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IDEALIST

[D7.2] Critical Materials and Components (CM&C) suppliers' template

IDEALIST

3 INDUSTRIAL ECOSYSTEMS TACKLING SUPPLY CHAINS DISRUPTIONS AND BOOSTING ADVANCED TECHNOLOGIES UPTAKE

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Executive summary

This deliverable provides a comprehensive framework to support SMEs in the Aerospace & Defence, Mobility & Automotive, and Energy-Intensive Industries by mitigating supply chain disruptions. It first identifies Critical Raw Materials (CRMs) and Components (CMCs) essential for adopting advanced technologies that drive the green and digital transitions. Then the document identifies primary global suppliers for strategic CRMs/CMCs and alternative sources within the EU member-states or countries having signed a trade agreement with the EU and/or a partnership on raw materials with the EU, ensuring resilience against geopolitical risks. This document aims to provide to industrial SMEs from the Aerospace & Defence, Mobility and Energy-Intensive Industries sectors a list of potential alternative suppliers for critical materials and components that they can reach to avoid future global chains disruption and improve their resilience towards future shocks. Updates every six months will incorporate emerging materials and supplier networks.

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1. Presentation of IDEALIST Project

Coordinated by CIMES, IDEALIST's primary goal is to empower Small and Medium-sized Enterprises (SMEs) in three key industrial sectors: **Energy-intensive industries, Aerospace and Defence, and Mobility, Transport & Automotive**. These sectors are crucial to the European economy and face shared challenges, such as transitioning to sustainable practices, competitiveness in a context of limited raw materials and rising energy costs and adapting to changing consumer habits.

Funded under the HORIZON-CL4-2023-RESILIENCE-01 call, IDEALIST represents a strategic initiative aimed at bolstering the resilience and technological adaptability of SMEs within the European Union. The project indeed aims to transform SMEs from passive observers to active participants in these changes, especially in response to global events like the COVID-19 pandemic and the conflict initiated by Russia in Ukraine.

IDEALIST focuses on three main areas:

- **Strategic Foresight**: Developing tools and approaches to help SMEs anticipate and systematically prepare for change.
- **Technology Uptake**: Addressing barriers to adopting advanced technologies and fostering collaborations between tech-forward and traditional SMEs.
- **Supply Chain Resilience:** Identifying and mitigating critical dependencies and weaknesses to reduce the impact of disruptions on value chains.

The project will implement pilot projects to encourage collaboration across these ecosystems, using the **Hack&Match** method. It will also leverage the AGORA platform, led by EIT Manufacturing, to facilitate matchmaking and community building.

IDEALIST is a three-year Coordination and Support Action (CSA) whose consortium includes 14 partners from 6 European countries and Ukraine, reflecting its broad relevance and scope.

2. Context and Methodology for scanning alternative suppliers of Critical Raw Materials & Components

Supply disruptions and shortages caused by hazards (Fukushima) and geopolitical interventions, as well as pandemic and multipolar world order where raw materials have become a geopolitically strategic subject, have shown that disruptions in global supply chains can lead to shortages in critical raw materials and products the EU27 is highly dependent from. These disruptions especially affected European industrial ecosystems regarded as system-relevant and key for the

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European economy such as **Aerospace & Defence**, **Mobility** and **Energy-Intensive Industries.** These ecosystems substantially determine manufacturing in Europe in terms of production, logistics, and labour and their vulnerability led to concerns about the European industries'(lack of) sovereignty.

To cope with the new criticalities, the **2021 updated Industrial Strategy of the European Commission** has proposed a series of measures that focus on strengthening the resilience of the single market and supporting Europe's open strategic autonomy by addressing strategic dependencies among the others. Europe needs to further improve its open strategic autonomy in key areas such as **processors**, **semi-conductor**s and all the so-called **critical raw materials** representing a key to its future sovereignty in technological, industrial, and economic terms, as well as from a societal point of view. Current critical materials and components shortages are affecting not only the "business as usual" but also the **uptake of advanced technologies among SMEs**. The supply chain bottlenecks experienced across European industries start with strategic component shortages, such as certain semiconductors: for example, lead times for "basic" semiconductors still extend past 40 weeks, on average, and for high-end components are more than 52 weeks.

IDEALIST project aims at developing a **model that can assist SMEs in detecting and anticipating disruptions in their supply chains**, contributing to reduce strategic dependencies on critical products, services and ATs. A key aspect of this support is to provide to SMEs a list of **new and/or alternative European potential suppliers for Critical Raw Materials and Components for Alternative Technologies** which are considered as strategic for the 3 industrial ecosystems represented in IDEALIT project:

Aerospace & Defence, Mobility and Energy-Intensive Industries (Chemical Industries, Mining, Polymers). Suppliers based in third countries which have signed a trade-agreement with the European union and/or a partnership on raw materials with the EU were also included as such agreements prevent potential unforeseen geopolitical disruptions.

The critical raw materials and components (CM&C) listed in the document were identified as strategic for the European industry by the 11 clusters partners of IDEALIST project representing the **Aerospace & Defence, Mobility & Automotive and Energy-Intensives Industries (Chemical industries, Raw Materials & Mining and Polymers & Composites industries)** ecosystems. To select the most strategic CM&C, the IDEALIST partners identified the **Advanced Technologies** enabling manufacturing SMEs from those ecosystems to implement their green and digital transition, hence improving their resilience

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to future shock and their competitiveness. Once those key Advanced Technologies were identified, the IDEALIST partners listed the components needed for their manufacturing and adoption such as batteries, sensors, advanced semi-conductors, nanotechnologies etc. The IDEALIST partners also worked on identifying within the list of **34 CRMs published by the European Commission in 2023** in the **Annex II of** **the Regulation proposal COM(2023)** the ones that were the most strategic for the 3 ecosystems represented in the project. For each Critical Raw Materials and Components identified, the present document provides a brief definition, the main producers countries currently supplying the European industry and a list of alternative suppliers based in EU or in third countries collaborating with EU through a free-trade agreement and/or a partnership on raw materials with the EU. The goal is to provide European SMEs alternative suppliers for those key critical raw materials and components on which depend competitiveness of manufacturing SMEs but also the digital and green transition of the European industry as such CM&C re key enablers to implement the EU's Green Deal (i.e. in renewable production, storage, transport etc.) The document will be updated every six months by IDEALIST project to incorporate any additional Critical Raw Materials & components or any new alternative suppliers.

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3. List of Critical Raw Materials & Components and their alternative suppliers

Antinomy

A metal used in flame retardants, lead-acid batteries, and alloys. It enhances hardness and strength in metals (iron, steel, titanium, aluminium, etc.).
The 3 main countries suppliers of this critical materials for the EU industry are China, Italy, India.

Alternative suppliers based in EU member-states			Alternative suppliers based in third-countries that have signed a trade agreement with the EU		
Name	**Localisation**	**On the market/project**	**Name**	**Localisation**	**On the market/project**
Feinhütte Halsbrücke, smelter	Saxony, Germany	Historic smelter with capability to process primary antimony ores; part of Germany's critical metals infrastructure. No current output data found.	**Mandalay Resources, Costerfield project**	Australia	Operates the Costerfield mine, producing ~1,100–1,500 t Sb/year; an active antimony/gold mine integrated in global supply chain
Campine NV	Belgium	Recycles and supplies antimony trioxide. www.campine.com	**Larvotto resources, Hillgrove project**	Australia	Evaluation stage
Recyclex	France	Recylex specializes in recycling lead-acid batteries and recovers antimony as a by-product from lead recycling. They are a significant player in the secondary recovery of antimony.			
Metallo Group	Belgium	Part of the Aurubis group, Metallo recycles non-ferrous metals and materials, *including* those containing antimony, through its recovery processes.			

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Boliden AB	Sweden	Boliden is a leading metal recycling company in Europe and processes materials containing antimony, such as electronic waste and lead-acid batteries.
Umicore	Belgium	Recycles antimony via its Hoboken plant, extracting it as sodium antimonate from lead/copper/zinc residues; integrated in EU critical metals circularity strategy

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Arsenic

Often used in semiconductor applications due to its properties as a dopant in silicon and for producing gallium arsenide.
The 3 main countries suppliers of this critical materials for the EU industry are Peru, Germany, Belgium and France.

Alternative suppliers based in EU member-states			Alternative suppliers based in third-countries that have signed a trade agreement with the EU		
Name	**Localisation**	**On the market/project**	**Name**	**Localisation**	**On the market/project**
PPM Reinstmetalle Osterwieck GmbH	Germany	High purity arsenic for mainly the electronic and opto-electronic industries.	**Campine**	Peru	Metal recycling specialist—focus on electronic waste; capable of supplying high-purity metals including arsenic.
Umicore	Belgium	Offers **arsenic(III) oxide (As_2O_3) powder, ≥99.95 % metal purity**, used in precious-metal chemistry and electro-optic materials.			
Alfa Aesar	France	Supplies **arsenic lump, ≥99.99 % (metals basis)**—high-purity solid arsenic suitable for research and component fabrication.			
Sigma-Aldrich (Merck Group)	France	Offers **arsenic powder ≥99.997 % trace metals**, **arsenic lumps ≥99.999 %**, plus As_2O_3 and analytical standards—ideal for high-tech electronics and analytical labs.			
Strem Chemicals	France	Provides **trimethylarsine (TMAs) 99 % for CVD**, **arsenic(V) oxide ≥99.9 %**, arsenic powders ≥99 %—tools for thin-film deposition and microfabrication.			

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Bauxite

The primary ore of aluminum, essential for production of aluminum metals used in aerospace and transportation, besides from construction.
The main country supplier of this critical materials for the EU industry is Greece and France.

Alternative suppliers based in EU member-states		
Name	**Localisation**	**On the market/project**
European Aluminium (membership network)	EU-wide	Network of EU aluminium producers; includes most regional smelters and recyclers. Includes membership directory.
Metlen Energy & Metals (MYTILINEOS Holdings)	Greece	EU's largest bauxite producer—1.2 Mt/year; integrated bauxite → alumina → primary aluminium; investing €295 M to expand capacity (2 Mt bauxite, 1.265 Mt alumina, 50 t gallium annually) by 2027–2028.
Imerys	France	Major producer of industrial minerals including bauxite, andalusite, alumina; operates the Glomel andalusite mine (~65K t/year)
IB2	France	Specialist in bauxite refinement and Bayer-process alumina – eco-innovations; deploying first pilot plant in 2025
IMCD	France	Distributor of specialty chemicals/additives, including for aluminium processing and coatings (likely alumina-related).
Fatir VTC	France	(Limited public info) Likely a small converter or glass/aluminium-related processor; confirmation needed.

Alternative suppliers based in third-countries that have signed a trade agreement with the EU		
Name	**Localisation**	**On the market/project**
Not identified		

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Beryllium

A lightweight, stiff metal used in aerospace, telecommunications, and electronics for its excellent electrical and thermal conductivities.
The 2 main countries suppliers of this critical materials for the EU industry are United States and Khasakstan.

Alternative suppliers based in EU member-states			Alternative suppliers based in third-countries that have signed a trade agreement with the EU		
Name	**Localisation**	**On the market/project**	**Name**	**Localisation**	**On the market/project**
NGK Deutsche Berylco GmbH	Germany		**Ulba Metallurgical Plant**	Kazakhstan	
Auerhammer Metallwerk GmbH	Germany		**Columbia**	UK	

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Cobalt

It has significant role in various industries, especially in the production of batteries for electric vehicles and energy storage systems.
The 3 main countries suppliers of this critical materials for the EU industry are Australia, Canada and Congo.

Alternative suppliers based in EU member-states			
Name	**Localisation**	**On the market/project**	**Comments**
Nickelhütte Aue, smelter	Germany	Nickelhütte Aue GmbH is a world leader in the recycling of nickel, copper and cobalt catalysts from the oil, gas and chemical industries; in production	Secondary raw materials
Freeport Cobalt Oy (Jervois Mining Ltd.)	Finland	Offers cobalt oxide. Link: www.jervoisfinland.com	Refinery
Glencore	Switzerland	Swiss multinational commodity tradingand mining company; in production	
Rocklink	Germany	Lithium-Ion Battery & Rare Earth Magnet Recycling; in production	Secondary raw materials
Umicore	Belgium	Global materials technology and recycling group in production	
FinnCobalt, Hautalampi Nickel-Cobalt-Copper Project	Finland	Evaluation stage	Mining company
Boliden, Kevitsa project	Finland	In production	Mining company
Terrafame, Talvivaara project	Finland	In production	Mining company
Mawson Gold Ltd, Rompas–Rajapalot project	Finland	Evaluation stage	Mining company
Anglo American Plc, Sakatti project	Finland	Evaluation stage	Mining company

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Suhanko Arctic Platinum, Suhanko project	Finland	Evaluation stage	Mining company

Alternative suppliers based in third countries that have signed a trade agreement with the EU and/or a partnership on raw materials with the EU			
Name	**Localisation**	**On the market/project**	**Comments**
Ardea Resources, Kalgoorlie project	Australia	Evaluation stage	Mining company (Nickel-cobalt)
Australian Mines, Sconi project	Australia	Evaluation stage	Mining company (Nickel-cobalt)
Alliance Nickel, NiWest project	Australia	Evaluation stage	Mining company (Nickel-cobalt)
Greenstone Resources, Mt Thirsty project	Australia	Evaluation stage	Mining company
Metals X, Central Musgrave project	Australia	Evaluation stage	Mining company (Nickel-cobalt)
Sunrise Energy Metals. sunrise project	Australia	Evaluation stage	Mining company (Nickel-cobalt)
Panoramic Resources, Savannah project	Australia	On halt	Mining company (Nickel-cobalt-copper)

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Copper

The EC's 2023 critical raw materials list includes copper, recognizing its importance for the EU economy and its applications in renewable energy, electric mobility, and other digital technologies. The 3 main countries suppliers of this critical materials for the EU industry are Australia, Chile and Peru.

Alternative suppliers based in EU member-states			
Name	**Localisation**	**On the market/project**	**Comments**
Feinhütte Halsbrücke, smelter	Germany	Tin and lead smelter (secondary raw materials) in production	Secondary raw materials
KGHM Polska Miedź S.A.	Poland	One of the largest producers of copper in Europe. Link: www.kghm.com/en	
Aurubis AG	Germany	Global supplier of non-ferrous metals and one of the world's largest copper recyclers; in production	
Boliden AB	Sweden	Multinational metals, mining, and smelting company producing zinc, copper, lead, nickel, silver, and gold; in production	
Nickelhütte Aue, smelter	Germany	Nickelhütte Aue GmbH is a world leader in the recycling of nickel, copper and cobalt catalysts from the oil, gas and chemical industries; in production	Secondary raw materials
Montanwerke Brixlegg AG	Austria	Copper recycling and refining; in production	Secondary raw materials
FinnCobalt, Hautalampi Nickel-Cobalt-Copper Project	Finland	Evaluation stage	Mining company
Terrafame, Talvivaara project	FInland	In production	Mining company
Anglo American Plc, Sakatti project	Finland	Evaluation stage	Mining company
Suhanko Arctic Platinum, Suhanko project	Finland	Evaluation stage	Mining company
Oxiana Resources NL, Skouriotissa copper mine	Cyprus	In production	Mining company

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Alternative suppliers based in third countries that have signed a trade agreement with the EU and/or a partnership on raw materials with the EU			
Name	**Localisation**	**On the market/project**	**Comments**
Panoramic Resources, Savannah project	Australia	On halt	Mining company (Nickel-cobalt-copper)
Glencore plc	Switzerland	Swiss multinational commodity tradingand mining company; in production	Mining company
Anglo American plc	UK	British multinational mining company; in production	Mining company
Minera Los Pelambres	Chile	Copper producer in production	Mining company
Antofagasta Minerals S.A.	Chile	Copper producer in production	Mining company
Ivanhoe Mines, Ltd.	Canada	Ivanhoe Mines is a mining company focused on discovering, developing and producing the critical resources essential for a low-carbon future (copper, zinc, nickel, palladium, platinum, rhodium and other green metals); owning copper mine in production in DRC	Mining company
BHP Billiton Plc	Australia	Australian multinational mining and metals public company; in production	Mining company
Sociedad Contractual Minera el Abra	Chile	Copper mine in operation	Mining company
Compañía Minera Dona Inés de Collahuasi	Chile	Copper producer in production	Mining company
Compañía Minera Zaldívar	Chile	Copper producer in production	Mining company
CODELCO-Chile	Chile	Copper producer in production	Mining company
Minera Antucoya	Chile	Copper producer in production	Mining company
Minera Centinela	Chile	Copper producer in production	Mining company
Teck	Canada	Copper producer in production	Mining company
Minera Escondida Limitada	Chile	Copper mines in operation	Mining company

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Newmont, Cadia Mine	Australia	Copper mine in operation	Mining company

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Fluorspar

Essential in the manufacture of fluorinated chemicals, aluminium, and steel. The 3 main countries suppliers of this critical materials for the EU industry are China, Mexico and South Africa.

Alternative suppliers based in EU member-states			
Name	**Localisation**	**On the market/project**	**Comments**
Erzgebirgische Fluss- und Schwerspatwerke GmbH, mining company	Germany	In operation	Primary raw materials
Genna Tres Montis	Italy	To return into operations soon.	Primary raw materials. It will be the largest Fluorspar mine in Europe.
Minersa Group	Spain	One of the largest producers of fluorspar in Europe. They operate mining and processing facilities in Spain and supply luorspar for various industries, including metallurgy and chemicals.	
S&B Industrial Minerals	Greece	Part of the Imerys Group has fluorspar mining operations in Greece. They supply high-quality fluorspar for industries like aluminum production, steelmaking, and chemical manufacturing.	
Tertiary Minerals plc, Storuman Fluorspar Project	Sweden	Evaluation stage	Mining company
Deutsche Flussspat, Käfersteige mine	Germany	Evaluation stage	Mining company

Alternative suppliers based in third countries that have signed a trade agreement with the EU and/or a partnership on raw materials with the EU			
Name	**Localisation**	**On the market/project**	**Comments**
British Fluorspar Ltd	UK	Located in Derbyshire, UK, British Fluorspar operates the Milldam Mine, which is the last active fluorspar mine in the country. The company supplies metallurgical and acid-grade fluorspar used for steel production and chemical applications.	
Tivan, Speewah Fluorspar Deposit	Australia	Evaluation stage	Mining company

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Natural Graphite

Natural graphite is one of the crystalline forms of the element carbon. Its atoms are arranged in a stack of graphene sheets with a hexagonal structure. Natural graphite is found in metamorphic and magmatic rocks and in meteorites. The 3 main countries suppliers of this critical materials for the EU industry are China, Brazil and Mozambique.

Alternative suppliers based in EU member-states			
Name	**Localisation**	**On the market/project**	**Comments**
Skaland Graphite AS	Norway	One of the world's highest-grade graphite producers Link: graphite.no	
SGL Carbon SE (www.sglcarbon.com)	Germany	Leader in graphite production, with a focus on both natural and synthetic graphite. While much of their focus is on synthetic graphite, they can also supply natural graphite for various industrial uses.	
Beowulf Mining, Aitolampi project	Finland	Early stage	Mining company
Talga Resources, Vittangi project	Sweden	Evaluation stage	Mining company

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Alternative suppliers based in third countries that have signed a trade agreement with the EU and/or a partnership on raw materials with the EU			
Name	**Localisation**	**On the market/project**	**Comments**
Nouveau Monde Graphite	Canada	Though based in Canada, Nouveau Monde has significant operations in Europe, including partnerships with European companies for the supply of high-purity natural graphite.	
Imerys	Switzerland	Produces natural and synthetic graphite at multiple locations worldwide, including Europe. They focus on high-performance applications such as lithium-ion batteries, conductive materials, and refractories.	
Focus Graphite, Lac Knife project	Canada	Evaluation stage	Mining company
Lomiko Metals, La Loutre project	Canada	Evaluation stage	Mining company
Mason Graphite, Lac Guéret project	Canada	Evaluation stage	Mining company
Northern Graphite, Bissett Creek project	Canada	Evaluation stage	Mining company
GreenRoc Mining, Amitsoq project	Greenland	Early stage	Mining company

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Graphene

Graphene is obtained from graphite and is a simple two-dimensional sheet composed of carbon atoms arranged in a hexagonal pattern. The 4 main countries suppliers of this critical materials for the EU industry are Germany, Italy, Spain and UK.

Alternative suppliers based in EU member-states			
Name	**Localisation**	**On the market/project**	**Comments**
Graphene Square Europe GmbH	Germany	Link: www.graphenesq.com.	
BeDimensional S.p.A.	Italy	Link: https://www.bedimensional.com/	
Directa Plus S.p.A.	Italy	Link: https://www.directa-plus.com/	Mining company
Avanzare Materials	Spain	Link: www.avanzarematerials.com	Supplier that produces advanced nanomaterials, including graphene, for use in plastics, coatings, and other composite materials.
Graphenea	Spain	Link: www.graphenea.com	Design, manufacture and supply graphene-based chips and materials for your industrial and research needs.

Alternative suppliers based in third countries that have signed a trade agreement with the EU and/or a partnership on raw materials with the EU			
Name	**Localisation**	**On the market/project**	**Comments**
Applied Graphene Materials	UK	Link: www.appliedgraphenematerials.com	Though based in the UK, AGM has significant operations in Europe and supplies graphene for coatings, composites, and functional materials.
Haydale	UK	Link: www.haydale.com	Graphene and nanomaterials, offering solutions to enhance the performance of materials in industries such as energy, aerospace, and healthcare. They develop functionalized nanomaterials for advanced composites and coatings

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Helium

Helium is thechemical element with atomic number 2 and symbol He. It is a noble gas (or rare gas), practically inert, the first of the family of noble gases in the periodic table of elements. It has the lowest boiling point of any known substance and exists in solid form only when subjected to a pressure greater than 25 atmospheres. The 4 main countries suppliers of this critical materials for the EU industry are United States, Algeria, Russia and Qatar.

Alternative suppliers based in EU member-states		
Name	**Localisation**	**On the market/project**
Air Liquide (www.airliquide.com)	France	One of the largest suppliers of helium in Europe. They provide helium for industrial, medical, and research purposes. The company has significant operations across Europe, supplying both gaseous and liquid helium.
Linde Group (www.linde.com)	Germany	Major supplier of helium in Europe. They have a global helium sourcing network and offer a variety of helium products for industries such as aerospace and electronics
Uniper	Germany	Uniper is involved in the energy sector with a focus on hydrogen and other energy solutions. They do not appear to be directly involved in helium supply based on the available information.
Woikoski	Finland	Oy Woikoski Ab produces gases for industry and medical use, including helium. The company is family-owned and has been operating since 1882, providing various gases for different applications.
Pegani	Denmark	Pagani is an Italian manufacturer specializing in high-performance hypercars and advanced carbon fiber components. There is no information linking Pagani to helium supply.
RM Tools OÜ	Estonia	RM Tools offers precision manufacturing services, including high-speed milling, precision CNC turning, fabricating and welding, and wire EDM. There is no information linking RM Tools OÜ to helium supply.

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Heavy Rare Earth Elements

They are important for permanent magnets used in high-tech consumer electronics, defense applications, and renewable energy technologies. The 3 main countries suppliers of this critical materials for the EU industry are China, United States and Myanmar.

Alternative suppliers based in EU member-states		
Name	**Localisation**	**On the market/project**
NPM Silmet OÜ (www.silmet.ee)	Estonia	One of the only facilities in Europe processing rare earth elements, including heavy rare earths. They process imported raw materials and supply rare earth products to the European market.
Carester	France	Carester is developing a rare earth recycling and refining facility in Lacq, France, with a focus on sustainability and reducing CO2 emissions. The Caremag plant will recycle magnets and refine mining concentrates to produce rare earth oxides, aiming to meet Europe's demand for rare earth materials and support the energy transition.
LKAB	Sweden	LKAB is involved in mining and processing rare earth metals in Sweden, with projects in Gällivare and Kiruna. They aim to extract rare earth elements from iron ore mining waste and establish a significant supply chain for these critical materials in Europe.
Solvay	France	Solvay operates a rare earth production line for permanent magnets at its La Rochelle facility, aiming to supply Europe with rare earth materials for electric vehicles, renewable energy, and other high-tech applications. They are expanding their capacity to meet Europe's strategic goals and reduce dependence on imports.
REEtec	Norway	REEtec has developed proprietary chemical separation techniques to produce separated rare earth oxides from hard rock concentrates with minimal environmental impact. They operate an industrial-scale rare earth oxides separation plant in Herøya, Norway, focusing on sustainable and efficient production of rare earth elements.

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Alternative suppliers based in third countries that have signed a trade agreement with the EU and/or a partnership on raw materials with the EU			
Name	**Localisation**	**On the market/project**	**Comments**
Leading Edge Materials Corp	Canada	Focused on the production of CRM, including rare earth elements. They operate the Norra Kärr project in Sweden, which is one of the most significant sources of HREEs in Europe.	Strategic
Lynas Corp, Mt Weld project	Australia	In production	Mining company
Namibia Critical Metals, Lofdal project	Namibia	Evaluation stage	Mining company
Avalon Advanced Materials, Nechalacho project	Canada	Evaluation stage	Mining company

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Phosphorus

In agriculture, phosphorus is a key component of fertilizers, which are critical for plant growth. In industry, phosphorus is used in the production of detergents, flame retardants, and other chemicals. The 3 main countries suppliers of this critical materials for the EU industry are China, United States and Vietnam.

Alternative suppliers based in EU member-states		
Name	**Localisation**	**On the market/project**
Yara, Siilinjärvi mine	Finland	In production. The Yara Siilinjärvi mine is one of the largest phosphate mines in Europe, producing phosphate rock primarily for fertilizer production.
WTC Products B.V	Netherlands	WTC Products B.V. is involved in the production and supply of various chemical products, including those used in industrial applications.
Azomures	Romania	Azomures is a significant producer of fertilizers in Romania, focusing on nitrogen-based fertilizers and other chemical products.
Prayon	Belgium	Prayon is a leading producer of phosphoric acid and phosphate-based products, serving various industries including agriculture and food.
Altichem	France	AltiChem specializes in the production of chemical products, including those used in agriculture and industrial applications.
European Sustainable Phosphorus Platform	EU	The European Sustainable Phosphorus Platform aims to promote sustainable use and recycling of phosphorus within the European Union, focusing on environmental and economic sustainability.

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Light Rare Earth Elements

The European Commission defines Light Rare Earth Elements (LREEs) as the elements in the lanthanide series from lanthanum (La) to europium (Eu). These include lanthanum, cerium, praseodymium, neodymium, promethium, samarium, and europium, and are characterized by their relatively lighter atomic masses within the lanthanide series. The 3 main countries suppliers of this critical materials for the EU industry are Germany, Canada and Australia.

Alternative suppliers based in EU member-states		
Name	**Localisation**	**On the market/project**
Rocklink	Germany	Rocklink is involved in the mining and supply of industrial minerals, focusing on providing high-quality raw materials for various industrial applications.
LKAB	Sweden	LKAB is a major mining company in Sweden, known for its iron ore production and involvement in the extraction of critical minerals, including rare earth elements.
Leading Edge Materials	Sweden	Leading Edge Materials focuses on the exploration and development of critical raw materials, including graphite and rare earth elements, essential for battery and technology industries.
Finnish Minerals Group	Finland	Finnish Minerals Group is involved in the sustainable mining and battery materials sector, focusing on the supply of minerals critical for the European battery industry.
Quantum Mineria	Spain	Quantum Mineria is engaged in the exploration and extraction of minerals, with a focus on providing raw materials for technological and industrial applications.
Rare Earths Norway	Norway	Rare Earths Norway is involved in the exploration and production of rare earth elements, essential for various high-tech and green technology applications.
Solvay	France	Solvay operates in the chemical sector, producing a range of materials including rare earth elements for permanent magnets used in electric vehicles and renewable energy technologies.
Carester	France	Carester specializes in the refining of rare earth elements and is involved in developing sustainable processes for the production and recycling of these critical materials.

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Alternative suppliers based in third countries that have signed a trade agreement with the EU and/or a partnership on raw materials with the EU			
Name	**Localisation**	**On the market/project**	**Comments**
Lynas Corp, Mt Weld project	Australia	In production	Mining company
Arafura Resources, Nolan's project	Australia	Evaluation stage	Mining company
Hastings Technology metals, Yangibana project	Australia	Evaluation stage	Mining company
Rarex, Cummins Range project	Australia	Evaluation stage	Mining company
Avalon Advanced Materials, Nechalacho project	Canada	Evaluation stage	Mining company
Commerce Resources, Ashram project	Canada	Evaluation stage	Mining company
Defense Metals, Wicheda project	Canada	Evaluation stage	Mining company
Vital Metals, Nechalacho project	Canada	Evaluation stage	Mining company

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Lithium

Critical for lithium-ion batteries used in electric vehicles. The 3 main countries suppliers of this critical materials for the EU industry are Australia, China and Argentina.

Alternative suppliers based in EU member-states			
Name	**Localisation**	**On the market/project**	**Comments**
Imerys, Lithium mining project	France	Lithium mica mining site and conversion plant to hydroxyde lithium currently in project, planned to open in 2028	Mining company
Savannah Resources Plc	Portugal	Link: www.savannahresources.com	Mining company
Infinity Lithium	Spain	Also in Australia, largest sustainable lithium project in EU.	Mining company
European Lithium, Wolfsberg project	Austria	Aims to be the first local lithium supplier into an integrated European battery supply chain; Evaluation stage	Mining company
Zinnwald Lithium	Germany	Project at the evaluation stage (not yet in production)	Mining company
European Metals Hldgs	CZ	Project at the evaluation stage (not yet in production)	Mining company
European Lithium, Leinster Lithium Project	Ireland	Evaluation stage	Mining company
Rocklink	Germany	Lithium-Ion Battery & Rare Earth Magnet Recycling; in production	Secondary raw materials

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Alternative suppliers based in third countries that have signed a trade agreement with the EU and/or a partnership on raw materials with the EU			
Name	**Localisation**	**On the market/project**	**Comments**
Albemarle	Australia and other locations	In production	Mining company
Allkem	Australia, Agentina and other locations	In production	Mining company
Core Lithium, Finniss project	Australia	In production	Mining company
Livent	Agentina and other locations	In production	Mining company
Sayona Mining	Canada	In production	Mining company
Liontown Resources	Australia	Financed/Construction stage	Mining company
Rock Tech Lithium	Canada	Evaluation stage	Mining company
Lepidico, Karib project	Namibia	Evaluation stage	Mining company
Frontier Lithium, PAK project	Canada	Evaluation stage	Mining company
Critical Elements, Rose project	Canada	Evaluation stage	Mining company
AVZ Minerals, Manono project	DRC	Evaluation stage	Mining company

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Magnesium

Lightweight metal used in automotive and aerospace applications for lightweighting. The 3 main countries suppliers of this critical materials for the EU industry are China, Russia and United States.

Alternative suppliers based in EU member-states			
Name	**Localisation**	**On the market/project**	**Comments**
MAGONTECH GmbH	Germany	Magontec operates magnesium recycling and production plants in Germany, providing magnesium alloys for use in automotive, electronics, and other sectors.	Secondary raw materials
Grecian Magnesite S.A.	Greece	Magnesite products and grades for practically all industrial applications.	Mining company
Verde Magnesium	Romania	Evaluation stage	Mining company
Magnesium Solutions Europe GmbH	Germany	Metal recycling compnay in production	Secondary raw materials
Zinnwald Lithium	Germany	Evaluation stage	Secondary raw materials

Alternative suppliers based in third countries that have signed a trade agreement with the EU and/or a partnership on raw materials with the EU			
Name	**Localisation**	**On the market/project**	**Comments**
Rima International	Brazil	Leading supplier of magnesium products, specializing in primary magnesium, alloys, and magnesium products for various industries, including automotive and aerospace.	Strategic
Esan Eczacıbaşı Endüstriyel Hammaddeler	Turkey	Turkey's largest producers of industrial minerals, including magnesium.	Mining company

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Manganese

Manganese is also crucial in the production of aluminum alloys, batteries, and various chemicals. The 3 main countries suppliers of this critical materials for the EU industry are South Africa, China and Australia.

Alternative suppliers based in EU member-states			
Name	**Localisation**	**On the market/project**	**Comments**
Nickelhütte Aue, smelter	Germany	Nickelhütte Aue GmbH is a world leader in the recycling of nickel, copper and cobalt catalysts from the oil, gas and chemical industries; in production	Secondary raw materials
Eramet	France	Link: www.eramet.com	
Euro Manganese, Chvaletice project	CZ	Evaluation stage	Mining company
Rocklink	Germany	Lithium-Ion Battery & Rare Earth Magnet Recycling; in production	Secondary raw materials

Alternative suppliers based in third countries that have signed a trade agreement with the EU and/or a partnership on raw materials with the EU			
Name	**Localisation**	**On the market/project**	**Comments**
Element 25, Butcherbird project	Australia	Evaluation stage	Mining company
Manganese X Energy, Battery Hill project	Canada	Evaluation stage	Mining company

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Nickel – Battery grade

The European Commission defines battery-grade nickel as a high-purity form of nickel specifically processed to meet the stringent quality requirements for use in batteries, particularly in electric vehicle (EV) batteries. This grade of nickel is crucial for the performance, efficiency, and longevity of battery technologies, such as nickel-cobalt-aluminum (NCA) and nickel-manganese-cobalt (NMC) chemistries, which are widely used in rechargeable lithium-ion batteries. The 3 main countries suppliers of this critical materials for the EU industry are Australia, Indonesia and Brazil.

Alternative suppliers based in EU member-states			
Name	**Localisation**	**On the market/project**	**Comments**
Eramet	France	Eramet is a French multinational mining and metallurgy company, listed on the Euronext Paris exchange under the symbol ERA.	Secondary raw materials
Rocklink	Germany	Lithium-Ion Battery & Rare Earth Magnet Recycling; in production	Secondary raw materials
FinnCobalt, Hautalampi Nickel-Cobalt-Copper Project	Finland	In production	Mining company
Anglo American Plc, Sakatti project	Finland	Evaluation stage	Mining company
Suhanko Arctic Platinum, Suhanko project	Finland	Evaluation stage	Mining company
Umicore	Belgium	Global materials technology and recycling group in production	Secondary raw materials
Boliden, Kevitsa project	Finland	In production	Mining company

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Alternative suppliers based in third countries that have signed a trade agreement with the EU and/or a partnership on raw materials with the EU			
Name	**Localisation**	**On the market/project**	**Comments**
Ardea Resources, Kalgoorlie project	Australia	Evaluation stage	Mining company (Nickel-cobalt)
Australian Mines, Sconi project	Australia	Evaluation stage	Mining company (Nickel-cobalt)
Alliance Nickel, NiWest project	Australia	Evaluation stage	Mining company (Nickel-cobalt)
Metals X, Central Musgrave project	Australia	Evaluation stage	Mining company (Nickel-cobalt)
Sunrise Energy Metals. sunrise project	Australia	Evaluation stage	Mining company (Nickel-cobalt)
Panoramic Resources, Savannah project	Australia	On halt	Mining company (Nickel-cobalt-copper)
Poseidon Nickel, Black Swan project	Australia	Evaluation stage	Mining company
Sherritt International Corporation	Canada	In production	Mining company
Glencore plc	Switzerland	In production	Mining company

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Platinum Group Metals

It is a group of six metallic elements: platinum, palladium, rhodium, ruthenium, iridium, and osmium. These metals are valued for their catalytic properties, resistance to wear and tarnish, and electrical conductivity, and are used in automotive catalytic converters, electronics, jewelry, and industrial applications. The 3 main countries suppliers of this critical materials for the EU industry are South Africa, Russia and Zimbabwe.

Alternative suppliers based in EU member-states			
Name	**Localisation**	**On the market/project**	**Comments**
Umicore	Belgium	One of the leading suppliers of platinum and other PGMs in Europe. They focus on sustainable sourcing and recycling of platinum for a variety of applications, including renewable energy, automotive catalysts, and fuel cells.	Secondary raw materials
Haereus Group	Germany	Family-run, it is one of the largest global suppliers of precious metals, including platinum. They offer a wide range of platinum products for industries such as automotive, electronics, jewelry, and medical applications. Heraeus specializes in refining, trading, and fabricating platinum and other precious metals.	
Boliden, Kevitsa project	Finland	In production	Mining company
Anglo American Plc, Sakatti project	Finland	Evaluation stage	Mining company
Suhanko Arctic Platinum, Suhanko project	Finland	Evaluation stage	Mining company
KGHM Polska Miedź SA	Poland	In production	Mining company
Saxonia Edelmetalle GmbH	Germany	Refinery recycles precious metals and the production of precious metal products	Secondary raw materials
Wieland Edelmetalle GmbH	Germany	Halsbrücke and Pforzeim refineries	Secondary raw materials
C. Hafner GmbH	Germany	Pforzheim and Wimsheim refineries	Secondary raw materials

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Heimerle + Meule GmbH	Germany	Pforzheim refinery	Secondary raw materials
Chimet Spa (Arezzo)	Italy	Refining and recovery precious metals company	Secondary raw materials

Alternative suppliers based in EU member-states			
Name	**Localisation**	**On the market/project**	**Comments**
Safimet Spa (Arezzo, Vicenza)	Italy	Safimet specialises in recovery and refining of precious metals from industrial processing waste and the production of galvanic salts	Secondary raw materials
TCA Spa	Italy	Recovery and refining of precious metals through pyrometallurgical processes in their facilities in Castelluccio (province of Arezzo) and Valenza (province of Alessandria)	Secondary raw materials
Italpreziosi Spa (Arezzo)	Italy	Italpreziosi was founded in 1984 and is a main operator in the production, refining and trading of precious metals, production and trade of investment gold based in Arezzo, Italy.	Secondary raw materials
Safina AS	CZ	Refining and recycling of precious metals	Secondary raw materials
WEEECycling SAS	France	WEEECycling reprocesses all waste containing precious metals, liquid or solid, from all industrial sectors. After refining at their Tourville les Ifs site, where all the operations take place, the metals are transformed into new raw materials.	Secondary raw materials
Remondis PMR BV and Elephant	NL	REMONDIS PMR is based in the Netherlands and has been recycling waste materials containing precious metals for four decades now.	Secondary raw materials
Sempsa JP	Spain	Recycling of precious and industrial materials	Secondary raw materials

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Alternative suppliers based in third countries that have signed a trade agreement with the EU and/or a partnership on raw materials with the EU			
Name	**Localisation**	**On the market/project**	**Comments**
Johnson Matthey	UK	British multinational known for its role in platinum-group metals (PGM), nvolved in platinum refining, producing, and recycling for use in catalysts, electronics, and other high-tech industries. Their platinum products are widely used in the automotive sector for catalytic converters.	Strategic
Tanaka Precious Metals	Japan / Germany Operations	While Tanaka is a Japanese company, they have significant operations in Germany and supply platinum to the European market. They offer platinum products for industrial use, including in electronics, chemicals, and catalysts.	

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Scandium

Used in aerospace components, athletics equipment, and in some metal halide lamps. The 3 main countries suppliers of this critical materials for the EU industry are China, Japan and Russia.

Alternative suppliers based in EU member-states			
Name	**Localisation**	**On the market/project**	**Comments**
Eramet	France	French multinational mining and metallurgy company, also involved in scandium production through its projects focused on the extraction and refining of CRM, including scandium, for use in aerospace, automotive, and defense industries.	
ScaVanger company	France	On going project; producing Sc-products from Bauxite Residue (Mytilineos, Greece)	Refinery

Alternative suppliers based in third countries that have signed a trade agreement with the EU and/or a partnership on raw materials with the EU			
Name	**Localisation**	**On the market/project**	**Comments**
Scandium International Mining Corp.	USA	While headquartered outside Europe, Scandium International works with European partners to supply scandium for applications like fuel cells, aerospace components, and aluminum-scandium alloys.	
Rio Tinto, Iron and Titanium	Canada	In production	Mining company

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Titanium

Known for its strength, low density, and corrosion resistance, used extensively in aerospace besides from biomedical applications (e.g. prothesis). The 3 main countries suppliers of this critical materials for the EU industry are China, Japan and Russia.

Alternative suppliers based in EU member-states			
Name	**Localisation**	**On the market/project**	**Comments**
Nickelhütte Aue, smelter	Saxony, Germany	French multinational mining and metallurgy company, also involved in scandium production through its projects focused on the extraction and refining of CRM, including scandium, for use in aerospace, automotive, and defense industries.	Secondary raw materials
Titanium International Group Srl	Italy	Italian-based supplier and distributor of titanium products for a wide range of industries, including aerospace, automotive, medical, and chemical. They specialize in titanium alloys and provide metal in forms such as bars, plates, and sheets.	
Kenmare Resources	Ireland	Link: www.kenmareresources.com	
EcoTitanium	France	EcoTitanium produces aerospace premium quality titanium alloys by recycling cuttings and scrap to produce titanium ingots.	Secondary raw materials
Aubert & Duval	France	Aubert & Duval has developed the first integrated titanium supply chain in Europe to offer a comprehensive solution to aerospace customers and meet their demands for vertical integration. This supply chain includes: • The production of aerospace-grade titanium ingots at EcoTitanium through the recycling of scraps and chips. • Transformation through forging at UKAD or die forging at Aubert & Duval.	
Timet	France (Ugine)	Production and processing of titanium and its alloys: • Manufacturing of ingots, billets, tubes, and other forged products • Specialist in the production of forged billets in titanium and titanium alloys of aerospace quality	
Imet Alloys	France (Corrèze)	IMET Alloys specializes in recycling noble and rare materials, particularly titanium. IMET Alloys Corrèze will play a key role upstream of EcoTitanium's operations.	Secondary raw materials

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Alternative suppliers based in third countries that have signed a trade agreement with the EU and/or a partnership on raw materials with the EU			
Name	**Localisation**	**On the market/project**	**Comments**
ADMA Products, Inc.	USA / Luxembourg Operations	ADMA Products, with its European operations in Luxembourg, focuses on advanced manufacturing and supplying titanium powder and components for additive manufacturing, aerospace, and defense applications (www.admaproducts.com).	
Metalysis	UK	Specialized in producing titanium powder for additive manufacturing (3D printing) and other advanced manufacturing industries. key supplier in the European market.	Mining company
УКТМК (Kazakh UKTMP)	Kazakhstan	One of the world's largest producers of spongy titanium and magnesium in the form of bars and powder; in production	Mining company
UMCC Titanium, Irshansk Mining and Processing Plant	Ukraine	Irshansk Mining and Processing Plant located in Ukraine specializes in the extraction and enrichment of ilmenite ores (titanium ore); in propduction	Mining company

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Vanadium

Used to make very hard and durable steel alloys for tools, axles, gears (very important for MTA ecosystem), and other critical components. The 3 main countries suppliers of this critical materials for the EU industry are Russia, South Africa and Australia.

Alternative suppliers based in EU member-states		
Name	**Localisation**	**On the market/project**
Bushveld Minerals (www.bushveldminerals.com)	UK	Although their mining operations are primarily in South Africa, Bushveld Minerals has a strong presence in Europe. They are a major supplier of vanadium used in energy storage and steel manufacturing, with a focus on providing vanadium to the European market.

Alternative suppliers based in third-countries that have signed a trade agreement with the EU		
Name	**Localisation**	**On the market/project**
VanadiumCorp Resource Inc. (www.vanadiumcorp.com)	Canada/Europe Operations	VanadiumCorp, while based in Canada, has strong partnerships in Europe to supply vanadium products. They are involved in the European market, particularly through projects aimed at supplying vanadium for renewable energy and battery technologies.
Largo Resources Inc. (www.largoinc.com)	Brazil / Europe Operations	Largo Resources operates one of the world's largest vanadium mines in Brazil but has significant operations in Europe. They provide vanadium for steel production and vanadium redox flow batteries (VRFB), focusing on the European market.

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Neometals Ltd (www.neometals.com.au)	Australia / Europe Operations	Neometals is developing vanadium recovery projects in Europe, particularly focusing on sustainable vanadium production from secondary sources such as slag. They are working on initiatives to increase vanadium supply within the EU.
Australian Vanadium, AVL project	Australia	Evaluation stage
Technology Metals Australia, Gabanintha project	Australia	Evaluation stage
Tivan, Mount Peake project	Australia	Evaluation stage

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Advanced Technologies - Batteries

Specifically high-energy density batteries like lithium-ion, which are central to mobile devices, electric vehicles, and energy storage solutions.

Alternative suppliers based in EU member-states			COMMENTS
Name	**Localisation**	**On the market/project**	
Northvolt	Sweden	Produces lithium-ion batteries for electric vehicles and energy storage. Link: www.northvolt.com	
Saft Groupe S.A	France	www.saft.com	Advanced battery systems for industrial, automotive, and aerospace applications. They focus on lithium-ion, nickel-based, and primary battery technologies.
Varta AG	Germany	www.varta-ag.com	wide range of battery products, including lithium-ion cells, batteries for consumer electronics, and battery solutions for industrial and automotive use.
ACC (Automotive Cells Company)	Italy / France / Germany	www.acc-emotion.com	JV between Stellantis, TotalEnergies, and Mercedes-Benz, with the goal of producing battery cells for electric vehicles in Europe. They are establishing gigafactories in France, Germany, and Italy to support Europe's EV transition.
Verkor	France	www.verkor.com	Innovative SME focused on developing high-performance, sustainable batteries for electric vehicles and energy storage.
Lithium Werks	Netherlands	www.lithiumwerks.com	Lithium battery manufacturer

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Advanced Technologies - Sensors

Critical for gathering data and enabling the functionality of IoT devices, autonomous vehicles, etc...

Alternative suppliers based in EU member-states		
Name	**Localisation**	**On the market/project**
Bosch Sensortec GmbH,	Germany	Manufactures various types of sensors for advanced technologies. Link: www.bosch-sensortec.com;
AMS OSRAM AG (www.ams.com)	Austria	Hhigh-performance sensor solutions, including optical, environmental, and imaging sensors, used in automotive & industrial applications mainly.
STMicroelectronics (www.st.com)	France / Italy	With headquarters in both France and Italy, is a major European supplier of a wide range of sensors, including MEMS sensors, motion sensors, and environmental sensors, used in industries such as automotive, consumer electronics, and industrial automation

Alternative suppliers based in third-countries that have signed a trade agreement with the EU		
Name	**Localisation**	**On the market/project**
TE Connectivity (www.te.com)	USA / Switzerland	Sensors for pressure, temperature, and humidity measurement. They supply sensors for industries such as automotive + aerospace.

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Advanced Technologies - Nanotechnologies

Nanotechnologies refer to technologies which exploit the unique properties of tiny particles of nanometre size (millionths of a millimetre). Nanotechnologies represent a fast-growing market; they are already being used in a variety of technologies and consumer products

Alternative suppliers based in EU member-states		
Name	**Localisation**	**On the market/project**
Nanocyl SA (www.nanocyl.com)	Belgium	Leading European supplier of carbon nanotubes (CNTs) and nanomaterials. Their products are used in a variety of industries, including electronics, automotive, and aerospace, for enhancing the performance of materials like polymers and composites.
VS Particle A.B. (www.vsparticle.com)	Netherlands	Dutch company specializing in nanoparticle production technologies. They provide systems for the generation of nanomaterials that are used in various industries, including catalysis, electronics, and materials science.
Centro Ricerche Fiat S.C.p.A (https://www.stellantis.com/it?adobe_mc_ref=)	Italy	CRF is FIAT's research center, engaged in nanotechnology development for automotive applications. They focus on nanomaterials and coatings to enhance vehicle performance, energy efficiency, and sustainability.

Alternative suppliers based in third-countries that have signed a trade agreement with the EU		
Name	**Localisation**	**On the market/project**

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Haydale (www.haydale.com)	UK	Graphene and nanomaterials, offering solutions to enhance the performance of materials in industries such as energy, aerospace, and healthcare. They develop functionalized nanomaterials for advanced composites and coatings

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Advanced Technologies - Semiconductors

Semiconductors, sometimes referred to as integrated circuits (ICs) or microchips, are made from pure elements, typically silicon or germanium, or compounds such as gallium arsenide.

Alternative suppliers based in EU member-states		
Name	**Localisation**	**On the market/project**
Infineon Technologies AG,	Germany	Infineon Technologies AG is a global leader in semiconductor solutions, particularly in power systems and IoT. They are known for their microcontrollers, power semiconductors, and sensors, and are a major player in the automotive semiconductor market. Infineon focuses on providing solutions for green and efficient energy, clean and safe mobility, and smart and secure IoT applications.
ASML	Netherlands	ASML Holding N.V. is a Dutch multinational corporation specializing in the development and manufacturing of photolithography machines used to produce integrated circuits. It is the largest supplier for the semiconductor industry and the sole supplier of extreme ultraviolet lithography (EUVL) machines required to manufacture advanced chips.
ST Microelectronics	France	STMicroelectronics is a European multinational semiconductor company, known for its wide range of semiconductor products including microcontrollers, sensors, and power semiconductors. It is a leading supplier in various markets such as automotive, industrial, and consumer electronics
Thalès	France	Thales Group is a French multinational company specializing in aerospace, defense, security, and transportation sectors. They are involved in the development of semiconductor technologies, particularly for advanced packaging needs in aerospace, automotive, telecom, and defense sectors. Thales is also exploring semiconductor production in France in collaboration with other firms

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Advanced Technologies - Sensing

Advanced sensing technologies encompass a broad range of systems and devices designed to detect and measure various physical, chemical, biological, or environmental conditions.

Alternative suppliers based in EU member-states		
Name	**Localisation**	**On the market/project**
Thales group	France	Thales Group is an electrical engineering company specializing in aerospace, defense, security, and transportation sectors. They are involved in the development of advanced technologies and systems for these industries.
Leica Geosystems AG	Switzerland	Leica Geosystems AG is known for its LIDAR technology, which is used in various applications including surveying, mapping, and geographic information systems.
Riegl Laser Measurement Systems GmbH	Austria	Riegl Laser Measurement Systems is a company that specializes in LIDAR technology, providing laser-based measurement solutions for various industries.

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Critical Components

Alternative suppliers based in EU member-states			COMMENTS
Name	**Localisation (Country)**	**On the market/project**	
Pietro Rosa TBM	Italy	Titanium components via hot forming. Application: aerospace turbine blades	**Sectors:** Aerospace & Defence ; **Website:** www.pietrorosatbm.it
HPF Group	Italy	Titanium and cobalt alloy forged parts	**Sectors**: Aerospace & Defence; **Website:** www.hpfgroup.it
Anoxidall Srl	Italy	Aluminum profiles and surface treatments	**Sectors:** Mobility, Automotive and Transportation; **Website:** www.anoxidall.it
Alfatech Srl	Italy	Nickel chemical coatings and metal finishing	**Sectors:** Electronics; **Website**: www.alfa-tech.it
VDM Metals	Germany	Nickel, cobalt and zirconium alloys; high-alloyed stainless steels	**Sectors:** Aerospace, automotive and chemical industries (EIIs); **Website:** www.vdm-metals.com
AMAG Austria Metall	Austria	Aluminum production and recycling	**Sectors**: Supplier of aluminum products for automotive and aerospace industries. **Website:** www.amag-al4u.com
Höganäs AB	Sweden	Powder metallurgy; metal powders for various applications	**Sectors:** World's largest producer of powdered metals, serving automotive and industrial sectors. **Website:** www.hoganas.com
SGL Carbon	Germany	Graphite specialties, carbon fibers, and composites	**Sectors**: Automotive, Aerospace and Energy sectors; **Website:** www.sglcarbon.com

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