Resources 2030 Taskforce

Submission to the Commonwealth Department of Industry, Innovation and Science

July 2018

South Australian Chamber of Mines & Energy
The leading industry body representing the resources sector in South Australia

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1. Introduction

The South Australian Chamber of Mines and Energy (SACOME) is the peak industry body representing companies with interests in the South Australian minerals, energy, extractive, oil and gas sectors and associated service providers.

SACOME welcomes the opportunity to make this submission to the Resources 2030 Taskforce.

SACOME understands the remit of the taskforce is to identify bold, attainable reforms that will ensure the sector's competitiveness and sustainability to 2030 and beyond; and that the Taskforce will consider the operation of the Australian resources sector, the nature of Australian government policies and support, and ongoing risks and opportunities in doing so.

SACOME's submission is framed around five major imperatives, with these being: education, industry; government; research and development; and culture and ambition. In doing so, SACOME has drawn on Innovation and Science Australia's *Australia 2030: Prosperity through Innovation* as a relevant structural aid *(Figure 1)*.

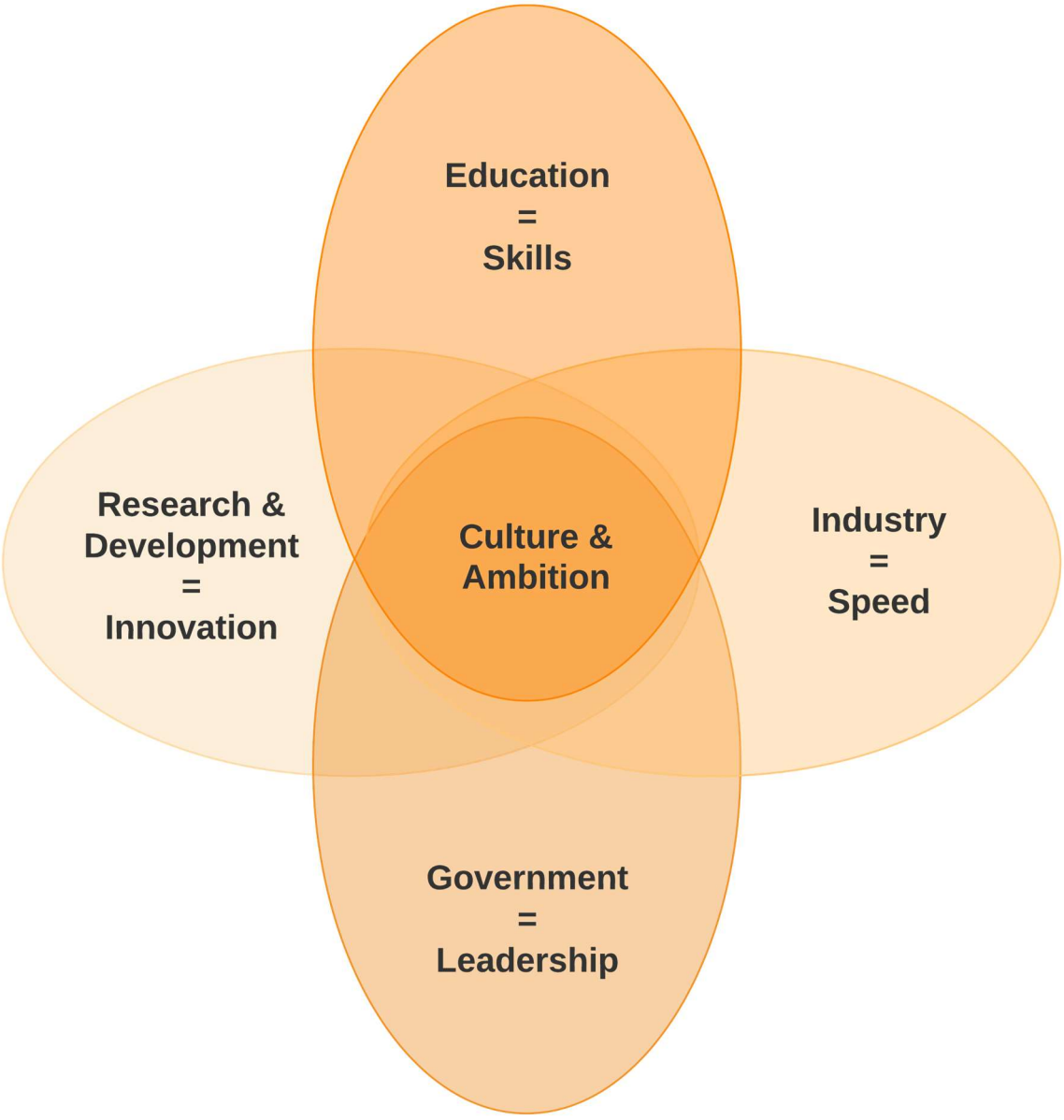
Australia 2030: Prosperity through Innovation highlighted the significant natural resources endowment Australia possesses together with extraordinary innovation, risk-taking and export success underpinning the Australian resources sector.

Looking towards 2030, innovation will be key to increasing our global wealth and creating greater economic and social opportunities for Australians, as well as contributing to the productivity growth that will determine our long-term prosperity.

The manner in which the resources sector works is already being transformed. Automation is replacing human tasks and the pace of the change is accelerating. This change will improve safety and productivity but also brings with it future challenges that require collaboration and understanding between Government and industry to develop practical outcomes.

SACOME and its members remain committed to working in partnership with Government in this regard.

Figure 1: Five major imperatives for the Resources 2030 Taskforce



2. Summary of Recommendations

Imperative	Recommendations
Education	3.1 Further investment in teaching science, technology, engineering and mathematics (STEM) at primary, secondary, tertiary and vocational education levels; 3.2 Increased professional development for teachers of STEM subjects to ensure that teachers are equipped with the skills they require to ensure the best possible learning outcomes for students; 3.3 Prepare students for the digital future by accelerating reform to school curriculum, delivery models and teacher professional learning to be more focused on building interactive skills; 3.4 The establishment of specialised resources sector institutions for secondary students as a preparatory school for further University education or vocational education; and 3.5 Further investment into the vocational training education system to ensure agile, outcomes-based vocational training relevant to the resources sector.
Industry	4.1 Establishment of an Innovation Council, led by industry leaders to develop a cohesive national framework to support the greater collaboration amongst innovation hubs to fast-track the commercialisation of technologies; and 4.2 Increased support and expansion into other jurisdictions of initiatives like the CORE Innovation Hub which is an industry-led co-working, collaboration and innovation hub focused on the resources sector established and run by entrepreneurs and innovators.
R&D	5.1 Implementation of a competitive tax system that will make the Australian resources sector more competitive and sustainable; 5.2 Implementation of changes to the R&D Tax Incentive as proposed in the *Australia 2030: Prosperity through Innovation* plan; and 5.3 Please refer to recommendation 4.2
Government	6.1 Please refer to recommendation 4.1; and 6.2 Establishment of a working group consisting of the resources sector industry, Government, environmentalists and the indigenous community to modernise the legislative framework governing resources sector activity.
Culture and Ambition	7.1 Government and industry to develop award and recognition schemes to recognise excellence in innovation; 7.2 Government to mandate a dedicated percentage of departmental budgets towards innovation; 7.3 The resources sector to develop a fund specific to innovation across the sector; 7.4 Government and industry to establish disruption units within their business to accelerate disruption in their area of operation; and 7.5 Establishment of special zones where the resources sector is encouraged to experiment in areas of risk, while allowing regulators the opportunity to see how the activity develops prior to it being approved or not approved based on existing frameworks.

3. Education

The Australian resources sector faces both challenge and opportunity as a result of globalisation and the fast rate of technological advancement.

While these technological advancements are providing the resources sector with gains in efficiency and safety, and the ability to conduct operations via remote technology, this is also creating a need to transition away from a traditional labour-intensive workforce toward a more highly-educated, professional and technologically literate workforce.

This transition has created two specific needs that the resources sector requires our educational institutions to address, namely:

1) The need for our educational institutions to adapt their curriculums to ensure they are producing suitably qualified graduates equipped with the requisite skill-sets to meet the changing needs of the resources sector; and

2) The need for greater collaboration between government, industry and educational institutions in understanding, managing and developing educational outcomes that will facilitate transition from a traditional labour-intensive workforce towards a professional workforce.

SACOME submits that all stakeholders need to develop an understanding of the future skill-sets required by the resources sector and align our educational system to ensure that it can provide the training necessary to meet these requirements.

At the same time our educational institutions will need to be flexible. Educational institutions will need to be more than just a place to acquire knowledge and skill; but provide the ability to mobilise knowledge, skills and attitudes and values to meet complex demands.

Our educational institutions need to have the agility to provide the current cohort of workers with relevant learning opportunities in a rapidly changing jobs market while the resources sector must collaborate with education providers in developing relevant course content.

Government and industry must also recognise and manage concerns that the current workforce may have as the sector transitions and do its utmost to support workers as occupational requirements change over time.

Recommendations:

3.1 Further investment in teaching science, technology, engineering and mathematics (STEM) at primary, secondary, tertiary and vocational education levels;

3.2 Increased professional development learning in the teaching of STEM to ensure that teachers are provided with the skills they require to ensure the best possible learning outcomes for students;

3.3 Prepare students for the digital future by accelerating reform to school curriculum, delivery models and teacher professional learning to be more focused on building interactive skills;

3.4 The establishment of specialised resources sector institutions for secondary students as a preparatory school for further University education or vocational education; and

3.5 Further investment into the vocational training education system to ensure agile, outcomes-based vocational education and training systems relevant to the resources sector.

4. Industry

A successful resources sector means a stronger Australian economy.

Investment in innovation by business is low in Australia in comparison to other OECD countries. For the Australian economy to continue to grow it requires innovation-driven productivity.

Innovation-driven productivity will create greater efficiencies that will lead to more jobs and greater prosperity for all Australians. It will also provide the resources sector with the capability to introduce new-to-world innovations that can be the catalyst for new industries to emerge.

As identified in *Australia 2030: Prosperity through Innovation,* the resources sector is an early adopter of technology.

The Australian resources sector leads the world, in the application of automation to remote sites and rates highly for labour digitalisation. As a result, the resources sector is ideally positioned to realise the financial and safety benefits of robotics and automation by commercialising the technology.

Rio Tinto's Mine of the Future in Western Australia's Pilbara includes the world's longest private railroad, much of it automated, and the world's largest fleet of autonomous trucks.

The Perth control room for the mine has more than 400 operators tracking 3D visualisations of every piece of capital equipment covering 15 mines, 31 pits and 4 ports. Rio's Automated Drilling System has now drilled more than 5,000 kilometres by a single operator using a single console at a location remote from the machinery.

Such technological advancements not only increase productivity but also give rise to the potential of developing a product that can be exported across the globe for use in other countries or adapted for use in other industry sectors.

The resources sector needs increased investment in innovation to reduce the cost of developing and operating assets; improve productivity and safety; reduce risk; and better facilitate commercialising innovation.

The recent increase in industry incubators, accelerators and hubs provides the opportunity to increase investment in innovation and assist the sector to build its innovation capability. To capitalise on this the resources sector needs to measure its efforts in the innovation space and set itself the task of creating an environment where innovation thrives and where the Australian resources sector is recognised by global leaders as setting the new world standard for innovation.

Further, the resources sector must be assisted in taking the risks associated with innovation given the time and cost associated in undertaking this type of effort. There is a significant gap between innovation and commercialisation of new techniques and more needs to be done to support and encourage those who are willing to take risks that lead to wider benefits for the resources sector and beyond.

Recommendations:

4.1 Establishment of an Innovation Council, led by industry leaders to develop a cohesive national framework to support the greater collaboration amongst innovation hubs to fast-track the commercialisation of technologies; and

4.2 Increased support and expansion into other jurisdictions of industry-led co-working, collaboration and innovation hub focused on the resources sector established and run by entrepreneurs and innovators initiatives like the CORE Innovation Hub.

5. Research and Development

Australia trails other developed countries when it comes to investment into research and development (R&D), with industry-led investment lagging significantly.

To ensure prosperity the resources sector needs to increase its investment in innovation as a driver of productivity and to translate technological development into new opportunities.

R&D is a valuable tool for growing and improving the productivity of the sector, however, there are various barriers preventing industry from investing in R&D.

The implementation of a wide-ranging R&D Tax Incentive will further incentivise resource sector companies to invest in R&D, leading to greater productivity gains across the longer term.

The R&D Tax Incentive could also be increased as suggested in the *Australia 2030: Prosperity through Innovation* plan through introducing a collaborative premium which would further incentivise investment in R&D and to ensure appropriate research is funded.

The collaboration premium may assist Government and the resources sector in identifying how the resources sector can better collaborate with each other and with educational institutions.

It may also encourage the creation of more resources sector innovation hubs providing greater opportunity for multiple stakeholders to connect and collaborate.

Recommendations:

5.1 Implementation of a competitive tax system that will make the Australian sector more competitive and sustainable;

5.2 Implementation of changes to the R&D Tax Incentive as proposed in the *Australia 2030; Prosperity through Innovation* plan; and

5.3 Increased support and expansion into other jurisdictions of industry-led co-working, collaboration and innovation.

6. Government

Government's play a critical role in influencing innovation and guiding change.

Government through its institutions must set long-term strategies and priorities that work to boost the capability of the resources sector, increase productivity and skills, create jobs, reduce red tape and meet future needs.

Government can assist in meeting the future requirements of the resources sector through:

- Establishing cohesive policy frameworks that encourage confidence and enable resource sector companies to grow and invest with confidence;
- Developing frameworks that allow resource sector companies to maintain their competitive advantages; and
- Assisting the resources and educational sectors to identify trends and plan for future requirements.

Another critical need for the resources sector is for Government to establish less reactionary, more flexible legislation and regulation with regard to issues as land access, mine closure and environmental approvals and, where possible, resolve duplication between Commonwealth and State jurisdictions.

Legislation governing resources activity tends to focus on the life of a mine/project, with minimal consideration given to how project sites may be used productively at expiration.

Introducing greater flexibility into law to consider future use of project sites could lead to innovative solutions post-closure, such as the use of pits for hydro-electricity generation.

SACOME encourages the Taskforce to broadly consider legislative innovation that facilitates such possibilities.

Recommendations:

6.1 Establishment of an Innovation Council, led by industry leaders to develop a cohesive National framework to support the greater collaboration amongst innovation hubs To fast-track the commercialisation of technologies; and

6.2 Establishment of a working group consisting of the resources sector, government, environmentalists and indigenous stakeholders to modernise the legislative framework governing resources sector activity and consider future use of project sites.

7. Culture and Ambition

Culture is a way of life based on our values and beliefs and how we express ideas and creativity.

Innovation will be the key to increasing our global wealth and creating economic opportunities for Australians as well as contributing to the productivity growth that will determine our long-term prosperity.

The resources sector needs to set itself the task of creating an environment where innovation thrives and where it is recognised as setting new standards and developing new methods of working.

The resources sector's ambition must be to create the mechanisms and a culture that encourage the embrace of new technologies, kindles the passion for knowledge, and ease barriers to creativity.

South Australia has a long cultural history of developing and implementing innovation and change. It is an ideal location to trial new ideas and can act as a 'laboratory' for testing solutions to complex problems at a lower cost than NSW, Victoria and Queensland.

SACOME proposes establishing a special zone for experimentation and testing of innovative technologies in South Australia that provides industry and regulators with an opportunity to better identify opportunities for commercialisation; and anticipate how to regulate activity or technology ahead of broader adoption.

Recommendations:

7.1 Government and industry to develop award and recognition schemes to recognise excellence in innovation.

7.2 Government to mandate a dedicated percentage of departmental budgets towards innovation.

7.3 The resources sector to develop a fund specific to innovation across the sector.

7.4 Government and industry to establish disruption units within their business to accelerate disruption in their area of operation.

7.5 Establishment of special zones where the resources sector is encouraged to experiment in areas of risk, while allowing regulators the opportunity to see how the activity develops prior to it being approved or not approved based on existing frameworks.

8. Conclusion

SACOME welcomes the opportunity to make this submission to the Resources 2030 Taskforce and commends the Commonwealth Government for its establishment.

As countries around the world seek to overcome the complexity of interlinked environmental, economic and social challenges, new ways of thinking and working are essential. The uptake of innovative solutions will be critical to the Australian resources sector remaining a major contributor to the Australian economy into the future.