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Innovation & tech / Innovation, investment and long-term growth

Solution Paper

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1 - Establish a G7 mechanism to measure technology diffusion

The G7 should establish a mechanism to measure the diffusion of frontier technologies among G7 countries and other major economies. The mechanism would provide timely, harmonised indicators about technology diffusion.

Productivity gains depend not only on the creation of new ideas through research and development (R&D), but also on how widely emerging technologies are adopted across economies. Frontier innovation is advancing rapidly in G7 economies, but there is a lack of evidence as to how frontier technologies are adopted across firms, sectors and regions. Existing data focus on R&D expenditure and scientific outputs, offering little insight into the extent of technology diffusion.

The creation and the rollout of a G7-led mechanism to collect relevant data and measure technology diffusion can help to identify best practices and gaps for the adoption of frontier technologies, as well as inform targeted policy interventions. It can also improve the ability of G7 economies to identify the key drivers of, and impediments to, technology diffusion in a bid to magnify the effectiveness of public funding efforts in the field.

2 - Set G7 standards for financial support to SMEs adopting new technologies

The G7 should identify and promote best practices for national grants supporting the adoption of frontier technologies by small and medium enterprises (SMEs). The implementation of such practices could focus on priority sectors (like automation) or geographical clusters (notably outside major technology hubs). It could also encompass best consortia practices for public funding.

The productivity gap between companies adopting frontier technologies and those that are falling behind is huge. What's more, an ageing workforce makes the adoption of advanced technologies key to maintaining industrial output in G7 economies. National policies meant to foster the adoption of advanced technologies, such as tax rebates, are failing to address this issue. In addition, the administrative burden to access such funds is often too high for SMEs.

The identification and promotion of G7 best practices for financial support to SMEs keen to adopt frontier technologies can help to co-ordinate, prioritise and share information about the adoption of frontier technologies while boosting G7 long-term growth prospects.

3 - Monitor natural disaster-related supply chain vulnerabilities

The G7 should monitor natural disaster-related supply chain vulnerabilities in a bid to improve economic security and resilience.

The economic toll from natural disasters is growing; in 2025 insured losses for wildfires, floods and storms reached a record-high level of US$108bn globally. The covid-19 pandemic and ripple effects from the war in Ukraine have shown that supply chain disruptions can have huge economic impacts, notably when they affect the supply of critical goods like medical supplies or food staples. A lack of co-ordination in the policy response to natural disasters often compounds these issues, for instance when such responses include export bans on food commodities.

The creation of a G7 mechanism mapping out and monitoring supply chain vulnerabilities to natural disasters can help to mitigate the impact of such disasters on critical supply chains and promote a global understanding of best practices in the field.

4 - Support demand for G7-made critical raw minerals

The G7 should integrate supply and demand policies for G7-made critical raw minerals by taking equity stakes in G7 producers and setting price floors. It should also prevent the duplication of supply chains by dividing the responsibility to produce each key mineral among G7 economies.

Global competition to secure resources of raw and processed critical minerals is fierce. Despite commitments to develop G7-made supplies of raw minerals, G7 firms often remain reluctant to make investments domestically – reflecting steeper relative production costs and concerns around long-term demand for higher-priced minerals.

Guarantees around demand for G7-made critical raw minerals can help to alleviate private sector concerns and support the creation of G7-based supply chains for critical raw minerals. A division of the coverage of key critical raw minerals among G7 members can also improve efficiency and foster the establishment of G7-led supply chains for all minerals.

5 - Build G7 stockpiles of critical raw minerals

The G7 should build stockpiles of critical raw minerals to respond to potential global price shocks.

The International Energy Agency (IEA) reckons that the production of critical raw minerals is highly concentrated, compounding vulnerability to potential supply shocks. Many developed economies hold stockpiles of critical commodities, such as oil or gas. The centrality of critical raw minerals in modern economies means that the security of supply is akin to a public good and can be best provided at a collective, G7 level to prevent tensions in an emergency.

In the event of a price shock around critical raw minerals, G7 stockpiles can ensure stability of supply until other providers are found. The creation of such stockpiles also represents a concrete step to build trust and foster collaboration among G7 economies in the field.

6 - Map G7-held reserves of critical raw minerals

The G7 should conduct a mapping exercise of G7-held reserves of critical raw minerals. This mapping exercise should also establish production and refining costs for key reserves.

G7 countries hold significant reserves of critical raw minerals, including beryllium, cobalt, graphite, indium, lithium, nickel, niobium, palladium, tellurium, titanium. However, data about these resources are fragmented, with no single source of information at the G7 level. What's more, there is little information about expected costs and infrastructural needs for the development of these reserves.

The mapping of G7-held reserves of critical raw minerals can help to identify potential, untapped resources among G7 members and foster collaboration to pool production.

7 - Establish a G7 working group on quantum technologies

The G7 should establish a working group on quantum technologies – modelled on similar groups on semiconductors and artificial intelligence (AI) – to facilitate information-sharing and promote co-ordinated actions and policy dialogue guiding research, innovation as well as adoption.

In 2025 G7 partners acknowledged that international collaboration will be key to profit from the huge expected social and economic benefits linked to the adoption of quantum technologies. The development of this sector, however, comes with risks, for instance regarding the need to ensure cryptographic resilience and to build secure supply chains. Efforts to address these risks are fragmented and subject to different timelines or gaps across jurisdictions, limiting the ability to develop coherent responses.

The establishment of a G7 working group on quantum technologies can support joint initiatives to identify critical chokepoints, track national progress, foster policy alignment and encourage public as well as private investments. It can also strengthen exchanges of best practices, accelerate convergence in common G7 benchmarks and help to create an open, balanced and responsible innovation ecosystem that will benefit all G7 member states and beyond.