SPACE INNOVATION AND GROWTH STRATEGY (SOUTH AUSTRALIA)

ACTION PLAN
2016-2020
# TABLE OF CONTENTS

1. **EXECUTIVE SUMMARY**  
2. **SOUTH AUSTRALIA’S 10 ECONOMIC PRIORITIES**  
3. **VISION AND MISSION**  
4. **KEY STAKEHOLDERS**  
5. **STRATEGIC CONTEXT – GROWING THE SPACE ECONOMY IN SOUTH AUSTRALIA**  
6. **SPACE SA VISION 2020: STIMULATING THE GROWTH OF SOUTH AUSTRALIA’S SPACE SECTOR**  

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**ANNEX 1: SOUTH AUSTRALIAN SPACE CAPABILITY DIRECTORY**
1. EXECUTIVE SUMMARY

In recent years the space economy has experienced exponential global growth. Revenue from space-related activities in 2015 was about US$323 billion, growing at a compound annual growth rate of 9.62 per cent from 1998 to 2015. This is more than three times the annual growth rate of world GDP, which was 2.87 per cent for the same period.

In April 2016 we established the SA Space Industry and R&D Collaborations office, located in Defence SA, which aims to support space industry growth and to increase collaboration in research and development (R&D) in the space industry in South Australia. In September 2017 the South Australian Space Industry Centre was created.

The role of the South Australian Space Industry Centre is to:

- increase awareness of the strategic importance of space applications to South Australia and Australia, including their relevance to a range of industries (for example, national security, advanced manufacturing, telecommunications, agribusiness, position navigation and timing, and environment);
- develop a plan to build a ‘national hub of space industry’;
- invigorate South Australia’s space innovation ecosystem;
- strengthen international cooperation in high-tech industry and R&D in South Australia to enhance high-quality knowledge and stimulate the commercialisation of research results.

In this Space Innovation and Growth Strategy (South Australia) Action Plan 2016-2020 we identify the key direction, mission and actions needed to create a ‘space-enabled economy’ in South Australia. This action plan provides the structure to support this important area of growth, with a view to promoting an increased market share in areas that have not traditionally been linked to space, and giving rise to job creation and skill development.

The Space Innovation and Growth Strategy (South Australia) Action Plan 2016-2020 has three interconnected pillars:

- growing South Australia’s economy through space activity;
- invigorating South Australia’s space innovation ecosystem;
- engaging international cooperation with lead countries.

The strategy is based on the following actions:

GROWING SOUTH AUSTRALIA’S ECONOMY THROUGH SPACE ACTIVITY

This growth is crucial for a variety of sectors, including:

- communication
- entertainment
- environment
- mapping and movement.

The space industry contributes at a strategic level to the development of other priority sectors for South Australia, such as:

- national security
- agriculture
- mining and tourism
- services for the community, such as health and education, particularly in remote applications (for example, telemedicine and distance learning).

Actions include:

- promoting the space economy through increasing awareness of the innovative possibilities within the space sector and encouraging investment and collaboration within the industry;
- forming a “SA Space Council” to represent all organisations operating within the sector, including private enterprises, universities, research organisations and government.

INVIGORATING SOUTH AUSTRALIA’S SPACE INNOVATION ECOSYSTEM

By improving the relationship between industry, university and research sectors, our goal is to foster endogenous growth in South Australia. We will promote and support an active innovation ecosystem, where the space industry acts as one of the key drivers of Innovation. This will provide an environment that encourages the enhancement of the skills of our best researchers and engineers.

Our aspiration is to inspire and support the next generation to develop skills that will push forward the frontiers of scientific knowledge.

Actions include:

- mapping capability in our state (the Space Capability Directory);
- promoting and encouraging space-related science, technology, engineering and mathematics (STEM) activities within our education system;
- fostering knowledge transfer among researchers and entrepreneurs in the area of applied research and commercialisation of research outcomes.

ENGAGING INTERNATIONAL COOPERATION WITH LEAD COUNTRIES

Enhancing our competitive edge in export markets and targeting market-led investments in leading-edge technology will encourage foreign investment, as well as attracting entrepreneurs, talent, researchers and students.

Actions include:

- promoting international collaboration, including state missions led by Ministers or the Premier;
- supporting and promoting the International Astronautical Congress to be held in Adelaide in September 2017.
2. SOUTH AUSTRALIA’S 10 ECONOMIC PRIORITIES

STRONG BUSINESS, STRONG GOVERNMENT AND STRONG COMMUNITY

The South Australian economy is transitioning from a traditional manufacturing economy to an ‘innovation leader’, capable of adding value to our rich natural resources and strengthening our knowledge-based society. South Australia is becoming increasingly competitive in global markets.

Our innovative ecosystem is growing and opening the door for South Australia to attract more investment, build industry, increase our export potential and drive more R&D-led breakthroughs.

R&D, commercialisation of research results and high-tech industries are major priority areas for the sustainable growth of the state. The South Australian Government is promoting the development of innovative space industry companies with new cutting-edge products and services, crucial for building a robust economy for the future.

The Space Innovation and Growth Strategy (South Australia) Action Plan 2016-2020 aims to grow local space industry and increase R&D collaboration in the space sector. Our action plan reinforces the Premier’s message that “South Australia is the place where people and business thrive”.

In 2014, the Premier launched 10 economic priorities and actions that underpin the State’s vision of “partnerships between strong business, strong government and strong community”; these connections are at the heart of our economic development strategy.

The Implementation of the Space Innovation and Growth Strategy (South Australia) Action Plan 2016-2020 will contribute to:

• Priority 4 - The knowledge state – attracting a diverse student body and commercialising our research
• Priority 6 - Growth through Innovation
• Priority 9 - Promoting South Australia’s international connections and engagement
• Priority 10 - South Australia’s small businesses have access to capital and global markets.

INCREASE AWARENESS, COLLABORATION AND INTERNATIONAL ENGAGEMENT

By attracting R&D-oriented companies to South Australia, or by identifying R&D opportunities in lead countries for companies, organisations and universities located in our state, we will strengthen South Australia’s position as a ‘knowledge state’ in strategic areas such as:

• resources, energy and renewable assets
• premium food and wine
• health and ageing.

This activity aligns to economic priorities 1, 2 and 3; attracting international private enterprise and experts aligns to economic priorities 5, 7 and 8.

The State Government’s 10 Economic Priorities serve as a foundation for our space strategy. Growing space and sustainable defence industries in South Australia will enable the South Australian Space Industry Centre to contribute more broadly to economic growth, jobs, investment, population, sustainability, innovation and training targets contained within South Australia’s Strategic Plan.

3. VISION AND MISSION

A SPACE-ENABLED ECONOMY

The South Australian Space Industry Centre is the South Australian Government’s dedicated space office. It leads the state’s space industry development efforts, offering focused and responsive service to this innovative space industry to drive the sector’s growth in South Australia and deliver key projects and facilities.

The knowledge, experience and infrastructure of the South Australian Space Industry Centre is essential for maximising the economic impact of an inclusive space policy, encompassing sectors that may not necessarily be related to defence.

The South Australian Space Industry Centre is implementing South Australia’s space sector strategy to grow the local industry and increase R&D collaboration. We will connect to other sectors of the Australian and global economy that can potentially benefit from space applications, data and services.

The overarching vision of the space strategy is to create a ‘space-enabled economy’ where the space sector in South Australia provides new advances that lead to growth, new jobs and an increased market share in areas not traditionally linked to space.

The growth of the space industry in South Australia plays a key role in the state’s socioeconomic development. Within this mission, the pillars of this space strategy are:

• growing South Australia’s economy through space activity
• invigorating South Australia’s space innovation ecosystem
• engaging international cooperation with lead countries.

In pursuing this strategy, the South Australian Space Industry Centre will act as the pivotal node of a broader network involving universities, research organisations, private enterprise, industrial associations, private consultancies and government agencies – using a ‘triple helix’ approach to encourage the growth of the local economic system.

GROWING SOUTH AUSTRALIA’S ECONOMY THROUGH SPACE ACTIVITY

• supporting space activity in South Australia that is crucial for different sectors, including communication, entertainment, environment, mapping and movement
• contributing strategically to the development of other priority sectors in South Australia such as national security, agriculture, mining and tourism, as well as services for the community including health and education, particularly in remote applications (for example telemedicine and distance learning).

INVIGORATING SOUTH AUSTRALIA’S INNOVATION ECOSYSTEM

• growing intrinsically innovative companies in the space sector, and improving the relationship between South Australian industry and research organisations, including universities, Cooperative Research Centres and the Defence Science and Technology Group
• promoting an active network among the main stakeholders involved in the state’s innovation ecosystem to foster endogenous growth
• increasing awareness of the importance of high-tech industries, such as the space industry, to enhance the innovative skills of our best researchers and engineers
• inspiring and supporting our young people to develop the skills to advance the frontiers of scientific knowledge

ENGAGING INTERNATIONAL COOPERATION WITH LEAD COUNTRIES

• enhancing our competitive edge in export markets and targeting market-led investments in leading-edge technology, our export industry will expand and we will attract new interest and investment from foreign investors, entrepreneurs, talent, researchers and students.
4. KEY STAKEHOLDERS

The South Australian Space Industry Centre has many key stakeholders specific to the space industry. We are committed to meeting the needs of the following groups in particular:

- State and Commonwealth Government Departments and Ministers as appropriate
- space industry (local, national and international) including industrial associations and private consultants
- universities and research organisations (local, national and international).

The South Australian Space Industry Centre will work with a broad range of partners and stakeholders as it strives to achieve the right climate for space industry growth, across a broad range of areas:

- workforce skills development
- research and development
- innovation
- export
- investment
- migration.

5. STRATEGIC CONTEXT – GROWING THE SPACE ECONOMY IN SA

BACKGROUND

The space industry is based on disruptive technologies that allow the development of new products and services, causing a change in the habits of our daily lives. Through our constantly increasing and evolving use of space systems and apparatus (e.g. smart phone, GPS navigation, tablets, TV, internet) day by day new markets are creating amazing opportunities.

The South Australian innovation ecosystem can capitalise on these opportunities by becoming a driver of new technologies. This will have the added benefit of increasing our attractiveness to leading entrepreneurs, students, talent and researchers.

The South Australian Space Industry Centre acknowledges that it is industry rather than the State Government that delivers goods and services to the space industry. Our role is to facilitate programs and services that drive further growth of the space sector in South Australia, as well as fostering sustainable industry.

Our state has an active space ecosystem of industry, universities, research centres and government. This community holds an important position in the Australian space industry, particularly with respect to R&D. We also provide a key location for supply companies in high-tech industries.

FOCUS ON INNOVATION

In recent times there has been a revitalised focus on innovation, which has been in the spotlight both federally (with the recently released National innovation and science agenda and Defence White Paper) and here in South Australia with initiatives such as the Premier’s Research and Industry Fund Research Consortia Program.

Significant changes in space technologies and markets that have occurred in recent years have resulted in opportunities for our state. South Australian companies are maximising the benefits of reduced costs associated with accessing space, and increasing opportunities to gain economic and social benefits through engagement with this sector. From agriculture to energy, communications to routing surveillance, educational institutions and private enterprises are increasingly using satellite signals and imagery in geospatial tools.

This trend is having an impact across the space economy, from R&D and design, to manufacturing and services.

DAILY BENEFITS OF SPACE-BASED APPLICATIONS

- Increase efficiency in agriculture and fisheries
- Satellite-enabled applications improve the mapping of cropland in need of irrigation, harvest forecasts, and fisherless control. This guarantees better food quality and security while safeguarding the environment.
- Help regions access knowledge and information
- Telecommunication satellites support communication needs when Earth-based solutions are limited. This reduces regional imbalances by serving communities in remote areas without internet access.
- Improve crisis response
- Satellite services help shorten response times in emergencies. Swift damage images and assessment maps contribute to more efficient planning and relief efforts, and help guide rescue services.
- Protect the environment and help tackle climate change
- Environment monitoring provides crucial information on vegetation, ocean currents, water quality, natural resources, atmospheric pollutants, greenhouse gases, and the ozone layer.
- Increase security
- Satellite positioning, satellite communications, and Earth observation contribute to detecting illegal immigration, preventing cross-border organised crime, and combating piracy at sea.
- Improve the health of our citizens
- Space-based applications can significantly improve healthcare and the health education of patients through remote medical support. They also help to prevent or mitigate the outbreak of disease.
- Optimise transport
- When combined with enhanced communication capabilities, highly accurate satellite positioning contributes to a modern and reliable transport sector for cars, planes, and ships. It optimises fleet management, vessel traceability, collision prevention, speed control, assistance for shipping manoeuvres, etc.

Source: http://ec.europa.eu/growth/sectors/space_en
ECONOMIC GROWTH
From 1973 to 1998 global space revenue grew at an annual rate of 6.3 per cent from US$51 billion to US$68.8 billion. This growth rate is approximately double GDP growth, which for that same period had a compound annual growth rate of 2.96 per cent.
In 2015 space revenue was about US$323 billion1, growing at a compound annual rate of 9.52 per cent over the 17-year period from 1998 to 2015. Over that same period, world GDP grew at an annual rate of 2.87 per cent while the space sector economy grew at more than three times that rate.
Moreover, an economic trend within the space industry is revealed by comparing global commercial space revenue’s recent extraordinary growth to the decreasing proportion of the government revenue rate. In 1973 the government contribution to global space revenue was around 80 per cent and commercial industry accounted for the remaining 20 per cent. In 2015 commercial space revenue was 76 per cent of the global space revenue and the remaining 24 per cent was from government contribution (11 per cent of total space revenue was attributed to defence).
This reversal reveals a remarkably strong commercial annual growth rate, with an increase of 12.28 per cent over the period 1998 to 2015.

SPACE ECOSYSTEM
Testament to the vibrant space sector ecosystem in our state is the presence of at least 60 organisations with space-related expertise, or the potential to apply their expertise to the space sector.
The Space Industry Association of Australia (SIAA) is a peak Australian space industry body with a strong presence in South Australia. This association assists its members to:
• compete and secure work on the global stage
• share knowledge, improve capabilities and pursue opportunities in the global defence, civil and commercial space sector
• share best practice and strengthen collaboration to continuously improve products, processes and services to be highly competitive and innovative, and provide value-add solutions.
Other associations representing space companies in our state include the Defence Teaming Centre, the Surveying and Spatial Sciences Institute (SSSI) and the Spatial Industries Business Association (SIBA).

RESEARCH AND EDUCATION
Complementary to this industry sector, there exists a vibrant research and education sector in South Australia – including three local universities, three international universities and world-renowned national research centres such as the Defence Science and Technology Group (DSTG), which actively contribute to the state’s innovation ecosystem.

CURRENT STATE ANALYSIS
The table overview is a ‘strengths, weakness, opportunity and threats’ (SWOT) analysis of the space ecosystem in our state. The SWOT analysis informs the direction for the strategy.
Space activity growth can support the economy by harnessing opportunities to build an innovative, internationally engaged and tightly connected space sector. This action plan will:
• capitalise on the global space economy’s fast upward growth trend, particularly in the civil space and private, non-government led sector
• grow the level of space sector activity to increase supply of services; heighten investment in technology; encourage international partnerships and build the sector’s export and skills capability
• stimulate the local space sector community by encouraging increased interaction and connection between interdisciplinary research organisations and by strengthening the commercialisation of research results
• promote the uptake of new collaboration in the high-technology field including new joint ventures between international and local research centres and private companies
• use best practice prototypes to implement an ‘innovation environment approach’ in building a potential ‘space cluster’ in South Australia
• promote STEM through space activity, within primary and secondary schools
• leverage off existing space industry connections and events (such as the International Astronautical Conference 2017) to support growth of the local space community
• create synergies and new joint ventures by attracting knowledge-intensive Small Medium Enterprises and Multinational Enterprises to collaborate locally, and enhance competitiveness by attracting talent, know-how and new ideas. Working with the Investment Attraction Agency of South Australia (IAG) we will encourage major international companies to establish a presence in our state.

STRENGTHS
• existing engagement strategies with China, India and South East Asia, including active executive plans
• in development engagement strategies with North Atlantic, North East Asia and Middle East and North Africa (MENA) regions
• the recent decision to build European submarines and frigates in Adelaide allows South Australia to engage with these countries in a broad way, including space activity collaboration

BUSINESS ENVIRONMENT
• a well-developed aerospace sector (for example companies providing avionic, airframes and precision tooling)
• a State Government that is facilitating changes to legislation and reducing red tape, which are required to fuel the growth of South Australia’s space industry

SOUTH AUSTRALIA’S DEFENCE REPUTATION
• presence of an established defence-related industrial activity
• presence of DSTG and the new Centre for Defence Industry Capability (with headquarters in Adelaide)

POSITION
• liveability
• gateway to the Asia Pacific

INNOVATION AND R&D
• strong interest from space community to build connections between universities and companies, including the establishment of innovative space-related start-ups and spin-offs, and to establish a vibrant node of the new Cyber Security Industry Growth Centre in Adelaide
• growing attention on the space industry

BUSINESS AND LABOUR ENVIRONMENT
• mature business environment, good entrepreneurial spirit
• quality universities with good scientific background

GLOBAL TRENDS
• strong growth of space economy
• cost reduction of satellite design, assembly and launch
• growing importance of Asia-Pacific region

LOCAL OPPORTUNITIES
• 68th International Astronautical Congress to be held in Adelaide in September 2017

1. A Selective Review of Australian Space Capabilities: Growth Opportunities in Global Supply Chains and Space Enabled Services, Asia Pacific Aerospace Consultants Pty Ltd, 2015

WEAKNESSES
• Australia’s space industry is nascent and evolving

REPUTATION
• low level of attention on the space sector and industry

BUSINESS ENVIRONMENT
• limited experience in space-related activities
• low demand for industrial environment
• limited presence of large companies involved in the space sector

R&D COLLABORATION
• lack of strong connections in the R&D sector
• no space-specific hub where supply and demand of innovations can meet

OPPORTUNITIES
• international competitors have

THREATS
• local competitors have already developed strong capabilities

INTERNATIONAL COMPETITIVENESS
• international competitors have already developed strong capabilities

LOCAL COMPETITIVENESS
• other national clusters or hubs in the space sector that gain an international reputation able to lead a national strategy, including opportunities for new investments

NATIONAL ENVIRONMENT
• presence of DSTG and the new Centre for Defence Industry Capability
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ACTIVE INTERNATIONAL ENGAGEMENT STRATEGIES WITH LEAD COUNTRIES

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In Australia, there is a significant presence in the field of smaller Tier 3 or 4 companies specialising in the production of specific electric, electronic and mechanical components/materials or in software and services. These companies are mainly small and medium sized enterprises operating in downstream segments of the space industry. In addition, there are many small and medium local enterprises that are very well connected with South Australian universities.

According to a recent survey, defence is a major industry sector for space companies – 72 per cent of the companies interviewed listed Defence as a client, with mining the next most important sector.5

### AREAS OF OPPORTUNITY

#### SECURITY, SAFETY AND RESILIENCE
- Maritime geospatial services
- Maritime surveillance
- Maritime environment monitoring
- Secure satellite communications
- Galileo PIS
- Polar Infrastructures for shipping and exploration
- Disaster and emergency response
- Space robustness services
- Removing space debris
- Space weather
- Space situational awareness

#### CLIMATE ENVIRONMENTAL SERVICES
- Insurance and finance
- Agriculture and food security
- Environmental services
  - Climate applications
  - Carbon monitoring and modelling
  - Environmental policy
- Weather forecasting

#### MORE EFFICIENT PUBLIC SECTOR SERVICES
- Transport management
  - Rail transport
  - Air traffic
  - Road transport
- Smart cities/urban services for local governments
- Energy infrastructure services

#### GAME-CHANGING SERVICES
- Low-cost access to space
  - Space tourism and small-payload launch
  - Space planes
  - Low-cost LEO launch vehicles
- Persistent surveillance
- Power from space

The table below shows the main high-growth market opportunities in the space sector around the world.

Stakeholder consultation has identified the most relevant priorities for South Australia, which are indicated in **bold**. These are consistent with the general world trends concerning the application of space-related technological innovations in civil sectors.

These primary opportunities, when considered in a dynamic and evolving environment, will allow South Australia to identify the space technologies and skills necessary to achieve results in these fields particularly, providing a clear direction and focus for the investment of resources and the development of appropriate educational pathways. It also satisfies the opportunity/capability/capacity equation.
6. SPACE SA VISION 2020: STIMULATING THE GROWTH OF SOUTH AUSTRALIA’S SPACE SECTOR

OPPORTUNITIES

Priority areas for South Australia include:

• agribusiness
• health
• mining
• education
• tourism.

These areas have become increasingly dependent upon evolving space technology.

The South Australian Space Industry Centre will raise awareness and promote collaboration relating to opportunities such as:

• the National Innovation and Science Agenda, with almost $1.1 billion funding available in the next four years, representing an opportunity to promote business-based research, development and innovation
• The new Centre for Defence Industry Capability with $230 million over the next decade, including the Defence Innovation Portal that will facilitate engagement between Defence and innovation activities
• The Defence Innovation Hub with $640 million available over the next decade increasing the engagement between industry and Defence sectors.10

Additionally, there are State Government programs to encourage innovation, including the following programs managed by the Department of State Development (Industry and Innovation):

• the Innovation Voucher Program
• South Australian Early Commercialisation Fund
• South Australian Venture Capital Fund.

These represent a pool of opportunities, particularly for the South Australian SMEs involved in the state’s potential space industry cluster.

ACTIONS

The global space economy’s fast upward growth trend, particularly led by the private sector, is attracting the attention of market-leading venture capital firms and start-up funds. This growth can be attributed to the fact that the space sector is viewed as a lucrative and growing market. It is important to increase awareness of the significance of space applications to South Australia.

South Australia would be wise to harness the opportunity to attract international space sector investment - stimulating local SMEs, spin-off and start-ups, particularly among young researchers and students.

The consideration of South Australia’s priority areas can guide the development of a supportive ecosystem, assisting companies, universities and research organisations to take advantage of these highlighted growth opportunities.

The South Australian ecosystem could take into consideration the following activities:

• uptake of space services
• technology investment
• international partnerships and export
• skills.

The actions and efforts of these stakeholders will be coordinated through the implementation of the ‘SA Space Council’, which will serve as a key tool to represent research organisations, universities, private companies and government. The Council will provide a forum for the discussion of innovative ideas.

ACTION 1 – INCREASE AWARENESS

• Establish a hub to share information, data and relevant news and documents.
• Promote the South Australian space economy and increase awareness of the space sector as an innovative area to invest and collaborate.
• Facilitate the involvement of South Australian stakeholders in the space sector – organising additional meetings, seminars and information sessions.
• This hub will provide a conduit for South Australian companies to access a range of programs aimed at promoting R&D, commercial development and programs specifically targeted toward company growth (i.e. accelerating commercialisation, CSIRO innovation fund to commercialise early stage innovation, the Biomedical Transition Fund to commercialise promising discoveries).

ACTION 2 – SA SPACE COUNCIL

• Establish the ‘SA Space Council’ to represent research organisations, universities, private enterprise, government and relevant stakeholders in the space sector.
• The Council will serve as a primary avenue for the discussion of trends, and for the identification of strategies and actions aimed at assisting the South Australian Space Industry Centre in supporting growth in the space industry, and in enhancing innovation in the South Australian space sector.

PILLAR 2 – INVIGORATING SOUTH AUSTRALIA’S SPACE INNOVATION ECOSYSTEM

Consolidate and stimulate the capabilities and expertise in South Australia and strengthen the commercialisation of research results in the space industry.

Australia is tackling the same challenges and issues faced by other manufacturing regions, which need to adapt to rapid global economic and social changes, keep up with the new technological advances in space innovation, and be competitive with emerging countries that offer a lower labour cost. Therefore, it is of the utmost importance to seek territorial competitive advantage in the R&D field.

Aligned with South Australia’s 10 Economic Priorities, this strategy aims to:

• improve local innovation and R&D competitiveness
• enhance high-value industries
• strengthen connections among universities, industry and government (triple helix model).

Prime examples include the Tonsley Innovation District and the South Australian Health and Medical Research Institute (SAHMRI) where multinational companies including Siemens and Hewlett Packard, high-tech SMEs and universities have clustered in order to leverage interconnections and strengthen networks.

Government policies and effort are directed towards continuous improvement of these linkages. Some local best practice models such as BioSA, Tonsley Park and SAHMRI could be used as best practice prototypes in forming a potential ‘space cluster’ in South Australia.

An intrinsic part of the South Australian space innovation ecosystem is an active R&D community, including strong and positive relationships with industry stakeholders, moving South Australia towards the new economy.

Space research activity in South Australia is mainly concentrated in the three local universities that have a space focus across a range of educational qualifications.

The main higher education activity is similarly spread among the three local universities and three international universities.

South Australia has a world-renowned International Space University Southern Hemisphere Space Studies Program. This five-week program, hosted by the University of South Australia, aims to educate the next generation of space professionals, with participants from across the world studying all aspects of international space activities, including satellite applications, human space exploration and space policy.

The space sector is a high-tech industry requiring a highly educated workforce. A recent report states that two-thirds of the staff employed in these companies hold tertiary qualifications (bachelor degree or higher) and nearly half of the companies interviewed had staff who hold PhDs.12 It is important that the sector attracts and retains employees with appropriate levels of educational qualifications.

11 Ibid
13 Ibid
**PILLAR 3 – ENGAGING INTERNATIONAL COOPERATION WITH LEAD COUNTRIES**

Grow a network of strategic partnerships in the space sector.

There is a link between innovation and globalisation – firms need to innovate in order to be able to compete in foreign markets; on the other hand, internationalisation might lead to innovation as a result of the so-called 'learning by export internationalisation' effects. The challenge is to create a solid and competitive business environment in order to enable firms of all sizes to perform well.

Strengthening international cooperation in R&D in South Australia is fundamental to generating high-quality knowledge and stimulating the commercialisation of research results. This enables the creation of first-rate products and services, and allows innovative businesses to prosper. It is a vision that supports the idea of a disruptive economy, where an innovative ecosystem leads to competitiveness through the development of complex products and services involving cutting-edge research in sectors such as space.

There is evidence that North American and European companies are watching the Australian SMEs, research organisations and universities with a view to acquiring space intellectual property and incorporating it into their operations overseas.

Through enhancement of the state’s competitive edge in export markets and targeting of market-led investments in leading edge technology, South Australia’s export share, capabilities and expertise will improve (in Australia export activity for the space industry amounts to a mere 8 per cent of the total revenue15). This approach will support the growth of our export industry and attract international companies and highly renowned talent. This activity could receive strategic support through the state’s international engagement strategies (China, India, North Atlantic, South and North East Asia) recently established by the South Australian government.

**OCCURPUNITIES**

The Department of State Development has a range of new engagement strategies with key international countries and regions in the South Australian Government priority areas. These can be utilised to leverage space-industry linkages and R&D collaboration. The South Australian Space Industry Centre will foster international collaboration with lead countries, taking into account opportunities such as:

- the new Premier’s Research and Industry Fund Research Consortia Program in South Australia – along with national programs such as Cooperative Research Centres, Australian Research Council Industry Linkage Grants, the Australia-China Science and Research Fund, the Australia-India Strategic Research Fund, and the Australian Astronomical Observatory – can all provide valuable support for international R&D collaboration
- the 5A Export Partnership Program, which creates opportunities for the local space industry to be engaged internationally with new markets, increasing the export value of their products and services the Investment Attraction South Australia agency, which aims to encourage investment in South Australia, including attracting investment by high-tech SMEs and MNEs
- IAC2017, which is expected to be the largest congress ever to be held in Adelaide, provides an opportunity for South Australia to invigorate the local space industry and encourage R&D, as well as increase opportunities for international collaboration.

**PILLAR 4 – DIVERSIFIED SPACE BUSINESS ORGANIZATIONS**

This vibrant ecosystem which involves Industry-building relationships with researchers generates abundant opportunities for new start-ups fuelled by the commercialisation of innovative research results from local universities/institutes and the ingenuity of local South Australian experts within the cluster. These niche capabilities include:

- ICT
- telecommunication
- optoelectronic sensors
- intelligence surveillance and reconnaissance
- development of nanosatellite systems
- environmental controls.

The South Australian Space Industry Centre will map current capabilities and expertise in South Australia through closely engaging with private companies and research centres. This will enable the development of a resource map (showing existing capability, expertise, knowledge and infrastructure).

The South Australian Space Industry Centre can facilitate the marketing of our state internationally (attracting new companies and new talent) and stimulate interdisciplinary and inter-laboratory connections within the local space industry community.

**ACTION 3 – SPACE CAPABILITY DIRECTORY**

- Develop a survey to share among the main stakeholders in the space sector to map capabilities and expertise existing in South Australia. These results will be instrumental to the development of the first ‘South Australian Space Capability Directory’.
- Publish this document periodically (every year for the first two editions and then biennially).

**ACTION 4 – SUPPORT STEM**

- Use the space hub as an avenue to support the community that promotes STEM activity by sharing information, including space specific material, contacts and resources.
- Promote STEM in the South Australian community by organising additional meetings, seminars and information sessions.

**ACTION 5 – PROMOTE COLLABORATION**

- Promote collaboration among South Australian stakeholders in the space sector, organising additional meetings, seminars and information sessions.
- Use the space hub to stimulate collaboration among South Australian researchers and entrepreneurs in the areas of applied research and the commercialisation of research results.
- The space hub will inform relevant national and international calls to fund R&D projects, share supply and demand of innovative solutions (patents, research results etc.), facilitate new partnerships and stimulate new start-ups and spin-offs. It will also link the space research industry sector with the relevant ‘industry growth centres’, such as cyber security, advanced manufacturing, mining, food and agriculture.
ACTIONS

The South Australian Space Industry Centre will promote relationships between industry and research sectors in South Australia through enhanced international cooperation.

Countries and regions with which the South Australian Government has an engagement strategy will be considered a priority. Our state can attract knowledge-intensive SMEs and MNEs from leading countries, aiming to create synergies and new joint ventures with local SMEs, which will bring to South Australia talent, know-how and new ideas to enhance our competitiveness.

ACTION 6 – MISSIONS AND OVERSEAS DELEGATIONS

- Promote, among the space sector’s stakeholders in South Australia, state missions led by Ministers or the Premier to countries with notable or significant space activity, to facilitate international partnerships, agreements and joint activities.
- Identify and establish strategic contracts with overseas associates in order to create an environment of interconnectedness between the South Australian space industry, researchers and networks.
- Promote initiatives and facilitate involvement of South Australian stakeholders in the space arena by organising additional meetings, seminars and information sessions.

ACTION 7 – SUPPORT INTERNATIONAL ASTRONOMICAL CONGRESS – ADELAIDE 2017

- Organise a series of “Space Forums” designed to share information among the South Australian stakeholders in the space arena, to stimulate and encourage the active participation of South Australian researchers and entrepreneurs in IAC2017.
- IAC2017 provides a platform for showcasing South Australian companies, research centres and educational organisations at an international level. This congress provides an ideal environment to identify potential new partnerships and strategic alliances, and to build stronger involvement in upstream and downstream enterprises operating in the space industry global value chain.

ANNEX 1: SOUTH AUSTRALIAN SPACE CAPABILITY DIRECTORY – ORGANISATION LISTING

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<th>TYPE</th>
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<tr>
<td>PRIVATE COMPANIES</td>
<td>AEROMETREX</td>
<td>aerometrex.com.au</td>
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### ANNEX 1

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