WHITE PAPER

MANAGING THE WORLDS METALS

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Commodity Technology Advisory

CTRM Market Research, Analysis and Insights

INTRODUCTION

In an era that is likely to be dominated by the energy transition, metals are set to become the new foundation of modern society. As more of everything is powered by clean electricity, demand for metals will pick up with everything from greater quantities of base metals needed to make batteries to store it all the way through to copper for the cables to carry it. Other metals like iron in the form of steel, along with rare earth elements and speciality metals, will all also be needed in ever greater quantities to support electrification and construction. Metals like Lithium, Cobalt, Manganese, Zinc, Mercury, Silver, Cadmium are the key components of many types of battery along with Graphite in some instance. Meanwhile, the so-called rare earth elements are critical components in many electronics and electrical components along with Copper, Gold, and Aluminium. All are becoming increasingly important. Yet, many of these metals are in short supply and are set to stay that way.

Let's take Lithium as an example. Lithium is a key component in many batteries. As the world moves from the internal combustion engine to EV's, more and more Lithium will be needed for the batteries that provide these vehicles with a store of electric power. According to William Tahil, research director at Meridian International Research[1], "to make just 60 million plug-in hybrid vehicles a year containing a small lithium-ion battery would require 420,000 tons of lithium carbonate - or six times the current global production annually. But in reality, you want a decent-sized battery, so it's more likely you'd have to increase global production tenfold. And this excludes the demand for lithium in portable electronics." Basically, there is insufficient Lithium production to manufacture all the EV batteries and with combustion engines being banned or phased out in the very near future, there likely isn't enough time to develop those resources in time either. The story is similar for many other metals and so metals like Lithium could become the most precious commodities of all in the very near future.

And if significant production vs demand projection shortfalls weren't enough, many of these metals are not easily mined or moved. Using our Lithium example, it is a metal that burns when wet posing challenges for transport

[1] https://gizmodo.com/where-the-most-important-part-of-your-battery-comes-fro-586442784

and storage and pure lithium is typically stored in anaerobic conditions and covered in either mineral oil, petroleum jelly, or other non-reactive liquid. It is also extremely corrosive. In reality, of course, Lithium is extracted either as a brine or as a mineral and then purified later. Nonetheless, supply chains often need specialist facilities and equipment adding to the difficulties in producing enough to meet demand. Furthermore, many of these metals are produced at a limited number of locations around the world and this too poses issues and problems in terms of extracting, moving, and managing these metals. This appears to us to mean that many metals prices will likely be volatile and increasing while those involved in trading, producing, moving, processing, and storing metals and ores will be paying increased attention to optimizing supply chains and costs as well as trying to manage their price risk exposures.

There is another factor involved in the future of metals supply chains as well and that is Environmental Social, and Governance (ESG) requirements and carbon footprints. Along with the energy transition, there are increasingly stringent CO2 emission targets around the world and much discussion around ESG in general. We are seeing the emergence of new green metal trading instruments as well as the likelihood that all transactions and shipments will need to carry an associated carbon footprint disclosure. This will add costs and complexity to an already complex area and will also require tools to help manage and optimize carbon footprints along supply chains.

THE METALS CTRM SOFTWARE MARKET

The CTRM software market for metals has historically been the smallest of the three major commodity groupings by some distance. According to our estimates, the metals CTRM market size was around $155m in 2021 growing to $184m by 2026 with around 25% of that being for precious metals. This may prove to be a pessimistic estimate. The broader Commodity Management software market for metals, however, is likely up to six times larger.

The metals CTRM software market has also historically been served by just a handful of software vendors and solutions. These software products are now aging and are based on older technologies. Not unexpectedly, there has been a flood of new solutions emerge in the last couple of years across the space including in concentrates and ores, which have proven to be the most complex and difficult raw materials to deal with. However, many of the newer solutions focus in on trading and risk whereas the requirement that we see emerging is more for commodity management and coverage of the entire supply chain. Nonetheless, the newer solutions are based on new architectures and technologies making them more flexible, adaptable, and lower cost to manage. The metals CTRM and CM software market is now much more competitive, which is good news for buyers.

With so much changing in terms of requirements across the supply chain and with an emphasis on managing risks and exposures of varying types while seeking to optimize business processes and decisions along the supply chain, a replacement market is also developing. Older solutions, whether commercially procured or homegrown are needing to be replaced with more modern software capable of meeting the significant challenges that we now see emerging in metals. Meanwhile, there are many new entrants into the market that are seeking commercial solutions for the first time. These new entrants operate across the industry from the producer to consumer segments and are discovering that they can no longer utilize spreadsheets or homegrown solutions. They are discovering that they require proper commercial solutions to adequately support their business.

Commodity management is set to play a greater role in metals going forward as managing the supply chain and the risks along that supply chain are clearly now paramount. Managing the complete supply chain includes effectively managing and negotiating contracts as well as an ability to exploit optionality profitably. It involves the trading (purchasing and selling), pricing, hedging, inventory, costs, logistics and movements, assays, and making inspections through to invoicing and the generation of accounting journal entries. Flexibility is key, allowing for the inevitable events that occur along that supply chain that might include delays, optimizing movements for lower cost or faster delivery, assays that trigger repricing and a change in hedging needs, and much more besides. Having workflows to better manage the flow of materials is also essential as

is event-driven risk management.

The ability to manage the details of different commodities is also essential. Each raw material is different and has nuances in terms of contract attributes, and operational and logistical needs. Pricing can be extremely complex with tiered penalties and premiums based on the presence or absence in varying quantities of different elements. The composition of a shipment may also change even during transportation. Some of the key areas where this is a concern include,

- Tracking term and spot contracts,
- Matching COGS and revenues,
- Generating journal entries at various points in a contract's life cycle,
- Checking credit exposure,
- Tracking physical and financial exposures,
- Valuing contracts based on price formulae and forward curves
- Tracking all charges and fees,
- Producing basic functional reports,
- Performing basic business processes, eg. end of day.

The complexity rises exponentially for ores and concentrates but all metals require a complex set of often different functionalities because of their physical differences.

In short, a growing and volatile metals commodity market requires more than trading and risk functionality. It increasingly will need the functionality of a fully functional commodity management solution that incorporates both the TRM aspect along with ERP functions as well as workflow, traceability, and auditability.

THE NEW METALS CM/CTRM PARADIGM

To understand where everything is going, it is sometimes necessary to look in the rearview mirror. In the past, many companies have opted to go with larger ERP solutions tailored towards commodities in the hope of tightly integrating everything but discovered in the process that this option is both horrendously complex and expensive. Many such initiatives failed. The other option was to go with a specialist CTRM and match that up against an ERP solution. This too has often proven to be an expensive failure: Getting two software solutions to work with each other, especially after many CTRM software upgrades, will eventually become a nightmare of expense and complexity.

Some of the newer solutions on the market offer a different way to solve the problem. Commodity management solutions on modern technologies and architectures essentially bridge the gap and integrate

ERP for commodities with CTRM seamlessly. They incorporate other attributes as well such as adaptability, scalability, cloud and SaaS, workflow, auditability and so much more. More importantly perhaps, if these targeted complex commodities, like ore and concentrates, can be managed well, then so too might other bulk commodities.

As metals increasingly become the most important commodities catalyzing and enabling the energy transition, companies from producers to consumers are going to need to ensure that they are ready to deal with not just increased volatility and prices but also operational risks across supply chains. They will need to focus in on optimizing those supply chains processes to reduce risks, costs and increase effectiveness. They will need flexibility to move and manage their commodities with far more sophistication and control than in the past. The difference between those who succeed or fail in these endeavors may well just be down to their use of a superior commodity management solution.

Entrade Unite – A COMMODITY MANAGEMENT CANDIDATE

Enuit is a software vendor that has successfully provided CTRM solutions globally and now supports commodity management needs with its Entrade software. This was initially implemented for a multi-national, multi-commodity trading company and also includes extensive functionality for the metals and mining industry. Entrade is clearly a more modern solution that offers complete commodity management functionality specifically for metals, concentrates and ores (as well as other commodities) and it is one of the solutions that ComTech feels will be competing to replace legacy and homegrown metals solutions across the industry. Entrade Unite brings to market all the attributes and functionalities delivered by Enuit's successful CTRM software product combined with critical aspects of an ERP solution.

Entrade Unite is a leading candidate in Commodity Management for metals as it appears to tick all the requirement boxes discussed above. The new version of the Entrade solution is based on the latest technologies and utilizes a microservices architecture along with an all-new user interface that was designed to be more intuitive to use and more flexible in terms of interrogating and gaining visibility into key data. It also has beefed up reporting capabilities allowing advanced report generation accessible via browsers and better graphical visualizations of key data. It also employs an efficient workflow engine so that tasks can be streamlined and standardized. In fact, workflows are configurable and easily designed and deployed allowing flexibility in business processes. Each step in the workflow is recorded and documented providing complete and clear traceability. These are the features of a modern system that aid users in being effective with

their time and that help in managing complex business processes.

With several metals clients, Enuit has the experience and expertise in metals, ores and concentrates to ensure that all of the nuances of physical metals and ores are covered throughout the entire supply chain. As a commodity management solution, Entrade Unite is much more than CTRM functionality. It also includes materials and stock management, advanced activity tracking, advanced customer profile management and an advanced accounting module along with other ERP-type functionality so that inventory management, supply chain management and accounting aspects are all handled. It goes even further than an ERP in that it integrates things like supply chain management with valuation, market, and credit risk to provide a tool that can truly help metals companies move and manage commodities through the entire supply chain.

The solution is also available in the cloud in varying modes as SaaS or Infrastructure as a Service or even Platform as a Service providing flexibility and adaptability to grow and perform with the business and to keep costs under control. It is an open platform providing REST APIs so that users can customize and develop new applications, if needed, to support their business. Enuit has also successfully completed the SOC 2 Type 1 examination for data security showing its commitment to security of data.

SUMMARY

As the metals side of commodities grows and becomes more complex with emphasis on supply chains, commodity management applications like Entrade Unite will be adopted across the industry. Enuit has a reputation for delivery and customer service as well as a scalable and adaptable platform in the cloud that delivers world-class commodity management functionality for metals, ores, and concentrates. It is positioned to be a platform of choice in the industry.

ABOUT ENUIT LLC

Enuit was founded in 2008 with a single goal in mind: To bring to market affordable, functional trade management software. ENTRADE® is all of this and more. And, it really works. It can help your company track its transactions through the entire deal life cycle: From done deal through to sent bill.

ENTRADE® supports Every commodity, every feature, and every user in one place.
There's no Third Party or Legacy System to integrate. Enuit calls it One Platform.

Whatever you trade, wherever you trade. Its universal deal manager and risk engine ensure that all of your trading activities can be well managed within one system, with one architecture, on one trade management platform. ENTRADE® also provides industry and market segment-specific logistics management forms and reports, which take into account the nuances of the specific logistical requirements of each commodity.

Enuit gives their customers complete visibility, insights, control and management over their business operations helping them to have peace of mind to make quick and informed decisions that affect the bottom line.

Enuit, LLC is headquartered in Houston, Texas, USA, with offices located in Beijing, China, London, Singapore, India and Tokyo to serve markets in China, Asia-Pacific, Middle East, Europe, and North America

To learn more about Enuit visit www.enuit.com

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A PASSION FOR COMMODITIES

ABOUT

Commodity
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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

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.
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