

Securing future innovation and global competitiveness in NSW

Green Paper

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Acknowledgement Of Country

Investment NSW acknowledges that Aboriginal and Torres Strait Islander peoples are the First Peoples and Traditional Custodians of Australia and thank them for their custodianship of Country – land, seas and skies. We acknowledge the diversity of First Nations cultures, histories and peoples, recognise their enduring connection to our state, and pay our deepest respects to Elders past, present and emerging.

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Purpose of Consultation

The economy is in a state of major transition in response to economic conditions and disruptions. Several global shifts are taking place right now, including decarbonisation, technological change, shifting economic power, demographic change and changing global value chains. The disruptions resulting from the pandemic have reinforced the urgency to address these shifts. It is essential that industry policy in NSW adapts to these changes to maximise potential opportunities and ensure long-term growth.

This period of change will present a range of opportunities and challenges for industries in NSW. To better understand the impacts on industries, and on the broader economy, the NSW Government is seeking expert opinions and evidence to prepare an Industry Policy White Paper focusing on economic performance and innovation. The Industry Policy White Paper will set the policy directions to underpin the state's economic performance over the next 10 years. It will provide guidance and direction for new initiatives and enhancements to existing industry programs to ensure that the NSW Government's industry policy continues to benefit the state's economy and residents.

In this Green Paper, a series of questions is provided to guide written submissions from NSW industry groups, individual businesses, research institutions and interested members of the broader community.

Background

The economy is continually changing and adapting as people make decisions about where they live and work and businesses make decisions based on factors such as access to markets, production inputs, supporting infrastructure and economic stability. Change can be organic and take place incrementally, but it can also be driven by larger, more rapid disruptions – for example, technology changes, resource scarcity, climate change, pandemics, and the globalisation of supply chains. The nature and scale of the transitions necessary to adjust to these major disruptions and remain competitive in global markets will vary by industry. How, and the extent to which, governments provide support will depend on the drivers of change and their impacts, as well as the nature of the opportunities and challenges. Uncertainty in the post-pandemic period has resulted in a tighter fiscal environment. Interventions will need to be prioritised and focused on measures that lift productivity.

Ultimately, industry policy seeks to lift productivity and promote industry competitiveness. Productivity is a key contributor to economic growth and leads to long-term improvements in living standards. This is particularly

“Industrial policies consist of selective government interventions to promote certain economic sectors with the aim of increasing their productivity and spread positive externalities throughout the economy”

— World Bank Group, 2017, p.2.

important against the backdrop of slowing productivity growth over the last decade¹, the projected fall in the workforce participation rate and slowing population growth over the next few decades.

The NSW Government wants to ensure that all parts of the economy, and the communities they support, can transition appropriately and that residents continue to benefit from growth in our economy. To achieve this objective, the government wants to understand how different industries are adapting to major transformative forces and the factors that influence their capacity to respond and build resilience as economic and technological conditions change.

A key part of this response is ensuring NSW has fit-for-purpose industry policies in place. This includes any wider considerations for the design of industry policies suitable for businesses of different sizes, different types of industries and different segments of supply chains, to ensure gains in living, as well as environmental, social and economic standards in NSW. Emerging industries have characteristics that need to be recognised within our industry policy, including a strong trade orientation, research and development (R&D) requirements, high growth in demand, rapid technology change and risk of obsolescence.

The *NSW 2040 Economic Blueprint: Investing in the State's Future* outlines key aspirations to enable NSW to achieve continued success in a changing world and expanding global economy. The *20-Year Economic Vision for Regional NSW – Refresh* details the economic development plan for regional NSW. The *NSW Industry Development Framework* (released in February 2022) focuses on eight priority emerging and existing industries with a menu of policy levers to target specific areas of the business operating environment and a set of foundation principles to deliver public benefits from industry policy.

This paper focuses on, but is not limited to, these industries and enabling technologies which are shown in Figure 1.

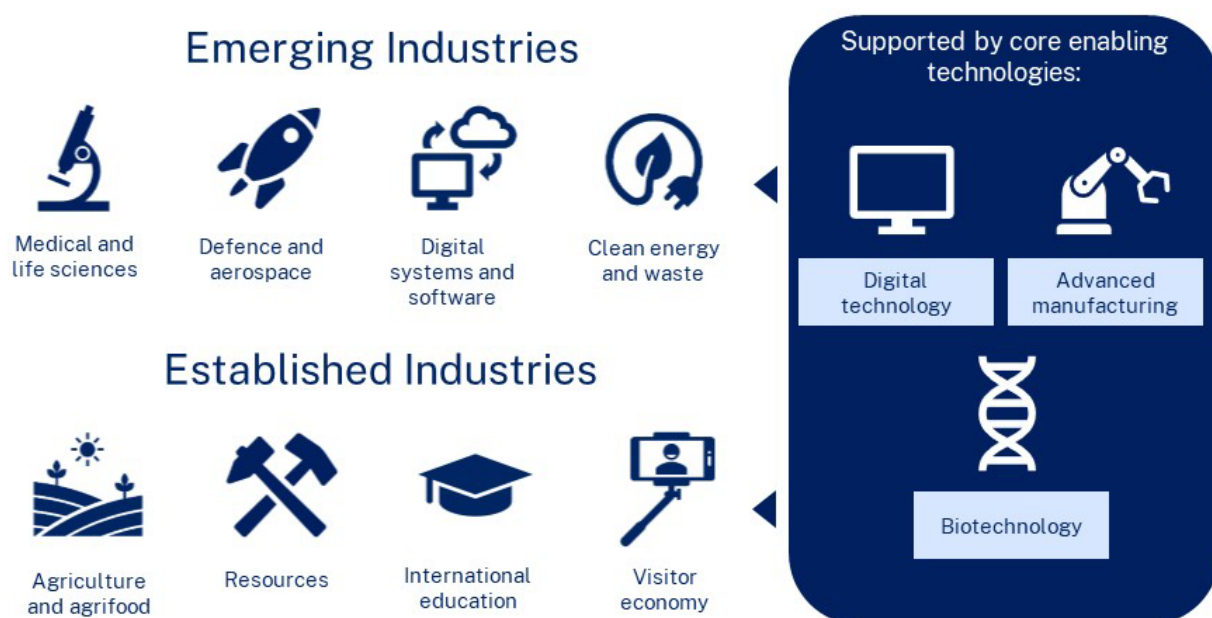


Figure 1: NSW Industry Framework 2022: Priority emerging and established industries alongside core enabling technologies.

¹ The Productivity Commission (2021) reported that even excluding 2019-20, the past decade of economic growth has been, on a per person basis, the slowest in 60 years.

The NSW and Australian Governments share a proactive approach to industry policy development with aligned interests in priority industries and enabling technologies. The Australian Government's Industry Growth Centres Initiatives support six key growth industry sectors through a mixture of strategic planning and coordination, funding and co-funding for industry-led collaboration and commercialisation projects, advisory, market access and delivery support.² The six key growth industry sectors include Advanced Manufacturing, Cyber Security, Food and Agribusiness, Medical Technologies and Pharmaceuticals, Mining Equipment, Technology and Services (METS) and Oil, Gas and Energy Resources.

The transformation of an industry sector and its key value chains takes time and coordination. In a competitive and dynamic environment, key investments in physical, human, and social capital can help accelerate, and reduce the costs of, these transformations. The Industry Policy White Paper for NSW will set the right enabling conditions for this investment to take place.

The NSW Government encourages all interested parties to participate in setting the direction of industry policies for NSW by responding to the questions included in this Green Paper. The Industry Policy White Paper for NSW will set out the forces underpinning industry policy reform for the next decade, with periodic review. It will also outline the NSW Government's plan to work with industries on key issues, including the development of planned actions to lead the transition of industry, community, and workforces.

Fundamentals of the new industry policy



Cost sharing

Policies should support industry cost sharing with government, where appropriate.



Collaboration

Policies should be suited to a joint approach between the NSW Government and industry and with other jurisdictions pursuing similar goals.



Less market distortion

Policies should avoid incentives that create adverse market distortions.



Adaptable

Policies should be adaptable to the needs of different industries and changing conditions.



Alignment

Policies should work in harmony with other policies.



Support innovation

Policies should support future innovations.



Individual impact

Policies should not discriminate against or unfairly advantage any group.

² Department of Industry, Science, Energy and Resources (2021).

How you can make a submission

Public submissions are invited to help prepare the Industry Policy White Paper. Questions for consultation are outlined in this paper to assist individuals and organisations prepare submissions. Submissions may range from a short letter outlining your views on a particular question or issue, to a more substantial document covering a range of issues. Where possible, you should provide evidence to support your views, such as relevant data.

Submissions must include your name, organisation (if relevant) and contact details. Submissions must be received by **5.00pm on Monday 6 June 2022**. Submissions can be lodged via:

Email: industrypolicy@investment.nsw.gov.au or

Check the NSW Government's [Have Your Say website](#) for further ways to contribute.

Indicative timeline

Submissions will inform the preparation of an initial draft industry policy. The draft will identify major drivers of structural transition in the NSW economy to achieve ongoing economic growth and improved living standards. It will outline the benefits to NSW residents, businesses, and the environment along with the actions government will take to support industry transition that may not be possible through private sector actions alone.

The indicative timeline for the consultation stages and final delivery of the Industry Policy White Paper is shown in Figure 2. For further information, please email:

industrypolicy@investment.nsw.gov.au



Figure 2: Indicative timeline

Confidentiality of Information

Investment NSW may publish submissions on its website or use content from submissions in the Industry Policy White Paper unless the submission is accompanied by a request for confidentiality with acceptable reasons. Please clearly mark 'IN CONFIDENCE' on your submission, or specific parts of it, if you wish material to remain confidential.

Investment NSW may publish or reference findings from the consultation process in an anonymised way that does not disclose confidential information. Any personal details (for example, home and email addresses, signatures, and phone, mobile and fax numbers) will be removed from submissions made by individuals to protect personal information.

In NSW, industry policy is approached from a whole-of-government perspective. Some of the issues covered in this paper will touch on areas under the responsibility of other agencies. Investment NSW will share information with the relevant agencies to ensure these issues are considered and to remove any duplication in policy development.

Transformative forces creating challenges and opportunities

A transformative force is a factor driving substantial, rapid and ongoing change across the economy in how we live and work. These are internationally recognised forces affecting economic and social change, which have whole-of-economy implications for how businesses compete and grow in a local and international context. Transformative forces driving structural economic change over the next 10 years will underpin the evolution of industry policy in NSW.

Examples of transformative forces are shown in Figure 3. There may be other challenges to consider instead, such as meeting the needs of an ageing population through innovation.

Examples of challenges and opportunities driving structural change in the NSW economy*

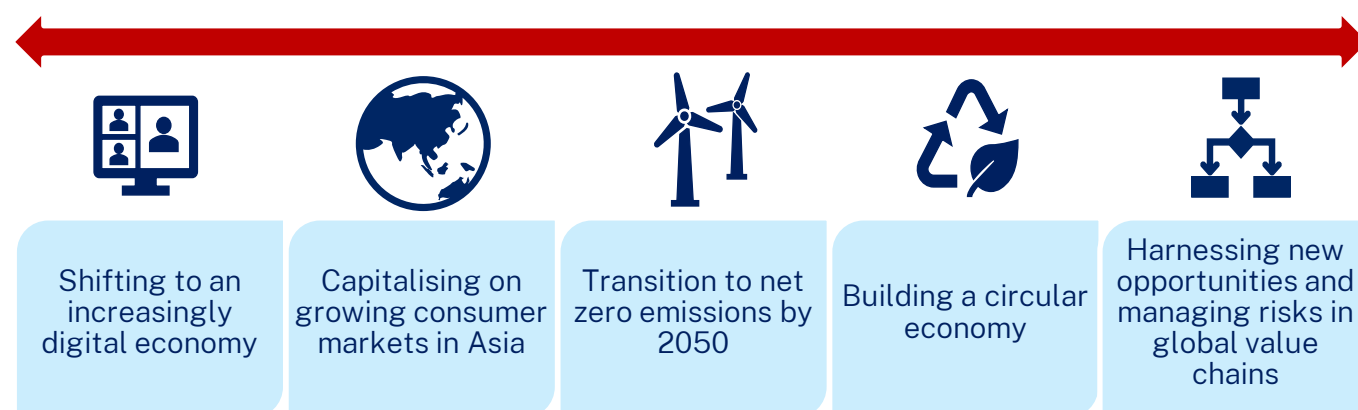


Figure 3: Examples of transformative forces where industry policy can play a role in delivering solutions

NSW's population is projected to be older and grow more slowly over the next 40 years, with 25 per cent of NSW's population expected to be 65 or older by 2061.³ An aging population will have workforce implications, such as skills shortages, with potential to negatively impact productivity growth. It will also drive changes in consumer needs and preferences across areas including housing, medical, transport and care.

There are also going to be unknowns with unforeseen or unexpected economic effects and NSW will need to pair industry policy with strong economic settings to ensure the economy can adapt.

We want to hear your views on what the most important challenges transforming how we work (our industries), how we live (our communities) and the NSW economy overall.

How the government responds to these forces and the type of industry policy applied will be important to the economic future of NSW. Identifying and tackling the transformative forces that matter most to industry will enable the NSW Government to consider how best to facilitate the economic transition needed.

The NSW Government is contributing to the shaping of industry policy with interventions across various industries, as demonstrated in the **Appendix** to this paper.

The NSW Government is seeking your feedback on how these transformative forces are shaping opportunities and challenges for industry over the next 10 to 15 years.

³ NSW Treasury (2021), p. 25.

Shifting to an increasingly digital economy

Digital technologies are changing the way business is carried out around the world. Digital technologies help businesses connect to consumers, interact with suppliers and enhance production processes, including how resources are used and sourced through dispersed value chains. The advent of 'Industry 4.0'⁴ has seen the integration of production with technologies of automation and 'Big Data', enabling industry to become more productive and meet consumer demands for new products and services.

The social and economic shifts are enormous. The Brookings Institute⁵ observed:

Digital technologies have risen to prominence as a critical determinant of economic growth, national security, and international competitiveness. The digital economy has a profound influence on the world's trajectory and the societal well-being of ordinary citizens. It affects everything from resource allocation to income distribution and growth.

These changes present opportunities for the digital economy. There are lower fixed costs to access markets, which help level the playing field for small and medium-sized enterprises (SMEs) when competing with large multinational firms. Closer links between producers, suppliers and consumers via digital platforms enables industries to better cater to consumer tastes, including identifying niche markets. Digital technology also provides new levels of efficiency, security and safety in production and distribution, allowing precise and detailed information tracking of production and logistics. Potential applications of digital technologies are continuously growing and can be found along the entire value chain.

These opportunities may be tempered by challenges for governments, industries and communities. There are increasing cybersecurity concerns about the responsible use and secure storage of personal data and the resilience of businesses to cyber threats to digital infrastructure and services. The digitalisation of services has also encouraged a 'race to the bottom' in some industries, as jobs can be filled by workers overseas who work under poorer conditions for lower pay, and by local 'gig' workers who may not have equal protections given to formal employees. Access to international supply chains also opens industries to the volatility of other regions' economies, necessitating risk strategies that include developing alternative supply chains. The COVID-19 pandemic has highlighted many of these supply chain security issues. Developing workforces of the scale and with the required depth of new and emerging skills will also be a driver of the pace and scale of change to a digital economy.

The NSW Government is interested to hear how significant the shift to an increasingly digital economy is for your industry. We are seeking insights into how the government may help balance potential payoffs and cybersecurity risks in the growing digital economy.

⁴ Industry 4.0 describes the integration of new technology breakthroughs in fields such as artificial intelligence, robotics, the Internet of Things, autonomous vehicles, 3-D printing, nanotechnology, biotechnology, materials science, energy storage, and quantum computing with industrial production.

⁵ Brookings Institute (2019).

Capitalising on growing consumer markets in Asia

Over the next decade, half of the world's spending growth is projected to come from Asia – representing a consumption growth opportunity estimated at \$US10 trillion.⁶ This shift reflects a huge part of the world's population becoming more affluent and demanding large quantities of increasingly sophisticated goods and services.

Although geopolitical tensions have been on the rise in recent times, and are expected to continue in the foreseeable future, NSW is well placed to take advantage of this shift. The State has strong people, trade and investment links with Asia as well as being located in the same region and time zone.

More than 1 billion people living in Asia are set to join the global middle class by 2030. India and China, the most populous countries, are expected to grow by another three-quarters of a billion people by 2030. But the rise of the middle class in Asia is not just a story about China, nor only about China and India. Indonesia is projected to add more than 75 million middle class members by 2030 and overtake Japan as having the 4th largest middle class in the world. Pakistan, Bangladesh, the Philippines, and Vietnam are also expected to add a combined total of over 170 million middle class members in the same period. Asia accounted for 41 per cent of spending by the global middle class in 2021, a figure that is expected to rise to over 50 per cent by 2032.⁷

Asia represents the fastest growing and most diverse regional economy in the world, and one not too far away from NSW. Demand for the State's resources will remain strong, particularly for agricultural products and minerals.

The major change, however, will be in the expansion of the market for more sophisticated goods and services, with significant potential for value-adding to our primary resource exports. Increasing incomes and consumer demand will increase demand for more sophisticated manufactured goods (where NSW already has expertise, such as, in medical devices and food processing) and for services such as tourism and education where Asia is already a key market.

There are also massive demographic shifts taking place across Asia, driving changing patterns of demand. Single occupant households are rising, leading to shifts in consumer demands from smaller portions of packaged food to new forms of companionship, such as pets, AI-driven chatbot companions.⁸ These are growing markets with hundreds of millions of consumers. Understanding how to best engage these consumers using digital platforms will be central to the success of NSW industries.

NSW companies, however, will not be the only ones trying to benefit from the large and growing

“Today, Asia has around the same number of upper-income urban households as the United States; by 2030, it will have double the number. By 2030, there could be more than 20 cities with over 1 million upper-income households each, mostly in China, India, and Japan.”

— McKinsey and Company (2021).

⁶ McKinsey and Company (2021).

⁷ Tanzi (2021).

⁸ McKinsey and Company (2021).

consumer markets in Asia. Competition to supply these markets will be intense, particularly from domestic suppliers in these Asian countries who are looking to upgrade their activities in global value chains. Australian industries will need to carefully identify opportunities where they have comparative advantages (for example, in value-adding to goods with established export markets). As Asian economies shift production to more sophisticated goods and services, they will need high quality human resources, well-developed infrastructure, a well-developed financial sector and stronger regulations. NSW has the expertise to provide these services.

The NSW Government is interested to hear how significant these expanding consumer markets in Asia are for your industry. We are seeking insights into how the Government may help you take advantage of and adapt to these changes. In particular, we are interested in hearing about what you believe is important for your business or your industry to be competitive as a supplier into these new consumer markets.

Transition to net zero emissions by 2050

Governments and businesses around the world are accelerating action to decarbonise and support social and economic adaptations in response to a changing climate. The pursuit of net zero carbon emissions by 2050 will fundamentally transform the global economy, creating resounding challenges and opportunities for local businesses and industries.

While NSW already has several policies in place to support the transition to renewable energy, there are significant gains to be made if NSW can effectively coordinate the transition to, and increase its share of, renewables in the electricity system – including accelerated growth in new low-emissions

Key types of renewable energy in NSW

Renewable energy comes from natural resources like the sun, wind and water. By harnessing these resources, NSW can transition to more sustainable and diverse industries.

Key types of renewable energy include:

Solar energy – is a growing part of NSW's energy mix. Most large-scale solar projects in NSW are located in regional areas due to their strong solar resources and the availability of land. Businesses investing in solar projects need to consider potential land use conflicts between existing agricultural land uses and solar energy development.

Wind energy – is a key part of the NSW energy mix, with areas in the east coast and regions along the Great Dividing Range being identified as some of Australia's best sites. These areas have consistently high average wind speeds and are often close to existing transmission lines. Factors such as noise levels and visual impact are considerations when determining the location of wind farms.

Green hydrogen - plays an important role in our goal to reach net zero emissions by reducing carbon emissions in sectors where the use of electricity from renewable sources is either too costly or faces technical barriers. The *NSW Hydrogen Strategy* outlines NSW's ambition to become a regional leader in green hydrogen. Benefits from green hydrogen include zero emissions transport, the production of green ammonia and green steel, and sustainable chemical and synthetic fuel production. Some of the barriers to the uptake of green hydrogen, such as high production costs, are expected to decline as technology develops, the cost of renewable energy falls, and we achieve economies of scale.

Other types of renewable energy include bioenergy, hydro, geothermal and ocean energy. Each have challenges yet to be fully addressed (see *Energy NSW 2020*).

Source: Energy NSW (2020).

industries, reduced emissions and lower energy costs for consumers. New jobs will be created in the renewable energy sector, although required skills may differ from those currently in demand. New supply chains and manufacturing capabilities will emerge, along with the need for new supporting infrastructure in both energy production and distribution. All this will require innovation and the adoption of new technologies and modes of business operation. This is particularly relevant for NSW regions transitioning away from fossil fuels towards more diversified low-emissions energy production.

NSW is well positioned to be a leading location for decarbonising industries, due to its highly skilled workforce, strong financial markets, innovation ecosystems and abundance of natural resources, including access to critical minerals and wind and solar resources. Greater demand for sustainable energy sources and new products to support sustainable practices, combined with NSW's competitive strengths, adds up to significant opportunities for NSW industries to realise a successful net zero transition.

Industries with high-emissions products and processes may experience higher production costs, lower demand for their products and services, and lower employment.⁹ Large-scale reallocation of capital spending on physical assets for energy (production and distribution) and land-use systems will be needed and will set the pace of transition. There will be global competition for available capital. Shifts in planning and investment horizons will be needed to manage risks and capture opportunities from decarbonisation.

Coordinated action across customers, investors, governments and along supply chains will be pivotal in determining the pace and scale of transition. Government will need to manage the impacts of this transition, such as reduced fuel excise receipts and requirements for electric vehicle charging stations. This might involve the use of regulatory and fiscal tools to establish incentives, support vulnerable communities and foster collective action. Government could also support the dissemination of information to assist business, investor and consumer decisions and play an active role in transforming the skillsets of workers from fossil fuels to green energy.

We are interested in understanding how significant decarbonisation will be for your industry, as well as how industry policy may be able to accelerate the required adjustments in NSW. This will assist government in capitalising on opportunities for low carbon and renewable energy-based growth.

Building a circular economy

As populations grow, so too does the pressure placed on natural systems through the use of non-renewable resources and disposal of waste. Natural resources are being consumed quicker than the rate at which they can be regenerated.¹⁰ Waste is causing significant damage to natural assets, including oceans, air, soils, water, and biodiversity.

The aim of building a circular economy is to alleviate resource scarcity and reduce waste by promoting an alternative 'regenerative' model of production and consumption. Changing from the current pattern of 'take, make, dispose' to a circular model will require action across supply chains

⁹ See McKinsey and Company (2022).

¹⁰ PwC (2021), p. 8.

and changes in consumer and industry behaviours. These changes include reconsidering the way products are designed and the way services are provided to maximise the productivity and reusability of materials throughout their lifecycle. The changes also seek to capture value from the millions of tonnes of plastics, paper, glass, metals, textiles and masonry that are lost to landfill every year. This opens new avenues for innovation in product design and service models, such as by retailers retaining product ownership and enabling servicing to extend product life, as well as manufacturing processes and new technologies for reuse, alongside the growth of new industries and jobs that those innovations create.¹¹

Increased demand for resource recovery and recycling will create unique challenges and opportunities for NSW businesses. Innovative solutions and infrastructure will be required to ensure cost-effective recovery of end-of-life products, many of which are designed for recycling in European and North American plants that already have cost-effective recycling processes and throughput.

As the concepts of circular economies and sustainable growth are adopted globally, it will create additional costs and benefits for NSW industries. Costs are, in part, from regulations in other jurisdictions that impose recycling charges on imported goods or through the increased cost of imported inputs. Potential benefits from reusing materials can include reduced long run operational costs and greater resilience to volatility in supply chains. As circular economy technologies mature and new business models and supply chains that recover and recycle resources develop, the cost to achieve sustainable growth may also diminish.

The NSW Government is interested to hear industry views on how significant the shift to circular economies is for different NSW industries; how industry is addressing this transformation and any actions the government should consider to ensure businesses are well-placed to leverage the opportunities this transition will create.

Harnessing new opportunities and managing risks in global value chains

Global value chains (GVCs) have become a dominant feature of world trade as production activities shift to locations across different countries offering the required skills and materials at a competitive cost and quality. Growth in GVCs has also spurred the growth of trade in services that help to link production activities between countries engaging in value-adding activities. NSW has a strong services sector that has supported and benefited from the growth of global supply chains, including financial services, professional, scientific and technical services and information, media and telecommunications services.¹²

GVCs are likely to undergo major changes over the next decade due to new technologies and the impact, but also uncertainty from, recent geopolitical events, the pandemic and natural disasters. These changes will create opportunities for NSW businesses as well as risks that will have to be managed to increase resilience to demand and supply shocks.

¹¹ See NSW Environmental Protection Agency (2019) p. 4.

¹² NSW Treasury (2019).

New technologies created from Industry 4.0 are enabling manufacturing production to be more local, with robotics and automation partially reducing the impact of the high labour costs that were formerly a major driver of supply chain globalisation. Other new technologies like 3D metal printing are transforming manufacturing processes and diminishing the former competitive advantages from economies of scale. In these situations, local production closer to markets is becoming more commercially attractive and the ‘on-shoring’ or ‘near shoring’ of production activities will create new opportunities. NSW can benefit from these changes if managed well, although some of the gains may be limited by the relatively small size of the Australian market and the investments, particularly in Asian countries, to move up the value chain.

“Global value chains (GVCs) will undergo substantive transformation in the decade ahead, reshaping the global trade and investment landscape. The change will be driven by five major forces: economic governance realignment, the new industrial revolution, the sustainability endeavour, corporate accountability, and resilience-oriented restructuring.”

— Zhan, J.X. (2021, p.206).

There are opportunities for NSW businesses to enter and upgrade their participation in value chains from local manufacture of innovative new products for export, using these advanced manufacturing processes and capitalising on growing markets in Asia. Supply chain realignments, together with other transformative forces such as renewable energy, will also create great opportunities for industries and businesses that develop the adaptive capacity to remain competitive and offer the environmental, ethical or security solutions sought by trading partners. Recent geopolitical events have highlighted the State’s comparative advantage as a reliable and stable supplier and producer, both domestically and with overseas opportunities. Companies can build on

this advantage and capitalise on opportunities to move up the value chain. For example, there could be greater local processing of raw materials, possibly powered by renewable energy sources in which the State also has a strong natural endowment. At the same time, the reliability of input supply chains and market access, are also becoming more challenging. Larger businesses may be able to increase their resilience by reorganising their supply chains to minimise risks of disruption, increasing supply chain diversity and redundancy. Other businesses may adapt by abandoning ‘just-in-time’ production strategies, or by localising production to isolate supply chains from risk. SMEs may have fewer options and less bargaining power in this transition. A further challenge is that strategies to improve resilience typically have additional costs, and this will affect business profitability and relative competitive advantage. This may be a problem if foreign competitors do not face similar challenges and costs.

The NSW Government is interested in understanding what actions can support industries to adapt to changes in global value chains, to deliver on long-term economic growth and improved living standards in NSW, as well as how domestic supply chains can transition into exports to further bolster domestic capabilities.

Questions for Consultation

1. **Describe the top two or three transformative forces that will shape transition challenges and opportunities in your industry over the next 10 years.**

This may include examples from those given above or any others. Be specific about the most important transformative forces for your industry. This may include examples from those given above or any others.

2. **What effects do you expect these transformative forces will have on your industry (or on your own business) over the next 10 years?**

If any transformative force is of greater significance to your industry, explain why, with specific examples of the expected opportunities and challenges for your business or industry.

3. **What action is your industry or business taking, or intending to take, to address the effects of these transformative forces?**

Business operating environment

Growth in living standards depends to a large extent on the productivity performance of an economy. Higher productivity is a long run driver of growth in *per capita* income, contributing to improvements in household incomes as well as better education, healthcare and other services to support the living standards of NSW residents.

Productivity growth is driven by the development and uptake of new technologies and how efficiently land, labour and capital are used in the production process.¹³ Productivity can influence how well local producers can compete domestically and internationally.

Productivity growth in Australia, as well as in other countries, has slowed down in recent decades and if the trend continues, can translate into slower growth in our living standards.¹⁴

Industry programs can influence productivity performance by removing impediments in, or enhancing, the business operating environment, to enable industry growth and better performance. As the potential to drive productivity gains is different across industries, policy interventions need to be tailored to particular industry contexts and their costs assessed relative to expected gains. There is no single intervention that will result in improved productivity and economic growth.

Industry policies that enhance productivity will target specific elements of an industry's operating environment – productive capacity, enabling capabilities or markets – where market forces are not delivering efficient outcomes. Careful choice of the appropriate intervention for each situation is critical, to avoid unintended negative consequences elsewhere in the economy. Interventions should be seen as the exception, rather than the norm, given the risks and costs involved.

Industry policy interventions are intended to achieve long-term industry sustainability and resilience without the need for ongoing government support. Depending on the issue, a complementary mix of demand-side and supply-side interventions is often most effective. Demand-side interventions increase demand for products. Supply-side interventions address supply constraints or impediments to the development of value chains. Industry policy interventions can also involve a range of coordinated actions across different government agencies and between different levels of government.

Across international and interstate jurisdictions, industry policies have shifted away from tariff protection and direct support mechanisms to put more emphasis on support for skills and technology, public-private partnerships in areas such as research and infrastructure and government facilitation and coordination.¹⁵ These 'softer' interventions can reduce the risk of industry policy distorting markets, while raising the economic

“Policy is not just about ‘intervening’. It is about shaping a different future: co-creating markets and value, not just ‘fixing’ markets or redistributing value. It’s about taking risks, not only ‘de-risking’. And it must not be about levelling the playing field but about tilting it towards the kind of economy we want.”

— Mazzucato, M. (2018).

¹³ NSW Productivity Commission (2021).

¹⁴ See Productivity Commission (2021).

¹⁵ See World Trade Organisation (2020).

competitiveness of businesses.

Increasing productivity is a key focus of industry policy and is core to discussions around the business operating environment. The *NSW Productivity Commission White Paper 2021 – Rebooting the economy* outlines a range of recommendations aimed at lifting NSW's productivity growth and can complement the development of industry policy in NSW.¹⁶ Productivity growth can occur when there is increased competition, more efficient taxation, improved regulation or increased efficiency within businesses through innovation.

The sections below describe areas in the business operating environment that can be targeted by industry policy to improve productivity and increase demand or lift supply of NSW products and services where there are market failures or opportunities to catalyse growth in a particular direction, if appropriate.

The NSW Government is seeking feedback and evidence on the opportunities and challenges in your business' operating environment that will directly impact opportunities for growth. This feedback will be used to ensure suitable interventions are considered, planned and implemented to deliver the best industry policy for the benefit of NSW.

Sophisticated industries

In 2019, the International Monetary Fund (IMF) identified three principles for industry policy:

1. State intervention to fix market failures that preclude the emergence of domestic producers in technologically sophisticated industries early on, beyond the initial comparative advantage;
2. An export orientation, in contrast to a focus on import substitution;
3. The pursuit of competition abroad and domestically.

Sophisticated industries were identified as those with high productivity and spillover gains to the tradeable sector, and a high content of intermediate goods to create backward linkages in the production process. Spillovers and linkages can result in agglomeration effects and clusters, feeding back to productivity gains.

Diversifying the tradable sector and increasing its sophistication were identified as crucial to promoting sustained economic growth, particularly for economies where commodities are the dominant exports.

The IMF proposed that the state could create conditions for high and sustained long-term growth by intervening to fix market failures to develop sophisticated sectors and domestic technology (innovation).

Source: International Monetary Fund (2019).

Domestic markets

Markets are a fundamental component of all business operating environments. The ability for business to readily identify and extend access to domestic markets and engage with customers is essential for a strong business environment that enables industry development. Measures that stimulate demand in domestic markets can play a role in the development, or the scaling-up, of markets for new products and technologies, the development of local supply chains, and the expansion of market share for products and services produced in NSW.

There are a number of ways domestic demand may be stimulated through government actions, such as public procurement policies for expansion of domestic demand, state-based marketing and

¹⁶ NSW Productivity Commission (2021).

environmental and safety standards, which are common approaches. These strategies stimulate demand through better sharing of information between producers and their potential customers, or by improving consumer interest and demand.

Demand-stimulating initiatives can incentivise businesses to innovate and acquire new knowledge or new processes, which can help industries respond to transformative forces. However, it is important that measures are carefully applied to ensure that adverse effects, such as high implementation or transactions costs on smaller sized businesses, can be mitigated or managed.

International markets

Exports are a key driver of growth, particularly in relatively small economies such as Australia. Improving market access and stronger international networks are increasingly important for participation in global value chains and providing growth opportunities for local industries. Increasing demand abroad for NSW products incentivises NSW businesses to innovate and improve productivity. By selling into world markets, the range of goods and services produced can also be expanded.

Accessing international markets can be difficult when information is scarce, especially for SMEs that can face a high regulatory burden to gain that access. Government can assist businesses to enter or expand into global markets through information services that help them navigate border processes, reduce the regulatory cost of access and link customers or investors with NSW-based exporters.

Activities to promote NSW products and services in global markets can include international trade fairs, branding and marketing campaigns for NSW produced goods and services, as well as business linkage programs. Trade promotion and facilitation can support businesses within targeted industries by creating opportunities to acquire knowledge of export markets and international sources for production inputs. These are most effective when expansion of domestic production is constrained by a small domestic market or where there are significant barriers to finding overseas customers or suppliers, such as for SMEs.

Priority international markets

The NSW Trade Statement identified six priority markets that either represent new opportunities in expanding markets or leverage long standing trading relationships. Each priority market has a hub location and is supported by additional ‘spoke’ locations in the region. NSW Trade Commissioners in hub and spoke locations and their offices promote and facilitate trade and foreign investment, including in international education, increasing demand for NSW businesses. Priority markets (and their hub location) are:

- Americas (New York)
- UK, Europe and Israel (London)
- India and the Middle East (Mumbai)
- ASEAN (Singapore)
- Greater China (Shanghai)
- North Asia (Tokyo)

Source: Investment NSW (2021)

Skills

The quality and quantity of workforce skills is a major factor determining economic performance. Governments can drive productivity and lift economic prosperity by incentivising investment in skills – both for employers and workers – and supporting the alignment of training and education services to match industry skill needs.

When there is pressure for rapid change to the industrial structure of an economy, there will also be rapid shifts in the types and levels of workforce skills, including management capabilities, required by industries. Skill shortages and mismatches can result, restricting production and lowering productivity and an industry's capacity to respond to changing conditions.

A range of factors influence the availability of the right mix of labour skills: the composition of the local labour market; the mobility of labour; and the availability of suitable education, training, and opportunities for on-the-job learning, particularly in regional NSW. The availability of the needed skills can also be affected by extraordinary events, such as pandemic and its related disruptions to workforce demands and skilled migration.

While there are private incentives for individuals to acquire new and transferable skills, there are also opportunities for both industry and the NSW Government to better enable workforce upskilling and adaptability.¹⁷ Some progress has been made to strike a better balance between workforce skills and industry needs. For example, increasing the recognition and accessibility of certified micro-credentials is a way to support life-long learning

How workforces, jobs and skills are changing

The National Skills Commission provides advice to the Commonwealth Government on Australia's labour market, workforce changes and current and emerging skills needs.

Key points identified from the National Skills Commission include:

Workforce changes

- The emergence of more complex, innovative work in many industries has been facilitated by expanding STEM (science, technology, engineering and maths) skills in the labour market.
- Greater use of technology has changed the way many jobs are done and encouraged growth in higher skilled jobs.
- Automation has replaced labour in some jobs and tasks but has also created new tasks and demand for different types of labour.

Employment shifts

- The NSC's five-year industry employment outlook projects that the long-term structural shift in employment towards services industries will continue.
- Three-fifths of the total projected employment growth is expected to be generated by four services industries: health care and social assistance, accommodation and food services, professional, scientific and technical services and education and training.
- NSC projects that more than nine-in-ten new jobs will require post-school qualifications. Employment in STEM occupations is projected to grow by 12.9 per cent, well above the average of 7.8 per cent for all occupations and more than twice as fast as non-STEM occupations (at 6.2 per cent).

Skills shortages

- The NSC identified 50 occupations in NSW expected to be in strong demand and short supply across regional and metropolitan NSW.
- Generally, shortages are greatest among 'technicians and trades workers' who are employed in a wide range of occupations important to many different industries. They include electricians, carpenters, chefs, fitters and motor mechanics.
- Data and digital skills are among the fastest growing emerging skills. Although Australia is doing well with respect to recognising the need for specific digital skills, further effort may be required to build proficiency at all digital skill levels, not just the higher skill levels. There are significant potential gains to individuals, and likely also to the economy more broadly, from investing in those skills.

Source: National Skills Commission (2021).

¹⁷ See NSW Productivity Commission (2021) for an expanded discussion.

practices and increase responsiveness to rapid changes in workforce skill requirements across industries.

Further improvement will take coordination between industries, government, education and training providers. As governments already play an important role in the development of workforce skills through supporting higher and vocational education, there is scope to better integrate higher education and training into industry policy.

In this consultation process, we are seeking evidence of skills mismatches, for example, where skills acquisition is currently not well aligned to industry needs or industry is unable participate or drive the design and delivery of upskilling models for their workforce.

Productive capacity

To remain competitive, local businesses must, among other things, maintain and build productive capacity to deliver high quality products and services at competitive prices. Productivity is a key contributing factor. While growth can be achieved by building upon the productive capacities in existing industries, high growth can be achieved by identifying new diversification opportunities that go beyond existing capabilities.¹⁸ Initiatives that leverage existing advantages while building capacity in new industries are likely to generate the largest benefits.

Initiatives that focus on facilitating supply chain development and increasing resilience can lead to more efficient and reliable production processes. They can increase productive capacity by encouraging the production and trade of products that have large spillovers and linkages across the supply chain. This allows businesses to become part of global supply chains or move into higher value-added production activities within the same or a related supply chain. Governments will sometimes support this type of industry transition if there are real opportunities for economic growth or other public benefits that would not otherwise occur.

Productive capacity can also be lifted, for example, through increased investment by local businesses or by attracting foreign direct investment. Business concierge and investment facilitation services are also commonly used to increase productive capacity in an industry by attracting investment. Financial incentives, such as relocation grants and tax concessions¹⁹, can be used to attract businesses and accelerate knowledge transfers and innovation in targeted industries or their supply chains. These types of incentives tend to be used sparingly and designed carefully to minimise distortions to markets and rational decision making as well as to minimise that the cost to government.

Technology

Technology can be a target of industry policy to realise improvements in an industry's productivity. By fostering initiatives that spur innovation and promote the adoption of new technologies, better production methods and processes can be introduced, lifting industry competitiveness. Industries

¹⁸ International Monetary Fund (2019).

¹⁹ See NSW Productivity Commission (2021) for an expanded discussion on addressing distortionary taxes.

will differ in their potential for technologies to boost productivity, although the emergence of new technologies, such as digital systems, big data, AI, autonomous systems and 3D printing, are offering more opportunities for a larger range of industries to boost productivity.

Productivity enhancing technologies adopted anywhere along an industry's value chain mean that either more products and services are produced, or more inputs made available for use by other industries. The adoption of new technology can allow firms to expand their product and service offerings and create new market opportunities with new customers, suppliers and employees.

Well-targeted public investment in science and technology is, for example, a recognised way to accelerate productivity gains and economic growth – particularly along the R&D pipeline to support commercialisation and growth of businesses and products. These investments and actions can be effective when private investment is dampened by uncertainty, long time horizons or a lack of information on how effective a new technology will be for its intended commercial purpose.

Government can also play a role to increase supply through the development and adoption of new technology by coordinating actions between industry, research institutions, higher education and government. These actions can better match technologies to the critical needs of industry and prepare the workforce skills needed to apply them. Providing information or demonstrating new technologies can raise confidence and accelerate adoption. International trade also plays a role by increasing exposure by local businesses to the benefits of new technologies and products arising from overseas research. Government can also promote greater connectivity and collaboration between strong but separate knowledge bases, resulting in new technologies and skills being adopted across industries and institutions.

Finance capital

Finance capital is needed by industry to adapt to transformative forces, achieve growth and maintain competitiveness. NSW is fortunate to have an internationally recognised finance sector to service the capital needs of small and large and new and established businesses. The sector gives us access to international capital markets and lowers the barriers to capital flows. The NSW finance sector also supports the innovation needs and growth of NSW industries. While most NSW businesses are well serviced, the financing of early-stage businesses can be problematic, particularly where lenders lack reliable information about the business's ability to generate returns and repay loans.

Despite a lack of data, metrics and analytical tools to measure and manage climate transition, capital markets are starting to integrate climate transition risks and opportunities into their investment decisions and better price the risks and benefits of decarbonisation. These issues impact a range of industries including coal, oil and gas, utilities, renewable energy companies and industries that are closely linked to carbon intensive activities, such as transport and construction.²⁰ New products and financial instruments will be needed to support an effective and efficient transition away from traditional fossil fuel industries.

²⁰ See OECD (2021).

Governments have a role in promoting sustainable finance outcomes that address environmental and social goals. This includes incorporating current and future risks and opportunities into government operations and decision-making. In certain circumstances, governments can play a role through platforms that help to connect venture capital investors with researchers and innovators, to match investor risk profiles and investment time horizons and support more research to reach the commercialisation stage. Governments can also incentivise private investment, such as through co-financing arrangements when both risk and potential returns are high, and returns are well aligned with a public benefit (such as ensuring peoples' security or health or caring for the environment).

Infrastructure

Access to critical infrastructure, such as transport, communications and energy infrastructure, is a necessary precondition for a strong business environment and to generate benefits that raise the productivity of the economy. Some industries also require industry-specific shared infrastructure including 'physical' (such as service provisions to industrial areas, rail and port infrastructure and processing plants) and 'soft' infrastructure (such as regulations, institutional and information-sharing systems).

Productivity can slow or opportunities can be missed or delayed when soft infrastructure, such as regulatory settings, does not keep pace with technology change or when shared physical infrastructure lacks the coordinated timing, financing or access agreements needed to enable sharing arrangements. Reform that delivers outcomes-focused, technology-neutral regulation is important when existing regulations unnecessarily restrict innovation or block new product pathways to market. Regular reviews also ensure that new products and emerging technology businesses reach their potential while also managing potential risks to the community.

The gains from sharing industry-specific infrastructure include lower costs for existing producers and support for new businesses to enter a market where capital investment may have previously been a barrier. Where there are substantial potential public gains from shared infrastructure arrangements, governments may play a role in incentivising participation.

Precincts and industrial areas can create productivity benefits from co-location through information spillovers, agglomeration benefits, labour pool sharing and more efficient supply chain linkages. Renewable Energy Zones and precincts can also support industry growth and expansion through shared services and facilities and by facilitating the efficient management of negative aspects of industrial activities, such as noise, dust, chemical drift, odour, heavy vehicle traffic. Governments can help provide the necessary infrastructure and information to encourage firms to locate in appropriate areas, overcome the coordination challenges and realise the benefits of these precincts. The planning system deals with this to some extent through zoning provisions and the provision of infrastructure.

Questions for Consultation

In your responses to the following questions, please provide as many details as you can and, where relevant, give examples or evidence to support your views.

- 4. Are there critical constraints across the business operating environment (for instance, related to markets, skills, production capacity, technology, finance capital or infrastructure) that affect the capacity of your industry or business to take up opportunities?**

If so, please describe them and outline any actions you are taking, or would like to take, to address them. Examples might include any gaps or concentrations in input or product markets that affect opportunities for long-term growth in your industry; issues specific to SMEs; a lack of shared infrastructure or research capacity; or a shortage of capital or skills (including managerial skills).

- 5. Why would your industry be a suitable target for demand or supply side industry policy interventions over the next 10 years? Where in your supply chain would this intervention be most effective, and why?**

Please be specific and include evidence as to why your industry would not be able to resolve this issue without government action.

- 6. What are the key areas in your industry where there are opportunities for NSW Government programs and actions to accelerate ongoing economic growth?**

Community Views

The ultimate objective of industry policy is to raise the living standards of NSW residents and create a thriving business and industry environment. An appropriately targeted industry policy promoting higher levels of growth in priority industries will significantly benefit NSW citizens in terms of employment, health, the environment, safety and security. Given industry policies influence the allocation of resources across industries and industry performance, it will be important to minimise any unintended adverse policy effects and ensure the benefits exceed the costs across the economy as a whole.

Hearing community views will help the government get the right balance between public and private interests and better understand where these interests diverge.

We are seeking feedback on how we can better define the responsibilities of industry towards the state's economic, environmental and social goals. This will help ensure that public investment in industry programs and actions enhances overall economic performance, providing benefits to the broader community.

We are also seeking examples of how the NSW community would expect to benefit from industry policies that help the state adapt to transformative forces. Examples are included below.

Examples

Transition to Net zero emissions by 2050:

- Greater access to low cost and low emissions energy and storage
- Lower household energy use and costs through the use of energy efficient devices
- Access to affordable, low emissions private and public transport
- Energy-efficient buildings and houses
- Improved air quality and other benefits to natural ecosystems
- Ultimately, a slowing of global warming and reduced magnitude and frequency of climate events
- New opportunities for jobs in new industries and higher-paying and more satisfying jobs.

Building a circular economy:

- Better use and recovery of scarce resources and precious metals
- Less industrial and domestic waste going into landfill
- Lower council rates for waste management
- Improved waste management and resource recovery
- Better use and recovery of scarce resources and precious metals
- Longer-lasting devices, whitegoods and equipment that can be more easily updated and repaired
- New opportunities for higher-paying and more satisfying jobs.

Shifting to an increasingly digital economy:

- Stronger online security – for transactions and use of personal information
- Lower consumer transaction costs
- Greater and deeper digital skills and technology training to improve or diversify employment opportunities

- More secure remote access to education and training and health diagnosis and treatment
- Safer and faster mobility as vehicles and traffic networks link digitally
- More efficient food production with less impact on soil and water resources
- Improved labour-saving household devices with new convenience features
- New recreational products and activities.

Harnessing new opportunities and managing risks in global value chains:

- Reliable supply of consumer items
- Lower prices, higher quality products and a greater diversity of goods for consumers
- Greater security of employment
- Increased scope for technological solutions to local problems.

Capitalising on growing consumer markets in Asia:

- More opportunities to provide sophisticated goods and services to Asian markets
- Greater tourism and international education opportunities
- Lower prices, higher quality products and a greater diversity of goods for consumers
- Develop richer cultural connections with Asian countries.

Questions for consultation

7. **Considering the transformative forces underpinning economic structural change, such as those described above, what are the benefits to NSW citizens of adequate and well-coordinated industry policies that accelerate this change?**

Please provide specific examples, and where possible link them to one or more of the transformative forces.

8. **Where do you think the NSW Government could make the biggest difference to encourage industry innovation and growth?**
9. **Are there any risks or costs from intervention that the NSW Government should consider?**
10. **What information would you like to see to demonstrate how progress is being made towards accelerating industry growth through NSW Government programs and actions?**

Views on current industry programs and actions

The NSW Government already undertakes a range of actions that affect the operating environment of businesses in NSW. **Examples of these are summarised in the Appendix to this paper.** These actions seek to enhance productivity across the economy generally or accelerate industry change in response to major economic transitions stemming from transformative forces. To ensure future actions by the NSW Government work effectively for industry and provide net benefits to the NSW community, we are seeking your views on the current set of programs and actions supporting industry transition. This will help NSW Government understand what actions should be considered and/or modified to be more effective.

Every industry has its own unique characteristics, challenges and opportunities. Government interventions must address specific issues if the greatest net benefit is to be delivered for NSW. The best possible targeting of programs and actions to address specific constraints in the business operating environment is needed, to ensure that industry policy effectively supports economic structural transition for the benefit of NSW industries and residents.

The Appendix contains an overview of current Investment NSW programs and actions that target specific parts of the business operating environment in response to transformative forces. We are seeking views on the effectiveness and relevance of these programs in addressing the forces currently driving structural change across the NSW economy.

“... where selective assistance to industry is involved, it is never costless, although the nature and incidence of the costs are often hard for the public to understand. It is therefore crucial that such policies not only have a sound rationale, but are carefully designed and implemented in keeping with it.”

— Banks, G. (2008, pp.1-2).

Industry policy is a partnership

The NSW Government alone cannot change the industry structure of the State economy and address the challenges and risks created by transformative forces. Partnership with industries, researchers, investors and educators will be needed to mobilise additional private investment, champion the uptake of innovations and influence the supply of skills to accelerate productivity and adapt the industry structure of to meet the transformative forces at play.

But industry policy can be at risk from rent-seeking behaviour,²¹ hence the need to design and implement industry policy carefully to prevent private interests driving government policy without delivering benefits to NSW residents. This will include transparency, accountability (including being informed by cost benefit analysis), regular monitoring, evaluation and if necessary, adjusting priorities over time.

In addition to collaboration with industry, cooperation with the Commonwealth and local governments will also bring together opportunities for common priorities to provide clearer signals for the market and cohesive policies to affect change with the scale needed.

²¹ Rodrik (2004).

This paper opens up collaboration with partners to ensure NSW delivers programs and actions best structured to catalyse change in the NSW economy over the next 10 to 15 years, which would not have otherwise been possible. We are interested in your views on how NSW Government can better work in partnership with industry and other levels of government to deliver industry policy.

Questions for Consultation

In your responses to the following questions, where possible, provide evidence to support your views and specific examples of programs or actions that shape your opinion.

11. What are your views on how well the current selection of NSW Government programs and actions enable change at the industry level?

For example, are there too many or too few industry programs; are they too small scale to make a difference at the industry-structure level; are the effects likely to be ongoing beyond the life of the program or limited to the program period?

12. Describe any current programs and actions that have made a notable difference to productivity and competitiveness in your industry?

Please include how they have made a difference.

13. Could any programs be merged to be more effective, or should any be ceased?

14. Are there any actions, or examples of effective practice in other jurisdictions (within Australia or overseas) that the NSW Government should consider to better support economic structural change in NSW industries?

Examples might include sector-led initiatives, regulation, or standards to lift productivity and enable more effective competition in global markets.

Please be specific in relations to the actions and provide any evidence of your views to demonstrate why these actions would be suitable and relevant for NSW industry policy and in the public interest.

15. How can the NSW Government generate program outcomes that drive growth and value? How should the NSW Government work to achieve these outcomes with your industry, private sector and other levels of government?

Summary of consultation questions

Transformative forces creating challenges and opportunities

1. Describe the top two or three transformative forces that will shape transition challenges and opportunities in your industry over the next 10 years.

Be specific about the most important transformative forces for your industry. This may include examples from those given above or any others.

2. What effects do you expect these transformative forces will have on your industry (or on your own business) over the next 10 years?

If any transformative force is of greater significance to your industry, explain why, with specific examples of the expected opportunities and challenges for your industry or business.

3. What action is your industry or business taking, or intending to take, to address the effects of these transformative forces?

Business operating environment

In your responses to the following questions, please provide as many details as you can and, where relevant, give examples or evidence to support your views.

4. Are there critical constraints across the business operating environment (for instance, related to markets, skills, production capacity, technology, finance capital or infrastructure) that affect the capacity of your industry or business to take up opportunities?

If so, please describe them and outline any actions you are taking, or would like to take, to address them. Examples might include any gaps or concentrations in input or product markets that affect opportunities for long-term growth in your industry; issues specific to SMEs; a lack of shared infrastructure or research capacity; or a shortage of capital or skills (including managerial skills).

5. Why would your industry be a suitable target for demand or supply side industry policy interventions over the next 10 years? Where in your supply chain would this intervention be most effective, and why?

Please be specific and include evidence as to why your industry would not be able to resolve this issue without government action.

6. What are the key areas and opportunities in your industry where there are opportunities for NSW Government programs and actions to accelerate ongoing economic growth?

Community views

7. Considering the transformative forces underpinning economic structural change, such as those described above, what are the benefits to NSW citizens of adequate and well-coordinated industry policies that accelerate this change?

Please provide specific examples, and where possible link them to one or more of the transformative forces.

8. Where do you think the NSW Government could make the biggest difference to encourage industry innovation and growth?
9. Are there any risks or costs from intervention that the NSW Government should consider?
10. What information would you like to see to demonstrate how progress is being made towards accelerating industry growth through NSW Government programs and actions?

Views on current industry programs and actions

In your responses to the following questions, where possible, provide evidence to support your views and specific examples of programs or actions that shape your opinion.

11. What are your views on how well the current selection of NSW Government programs and actions enable change at the industry level?

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12. Describe any current programs and actions that have made a notable difference to productivity and competitiveness in your industry?

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Examples might include sector-led initiatives, regulation, or standards to lift productivity and enable more effective competition in global markets.

Please be specific in relations to the actions and provide any evidence of your views to demonstrate why these actions would be suitable and relevant for NSW industry policy and in the public interest.

15. How can the NSW Government generate program outcomes that drive growth and value? How should the NSW Government work to achieve these outcomes with your industry, private sector and other levels of government?

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Appendix: Current NSW industry policy programs and actions

Tables A1 to A4 show a sample of current industry programs and actions that align with the transformative forces discussed in this paper. Table A5 shows a set of programs and actions that are not industry selective or directly responding to a disruptive force but are generally focused on productivity enhancement. These are examples of programs and actions that do not fall under the umbrella of industry policy, as they are not selective to a specific industry or transformative force.

The tables do not provide an exhausting list of all programs and actions. Where no programs are shown against a target area of the business operating environment, it does not imply there is a need for a program or action by government. Programs and actions are only implemented in areas where there is evidence of a significant constraint or opportunity that cannot be addressed by industry acting alone and where the benefits of government action exceed the costs (including program administration costs).

Table A1 – Shifting to an increasingly digital economy

Target Area	Program or Action
Domestic markets	
International markets	<p>TradeStart works with Austrade to provide local experience and Austrade resources to assist SMEs in international markets.</p> <p>Export Capability Building Program supports export-ready businesses by providing workshops.</p>
Skills	<p>NSW offers fee-free qualifications in digital skills under NSW JobTrainer. Fee-free training is also available to workers expected to become unemployed.</p> <p>NSW Cyber Ambassador Program raises the profile of the cyber security industry and study pathways to build a strong pipeline to necessary skills.</p> <p>Exporter E-Commerce program provides resources, training, and expert advice for NSW businesses to build their capabilities to accelerate their export growth via e-commerce.</p> <p>Driving Digital Skills Pilot Program enables existing workers to build their digital skills and upskilling mid-career workers with few digital skills.</p> <p>Training Services NSW Workforce Development Program – Tech: The Program has worked with employers and education providers to develop “bootcamp” style training that combines the use of accredited units of competence and non-accredited training to build a new pathway to gaining valuable work experience and employment.</p> <p>Training Services NSW Workforce Development Program – Creative Animation & Film: The Program established an industry reference group examining the skills and workforce development needs of the sector, close collaboration between employers and TAFE NSW, mapping of TAFE NSW training programs to training that would support the sector’s existing workers and new talent, and the development of talent pipelines.</p>
Production capacity	<p>Industry Capability Network Funding connects procurement and supply chain specialists who introduce businesses to other businesses and appropriate projects.</p>

Technology	NSW Cyber Hub Industry Partnership program will connect business, academia and government to facilitate knowledge sharing, R&D and technology updates.
Finance capital	
Infrastructure	<p>Snowy Hydro Legacy Funds invests in delivering critical infrastructure to regional NSW. Digital connectivity is among the five areas of immediate focus.</p> <p>Tech Central ScaleUp Accommodation Rebate helps technology businesses scale-up and relocate to the Tech Central precinct.</p>

* This table provides a sample of relevant programs and actions and is not fully comprehensive.

Table A2 – Capitalising on growing consumer markets in Asia

Target Area	Program or Action
Domestic markets	<p>Going Global Export Program supports NSW businesses to reach new customers in new international markets. Going Global provides export coaching, tailored workshops, and business matching for companies ready to make the step up to the global stage. This program has three streams:</p> <ul style="list-style-type: none"> • Food, Beverage and Agri-Food • Health and MedTech • Technology <p>Countries targeted by the program in Asia include Singapore, Japan, India, and China.</p> <p><i>In addition to Asia, the Going Global Export Program also focusses on the United States and the Middle East.</i></p>
International markets	<p>Senior Trade and Investment Commissioners (STICs) promote NSW capabilities and facilitate trade and foreign investment from priority markets, including in international education. STIC coverage areas in Asia include China, Japan, Singapore and India.</p> <p><i>In addition to Asia, STICs are/will be also located in the United Kingdom and United States of America.</i></p>
Skills	
Production capacity	
Technology	
Finance capital	
Infrastructure	

* This table provides a sample of relevant programs and actions and is not fully comprehensive.

Table A3 – Transition to net zero emissions by 2050

Target Area	Program or Action
Domestic markets	
International markets	<p>Rebates and stamp duty exemptions for electric vehicle purchases to make electric vehicles more affordable.</p> <p>NSW Government hydrogen fleet target aims for 20% hydrogen vehicles in NSW Government's heavy fleet, expanding the market for hydrogen in NSW.</p> <p>NSW Government's commitment to 100% clean energy public transport and NSW Government vehicle fleet.</p>
Skills	
Production capacity	<p>NSW JobTrainer funds over 250,000 vocational training places in qualifications needed for jobs with strong future demand, including relevant to energy and sustainability.</p> <p>In 2022, TAFE NSW will offer a Diploma of Renewable Energy Engineering along with a number of new micro-credentials to help students pave their career in renewable energy.</p> <p>Training Services NSW Workforce Development Program - Zero Emission Buses: The Program established a collaboration with employers, the Industry Training Advisory Body and TAFE NSW to develop a non-accredited skillset (short course), funded in part by the NSW Government. Launched as an online program in March 2022, it is expected that 17,000 workers will take part in this program, need to transition approximately 8,000 diesel buses in NSW to an all-electric platform.</p>
Technology	<p>Emissions Intensity Reduction Program supports businesses transition their equipment and processes to low-emissions alternatives.</p> <p>Hydrogen Strategy funding provides incentives to commercialise hydrogen supply chains and reduce the cost of green hydrogen.</p> <p>Pumped Hydro Recoverable Grants Program creates a pipeline of shovel ready pumped hydro projects.</p>
Finance capital	<p>Net Zero Industry and Innovation Program: Clean Technology Innovation supports the development of emerging clean technologies in NSW.</p> <p>Net Zero Industry and Innovation Program: High Emitting Industries deploys technologies to reduce the emissions of high-emissions industrial facilities.</p>
Infrastructure	<p>NSW Sustainability Bond Program provides a mechanism for investors to contribute capital to accomplish economic, social and environmental goals such as those aligned with the Net Zero Strategy.</p>

* This table provides a sample of relevant programs and actions and is not fully comprehensive.

Table A4 – Building a circular economy

Target Area	Program or Action
Domestic markets	The NSW Waste and Sustainable Materials Strategy includes actions to promote the development of domestic reuse and recycling markets, including the procurement of goods containing recycled content by NSW Government agencies.
International markets	
Skills	NSW JobTrainer funds over 250,000 vocational training places in qualifications needed for jobs with strong future demand, including in resource management and sustainability.
Production capacity	<p>The NSW Waste and Sustainable Materials Strategy includes actions to direct investment to critical circular economy infrastructure which will improve the production of valuable recovered materials.</p> <p>Circular solar grants support trial projects for managing the reuse and disposal of solar panels and batteries.</p>
Technology	<p>The Carbon Recycling and Abatement Fund will support innovative approaches and technologies to manage waste and materials more efficiently and reduce emissions.</p> <p>The Circular Materials Fund will provide a financial incentive for producers to innovate and design out or replace plastic with less carbon-intensive recycled materials.</p> <p>Small Business Innovation and Research Program provides competitive grants to small and medium-sized enterprises (SMEs) to find and commercialise innovative solutions to well-defined problems for NSW Government agencies.</p> <p>Remanufacture NSW: Trials offer funding to test new methods and technologies to process waste materials that are subject to export bans.</p>
Finance capital	
Infrastructure	<p>Remanufacture NSW: Infrastructure offers funding to establish new recycling infrastructure and equipment.</p> <p>The Waste Less, Recycle More program provides funding for businesses create waste disposal infrastructure, to manage waste and undertake R&D activities.</p>

* This table provides a sample of relevant programs and actions and is not fully comprehensive.

Table A5 – Harnessing new opportunities and managing risks in global value chains

Target Area	Program or Action
Domestic markets	
International markets	Industry Capability Network funding connects procurement and supply chain specialists who introduce businesses to other businesses and appropriate projects.
Skills	
Production capacity	
Technology	
Finance capital	
Infrastructure	<p>NSW Freight and Ports Plan 2018-2023 enables investments in key infrastructure, supporting key freight and digital connections to local and global supply chains.</p> <p>NSW Implementation of the National Freight and Supply Chain Strategy and National Action Plan supports Commonwealth initiatives to expand and upgrade state infrastructure, optimise outcomes for NSW businesses.</p>

* This table provides a sample of relevant programs and actions and is not fully comprehensive.

Table A6 – Productivity-enhancing programs and actions across all industries

Target Area	Program or Action
Domestic markets	<p>NSW JobTrainer funds over 250,000 vocational training places in qualifications needed for jobs with strong future demand</p> <p>Training Services NSW Workforce Development Program: collaborates with employers in priority industries, employer peak bodies, and education and training providers to fund, deliver and evaluate possible skilling solutions identified with these collaborators. For further information on initiatives under the Program contact the Workforce Development team at tsnsw.workforce.development@det.nsw.edu.au</p> <p>Jobs Plus subsidised training package rebates provide funding to support access to training programs to build specialised skills required by growing businesses.</p>
International markets	<p>Jobs Plus payroll tax relief provides incentives for businesses to expand in or relocate to NSW.</p> <p>Minimal Viable Products grants enable start-ups to engage with potential customers and channel to market, to achieve first sale.</p>
Skills	<p>Boosting Business Innovation Program connect small businesses and research organisations to create a networked innovation system across NSW.</p> <p>NSW Research and Development Online Matchmaking Program connects research expertise to specialist infrastructure and research ‘buyers’.</p> <p>NSW Physical Sciences Fund enables the commercialisation of technological innovations in areas including engineering, physics, chemistry and astronomy.</p>
Production capacity	Small Business Innovation and Research Program gives SMEs access to capital, skills training and general support to commercialise new ideas and technologies.

Technology	<p>Jobs Plus enabling infrastructure rebates reduce the cost for businesses to connect to shared infrastructure or build new infrastructure.</p> <p>Emerging Industry Infrastructure Fund targets new industries in which NSW has, or could have, a competitive advantage, and co-invests in joint infrastructure to build industries.</p>
Finance capital	<p>NSW JobTrainer funds over 250,000 vocational training places in qualifications needed for jobs with strong future demand</p> <p>Training Services NSW Workforce Development Program: collaborates with employers in priority industries, employer peak bodies, and education and training providers to fund, deliver and evaluate possible skilling solutions identified with these collaborators. For further information on initiatives under the Program contact the Workforce Development team at tsnsw.workforce.development@det.nsw.edu.au</p> <p>Jobs Plus subsidised training package rebates provide funding to support access to training programs to build specialised skills required by growing businesses.</p>
Infrastructure	<p>Jobs Plus payroll tax relief provides incentives for businesses to expand in or relocate to NSW.</p> <p>Minimal Viable Products grants enable start-ups to engage with potential customers and channel to market, to achieve first sale.</p>

* This table provides a sample of relevant programs and actions and is not fully comprehensive.

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