



The Future of Heavy Industry - FOCUS on Metals Manufacturing

Trends & Developments in the Greek Market

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of local experts 22

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Sector & Segment Demand

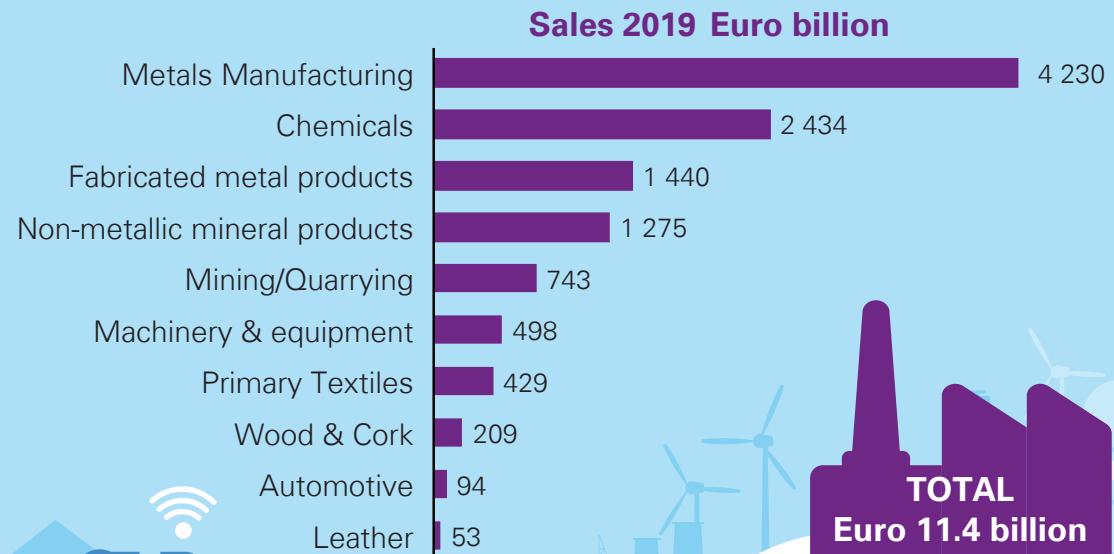




Heavy & light manufacturing split within the Greek market

Greek Industrial Sector

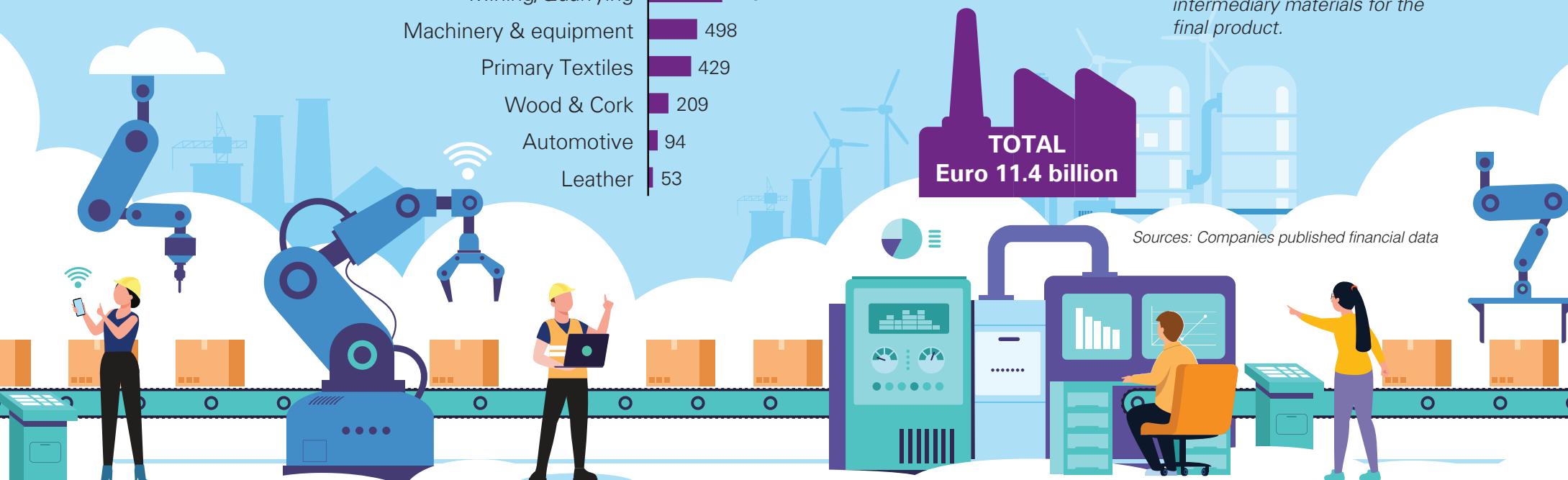
Heavy Manufacturing Segment



Heavy manufacturing is defined as a:

Highly capital intense, producing large sized items, predominantly traded through B2B channels and used as primary or intermediary materials for the final product.

Sources: Companies published financial data





Heavy & light manufacturing split within the Greek market

Greek Industrial Sector

Light Manufacturing Segment



Light manufacturing
is defined as a:

*Less capital intense process
producing smaller sized
items that are predominantly
consumer oriented and mostly
assembly oriented if included in
the production process.*

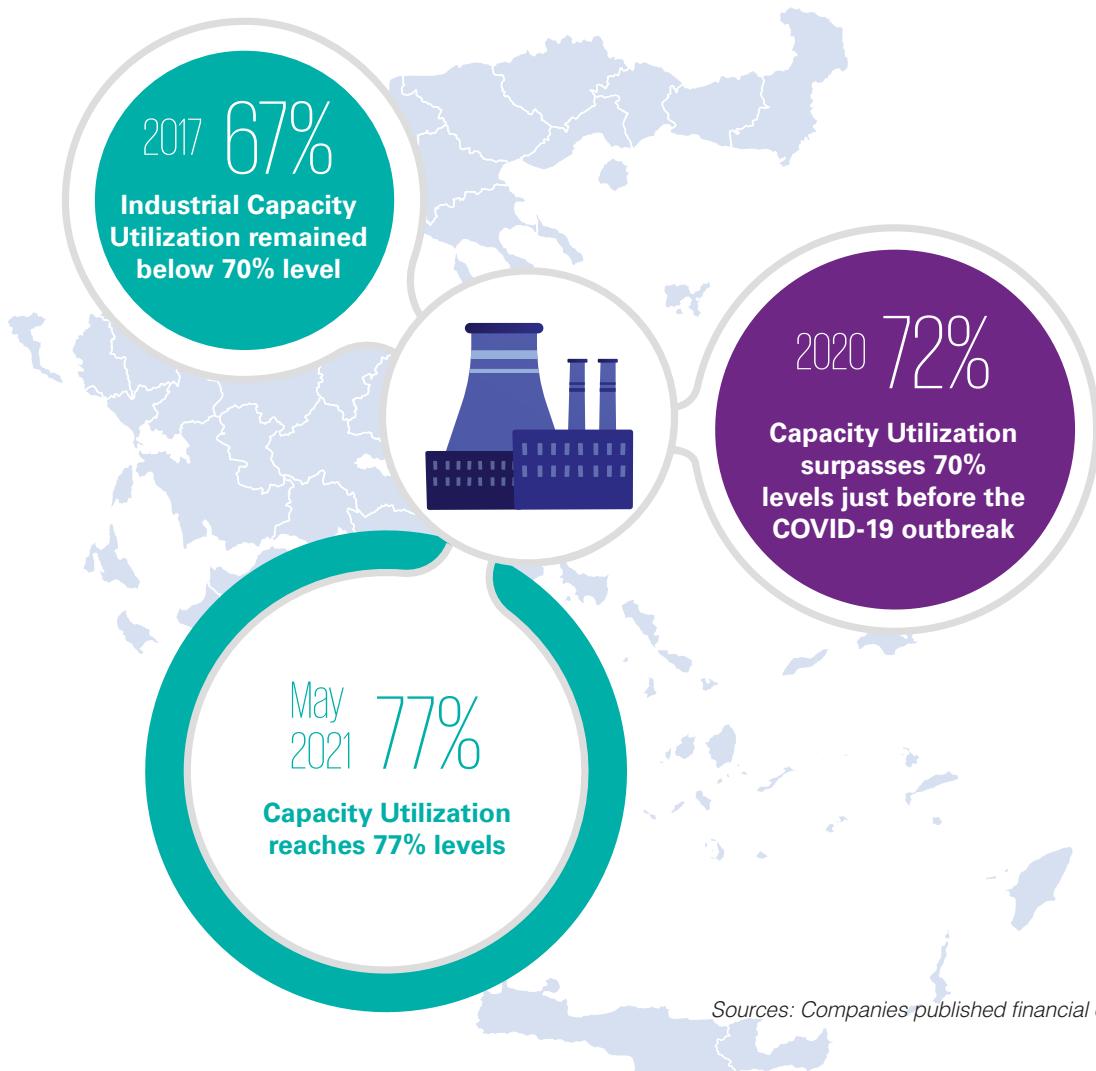
Sources: Companies published financial data





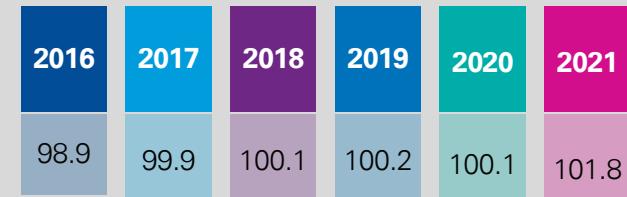
Price & production

Heavy Manufacturing is showing clear signs of recovery



Sources: Companies published financial data

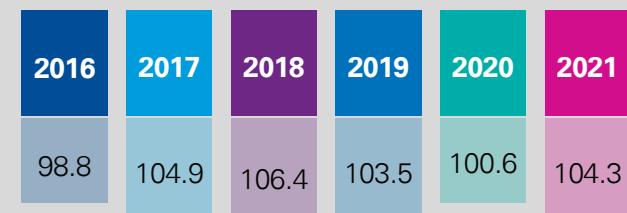
Production Price Index (PPI)*



* excl. energy

The Producer Price Index represents the average movement in selling prices of domestic production over time (base year 2015). The Greek industrial sector remains attractive and continues to offer products at competitively low prices, since the PPI experienced minor growth in the past six years.

Industrial Production Index (IPI)*



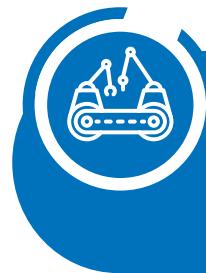
*Mining & Manufacturing

The Industrial Production Index measures levels of real output and capacity (base year 2015). Demand for industrial goods is strong again in Greece, as the IPI has recovered in the last 3 years and capacity utilization has reached 77% levels.

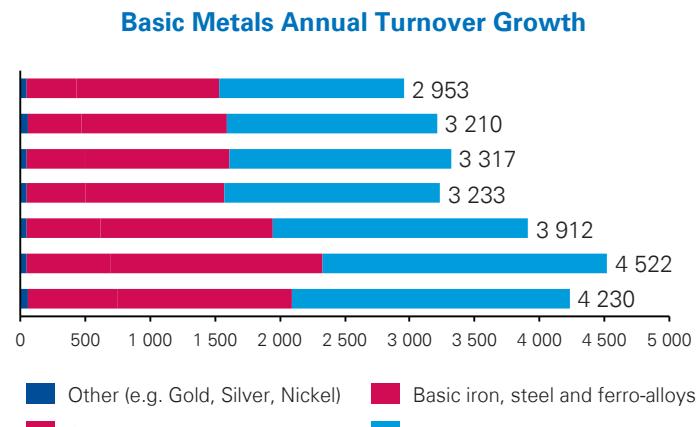


The basic metals sub-segment within the Greek economy

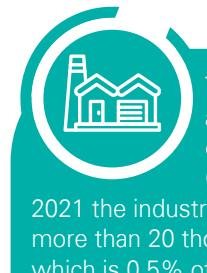
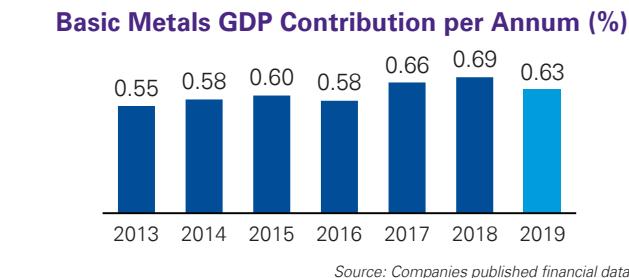
The basic metals industry includes the manufacturing of copper, iron, steel, aluminum and other intermediate metal goods. Steel girders, aluminum sheets and copper wire are some of the products the basic metals industry produces.



The Basic Metals Industry turnover is on the rise with a Compound Annual Growth Rate of 6.2% from 2013 to 2019. This is largely due to increased exports and significant infrastructure projects.



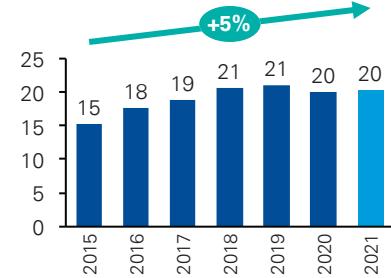
During 2019, Basic Metals production contributed 0.63% towards the Greek GDP. Metals exports (including ores) comprised 8.4% of total Greek exports, the second largest export category after mineral products.



The Sub-sector is an important employer for the Greek economy as in 2021 the industry directly occupied more than 20 thousand individuals, which is 0.5% of Greece's total workforce. Nevertheless, the subsegment is highly dependent on:

- The energy and mining industries due to production significance
- The construction industry since it strongly defines sales
- Local and international legislation, as they may define both sales and cost

Employees Occupied in Basic Metals Manufacturing (k)





Cost of metals & energy amidst the pandemic

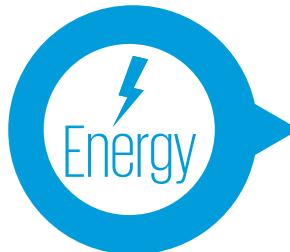
Raw material and energy constitute a major expense for companies within the subsegment. More specifically, price fluctuations of these production constituents have a major impact on operations.



The price of raw materials (scrap metal & ore), has increased sharply amidst the pandemic. From the start of the pandemic till June 2021 the price of aluminium increased 44%, of copper 79%, of Iron 137% and of steel scrap 75.6%.

This is mainly due to:

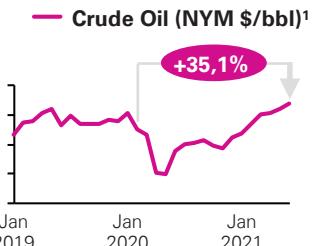
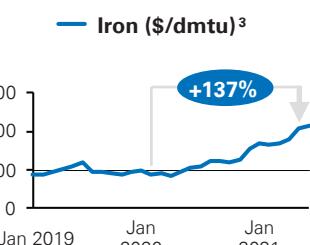
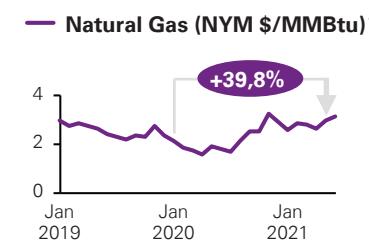
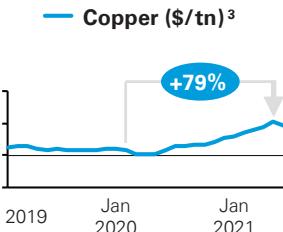
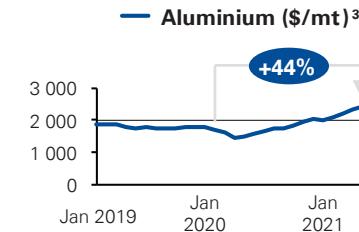
- Production and transportation of metals being initially disrupted thus hindering supply
- Consumers spending shift from services to goods that could require metals as raw materials. Such products include home appliances and outdoor equipment
- A sharp increase in freight rates for the transportation of bulk material as key ports were congested, quarantine restrictions and challenges regarding ship crewing
- Policy changes from major production territories such as China and Russia



For metal manufacturing companies, energy can represent up to 40% of the total operating cost. Taking that into consideration, COVID-19 disruptions that led to an increase in the price of resources used for energy production will significantly impact the sector. Since the start of the pandemic, till June 2021:

- Natural gas price has increased more than 39%
- Coal price has increased around 144%²
- Oil prices are around 35% higher

Basic Metals prices during the pandemic



Sources: Nasdaq¹, Business Insider², World Bank³, London Metals Exchange⁴

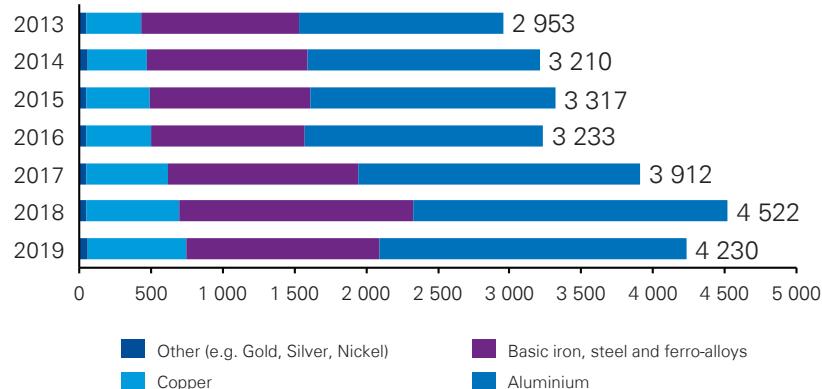


The two sides of the Greek basic metals sub segment



Sales

- From 2015 to 2019, sectoral sales have increased around 27.5%¹. For that period the spike in sales can be attributed to a stronger sectoral export activity that increased 3.5%² and infrastructure investment of approximately Euro 12.5 billion
- Within the next decade, planned large-scale projects worth more than Euro 21.5 billion will boost sectoral sales. However, large-scale projects could also cause sudden spikes in local demand that would test the production and transportation capacity of the sub segment



Debt & Liquidity

- Sectoral debt swells every year with bank liabilities increasing 122% from 2015 to 2019. Tough competition, increasing cost of metals used in production and great cost of replacing machinery/ expanding production pushed organisations to seek liquidity from financial institutions or the market^{3, 4}

- Despite increased debt, an additional 20% of companies managed to cover their interest payments in 2019 than in 2015. This change could be attributed to the 27.5% increase in total sub segment turnover and 54% decrease in the average cost of debt^{3, 4}

Sources: Companies published financial data¹, Observatory of Economic Complexity², KPMG Analysis³, Company annual reports⁴



Key takeaways



Economy Booster

The basic metals industry is one of the top earners, exporters and important employers for the Greek economy.



Upcoming Mega-Projects

Local Mega-Projects that will require vast amounts of resources shall test the sub segment's production and transportation capacity because of higher demand.

Manufacturing Powerhouse

Manufacturing and fabrication of metals makes up the largest heavy manufacturing sub segment in Greece with sales of Euro 5.7 billion.



Growth Factors

Large scale projects and exports are the driving force for the sub segment's growth.



Price volatility of Primary Materials

COVID-19 disruptions have led to a sharp increase in the price of primary materials. As primary materials constitute a major expense, companies are now facing the challenge to maintain their profitability and continuous operations.



Price volatility of Electricity

Electricity is another major expense for production. The recent rise in its price further adds to the prementioned challenge.

Price Fluctuations

COVID-19 supply chain disruptions, environmental concerns, ambitious infrastructure projects and trade policies shape metal prices, largely pushing them upwards.



Competitive Product

The Production Price Index ascending course confirms that the Greek industrial sector remains attractive and continues to offer products at competitive prices.





Sector & Sub Segment Supply





Areas of focus for the market's key players

Type of metal manufactured by key players



Viohalco



Viohalco
Mytilineos Holdings
Alumil
Exalco
Cosmos Aluminium



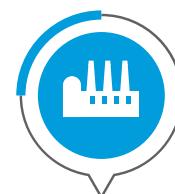
Viohalco
Helleniki Halyvourgia
Elastron

- Large players are focused on Aluminium, iron, steel & ferro alloys and copper
- Most players produce one type of metal (aluminium or iron, steel & ferro-alloys) apart from Viohalco which produces all 3 metals and dominates the copper market
- Through Aluminium of Greece, Mytilineos is the most vertically integrated player, with strong presence in mining, refining and extraction of aluminium
- Other players are more focused on processing metals into standard shapes or mechanisms

The metals value chain



Mining



Refining



Extraction



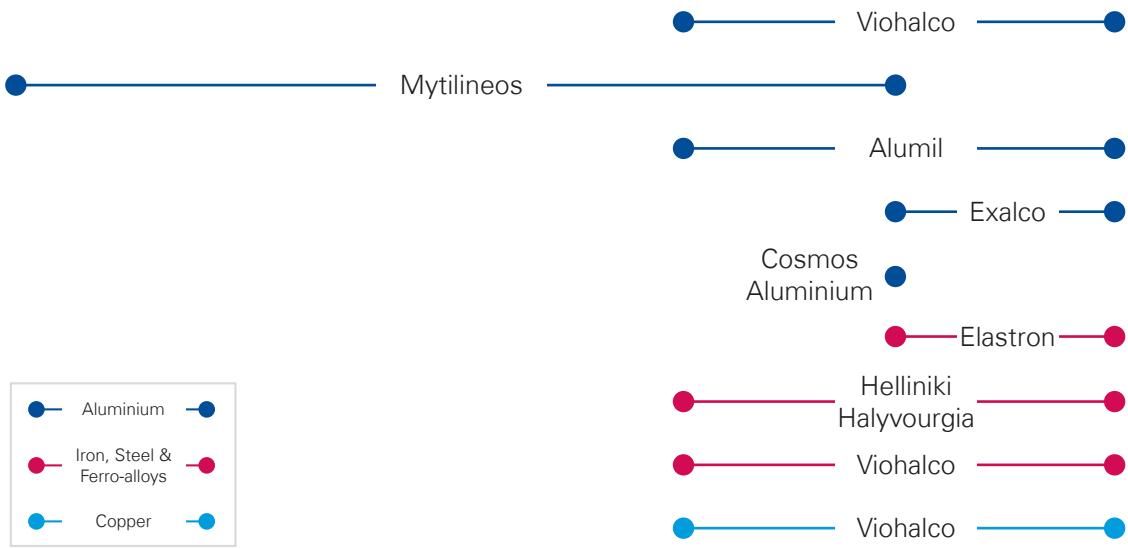
Casting



**Rolling,
Extruding,
Forging**



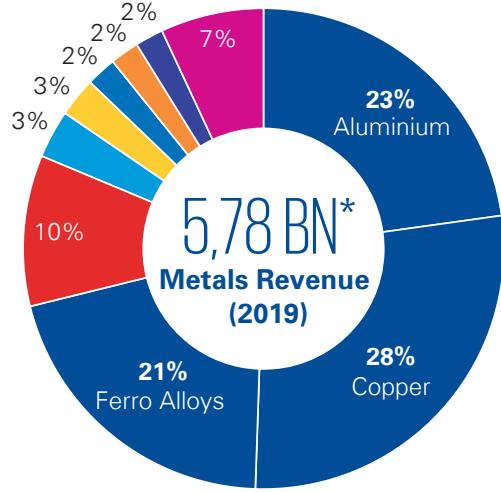
**Further
processing /
assembly**





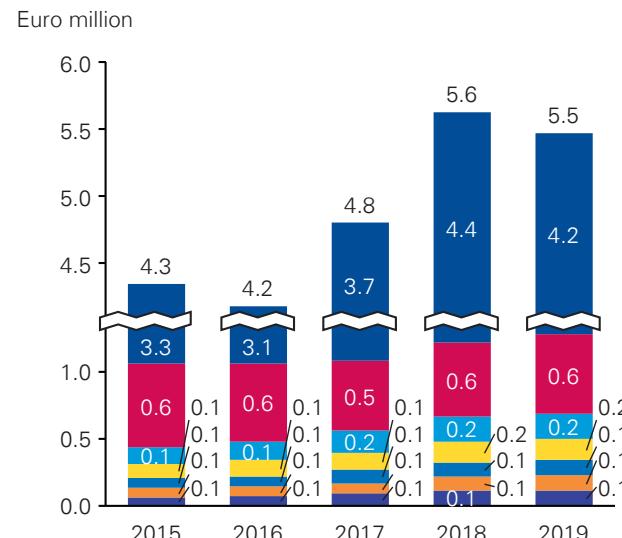
Size and financials of key players

Market Size



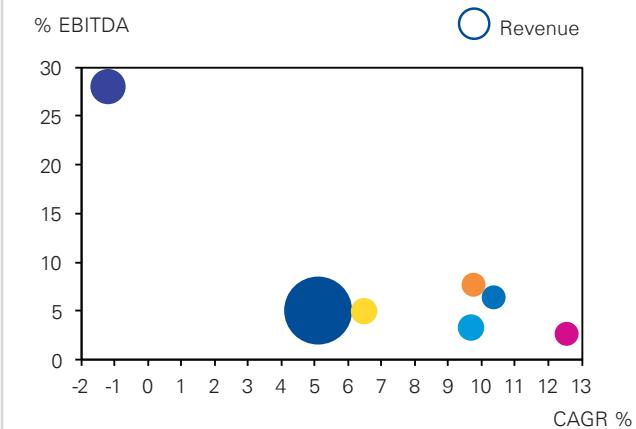
- The “Basic Metals” market, consisting of metal manufacturing and fabricated metal products, is highly concentrated
- Due to the nature of the industry (very capital intense) this attribute is expected
- The main metals produced are Aluminium, Iron alloys and Copper with players such as Viohalco producing a variety of metals
- The market is largely dominated by Viohalco which claimed 72% market share in 2019, followed by Mytilineos Holdings with 10% market share. The rest of the competition comprises the other 18% of the market

Revenue (top 7 players)



- The industry has experienced continuous growth reaching a peak in 2018 and experiencing a 28% increase in revenue from 2015-2019. This is mainly due to revenue growth by Viohalco. During this period Viohalco increased production capacity, secured large customer orders and developed a strong exporting activity
- Throughout this period, the industry is dominated by 2 large players

CAGR (2015-2019) | Revenue (2019) | % EBITDA (2019)



- Mytilineos SA's profitability (EBITDA margin %) significantly deviated from the average 6% of the industry as it managed to increase profitability from 14% in 2016 to 28% in 2019. This was achieved by a) restructuring its organisation, overall benefitting from group synergies and b) capitalizing on its mining facilities to hedge against and benefit from rising metal prices
- Companies with smaller revenue have higher CAGR% than the two largest players. Elastron has the highest CAGR 12.56%. Exalco, Cosmos Aluminium and Helleniki Halyvourgia follow with around 10%, while Viohalco and Mytilineos have lowest for the period

■ Viohalco ■ Helleniki Halyvourgia ■ EXALCO ■ Elastron
■ Mytilineos Holdings ■ Alumil ■ COSMOS ALUMINIUM ■ Other



Main Challenges

Challenges faced by key players in the basic metals manufacturing subsegment



Hindered access to raw material

(a) Supply chain disruptions caused by COVID-19 and (b) policy changes regulating metals production and trade have hindered the sector's ability to source material.



Economies of scale

Local demand is not currently adequate for companies to realise greater economies of scale to match top international peers.

Payments Obligations

More than 50% of companies could face difficulties settling payments due to decreased liquidity and larger debt obligations.



Debt Obligations

Debt in the sector has been piling up throughout the years. Companies are called to maintain a sustainable level of debt amidst (a) rising production cost and (b) required investments to satisfy future demand.



Quality concerns

Companies in the sector find it increasingly difficult to procure high-grade scrap to meet final product quality requirements.

Workforce Availability

Companies have troubles locating and recruiting specialized personnel for the factory floor.



Availability of Transportation

Seasonality of sales and disruptions (such as COVID-19) periodically cause a shortfall in the means of product transportation.

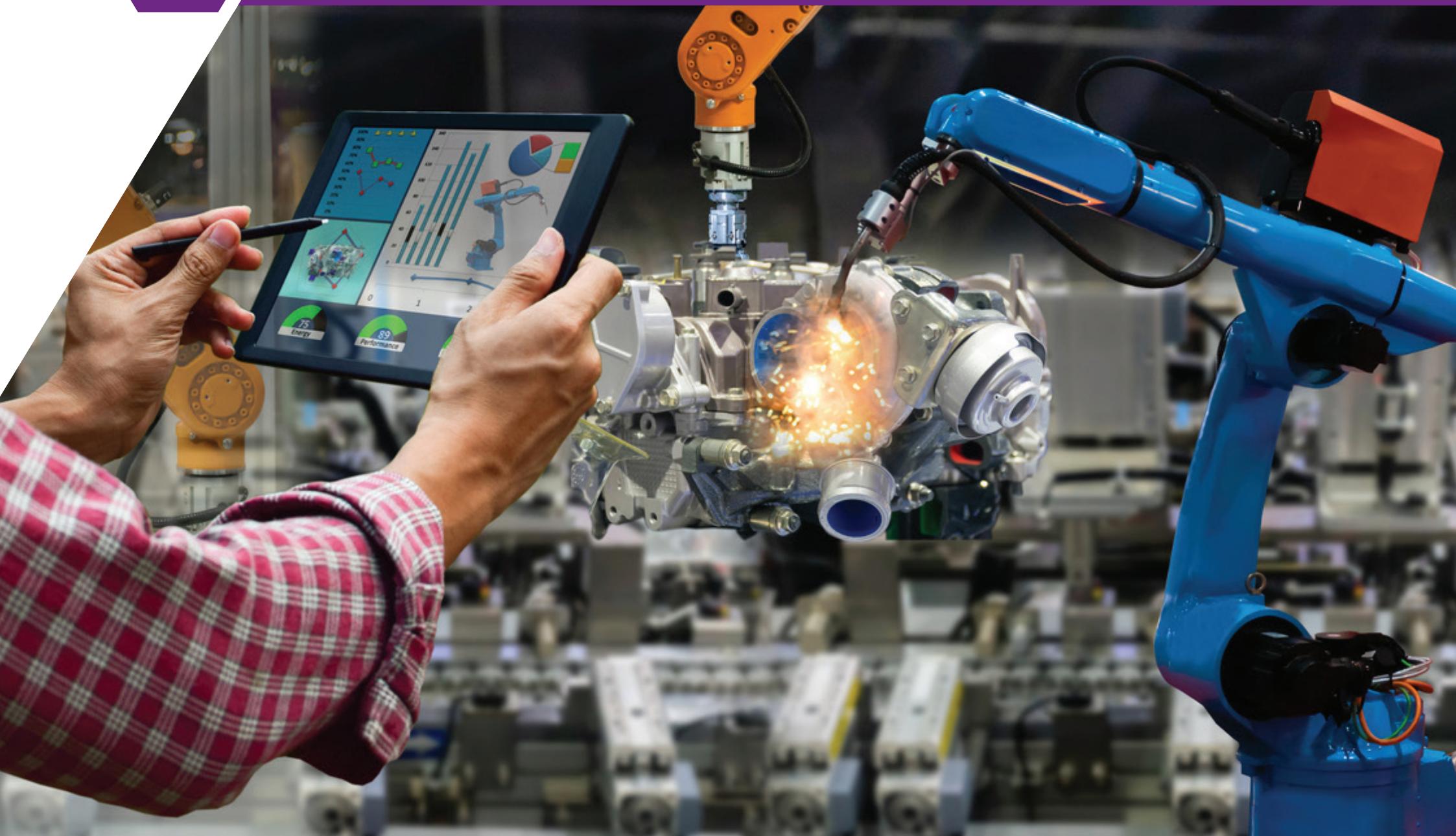


Transformation Oriented

Companies, such as Mytilineos, that are focused on reshaping their organisation, are sturdier in absorbing price fluctuations, retaining their profitability and exhibit greater fulfilment flexibility.



Basic Metals Future Outlook





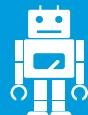
Trends within the basic metals manufacturing subsegment

The Basic Metals manufacturing subsegment is going through a transitional phase, driven by innovation and industry dynamics



Environmental, Sustainability & Governance

Greek metal manufacturers are committed to invest strategically in the local and global goal of sustainable development. They have increased their focus on ESG initiatives (green agenda, sustainability code, etc.), contributing to Greece being the European Union (EU) member country with the most significant annual drop in carbon emissions in 2020.



Automation

The pandemic highlighted the need for companies to reduce operational disruptions and lower supply-chain risks. Leading metal manufacturers in Greece have shifted their center of attention to automation and linked their ERP and CRM systems to properly evaluate their supply constraints and readjust their supply networks.



Production Practices

Metallurgy companies are bound to continue to invest in manufacturing automation equipment and technologies supporting digital development. New production practices such as automated paint and pre-lubrication lines are expected to result to increased capacity and a wider available range in aluminium / steel products.



Workforce Agility

Human capital in the Greek metal industry follows an upward trend in the last decade while some manufacturers have embraced automation to deal with trained workforce shortage in areas such as process optimization.



Overview of what the sub segment considers as an opportunity & concern

Basic Metals manufacturing has exhibited remarkable resilience in Greece during the past few years.

Opportunities



ESG

Greek metal manufacturers should shift their focus to decarbonization and the green agenda. Companies that will proactively tackle ESG issues may strengthen their corporate brand and gain a competitive edge in such as access for capital.



Reinventing Production Model

The disruption caused by the pandemic forced the domestic metals industry to consider reinventing their manufacturing model and examine options such as additive manufacturing or incorporating/upgrading the automation process, etc.

Concerns



High-Priced Products

Greek metal manufacturing is highly dependent on external (commodity prices, energy cost, etc.) and internal factors (lack of economies of scale, labour cost) and generates high-priced final products.



Introversion

Some smaller and medium sized companies of the domestic metals industry are struggling to regain their competitiveness only through cost control and workforce productivity, ignoring other transformation paths.

After a turbulent era, leading Greek industry players are focusing on reducing costs, integrating technologies (such as connected automation) to drive growth and increase productivity.

Commodity price & volatility and cost of energy continue to be the leading concerns for the metal manufacturing industry.



Driving forces behind the transition of basic metals manufacturing

Basic metals manufacturing in Greece is in “smart” transition...

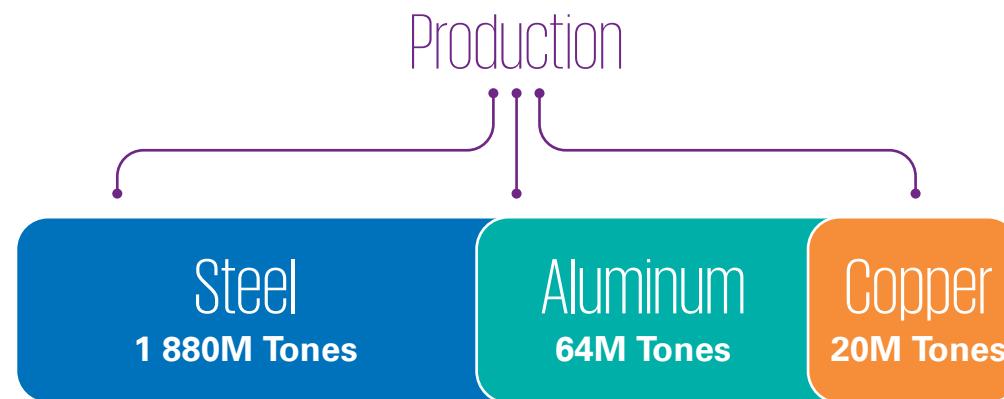
The evolution of digital technologies has fundamentally changed the way metal manufacturing plants operate. Facilities are becoming increasingly interconnected, paving the way to the factories of the future.





Global Market Demand & Production

Metal production is ready to meet increasing global demand...



2020 Global Data



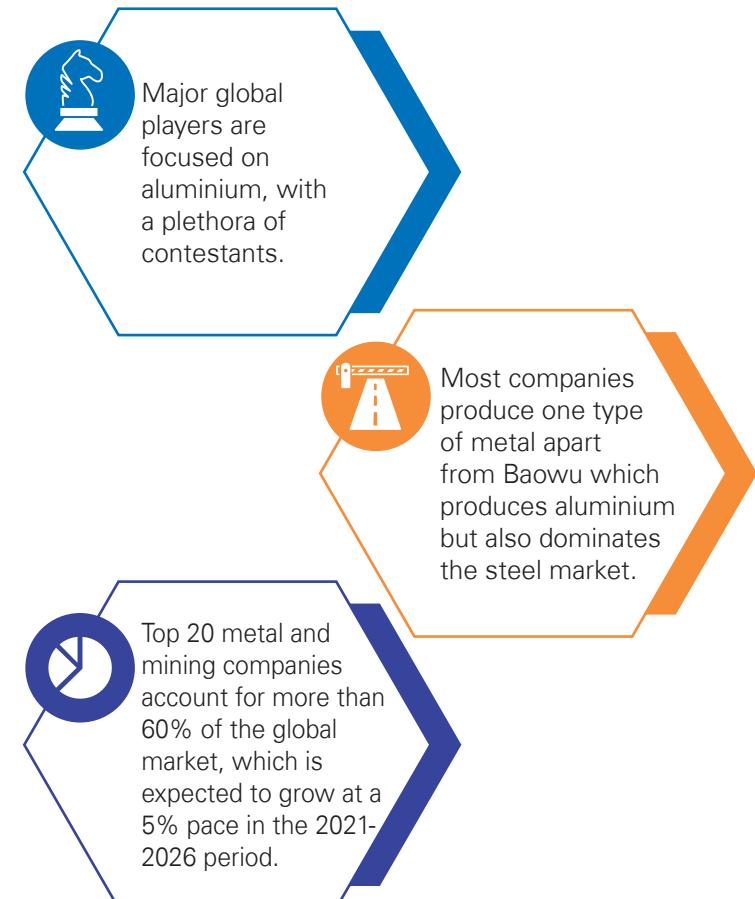
Basic Metals Global Key Players

Global players production segments

Aluminium
1. Baowu
2. Novelis
3. Arconic
4. Alcoa
5. East Hope Group
6. Company Limited
7. Norsk Hydro
8. Emirates Global Aluminium
9. Xinfia
10. Hongqiao
11. Rusal
12. Chalco
13. Real Alloy
14. Kaiser
15. Loften
16. JW Aluminum
17. Constellium
18. Rio Tinto Alcan

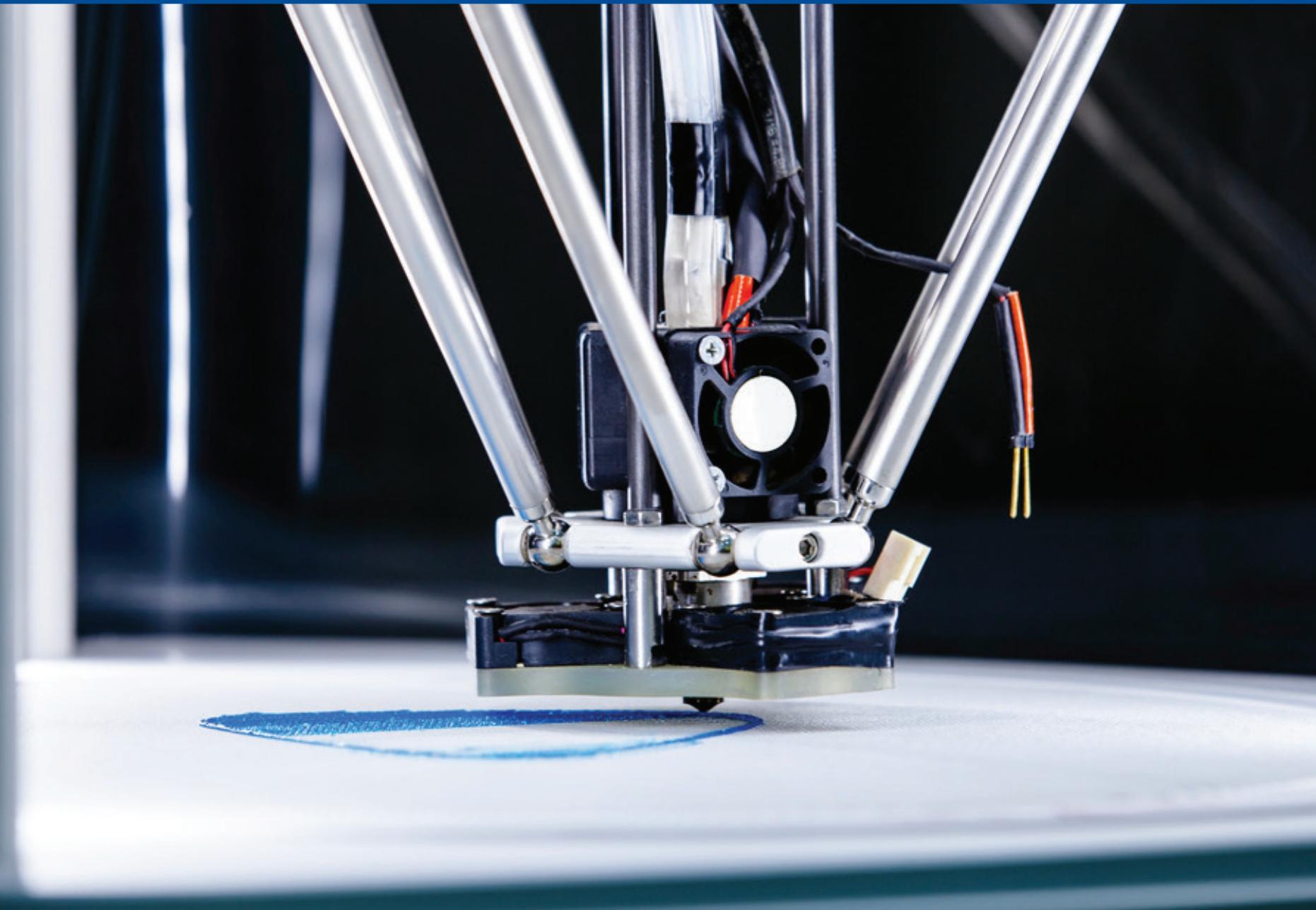
Iron & Steel
1. Baowu
2. ArcelorMittal
3. HBIS
4. Nippon Steel & Sumitomo Metal Corporation
5. Hebei Iron and Steel Group
6. Baosteel
7. Wuhan Iron and Steel Group
8. Posco
9. Tata Steel Group
10. JFE Steel

Copper
1. Rio Tinto
2. BHP
3. Grupo Mexico
4. First Quantum Minerals
5. KGHM Polska Miedz
6. Norilsk Nickel
7. Codelco
8. Glencore
9. Freeport-McMoRan Copper & Gold





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