewhat situated on top of MM as a top level above the materials management solution.

The next iteration of supply chain management systems included supply chain planning tools for Advanced Planning and Optimization (APO). These solutions aid organizations in managing demand planning, supply network planning, production planning, detailed scheduling, and “global available to promise,” which covers predefined availability checks for customers.

A supplier relationship management solution (SRM) managed supplier relations and how they integrate in procurement activities.

Finally, solutions are in place for managing procurement with a focus on indirect spend, all so-called source-to-pay aspects and spend analysis, supplier management, sourcing, contracts, and others.

This sums up the evolution of supply chain management systems as intelligent solutions that evolved over the years and connected to a core ERP solution. However, the old models have already hit limits for some time; the present ecosystem already looks quite different as we outline next.

The present: integrated cloud-based supply chain solutions

All the solutions mentioned above were already connected and integrated with each other and included various features for collaboration with internal and external stakeholders in the process. But only a few solutions were built primarily as collaboration platforms or cloud-first solutions.

The first major shift came when SAP acquired Ariba for \$4.3 billion in 2012. Well-known in the market of indirect procurement, Ariba was a leading procurement solution born as a cloud solution built around collaborative processes. Ariba was integrated reasonably quickly as the primary solution for indirect procurement with various integration modules into the ERP system.

A second major shift was the ongoing consolidation of many business platforms into a single digital core with SAP S/4HANA, a technological leap compared to their previous ERP systems.

The third shift was the evolution and adaption of the cloud. Among others, SAP Ariba played a significant role. Flanked by other cloud-only solutions (such as SuccessFactors, IBP, Concur, and others), the ecosystem is moving toward a SaaS model from a traditional on-premises model. Most supply chain and supply chain collaboration solutions will ultimately transform into, be offered, and consumed on a subscription-based cloud model.

The integration piece is relatively simple. All solutions already existed but needed to be partly rebuilt, partly rearranged, integrated, and most importantly, connected to networks of suppliers, logistics companies, and intelligent assets such as IoT devices. After integrating the core solutions, the focus is now on the business networks.

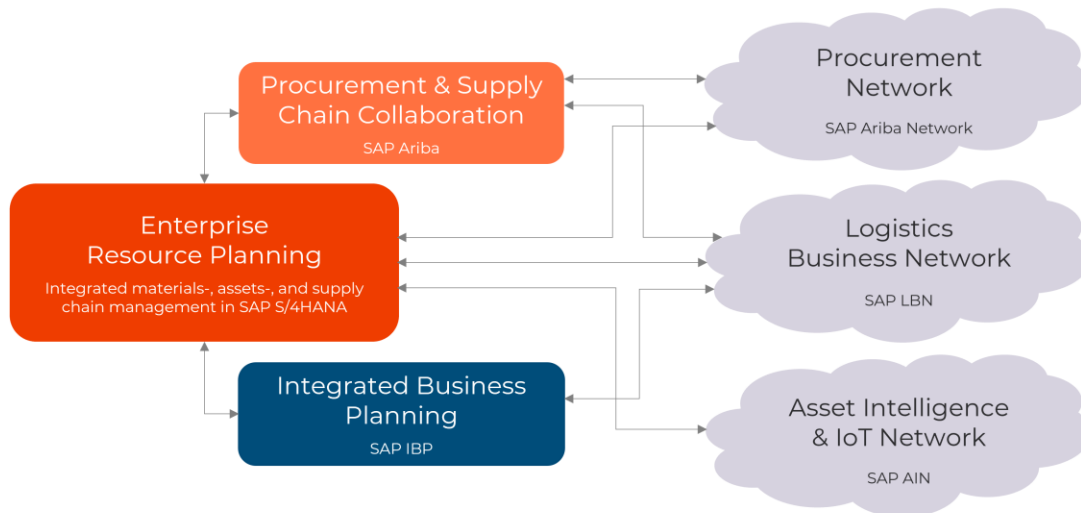
We are using the Procurement Network of SAP Ariba to outline how the future is quite different.

The future: integrated, collaborative supply chain networks

The future of the supply chain is in supply chain collaboration. SAP Ariba is unique compared to other procurement solutions. Many procurement solutions also cover similar areas: direct- and indirect procurement of products and services, spend analysis, supplier management, risk management, lifecycle and performance management, sourcing, contracts, buying and invoicing, and corporate catalogs.

The uniqueness of SAP Ariba comes with the supplier and vendor network as a basis for supply chain collaboration, often simply referred to as the Business Network. It enables organizations to collaborate with all trading partners in the supply chain, including suppliers, logistics providers, asset operators, and more.

Let's put that in perspective: There are currently four million connected suppliers and buyers in over 190 countries, with nearly \$3 trillion in commerce flowing among them annually. It is larger than eBay, Alibaba, and Amazon combined [based on commercial value](#). Those are pretty incredible figures. Even Amazon is now integrated with SAP Ariba so that organizations can access items on Amazon Business directly from within their companies' [portals](#).



Integrated Supply Chain Systems with Business Networks of the Future

Figure 2: Integrated supply chain systems
[click to enlarge](#)

Why a collaborative multi-dimensional business network over a more traditional singular supplier network? The answers are straightforward:

- Collaboration with trading partners in the supply chain levels and enables supplier collaboration regardless of type and size with a flexible and scalable network.
- The information exchange is transparent, immediate, and secure, minimizing supply chain disruptions.
- Supply chain resilience is improved through tight coordination with suppliers.
- Resources are now utilized strategically with a fully digitalized supply chain, asset maintenance, and procurement processes, decreasing operating costs while increasing bottom lines.

In an exemplary implementation, a business network of business networks incorporates and connects the procurement network with supply chains, logistics networks for shippers and carriers, networks for asset management, and trading partners.

Supply chain collaboration adds stability

Supply chain disruptions are part of normal business operations and are no longer an exception. Organizations are building core digital systems with agile and adaptive business processes to prepare. Supply chain collaboration helps stabilize potentially fragile systems. With a fully integrated, cloud-based, collaborative supply chain ecosystem of solutions, companies not only withstand disruptions but can thrive compared to their competitors with less agile systems.

With all information and interdependencies available in the digital enterprise core and the collaborative supply chain solution, companies can now proactively manage their supply chains. Integrated business planning might help simulate a relocation of a manufacturing site to a more geopolitically favorable region within a short period. Other implementations such as dashboards may enable stakeholders to use better information about where critical supplies are located at any given time, fostering faster and better-informed decision-making.