



UK Government

# Critical Imports and Supply Chains Strategy

January 2024





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# Foreword



We live in a rapidly changing world which is seeing the system we trade within being placed under unprecedented strain. Simultaneously, innovations in technology are creating new opportunities for economic growth and supply chain resilience. Our mission is to support businesses through these changes, build resilient supply chains and maintain supplies of the critical goods needed for the UK economy, essential services and national security.

Imported goods enrich our lives and are vital to our economy. They ensure lower prices, greater choice, and help businesses to be more productive. They enable innovation, drive growth, and are essential to the UK's world-leading industries, from aerospace to life sciences. Amongst these are imports that are 'critical' to the UK – vital to enabling our economic prosperity or the services that we all rely on to keep us safe and the country functioning.

The events of recent years have shown the world that we cannot afford to take for granted the resilience of the global supply chains which we rely on for our critical imports. The COVID-19 pandemic, Russia's illegal invasion of Ukraine, and disruption to shipping routes have all demonstrated the potential impact of global events on the reliable flow of vital goods.

The effects of geopolitical fragmentation are causing some trading relationships to change, with the use of protectionist measures becoming more common and increasing instances of market distorting practices such as excessive tariffs or even outright export bans. Some states are engaging in economic coercion, leveraging their economic position in an arbitrary and abusive manner to exert influence over the decisions of foreign governments or businesses.

Global supply chains are also being impacted by climate change and the emergence of new technologies which are reshaping how goods are exported, transported and imported. We are already seeing more extreme weather events disrupting trade routes and these will increase. The pace of technological change is fundamentally altering the nature of the goods that economies need to remain competitive.

It is in light of the changes facing global supply chains, that the government committed in the Integrated Review (IR) Refresh 2023, to publish a Critical Imports and Supply Chains Strategy. This is the UK's first overarching strategy focussing on reliable access to the goods we need now and in the future. It builds on existing sector-specific initiatives already announced by the government, such as the Advanced Manufacturing Plan<sup>1</sup> and the recent semiconductors<sup>2</sup>, batteries<sup>3</sup> and critical mineral strategies<sup>4</sup>, to provide a whole economy approach.

The strategy sets out the actions we are already taking and our next phase of work to enable the efficient and reliable flow of critical imports. It is informed by two principles: our belief in the benefits of free trade; and the belief that it is first and foremost for businesses to manage their supply chains, with government intervention reserved for those areas where it is necessary, such as in cases of market failure. It also makes clear our commitment to putting joint working with the businesses at the centre of our approach.

Supply chain resilience requires close working between government and business, and I would like to thank the over 100 businesses that fed into the development of the strategy.

I am confident that the measures we are setting out ensure that the UK can build on our work to date and mark a critical milestone in building a resilient, open and innovative economy able to provide economic security and prosperity long into the future.

## Nusrat Ghani MP

Minister of State at the Department for Business and Trade

<sup>1</sup> DBT, (2023), Advanced Manufacturing Plan, <https://www.gov.uk/government/publications/advanced-manufacturing-plan>

<sup>2</sup> DSIT, (2023), National Semiconductor Strategy, <https://www.gov.uk/government/publications/national-semiconductor-strategy/national-semiconductor-strategy>

<sup>3</sup> DBT (2023), UK Battery Strategy, <https://www.gov.uk/government/publications/uk-battery-strategy>

<sup>4</sup> DBT, (2023), Resilience for the Future: The UK's Critical Minerals Strategy

<https://www.gov.uk/government/publications/uk-critical-mineral-strategy/resilience-for-the-future-the-uks-critical-minerals-strategy>

# Executive Summary

Like all developed economies, the UK imports a wide range of goods via complex supply chains spanning the globe. This includes goods which are critical to ensuring the UK's economy, essential services and national security. These range from the semiconductors essential to modern electronics to the medicines that are used daily within the National Health Service (NHS).

It is essential that the UK has reliable access to the goods we need in a rapidly changing world. Trends beyond our borders have the potential to disrupt and change the flow of imports vital to critical sectors of our economy. Geopolitical tensions have risen considerably in recent years. This trend has already forced a restructuring of global supply chains and challenged the open, rules-based approach to trade that has facilitated international commerce for decades. Meanwhile we are seeing the impacts of climate change and new technologies on the production and transportation of goods, as well as the nature of the materials required by advanced economies across the world. In a complex interconnected world, these changes will remain ever-present, and emphasise the importance of working with our businesses and international partners to enhance global resilience.

## Our approach

The UK has built expertise in understanding and building resilience into our critical supply chains, working with businesses and international partners. This strategy outlines the actions we are already taking and the next phase of work across five priority areas:

### **1. Making the UK government a centre of excellence for supply chain analysis and risk assessment.**

We will build on our existing expertise to better understand the goods and the broader supply chain systems, including transport routes and infrastructure, that the UK needs now and in the future.

**2. Removing critical import barriers to support the UK's business-friendly environment.** The government is committed to ensuring that the UK is a reliable, supportive place to do business where firms can import the goods they need efficiently.

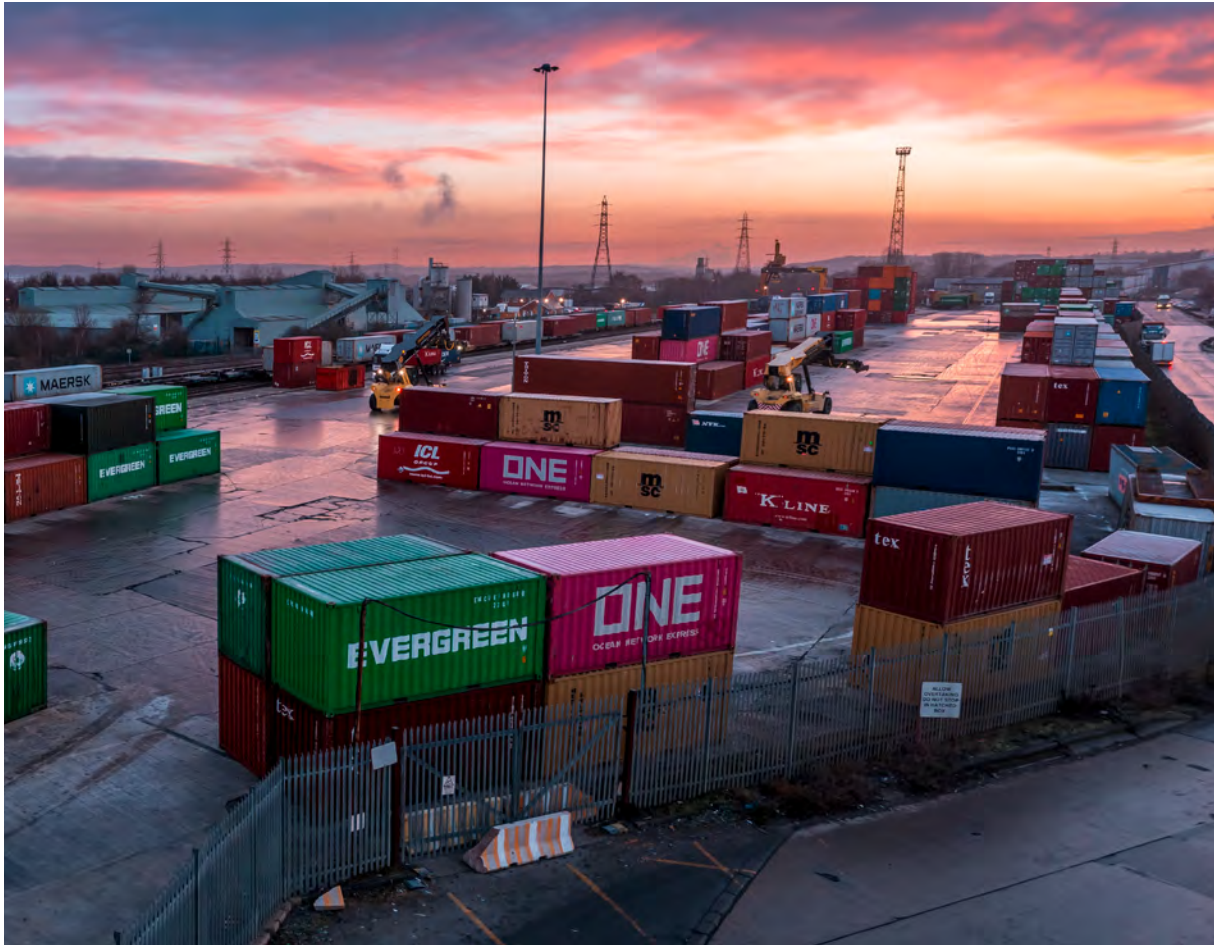
**3. Building the UK's response to global supply chain shocks.** We continue to refine and expand our capability to forecast and respond to external shocks to global supply chains, from extreme weather events, the frequency of which is increasing due to climate change, to geopolitical incidents. We will help to ensure that businesses have the information they need to respond effectively.

**4. Ensuring the UK can adapt to long-term trends.** Building on the [supply chains resilience framework](#) and work in successive G7s to bring international partners together. We will ensure that the UK has the insights, policies and international partnerships needed to address long-term trends impacting supply chain resilience.

**5. Expanding collaboration between government, business and academia.** Government is clear that understanding supply challenges and developing and implementing solutions to address these effectively cannot be achieved without close working with business. We also recognise the expertise that exists on these issues in academia.

We have an action plan detailing the 18 commitments we will take forward to build our supply chain resilience in [Annex A](#).

Delivering against these priorities will require a coordinated approach, both across government and between government and business. In addition to the Critical Imports Council, we will establish new structures within government, to manage and assess delivery of the strategy. We will publish a progress update, setting out the steps that have been taken to manage the delivery of the strategy and plans for further work, in due course.



# Introduction

The ability to access vital goods and materials from across the globe, reliably and affordably, supports a country's economic prosperity. In a highly globalised economy like the UK, advanced industries rely on a huge range of inputs. Whilst the UK has excellent manufacturing capabilities, many manufacturing inputs are, and often can only be, produced overseas. Available data indicates that UK exports are heavily reliant on the importation of goods in the same sector, as between 2018 and 2020 75% of the UK's manufacturing trade was dependent on simultaneous imports and exports.<sup>5</sup>

Access to imports increases UK firms' ability to source better inputs to their products, which can boost productivity and increase competitiveness, ultimately supporting job creation and higher wages. The ability to import goods effectively also improves choice and enables lower prices for consumers. It is therefore important that the government works to ensure that the supply chains, and related systems such as transportation and storage – that facilitate access to these goods, are reliable and resilient. It is also vital that businesses relying on critical imports can adapt to external shocks causing supply chain disruptions as well as technological advances creating supply chain opportunities.

For citizens, the services and systems on which we depend in our day to day lives – from telecoms to healthcare and defence – rely on imports.

<sup>5</sup> Figures calculated by DBT analysts using 2022 data from the OECD, TIVA 2022 ed. Principal Indicators.

## What is a critical import?

The government defines critical imports as those goods imported into the UK which are critical to the UK security and prosperity. This primarily refers to goods which are essential for the operation of the UK's designated Critical National Infrastructure (CNI) sectors and / or to the success of the government's five growth sectors.

### Critical goods

Government considers a good critical to these sectors to be one where if supply disruption were to occur, there would be a high likelihood of a moderate to catastrophic detrimental impact within the UK on: (a) essential services; (b) life, including medicines and delivery of patient care; (c) the economy; a strategic economic sector or the economy as a whole, including those sectors critical for reaching net zero; or (d) national security, including the functioning of the state and public order.

This strategy does not cover the import of services, of which the UK is a net exporter with a £38.3 billion services trade surplus in the third quarter of 2023.<sup>6</sup> Given the nature of services, their trade tends to be less susceptible to short to medium-term disruption.

### CNI sectors

Government defines CNI as the critical elements of infrastructure (namely assets, facilities, systems, networks or processes and the essential workers that operate and facilitate them), the loss or compromise of which could result in:

- a. major detrimental impact on the availability, integrity or delivery of essential services taking into account significant economic or social impacts; and/or
- b. significant impact on national security, national defence, or the functioning of the state.

CNI sectors		Growth sectors
The sectors this currently encompasses are <sup>7</sup> :		The Chancellor set out the UK's growth sectors in January 2023 as:
<ul style="list-style-type: none"> <li>• Chemicals</li> <li>• Civil Nuclear</li> <li>• Communications</li> <li>• Defence</li> <li>• Emergency Services</li> <li>• Energy</li> <li>• Finance</li> </ul>	<ul style="list-style-type: none"> <li>• Food</li> <li>• Government</li> <li>• Health</li> <li>• Space</li> <li>• Transport</li> <li>• Water</li> </ul>	<ul style="list-style-type: none"> <li>• Creative Industries</li> <li>• Digital Technology</li> <li>• Green Industries</li> <li>• Life Sciences</li> <li>• Advanced Manufacturing (including automotive and aerospace).</li> </ul>

## Why do we need a strategy and why now?

To address recent supply chain shocks and long-term trends impacting sectors, the government has undertaken work and published a series of plans to increase the resilience of the supply chains critical to specific sectors and technologies, including semiconductors and critical minerals. Given the common challenges and opportunities facing many critical imports and supply chains, it is important that these plans hang together in a coherent overarching, cross-government approach to building resilience across the UK economy.

This strategy addresses that need by providing an overview across our critical imports, bringing together work on critical supply chains from across government, and sharing our plans for building resilience across sectors to maintain supply of critical goods. This strategy sets out the UK government's priorities for building supply chain resilience for importing businesses, while signalling our intention for increased collaboration with international partners to enhance global resilience.

In doing so, this strategy responds to the action in the 2023 IR refresh, which committed to set out a strategy to support specific government and business action to strengthen our resilience in critical sectors. Through this strategy we will address this gap.

<sup>6</sup> ONS, (August 2023), UK Trade, <https://www.gov.uk/government/statistics/trade-and-investment-core-statistics-book/trade-and-investment-core-statistics-book#trade-balance>  
<sup>7</sup> NPSA, (2023), CNI Sectors as of November 2023. CNI sectors may be subject to change in the future. For the latest definition see: <https://www.npsa.gov.uk/critical-national-infrastructure-0>



# Global Challenges and Opportunities

## Challenges

The world is changing rapidly, presenting both new challenges to manage and opportunities to seize. The IR refresh, published in March 2023, raised the challenges of an increasingly volatile and complex world.

### Geopolitical tensions

We are living in a period of geopolitical change. In the years ahead there is the increasing prospect of further deterioration in the international security environment, with the diversification of state threats, the intensification of systematic competition and signs of fragmentation of the global economic and trade order. A growing convergence of authoritarian states are challenging the basic conditions for an open, stable and peaceful international order, working together to undermine the international system or remake it in their image. The impacts of this trend on supply chains have already been demonstrated by the disruption to global trade caused by Russia's illegal invasion of Ukraine.<sup>8</sup>

Government is responding to heightened geopolitical tensions, including by establishing the Foreign Influence Registration Scheme.<sup>9</sup> This will, once commenced, increase transparency of foreign power influence in UK democracy and politics and provide greater assurance around the activities of foreign powers which pose the greatest risk to UK safety and interests.

The possible impacts of geopolitical challenges are not restricted to the sourcing of goods but also how they are transported, especially where goods transit through maritime chokepoints.<sup>10</sup> For example, increased tension in the Taiwan Strait and South China Sea or the deterioration of regional security in the Middle East could directly and indirectly impact the accessibility of critical goods globally, including for the UK.

Geopolitical tension is a major source of concern for businesses, with 85% of senior procurement leaders stating concern about the potential impact of geopolitical tension on their suppliers and supply chains over the next three years.<sup>11</sup> These tensions intensify vulnerabilities to disruptions of imports where there is a limited number of supplier countries. Figure 1 below shows UK imports of goods from markets with limited sources of supply. The highest number of these are sourced from China, followed by Germany and then the USA.

<sup>8</sup> World Trade Organisation, (2023), One year of war in Ukraine: Assessing the impact on global trade and development, [https://www.wto.org/english/res\\_e/publications\\_e/oneyukr\\_e.htm](https://www.wto.org/english/res_e/publications_e/oneyukr_e.htm)

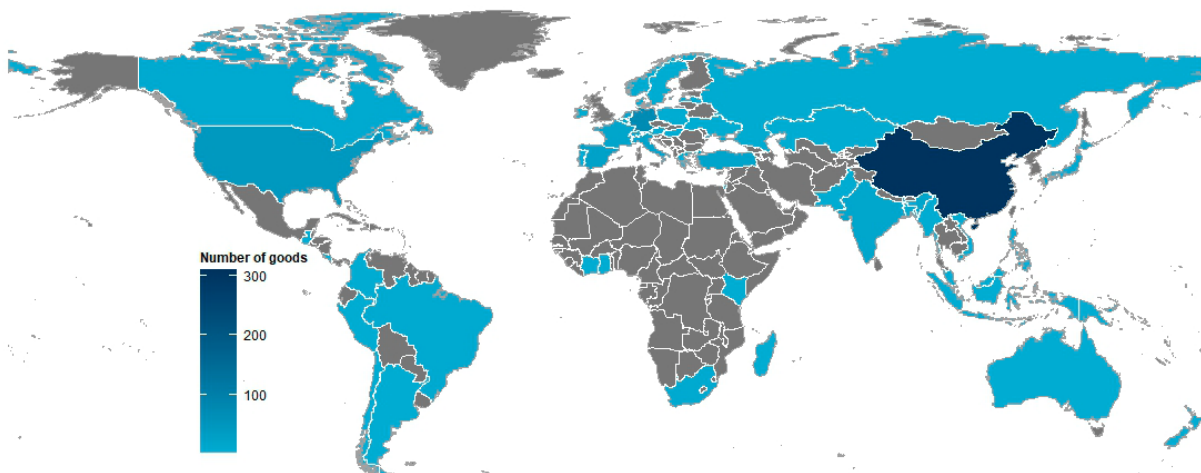
<sup>9</sup> Home Office (2023), Foreign Influence Registration Scheme,

<https://www.gov.uk/government/publications/national-security-bill-factsheets/foreign-influence-registration-scheme-factsheet>

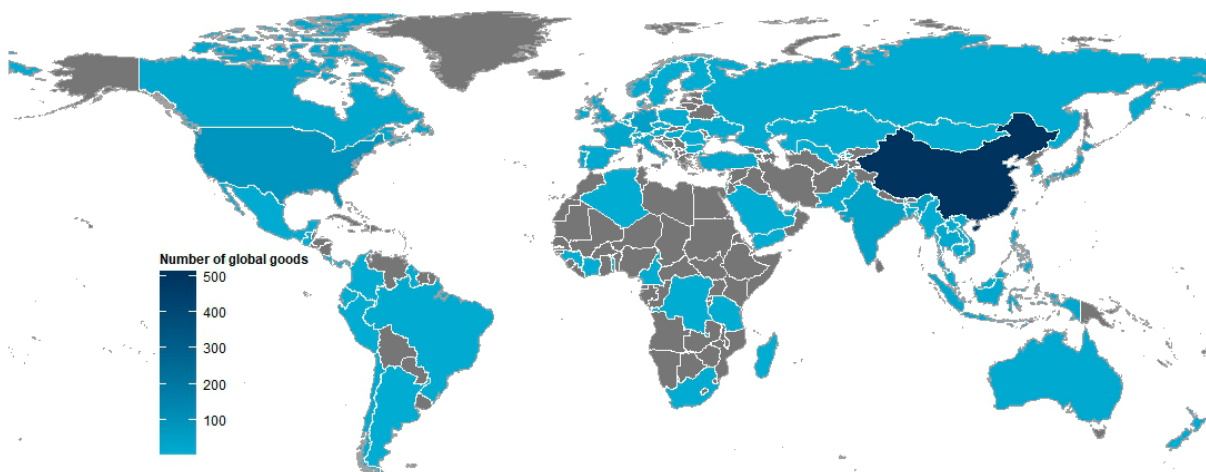
<sup>10</sup> Maritime chokepoints, also known as narrow channels used for the transportation of containerised goods refers to a potentially increased risk of disruption at certain points of the journey. Some chokepoints are also so narrow that restrictions are placed on the size of the vessel navigating through them to prevent disruption.

<sup>11</sup> Interos, (2023), Invisible Threats: Resilience 2023, <https://www.interos.ai/resources/supply-chain-survey-2023/>





**Figure 1: UK vulnerable goods imports based off 2021 trade data.<sup>12</sup>**



**Figure 2: Global vulnerable goods based off 2021 trade data.<sup>13</sup>**

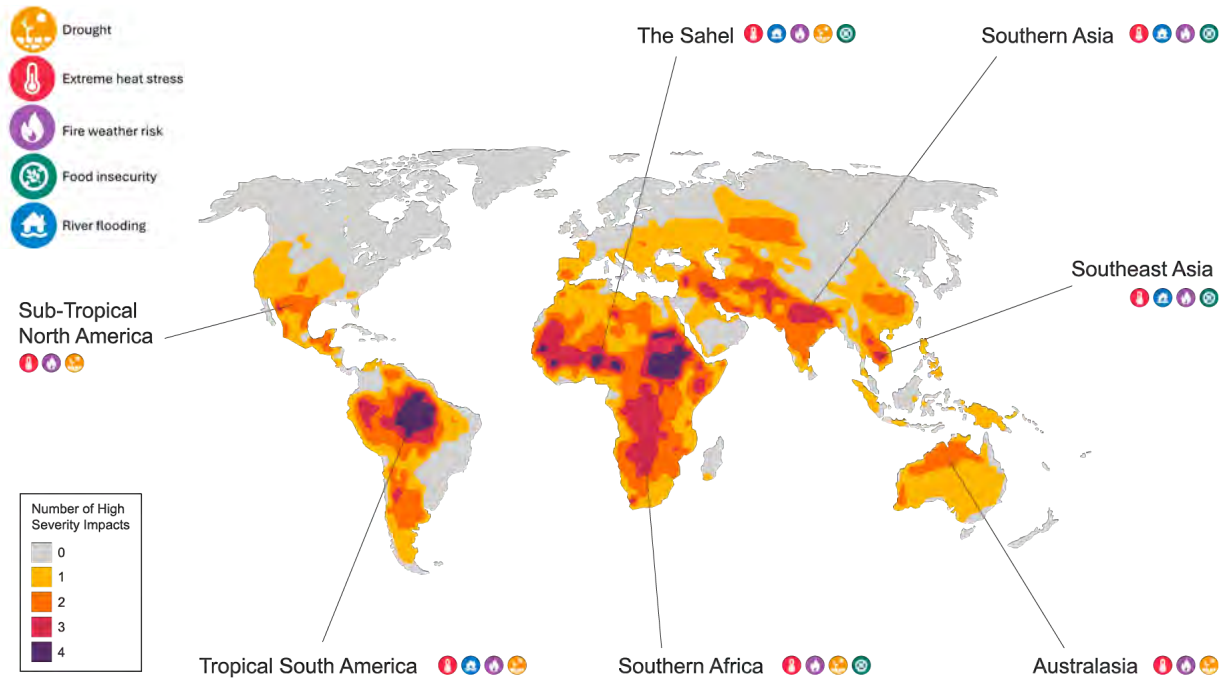
Figure 2 highlights global goods with limited sources of supply, indicating the highest number of these goods are sourced from the Chinese market which is the noticeably dominant exporter.

<sup>12</sup> Figures calculated by DBT analysts using 2021 data provided by the Office of National Statistics, UK Manufacturers' Sale by Product, PRODCOM. Available online at <https://www.ons.gov.uk/surveys/informationforbusinesses/businesssurveys/ukmanufacturerssalesbyproductprodcom>, and the United Nations Statistics Division, UN COMTRADE. International Merchandise Trade Statistics. Available online at <https://comtradeplus.un.org/TradeFlow>. In this figure a good is defined by a 6 digit commodity code.

<sup>13</sup> Figures calculated by DBT analysts using 2021 data provided the United Nations Statistics Division, UN COMTRADE, International Merchandise Trade Statistics. Available online at <https://comtradeplus.un.org/TradeFlow>. In this figure a good is defined by a 6 digit commodity code.

## Climate change

The world is already experiencing the impacts of climate change. We are committed to our existing targets, which keep us on track to meet net zero in 2050, compatible with the Paris Agreement ambition to limit global warming to 1.5°C. It is widely predicted that, as our planet continues to warm, both the frequency and intensity of extreme atmospheric events will increase.<sup>14</sup> This will lead to short-term shocks such as heat waves, storms, floods, and longer-term shifts, such as increased temperatures, rising sea levels and changing rainfall patterns. These events will also not occur in isolation and can create cascading risks that spread across sectors and countries with impacts bigger than those that occur within a single sector.<sup>15</sup> Figure 3 shows regions where multiple severe impacts may occur at similar times at 4°C of global warming above pre-industrial levels. Impacts include extreme heat stress risk, river flooding, drought and wildfire risk, overlaid with an indicator of present-day food insecurity, with widespread impacts across the globe. The colour scale indicates a higher number of severe impacts occurring in the same area.<sup>16</sup>



**Figure 3: Multiple severe impacts of climate change under 4°C of global warming scenario (Met Office).<sup>17</sup>**

Both short- and long-term risks pose growing challenges to countries' and businesses' abilities to access critical goods.<sup>18</sup> Comparatively, long-term shifts such as increased temperatures, rising sea levels and changing rainfall patterns have the potential to further disrupt and reconfigure the world's shipping routes as well as impact activities such as agriculture, mining and energy production. The Panama Canal Authority has already placed restrictions on the number and size of ships passing through the water way due to changes in precipitation patterns and drought leading to falling water levels.<sup>19</sup>

## Trade protectionism

How states respond to these new challenges and look to seize opportunities will influence the trading system, thus driving changes in global supply chains. This has been seen through the limiting of supply in times of crisis, an increase in legislation, subsidies, and other interventions aimed at strengthening or incentivising domestic capacity in critical industries. These measures have the potential to cause significant distortions in global trade and resilience.

Trade protectionism is becoming increasingly apparent in areas of future strategic importance, such as emerging technologies. The rapid pace of technological innovation is fuelling global competition for relevant highly concentrated resources. The IR sets out the UK's priority technologies such as artificial intelligence (AI), quantum technologies, engineering biology, semiconductors and future telecoms, all of which are covered under the Chancellor's priority sectors for growth. As we seek to build on our expertise to grow

<sup>14</sup> Climate Change Committee, (2021) Independent Assessment of UK Climate Risk p. 11  
USGCRP (United States Global Change Research Program) (2017), *Climate Science Special Report: Fourth National Climate Assessment, Volume I*  
NCA (National Climate Assessment Report), (2014), *Climate Change Impacts in the United States: The Third National Climate Assessment*

<sup>15</sup> Climate Change Committee, (2021), Independent Assessment of UK Climate Risk,

<https://www.theccc.org.uk/publication/independent-assessment-of-uk-climate-risk/>

<sup>16</sup> Hartley, A. J., Betts, R., Burningham, G., Kahana, R., Taylor, I., & Gohar, L. (2021). Met Office.

<https://www.metoffice.gov.uk/research/climate/climate-impacts/global-impacts-of-climate-change---projections> *Global impacts of climate change - projections*

<sup>17</sup> Hartley, A. J., Betts, R., Burningham, G., Kahana, R., Taylor, I., & Gohar, L. (2021). Met Office.

<https://www.metoffice.gov.uk/research/climate/climate-impacts/global-impacts-of-climate-change---projections> *Global impacts of climate change - projections*

<sup>18</sup> Climate Change Committee, (2022), Resilient supply chains, <https://www.theccc.org.uk/publication/resilient-supply-chains/>

<sup>19</sup> Panama Canal Authority, (2023), Panama Canal Authority Adapts to Unprecedented Challenges,

<https://pancanal.com/en/panama-canal-authority-adapts-to-unprecedented-challenges/>

these domestic industries, we must ensure that the supply chains of these technologies have resilience built at their core. This builds on the approach laid out in the UK's International Technology<sup>20</sup> and National Semiconductor strategies.

### **Unforeseen disruptions**

In the era of highly globalised production, the manufacturing of goods relies on complex and interdependent global supply chains with products frequently crossing international borders multiple times. An event in one area of a supply chain can have ramifications much further down the chain, with little visibility until impacts are felt.

These shocks can manifest themselves as demand spikes, supply disruptions, or disturbances to logistics networks. During the COVID-19 pandemic, between February 2021 and February 2022, almost one-third (30%) of businesses in manufacturing, and wholesale and retail trade reported global supply chain disruption, according to the UK's business insights and conditions survey.<sup>21</sup> Added demand for consumer electronics generated a higher-than-expected sustained demand for items such as cars. Additionally, a number of unexpected supply shocks such as fires and storms at major manufacturing centres, put unexpected pressure on a highly concentrated supply chain, leading to widespread shortages of semiconductors. This has been particularly acute for the automotive sector, with many companies having to reduce production output in the UK due to unexpected shocks.

## Opportunities

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In addition to these challenges, the development of new technologies has the potential to increase supply chains resilience, if they are effectively capitalised upon.

### **Increased use of data**

The rapid advances in the use of data have the potential to transform the understanding and management of supply chains. This includes new capabilities for governments and businesses to map and monitor supply chains and the flows of critical imports more effectively, better enabling the identification of potential vulnerabilities. For example, the development of AI will allow for a greater expansion of supply chain forecasting. Real-time predictive analysis, as opposed to data based on past historical trends, will help companies anticipate potential supply chain bottlenecks much further in advance and respond effectively to fluctuations in supply and demand.<sup>22</sup>

### **Innovation**

Other forms of technological innovation have the potential to transform supply chains and how they operate in ways that could enhance resilience. For example, exploring new substitute products can reduce existing dependencies in supply chains, while 3D printing could allow for production of critical goods to be brought onshore where shocks have disrupted overseas supply.

### **Developing domestic capability in growth sectors**

The growth of new industries, driven by emerging technologies, also offers the chance for the UK to build in resilience from the outset, growing domestic capability where it is appropriate to do so. The Chancellor has outlined the vision for long-term prosperity in the UK, setting out five growth sectors and calling on businesses to invest in the UK.<sup>23</sup> Building domestic supply chains supports diversification and maximises economic opportunities associated with these growth sectors, ensuring UK industries thrive.

### **Working collaboratively with international partners**

Joint working between states can help build shared understanding of supply chain risks and dependencies and form the basis of joint work to address these. Through free trade agreements (FTAs) states can identify and agree to remove tariff and non-tariff barriers to trade and agree joint strategies on measures such as diversification or information sharing.

<sup>20</sup> DSIT, (2023), The UK's International Technology Strategy,

<https://www.gov.uk/government/publications/uk-international-technology-strategy/the-uks-international-technology-strategy>

<sup>21</sup> ONS (2022), Early insights into the impacts of the coronavirus (COVID-19) pandemic and EU exit on business supply chains in the UK: February 2021 to February 2022.

<https://www.ons.gov.uk/businessindustryandtrade/internationaltrade/articles/earlyinsightsintotheimpactsofthecoronaviruspandemicandeuexitonbusinesssupplychainsintheuk/february2021tofebruary2022#supply-chains-evidence-from-the-business-insights-and-conditions-survey>

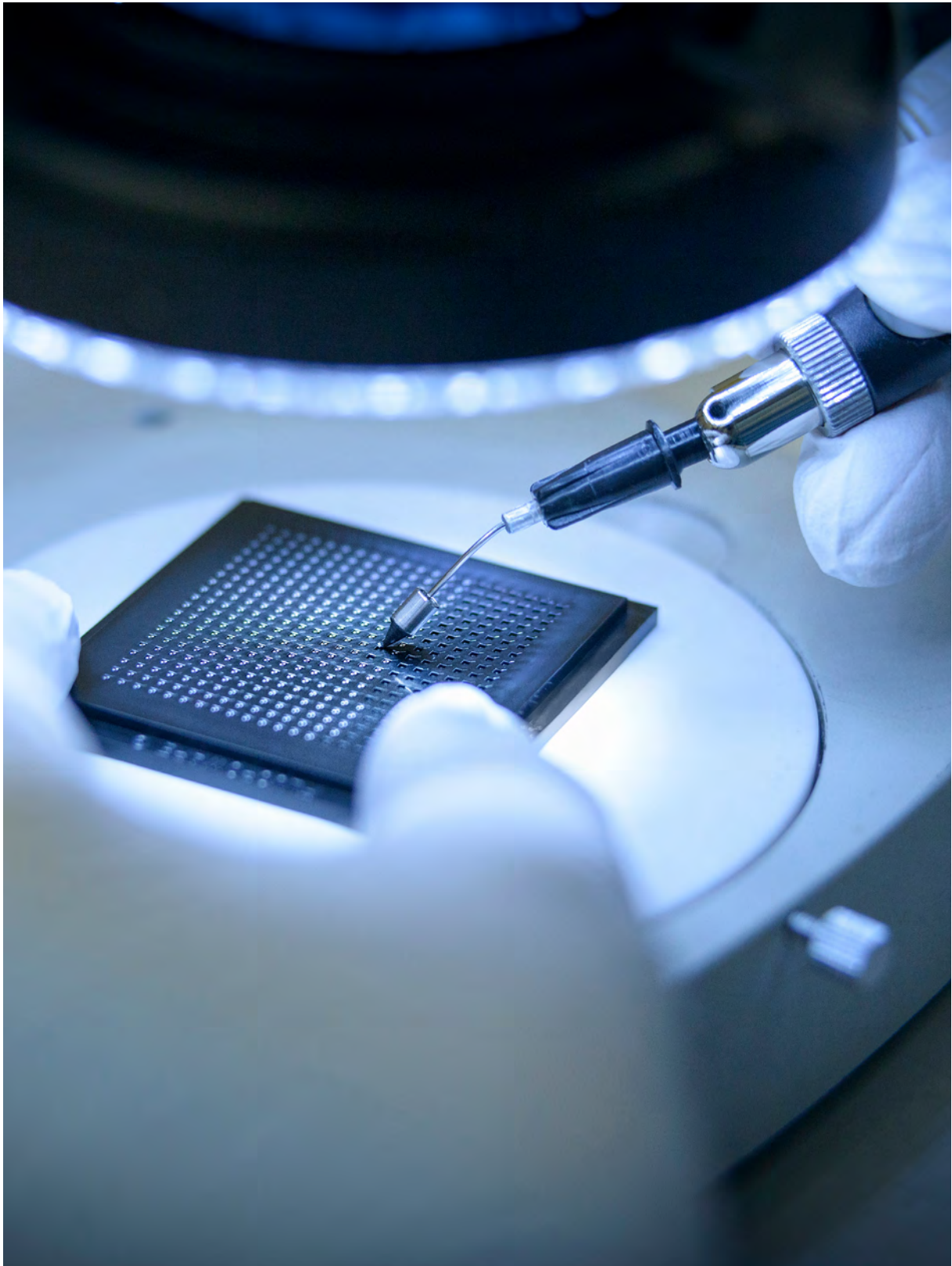
<sup>22</sup> Tad Simons, (2023), AI and Supply Chains: The future is (almost) here, <https://www.thomsonreuters.com/en-us/posts/technology/ai-supply-chains/>

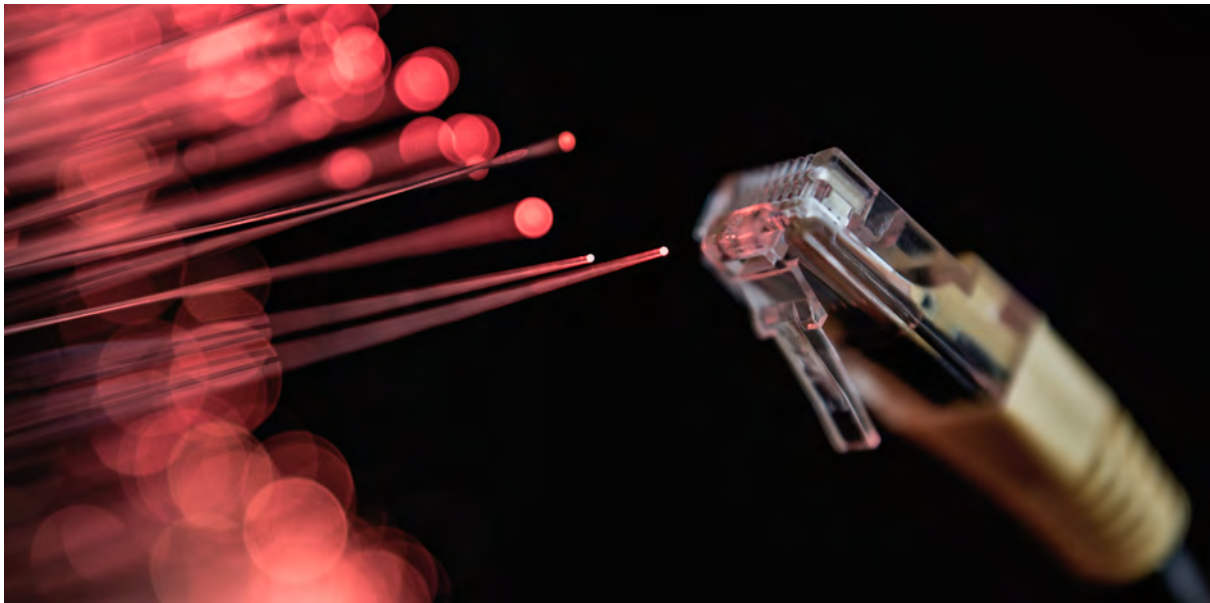
<sup>23</sup> HM Treasury, (2023), Chancellor sets out long-term vision to grow the economy,

<https://www.gov.uk/government/news/chancellor-sets-out-long-term-vision-to-grow-the-economy#:~:text=The%20Chancellor%20went%20on%20to,on%20how%20we%20should%20change>

There is widespread recognition among states and institutions globally that there is an opportunity to further supply chain resilience by pooling resources, learning from best-practice, and coordinating internationally. Multilateral fora such as the G7, G20, and Organisation for Economic Co-operation and Development (OECD) offer excellent opportunities for collaborative supply chain initiatives, while bilateral agreements between nations can address specific issues through mutually beneficial solutions.

Our international partners are also sharing their visions and plans for building resilience into global supply chains. Through sharing our priorities, we will be able to better drive engagement on economic resilience, bringing partners and allies together and sharing expertise to develop effective international responses to supply chain challenges, and agree actions that will strengthen resilience and build global capability.





# The UK's Vision for Critical Imports

**Vision:**

In a rapidly changing world, we will ensure that the UK has access to the critical goods it needs for our prosperity and security, now and in the future. We will do this by:

- Embracing the power of data and technology to maintain and extend our position as a global leader in understanding global supply chains. We will use our insights to mitigate against short-term shocks and adapt to the long-term trends reshaping the global economy.
- Providing a reliable, resilient and attractive place for businesses to invest, trade and expand, confident they can secure the inputs they need. We will ensure barriers to importing critical goods are removed wherever possible while business is provided with the advice and support it needs to build supply chain resilience.
- Coordinating the use of relevant diplomatic, trade and domestic policy and placing government/business collaboration at the heart of our approach, as well as leveraging the expertise of academia and working in partnership with our international allies.
- Ensuring supply chain resilience while promoting free trade, economic security and without compromising on environmental, social and governance standards.

The vision will be realised by focussing on five priorities:

1. Making the UK government a centre of excellence for supply chain analysis and risk assessment.
2. Removing critical imports barriers to support the UK's business-friendly environment.
3. Building the UK's response to global supply chain shocks.
4. Ensuring the UK can adapt to long-term trends.
5. Expanding collaboration between government, business and academia.

# Priority 1: Making the UK Government a Centre of Excellence for Supply Chain Analysis and Risk Assessment

## Summary

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Global supply chains vary in their configuration and design and involve hundreds or even thousands of components being sourced and transported between multiple countries across the globe.

Figure 4 illustrates the complex global nature of supply chains, showing a UK importing firm with inputs coming from multiple countries to produce the final product in the UK.



**Figure 4: This map shows the first-tier suppliers to a facility operating in the UK. Generated using Altana's user interface, a tool that is part of the Global Supply Chains Intelligence Programme.**

Many UK businesses already invest in understanding their supply chains. The UK government has also built its ability to identify, monitor, and undertake modelling on the UK's critical imports. This work means the UK government now has in-house capability available to understand supply chain risks and issues in sectors affecting economic prosperity, national security and essential services. This insight supports the government to take decisions on how and when to address challenges and to understand what options could best support particular supply chains.

As new challenges and technologies reshape international trade in the years to come, it is vital that the UK's government and businesses continues to build our skills and expertise in supply chain analysis and risk assessment.



## Government action to date

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### **Building insights and analytical capability**

Government has undertaken extensive work to develop its understanding of critical supply chains. It has rapidly built a network of dedicated supply chain analysts in the Department for Business and Trade (DBT) and across other relevant government departments.

We have developed a framework to identify supply chain risks using trade data and other data sources. Our methodology considers the UK's product vulnerabilities through three lenses:

1. **UK import vulnerabilities** – we identify UK imports that have a limited supply base. This indicates potential vulnerability should the UK's largest supplier(s) experience a disruption.
2. **Domestic production vulnerabilities** – we identify products that are predominantly manufactured in the UK, and by a limited number of firms. This indicated potential vulnerabilities should a large domestic supplier experience disruption.
3. **Global exports vulnerabilities** – we consider products where global supply originates from a small number of countries. This indicates potential upstream vulnerabilities that are not always visible in UK bilateral trade data.

We have used this analysis to inform the government's response to major supply chain disruptions in recent years as well as to inform the development of sector specific supply chain resilience strategies and policy in areas ranging from chemicals to telecoms.

### Spotlight: Vulnerability methodology – how we use analysis to identify diversification options

Government has already undertaken work to identify potential diversification options for critical goods at the country level. Our methodology uses trade data to identify where the UK is over reliant on a country for imports of a good and also where the UK is underutilising imports of critical goods from other exporter countries. This data is available for government departments to consider diversification options in their sectors through our diversification dashboards.

While this cannot take account of every variable which will impact the feasibility of diversification to other countries (for example, differences between country's transport infrastructure or regulatory regimes) it provides an indicative view of diversification potential or over-reliance for a given product, as per the chart below. Chart 1 shows the top 10 diversification options for the UK for aluminium ores and concentrates. The top diversification option is Australia, followed by Guyana and Jamaica.

#### HS 260600 - Aluminium ores and concentrates

Top 10 diversification options (by untapped export potential, USD)

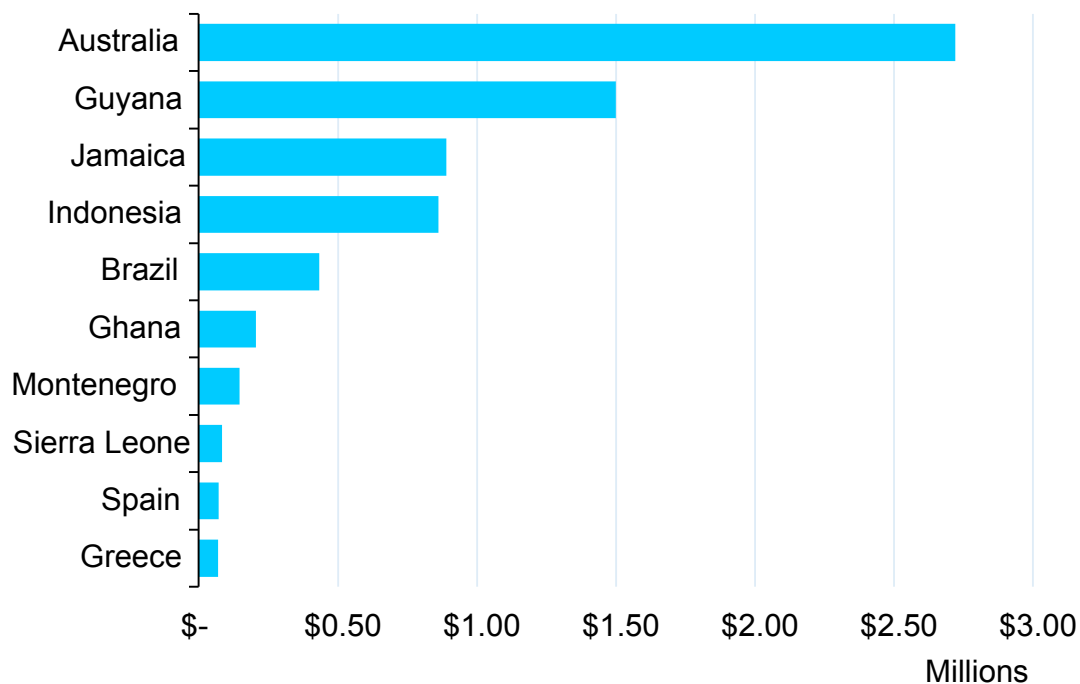


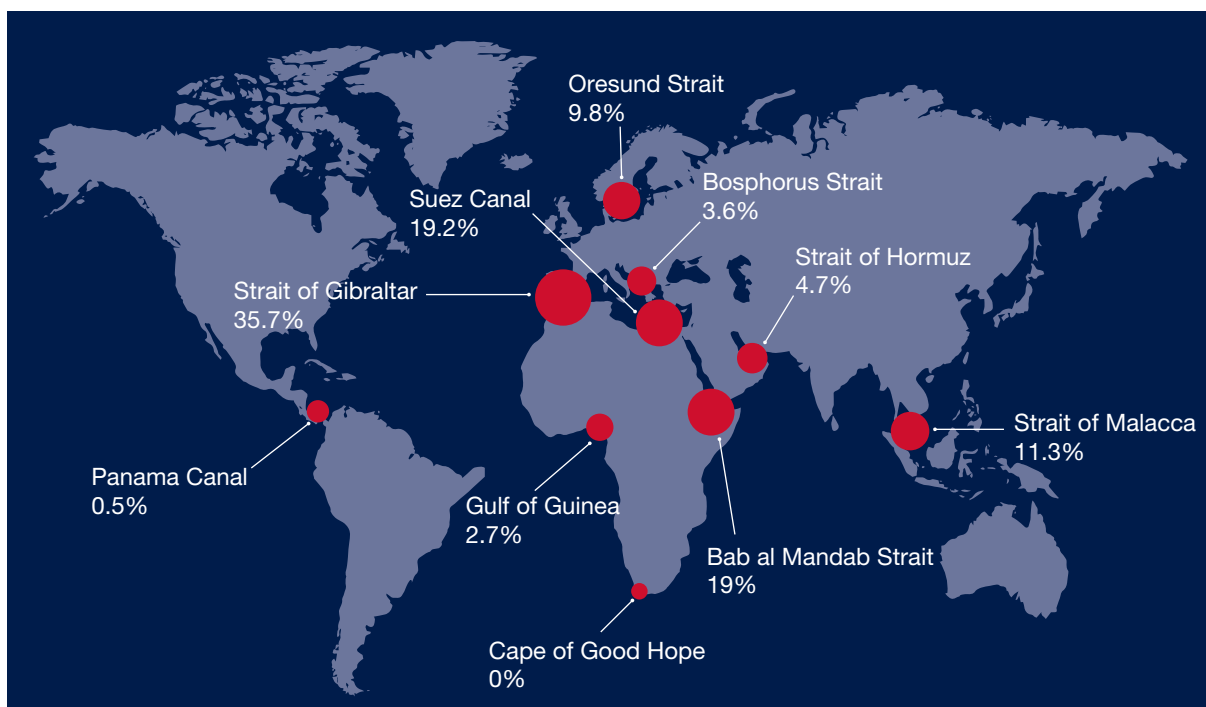
Chart 1: Aluminium ores and concentrates diversification options.<sup>24</sup>

We have undertaken the mapping of critical supply chains to inform decision making and policy development, both in relation to shocks and long-term trends. For example, during the COVID-19 pandemic the then Department for International Trade (DIT) launched Project Defend in April 2020. The project analysed and mapped supply chains critical to the UK, assessing their common components and geographic vulnerabilities, and developing strategies to enhance resilience. The project ran for a year, closing in March 2021 when the Global Supply Chains Directorate was set up to continue leading work across government to strengthen the long-term resilience of supply chains critical to the UK.

We have also developed our understanding of how critical imports reach the UK by mapping global transport route chokepoints. This map is used to inform government of the routes the UK's most critical goods take and provides the ability to monitor freight flows, identify potential risks of disruption, where these are, and possible alternative routes to protect supply. Figure 5 shows the percentage of UK imports by value in 2021 passing through global maritime chokepoints, indicating the importance of the Strait of Gibraltar and Suez Canal for imports via this transport mode.

<sup>24</sup> Figures calculated by DBT analysts using trade data from the International Trade Centre, [Export Potential Map \(intracen.org\)](https://www.intracen.org)





**Figure 5: The percentage of UK imports by value that passed through maritime chokepoints in 2021.<sup>25</sup>**

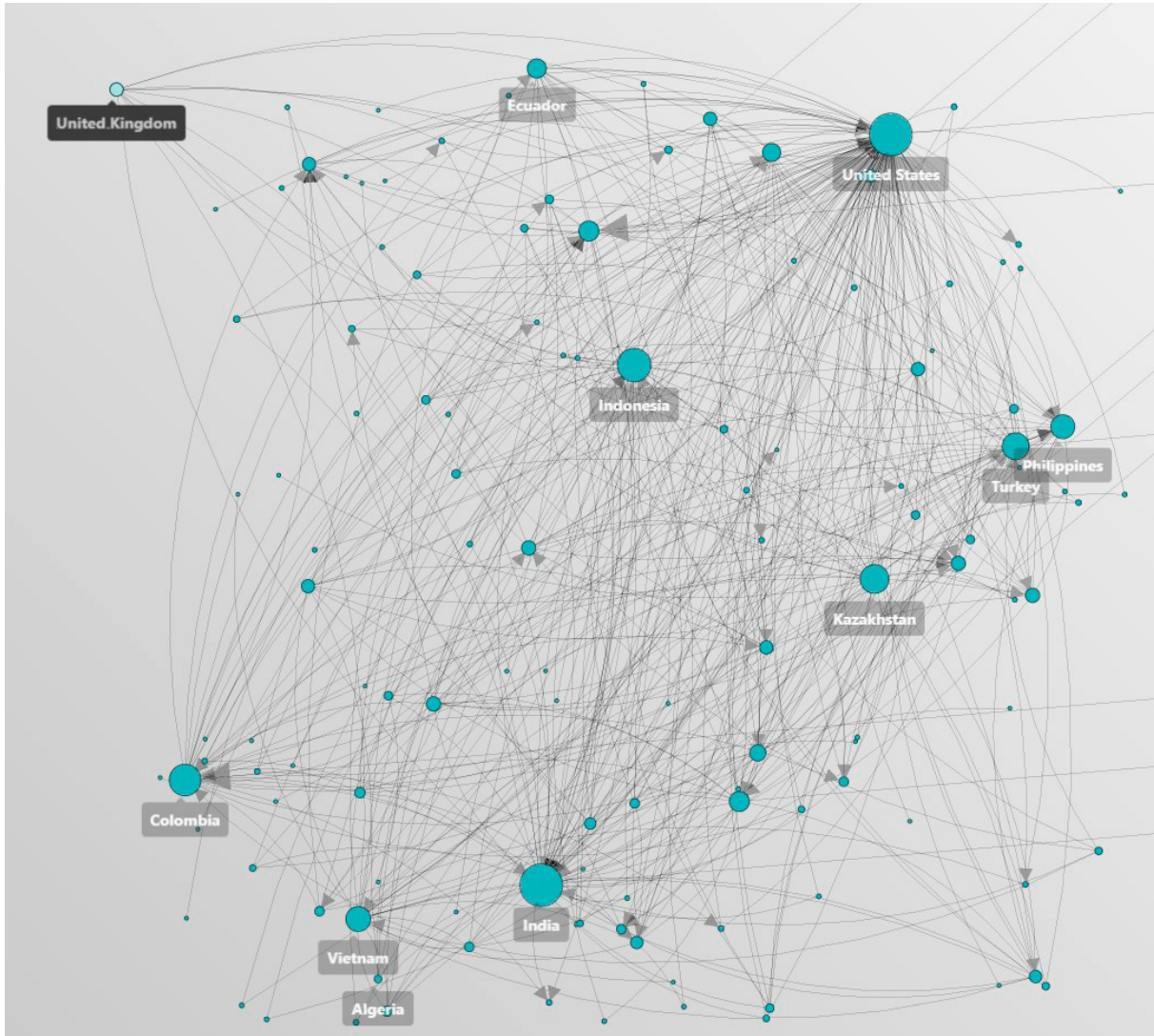
### Global Supply Chains Intelligence Programme

The government has developed a pioneering approach to producing intelligence on global supply chains using innovative data science techniques. The Global Supply Chains Intelligence Programme, launched in March 2021 aims to transform the visibility of global multi-tier supply chains. The programme combines government and externally sourced industry data to improve transparency, allowing government to understand the risks and opportunities associated with companies' products, suppliers and geolocations in new ways.

The programme has been able to identify supply chain networks, displaying their geographical reach and interdependencies. The speed at which analysis can be done is significantly faster than previous approaches. Our approach to multi-tier supply chain mapping is already informing areas such as sanctions, modern slavery and the UK's approach to the transition to net zero.

<sup>25</sup> Calculated by DBT analysts using shipping instruction data. This dataset covers approximately 50% of all containership trade in and out of the UK. The percentages equate to more than 100% of maritime imports to the UK because trade that passes through multiple chokepoints is accounted for in both figures. For example, goods passing through both the Suez Canal and the Strait of Gibraltar.

The greater range of data has enabled government to understand the many layers of transactions that make up supply chains in more detail than ever before. For example, figure 6 shows a network diagram produced by Global Supply Chains Intelligence Programme showing the global trade of a good, identified by its commodity code. Each node is a country, and the lines are transactions between them. The larger the node, the more transactions relate to that country.

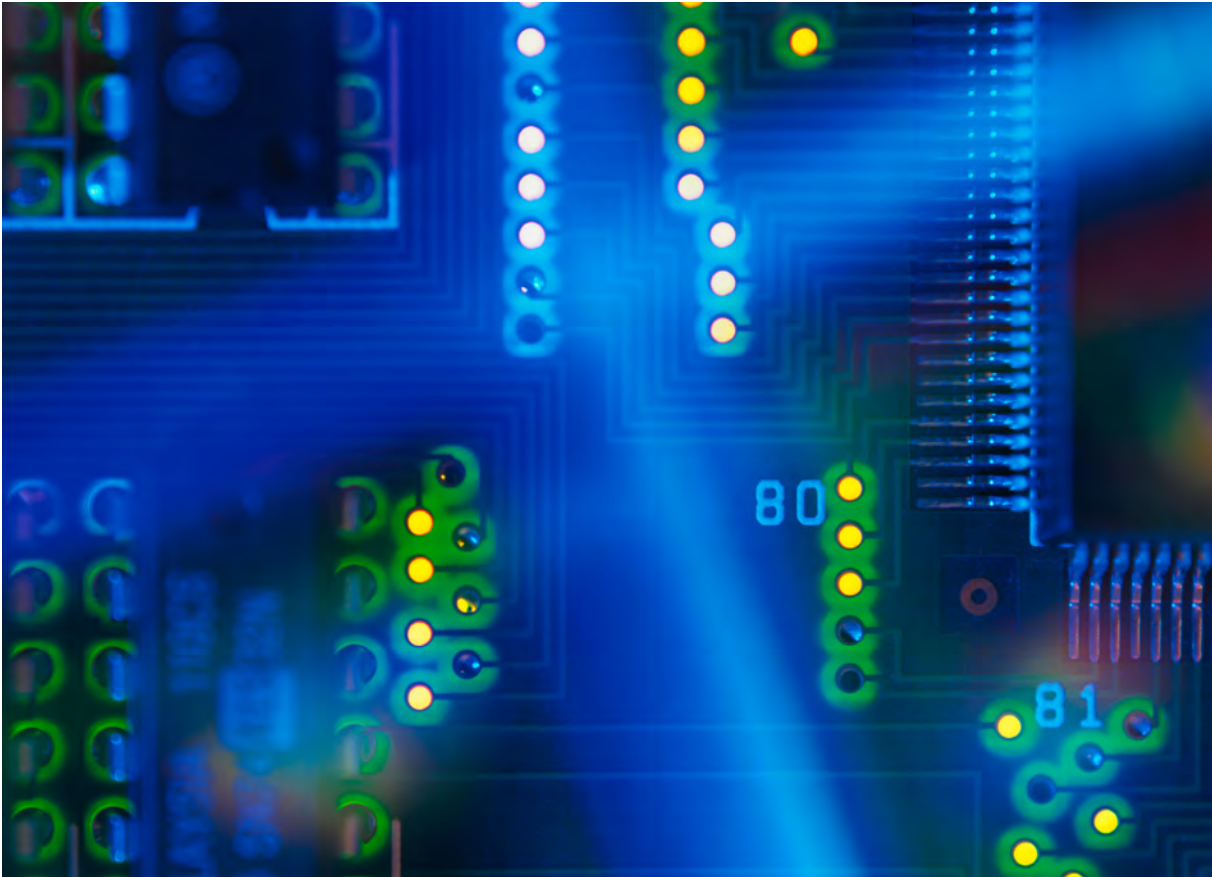


**Figure 6: a network diagram showing the global trade of a good. The diagram was created using Global Supply Chains Intelligence Programme linked data and Graphistry software (procured by DBT).**

### **Partnerships, knowledge sharing and capability building**

The government has built information sharing networks with academia and business to develop and share expertise on critical imports and supply chains analysis. For example, alongside the publication of the UK's Critical Minerals Strategy in July 2022, government launched the UK *Critical Minerals Intelligence Centre*, led by the British Geological Survey, to provide up-to-date data and analysis on the supply and demand of critical minerals and how they are used by UK business.

Finally, we have invested in supply chain capability across government. We have developed a bespoke training programme for government departments, delivered in partnership with leading academics. There are also industrial placements taking place such as the one led by the Department for Health and Social Care (DHSC) which provides government officials with direct experience of businesses' approach to supply chain management.



## Next steps

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Government and business need to continue to analyse the significant and growing data available to understand supply chains. It leads to evidence-based insights which support the development of effective resilience measures and help to spot risks early.

To further enhance our understanding of the UK's critical supply chains we will:

- 1. Entrench the UK government's position as a world leader in supply chain analysis by:**
  - a. enhancing government's understanding of current and future flows of critical goods imports into the UK and future domestic and international demand for these goods.
  - b. enhancing government's analytical capability to better understand shocks that occur and anticipate the impact on critical goods.
- 2. Share more government analysis of critical supply chains with business, where appropriate.**
- 3. Employ cutting-edge techniques to better understand how our critical supply chains will evolve in the future, working with the Government Office for Science to map future supply chains scenarios and using the outputs to inform future policy development.**

# Priority 2: Removing Critical Imports Barriers to Support the UK's Business-Friendly Environment

## Summary

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**The UK is committed to maintaining a supportive, reliable ecosystem, conducive to the efficient importation of goods, within which businesses can operate.** To ensure such an environment, the government has pursued a range of measures that enable firms to invest, expand, and trade. This was recognised by the UK, in 2022, being the third highest destination for investment in the world and the highest destination for investment in Europe.<sup>26</sup>

We plan to build on this further. This will include new work to systematically identify, and where possible remove, obstacles to the efficient importation of critical goods whether these are encountered in the UK or overseas markets. We will also take steps to help ensure that importing firms can access the financing they require.

## Government action to date

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### Removing barriers

Through many of the FTAs that the UK has negotiated we have lowered tariff and non-tariff barriers to both exports and imports. Lowering tariffs reduces the costs of critical imports and addressing the non-tariff barriers makes it easier for businesses to source the inputs they need quickly and easily. Our FTAs include customs and trade facilitation provisions for instance, which reduce customs-related barriers in border procedures making processes simpler, more predictable, and less burdensome for businesses. Many of these agreements and new agreements we are currently negotiating have also supported flows of investment in both directions. Increased flows of investment support greater supply chain resilience as businesses can more easily set up or expand production at home and abroad. There are also other ways that our FTAs contribute to supply chain resilience as well. Market access provisions for instance often include import or export licensing articles which increase transparency around licensing requirements. By increasing transparency and certainty for traders, these provisions help businesses to plan to ensure the smooth flow of goods into the UK, including for critical and time-sensitive imports.

Like other FTAs, the Trade and Cooperation Agreement between the UK and the European Union (EU) includes commitments which ensure that goods continue to be traded without tariffs and quotas. The EU remains an important trading partner for the UK. In the 12 months ending in June 2023, the EU accounted for 49.6% of UK imports.<sup>27</sup>

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<sup>26</sup> UNCTAD STAT, (2022), Foreign direct investment: Inward and outward flows and stock, annual

<sup>27</sup> ONS (Apr-June 2023), Balance of Payments, <https://www.ons.gov.uk/economy/nationalaccounts/balanceofpayments/bulletins/balanceofpayments/apriltojune2023>

### Spotlight: UK-Australia FTA

The UK-Australia FTA includes provisions on customs procedures and trade facilitation providing for:

- **Rapid clearance:** Both the UK and Australia have committed to releasing all goods from customs within 48 hours of arrival, provided all requirements have been met. Some products, such as perishable goods and fast-tracked parcels, will be released within 6 hours.
- **Further simplification of customs procedures:** The UK and Australia have agreed that eligible traders in both countries can benefit from measures that further simplify customs procedures. This could include reducing the data requirements for traders fulfilling certain defined criteria and deferring the payment of customs duties and taxes until after the release of those imported goods.
- **Fast decisions from customs officials on advance rulings:** Businesses who want to export goods to Australia can receive a legally binding decision in advance from customs authorities on the tariff classification and origin of their product within 90 days. This provides certainty for traders, allowing businesses to make informed decisions and reduce delays at the border.

Outside of FTAs, we engage through bilateral and multilateral channels to secure agreements, concessions or other arrangements that remove barriers to critical imports. We are also working to create internationally recognised standards for critical goods by engaging with the International Organization for Standardisation through the British Standards Institution. The adoption of common standards allows companies to import and export products with greater ease and reduced cost. Work to date has included development of standards for critical minerals such as rare earth elements and lithium. Government also supports UK companies to invest overseas, where they may face barriers in terms of contacts, language or unfamiliarity with the market. Overseas direct investments (ODI) can support broader supply chain resilience objectives where they stimulate production of new sources of supply for critical goods. This supports diversification efforts, for example supporting the development of new mining or refinement of critical raw materials.

### Spotlight: Trade policy levers

The UK's independent trade policy regime allows us to use a variety of measures to drive supply chain resilience as part of our overall trade aims:

- **Reduce the costs of importing critical materials:** The UK's Trade agreements make it easier and cheaper to import critical imports by agreeing to reduce tariffs and implementing flexible Rules of Origin to make use of those tariff reductions.
- **Remove unnecessary trade barriers:** To import and utilise critical inputs, businesses and consumers rely on UK standards and regulations to keep products safe and fit for purpose. We work with partner countries and international organisations to remove unnecessary technical barriers to trade and to improve transparency and regulatory cooperation. This helps businesses because we reduce red tape, enable global cooperation with like-minded countries and businesses, and maintain the UK's high standards and regulations.
- **Support investment:** UK manufacturers benefit from simpler investment rules through our FTAs. This will encourage investments that could provide greater security for our supplies of critical imports.

Additionally, the government intends to introduce legislation to extend recognition of the CE marking<sup>28</sup> indefinitely for Great Britain across 18 regulations, such as machinery.<sup>29</sup> This will continue to allow goods in specific sectors that meet EU requirements, using EU conformity marking, to be sold across the UK. This approach provides longer-term certainty for businesses, assisting their sourcing decisions when importing. Government has also pursued mutual recognition agreements (MRAs) with trading partners to facilitate greater market access and ease the importation of goods. These agreements ensure relevant goods can be tested in a partner country against UK regulations and then sold in the UK without requiring additional testing, thus reducing the burden on importers.

<sup>28</sup> The CE marking signifies that products sold in the European Economic Area (EEA) have been assessed to meet high safety, health, and environmental protection requirements.

<sup>29</sup> DBT, (2023), CE marking, <https://www.gov.uk/guidance/ce-marking#:~:text=The%20letters%20'%20CE%20'%20appear%20on,safety%2C%20health%20or%20environmental%20requirements>

The Windsor Framework agreed between the government and the EU in February 2023 offers a host of tools to manage and minimise potential negative impacts arising from regulatory divergence on goods being transported from Northern Ireland to Great Britain. This new agreement fully preserves the government's longstanding commitments to ensure Northern Ireland's businesses have full unconditional and unfettered access to their most important market in Great Britain, while maintaining their privileged access to the whole of the EU market.

Through the Border Target Operating Model, the UK will be adopting a new import control regime from 2024 which will reduce the burden of controls on importing businesses and help UK firms take advantage of new trading relationships across the world. This model will harness our new freedom to set our own border policy and integrate the technical transformations set out in the 2025 UK Border Strategy<sup>30</sup>. Responding to feedback from traders, the new model will improve the efficiency of border processes by digitalising the border and continuing to streamline certification procedures. It will introduce a new proportionate approach to controls to address animal health and welfare, food safety and biosecurity risks. We estimate this new model will ensure that costs to businesses are £520 million per annum lower than those that would have been incurred had the UK adopted the model employed by the EU.<sup>31</sup>

### Spotlight: Use of technology to facilitate trade

The 2025 Border Strategy set out our vision of using data and technology to create the most effective border in the world.

The UK's Single Trade Window is a core part of the delivery of the Border Operating Model. It will provide a single digital gateway at the UK border for traders to complete their import, export and transit obligations, saving traders time and money by reducing the significant duplicative effort that is currently required to move goods across the UK border. It will also reduce barriers of entering into international trade by simplifying the customer experience.

The Cabinet Office are also exploring the collection of greater amounts of supply chain data directly from businesses. Gathering this data can help government better understand the provenance of goods and their riskiness. For businesses, this can result in reduced disruption, as goods could be more accurately targeted.

## Ensuring a supportive business ecosystem

The government recognises that critical imports and resilient supply chains are reliant upon a broader business ecosystem effectively functioning. This includes access to finance, energy, skills, infrastructure and transport networks required for them to thrive and grow.

### Supply chain finance

A lack of supply chain finance can present a specific barrier to businesses looking to import critical inputs or export finished goods. Government has already taken action to support UK companies through the UK's public finance institutions and further work is underway.

- UK Export Finance (UKEF) is the UK's export credit agency (ECA) with a mission to advance prosperity by ensuring that no viable UK export fails for lack of finance or insurance, doing that sustainably and at no net cost to the taxpayer. While UKEF's support is focused on exports, in specific, limited circumstances it can enable the securing of imports and supply chains where that forms part of broader export-focused support.
- The UK Infrastructure Bank (UKIB) is a government-owned policy bank, launched in 2021. The Bank invests across the UK and has a broad mandate to increase infrastructure investment, including semiconductor manufacturing and supporting the mining, refining, and recycling of critical minerals.
- The British Business Bank (BBB) works to support smaller UK businesses by improving access to finance, which includes enabling cash flow through supply chains. Its online Finance Hub offers free financial tools and information to businesses relevant to supply chain finance.

<sup>30</sup> Cabinet Office, (2020), 2025 UK Border Strategy, <https://www.gov.uk/government/publications/2025-uk-border-strategy>

<sup>31</sup> Cabinet Office, (2023), The Border Target Operating Model, <https://www.gov.uk/government/publications/the-border-target-operating-model-august-2023>

- In addition, HMG recently announced the establishment of a cross-Whitehall Blended Finance Project, financed by the Shared Outcomes Fund, which will complement this focus on using innovative and collaborative finance models to support supply chain development.<sup>32</sup>

## Energy

The availability and price of energy can have substantial impacts on supply chain resilience. High energy prices can make production of goods unprofitable or increase the cost of these goods for end-users. The government has taken a range of measures to address the cost of energy including publishing an Energy Security Plan for building energy independence, security and resilience. We have also published our Energy Security Strategy which states how the government will help improve energy efficiency within the UK, how we will transition away from oil and gas dependence, and the support provided to meet energy prices.

### Spotlight: Chemicals supply chains

The chemicals sector is a foundational industry, with chemicals used in 96% of all manufacturing sectors,<sup>33</sup> thus playing a critical role across numerous supply chains including healthcare, technology, food and water. In 2022 it is estimated to have contributed £14 billion in gross value added (GVA) to the UK economy.<sup>34</sup> The sector is also a prime example of an industry that benefits from both reducing barriers to trade and having a supportive domestic ecosystem for business growth.

For example, following carbon dioxide (CO<sub>2</sub>) supply challenges in 2021, the government facilitated engagement with international suppliers to increase overall resilience in the CO<sub>2</sub> market through imports. More broadly, government has been exploring options to significantly reduce costs for businesses under the UK's regulatory framework for chemicals (UK REACH), thus creating a better environment for businesses in the UK whilst establishing a more comprehensive picture of where and how chemicals are used in Great Britain.<sup>35</sup>

As an energy intensive industry (EII), the chemicals sector is particularly sensitive to fluctuations in the price of energy, both at home and overseas. The UK government is minimising energy costs for EIs to help ensure they remain strong and competitive, helping to build resilience in these important supply chains, such as through the ongoing EII compensation and exemption schemes, British Industry Supercharger and Industrial Energy Transformation Fund.

## Skills

A skilled workforce is central to businesses being able to trade effectively and flourish in the UK, with around a third of productivity growth can be attributed to increases in skill levels in UK.<sup>36</sup> The government is working closely with businesses to develop an employer-led skills system that is high quality and responsive to labour market needs. The Department for Education (DfE), backed by an additional £3.8 billion of investment in skills over this Parliament, is supporting higher and further education and scaling up delivery of apprenticeships, T Levels, Skills Bootcamps, and Higher Technical Qualifications to strengthen technical routes into skilled employment in priority sectors.

### Spotlight: Skills Bootcamp

The Department for Transport (DfT) is delivering the skills ambitions of the Future of Freight plan (June 2022) to support the crucially important logistic sector in the UK.

Working with the DfE, the departments are building on DfE's investment in 2021 (of up to £34 million) which created up to 11,000 Skills Bootcamp Heavy Goods Vehicle (HGV) driver training places for people that were new, returning to, or looking to upskill as an HGV driver. Due to the success, additional funding has been granted to support this training offer bringing the total investment to £64.8 million.

32 HM Treasury (2023) Shared Outcomes Fund Round 3: Pilot Project Summaries, <https://www.gov.uk/government/publications/shared-outcomes-fund-round-three#:~:text=Up%20to%20%2%A3100%20million,departments%20and%20key%20partners%20involved>

33 Chemical Industries Association, (2020), Accelerating Britain's Net Zero Economy, <https://www.cia.org.uk/Portals/0/Documents/Accelerating%20Britain's%20Net%20Zero%20economy.pdf?ver=2020-11-12-133217-387&timestamp=1605187811071>

34 Office for National Statistics, (2023), GDP Low Level Aggregates, <https://www.ons.gov.uk/economy/grossdomesticproductgdp/datasets/ukgdpolowlevelaggregates/current>

35 DEFRA, (2023), UK REACH alternative transitional registration model (ATRM),

<https://www.gov.uk/government/publications/uk-reach-alternative-transitional-registration-model-atrm/uk-reach-alternative-transitional-registration-model-atrm-owlevelaggregates/current>

36 Department for Education, (2023), Skills and UK Productivity, <https://www.gov.uk/government/publications/skills-and-uk-productivity>

## Planning

Businesses require a planning system which supports the provision of high-quality facilities and infrastructure to facilitate the receipt, storage, processing, interchange and distribution of goods. The government is engaged in ongoing reforms to the Nationally Significant Infrastructure Project regime. These reforms will be designed to ensure the system can support the UK's future infrastructure needs by making the system better, faster, greener, fairer, and more resilient.

## Transport

Most supply chains rely upon multiple modes of transport and transfer between modes at ports, airports, rail freight interchanges, and warehousing. In implementing DfT's Future of Freight Plan, the government is supporting business to build the resilience of the logistics sector, ensuring the smooth receipt, storage, processing, interchange and distribution of goods through the UK transport network. This will be achieved by improving the skills pipeline, managing long-term change to zero-carbon, building and optimising infrastructure, and having access to the best data and technology for increased visibility and innovation.

## Next steps

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The UK already offers an attractive environment for importing businesses to operate in, and we recognise the need for an ongoing focus on identifying and seeking to remove barriers to imports as they emerge, whether these be regulatory, operational or financial. The government already operates a highly effective market access barriers removal programme targeted at reducing the barriers to UK firms looking to export into overseas markets. We will extend our focus to encompass capturing barrier to critical imports. Specifically, we will:

4. **Ensure businesses operating in the UK can import goods as easily and efficiently as possible by developing a new programme of work to identify, review and where feasible remove import barriers into the UK and overseas. This will include:**
  - a. establishing a critical import barrier reporting mechanism for business to inform government action;
  - b. exploring the use of mutual recognition agreements to remove barriers to imports; and
  - c. working across government to resolve import barriers for critical goods.
5. **Explore UK business need for support in identifying new suppliers, and options to help companies make connections in markets, including use of the government's overseas network.**
6. **Ensure that businesses can access available government-backed funding and financing for importing critical goods by co-designing and delivering, with public finance institutions, a communications programme to ensure UK businesses are aware of the support on offer.**
7. **Explore the case for further supply chain financing interventions for the UK's most critical supply chains.**





# Priority 3: Building the UK's Response to Global Supply Chain Shocks

## Summary

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**Economic shocks are frequently unpredictable and have the capacity to disrupt the supply chains of critical goods.** They can be caused by a range of global events, from conflicts to extreme weather events, and can create spikes in demand, halt production or block transport routes, preventing the flow of critical imports and creating substantial costs for businesses.<sup>37</sup> Existing literature also shows that supply chain disruptions tend to significantly impact the ability of firms to import the intermediate inputs required for their production activities, in turn impacting firms' domestic sales and exports, with subsequent negative impacts on productivity.<sup>38</sup>

Given the potential for economic shocks to become more frequent, government and business need to be well prepared. Effective planning can help minimise the impact of shocks and enable a swifter response where disruption does occur. Businesses have a strong commercial incentive to insulate themselves from shocks and are investing in doing so. However, there is also a unique role for government to play, given its responsibility to its citizens and ability to coordinate a response to shocks from across sectors in order to safeguard the UK's resilience, security and prosperity.

The government has boosted its ability to manage supply chain shocks in response to the unprecedented challenges of recent years and we will build on these foundations. Government will expand and entrench our existing work to plan for future shocks; to respond in a rapid and coordinated fashion; and to ensure that we can support businesses as effectively as possible.



<sup>37</sup> Interos, (2023), Invisible Threats: Resilience 2023, <https://www.interos.ai/resources/supply-chain-survey-2023/>

<sup>38</sup> DBT (2023), Feasibility study: the relationship between productivity and trade.

<https://www.gov.uk/government/publications/feasibility-study-the-relationship-between-productivity-and-trade>

### Spotlight: What is a supply chain shock?

A shock is an event that quickly impacts supply and/or demand in a supply chain, such as the outbreak of war, natural disasters cutting off production or transport or bankruptcy suddenly eliminating a producer. Figure 7 shows the types of economic shocks that exist. These are: geopolitical, environmental, financial, health, fiscal and technological.

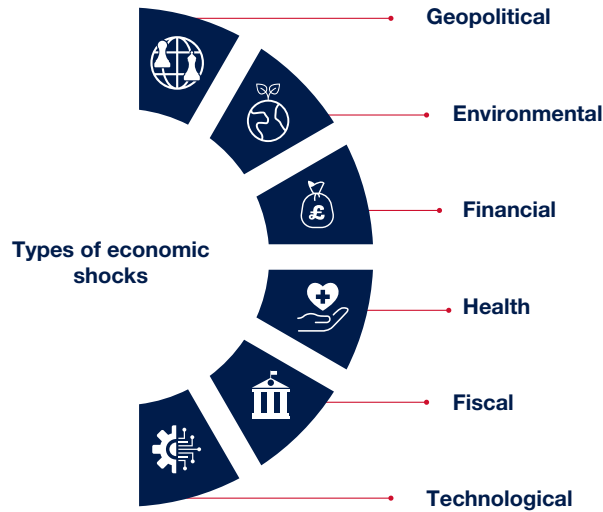


Figure 7: Types of economic shock

## Government action to date

### Intelligence building and response mechanisms

#### Data and analysis

The government has undertaken extensive work to explore disruptions that could occur in specific critical supply chains and to consider the risks facing the UK, such as those monitored through the National Security Risk Assessment. These insights help to inform government response and mitigation plans and determine the most vulnerable and critical products during a shock to supply chains. Additionally, these insights support our work with businesses during disruptions to find alternative suppliers.

### Spotlight: Ministry of Defence supply-chain tool

The Ministry of Defence (MOD) is developing a supply-chain illumination capability that monitors specific defence related supply-chains and proactively alerts the Department to issues within the chain. The MOD is working to increase the use of predictive analytics and monitoring to allow for the rapid implementation of interventions to tackle disruptions as they arise.

### Horizon scanning and crisis management

Government has developed new structures to share information, identify trends and emerging issues, and develop coordinated responses on supply chain issues. This supports the early identification of potential shocks, enabling government to take swift action to support business. The information is drawn from government analysis, business insights and international trends gathered from over 100 overseas posts based in the UK's embassies, consulates and missions across the globe.

Where this approach identifies a potential shock, or when an unanticipated event leads to supply chain disruption, government has developed a response model covering all emergency planning, response, recovery and risk assessment. Designated Lead Government Departments will lead work relating to sectors falling under their responsibility, such as developing contingency plans. Where shocks are sufficiently cross-cutting and complex, a central response will be coordinated across government by the Cabinet Office Briefing Rooms (COBR) Unit.

### **Supplier engagement and reporting**

Where government works closely with suppliers to procure goods for public services, we have taken steps to build strong working relationships and ensure clear reporting mechanisms and mitigations are in place in the event of a supply chain disruption.

#### **Spotlight: Government and supplier coordination on health supply chains**

Ensuring medical supply chains are resilient and sustainable is a shared objective for government and suppliers alike. These complex supply chains rely on continued effective government dialogue with international partners, the NHS and business.

There are well established mechanisms for reporting and responding to shortages of medicines and medical products. There is a requirement on manufacturers of medicines to report shortages to the department, and DHSC established the National Supply Disruption Response, which acts as a single point of contact when a health or care provider, supplier or research body has exhausted all other options available to them to maintain supply of medical products to the UK.

To effectively manage disruptions, a comprehensive range of policies and contingency plans are in place. These help to prevent shortages and ensure that the risks to patients are minimised when they do arise. Measures such as stockpiles and targeted buffer stocks are specifically designed to mitigate a specific product shortage. Additionally, DHSC has procured an Express Freight Service contract to provide emergency logistics for any medical product from anywhere in the world.

Supply chain resilience is also an important consideration of awarding contracts to suppliers when procuring medicines and medical products, with a focus on developing available buffer stocks on British soil, such as in the case of generic medicines or high use clinical consumables. In particular, the NHS will implement multiple supplier framework agreements to improve security of supply and to manage demand spikes or individual supplier challenges.

The resilience of medicine and medical product supply chains is continuously strengthened through targeted domestic manufacturing investments and strategic procurement. A supplier-friendly environment is being cultivated in the UK, with sustainability targets such as net zero being emphasised and a transition to reusable medical devices being made.

### **Stress test exercises**

Government has also developed the capability to undertake ‘stress tests’ to identify and address potential supply chain vulnerabilities that could lead to disruption in the event of an economic shock. These are exercises involving participants from government, international partners and/or businesses working collaboratively to test the effectiveness of response plans for different scenarios. While this approach has long been used in a range of areas of government resilience work, its application to supply chains represents a new step.

#### **Spotlight: UK-Republic of Korea joint stress test**

The UK and the Republic of Korea (RoK) conducted a table-top exercise to test the resilience of the global electric vehicle (EV) battery recycling supply chain against several reasonable worst case disruption scenarios. The exercise was supported by industry experts and a range of government departments. The ‘stress test’ identified several recommendations to address the vulnerabilities identified. The findings will support ongoing policy development in this area.

## Direct government intervention

Finally, where proportionate, government has directly intervened in markets to ensure adequate protection against the most serious shocks.

Government requires specific sectors such as defence to maintain stockpiles of goods critical to the provision of national security. MOD has also put in place a £2 million Supply Chain Contingency Fund which enables supply chain activity that would not be possible under existing finance and commercial process arrangements. Where the UK has faced a potential loss of access to critical goods due a disruption in global or domestic supply chains, the government has, as a last resort, undertaken targeted, proportionate interventions in the market. For example, in summer 2021 a combination of overseas demand and domestic market developments threatened to severely restrict the UK's access to carbon dioxide which is critical to water treatment, the food processing sector, hospitals and nuclear power generation. Government provided exceptional, limited, short-term financial support to a manufacturer to enable domestic production and supply of this critical good.

Under specific circumstances, government and regulators have temporarily relaxed certain regulations on businesses to enable them to manage supply shocks and ensure essential goods get to the people and businesses who need them. In response to the COVID-19 pandemic, the government enacted exclusion orders that relaxed UK competition rules for certain agreements which might normally be considered anti-competitive. This enabled disruption-minimising coordination in areas such as maritime crossings to healthcare.<sup>39</sup> The UK's regulators ensure that these exclusions can only be used in specific circumstances and must be carefully scoped, monitored and time-limited, to avoid creating conditions for harmful forms of collusion that enable prices to be sustained above competitive levels. As outlined in the Competition and Markets Authority's market resilience paper, the government will consider the risks of intervention on a case-by-case basis.<sup>40</sup>

## Next steps

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The UK has demonstrated an ability to respond rapidly to the increase in global economic shocks minimising disruption to critical imports. However, the government is clear that we must build on this and use our experience and expertise, including that of business, academia, and international partners, to do more. We will:

8. **Ensure that the government has the systems and frameworks needed to respond, and support business through future supply chain shocks. This will include:**
  - a. developing a framework to formalise government approach to supply chain shocks, setting out how government will work with business to ensure a coordinated response and drawing on experience from recent crises; and
  - b. expanding our work with international partners and multilateral groups to forecast disruptive events and develop crisis response measures.
9. **Support businesses to better understand and respond to potential supply chain shocks by publishing updates on specific risks.**
10. **Help businesses and international partners to test resilience to potential shocks and identify vulnerabilities by expanding our existing programme of stress testing.**
  - a. This will include specific work on climate related disruptions and emerging technology supply chains.

<sup>39</sup> DBT, (2020) Competition law exclusion orders relating to coronavirus (COVID-19), <https://www.gov.uk/guidance/competition-law-exclusion-orders-relating-to-coronavirus-covid-19#:~:text=Under%20competition%20law%2C%20the%20Secretary,'public%20policy%20exclusion%20order>.

<sup>40</sup> CMA, (2023), Market resilience: discussion paper, <https://www.gov.uk/government/publications/market-resilience-discussion-paper>

# Priority 4: Ensuring the UK can Adapt to Long-Term Trends

## Summary

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**Long-term trends, such as climate change, increasing incidents of economic coercion and transformative new technologies, are reshaping the global economy, and, with it, global supply chains and the flow of critical imports.** While these trends are less immediate or unpredictable than the economic shocks described above, it is important to be proactive in understanding their likely direct and indirect impacts on global trade and develop effective strategies to respond.

The UK is already working to develop the ability to understand future supply chain challenges and opportunities and plans to adapt to these. This includes measures to map future critical goods and their supply chains, help businesses to diversify their suppliers, foster greater international collaboration, and support domestic manufacturing capability where appropriate. We will continue and expand this work, ensuring that the UK's ability to secure the goods remains resilient long into the future.

## Government action to date

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### Forecasting long-term risks and opportunities

The UK is using its analytical capability to analyse supply chains and forecast potential vulnerabilities within these. This work is informing policy on the development of our strategy on issues ranging from climate adaptation to future technology, ensuring that the resilience of our critical imports and their supply chains is considered in long-term policy making.



**Spotlight: Examples of supply chain resilience at the centre of long-term policy making**

**The National Semiconductor Strategy**

The National Semiconductor Strategy sets out the government’s approach to growing our domestic semiconductor sector, safeguarding the UK against supply chain disruption and protecting our national security.




The issues facing the global semiconductor sector cannot be solved by any one country alone. We have committed to work closely with our international partners, both multilaterally and bilaterally, to encourage greater transparency in the global semiconductor supply chain, improve supply chain resilience, and establish areas of collaboration for mutual advantage.

In delivering this vision, the government has already announced ambitious international partnership agreements with the US and Japan in 2023. These agreements enhance our collaboration on supply chain resilience, as well as enabling our world-class researchers to collaborate on cutting-edge semiconductor technologies and supporting our companies to develop new business relationships.

**Climate Adaptation**

Climate change presents one of the most significant global trends facing the world economy in the years to come. Government recognises the need to increase the resilience of supply chains to climate change. Therefore, we are taking forward work to understand the implications for our supply of critical goods and to develop responses based on both adapting to and mitigating the effects of a changing climate. This includes climate related work to address disruption to the UK’s critical global supply chains. This strategy builds on our commitment in the third National Adaptation Programme, which was published in 2023.<sup>41</sup>

Government is also working to understand how our plan to reach net zero emissions by 2050, will change the demand for critical goods. This follows the commitment in the Net Zero Strategy, to “work with business to grow green industries, supply chains and skills in the UK, and ensure our resilience to international changes in supply chains”. For example, electric vehicles, clean energy and other technologies vital to the transition to net zero will all increase demand for certain goods, such as the lithium used in high-capacity batteries.

<b>Electric Vehicle Batteries</b> 	<b>Electricity Grids</b> 	<b>PV Solar Panels</b> 
The International Energy Agency estimates global battery demand from electric vehicles to grow by nearly 40 times between 2020 and 2040, resulting in cascade effects on overall demand for minerals required for battery production. <sup>42</sup>	To meet global energy and climate goals, the world’s electricity use needs to grow 20% faster in the next decade than it did last decade. This requires expanded grids are critical to enable this growth. <sup>43</sup>	Global production capacity for polysilicon, ingots, wafers, cells and modules would need to more than double by 2030 from today’s levels. <sup>44</sup>

**Table 1: Global demand projections for goods essential for the net zero transition.**

41 DEFRA, (2023), Third National Adaptation Programme, <https://www.gov.uk/government/publications/third-national-adaptation-programme-nap3>  
 42 International Energy Agency, (2021), The role of critical minerals in clean energy transitions, <https://www.iea.org/reports/the-role-of-critical-minerals-in-clean-energy-transitions>  
 43 International Energy Agency, (2023), Electricity grids and secure energy transitions, <https://www.iea.org/reports/electricity-grids-and-secure-energy-transitions>  
 44 International Energy Agency, (2022), Solar PV Global Supply Chains, <https://www.iea.org/reports/solar-pv-global-supply-chains>

Government has already announced considerable support for net zero and green industry sectors, including through the Net Zero Strategy (2021)<sup>45</sup>, British Energy Security Strategy (2022)<sup>46</sup> and Powering Up Britain (2023).<sup>47</sup> Building on this we have now announced a new £960 million Green Industries Growth Accelerator (GIGA) fund focused on expanding manufacturing capacity, removing supply chain bottlenecks in green industries, and attracting the private investment required to reach our net zero goals. Sectors targeted by the fund include carbon capture utilisation and storage (CCUS), hydrogen, offshore wind, electricity networks and nuclear. Additionally, joint financing offered by UKEF and Korea Trade Insurance Corporation of £367 million has secured SeAH Wind's investment in the world's largest wind monopile factory in Redcar creating 750 jobs in Teesside and new opportunities for local supply chains.<sup>48</sup>

### Working with business to improve supplier diversity

Ensuring diversity of supply is also important at the supplier level as well as at the country level. Lack of supplier diversity in critical supply chains presents a risk to resilience. Government has taken mitigating action to boost supplier diversity and ensure long-term resilience.

#### Case Study: 5G Supply Chain Diversification

The 2019 Telecoms Supply Chain Review identified both security and resilience risks in the UK's 5G networks. In response the government introduced robust new telecoms security framework. It has also taken measures to promote a more diverse and resilient 5G equipment market that:

1. **Support the incumbent vendors** to ensure their resilience and ability to supply the market in the near term, while supporting their transition into the emerging market structure.
2. **Promote new approaches to networks that support diverse supply chains** through £250 million of government investment in the development and deployment of open and interoperable networks, such as Open Radio Access Networks (Open RAN).
3. **Build a global coalition** to address this market failure in the telecoms equipment market and associated concentration of supply.
4. **Work with mobile network operators to promote and deploy open and interoperable networks and remove barriers for entry for new suppliers** including through agreeing a timetable for sunseting 2G/3G networks and securing a major joint ambition to deploy Open RAN with all UK operators.
5. **Assess wider supply chain risks** by identifying and seeking to mitigate concentration of supply within the most critical parts of RAN subcomponent supply chains, or in other parts of the telecom's network.
6. **Further strengthening UK capability in telecoms including** through the Future Telecoms Mission<sup>49</sup> and 6G Strategy<sup>50</sup>, backed by the £70 million Future Telecoms UK Research and Innovation Technology Missions Fund, to secure UK leadership in the field.

### Driving innovation in supply chain management

New technologies have the potential for government and business to improve the management of critical supply chains. The UK's Digital Catapult has established the Made Smarter Digital Supply Chain Hub.<sup>51</sup> This is a £25 million national programme funded through Innovate UK working to advance and accelerate the innovation and adoption of digital technology in UK supply chains. Since its inception the programme has supported UK business in developing digital innovations such as through the Critical Minerals Flagship project launched in July 2023. The project's aim is to improve the resilience of UK supply in rare earth elements by developing a digital toolkit that governs and incentivises data sharing in the supply chain.

45 Department for Energy Security and Net Zero, (2021), 'Net Zero Strategy.' <https://www.gov.uk/government/publications/net-zero-strategy>

46 Department for Energy Security and Net Zero, (2022), 'British Energy Security Strategy.' <https://www.gov.uk/government/publications/british-energy-security-strategy/british-energy-security-strategy>

47 Department for Energy Security and Net Zero, (2023) 'Powering Up Britain.' <https://www.gov.uk/government/publications/powering-up-britain>

48 UKEF (2023), Ground-breaking UK Export Finance deal secures huge investment in North-East England. <https://www.gov.uk/government/news/ground-breaking-uk-export-finance-deal-secures-huge-investment-in-north-east-england>

49 DSIT, (2023), Investment in telecoms innovation and R&D. <https://www.gov.uk/government/news/investment-in-telecoms-innovation-and-rd>

50 DSIT, (2023), UK Wireless Infrastructure Strategy, <https://www.gov.uk/government/publications/uk-wireless-infrastructure-strategy/uk-wireless-infrastructure-strategy#:~:text=Our%206G%20strategy%20outlines%20how,competitive%20global%20economy%2C%20securing%20the>

51 Digital Catapult, (2023), Made Smarter Digital Supply Chain Hub, <https://digitalsupplychainhub.uk/>

## International engagement

Joint working with international partners, based on mutual beneficial collaboration, can help ensure long-term supply chain resilience, helping relevant countries work together to navigate global trends. The UK has been at the forefront of activity to galvanise the international community and promote a market-led approach to supply chain resilience aimed strengthening collective economic security.

We have brokered agreements on supply chain resilience, strengthening ties with some of the largest economies in the world, and providing forums for us to increase trade and collaboration. Joint Economic and Trade Committees (JETCOs), Joint Trade and Investment Reviews (JTIRs) and other bilateral dialogues promote deepening of trade relationships, progress resolution of non-tariff market access barriers and provide opportunities to explore options for ensuring critical product supply.

These activities have included: the UK signing an agreement with Canada to co-operate on critical mineral supply chains, including battery minerals<sup>52</sup>, agreeing to a new supply chains dialogue with the Republic of Korea; and working with Australia to deliver the UK-Australia Supply Chain Resilience Initiative.<sup>53</sup> Through this joint Initiative we have worked to develop and improve public sector approaches to managing critical supply chain risks with some partners in Asia/Indo-Pacific. The aim has been to support countries to tackle supply chain vulnerabilities in an important trading region and to share examples of how a diversification-first and business-led approach to resilience can yield trading benefits for all trading nations.’

Through the IR refresh, we are taking action to strengthen supply chain resilience of critical goods and raw materials, including medical supplies as one of nine areas for action to deliver the government’s ambitions on the Indo-Pacific. We are committed to deepening engagement and partnerships with our international partners including the EU, US and the Indo-Pacific region to address shared challenges in critical supply chains. This includes discouraging trade restrictive measures; championing free and fair trade; and supporting relevant commitments in the IR.

### Spotlight: UK-US Atlantic Declaration

In June 2023 the UK-US Atlantic Declaration was announced. This provides a framework for a twenty-first century US-UK economic partnership ensuring concrete and coordinated actions across five pillars including economic security, technology protection toolkits and supply chains.

As part of the Declaration, the UK and US have announced the immediate launch of negotiations on a Critical Minerals Agreement, supporting a strategically important sector of the UK economy and bolstering vital supply chains. The actions set out in the Declaration will help reduce our vulnerabilities across critical technology supply chains and those required to build the clean energy economy of the future.

The UK continues to work ever more closely with allies and partners in multilateral fora to promote and defend stable global trading rules which, builds resilience in the world’s most critical collective supply chains, supports low and middle-income countries and fosters predictability for businesses. We have continued this work through the G7, G20, and the World Trade Organization (WTO). Most recently, in the UK’s chairing of the 2023 OECD Ministerial Council, we championed and facilitated discussions which explored opportunities for member state efforts to secure a resilient collective future.

We have similarly championed the role of the WTO as a fundamental global tool to help identify barriers to supply chain resilience and share information about trade measures to build collective understanding of mitigation strategies and approaches. The UK has worked closely with our G20 partners to promote a business-centred approach to resilience, and supported the concept of visualisation tools for global value chains, mapping critical trade flows and taking a market-led approach which provides enterprises, including MSMEs and women-led small businesses, the tools to integrate into global trade and contribute to sustainable and resilient supply chains.

<sup>52</sup> DIT, (2023), UK and Canada sign agreement to boost green tech supply chains, <https://www.gov.uk/government/news/uk-and-canada-sign-agreement-to-boost-green-tech-supply-chains>

<sup>53</sup> DBT (2022), UK-Australia Supply Chain Resilience Initiative, <https://www.gov.uk/government/publications/uk-australia-supply-chain-resilience-initiative>



### Spotlight: Championing resilience at the G7

Since its 2021 G7 Presidency, the UK has championed collaboration on supply chains and economic resilience within the group. The G7 have now agreed concrete objectives and recommended actions for practical cooperation for the first time.

Continued engagement through the G7 has enabled members to identify and discuss economic security issues and supply chain vulnerabilities and commit to activities. These include supply chain stress testing – a resilience building activity refined and conducted by the UK both domestically and internationally – and the launch of the Coordination Platform to assess, prepare, deter and respond to Economic Coercion. The first standalone statement on economic security and resilience at the Hiroshima Summit in May 2023 cemented this joint resolve.

Building on the joint supply chain resilience principles developed through the G7 Trade Track, leaders unanimously committed to enhance resilient supply chains through joint initiatives and partnerships around the world, especially for critical goods such as critical minerals, semiconductors and batteries. Finance Ministers have additionally launched the “Partnership for RISE (Resilient and Inclusive Supply Chain Enhancement)” in collaboration with the Central Bank Governors. RISE aims to support low – and middle-income countries in playing bigger roles in the midstream and downstream in supply chains of clean energy products.

### Using trade policy to support diversification

As the global economy evolves, the ability for UK firms to source critical goods from a diverse range of suppliers is likely to be essential to ensure resilience. Strong trading relationships are crucial for ensuring a consistent and predictable flow of goods across borders. During the COVID-19 pandemic global trade governed by trade agreements declined significantly less than trade occurring under no-agreement.<sup>54</sup> The UK has one of the most extensive networks of trade agreements in the world.

Our comprehensive negotiation programme has already secured agreements with a wide range of countries covering many that supply goods that are in scarce supply. Furthermore, the UK’s FTA programme continues at an ambitious pace and the new agreements we hope to secure with the Gulf Corporation Council, India, and Greenland, have the potential to allow a further diversification of supplies of the goods we rely on overseas markets for.

The UK has also taken steps to enhance engagement and seize opportunities to bolster resilience with developing countries, through diversifying the sources of supply for our critical imports. The UK has put in place some of the simplest and most generous trading arrangements, including duty-free or nearly duty-free trade in goods, with over 90 developing countries, through our Economic Partnership Agreements and the Developing Countries Trading Scheme.<sup>55</sup>

### Supporting domestic capacity

A changing global economy, and rapid advances in new technologies, may offer new opportunities for the UK to build our capacity to manufacture critical goods domestically. It is neither desirable nor feasible for domestic production to replace imports for the majority of critical goods, not least as the UK industry will often still be reliant on raw materials only available overseas. However, in some instances, where there is economic rationale to do so, building UK capacity in relevant sectors can enable greater diversification and enhance overall supply chain resilience. For example, to diversify supply, the government has since 2022 delivered £416 million of public/private investment into the life sciences sector, to support economic growth, health resilience, innovation and sustainability.<sup>56</sup>

The UK is using a range of levers to increase domestic capacity where it is appropriate to do so. At Autumn Statement the Chancellor announced £4.5 billion of funding to unlock investment in strategic manufacturing sectors – automotive, aerospace, life sciences and clean energy – which are developing cutting-edge technology and driving our transition to net zero. This will be made available from 2025 for five years, providing business with longer-term certainty.<sup>57</sup> This package builds on recent investment wins, such as the £4 billion gigafactory, and the £600 million invested to build the next generation of electric Minis, and ensures that the government can continue to help create jobs, grow the economy, and secure the future of great British manufacturing.

54 Alessandro Nicita and Mesut Saygili (2021) Trade Agreements and Trade Resilience During COVID-19 Pandemic <https://unctad.org/publication/trade-agreements-and-trade-resilience-during-covid-19-pandemic>

55 DBT, (2023), Trading with developing nations, [https://www.gov.uk/government/collections/trading-with-developing-nations#:~:text=The%20Developing%20Countries%20Trading%20Scheme%20\(%20DC%20S%20\)%20entered%20into%20force%20on,order%20to%20support%20their%20development.](https://www.gov.uk/government/collections/trading-with-developing-nations#:~:text=The%20Developing%20Countries%20Trading%20Scheme%20(%20DC%20S%20)%20entered%20into%20force%20on,order%20to%20support%20their%20development.)

56 DSIT, DHSC, Office for Life Sciences, (2023), £33 million joint investment to boost skills, support jobs and bolster green manufacturing in UK life sciences industry, <https://www.gov.uk/government/news/33-million-joint-investment-to-boost-skills-support-jobs-and-bolster-green-manufacturing-in-uk-life-sciences-industry>

57 HM Treasury (2023), Billions of investments for British manufacturing to boost economic growth. <https://www.gov.uk/government/news/billions-of-investment-for-british-manufacturing-to-boost-economic-growth>

The government's full Advanced Manufacturing Plan builds on these measures, setting out how the government will invest in the future of manufacturing; support resilient global supply chains; and address barriers to investment. Alongside this, we have launched the UK's Battery Strategy which sets out how we will achieve a globally competitive battery supply chain by 2030. Our ambitious but targeted support is backed by measures in the Autumn Statement that enhance the UK's competitive business environment - including permanent full expensing.

Inward investment can also play an important role in increasing domestic production and thus reducing reliance on concentrated imports. Access to finance for inward investment to support critical supply chains is available through both the UKIB and UKEF, where a credible plan exists for future exports from the UK. UKEF's Invest-to-Export Export Development Guarantee provides partial guarantees covering up to 80% of the risk to lenders for a maximum repayment period of up to 5 years, or up to 10 years if the loan is to develop clean growth exports such as renewable energy.

The UK also supports companies in setting up in the UK. The [Investment Support Directory](#) provides a database of companies with the skills and experience - including supply chain expertise. While investment can support resilience government has taken steps to ensure foreign investments do not create security concerns or create new supply chain risks. The National Security and Investment Act 2021 allows the government to scrutinise and, where necessary and proportionate, intervene in investment into the UK economy to protect national security. This could include where there are national security concerns arising from resilience or lack of diversity of supply chains or critical dependencies. The government will not hesitate to use its powers to protect national security.

#### **Case study: Critical goods for the Auto industry**

Building domestic capacity and attracting investment into the UK is essential for scaling production of EVs. Domestic manufacturers will rely on new supply chains to access critical inputs. Bolstering the resilience of these supply chains is essential to harness the growth potential of electric transportation and safeguard the jobs of around 167,000 people employed in vehicle manufacturing in the UK.<sup>58</sup>

Supply constraints are particularly significant for batteries. This includes both imports of manufactured components (like battery packs), as well as the imports of critical minerals needed to produce EV batteries in the UK. We are taking action to ensure a diversified and resilient supply, by:

- Publishing the first UK Battery Strategy. The strategy sets out our vision, approach and commitments for the UK to achieve a globally competitive battery supply chain by 2030 and to be a world leader in sustainable design, manufacture, and use of batteries.
- Supporting new investment into UK-based gigafactories – Tata's £4 billion investment to build one of Europe's largest gigafactories. Together with the Envision gigafactory in Sunderland, these two factories have the potential to meet half of the forecasted demand for EV batteries by 2035.
- Boosting production of critical minerals to increase domestic supplies of battery inputs. For example, the Automotive Transformation Fund (ATF), and Innovate UK have helped to fund work on British Lithium's pilot plant in Cornwall.<sup>59</sup> Separately, UK Infrastructure Bank's £24 million equity investment to support Cornish Lithium will also help finance the creation of a domestic supply of lithium, essential to scaling up battery production.
- Delivering the Critical Minerals Refresh<sup>60</sup> to refresh our delivery approach in line with a fast changing and increasingly competitive international policy landscape on critical minerals.

<sup>58</sup> ONS, (2021), Automotive Industry by Employment Size,

<https://www.ons.gov.uk/businessindustryandtrade/business/activitysizeandlocation/adhocs/13740automotiveindustrybyemploymentsize>

<sup>59</sup> Imerys British Lithium, (2023), Imerys British Lithium: on track to become Europe's first commercial battery-grade lithium carbonate producer, <https://britishlithium.co.uk/joint-venture/>

<sup>60</sup> DBT, (2023), Critical Minerals Refresh: Delivering Resilience in a Changing Global Environment, <https://www.gov.uk/government/publications/uk-critical-mineral-strategy/critical-minerals-refresh-delivering-resilience-in-a-changing-global-environment-published-13-march-2023>

### Innovation, recycling and reuse

As part of our support for UK manufacturing, the government has provided specific funding and support to increase the UK's capacity to recycle or reuse critical goods, through the 'circular economy', and to use innovative new technologies to reduce dependencies on relevant imports.

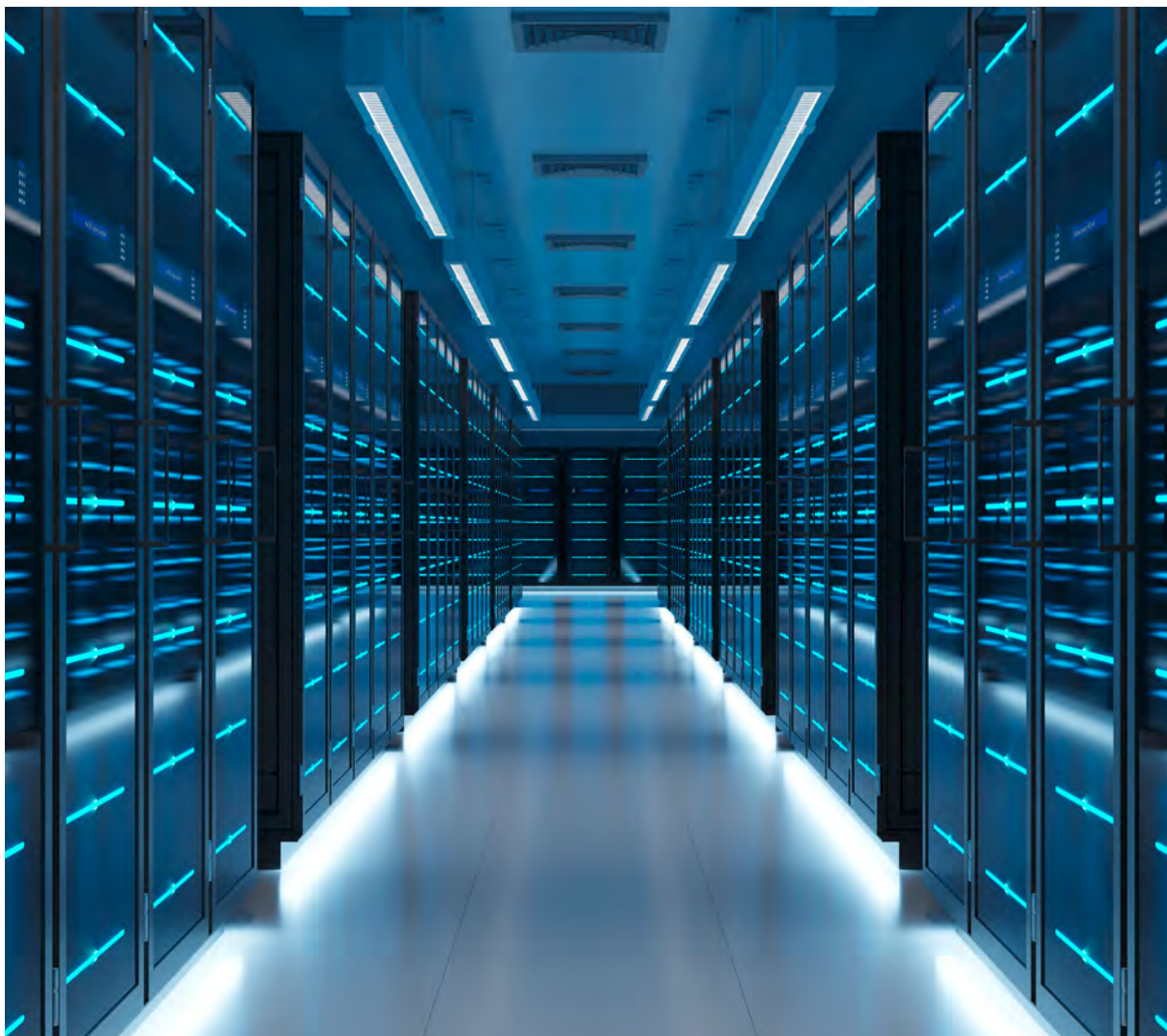
To date this has included: supporting the Faraday Institution with £78 million in funding for electrochemical energy storage research; and launching the Life Science Innovative Manufacturing Fund, providing £60 million in funding to support the UK's ambition to grow the UK life sciences sector and to improve the UK's ability to respond to major shocks or trading constraints.

UK Research and Innovation's (UKRI) "Materials for Manufacturing 2050 Vision" sets out a range of steps to promote research and innovation for manufacturing supply chain resilience by 2050. Action is already underway with specific projects focussed on developing the circular economy of critical goods.

#### Spotlight: UKRI support for supply chain innovation

UKRI are pursuing several projects dedicated to improving supply chain transparency, including:

- Development of a new supply chain financing model utilising blockchain technology.
- The UK National Interdisciplinary Circulatory Exploration Programme (NICER), which deploys a £30 million UKRI investment to map material flows into the UK to investigate how circulatory enhances resilience.
- A £15 million Circular Critical Materials Supply Chains (CLIMATES) fund to focus on making the UK's Rare Earth Element supply chains more resilient and boost the circular economy.
- Jointly funding £7 million competition to explore resilience in the battery supply chain lifecycle alongside the Canadian and United States governments.



## Next steps

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By focussing on pursuing prevention rather than cure we will expand our work to build resilience at the core of our supply chains. We will:

- 11. Ensure the UK's supply of critical goods is protected from the impacts of climate change by launching a programme of work to explore relevant risks and develop policy measures to respond.**
  - a. This will include, assessing the future impact of climate change on our critical supply chains, developing relevant policy solutions and identifying best practice to approaching climate risks in collaboration with businesses, academia and international partners.
- 12. Build resilience into the supply chains of the future by working to identify and test the resilience of the goods and supply chains that will support critical and emerging technologies, including those essential to the net zero transition.**
- 13. Continue to put the UK at the forefront of international engagement on supply chain resilience, building strong multilateral and bilateral partnerships to solve evolving challenges and seize opportunities to improve global resilience. Through these partnerships we will:**
  - a. pursue dialogues and agreements to signal joint intent and mutual interest in tackling the most pressing supply chain challenges;
  - b. explore further opportunities for partnership with both likeminded states and emerging and developing markets to protect our shared higher interest in an open and stable international order where it facilitates supply chain resilience; and
  - c. explore further opportunities for joint work on critical imports supply chain methodologies, analysis, data sharing and risk assessment to deepen our joint understanding and ability to respond to supply chain threats and hazards together.
- 14. Support developing countries to harness their potential and grow exports to the UK, including of critical goods.**
  - a. We will seek to increase developing country exports of critical goods to the UK through strategic prioritisation and greater alignment of our trade and development policies in order to strengthen their economic development and diversify our access to critical commodities and components.
- 15. Ensure that our approach to international trade agreements helps to strengthen supply chain resilience. We will:**
  - a. use the full extent of trade policy tools available to us, including FTAs and other binding trade agreements, to promote the diversification of critical goods; and
  - b. support UK businesses to utilise FTAs to diversify their supply chains, providing them with the information needed to make informed business decisions.
- 16. Explore opportunities to develop domestic capability to produce critical goods and reduce our reliance on concentrated imports. We will:**
  - a. explore the use of DBT's investment promotion offer to support supply chain resilience priorities; and
  - b. assess potential options to support, and increase investment in, the development of manufacturing, recycling and innovation capabilities for critical goods

# Priority 5: Expanding Collaboration Between Government, Business and Academia

## Summary

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**The measures set out through this plan will only be impactful if they are developed and delivered in close partnership with business.** While government bears responsibility for ensuring the UK's resilience and security, and for supporting growth across the economy, business owns the vast majority of the UK critical supply chains.

We want to ensure we have ways to bring government and business together to collaborate on issues impacting critical imports, sharing insights and jointly designing and implementing solutions. It is also important that we exploit the wealth of supply chain expertise that sits in the UK's world-leading universities. The UK is home to several world-leading institutions specialising in supply chain management, such as Cranfield Business school which houses Europe's largest specialist logistics and supply chain management faculty and the University of Sussex, home to the UK Trade Policy Observatory, a partnership with Chatham House which provides independent and objective analysis of proposals for UK trade policy.

Government is already working closely with business on a wide range of supply chain issues. We have also collaborated with industry to produce resources to support businesses to improve their supply chain resilience. However, as government sets out our strategy for the next phase of work on critical imports and supply chains, we will formalise and extend these arrangements including through the establishment of a new Critical Imports Council.

## Government action to date

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### Convening businesses and building joint understanding

Businesses can improve resilience through establishing risk management strategies based on past risks and shocks, to cope with future scenarios. Businesses are best positioned to determine the acceptable level of risk and how to ensure their supply chains are protected from vulnerabilities. Government can support business risk management strategies by convening businesses and relevant stakeholders to forge a joint understanding of risks and solutions.

Lead government departments are actively working with UK businesses across critical sectors on supply chain resilience issues. This is supporting the sharing of knowledge and expertise and ensuring that academia and business can assist and guide the implementation of government policy.

### Spotlight: Examples of government-business engagement on supply chains

The Task and Finish Group on Industry Resilience for Critical Minerals convened experts and industry leaders to investigate critical mineral dependencies across UK industry sectors. Its report promoting resilience and diversity in supply chains was published in December 2023 alongside a framework for monitoring and mitigating critical mineral supply risk across UK industry sectors. Additionally, the Critical Minerals Expert Committee (CMEC) provides high quality, independent advice to the government on certain minerals and metals alongside suitable actions to secure sustainable sources of critical minerals. Leveraging the UK's extensive academic research expertise, the CMEC advised on the development of the UK's Critical Minerals Strategy as well as the subsequent refreshed delivery approach.

Through the Defence Supplies Forum, the MOD and industry partners have worked collaboratively to analyse potential vulnerabilities in the supply-chains for components and raw materials that are critical to defence. The pilot phase of the project has focused on: semiconductors; battery technology; and energetics.

The Telecoms Supply Chain Diversification Advisory Council advises the government on telecoms diversification and implementation of the 5G Supply Chain Diversification Strategy. It provides a forum for the exchange of ideas between business, academia and government and space to share relevant research, and updates from the telecoms sector.

### Providing guidance to businesses

The government has published a range of resources for business to support businesses to improve the resilience of their supply chains. In 2022, government published a UK Supply Chains Resilience Framework. This highlights five areas businesses can explore to reduce dependencies in supply chains.<sup>61</sup> The framework is designed to mitigate supply side risks in supply chains and to support greater long-term resilience, as well as to save organisations' time and resource. More detailed guidance for businesses is also available.

The 5 areas are as follows:

- diversification – identify alternate source of supply to create flexibility in the supply chain
- international partnerships – work with international partners to identify common challenges, bring down barriers to trade and strengthen the resilience of global supply chains and systems
- stockpiling and surge capacity – identify whether it may be beneficial to hold stocks and strategic reserves of components or goods and consider whether surge capacity can be included in contracts
- onshoring – identify whether increasing or expanding domestic capacity might be helpful in reducing risks
- demand management – identify whether it may be beneficial to manage the demand for components or goods, considering substitutes and alternatives, innovation, and circularity

The framework also sets out the importance of data and visibility in managing supply chains as well as noting the range of policy interventions which may be needed to take forward any of the areas.

In addition, the National Protective Security Agency (NPSA), and DBT, working with the Chartered Institute of Procurement and Supply published the Safeguarding Supply and Protected Procurement guidance for businesses on how to embed resilience and security into their working practices.<sup>62</sup> To support and promote better environmental, social and governance (ESG) standards, the government has also published advice on tackling human rights abuses risks within businesses. This supports businesses to comply with the provisions set out in the Modern Slavery Act 2015.<sup>63</sup>

The Foreign, Commonwealth and Development Office (FCDO) Overseas Business Risk Guides provide information to businesses and individuals looking to trade or conduct business in countries around the world.<sup>64</sup> This service supports UK companies to make informed decisions on their overseas business operations.

<sup>61</sup> DIT, (2022), DIT supply chains resilience framework, <https://www.gov.uk/government/publications/supply-chain-resilience/dit-supply-chains-resilience-framework>

<sup>62</sup> NPSA, (2023), Supply Chain Guidance, [www.npsa.gov.uk/supply-chain](http://www.npsa.gov.uk/supply-chain)

<sup>63</sup> Home Office, (2021), Transparency in supply chains: a practical guide, <https://www.gov.uk/government/publications/transparency-in-supply-chains-a-practical-guide/transparency-in-supply-chains-a-practical-guide>

<sup>64</sup> <https://www.gov.uk/government/collections/overseas-business-risk>

Finally, the UK's National Cyber Security Centre published supply chain security guidance, to help establish effective control and oversight of supply chains.<sup>65</sup> This comes in the wake of a series of high profile, damaging attacks on businesses that has shown that attackers can exploit vulnerabilities in supply chain security. This trend is only increasing. Supply chain attacks can cause far-reaching and costly disruption, yet government data shows that just over one in ten businesses (13%) review the risks posed by their immediate suppliers, and the proportion for the wider supply chain is just 7%.<sup>66</sup>

## Next steps

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To achieve the vision set out in this strategy, further engagement with business and academia is required. We will:

- 17. Forge deeper relationships and ensure greater collaboration with business by launching a new Critical Imports Council bringing together government and businesses in critical and growth sectors to develop collective understanding of priority issues.**
- 18. Build capability across critical and growth sectors through developing business guidance on critical imports and supply chain resilience. This will include:**
  - a. development of toolkits, guidance and information campaigns, with partner organisations, on the importance of critical imports, supply chain visibility and risk management.



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<sup>65</sup> NCSC, (2021), 10 Steps to Cyber Security, <https://www.ncsc.gov.uk/collection/10-steps>

<sup>66</sup> DCMS, (2022), Cyber Security Breaches Survey 2022,

<https://www.gov.uk/government/statistics/cyber-security-breaches-survey-2022/cyber-security-breaches-survey-2022>

# Next Steps: Delivering the Strategy and Measuring Our Success

Government is committed to ensuring that we make clear, tangible progress to deliver the plans set out in this strategy. As such, we will review and where necessary refresh relevant structures, to ensure that this is a coordinated, focused approach to delivery across government led by DBT working closely with the Cabinet Office and other relevant departments. We will use our analytical capabilities to develop appropriate metrics to track the delivery of the strategy and assess our progress in supporting the resilience of the UK's critical imports and their supply chains.

We will ensure that the Critical Imports Council supports and informs the delivery of the measures set out in the strategy through external, expert challenge. Government also recognises that the opportunities and challenges facing global supply chains are likely to continue to evolve. As such, this strategy is intended as a foundation for our ongoing work to increase resilience, upon which we will continue to build. We commit to publishing an update on progress, and a statement on our next steps in due course.





# Annex A: Summary of actions

	Actions	Lead Department(s)
1	Entrench the UK government's position as a world leader in supply chain analysis.	DBT
2	Share more government analysis of critical supply chains with business, where appropriate.	DBT
3	Employ cutting-edge techniques to better understand how our critical supply chains will evolve in the future, working with the Government Office for Science to map future supply chains scenarios and using the outputs to inform future policy development.	Government Office for Science, DBT
4	Ensure businesses operating in the UK can import goods as easily and efficiently as possible by developing a new programme of work to identify, review and where feasible remove import barriers into the UK and overseas.	DBT
5	Explore UK business need for support in identifying new suppliers, and options to help companies make connections in markets, including use of the government's overseas network.	DBT
6	Ensure that businesses can access available government-backed funding and financing for importing critical goods by co-designing and delivering, with public finance institutions, a communications programme to ensure UK businesses are aware of the support on offer.	DBT
7	Explore the case for further supply chain financing interventions for the UK's most critical supply chains.	DBT, DESNZ
8	Ensure that the government has the systems and frameworks needed to respond, and support business through, future supply chain shocks.	DBT, CO
9	Support businesses to better understand and respond to potential supply chain shocks by publishing updates on specific risks.	DBT, CO
10	Help businesses and international partners to test resilience to potential shocks and identify vulnerabilities by expanding our existing programme of stress testing.	DBT
11	Ensure the UK's supply of critical goods is protected from the impacts of climate change by launching a programme of work to explore relevant risks and develop policy measures to respond.	DBT, DEFRA, DESNZ
12	Build resilience into the supply chains of the future by working to identify and test the resilience of the goods and supply chains that will support critical and emerging technologies, including those essential to the net zero transition.	DBT, DEFRA, DSIT, DESNZ
13	Continue to put the UK at the forefront of international engagement on supply chain resilience, building strong multilateral and bilateral partnerships to solve evolving challenges and seize opportunities to improve global resilience.	DBT
14	Support developing countries to harness their potential and grow exports to the UK, including of critical goods.	FCDO, DBT
15	Ensure that our approach to international trade agreements helps to strengthen supply chain resilience.	DBT
16	Explore opportunities to develop domestic capability to produce critical goods and reduce our reliance on concentrated imports.	DBT, DEFRA (recycling policy lead)
17	Launch a new Critical Imports Council bringing together government and businesses in critical and growth sectors to develop collective understanding of priority issues.	DBT
18	Build capability across critical and growth sectors through developing businesses guidance on critical imports and supply chain resilience.	DBT

# Annex B: Acronyms

AI – Artificial Intelligence

BBB - British Business Bank

CCUS – Carbon Capture Utilisation and Storage

CLIMATES – Circular Critical Materials Supply Chains

CMA – Competition and Markets Authority

CNI – Critical National Infrastructure

CO – Cabinet Office

COBR – Cabinet Office Briefing Rooms

DBT – Department for Business and Trade

DEFRA – Department for Environment, Food and Rural Affairs

DESNZ – Department for Energy Security and Net Zero

DfE – Department for Education

DfT – Department for Transport

DHSC – Department for Health and Social Care

DIT – Department for International Trade

DSIT – Department for Science, Innovation and Technology

ECA – Export Credit Agency

EII – Energy Intensive Industry

ESG – Environmental, Social and Governance

EU – European Union

EV – Electric Vehicle

FCDO – Foreign, Commonwealth and Development Office

FTA – Free Trade Agreement

GVA – Gross Value Added

HGV – Heavy Goods Vehicle

HMG – His Majesty's Government

IR – Integrated Review

JETCO – Joint Economic and Trade Committee

JTIR – Joint Trade and Investment Review

MOD – Ministry of Defence

MRA – Mutual Recognition Agreement

NHS – National Health Service

NICER – National Interdisciplinary Circulatory Exploration Programme

NPSA – National Protective Security Authority

ODI – Overseas Direct Investment

OECD – Organisation for Economic Co-operation and Development

R&D – Research and Development

RoK – Republic of Korea

SME – Small and Medium-Sized Enterprise

UKEF – UK Export Finance

UKIB - UK Infrastructure Bank

UKRI – UK Research and Innovation

UNCTAD – United Nations Conference on Trade and Development

WTO – World Trade Organisation





# Department for Business & Trade

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## Department for Business and Trade

We are the UK's department for economic growth. We support businesses to invest, grow and export, creating jobs and opportunities across the country.

### We are responsible for:

- Redrawing our rules to ensure businesses thrive, markets are competitive and consumers are protected.
- Securing investment from UK and international businesses.
- Advising, supporting, and promoting British businesses to grow and export.
- Opening up new markets for businesses by removing barriers and striking trade deals.
- Promoting free trade, economic security and resilient supply chains.

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