SAP for commodity trading
Optimize commodity pricing and better manage risk
Executive summary

For commodity-driven companies, today’s market environment of narrow margins and volatility uncertainty makes the trading function more important than ever. Despite the increasing relevance of trading, a fully integrated Commodity Management solution that can meet both the needs of traders and the enterprise has been elusive.

Many companies use a niche commodity trading and risk management (CTRM) system—or a collection of spreadsheets—to support trading. But the lack of integration between a company’s CTRM system and its enterprise resource planning (ERP) system has long been an issue, leading to challenges in inventory management, risk analysis, and tradebook to financial reconciliation.

With SAP S/4HANA, things have changed. The system’s new Commodity Management enhancements enable companies to combine their CTRM and ERP functions to better manage their commodity trading business. This integration has the potential to deliver significant benefits in the form of enhanced visibility, analysis, insight, and decision making.

In this report, we’ll take a closer look at SAP Commodity Management, including:

• Enhancements new for SAP S/4HANA
• The high-level benefits companies can realize through these enhancements
• Making the move to SAP Commodity Management
• Different migration paths for different companies

We hope the information in this report helps your company envision what’s possible as you consider your approach to integrating Commodity Management in your SAP S/4HANA journey.
Commodity Management enhancements

Traditionally, SAP has been a strong player in the trading organization back office, but lack of front and middle-office functionality kept it from full adoption as the trading solution for many organizations. With SAP S/4HANA, things have changed.

The new Commodity Management delivers enhancements that consolidate the front-, middle-, and back-office functions onto a single solution. These capabilities complement traditional SAP strengths by adding:

**Improved deal capture through Fiori—the new SAP user interface—including:**
- A streamlined screen for trade entry that’s configurable by the user and allows for flexible user entry
- The ability to capture both physical and financial trades in one place
- Complex formula pricing that can be created on the fly
- Integration with common public exchanges

**Market risk management that allows users to:**
- Model complex physical and financial forward curves
- Decompose both physical and financial forward positions into discrete market exposures

**Credit risk management with the capability to:**
- Run advanced risk simulations and analysis
- Make informed commercial decisions based on integrated dashboards that can be configured to specific organizational needs

**Credit risk management with the capability to:**
- Provide an integrated view of credit exposures that integrates forward position credit exposures with current accounts receivable
- Manage credit exposure through efficient cash application as counterparties pay invoices
- Integrate with treasury for a broad view of credit exposure versus cash and collateral postings

These additions can potentially enable companies to take full advantage of the logistics and back-office functionality that was already in place in the SAP system—creating an integrated solution that can support today’s dynamic supply and trading organization (see figure 1).
Figure 1: Commodity Management functionality introduced in SAP S/4 HANA
Potential Commodity Management benefits

SAP S/4HANA gives companies the opportunity to effectively integrate trading and risk data with data across the enterprise, enabling new opportunities for analytics and insight development.

As companies plan their move to the SAP S/4HANA platform, they should migrate supply and trading functions as a part of their overall enterprise roadmap. Some benefits of making this move include:

• True **end-to-end visibility of the hydrocarbon value chain**, including:
  - Transparency of **inventories and their associated costs, market risks and opportunities** created by an organization’s network of assets (e.g., refineries, pipeline capacity, terminals, storage) and forward transactions
  - A **digital data core** of enterprise commodity transactions, which enables high-quality analysis and insight generation
  - A **“single source of truth”** for trading data, reducing tradebook to financial reconciliation and providing a clear view of commercial performance

• A centralized, scalable enterprise platform that’s “futureproofed” to accommodate emerging capabilities, such as **artificial intelligence, predictive analytics, robotic process automation, and blockchain**

• Simplified infrastructure and system maintenance, enabling the business to **focus on value added activities**

• **Common master data** that eliminates what formerly took hours of work to sync and reconcile across trading and SAP systems
SAP is more than just a replacement for a traditional CTRM system. For example, an embedded CTRM capability within a company’s enterprise technology platform provides the opportunity for analytics that can:

• Highlight the **impact of market exposures on financial results** in near real time
• Use market, trading, and asset data for **on-demand hydrocarbon value chain optimization**
• Integrate trading results and forecasts into C-suite enterprise reporting

This new capability also introduces enterprise data into supply and trading, providing analytic opportunities to:

• Use asset and operations data to **predict market constraints**
• Update trading positions with near real-time operations forecasts
• **Integrate credit and cash** positions into deal analysis

**The SAP digital boardroom**

To enable this powerful data analysis, SAP S/4HANA introduces the digital boardroom solution, which is a flexible, cloud-based data analysis tool fully integrated with SAP and its HANA database.

Today’s trading organizations must respond immediately to market conditions, which is why the SAP data in the digital boardroom is available in near real time. Further, it has the ability to integrate non-SAP application data, extending the opportunity for analysis even further.

Users can configure this digital boardroom to visualize and analyze trading data as well as key performance indicators (KPIs). Those KPIs can include base information, such as market exposures, inventory, and profit and loss (P&L), as well as advanced metrics, such as P&L explained and at-risk measures (e.g., cash flow at risk) (see figure 2).

The bottom line? Analytics in the core of SAP enable companies to bring trading data into the enterprise and introduce enterprise data to supply and trading. And that can unlock exponential opportunities for insight and decision making.
Moving to SAP Commodity Management: Interim states (continued)

Figure 2: Digital Boardroom in SAP Analytics Cloud

Potential Commodity Management benefits

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Moving to SAP Commodity Management: Interim states

Because the trading business is core to business operations, the move to commodity management should be an evolutionary journey in lockstep with the larger enterprise road map.

Interim production states can be used to bridge the transition of trading operations to SAP as the organization’s overall enterprise SAP solution matures.

Let’s take a look at these interim states, keeping in mind that companies may use all, some, or none of them depending on their specific circumstances and SAP S/4HANA roadmap.

Initial state: Legacy CTRM with financial accounting integration

Snapshot
For this migration path, we assume that the organization begins with an existing CTRM application that interfaces with SAP ERP Central Component (ECC) for accounts receivable, accounts payable, and general ledger management (see figure 3).

Of course, each organization will have its own initial state and this architecture should simply serve as a logical “starting point” for considering the interim states that follow.

Main elements
• Legacy CTRM with accounts receivable/accounts payable/general ledger interface to enable financial accounting
• Applied cash interfaced from SAP to relieve credit in CTRM
• Limited ability to reconcile SAP financial data with trading and risk data in CTRM

Implications
• SAP holds only financial data
• Legacy CTRM holds all transaction, pricing, volumetric, and risk data
• Counterparty credit risk for hydrocarbon customer in CTRM while other credit risk in SAP
• Limited ability to integrate trading and financial data on a timely basis
Moving to SAP Commodity Management: Interim states (continued)

Figure 3: Application Architecture: Initial State

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Figure 3: Application Architecture: Initial State

Moving to SAP Commodity Management: Interim states (continued)

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Interim state 1: Add supply and trading digital boardroom

Snapshot
Because this tool can effectively incorporate SAP data with external system data, we recommend that organizations consider rolling out the digital boardroom as the first step on their journey to full-scale use of SAP Commodity Management.

Potential benefits
Adding the supply and trading digital boardroom can provide two main benefits to companies:

- Enables analysis of commercial activities through a broad data set. By harnessing the power of the HANA database, the digital boardroom provides the ability to efficiently combine and analyze the data from legacy trading systems as well as SAP. It also allows the organization to combine this data with enterprise SAP data, unlocking new analytics opportunities. As a result, companies can answer questions like, “How will a refinery turnaround schedule adjustment affect my crude demand and open positions?” Or “How will today’s trading results affect the upcoming quarter’s financial results?”
- Establishes a common user interface as the underpinning technology migrates to SAP S/4HANA. Adding the digital boardroom as a first step smooths business impact as the transition occurs. As more functionality migrates, reporting becomes richer and closer to near real time.

Figure 4 outlines the conceptual application landscape with the inclusion of the supply and trading digital boardroom.

Main elements
- Implement supply and trading digital boardroom for key trading measures and metrics
- Efficiently integrate trading data and SAP financials data while still using legacy applications to improve analysis and reconciliation
- SAP data is near real time, while data from legacy CTRM is dependent on batch timing

Implications
- No change in end-user system use
- Both commercial and back-office users use common data via supply and trading digital boardroom analytics to analyze the business
- Significant improvement in reporting capability across SAP and legacy CTRM, including tradebook to financial variance explanation
Moving to SAP Commodity Management: Interim states (continued)

Figure 4: Application Architecture: Interim State 1 (Digital Boardroom)

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Interim state 2: Move scheduling/logistics and inventory management

Snapshot
In this interim state, the management of the physical barrel moves into the SAP application, improving the linkage of financial information with the underlying physical flow.

Potential benefits
Reporting through the supply and trading digital boardroom will now have near real-time access to the latest quantity data in SAP (see figure 5).

Main elements
- Move scheduling/logistics and inventory management to SAP using trader scheduler workbench (TSW)
- Temporary integrations for deal volume flow to SAP, transaction scheduling actuals, and aggregate inventory back to CTRM to maintain risk reporting
- Supply and trading digital boardroom reporting now includes near real-time volumetric data

Implications
- SAP is master application for volumetric (e.g., movement/inventory) and financial data
- Legacy CTRM retains master transaction, pricing, and risk data
Moving to SAP Commodity Management: Interim states (continued)

Figure 5: Application Architecture: Interim State 2 (Scheduling, Logistics, Inventory Management)
Interim state 3: Move deal capture/pricing and invoicing

Snapshot
In this interim state, the financial and physical market transactions and associated pricing join the volumetric data in SAP.

Potential benefits
Companies gain more of the value chain picture in SAP—as well as increased near real-time reporting in the supply and trading digital boardroom (see figure 6).

Main elements
- Move deal capture/pricing and invoicing to SAP using Commodity Management module
- Temporary integration of aggregate risk position for risk measurement and valuation
- Supply and trading digital boardroom reporting now includes near real-time transaction and pricing data

Implications
- SAP is now the master application for transaction, pricing, volumetric, and financial data
- Legacy CTRM retains master for risk data
- Lightweight, bolt-on risk tools may also be used at this point in lieu of the legacy CTRM risk module to enable early retirement of legacy CTRM
Figure 6: Application Architecture: Interim State 3 (Deal Capture, Pricing, Invoicing)
Moving to SAP Commodity Management: Interim states (continued)

Final state: Full trading operations in SAP

**Snapshot**
In the final state, the risk management operations of the legacy CTRM move to SAP. At this point, all legacy CTRM functions have migrated to SAP and the commodity life cycle is now fully embedded in the SAP application (see figure 7).

**Potential benefits**
From a reporting standpoint, this means that supply and trading digital boardroom information is near real time. It also offers the potential to further expand analytics by connecting trading and risk data with other enterprise functions, such as finance, planning, and asset management.

**Main elements**
- Risk management functions moved to SAP using their risk management module
- Legacy energy trade and risk management (ETRM) is no longer required
- Supply and trading digital boardroom reporting now includes transaction, pricing, volumetric, risk, and financial data in near real time

**Implications**
- Fully integrated trading operations in SAP
- Legacy CTRM can be retired
Different migration paths for different companies

While each company is different, we have defined high-level migration path guidelines for three types of organizations. These guidelines can be used to help you understand how to inject the Commodity Management capabilities into your road map to enable you to reap the benefits as quickly as possible.

1. **Companies with no CTRM system**
   Companies without a CTRM system have the opportunity to perform a greenfield implementation of Commodity Management. Benefits can typically be realized quickly by integrating this functionality along with physical supply chain modules.

2. **Companies with a fragmented or partial CTRM system**
   These organizations will need to determine an approach that balances benefits and business impact.
   - The first tranche of migrated activities should be the functions/commodity exposures not currently captured in an existing CTRM system. These can provide direct benefit and minimal impact to users.
   - The second tranche should be those commodities that already use an SAP supply chain module. The effort to expand this capability into full trading and risk abilities is minimal.
   - The third tranche should be those commodities that are in an existing CTRM system.

3. **Companies with an integrated CTRM system**
   For these companies, the migration should typically take place from the back office forward. Starting with the back office allows the organization to gradually assume components of an integrated commodity value chain at a speed that complements business activities.

As part of this migration, companies can use interim operational states to align with the speed of the overall SAP S/4HANA migration and business change adoption.
Looking ahead

As companies plan their journey to SAP S/4HANA, they must consider the role Commodity Management will play in their future business. For the first time, organizations can fully embed critical trading and risk functions within their core enterprise solution, linking the front, middle, and back office.

An embedded CTRM capability within an enterprise technology platform creates the potential for operational efficiencies, such as automation and straight-through processing. What’s more, this integration can unlock exponential opportunity for analytics and insight generation—giving companies a competitive edge, now and for the future.
About Deloitte

We combine our deep trading and risk management experience with the Commodity Management capabilities of SAP S/4HANA to help clients realize new business opportunities.

• Deloitte has provided Commodity Trading and Risk Management (CTRM) services since 1996, executing engagements from trading strategy to system design and implementation.
• In that time, we have completed more than 200 CTRM-related projects across a broad range of industries.
• Further, the Deloitte global SAP capability spans more than 20 global delivery centers and has completed more than 200 SAP S/4HANA implementations.
• We serve 97 percent of the Fortune 500 oil and gas companies, covering integrated oil and gas, exploration and production (E&P), refining, and fuel sales and marketing companies.
What can Commodity Management do for your business? Let’s talk.

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