

Tackling key challenges in the fabricated metals industry with ERP

Optimizing the potential of ERP solutions for competitive advantage



Introduction

The Fabricated Metals industry operates with narrow margins in a highly competitive market. From volatile commodity prices to shrinking markets, offshore price cutting and higher expectations in terms of quality, customization and speed of delivery, companies have to be increasingly innovative, tech-savvy, agile, flexible, responsive and customer-centric. This means that any disruptions across the supply chain could have massive knock-on effects.

The industry is also reliant on the London Metals Exchange (LME), the world centre for the trading of industrial metals. The majority of all non-ferrous metal futures are transacted on the LME which acts as a barometer of supply and demand for metals worldwide. Its official prices are used by the industry as the basis prices for contractual purposes.

From raw materials, inbound logistics and goods in warehouse to manufacturing, outbound warehouse and outbound logistics, this white paper examines the challenges facing metal fabricators and the role ERP solutions play in tackling those challenges to achieve greater success in all aspects of their operations.

According to a recent SYSPRO survey entitled 'Realigning the links of the disconnected supply chain', **82%** of Fabricated Metal businesses have experienced supply chain and material handling disruptions, further eating into diminishing margins.

Despite these challenges, only **12%** of businesses have systems that provide support in servicing external customers and only **18%** have the systems to help with product design and order configuration. To build resiliency, metal fabricators should consider the right technology solutions to improve operational efficiencies, enhance external collaboration and meet unique customer demands.

[View research survey](#)



Getting a tighter grip on raw materials

For decades, the fabricated metals industry has relied heavily on Asia for the supply of raw materials. China offers mass production and competitive pricing; however, metal fabricators have been compelled to deal with agents which in turn sub-contract the orders to multiple suppliers, inevitably leading to inconsistencies in both quality and cost.

The Russia-Ukraine conflict is also having a strong impact on the reliable, affordable supply of raw materials. For example, in March 2022 nickel prices on the LME spiked 250% in little more than 24 hours, leading the exchange to suspend trading for the first time in three decades. Russia has long been a top producer of materials such as aluminum, steel and nickel, while Ukraine is a major global exporter of iron and steel. Together, the two countries are the main suppliers of metals to Europe.

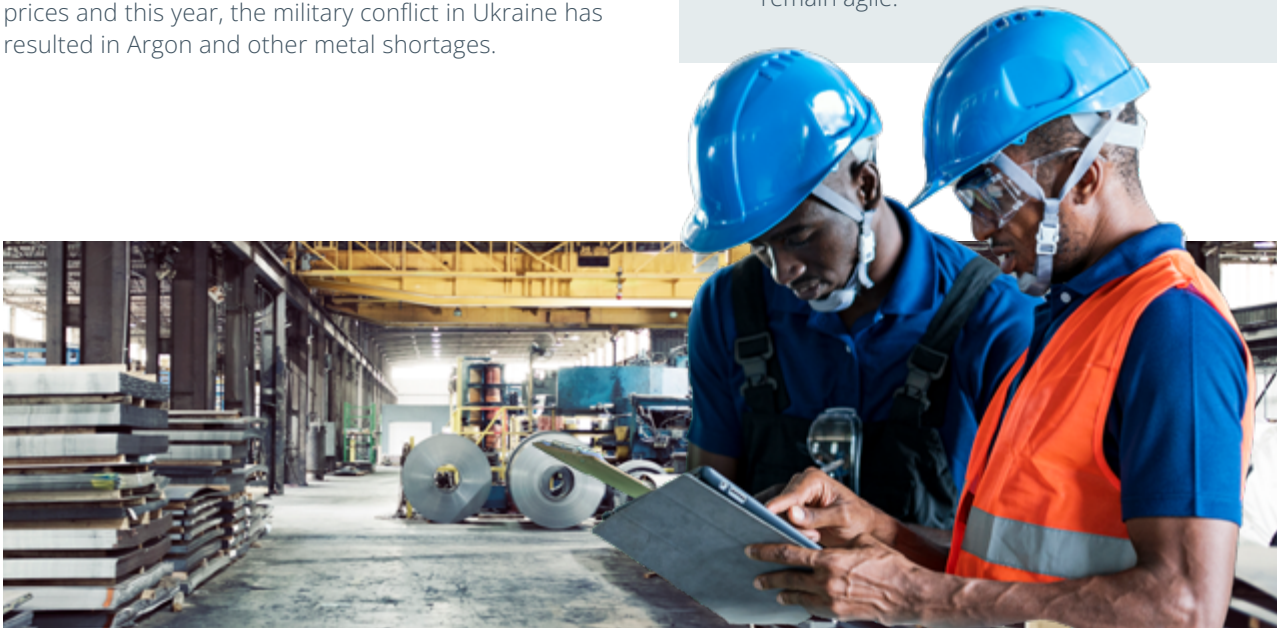
In this industry, however, there's more to raw materials than metals. Gases such as Oxygen and Argon are essential in the welding of carbon steel and some high alloy steels. Carbon Dioxide is often used to speed up the welding process and increase productivity rates and, on a larger scale, used as a shield gas in MIG/MAG welding, where the gas protects the weld puddle against oxidation by the surrounding air.

With ongoing challenges like worldwide lockdowns, global sanctions and other unavoidable disasters, distribution of these materials has been severely delayed. Last year, the UK experienced a shortage in Carbon Dioxide due to the global surge in natural gas prices and this year, the military conflict in Ukraine has resulted in Argon and other metal shortages.

ERP will drive increased raw material visibility

To overcome these challenges and instill a proactive approach to changing customer demands, data insights and end-to-end visibility across the supply chain are key. One critical aspect of this is the capability to track raw materials all the way through the businesses with ERP. This plays a key role in ensuring accurate costing and therefore quotes to customers, enabling the metal fabricator to tighten controls on costs and standardize as far as possible.

Unfortunately, the adoption of data analytics tools in the industry is slow. According to a recent SYSPRO research survey, in response to ongoing disruptions, only 12 percent of metal fabrication manufacturers invested in data analytics to interpret data and identify any real-time shifts. This will need to change if the industry wishes to remain agile.



Enhancing procurement efficiencies in inbound logistics

The delays in supply of raw materials, which are being experienced by metal fabricators, have a domino effect down the line on sub-assemblies and final manufactured goods. Typically, efficiency in inbound logistics is the make-or-break link in the supply chain.

The main objective of inbound logistics is to guarantee that the organization has all the essential materials to run the business well. For effective inbound logistics, metal fabricators need to forecast demand, determine how they will receive their supplies, organize product flows and, in particular, manage goods receipt without errors.

Without the proper procurement, receipt and storage of the materials needed to carry out the business activity (production and/or sales), it is impossible for the metal fabricator to begin the manufacturing process or market its products. And, as logistics costs form a relatively large component of total costs, it is crucial that this aspect of the business is optimized.

Metal fabricators can differentiate their procurement operations and achieve significant competitive advantage by enabling quotes to be completed and sent to customers in real time. Here, collaboration and attention to detail are key. Without a proper understanding of raw material delays and inbound costs, the quote will not be accurate and metal fabricators face the risk of losing money.



According to the SYSPRO study, **65%** of businesses in the Fabricated Metals industry looked into building a digitization strategy to address ongoing supply chain disruptions. Within these strategies, **59%** of those businesses aimed to improve operational efficiencies – including improvements in sourcing and procurement.



ERP can provide the competitive edge in inbound logistics

To improve turnaround times and provide a better service to their customers, metal fabricators need a quotations system that provides a single source of the truth for accuracy and review purposes and enables updated information to be easily shared.

As more and more services are outsourced to gain manufacturing and cost efficiencies, costs for material, labor and outside services continue to be an important part of the quoting process. With the quoting and estimating capabilities inherent in an ERP solution, metal fabricators can create professional and comprehensive quotations.

Ideally, a flexible interface will provide all the information required to give customers timely quotes and estimates as well as the ability to incorporate vendor-related service costs that can be marked up as a part of the estimate. It should integrate LME spot pricing into the costing processes, enabling metal fabricators to better manage input cost pressures. This ensures greater flexibility in the what-if costing during quotation and estimating processes.

To maximize the efficiency of inbound logistics, metal fabricators need to digitize the supply chain. By embarking on this digital transformation journey, metal fabricators are able to automate the management of company documentation as well as the organization of its procedures and workflows. Digitization enables metal fabricators to tackle inbound logistics challenges by controlling the quantities and frequency of procurement, managing supply forecasting and achieving smooth communication with suppliers.

Achieving optimum levels of inventory

For metal fabricators, every dollar of inventory error has a direct impact on profits, making best-practice inventory management essential to success in this fiercely competitive market. Excess inventory can conceal underlying issues such as production bottlenecks, poor quality manufacturing and overly complex product portfolios. It can also lead to operational issues by creating unnecessary inefficiencies in the production process.

In addition, disruptions to the supply chain and the fluctuating availability and cost of raw materials make inventory harder to manage. Complicated decisions have to be made about how much and which items should be held overall and at each stocking location. Metal fabricators also need to know when to replenish, how much and where. They face an ongoing balancing act as they try to carry enough inventory to respond quickly to customer demand and minimize transportation costs as well as investment in inventory to reduce warehousing and storage costs.

Whereas raw materials or finished goods constitute the bulk of inventory for many industries, in Fabricated Metals as much as 50% of the inventory can be Work in Progress (WIP), which often leads to production problems and bottlenecks. For example, the combination of a poor sales-and-operations-planning (S&OP) process and suboptimal product flows can raise WIP way beyond actual requirements.

Another complication is that metal fabricators which manufacture a large range of products are compelled to maintain higher inventory levels, necessitating more changeovers along the manufacturing line, reducing efficiency and increasing the risk of obsolescence. As a result, metal fabricators can be faced with remelting or short-selling unacceptable amounts of finished goods.

From an overall perspective, optimal inventory management is a delicate balancing operation. Too much inventory has a negative impact on the bottom line, while carrying too little can result in poor customer service with long-lasting consequences.

By establishing a firm grip on raw materials, WIP and finished goods, metal fabricators are able to increase efficiency and free up cash all along the value chain. They can then use this new-found liquidity to make critical capex investments and strategic acquisitions.

Similarly, forward-thinking metal fabricators are prioritizing inventory management in their digital transformation strategies. By automatically matching available materials with current and upcoming orders, they're able to maximize output even during times of supply chain uncertainty. With effective inventory management, metal fabricators gain more control over their inventories through greater accuracy and visibility into inventory information throughout the organization.





ERP to balance material supply and demand

ERP can assist by allowing metal fabricators to automate the process of managing the balance between material supply, product and service demand, enabling them to optimize the ordering processes and take advantage of batching to realize economies of scale. Also, an effective Material Requirements Planning (MRP) capability helps metal fabricators gain a better understanding of supply and demand.

With the right strategies and technology in place and the determination to pursue them rigorously, top-tier inventory management is not only achievable; it's also an important differentiator, freeing up cash, improving profitability and ensuring smooth operations from start to finish.



Enhancing optimal manufacturing processes

Optimizing the efficiency of manufacturing processes is considered the holy grail in the fabricated metals industry. Highly efficient manufacturing enables metal fabricators to produce the highest possible volumes of their product without reducing quality while simultaneously using the least amount of time, money and material possible.

To achieve this, metal fabricators' top priorities are their people and the warehouse. The skills shortage across manufacturing is exacerbated in the Fabricated Metals industry, which requires specialized skills from welding to engineering estimation. Human resources hold those skills and knowledge and, while Industry 4.0 is introducing a new wave of automated technologies, the human element remains vital. For example, you can program a CAD drawing into a CNC machine to ensure a high precision, custom metal fabrication order; however, the practical side still requires experience in cutting speed or the flow rate of the coolant.

At the same time, a new wave of technologies is entering the market to augment human capability and improve productivity. The implementation of a fully integrated ERP solution plays a key role here as it expedites metal fabricators' ability to achieve efficiencies and, therefore, a quicker return on investment. A good ERP provider is pivotal in enabling metal fabricators to bridge the skills gap and retain knowledge through ongoing training.



ERP to optimize and improve manufacturing operations

Productivity on the factory floor can be enhanced by implementing a Manufacturing Operations Management (MOM) solution. To optimize and improve manufacturing operations, metal fabricators should look for a system that provides a complete manufacturing model from planning to scheduling, publishing, collecting, tracking and analyzing. In addition, a MOM solution will help metal fabricators improve performance to world-class standards for overall equipment effectiveness (OEE), total effective equipment performance (TEEP) and overall labor effectiveness (OLE). By collecting data from shop-floor machines, connected devices and employees, a MOM solution will help metal fabricators cut costs, increase productivity and deliver to customers faster.

A fully integrated ERP solution offers another significant advantage in tracking costs through the manufacturing process – it will provide a single source of truth for accuracy, so that everyone in the organization has access to one set of numbers.

Incorporating complex builds into the equation

To deliver complex builds successfully, metal fabricators must work collaboratively with their customers to provide turnkey solutions. This is because each customer and project has unique requirements. To manage this extensive range of customer, project and manufacturing demands, customization is an essential component in the metal fabrication arsenal. Custom sheet metal fabrication provides customers with quality, adaptability, longevity and durability – all of which are key to maintaining a superior competitive edge in this fiercely-contested market.

According to the SYSPRO survey, there is a direct correlation between meeting the customer need and improved revenue; therefore the customer should be placed at the centre of the supply chain. However, the survey indicated that only 18% of metal fabricators wish to improve external collaboration with customers and only 18% have invested in product configurator tools.

ERP can offer the customer product customization

ERP product configurator tools help metal fabricators enhance their competitive advantage by enabling the product line to be configured using a streamlined interface that is easy to navigate when making product, component and operation selections. One of the main benefits of configuration software is the ease with which a customer's request can be modelled before production. Given the features and parameters supplied by the customer, the software configures the design quickly and in accordance with the specification and what is possible. This removes the time-consuming and sometimes inefficient need for metal fabricators to interpret and assess the viability of the customer's request and produce a product specification, thereby expediting the design process.

This capability also makes it easy to customize products that are made-to-order, assembled-to-order and engineered-to-order – or sold in many configurations. It is important that the ERP solution is fully integrated with the product configurator because once the product has been designed the production manager has the Bill of Materials (BOM) and routing data on tap. As a result, the material requirements are accurately defined and orders can be processed straight away.

Metal fabricators should look for the capability to import multi-level bills of material for designs modeled on CAD systems into their ERP solution, thereby reducing double-entry and the margin for error as well as providing a solid basis on which to calculate costs and lead times for quoting to the customer. An accurate BOM is vital because it ensures that parts are available when needed and that the assembly process is as efficient as possible.



Managing the complex outbound logistics puzzle

Once the finished goods are manufactured, metal fabricators must solve a complex outbound logistics puzzle. There is intense pressure to do so, as outbound logistics challenges can hurt profits and customer satisfaction. Also, inventory and shipping costs can rise quickly, while incorrect or late orders will drive customers away.

Different mills at different locations produce a variety of products which are transported across many geographies and either sent to customers directly or stored between nodes of transport. The complexity is intensified by some customers having limited storage capacity while others demand delivery within 24 hours.

This makes inventory holding particularly important for metal fabricators. Logistics involves many steps from purchasing to accepting inbound delivery, storage, packaging, inventory management, shipping, outbound transportation and delivery. This becomes even more complicated when volumes grow and there are multiple products to manage.

Metal fabricators which use several distribution channels and operate facilities in different locations face another layer of complexity. In addition, many outsource the transportation and final assembly to riggers, creating yet another specialist area in the supply chain.

ERP to simplify the outbound process

ERP solutions offer metal fabricators a systematic and automated process to predict and control stock levels based on desired customer service levels. This is key to quickly satisfying the right orders for the right customers, retaining strategic contracts and ensuring the survival of key account relationships.

Inventory Forecasting and Optimization systems provide the capability to create accurate and credible forecasts, along with the tools to efficiently manage, monitor and improve the forecast process. With these tools, metal fabricators can produce forecasts based on sales history and measure the quality of their forecasts. A set of mathematical algorithms predict future sales based on historic demand and detailed analysis helps metal fabricators easily identify the products which contribute the most in terms of sales value, gross profit, cost of sales, quantity sold and hits.

This type of data-driven solution rules out any need to rely on guesswork. By forecasting and controlling goods in transit, at the warehouse and on the shop floor, metal fabricators can identify issues before they occur.



Conclusion

Increasing manufacturing efficiency means finding the right balance between supply and demand, optimizing capacity, improving throughput, streamlining processes, cutting costs and reducing waste. Metal fabricators that meet, and even predict, their customers' needs will succeed where others fail.

To stay ahead of the game, metal fabricators have to be increasingly innovative, tech-savvy, agile, flexible, responsive and customer-centric. Today, more than ever, the right ERP solution could mean the difference between success and failure. It will help metal fabricators plan, execute, control and radically improve production in the manufacturing environment.

To get the most out of an ERP solution, it should be one that has been designed, implemented and supported by a company that understands your business as well as you do - one that has the specialist skills to help you deliver unfailing continuity and consistency throughout the entire value chain, from initial Request for Quote to final delivery.

For more information, visit [syspro.com](https://www.syspro.com).





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