Balancing the resilience and innovation of Quad critical technology supply chains

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Key points

- The primary challenge for Quad countries is to increase the resilience of critical technology supply chains while maintaining innovation.
- Quad countries must de-risk from countries that have a record of engaging in economic coercion and using technology to undermine the fundamental values contained in the 'Quad Principles on Technology Design, Development, Governance, and Use'.
- At the same time, the Quad should prevent the spread of protectionism disguised as 'increasing resiliency' or 'de-risking'.

Policy recommendations

Quad countries should:

- Cooperate internally on: (i) subsidies for developing critical and emerging technologies; (ii) Memoranda of Understanding (MOU)s or Memoranda of Cooperation (MOCs) to promote joint research; and (iii) immigration schemes to facilitate the flow of trusted critical technology students and researchers within the Quad.
- Coordinate to: (i) streamline the numerous mini-laterals on critical technology supply chains; and (ii) harmonise rules and information sharing on visas, export controls, investment screening, and cyber security.
- Reach a common understanding on how to prevent Quad cooperation and coordination leading to an unnecessarily protectionist 'reshoring everything'.
- Undertake external initiatives such as: (i) hosting a supply chain transparency tech expo; and (ii) Quad resilience capacity-building programs.

Introduction

A resilient supply chain for critical technologies is essential to national security, economic prosperity, and protecting fundamental values. Its importance has increased drastically in recent years due to the game-changing nature of critical and emerging technologies. Access to semiconductors, artificial intelligence, biotechnology, quantum-related technologies, and others have become much more important to security, the economy and values. However, efforts to increase resilience can easily fall into the trap of needlessly hindering innovation.

This paper argues that the Quad countries should balance pursuing supply chain resilience with innovation through pursuing two broad categories of policies: (1) initiatives internal to the Quad and its member countries; and (2) external initiatives.

Internal initiatives

'Increasing resilience' should not equal 'reshoring everything domestically'. Doing so would unnecessarily hinder technological innovation. Rather, de-risking requires removing high-risk countries with certain problematic characteristics. This should be done without jeopardising an environment that is conducive to cooperation, coordination, and competition that fosters innovation.

Removing high-risk countries

The 'high-risk countries' that we must de-risk from have the following characteristics. First, they have a clear track record of engaging in economic coercion. De-risking would prevent them from intentionally cutting us off from critical technologies. Second, we must avoid countries that do not hold fundamental values, such as freedom, democracy, rule of law, and human rights. These are partly expressed in the 'Quad Principles on Technology Design, Development, Governance, and Use' agreed upon by the four countries on 24 September 2021[1]. This will prevent us from being indirectly complicit in the use of critical technologies to undermine these values. Examples include technologies that can be employed for military, intelligence, surveillance, or cyber-enabled capabilities[2].

Not naming a specific country sends a signal to current 'high-risk countries' that they may be re-included in critical technology supply chains if they change their behaviour.

Increasing cooperation, coordination, and competition

Fostering an innovative environment while de-risking requires international policy responses that facilitate the '3 Cs' of cooperation; coordination; and competition. The policy recommendations listed below assume cooperation among the Quad countries, but could also be implemented by a subset of countries within the Quad or with other countries in addition to the Quad.

Cooperation

Quad countries should increase cooperation on technological developments with tangible policies such as: subsidies for developing critical and emerging technologies; MOUs or MOCs at the government level to promote joint research across the borders including follow-up policies; and Quad visa/immigration schemes to facilitate the flow of trusted critical technology students and researchers among the countries.

Quad countries may benefit from studying the new *Economic Security Promotion Act* (ESPA) that was passed in Japan in May 2022. This includes policy instruments that allow for increasing supply chain resilience as well as a subsidies scheme for critical and emerging technologies.

Quad MOUs and MOCs for critical technology will help foster international cooperation. However, governments must do more than merely sign documents; they must follow up by identifying and matching relevant research institutes and companies within the Quad. They must also track the overall state of cooperation; and support the implementation of agreements through deregulation and subsidies within the Quad.

Quad visa/immigration schemes should lower the hurdles for students and researchers of critical technology wishing to study or work across the Quad countries. This will also help in creating a list of trusted critical technology researchers, whom the companies from Quad countries can refer to when making hiring decisions for those who will be engaging in critical technology research.

Coordination

Quad countries should increase coordination on policies aimed at preventing unnecessary redundancies and the problem of overcapacity for certain areas of technology. Action here is needed primarily to analyse existing bilateral and multilateral fora where discussions on critical technology supply chains are taking place and decide what roles the Quad can most effectively play. Quad countries will also benefit from coordination on tech-related regulations, such as visa screening, export control, internal and external investment screening, and cyber security.

We are currently seeing a proliferation of bilateral and mini-lateral agreements that touch on the issues of critical technology supply chains. However, there needs to be a clearer division of labour between them to reduce diplomatic costs, prevent duplication of discussions, and increase effectiveness. Scrapping or merging existing mini-laterals should be considered as an option. The various trilateral groupings include AUKUS (Australia-UK-US), the Supply Chain Resilience Initiative (Japan-Australia-India), the Trilateral Security Dialogue (Japan-US-Australia), the Japan-US-ROK, the Japan-US-Philippines as well as the US-EU Trade and Technology Council (TTC), the Quad, Fab 4, G7, and the Indo-Pacific Economic Framework (IPEF).

Quad countries should also coordinate on harmonising rules and sharing information on tech-related regulations. Quad countries could better protect their critical technology by maintaining a common blacklist/whitelist for untrusted/trusted entities in critical technology supply chains across all four vectors of potential technology leaks: people (visas), products (export controls), money (investment screening) and cyber-attacks (cyber-security).

Quad countries should coordinate more on mechanisms for the screening of outbound investment, of the sort that is currently being discussed in the US. The Quad countries must prevent overseas investment from inadvertently helping critical technologies being developed or applied in a way that undermines the values agreed upon in the 'Quad Principles on Technology Design, Development, Governance, and Use'.

Competition

Various policies for cooperation and coordination among the Quad must be made with consideration to maintaining a healthy competitive environment for fostering innovation. In short, the goal here is to prevent the spread of protectionism disguised as 'increasing resilience' or 'de-risking'.

The ultimate decision-making for what constitutes as an 'acceptable level of cooperation or coordination that does not needlessly hinder innovation' will likely be made on a case-by-case basis. Still, it may be worthwhile for Quad countries to discuss and adopt a common understanding or principles on where to draw the line and to prevent the protectionist 're-shoring of everything'.

External initiatives

Critical technology supply chains are currently not limited to the Quad countries – nor should they be. Ensuring a resilient, innovative critical technology supply chain requires trusted partners outside of the four countries. Engaging in capacity-building of non-Quad countries to increase resilience will be in the long-term interests of the Quad countries. Some of the policies described below could also be instrumental to countries or subnational actors within the Quad.

Supply chain transparency tech expo

An accurate understanding of what the supply chain looks like is the first step to identifying vulnerabilities and increasing transparency. However, most private sector actors do not have the incentive to invest resources in developing a comprehensive picture of their entire supply chain. Companies often lack the capacity to track supply chains beyond their first-tier suppliers or buyers.

Quad countries have begun investing in technologies that make some supply chains more transparent. Hosting a supply chain tech expo-like event showcasing technologies that contribute to supply chain transparency would help non-Quad countries find tools they can use to increase their resilience.

Quad resilience capacity-building program

Quad countries should create a capacity-building program to increase the resilience of critical technologies supply chains to non-Quad countries. Countries such as the United Kingdom and Australia have begun creating a capacity-building program that shares their experiences of supply chain resilience with other countries[2]. Quad countries can build on this initiative by creating a similar capacity-building program focusing on critical technology supply chains.

One of the strengths of the Quad is its diversity of members. Some countries may be more amenable to accepting capacity-building programs from countries with similar geographical, cultural, or historical backgrounds. To be more specific, the presence of Japan and India in the Quad may render Asian countries more open to accepting assistance from the Quad than from other initiatives.

Notes

[1] White House, "Quad Principles on Technology Design, Development, Governance, and Use", 24 September 2021, accessed 16 October 2023, https://www.whitehouse.gov/briefing-room/statements-releases/2021/09/24/quad-principles-on-technology-design-development-governance-and-use/

[2] Department for Business & Trade and Department for International Trade of the United Kingdom, "UK-Australia supply chain resiliency initiative: introduction module", 26 October 2022, accessed 16 October 2023, https://www.gov.uk/government/publications/uk-australia-supply-chain-resilience-initiative/uk-australia-supply-chain-resilience-initiative-introduction-module

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About the Quad Tech Network

The Quad Tech Network (QTN) is an initiative of the NSC, delivered with support from the Australian Government. It aims to establish and deepen academic and official networks linking the Quad nations – Australia, India, Japan, and the United States – in relation to the most pressing technology issues affecting the future security and prosperity of the Indo-Pacific.

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