

# CTRM/CM as an Architecture

## An Approach to A 20-year old Conundrum



# INTRODUCTION

**Wholesale commodity trading and risk management can encompass any number of business processes and strategies, from brokered trades in which the buyer purchases some quantity of commodity and then immediately resells it at the same point for (hopefully) a profit – to multi-commodity transactions involving global supply chains, transformations, and complex financial hedging strategies. Vendor provided software to service this wide-ranging market, commonly known as Commodity Trading and Risk Management or CTRM software, will similarly vary in possible functional coverage, with some CTRM solutions addressing specific functional components (such as deal capture or risk analysis for a specific commodity), while others will attempt to model and provide wide-ranging functional coverage for all possible commodity classes and the unique physical operations associated with each and every possible combination in between.**

Given this, the Commodity Trading and Risk Management (CTRM) software category is very difficult to define except in the broadest of terms. When the term “CTRM” was first coined, it was essentially used to expand the breadth of the software category known as Energy Trading and Risk Management (ETRM). Both terms broadly mean the same thing, with ETRM reflecting software solutions that address the capture, position management and accounting for any wholesale energy trade; and CTRM reflecting a wider reach (including energy in some cases) and encompassing other commodity categories including ags, softs, and metals.

In the last few years, CTRM has been increasingly regarded as a component of an even larger software category called Commodity Management (CM), further muddying the classification of the types of software that address the needs of the wholesale commodity marketplace. Commodity Management solutions are most commonly utilized in the mid- and downstream

commodity markets, including food processing and packaging companies, agricultural merchants, and manufacturers. Additionally, there are a number of terms used to describe different aspects of Commodity Management such as ‘ERP for Commodities’.

An analyst organization, ComTech must classify the nature and capabilities of the various vendor-supplied products (and their markets) in order to help buyers better understand what solutions may be available to satisfy their needs. As the markets for these products continue to expand and mature, and as the software vendors seek additional market share, the interactions and/or overlap in capabilities among the wide range of products servicing the breadth of the wholesale commodity marketplace grows as well, making such classifications more complex. As such, this paper will provide our view of the various definitions that apply to these markets and seek to help both buyers and vendors understand the emerging terminology in use today.

# DEFINING COMMODITY MANAGEMENT

**ComTech defines Commodity Management as the superset of software solutions that encompasses CTRM and ERP for Commodities where:**

- 1/ ERP for Commodities naturally focuses on physical commodities and emphasizes production/procurement/origination, movement, storage, and handling of bulk and packaged commodities. This will usually include contract management, procurement, production, logistics, inventory management, assays/chemical analysis, pricing and fixation, hedging, settlements, and accounting. The primary users of this type of software are producers, industrial consumers, and processors.**
- 2/ CTRM will have a trade-centric design with a focus on capturing and tracking both physical and financial trades, with configurable book and reporting structures, position calculation and valuation, PnL, and various aspects of risk, including market and credit risk. The primary users of CTRM software are traders and merchants.**

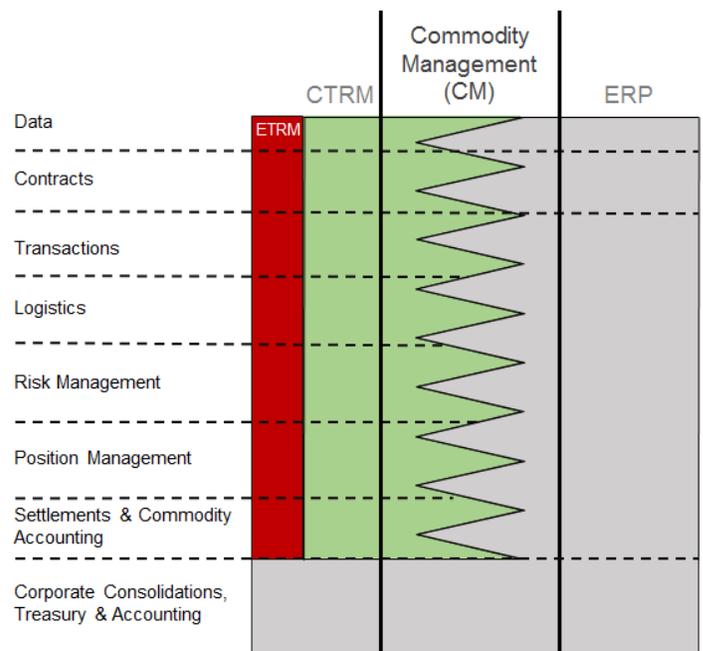
That being said, there is considerable overlap between ERP and CTRM both in practice and in the marketing by various software vendors. In reality, many CTRM solutions will offer a good deal of ERP-type functionality, while ERP solutions are increasingly migrating into the trading and risk management arena.

A number of complexities must also be taken into account as the requirements for any Commodity Management solution will vary considerably based on factors, including:

- / The commodities to be managed, the quality characteristics of those commodities that must be accounted for, and the nature of their unique supply chain(s)
- / The assets employed in the supply chain(s)
- / Geographic differences including any unique busi-

ness processes, language requirements, etc.

- / The type of company using the software (industry segment coverage)
- / Local, regional and/or national regulations



In essence, Commodity Management isn't a single homogenous software category at all, but rather a grouping of related but nonetheless functionally different classes of software that relate to the trading, movement, and management of commodities. It is a truly heterogeneous software category addressed by

over 100 different vendors serving one or more commodities, geographic markets and/or industry segments - and its why new vendors and products continue to emerge in what would otherwise appear to be a crowded market.

## A CONTINUING EVOLUTION

**The evolution of this already complex software class has been, and continues to be, impacted by rapidly shifting requirements. Factors such as regulatory changes, shifting economic/trade patterns, industrial technology advances and geo-political conflict have led to rapid changes to the very nature of the commodity markets – with new markets, new companies and new ways of doing business seemingly emerging almost daily. With each change, new functional requirements are established and new demands are thrust upon existing vendors and their products - providing an opportunity for new vendors to enter the markets with the “latest and greatest” products. Software technology innovation has also heavily impacted the category, such as the earlier migration to client/server architectures - and now to web-enabled, cloud delivered solutions being two primary examples.**

Beyond the changes in functional requirements, today's evolving markets are generating huge amounts of data, which seems to grow and change exponentially on an almost daily basis. While capturing, managing, and reporting this data is an increasingly daunting task, the usage of that data and the information it contains will vary tremendously between market segments, companies, and even individuals within those companies. For instance:

/ Different types of users will require different views of the same data, even down to singular users – this requirement has necessitated the develop-

ment of customizable dashboards for individuals in oversight roles such as managers, executives, and compliance personnel; personalisable screens and reports for traders/deal makers, logistics personnel, etc; and the use of complex reporting tools and integration frameworks for consolidated reporting and analytics at a parent company level.

- / Regulatory reporting where different trades and transactions must be classified and reported in different formats to different jurisdictions.
- / Risk management where different views on different types of risk need to be presented with varying

acceptable degrees of latency, depending on role. For example, near real-time position reporting, or PnL, may be required at different levels and by subject to different criteria; while the need to perform stress testing or run complex statistical simulations such as Monte Carlo VaR or similar will occur less regularly on an intraday basis or potentially overnight.

/ Different views on profitability to avoid circumstances where traders are paid a bonus on a profit that evaporates once all commercial activities are transcribed to the company's books.

There are many other examples of these types of problems and many potential solutions have been devised to address them; however, we've not yet seen any single solution that adequately addresses the breadth of complexities that are found in what is known broadly as the CTRM or CM market.

Throughout, the twenty-year history of the software category, the perceived "Holy Grail" has often been to bring to develop a singular comprehensive solution - one that covers all (or at least the most common)

commodities, geographies, supply chains, and assets. Unfortunately, experience has proven such a solution to be more or less impossible to commercially achieve and support - and yet, there is still a lingering sense in some corners of the market that this remains the ultimate goal. Though many lessons have undoubtedly been learned as some vendors (and a few market participants who invested in bespoke solutions) tried to build the singular solution that could address any prospect's needs, ComTech now believes that the "Holy Grail" - a singular, monolithic Commodity Management/CTRM solution that addresses all commodities and markets - is almost certainly impossible to commercially achieve and, frankly, is ultimately less than desirable. Rather, the most reasonable approach is an architectural approach - one that combines specific modules or individual products that can address the specific needs of an individual company and the market or markets in which they operate. It is our thesis that CTRM/Commodity Management is, and should be, an architecture first and foremost - one in which specific technologies and solutions are deployed to solve the litany of complex problems faced by today's market participants.

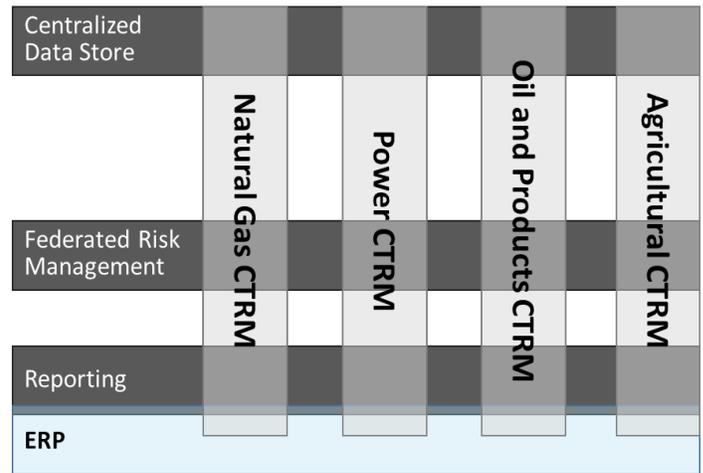
## EVOLVING NEEDS

**ComTech analysts have followed the development of ETRM/CTRM/CM software over the last two decades and observed that a single software solution servicing multiple commodity classes is simply not the way to go, even if that solution is marketed as "highly configurable". Instead, we feel that the problem needs to be dissected in a different way and looked at architecturally.**

In that regard, we believe the following statements need to be taken into account:

- / Transactions are best managed in a transactional data management environment; however, calculations are best handled differently using in-memory technology or other approaches.
- / The same data needs to be captured, analyzed, and reported on in multiple different ways to different users and third-parties.
- / Each commodity is different and simply building sufficient flexibility into a singular monolithic solution to provide all users and industry segments what they require, regardless of commodity, has proven extremely difficult and frankly, no vendor has actually accomplished it. A best of breed approach, even if those commodity-specific solutions are provided by the same vendor in a truly modular approach, is ultimately the correct path for most user companies.
- / A commodity-specific solution must also support the specifics of the supply chain for that commodity including logistics – the physical assets (vessels, warehouses, tanks, etc.), documentation, taxation, etc.
- / Users want and expect straight through processing, with no manual intervention as data moves between and among the “modules”.
- / True connectivity/integration with a wide variety of other systems, organizations, and data sources will be required and must be facilitated by advanced integration tools – a goal long been sought but so often not delivered.

- / Regulatory reporting is complex with questions regarding eligibility of trades and associated data to be reported, jurisdiction, and other issues. Unfortunately, much of the reporting structures will also change as second and third iterations of regulatory requirements like REMIT and EMIR appear.
- / Integration of different point solutions is more practically achieved in the context of an overall architecture.



The architectural approach provides the detailed commodity-specific functionality (via point solutions) within a framework that extracts and consolidates common data, complex calculations, enterprise risk reporting, regulatory reporting, and corporate accounting.

In essence, most vendors in the CTRM space provide point solutions and parts of the architecture but few support the concept of CTRM as an Architecture today.

That being said, recent conversations with a few of the

top-tier vendors indicate that such an approach is in the offing through the leveraging of cloud technologies for some or all parts of the horizontal capabilities noted above, in addition to already available commodity specific point solutions that are also moving to the cloud. Additionally, ComTech has had experience working with a few top-tier commodity firms who have decided upon a buy and build approach – licensing solutions from both established vendors and some of the interesting new entrants into the space - supplemented by horizontal capabilities like reporting or data analytics, either built in-house or licensed from firms that would not fall within the definition of CTRM vendors. Additionally, ComTech has been exposed to a number of admittedly early day platforms that do appear to be following a 'CM as an architecture' first and foremost approach.

Given these companies relatively successful experiences, and the strategic decision by some CTRM firms to embrace a cloud-based horizontal services approach, it does appear that after the endless discussion of buy or build that have circulated in this market for multiple decades now, the right solution is ultimately the hybrid approach of buy and build within the context of an overarching CTRM architecture.

The benefits of adopting such an architectural approach to solving the problem include:

- / Ability to leverage mature and functionally rich commercial solutions that excel in meeting the needs of certain commodities, unique supply chains, and particular business functions
- / Componentized upgrades/fixes, reducing testing and upgrade burdens that would otherwise be imposed by monolithic enterprise scale solutions
- / Addressing the real-time aspects of risk and position reporting required in some markets/commodities that are often missing from an all-encompassing CM solution, yet have a consolidated and visually rich presentation of companywide risks via leading horizontal risk and reporting solutions
- / Addressing the specific needs of trading firms with those of those who move and manage physical commodities, better enabling optimized hedging strategies and/or optimized commodity value along the supply chain (physical location swaps, inventory plays, etc)
- / Ensuring that data of record is consistent, properly maintained and husbanded throughout the process

# SUMMARY

After 20-years of research and analysis of what are deeply heterogeneous markets that evolve and adapt very rapidly in an almost punctuated equilibrium model, ComTech believes that CTRM/CM is best thought of as an Architecture or ecosystem of commercial and potentially homegrown solutions as described above. We need to be able to get to the point where buyers can solve the problem through a buy and build approach within the context of an Architecture - not a broad overlay of a singular system. Of course, this will take some agreement and buy in from the vendors but given that the largest vendor in the space generates only about \$300m in annual revenue, and the majority are less than \$15m, they simply do not have the financial ability, or the appetite, to make the investment in building the "Holy Grail" themselves. That being said, there are players such as SAP who do have the ability to bring a proprietary architecture

to market, however the return on investment of such an "all singing/all dancing" solution probably would not cross their mandated investment hurdles.

In the end, there are simply too many sides and dimensions to the problems faced by the commodity industry players to be addressed in a singular solution. It makes sense for vendors to focus on core competencies and for buyers to seek best-fit building blocks (many or most of which may in fact be from a single vendor). The cloud and technologies around the cloud, do seem to be well-positioned as the vehicle that will help bring this vision to fruition. Ultimately, it will be the buyers of technology that would most benefit in being able to assemble a software solution from functionally rich building blocks; one that is reflective of their unique mix of assets, commodities, markets and processes.

# ABOUT

## **Commodity Technology Advisory LLC**

Commodity Technology Advisory is the leading analyst organization covering the ETRM and CTRM markets. We provide the invaluable insights into the issues and trends affecting the users and providers of the technologies that are crucial for success in the constantly evolving global commodities markets.

Patrick Reames and Gary Vasey head our team, whose combined 60-plus years in the energy and commodities markets, provides depth of understanding of the market and its issues that is unmatched and unrivaled by any analyst group.

For more information, please visit:

**[www.comtechadvisory.com](http://www.comtechadvisory.com)**

ComTech Advisory also hosts the CTRMCenter, your online portal with news and views about commodity markets and technology as well as a comprehensive online directory of software and services providers.

Please visit the CTRMCenter at:

**[www.ctrmcenter.com](http://www.ctrmcenter.com)**

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