Blueprint
for Critical
Technologies

The Australian Government's framework for
capitalising on critical technologies to drive a
technologically-advanced, future-ready nation

Contents

Prime Minister's Foreword

Critical technology advancements over the last few decades have fundamentally revolutionised the way we live. They underpin our national security and drive our economic prosperity by creating new jobs, securing competitive manufacturing, improving our health and vaccination outcomes, increasing agricultural productivity, modernising our infrastructure and communications, enabling our energy transition, strengthening our defence forces, and most fundamental of all, preserving our democracy.

Australia has a leading role to play in this technological revolution. Our research is world-class, our universities are globally renowned, and our enterprises are agile and innovative. Our global contributions in vital fields such as critical minerals, artificial intelligence (AI) and quantum computing are highly valued.

But technology also brings risk. We live in a time of uncertainty, characterised by increasing geostrategic competition. History tells us that a technological edge can confer strategic advantage, and we are bearing witness to the truth of this.

Critical technologies are enabling rapid military modernisation, economic coercion, foreign interference and cyber threats.

As shifting global currents place liberal democratic values of openness and transparency increasingly under threat, Australia has a responsibility to shape the development and adoption of critical technologies internationally. We must ensure that critical technologies and their applications embody the values that define our society and allow us to uphold the rule of law and human rights.

Critical technologies are not the only space in which this geostrategic competition is playing out. Globally, governments have recognised that access to critical technologies requires building secure, resilient and diverse supply chains for key input materials, including processed critical minerals.

The Australian Government recognises the intertwined nature of these challenges and is actively addressing them through the Office of Supply Chain Resilience, the Critical Minerals Facilitation Office, and the Critical Technologies Policy Coordination Office.

Building on the initiatives already underway across government, this Blueprint for Critical Technologies articulates the steps being taken to promote and protect critical technologies in pursuit of our national interest. These efforts will yield both security and economic dividends for Australia, ensuring that the critical technologies

we depend on are reliable, accessible, resilient and secure, as well as governed by rules and norms that promote values of openness and transparency.

We are not alone in our endeavours. As always, our partners around the world are working with us to develop and deploy critical technologies that reflect our values and will benefit our people. The AUKUS trilateral security partnership demonstrates the enhanced cooperation between us and our closest international partners on critical technologies such as artificial intelligence and quantum technologies. We are also collaborating closely with the United States, India and Japan through the Quad Critical and Emerging Technology Working Group. We are proud of our part in this global effort, and we will continue to strive to achieve our shared vision for a stable and secure Indo-Pacific region and world.

Overview: critical technologies are vital

Critical technologies are current and emerging technologies that have the capacity to significantly enhance or pose risk to our national interest. They are fundamental to Australia's economic prosperity, social cohesion and national security, and are increasingly the focus of international geopolitical competition. Critical technologies can be digital (such as artificial intelligence) or non-digital (such as synthetic biology)

The safe and responsible development and deployment of critical technologies brings enormous opportunities, underpinning exponential improvements in productivity, facilitating economic growth and high quality jobs, enabling all Australians and businesses to securely participate in the digital economy, improving our health, raising our living standards, and improving our defence and national security capabilities. The Australian Government is working hard to ensure that Australians can confidently take advantage of those opportunities through promoting innovation, science and research; and by supporting competitive markets that rapidly and safely adopt new technologies and seize commercial opportunities.

But the increasingly ubiquitous and consequential applications of critical technologies throughout society, together with shifting geopolitical and market currents, introduces a new class of problem. Critical technologies confer a strategic edge, and at a time of intensifying geostrategic competition, this can be used to threaten our values, interests and way of life. This convergence of factors presents a spectrum of risks to

Australia's ability to realise the opportunities of secure, transparent critical technologies, including through: the malicious design, development and use of technology contrary to our values and institutions; impeding our ability to make sovereign decisions about the access, control and application of critical technologies; and interference in our domestic critical technologies ecosystem.

Risks

Particular risks that arise for critical technologies include:

Lack of competitive and diverse markets:

Monopolies or limited vendor choice in key technology markets limits Australia's ability to make sovereign technology-related decisions and may force our, or our partners', reliance on vendors that may compromise our national interest.

Highly geographically concentrated supply chains:

Some critical technology and input markets, for example, critical minerals, are already dominated by large buyers. We must be mindful of this risk when selling into global supply chains. Australia and like-minded partners support and promote diversified supply chains and markets to mitigate potential economic coercion and trade disruption risks.

Critical infrastructure interdependencies:

Critical infrastructure almost always involves the use of critical technologies, which if exploited can have significant consequences for the critical infrastructure and the integrity of our institutions, with consequences for our economy and security.

An increased cyber threat surface:

Evolutions in technologies can create new opportunities for malicious actors and cyber criminals to target and exploit the Australian community, industry, critical infrastructure and our digital economy for their own profit.

Technology development:

The influence of foreign actors on international technology standards development may run contrary to Australia's economic objectives, security requirements and liberal democratic values of openness and transparency.

Undermining institutional integrity:

Malicious use of critical technologies to spread dis- or misinformation and undermine trust in Australia's values and trusted institutions.

Exploitation of Australian knowledge:

Australia's strength in areas of technology research or intellectual property could be used contrary to our interests and undermine our competitive advantage if subject to espionage or foreign interference.

Opportunities

The successful management of these risks will enable Australia to capitalise on a range of critical technology opportunities, including:

Australian research partnerships:

Cutting-edge critical technologies research, informed by appropriate due diligence processes, will uplift Australia's reputation as a trusted international research partner and enable us to play a leading role in critical technologies.

Improved health and social outcomes:

Critical technologies have the capacity to improve diagnostic capabilities; enhance quality of life for people living with disabilities; improve service delivery; and produce innovative medicines such as vaccines to protect us against future pandemics.

Helps us solve agricultural and environmental issues:

Research which takes account of Australian conditions can also impact on internationally significant challenges, for example, crop improvements for drought resistance, alternative foods, green energy, and green production processes for goods such as green steel. This will support Australia's transition towards net-zero carbon emissions by 2050.

International partnerships:

Bolstering our ability to manage domestic critical technologies risk builds our ability to be part of trusted supply chains and collaborative efforts with partners and likeminded countries around the world.

A thriving critical technologies sector:

An open, resilient, diverse and competitive technology ecosystem that promotes competition and encourages foreign investment – consistent with Australia's national interest – will deliver flow-on effects to Australian small and medium enterprises, including start-up firms, supporting a highly skilled workforce and high quality, high paying jobs.

Significant productivity improvements:

Critical technologies can support Australian productivity growth and lay the foundations for us to be a competitive manufacturing nation, in turn enhancing the resilience of critical supply chains and opening new international markets for Australian exports. These benefits will accrue to all sectors of the economy.

With this in mind, Australia and our partners have a growing interest in ensuring that critical technologies are designed, developed and used in ways that ensure our security, increase our prosperity and reflect our values of openness and transparency. In order to take advantage of the opportunities and mitigate against the risks, the Australian Government is committed to a focused, nuanced, and balanced response for critical technologies. This Blueprint for Critical Technologies articulates the steps being taken to promote and protect critical technologies in pursuit of the national interest.

The Australian Government's work on critical technologies is part of our forward leaning efforts to manage critical minerals and critical supply chains – successfully managing critical technologies requires transparent and resilient supply chains and reliable access to critical minerals. This Blueprint complements and reinforces Australia's Critical Technology Supply Chain Principles and Australia's Critical Minerals Strategy 2019.

The Blueprint
for Critical
Technologies

Vision

To maximise the opportunities offered by critical technologies while minimising any risks they may pose

Goals

Ensure we have access to, and choice in, critical technologies and systems that are secure, reliable, and cost-effective

Maintain the integrity of our research, science, ideas, information and capabilities – enable Australian industries to thrive and maximise our sovereign IP

Promote Australia as a trusted and secure partner for investment, research, innovation, collaboration, and adoption of critical technologies

Support regional resilience and shape an international environment that enables open, diverse and competitive markets and secure and trusted technological innovation

Action Pillars

Identify and assess current and emerging critical technologies

Ensure Australians have the right knowledge and skills to take advantage of and contribute to critical technologies

Promote awareness, resilience and action on critical technology risks and opportunities to protect our critical technology IP and assets

Deploy secure and trusted technologies in critical systems, networks and infrastructure

Ensure policies, regulation and standards are fit-for-purpose

Consider national interest in critical technologies investment

Invest in research and commercialisation of critical technologies

Ensure access to reliable, trusted supply chains for critical technologies

International engagement
(including Australia's International Cyber and Critical Technology Engagement Strategy led by DFAT)

Next Steps

Enable Government to make balanced decisions regarding critical technologies and their impact on our national interest

Vision

The Australian Government's vision for critical technologies is to maximise the opportunities offered by critical technologies while minimising any risks they may pose. To achieve this, the Government has identified four interdependent and mutually reinforcing goals, supported by seven action pillars, which will be pursued across government on a long-term and coordinated basis. Our success will be determined by the extent to which Australia is a trusted global partner for investment, research, development and supply of critical technologies, while protecting Australians' access to cost-effective, safe, and secure technologies.

Ensure we have access to, and choice in, critical technologies and systems that are secure, reliable, and cost-effective

Promote Australia as a trusted and secure partner for investment, research, innovation, collaboration, and adoption of critical technologies

Support regional resilience and shape an international environment that enables open, diverse and competitive markets and secure and trusted technological innovation

Maintain the integrity of our research, science, ideas, information and capabilities – enable Australian industries to thrive, and maximise our sovereign IP

Goal 1

Ensure we have access to, and choice in, critical technologies and systems that are secure, reliable, and cost-effective

Australia benefits from a global system that champions open trade and investment; diverse, competitive and open markets; and transparent collaboration. We are an innovative nation that leads the way with respect to some technologies, such as quantum computing, and will continue to invent and develop new technologies locally. However, we still import the majority of our technologies from overseas.

Where markets work to produce multiple international suppliers of a particular technology, we have agency to select the provider that best aligns with our needs. However, in some cases, there are limited suppliers of a particular critical technology. We may not be able to satisfactorily ensure that these limited suppliers are reliable or can meet our security needs, posing unacceptable risks to our national security. Alternatively, a trusted supplier may be available, but at a prohibitive cost or offering inferior technology. In this case, adopting the critical technology could undermine our economic prosperity.

Successfully mitigating this risk will ensure we have access to, and choice in, critical technologies and systems that are secure, reliable, cost-effective and consistent with liberal democratic values of openness and transparency.

Goal 2

Promote Australia as a trusted and secure partner for investment, research, innovation, collaboration, and adoption of critical technologies

Critical technologies will revolutionise how industries operate, injecting billions into the Australian economy over the coming decades, with digital technologies alone potentially adding up to $315 billion to our economy by 2028[1]. If Australia is to maintain our economic competitiveness, we need to lead efforts in areas of critical technology where we can demonstrate a competitive advantage.

As critical technologies increasingly shape our society and lives, we also need to ensure that Australians are able to realise the benefits that flow from adopting critical technologies in ways that uphold our national interest and democratic values of openness and transparency.

Doing so means building an enabling environment that supports research and commercialisation of critical technologies; and ensuring Australians have the skills and knowledge they need to confidently deploy and adopt critical technologies.

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1   AlphaBeta Advisors (2018) Digital Innovation: Australia's $315b opportunity, report to the CSIRO (Commonwealth Scientific and Industrial Research Organisation) Data 61, AlphaBeta, accessed 23 August 2021.

Goal 3

Maintain the integrity of our research, science, ideas, information and capabilities – enable Australian industries to thrive and maximise our sovereign IP

Australia has world-class research and industrial capabilities. Our researchers and companies are competitive with their peers internationally in a wide range of fields. Examples of this include biomedical sciences (cervical cancer vaccine), materials science (high-efficiency solar cells) and products with defence applications (over-the-horizon radar).

In the vast majority of cases, collaboration improves innovation and should be promoted. But our research, science, ideas, information and capabilities on critical technologies need to be protected against intellectual property theft and exploitation, as well as malign technology transfer. This includes through the use of our intellectual property in ways that contravene our values of openness and transparency.

Goal 4

Support regional resilience and shape an international environment that enables open, diverse and competitive markets and secure and trusted technological innovation

Promoting an open, inclusive and prosperous Indo–Pacific region and world is a core tenet of Australia's foreign policy. In a more contested and competitive world, our domestic and international policies have to work together to maximise our national resilience and international influence.

The recently announced AUKUS partnership, as well as recent Quad discussions, demonstrate our nation's understanding of, and commitment to, doing our part to work with our international partners to promote and protect critical technologies. Through our international engagement, as articulated in Australia's International Cyber and Critical Technology Engagement Strategy, Australia will globally prosecute our interests in critical technologies across the first three goals.

We will actively shape the design, development and use of critical technologies in line with our liberal democratic values and interests in a safe, secure and prosperous world. We will continue to work with our partners in the Indo-Pacific and beyond to build the capacity needed to harness the opportunities of critical technologies while mitigating the risks. By prioritising critical technologies at home and abroad, we will support regional resilience and shape an international

environment that enables competitive, trusted, transparent, secure and diverse technology innovation and markets.

Australia's strong representation in the Quad Leaders' Dialogue, in particular the Critical and Emerging Technology Working Group, enables the Government to advance its domestic and international critical technologies security agenda. Specifically, Australia leads efforts on a variety of priority critical technology interests through sub-working groups on technology supply chains, standards, strategic foresighting, and the deployment and market diversification of 5G and future telecommunications.

Australia's leadership in this context is already driving outcomes for the Indo-Pacific, which in turn bolster our domestic critical technology efforts. As Quad partners strengthen their collaboration on these issues, we will be able to implement concrete solutions for assessing priority technologies, positively influence the digital standards that underpin them, and improve the security of their supply chains. Success in this key forum will effectively influence other likeminded partners and enable solutions, and our interests, to be scaled throughout the Indo-Pacific region.

Identifying and assessing critical technologies in the national interest

While technology is fundamentally reshaping our world, not all technologies are critical – in other words, not all technologies meet the threshold of having a significant impact on our national interest. Therefore, achieving our goals using the action pillars relies on our capability to identify, assess, prioritise and advise on critical technologies

Identifying which technologies are critical is the first step in being able to take appropriate action. Using an advanced foresight capability set up within the Defence Science and Technology Group, as well as expert consultation (including with our international partners), the Government has identified a list of 63 technologies for Australia's first List of critical technologies in the national interest (the List).

Following an initial assessment, these technologies have been filtered to the nine shortlisted technology groupings which are most likely to impact on the national interest and which therefore warrant most immediate detailed analysis.

Technologies included on the List are either critical for Australia today or because they have the potential to become critical for Australia within the next ten years. The List does not imply any prescribed or proscribed actions in relation to the listed technologies, and a technology not featuring on the List does not imply it is not important.
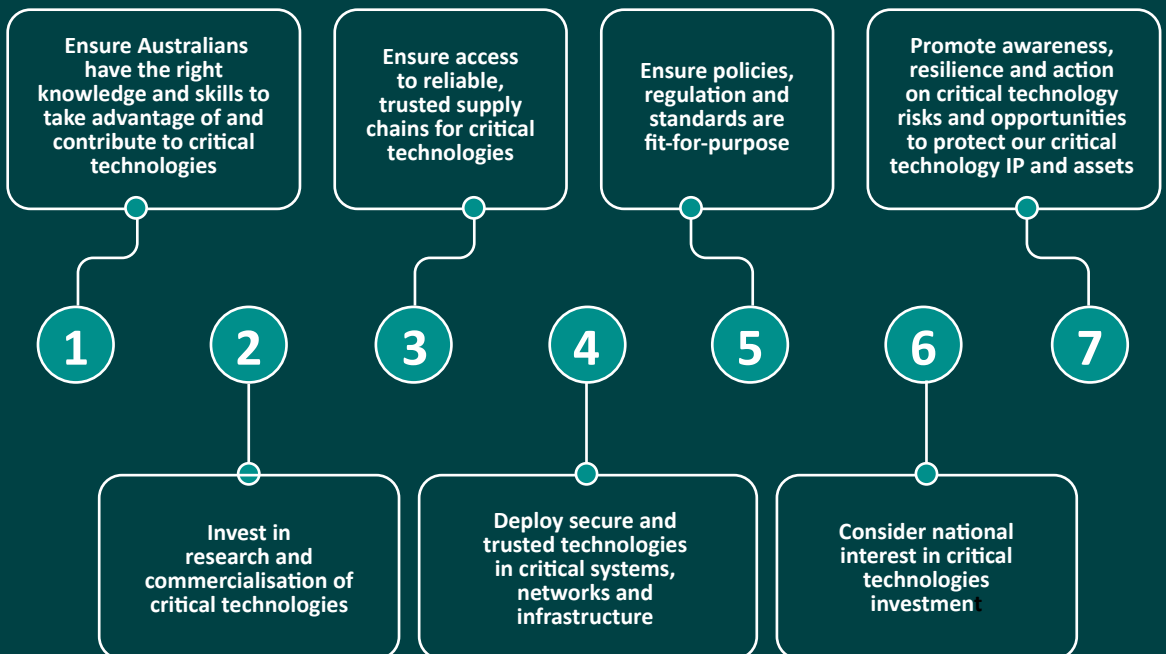
The List does provide:

- A central list of critical technologies to assist with consistent decision making across sectors

- An indicator of critical technologies that may require increased focus to promote or protect our national interest

- An indication of technologies that may require additional risk management

- Guidance on technologies where additional development or understanding may be required

The List is not:

- Static. Government intends to update the List regularly

- A list of technologies that will be, or should be, additionally regulated or controlled

- A list of technologies where the government intends to prevent or limit collaboration with international research partners

- Intended to override or replace other specific government technology lists, e.g. the defence and strategic goods list

Our goals will be achieved through action across seven pillars

Ensure Australians have the right knowledge and skills to take advantage of and contribute to critical technologies

Ensure access to reliable, trusted supply chains for critical technologies

Ensure policies, regulation and standards are fit-for-purpose

Promote awareness, resilience and action on critical technology risks and opportunities to protect our critical technology IP and assets

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Invest in research and commercialisation of critical technologies

Deploy secure and trusted technologies in critical systems, networks and infrastructure

Consider national interest in critical technologies investment

Pillar 1

Ensure Australians have the right knowledge and skills to take advantage of and contribute to critical technologies

We will better engage with technologies across the economy, including by ensuring that Australians have the knowledge and skills to invent, build, adopt and operate critical technologies

The Government is taking meaningful steps to help ensure all Australians have the skills and knowledge to engage with the digital economy and be ready for the jobs of the future. A digitally capable and integrated economy will allow Australia to build greater resilience to economic shocks, improve supply chain resilience, and more proactively protect our citizens and our way of life. Capitalising on critical technologies will also require international engagement for research and education, including through attracting talented students, researchers and mutually beneficial talent exchange with our international partners.

Actions

In order to take advantage of the opportunities offered by critical technologies, Australians will need the right skills to confidently adopt them. Many of these skills will come from enhancing our digital capabilities. Through the Digital Economy Strategy, the Australian Government is investing in the skills and training needed to make Australia a leading digital economy by 2030:

- *$10.7 million for the Digital Skills Cadetship Trial to deliver work-based learning opportunities for in-demand digital jobs*

- *$43.8 million for the Expansion of Cyber Security Skills Partnership Innovation Fund to fund additional innovative projects to quickly improve the quality and quantity of cyber security professionals in Australia*

- *$24.7 million over six years for the Next Generation Artificial Intelligence Graduates Program to attract and train home-grown, job-ready AI specialists through competitive national scholarships*

- *$22.6 million over six years for the Next Generation Emerging Technology Graduates Program that will provide more than 200 competitive national scholarships in emerging technologies.*
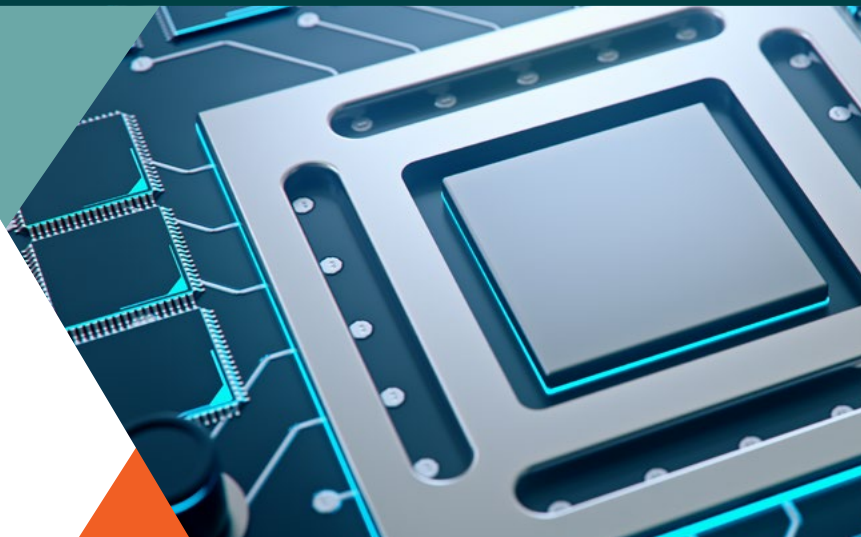
Pillar 2

Invest in research and commercialisation of critical technologies

We will protect our competitive advantage and develop our sovereign capability by investing in targeted critical technology research and commercialisation

Australia has a competitive advantage in some areas of critical technology research, for example in quantum computing and quantum sensing. In other cases, developing a sovereign critical technology capability will be vital to protect our national security. Identifying and investing in these areas can generate both an economic and a security dividend. Further, it will bolster key international relationships through our ability to demonstrate our value-add where partners are looking to secure critical technologies through resilient supply chains.

The Modern Manufacturing Strategy is delivering $1.5 billion to transform manufacturing businesses and help them to scale-up, translate ideas into commercial successes and integrate into local and international value chains. Other initiatives, including the Digital Economy Strategy; the Low Emissions Technology Statement; Defence science, technology, innovation and capability funding; the Cyber Security Strategy 2020; and the Australian

Civil Space Strategy are supporting investment in specific critical technologies and industries, such as space, drones, 5G, cyber security and artificial intelligence. In the coming years, Australians will continue to build on these investments to publish research, invent, commercialise, and export critical technologies to the world.

Investing domestically is a crucial part of our critical technologies strategy. However, Australia should focus on broad technology neutral initiatives such as the R&D tax incentive, while targeting investment principally where we can demonstrate a real comparative advantage. For example, the Government is investing $10 million to establish a 6G Research and Development Program through the Digital Economy Strategy. For the rest, we will continue to depend on international collaboration, trade, and investment to develop ideas and take them through to commercialisation. Our international engagement with partners will strengthen our ability to do so.

Actions

The Australian Government has a number of successful initiatives that support research and development of critical technologies, including R&D grants, support for entrepreneurs, as well as precincts, centres and hubs. Cooperative Research Centres and Projects form a core component of government investment in R&D, with nearly $1 billion in active initiatives in areas such as AI, cyber security, advanced manufacturing and machinery, and advanced batteries.

The Government is also working to provide innovative finance mechanisms for start-ups, such as through the $250 million contribution to the public-private Biomedical Translation Fund. This partnership with private venture capital in Australia is boosting the invention and manufacturing of life-saving medical treatments and devices right here in Australia. For example, Global Kinetics Corporation's innovative Personal KinetiGraph (PKG) is a wearable medical device powered by advanced sensors, manufacturing technologies, and data analytics to assess the symptoms of Parkinson's disease in real-time. The device is being manufactured in Australia and will be shipped globally to enable Parkinson's patients to access optimum treatment, remain in work, and enjoy an improved quality of life. Over $11 million of funding for Global Kinetics' development of the device came from Brandon Capital Partners, fund manager of the Government's Biomedical Translation Fund, to push this frontier in medical devices.

On 6 May 2021, the Prime Minister released Australia's Digital Economy Strategy as part of the 2021-22 Budget. New investments under the Digital Economy Strategy included $31.7 million to secure our future connectivity using 5G and 6G mobile networks.

Australia's international partnerships are essential for Australia's access to secure connectivity technologies. In 2021, the Quad Security Dialogue launched a Track 1.5 industry engagement on Open Radio Access Network (ORAN) deployment and adoption, coordinated by the Open RAN Policy Coalition. ORAN seeks to promote policies and public-private investment that will advance the adoption of open and interoperable solutions in the RAN as a means to create innovation, spur competition and expand the supply chain for advanced wireless technologies, including 5G in the Indo-Pacific.

Pillar 3

Ensure access to reliable, trusted supply chains for critical technologies

We will secure access to reliable and trusted critical technology supply chains for Australian individuals and businesses through building our domestic sovereign capability and strengthening international partnerships.

Australia's economic success, security and social cohesion depend in part on our ability to securely access critical technologies through resilient supply chains. Through the Critical Technology Supply Chain Security Principles, the Australian Government has provided suppliers with clear guidelines on technology security.

Concurrently, the Australian Government is identifying and monitoring vulnerabilities in critical supply chains through the Office of Supply Chain Resilience. Further, the Australian Government is enhancing domestic manufacturing capability through the Supply Chain Resilience Initiative—strengthening Australia's ability to access critical

products. Efforts to secure the supply chains for critical minerals – which are essential inputs into many critical technologies – are being coordinated by the Critical Minerals Facilitation Office. The Modern Manufacturing Strategy has also prioritised critical minerals processing given the economic opportunities of undertaking further value adding and manufacturing in Australia.

International collaboration is fundamental for building strong global supply chains. Through our international engagement, we will reduce the risks of future disruption through joint efforts to map critical supply chains, identify vulnerabilities and capabilities, and implement targeted solutions.

[ABOVE] Dr. Megan Clark AC, the Prime Minister Scott Morrison and Head of the Australian Space Agency Enrico Palermo at the Launch of Australian Space Discovery Centre in Adelaide. Photo: AAP Image/Morgan Sette

Actions

The Australian Government is building an industry around reliable and trusted access to critical space technologies. Rapid and reliable access to space is now an economic and security imperative, with the global space industry estimated to be worth $US1.4 trillion in 2030. More and more, Australians will depend on space-enabled services, including data, in our work and everyday lives. The development of a domestic space industry will contribute $12 billion to GDP and create an additional 20,000 jobs by 2030, leveraging comparative advantages such as our location and our expertise in autonomous systems and advanced communications. In addition to securing our own access to space technologies, the development of a domestic space capability will contribute significant value to our key international partnerships. For example, the Government has recently invested $150 million into local Australian businesses and technological capability to support the United States National Aeronautics and Space Administration (NASA) on its missions to the Moon and Mars.

Pillar 4

Deploy secure and trusted technologies in critical systems, networks and infrastructure

We will protect the essential services that all Australians rely on through improved security and resilience in critical infrastructure and systems

Technology is increasingly embedded in infrastructure, the economy and society — underpinning Australia's critical systems, networks and providing significant efficiencies and improving services. However, its use can also introduce new vulnerabilities, which have the potential to cause widespread disruption and harm. Critical infrastructure entities must take a proactive approach to security and resilience— including in relation to the critical technologies that underpin their systems and functions.

The Government's Protecting Critical Infrastructure and Systems of National Significance reforms will introduce a positive security obligation, requiring entities to manage the security and resilience of their critical infrastructure assets, supported by sector-specific requirements for

those entities most important to the nation. This reform complements the Telecommunications Sector Security Reforms, which commenced in 2018, that manage the national security risks of espionage, sabotage and foreign interference to Australia's telecommunications networks and facilities — which are vital to the delivery and support of other critical infrastructure and services such as power, water and health. The Government is investing almost $20 million to establish a 'Secure-G' Connectivity Test Lab, co-designed with industry, which will enable businesses to test measures, protocols, standards and software that underpin transparent and secure 5G connectivity. The Government will continue to work with our international partners to share information, enhance our collective cyber security, and cooperate to build technical capacity.

Actions:

The Government is acting to ensure that the Australian Defence Force (ADF) can continue to access the critical position, navigation and timing (PNT) information that it relies on for precision navigation and for sharing real-time operational and logistical information. Through research into the development, miniaturisation and maturation of quantum clocks, accelerometers, magnetometers and gravimeters, the ADF will have access to a reliable, affordable, resilient and secure PNT system that can be integrated with classical precision timing signals such as the United States' Global Positioning System (GPS). Fusing these systems would allow uninterrupted operation in challenging environments such as subterranean or dense urban settings, or in the face of jamming or deception of the GPS signal. The ADF's critical reliance on PNT information is shared with the civilian and commercial sectors, who have integrated global navigation satellite systems information, such as GPS, into nearly all facets of life. The Australian Government's Defence Science and Technology Group is bringing together multidisciplinary teams from industry and universities to create commercial opportunities for these new technologies, which will contribute to the security and resilience of critical infrastructure assets across multiple industrial sectors.

Pillar 5

Ensure policies, regulations and standards are fit-for-purpose

We will lead in the development of critical technologies policies, regulation and standards which are fit-for-purpose for our technology-driven future

Our regulatory settings and systems are essential to building resilience and maximising our productivity, while providing security and certainty for critical technologies in Australia. Rules must remain fit-for-purpose, maintaining our essential safeguards while keeping up with a changing technological landscape. In some cases, this will require the revision of existing instruments; in others, it may require new instruments to support the development and uptake of critical technologies.

Australia is also playing a leading role in international standards bodies to shape global critical technology standards that foster interoperability, innovation, transparency, diverse markets and security-by-design. Through this engagement, we seek to ensure that international standards and regulations preserve Australian sovereignty, remain open, are commercially driven, and reflect liberal democratic values of openness and transparency.
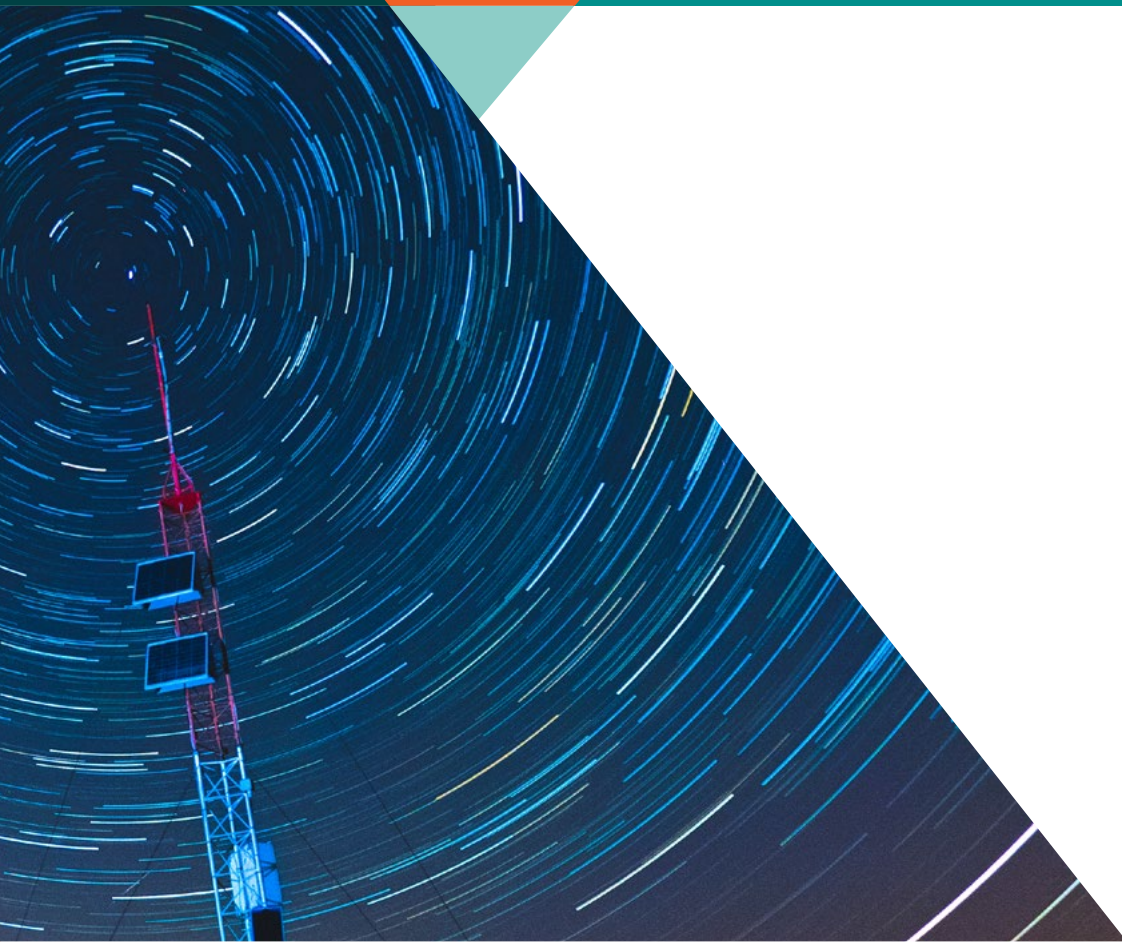
Actions:

It is essential that our policies, regulations, and standards keep up with a rapidly changing technological landscape. The Government is working hard to do this in both a domestic and an international context.

Domestically, the Deregulation Agenda is removing or updating outdated regulations, focusing on reducing barriers affecting Australia's productivity growth and competitiveness. The Government is also ensuring that regulation of new and emerging technologies reflects our values and national interest, for example through the Office of the Gene Technology Regulator, which supervises various applications of genetic modification technologies in Australia.

Pillar 6

Consider national interest in critical technologies investment

We will place Australia's national interest, including its prosperity, security and social cohesion, at the core of all critical technologies investment and funding decisions

Foreign investment has always been – and remains – critical to Australia's prosperity. We continue to welcome investment from any country and in any sector of our economy. Foreign investment plays an important and beneficial role in the Australian economy, helping to drive economic growth, create skilled jobs, improve access to overseas markets and enhance productivity. Without foreign investment, Australian production, employment and income would all be lower.

However, risks associated with some forms of foreign investment have increased and evolved amid rapid changes in technology and the geopolitical landscape. The major reforms to Australia's foreign investment framework that came into effect on 1 January 2021 are Australia's response to this changing environment. The Government will also continue to ensure that balanced and ongoing due-diligence policies, controls and procedures – which screen for and mitigate holistic risks to the national interest – apply to its own investment and procurement decisions.

Actions:

On 1 January 2021, major reforms to Australia's foreign investment review framework came into effect to address new and emerging risks and improve the overall operation of the framework. The reforms have expanded Australia's ability to screen sensitive investments, including those that may pose national security risks. Under the new national security test, there are now stronger powers to protect national security, including through mandatory screening of sensitive investments in national security businesses and land, the ability to call-in other investments that have not been notified that raise national security concerns, and a last resort power to be used in exceptional circumstances.

A foreign person must seek foreign investment approval prior to starting, or acquiring a direct interest in, a business that develops, manufactures or supplies critical technology that is, or is intended to be, for a military use, or an intelligence use, by defence and intelligence personnel, the defence force of another country, or a foreign intelligence agency.

Voluntary notification is encouraged for foreign persons proposing to invest in a business or entity that develops, manufactures or supplies critical technologies with a civilian or dual-use focus which are otherwise not captured by the mandatory notification requirements. Guidance on technologies of interest are available in public guidance material.

Pillar 7

Promote awareness, resilience and action on critical technology risks and opportunities to protect our critical technology IP and assets

We will build capability across all sectors to enable researchers, developers, entities and users of critical technologies to manage their own risks with respect to critical technologies IP and assets.

Australia has a comparative advantage in some technologies that have the potential to become critical to the national interest. The Government's $20 million 5G Initiative, for instance, includes support for projects that undertake rigorous, commercial and replicable testing of technologies that make use of 5G. The University Research Commercialisation Scheme is also developing options to better translate and commercialise Australian university research outputs. However, our technology successes may also introduce the potential for key Australian intellectual property to be transferred to actors who may seek to harm Australia's national interest.

Capacity-building across sectors will empower researchers, developers and users of critical technologies across society, including governments, to assess and manage the opportunities and risks introduced by their actions in a graduated, proportionate and targeted manner that includes consideration of the national interest.

Actions:

The University Foreign Interference Taskforce's (UFIT) Guidelines to Counter Foreign Interference in the Australian University Sector (the Guidelines), developed through an equal partnership between government and the university sector, assist universities to take a proportionate approach to countering foreign interference while maintaining the autonomy they need to pursue this ground-breaking research. The Guidelines ensure that risks are managed by those best placed to do so — the individuals and/ or entities with understanding of the relevant entity and technology characteristics. The purpose of the Guidelines is to support universities to develop and refine existing tools, assist decision makers to assess foreign interference risks and promote greater consistency across the sector, noting universities will always endeavour to achieve the best possible outcomes.

[ABOVE] The United Kingdom's Prime Minister Boris Johnson, Australia's Prime Minister Scott Morrison and United States President Joe Biden at a joint press conference via audio visual link from The Blue Room at Parliament House in Canberra, Thursday, September 16, 2021. (AAP Image/Mick Tsikas)
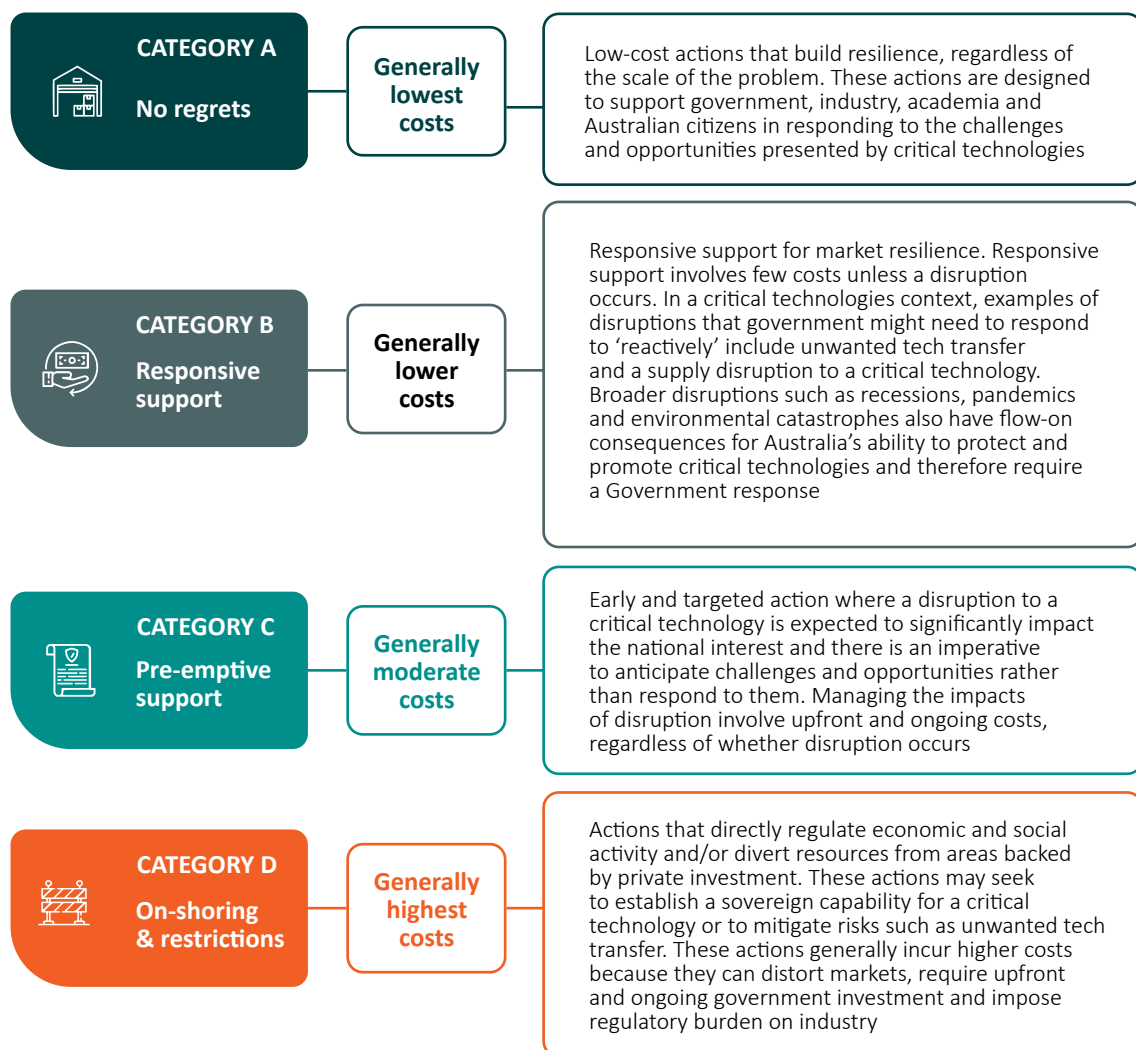
International engagement

Australia's International Cyber and Critical Technology Engagement Strategy sets out the Australian Government's vision for a safe, secure and prosperous Australia, Indo-Pacific and world enabled by cyberspace and critical technologies. International engagement is essential to realising our vision for critical technologies and cuts across each of the seven pillars in this Blueprint. The Government will continue to engage internationally, including through multilateral initiatives such as the Quad, to promote and protect Australian strategic advantage in critical technologies. This also extends to increased engagement on international standards with partners and recognised standards development organisations to shape international critical technology standards that foster interoperability, innovation, transparency, diverse markets and security-by-design.

Choosing the best action

Where technologies have been identified as critical, the Government considers whether further action is necessary to maximise the opportunities offered by that technology, while minimising potential risks. In many instances, existing resilience within the system — including existing business investments, research activities and government policy actions and investment — will be sufficient to advance our national interest. Further action will only be necessary by exception and where assessment demonstrates that a failure to act could have a significant impact on the national interest.

In pursuing actions, the Government will always prioritise options that maintain the benefits of free and open trade, acknowledging that our strengths come from a rules-based, international order. Responses must also be proportional, efficient and sustainable, balancing costs and short-term benefits and risks against long-term impacts.

The Government has four different types of response available and will always prioritise the lowest-cost option:

CATEGORY A — No regrets	Generally lowest costs	Low-cost actions that build resilience, regardless of the scale of the problem. These actions are designed to support government, industry, academia and Australian citizens in responding to the challenges and opportunities presented by critical technologies
CATEGORY B — Responsive support	Generally lower costs	Responsive support for market resilience. Responsive support involves few costs unless a disruption occurs. In a critical technologies context, examples of disruptions that government might need to respond to 'reactively' include unwanted tech transfer and a supply disruption to a critical technology. Broader disruptions such as recessions, pandemics and environmental catastrophes also have flow-on consequences for Australia's ability to protect and promote critical technologies and therefore require a Government response
CATEGORY C — Pre-emptive support	Generally moderate costs	Early and targeted action where a disruption to a critical technology is expected to significantly impact the national interest and there is an imperative to anticipate challenges and opportunities rather than respond to them. Managing the impacts of disruption involve upfront and ongoing costs, regardless of whether disruption occurs
CATEGORY D — On-shoring & restrictions	Generally highest costs	Actions that directly regulate economic and social activity and/or divert resources from areas backed by private investment. These actions may seek to establish a sovereign capability for a critical technology or to mitigate risks such as unwanted tech transfer. These actions generally incur higher costs because they can distort markets, require upfront and ongoing government investment and impose regulatory burden on industry