



Covid-19: International Manufacturing Policy Responses

A preliminary review of international approaches to supporting the manufacturing supply chains and workforce

Report for the Advanced Manufacturing Directorate of the UK Department for Business, Energy and Industrial Strategy (BEIS)



Covid-19: International Manufacturing Policy Responses

This report offers a preliminary review of international policy responses aimed at mitigating the potential impacts of Covid-19 on manufacturing. **The report should be seen as a snapshot of the current international policy landscape, which is, however, likely to change rapidly as governments implement new measures.**

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Aims of the review

To inform UK policy responses aimed at addressing the adverse impacts of Covid-19 on manufacturing by:

- Reviewing emerging international policy approaches in selected countries to support the manufacturing supply chains and workforce following the global Covid-19 outbreak.
- Characterising the main focus areas identified by national governments, including mobilisation of the manufacturing base to provide critical supplies, workforce retention and emergency financial support.
- Providing insights into practical implementation mechanisms.

Limitations:

- This review provides a snapshot of an international policy landscape that is changing rapidly. **Caution is needed when interpreting its findings and drawing policy implications.**
- The review covers a **selection of eleven countries** (plus the European Union), which are at different stages of their response to the Covid-19 epidemic. While efforts have been made to identify the most relevant policy responses in these countries, the list of measures presented here is not exhaustive.
- While efforts have been made to **identify policy responses, particularly focused on manufacturing industries**, many measures that are reviewed are cross-sectoral. However, emphasis has been placed on the manufacturing implications of such measures.
- The focus of the review has been on **central/national government initiatives**, in particular those established by economy and industry ministries. A detailed review of measures implemented by regional government and individual government agencies is outside the scope of the review.
- It is important to note that the review includes a combination of **newly established measures, as well as previously existing ones** that have been expanded and/or repurposed.
- The review largely relies on **official documents published in English**. Where necessary, documentation from non-English speaking countries has been translated using web tools.



Executive Summary



Three key focus areas have been identified in the manufacturing policy responses of the countries reviewed

International manufacturing policy responses: key focus areas

1 Ensuring continuing operation of manufacturing businesses

- Financial and fiscal support (loans, guarantees, subsidies, insurance, tax breaks, etc.)
 - Cash flow to help firm survival
 - Workforce retention and wage payments
- Ensuring continuing supply of production inputs / addressing supply chain disruptions
- Designation of critical workers and sectors

2 Mobilising manufacturing towards critical supplies

- Repurposing manufacturing towards critical supplies
- Industrial consortia to produce critical supplies
- Designation of critical medical supplies
- Relaxation of regulations
- Export controls and import facilitation
- Direct government involvement in production and distribution

3 Supporting post-crisis manufacturing growth

- Guidance for business resumption, including workers' health and safety
- Support to identify future markets and sale channels
- Initiatives aimed at increasing manufacturing productivity

Range of delivery mechanisms:

Information and advice

Economic instruments

Regulation and legislation

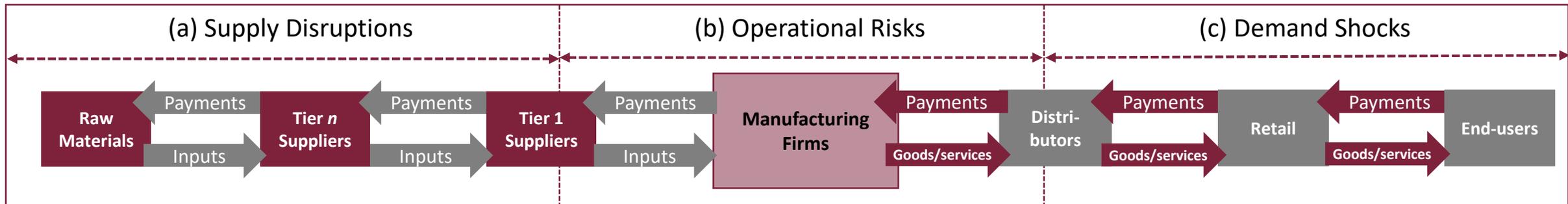
State-owned enterprises and sovereign wealth funds

Voluntary industry agreements

← New mechanisms and instruments +
Repurposing/expansion of existing programmes →

Covid-19 is driving supply disruptions, operational risks and demand shocks across manufacturing

Macro-risks driven by Covid-19: For example, economic and financial instability, volatile currency exchange rates, price instability, export/import restrictions, travel disruptions and business closures.



Overview of potential manufacturing disruptions

- Disruption of the supply of raw materials, components and technologies;
- Large inventory fluctuations and delays in deliveries;
- Interruption of basic inputs such as electricity and water;
- Price escalation in highly demanded inputs; price drops in inputs with plummeting demand;
- Increasing cargo transportation fees;
- Inbound quality issues in production inputs;
- Supplier opportunism.

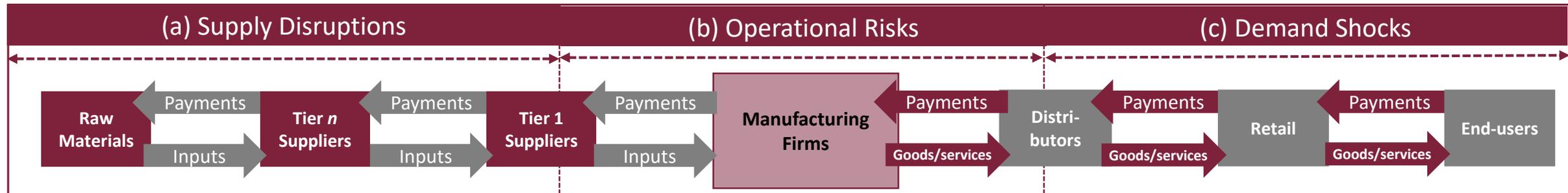
- Cash flow and liquidity issues; inability to pay salaries and suppliers;
- Forced closure of production facilities;
- Restricted mobility of workforce;
- Risks to workforce health and safety;
- Inadequate staffing, leading to reduced processing capability;
- Restricted access to specialist services to attend machinery breakdowns;
- Postponed investment due to market uncertainty.

- Sharp increase in demand for medical equipment;
- Rise in demand for processed food, IT equipment and computer systems;
- Plummeting demand for consumer goods;
- Delays in transportation;
- Demand competition between sectors/countries;
- Reduced consumer spending power.

Adapted from: Manuj, I. & Mentzer, J.T. (2008). Global Supply Chain Risk Management. *Journal of Business Logistics*, Vol. 29, No. 1.

Covid-19 is driving supply disruptions, operational risks and demand shocks across manufacturing

Macro-risks driven by Covid-19: For example, economic and financial instability, volatile currency exchange rates, price instability, export/import restrictions, travel disruptions and business closures.



International examples:

Korea – Automotive production fell 26.4% in February [1].
US – In early March 75% of firms reported supply chain disruptions due to transportation restrictions [2].
US – Over 60% of firms experiencing delays in orders from China [2].
US – Disruptions reported in various links of the automotive supply chain [4].
South Korea – Over 50% of SMEs facing delivery disruptions [3].
US – Cargo rates are spiking, and increases are as high as 300% [4].
China – Automotive production fell 80% in February [10].
India – Over 60% of the businesses indicate that their supply chains have been affected [11].

China – A third of SMEs reported having only enough cash to cover their expenses for a month [6].
UK – In early March 69% of SMEs reported significant cash-flow problems [6].
China – Value added of large manufacturing firms dropped by 13.5% in Jan–Feb [5].
South Korea – ~6% of SMEs reported operation disruption due to employees' absence [3].
China – 384 production sites have stopped in Wuhan since January [9].
India – Almost 80% of the business report a decrease in cash flow [11].

China – The production of masks grew by 127.5% in Jan–Feb [5].
China – Production of smart watches grew by 119.7% in Jan–Feb [5].
China – Production of frozen meat and instant noodles grew by 13.5% and 11.4% in Jan–Feb [5].
China – Automobile sales fell by 79% in February [10].
Canada – Half of the firms have reported a drop in sales [6].
South Korea – ICT exports increased (8.5%) in February for the first time in 16 months [1].
Korea – 40% of SMEs have faced disruption in sales activities due to reduced opportunities to visit China [3].
Japan – Consumption expenditure decreased in January by 3.6% [7].
Japan – Automobile sales dropped by 10.3% in February [8].

Source: [1] Ministry of Trade, Industry and Energy; [2] Institute for Supply Management; [3] Korea Federation of Small and Medium Business; [4] SupplyChain247; [5] National Bureau of Statistics of China; [6] OECD. Covid-19: SME Policy Responses; [7] Statistics Bureau of Japan; [8] Japan Automobile Manufacturers Association; [9] Bloomberg; [10] Ministry of Industry and Information Technology of the People's Republic of China; [11] Federation of Indian Chambers of Commerce & Industry.

International manufacturing policy responses at a glance

Note: not exhaustive

	Ensuring continuing operation of manufacturing businesses	Mobilising manufacturing towards critical supplies	Supporting post-crisis manufacturing growth
 Australia	<ul style="list-style-type: none"> Financial incentives for A\$17.6bn (~£8.8bn), including: <ul style="list-style-type: none"> SME support for salary payments (50% covered by the government over six months). SME Guarantee Scheme (~£20bn). Creation of the Coronavirus Business Liaison Unit. Advice for business continuity. Deferral of energy bills to avoid disconnection, in collaboration with energy business. 	<ul style="list-style-type: none"> Mapping domestic production capability of medical personal protective equipment. 	<ul style="list-style-type: none"> Subsidy of 50% of apprentice wages for up to nine months. Time-limited 15-month incentive to invest by accelerating depreciation deductions. Increased threshold (~£75k) for tax deductions for capital investment.
 China	<ul style="list-style-type: none"> Working groups to restore the automotive supply chain. Financial/fiscal incentives to freight and transportation firms. Promotion of contactless delivery services. Increased use of online procedures. Reductions and deferment of social security payments. Deferment of SME loan repayments. Reduction of energy cost (5% in electricity). 	<ul style="list-style-type: none"> Key companies tasked with prevention and control. Repurposing state-owned firms to supply medical materials. Funding for patent and trademark applications related to technologies for the prevention and control of the epidemic. Information platform for high-tech companies on technologies for epidemic prevention and control. Tax and import duty reductions. Loans and subsidies for firms producing critical supplies. 	<ul style="list-style-type: none"> Guidelines for work resumption, including employee health monitoring and workplace safety. Supporting the development of new technologies and business models and the adoption of digital technologies. Free and subsidised online vocational training. Reduction of cargo port fees by 20%. Simplification of logistics procedures.
 EU	<ul style="list-style-type: none"> Ensuring the functioning of the supply chains reliant on land-based transport. €8bn of working capital financing and support to at least 100,000 SMEs through the <i>European Investment Fund</i>. €37bn for the Coronavirus Response Investment Initiative. 	<ul style="list-style-type: none"> Accelerated joint procurement procedure with 26 Member States to ensure the supply of medical equipment across Europe. Structural funds can be directed to the supply of medical equipment (i.e. Coronavirus Response Investment Initiative). 	
 France	<ul style="list-style-type: none"> Deferral of income tax and social security payments. Suspension of rents, water, gas and electricity bills. €300bn for loan guarantees. €1,500-grants for all small businesses and the self-employed. Credit mediation (support to negotiate bank credits). Simplified unemployment system. Suspension of penalties for delays in government contracts. 		<ul style="list-style-type: none"> Community initiatives, such as the one by La France Tech Toulouse, have been launched to highlight how start-ups can play a role in combatting the crisis.

International manufacturing policy responses at a glance

Note: not exhaustive

	Ensuring continuing operation of manufacturing businesses	Mobilising manufacturing towards critical supplies	Supporting post-crisis manufacturing growth
 Germany	<ul style="list-style-type: none"> Short-term work benefits. €50bn for non-refundable grants for firms and the self-employed (up to 1 billion euros per group of firms). Tax deferrals. Export credit guarantees. 	<ul style="list-style-type: none"> Emergency public procurement of critical resources (e.g. medical supplies, IT services). 	
 India	<ul style="list-style-type: none"> Financial regulatory package including: three-month deferral of loan payments and easing of working capital financing. Loans for SMEs of up to Rs. 50 lakh (~£50k) at 5% interest rate within 48 hours. Business Continuity Planning Toolkit and Webinar to contribute to SMEs' resilience. Fiscal support measures, including: eliminating penalty fees on late payments of taxes, extending payment deadlines and relaxation of fiscal procedures. 	<ul style="list-style-type: none"> Digital platform to identify and fill shortages of critical supplies. Identification and diffusion of "essential technical features for ventilators". Financial incentives for domestic manufacturing of critical supplies (bulk drugs) (Rs. 6.9k crore ~ £740k). Prohibition of exports of ventilators, including any artificial respiratory or oxygen therapy device and sanitisers. Scouting for innovative technologies and solutions to address the epidemic. 	<ul style="list-style-type: none"> Scheme for financing the set-up of three pharmaceutical parks to reduce dependence on drug imports (Rs. 3k crore ~ £321m for the next five years).
 Italy	<ul style="list-style-type: none"> Government guaranteed loans to SMEs. Social insurance payments postponed until May. Rent relief of 60% tax credit for retailers. Appointment of a special commissioner to manage the economic crisis. 	<ul style="list-style-type: none"> €50m in additional funds to firms producing medical and protection devices (especially masks). € 150m for requisitioning: emergency coordination agencies can requisition production plants and other lodging to ensure supply to the NHS. 	
 Japan	<ul style="list-style-type: none"> Emergency financing guarantee scheme for SMEs in all 47 prefectures, for up to 280m yen (~£2.2m). Technical support provided by ICT companies to organisations that intend to introduce telework options. Over 1,000 consultation desks for SMEs affected, or likely to be affected, by the epidemic across the country. 	<ul style="list-style-type: none"> Business subsidies to ramp up the production of masks for widespread use among the population (~£230k per production line). Relaxation of import/export procedures. 	<ul style="list-style-type: none"> Provision of overseas operations and market information. Priority access to subsidies for capital investment, sales channel development and the introduction of ICT tools.

International manufacturing policy responses at a glance

Note: not exhaustive

	Ensuring continuing operation of manufacturing businesses	Mobilising manufacturing towards critical supplies	Supporting post-crisis manufacturing growth
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New Zealand

- **NZ\$2.8bn (~£1.4bn) [business tax changes to free up cash flow](#)**: depreciation deduction; immediate deductions for low-value assets; fewer small businesses having to pay provisional tax.
- **NZ\$600m (~300m) [aviation support package](#)**: waiving the fees for passenger-based government charges to support New Zealand's airways facing declining revenues.



Singapore

- **SG\$4.0bn (~£2.3bn) [Stabilisation and Support Package](#)**, including support for **cash flow, retention and retraining of workers, and wage increases**.
- **[Guide on business continuity](#)** planning for enterprises, especially SMEs.
- Monitoring of retail prices of **protection equipment**.
- Sovereign wealth fund (Temasek) supporting the **distribution of masks and hand sanitiser** to the population.
- **[SG Together Enhancing Enterprise Resilience \(STEER\) Programme](#)** – **matching funds for industry-led activities supporting business growth and capability upgrading**.



South Korea

- **[Guidelines](#)** for epidemic prevention and business continuity.
- **[SME survey](#)** to identify specific business impacts.
- **[Financial/fiscal support](#)** for over £13.7bn, including:
 - **Income tax break to landlords** (50%).
 - **VAT breaks** to firms earning <60 million won (£50k)/year.
 - **Consumption tax reductions and refunds** for purchases of **automobiles and high energy-efficiency home appliances**.
- **[Simplification of administrative procedures](#)** for imports and production of Covid-19 related chemicals.
- Encouraging "bricks-and-mortar" shops to open their **[business online](#)**.

International manufacturing policy responses at a glance

Note: not exhaustive

Ensuring continuing operation of manufacturing businesses

Mobilising manufacturing towards critical supplies

Supporting post-crisis manufacturing growth



US

- [US\\$2 trillion stimulus package](#) will provide US\$500 billion in loans to large companies, states and cities, and US\$350 billion in aid to small businesses. It will also provide direct payments to most Americans and bolster unemployment insurance benefits.
- [Coronavirus Preparedness and Response Supplemental Appropriations Act](#): US\$8.3 billion in emergency appropriations, including US\$1 billion to provide low-interest loans of up to US\$2 million.
- [Families First Coronavirus Response Act](#): US\$3.4 billion package, including provisions for unemployment benefits, paid sick leave, medical leave and free testing.
- [The Defense Production Act](#): activated to give the president powers to mobilise the domestic industrial base to support national defence during national emergencies.
- [Federal Drug Administration – Enforcement Policy for Ventilators and Accessories](#): removal of regulatory restrictions to allow medical device makers to more easily make changes to existing products (e.g. suppliers or materials); and facilitating other manufacturers to more easily repurpose production lines to increase supply.

Emerging observations – key manufacturing policy focus areas

1

Ensuring continuing operation of manufacturing businesses

- Across the countries reviewed, a key emphasis observed is the provision of financial and fiscal support to help manufacturing firms survive and retain their workforce. However, the majority of the funds announced by national governments is intended for distribution across the whole economy, and, as such, it is difficult to identify the scale of funding assigned to manufacturing industries specifically.
- A number of measures have been established to ensure the continuing supply of raw materials, parts and components. China has placed particular emphasis on fiscal support to transportation firms in China to ensure the flow of industrial supplies. The Australian Energy Regulator has published a *Statement of Expectations of Energy Businesses* to ensure the continued supply of energy. Australia, Korea and India have produced guidelines providing advice on business continuity, and Japan has established over 1,000 regional information counters, particularly focused on the provision of information to SMEs.
- In order to better understand the specific business impacts, Korea has carried out industrial surveys and Japan has provided firms with information on the interruption of overseas production sites.
- Only a few examples of sector-focused initiatives were identified, including the coordination of industrial working groups to help restore the automotive supply chain in China.

Emerging observations – key manufacturing policy focus areas

2

Mobilising manufacturing towards critical supplies

- In order to address the spike in demand for medical supplies and protective equipment, some countries have provided financial and fiscal support to help manufacturers increase their existing capacity and repurpose production lines. For example, Japan provides subsidies (~£230k per production line) to repurpose existing manufacturing capabilities for the production of masks. Meanwhile, China has provided loans to firms producing critical supplies such as masks, medical clothing, disinfection machines, disinfectant solutions and infrared thermometers.
- Import regulations have been loosened in Japan, while Korea has simplified the procedures for the import and production of a list of 44 priority chemicals. Meanwhile, the US has removed certification restrictions to give the manufacturers of ventilators and accessories the ability to change suppliers or materials, and to allow other manufacturing companies to repurpose production lines.
- Australia and India are mapping relevant production capabilities, and China has thoroughly identified key manufacturing companies producing critical supplies.
- In order to increase manufacturing capability, China is providing funding for patent and trademark applications related to technologies used in the prevention and control of the epidemic, and it has set up an information platform for high-tech companies developing these types of technology.

Emerging observations – key manufacturing policy focus areas

3

Supporting post-crisis manufacturing growth

- Some countries have established programmes to support the swift recovery and future growth of their manufacturing industries, particularly countries such as China and Korea, which have already made some progress in tackling the adverse effects of the pandemic.
- Measures established include programmes to boost productivity, skills development, capital investment, R&D and new business models. For example, online vocational training subsidies have been established in some provinces in China. Australia and Japan are providing incentives for capital investment; Singapore has announced matching funds for industry-led activities supporting business growth and capability upgrading; and India is planning to invest in the establishment of three pharmaceutical parks.
- Some countries have also established measures to boost private consumption, including the provision of vouchers and the reduction and refund of consumption taxes in Korea.
- In order to support the swift resumption of manufacturing operations, business guidelines have been produced in China on work-resumption procedures, covering employee health monitoring and workplace safety. Similarly, China has established mechanisms to monitor emerging industrial dynamics, including *when* and *how many* suppliers resume operations. Early findings reported suggest that SMEs, in particular, have struggled to resume operations. It is also reported that the freight sector, in particular, requires targeted support in order to return to normal.
- In addition, Japan and Korea are providing financial support for the development of sales channels and the introduction of ICT tools, while China is supporting the development of new business models.

Emerging observations – cross-cutting

- **“Open wallet” approach:** Across the countries reviewed, significant levels of public expenditure have been announced. This includes emergency budgets such as those announced in the US (US\$2trn), Germany (€822bn), Korea (~£14bn), Japan (~£12bn) and Australia (~£8.8bn). These funds are intended for the whole economy, particularly the health sector, as well as firms and households. While it is difficult to identify manufacturing-specific investments, these funds are expected to benefit manufacturing firms.
- **Different levels of government intervention in manufacturing:** Despite the large-scale interventions in national economies across the world, significant differences are observed in terms of the level of direct government involvement, specifically in the manufacturing sector. While countries such as Germany have so far favoured mechanisms such as voluntary business consortia, China has actively participated in the production of critical supplies through its state-owned enterprises; and the US has invoked the *Defense Production Act*, which gives the government powers to require businesses to accept and prioritise government contracts. China has also reduced the cost of electricity, which has directly benefited manufacturers. Most countries reviewed have established emergency public procurement programmes and direct dialogue mechanisms with manufacturers.
- **Lessons from previous crises:** Some countries have applied lessons from previous crises in terms of, for example, financial support delivery and information provision. Discussions in the US Congress have emphasised the need to protect workers, families and the self-employed, not just firms. There is also interest in avoiding a public opinion backlash (e.g. by ensuring that firms cannot buy back stock or issue bonuses while they receive taxpayer support). Meanwhile, Australia has leveraged information services previously developed in response to the wildfires that affected the country in the last few months.
- **Increased flexibility of existing delivery mechanisms:** In order to ensure that support is timely and scalable, most of the countries reviewed have leveraged existing programmes and delivery mechanisms, often assigning them additional funds. This has included: the relaxation of rules in existing programmes (e.g. to expand the number of SMEs eligible for financial and fiscal support); repurposing of existing programmes (e.g. incubation programmes directed to technologies related to the epidemics); and fast-tracking applications and reducing red tape (e.g. through the use of online applications).

Emerging observations – cross-cutting

- **New “experiments”:** In order to address supply shortages, particularly in medical supplies and protective equipment, some countries have employed less traditional instruments. These include the provision of incentives for manufacturing firms to *repurpose* existing capabilities in Japan and China. These countries have also provided support to the development of new technologies and business models that reduce the risk of infection among manufacturing workers (e.g. contactless delivery using drones, increased use of cloud computing, and teleworking).
- **Limited international cooperation and coordination:** Cross-country efforts to coordinate the large-scale production and distribution of critical supplies were not apparent during our review. While examples of bilateral cooperation have been identified, regional and international initiatives have not been widely reported. On the contrary, a number of protectionist measures such as the prohibition of exports have been implemented.
- **Mapping global and national manufacturing supply chains:** Unsurprisingly, there is increasing interest in understanding the critical supply chains of raw materials, key suppliers and transportation routes of critical products. This includes efforts to map global centres of production, as well as national manufacturing supply chains that are critical to ensuring the continuing provision of basic supplies as large swathes of the population go into lockdown.
- **Emerging role of public research and technology organisations (RTOs) and national centres of excellence:** As countries attempt to leverage their existing manufacturing bases to address supply shortages effectively, safely and with the quality required, the coordination challenges involved have become readily apparent. In the UK, the High Value Manufacturing Catapult, a public research and technology organisation (RTO), has had a leading role in coordinating responses from the manufacturing community to the prime minister’s “ventilator challenge”, aimed at increasing the supply of ventilators and ventilator components. Meanwhile, the National Additive Manufacturing Innovation Institute in the US has created an online repository gathering the needs of health-care providers, 3D-printing capabilities and digital designs.

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Contributors

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