

Growth State

Health and Medical Industries

DRAFT Sector Plan

2020 to 2030

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Executive Summary

The Health and Medical Industries sector is at the forefront of new and innovative technologies, challenging and changing the way we view and respond to interactions with the health sector. The development of this sector plan has been led by industry, through the creation of a Health and Medical Industries Ministerial Advisory Panel, providing direct advice to the Minister on the vision for industry, and through open consultation.

Industry has consistently identified a number of common themes across the subsectors which are discussed in detail in the document and outlined below.

Despite being considered a small state, there are opportunities to more successfully capitalise on our local networks and expand our knowledge and capabilities both locally and at an international level. The government will seek to facilitate the development of a capability platform to connect and promote the strengths of the Health and Medical Industries (HMI) in the state, a key enabler for the sector.

Our global partners need to tap into the resources available in the state, and to do this there needs to be a single, clear entry point for industry to engage with government. DTI, as the industry facing public sector agency, will drive reforms to support the creation of such a single-entry point.

South Australia is home to outstanding researchers in research institutes, universities and industry. Further promotion of the interaction between these researchers and industry will help to develop our capabilities and capacity and consequently, assist in driving exports.

South Australia has a number of key health and medical hubs, with Adelaide BioMed City and the Flinders Precinct as key infrastructure. As a state we need to better capitalise on these infrastructure investments and the connections with other industry hubs to drive growth and promote our expertise globally. This involves identifying marketable capabilities and support for market entry.

Specifically, the state will capitalise on our reputation and demonstrated leadership in the **ageing well space**, with increased international investment and the development and commercialisation of innovative products for export markets. The National Disability Insurance Scheme (NDIS) offers an opportunity for South Australia to increase funding to the state and attract business investment and growth across the sector.

Our global linkages will be boosted through our international trade offices, including our Houston office, providing a link to the world-renowned Texas Medical Center.

Working in collaboration with the hi-tech sector, opportunities for the expansion of disruptive technology including artificial intelligence (AI) applications will be developed.

The work within SA Health on **clinical trials** will be enhanced by the single point of entry for clinical trials in the state, and improved data capture and reporting. The industry feedback indicated that our clinical trial efforts should be expanded into regional and rural areas as well as the ageing and care subsector, capitalising on federal initiatives. Both the metropolitan and the regional activities will be delivered via a streamlined system, which will also encompass private hospital and primary healthcare environments. Clinical trials across the sector, including biotechnology, pharmaceutical, nutraceutical and medical technology will be focal points.

There will be continued effort in marketing our expertise globally, whilst developing our local talent pool of principal investigators and clinical research coordinators, with improved access to Good Clinical Practice (GCP) training.

The focus on developing a cohesive, collaborative sector, with a reinvigorated clinical trial environment and work across the care sector will broaden opportunities in the eight identified subsectors, including education and training, digital health platforms, the commercialisation of research and our capabilities in research and development will support South Australia achieve sustainable industry growth.

Our overall focus will be on streamlining access to the state, marketing ourselves globally and ensuring **industry connectivity**. Through growing our collaborations, we will expand the opportunities for economic growth both within the Health and Medical Industries sector and across the target sectors of creative industries, defence, education, food and agriculture, hi-tech, minerals and energy, space and tourism.

South Australia has all the right pieces to the puzzle to grow the economy in these vital sectors – the challenge is to bring these facilities and concepts together, complement our clinical and pre-clinical research capabilities and bring about the economic growth through our collaborative ecosystem.

Health and Medical Industries are growing globally, and South Australia is well-positioned to take its place as a centre of excellence for health and medical innovation.

Benefits of South Australia

South Australia is a competitive, thriving destination with an ecosystem supporting business and innovation. We facilitate research and development and offer strong intellectual property protection.

Well placed in the Asia Pacific region, South Australia has a strong record in supporting inbound investment, as well as promoting our capabilities to international markets.

Through our network of international trade offices, we can reach global partners, and offer incentives for companies wanting to establish in South Australia.

The cost of doing business is low in South Australia – the KPMG 2016 Competitive Alternatives data show South Australia is significantly cheaper than the eastern states. Our cost of living is the lowest within mainland Australia, and at a very competitive level internationally.

Adelaide as a '20 minute city' provides the ability to connect and enhance our capabilities through shared projects. This interconnectivity and proximity create an environment often seen in the most successful incubators and innovation centres in the world.

Adelaide is home to one of the largest health and medical precincts in the southern hemisphere, and our ambition is to continue to grow the Health and Medical Industries sector. Our health and life science cluster brings together capabilities in research, education and clinical care, including but not limited to:

Health care:

- World-class, well connected and technologically advanced public teaching hospitals
- Well linked public and private hospitals
- Active NDIS and ageing well facilities and expertise

Facilities:

- Preclinical imaging and research laboratories, including large animal research facilities
- Good Laboratory Practice (GLP), Good Manufacturing Practice (GMP) facilities including clean rooms, laboratories, warehousing and cryogenic storage
- GMP compliant radiopharmaceuticals through the cyclotron facility
- Advanced microscopy, flow cytometry, mass-spectrometry and cellular imaging
- Advanced manufacturing specialising in health and medical devices and assistive technologies
- Machine learning and artificial intelligence centres
- National clinical and population registries
- Proton Beam Therapy centre (under development)
- Multi-phase clinical trial facilities

Expertise:

- Digital health capabilities with a focus on smart technologies and clinical applications
- Drug development, generic drug manufacturing and traditional medicine
- Genomics, photonics, bioinformatics, proteomics and metabolomics
- High-tech simulation, virtual and augmented reality engineering and robotics
- Nanotechnology
- Highly engaged clinical trials eco system

These key capabilities are well connected industry and university hubs, focusing on research, development and commercialisation. These hubs are home to both international organisations and start-ups, often with state-of-the-art infrastructure available.

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Growth Target

The South Australian Government is committed to the growth of the economy through industry-led initiatives. To ensure the state is on track to deliver economic benefits, a report was commissioned to review international and interstate engagement functions.

In March 2019, the Hon Steven Joyce released his review (Joyce Review) identifying key sectors where the state has a comparative advantage, including the Health and Medical Industries (HMI) sector. The HMI sector is identified as one of the newer, but fast-growing sectors, where the state holds comparative advantages which will create economic growth opportunities. As identified in the Joyce Review, the key themes within the sector are the establishment and growth of the health and biomedical businesses, clinical trials and aged care, leveraging our existing strengths and state of the art infrastructure.

The Joyce Review provides the groundwork for the development of a multiyear strategic plan, the 'Growth State Plan: Our plan for prosperity' (the Plan) and the task for the government, through the Department for Trade and Investment (DTI) is to support industry in developing sector specific plans to achieve growth and create the economic environment in the state for businesses to thrive.

In October 2019 DTI HMI released an initial discussion paper to engage with industry and understand the strengths in South Australia, as well as the challenges faced by industry. The feedback received through consultation on the discussion paper has led to the development of this draft sector plan. The sector plan provides the outline of how we can grow South Australia – both within the existing subsectors and further through collaborative projects across the HMI sector and beyond into the other thriving sectors in the state such as defence, space, hi-tech and agriculture.

In achieving the growth, the government's response to the Joyce Review considered four key areas which will deliver outcomes across the defined sectors. These areas of infrastructure, investment and trade, skills and workforce and water and the environment have been considered in light of the industry feedback.

From the investment and trade perspective, the focal point will be in creating a single entry point for investment and trade, developing a capability statement for the sector and ensuring that the outstanding local ecosystem capability is developed and marketed to our international partners.

The Economic Opportunities

Based on consultation, the Health and Medical Industries sector is comprised of the following subsectors:

- Ageing and the Care Industry
- Biotechnology
- Clinical Trials
- Cross Border Care
- Digital Health
- Medical Devices
- Nutraceuticals and Traditional Medicine; and
- Pharmaceuticals.

To deliver growth for South Australia, three key enablers have been identified as the primary focus to support sector-wide growth and development. Enhanced, sector-wide collaboration and the development of a whole of sector capability will support the sharing of ideas, facilities and the development of a single point of contact. Streamlining our clinical trials environment will provide growth in investment across the identified subsectors. A focus on the growing care sector to open the opportunities for investment and business growth to capitalise on federal government funding.

Additional subsectors will evolve through the innovation and changes to our health systems and how consumers view health care. These emerging trends will be given consideration as growth targets as they arise. Our industry needs to remain nimble, proactive and innovative to leverage these not yet known opportunities. The government needs to facilitate initiatives to drive these cross-subsector collaborations.

The bespoke definition of the HMI sector provides a challenge in determining both the current levels of growth for the sector and future GSP growth targets. Broad estimates within the South Australian government consider the average level of growth in the sector of the past eight years as below three per cent. As outlined below, these estimates do not account for all activity within the HMI sector, as there are a number of gaps in the available data. The anomaly in the data is the recent information on the growth of the National Disability Insurance Scheme (NDIS), which is achieving growth rates well above the three per cent target as NDIS providers are being established and growing.

To achieve our target growth rates, the focus for engagement will be investment into South Australia (from interstate or international sources) and the development and growth of our exports.

Summary data on the current state of the sector (excluding direct care) shows the contribution of health and medical industries to the South Australian economy as:

- total expenditure (or incomes) of A\$4.2 billion
- overseas and interstate exports of A\$876 million
- direct contribution to GSP of A\$2.3 billion or around 2.1 per cent
- direct employment of 23 789 (or 2.1 per cent of all South Australian people employed)
- with a further Indirect contribution of A\$870 million or an additional 0.8 per cent
- Total impact of value-adding (direct and indirect) of A\$3.2 billion or 3 per cent of total GSP.

Subsectors

Ageing Well and the Care Industry

Ageing well and the care industry aim to improve and maintain quality of life for people throughout their life stages through research and development and the delivery of products and services. It incorporates preventative health care and positive ageing through to aged care and disability support services. The broader care sector and objectives for 'living well' encompass people of all ages, including the opportunities presented through NDIS.

Ageing well is a growth business globally, with rising incomes and ageing populations combining to increase demand for ageing well services.

The World Health Organisation (WHO) has declared the Decade of Healthy Ageing 2020-2030 which provides a mandate and framework of priorities and opportunities for healthy ageing, focusing on optimal functioning rather than simply the absence of disease.

South Australia has the second-highest proportion of individuals over the age of 65 in the nation, and the highest proportion of people over the age of 85. This comparative advantage opens opportunities for South Australian businesses both to export ageing well services and to attract inbound investment into local businesses.

The challenge

The context for aged care and the NDIS in Australia is challenging to industry in terms of the regulatory impact on the sustainability of businesses, expectation of the quality of care and the ability to leverage strengths to invest in innovation and new markets.

Workforce shortages and the need to attract, develop and retain a culturally and linguistically diverse workforce are key challenges for the subsector.

A cohesive care sector will support the development of an international profile as the living well state, where people contribute to our thriving community throughout their lives.

Achievements to date

Industry, government and academia have worked together to identify challenges and opportunities for health, living well and the disability sectors.

The government has minimised the barriers to growth through supporting business transition reforms, including access to grants, facilitated collaboration and co-design, and delivered strategies for workforce development, particularly in the outer metropolitan and regional areas.

There is outstanding expertise across all the South Australian universities in investigating and implementing innovative ways of delivering best practice in the chronic condition space, galvanising clinician-scientists, consumer groups and health service reforms.

The Register of Senior Australians (ROSA) was established in 2017 through a partnership of researchers, clinicians, aged care providers and consumer advocacy groups. ROSA supports the monitoring of the health of people receiving aged care, including the use of services and medication.

The industry initiated 'Ageing Well International', is a business network to facilitate capability development for investment and export, and support businesses in the ageing well and care sector that are export market ready and/or have export potential.

What success will look like

South Australia will be known as the 'Living Well capital of Australia', with increased overseas investment in living well businesses, increased leadership in preventative health care and growth in research and development and NDIS ready companies.

Industry and the government should continue to work together to resolve the workforce challenges ensuring the long-term sustainability of industry.

ROSA will be used in the development and commercialisation of related services and technologies.

The state will demonstrate its capacity and capability in the market, with export growth for living well through industry-led initiatives such as Ageing Well International – with new markets and increased revenue opportunities across the living well sector, including through the realisation of education and training opportunities both locally and internationally.

Living well industry innovations will be facilitated and supported to commercialise and export products and services, supported through clinical trial activity in the sector.

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Biotechnology

Biotechnology harnesses cellular and biomolecular processes to develop technologies and products that improve our lives and our health. Companies in this subsector in South Australia are usually small to medium organisations with an emphasis on research and development activities.

The challenge

South Australia's biotechnology subsector was previously a national leader; however, growth has slowed in recent years.

There are workforce shortages in the sector, which are based on a limited number of opportunities for students to engage with industry – resulting in a drain of local graduates as they move interstate.

Good Manufacturing Practice expertise and training support skills development need to be considered.

The cohesion of local industry, and the limited prospects for co-location supporting cross-collaboration are currently challenging and would benefit from an independent entity that facilitates investments and a cohesive whole of sector approach.

As the subsector is defined by research and development expertise, there needs to be support for research growth and commercialisation opportunities for emerging technologies.

Achievements to date

More than 80 new biotechnology companies were established between 2001 and 2016, with the jobs in South Australia's biotechnology sector doubling to around 1700.

Local companies continue developing collaborations with major players in the pharmaceutical industry and there is a successful industry focus on developing CAR-T cell therapies, with potential to become a regional leader in the field.

With our North American office located in Houston, Texas, South Australian companies will be able to link up with the world-renowned Texas Medical Center (TMC) and may be eligible to apply for the TMC accelerator program (TMCx).

What success will look like

There will be increased collaboration between university researchers, industry and funding partners, increasing the number of spin-out companies and licensing deals.

An independent Bioscience coordination point, connected through the proposed industry connectivity initiative will be established to promote the goodwill within the sector, enabling efficient communication and camaraderie across the competitive entities.

A reinvigorated clinical trial environment in South Australia will support the critical research and development in biotechnology.

In collaboration with the hi-tech sector, opportunities for growth of artificial intelligence will be available to develop and test biotechnologies supporting economic growth outcomes.

Opportunities for Good Manufacturing Practice facilities will be developed and supported by training programs to help drive the subsector and encourage investment and export growth.

The ageing well space will provide opportunities for the testing of wellness applications and investment in this subsector.

A student placement program between the universities and industry will be considered as an opportunity for students to better understand industry and test ideas and promote industry-ready graduates.

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Clinical Trials

A clinical trial is any research study involving patient or non-patient human volunteers to test new treatments, interventions or diagnostic approaches to prevent, detect, treat or manage various diseases or medical conditions. Clinical trials provide opportunity for research and business growth, seeing South Australia at the forefront of medical research and patient care in niche clinical areas. Clinical trials are undertaken across the breadth of the health and medical industries sector.

The challenge

South Australia currently has a low participation rate in clinical trials, despite having a high rate of patient retention in trials, with a population that is relatively stable.

In Austrade's Clinical Trials Capability Report, it states that in 2015 clinical trials were worth an estimated A\$1.1 billion in direct expenditure. South Australia's market share in this is low.

There are a number of clinical trial service providers in the state – both public and private, clinician-led and industry-driven. However, there is no single clear entry point for information on clinical trials capability and capacity in South Australia, limiting the attraction of new clinical trials. There are already initiatives underway to create a single point of information for current trials, capability and capacity and it will be important to monitor progress and to make sure that initiatives are meeting the requirements of clinicians, researchers, industry and potential study participants.

Clinical trials are not currently streamlined and beyond the need for a single entry-point, consideration needs to be given to factors such as governance, accessibility of patient cohorts, time from initiation to completion, the availability of clinical research coordinators and the approach to intellectual property.

Achievements to date

SA Health is in the process of developing a web portal which will act as a landing page for parties interested in learning more about clinical trials in South Australia. The site will provide specific information regarding the expertise and capabilities to support clinical trials both within and external to SA Health.

In response to the Birch Report released in 2018, SA Health have been progressing implementation of the recommendations, including some activities that were initiated prior to the release of the Birch Report. Health Translation SA, in partnership with SAHMRI, has established a Clinical Research Governance Steering Committee to accelerate the implementation of the Birch Report's recommendations in partnership with SA Health and the Local Health Networks (LHNs).

With an emphasis on improved data capture and reporting capabilities, SA Health is procuring a new research management system to streamline the collection of public health sector data.

New clinical trial management software solutions are also being rolled out at various LHN's.

What success will look like

Our clinical trial processes will be streamlined, with faster and more consistent processes for ethics and governance approvals, resulting in a more attractive and easier to navigate system which will increase interest in clinical trials being undertaken in South Australia and an increase in private clinical trial service providers.

South Australia will have a state of the art, innovative and fit for purpose single point of entry for clinical trials. The first deliverable, the web portal described above, is a solution to connect trial

sponsors with lead investigators and attract more international studies, to be launched in the first half of 2020.

An increased focus will be on areas such as vaccines, oncology, immunology and human genomics, where South Australia has recognised research capability. Furthermore, clinical trials to support quality of life and lifestyle interventions will be focal points, aligning with the existing ageing well strengths in the state.

Capitalising on Federal Government initiatives, South Australia will embrace the opportunity to expand clinical trial work to include remote and rural primary care providers and private practises. Consideration will be given to encouraging participation in other target populations, such as older Australians and NDIS recipients.

Education and training in South Australia will be enhanced, with Good Clinical Practice training made available to local clinicians and nursing staff. This focused training will grow the local talent pool of principal investigators and clinical research coordinators. University medical programs will introduce clinical trial subjects to support early training and the development of a deeper clinical research talent pool.

South Australia will continue to be marketed as a place for clinical trial investment through the network of international offices and by capitalising on international business missions.

Cross-Border Care

Cross-border care, often referred to as medical tourism, is the growing industry where consumers travel for medical care whether it be due to the unavailability or prohibitive costs of procedures in their home location.

Based on Australia's globally recognised high medical standards, South Australia has the opportunity to market itself as a medical tourism location for niche procedures, aiming at middle to higher income earners from economies in Asia, interested in high quality care and management.

The challenge

South Australia needs to further develop its international reputation as a harbour of leading medical institutions and accessible private medical management options for international patients in niche areas where there is local expertise.

There needs to be stronger networking and better coordination across the health and medical industries sectors, including among the service providers within the supply chain, and greater awareness of the clinical expertise which can be accessed in private facilities in South Australia.

This requires collaboration and cooperation between clinicians, medical institutions and medical management companies, local and international. The government can have a role as a facilitator through the network of international offices.

Our competitors in South East Asia, the United States and Europe compete on one of the main drivers of international patients seeking medical assistance – quality, expertise and trust in the medical institutional brands that reside in those countries. South Australia has an opportunity to compete due to our relative costs, quality and the cohort of international students that can promote South Australia's cross border care capability in their home country.

Achievements to date

South Australia has a unique offering and expertise in a number of marketable areas such as oncology which provide continued growth for the sector.

Companies in South Australia provide tours of the facilities available in the state, providing insight into the strengths of the health care sector, and have participated in outbound business missions to promote South Australia.

The government has assisted local cross border care companies with initial Chinese market scoping via the outbound business mission program.

Small, local cross border care service companies are continuing to grow and are developing the niche market in second opinion services.

What success will look like

Cross border care into South Australia, as well as the reputational requirements to thrive in such an industry, are incumbent on further development of the health and medical industries. Cross border care is a by-product of all subsectors thriving and enhancing its capabilities locally and internationally.

The state will harness and promote the health care assets and industry capability, being recognised as a hub of medical excellence and a destination for leading edge care in specialist fields.

Capable medical teams combined with digital health solutions will be providing seamless cross border communication and care.

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Digital Health

Digital Health is an electronic means of treating and delivering preventative and diagnostic healthcare. Tailored to the individual, it is a customer centric service provision that utilises data, information and technologies to deliver a more precise and personalised healthcare experience. Utilising hardware and software, digital health incorporates telemedicine, secure messaging, smart phones, wearable devices and other technological aids that assist medical professionals and their patients manage their health and well-being.

The challenge

The complex healthcare system involves a cross-over between public and private providers, and a highly regulated and risk adverse system, which limits the uptake of new technologies. To capture this significant investment opportunity, we need to become a hub for inbound digital health research and development.

To capitalise on the growth of digital health, there needs to be greater facilitation of access between industry and frontline healthcare providers. This improved collaboration will result in better understanding of the needs and will result in the development of products and services which will deliver tangible digital health outcomes with a direct channel to market.

Achievements to date

Australia is considered one of the leaders in health and medical research, with early adopters of new technologies. There has been significant investment by all levels of government in developing core components of health tech infrastructure.

Growth of the digital health sector in South Australia is evident in the cluster of local companies, research hubs at local universities and complementary initiatives like GigCity and 10 Gigabit Adelaide.

What success will look like

Support will be provided for the attraction of investment groups that have expertise in digital health companies and start-ups. This growing subsector will be an essential part of health care provision and will attract more grant funding for the digital health sector.

A supportive trials environment will lead to increased digital health trial activity, coinciding with established initiatives within the major regional medical hubs.

South Australia's care sector will encourage the development of digital health solutions and collaborations across industry to support sector growth and improve customer outcomes

South Australia will continue to capitalise on state of the art health and medical research, with scientific and academic institutions pursuing innovations in technology such as AI and providing opportunities through data linkages.

New electronic patient data policies will be developed to enhance the ability for companies to access deidentified data to develop solutions aimed at local, national and global healthcare challenges.

Medical Devices

Medical technology includes a wide range of medical devices (including in vitro diagnostics) used to diagnose, monitor or treat diseases whether in a home setting, at hospital or through health providers. In Australia, most of the subsector is based around medical and surgical equipment manufacturing.

The challenge

The medical devices industry consists broadly of small and medium-sized enterprises with almost half of the Australian companies employing less than 20 people. Global market entry is usually through larger firms, and there needs to be international connectivity to support the ongoing development of supply chain opportunities.

There is a shortage of specialist skills and a lack of subsector specific management skills that need to be addressed.

Achievements to date

South Australia has a reputation as a centre of excellence and innovation, based on the continuous delivery of medical technology innovations.

The government has assisted local medical device companies with entry into global markets through the international trade offices and outbound business missions.

In October 2018 the government announced A\$1.5 million funding for the Medical Device Partnering Program (MDPP), to boost the state's medical technology sector and encourage greater collaboration between industry and research. This initiative has been a major success, and MDPP is now expanding nationally.

What success will look like

MDPP will support further projects, creating medical technology start-ups and knowledge-based employment opportunities in South Australia.

There will be dedicated facilities and funding to support the commercialisation of the intellectual property of local research.

South Australia's evolving supply chain infrastructure provides international medical technology companies with a unique opportunity to expand their manufacturing footprint in the fast growing and increasingly important Asia-Pacific region.

The state will be recognised as a strong contributor in areas including personalised implants, bionics and smart devices, and have solutions in place to fully utilise the captured data, in order to expand export opportunities.

The government should support initiatives to defragment the industry, developing opportunities for collaboration and capability development, resulting in an increased investment into South Australia.

Through the enhanced clinical trial environment, medical device testing will be a focus for the state, with specialist opportunities present in the care sector.

Nutraceuticals and Traditional Medicine

Nutraceuticals are nutrient-fortified or bioactive functional food and dietary supplements which may provide medicinal or health benefits, including the prevention and treatment of disease.

Traditional Medicine is characterised by the production of herbs and other natural materials considered to have therapeutic effects using traditional techniques established thousands of years ago. This includes Aboriginal and Torres Strait peoples and cultures as well as international traditional knowledge.

The challenge

Historically, South Australia has not been as competitive as our interstate counterparts in the development of the nutraceutical and traditional medicine subsector. While there is anecdotal evidence of major success for some South Australian companies, the broader market opportunity suggests that more growth can be achieved by industry initiatives.

Whilst the state boasts research excellence in traditional medicine, there has been limited commercialisation and business growth within the state in this subsector.

Achievements to date

South Australia is home to a significant number of traditional medicine research institutes, with the universities as major partners. Research includes the application of traditional knowledge to source active compounds from native plants and fast tracking these into commercial products.

Our universities have strong ties to traditional medicine research within Asia, particularly China. These networks promote common research interests and the use of Australia's biological resources to develop environmentally and ecologically friendly products and services.

What success will look like

Australian health products carry a strong global reputation with consumers as premium quality, clean, green and safe due to our standards and comprehensive regulatory environment.

Nutraceuticals are growing in popularity as consumers look to alternative products to enhance their health and well-being. While not discounting other countries, the initial increased focus will be on countries with a strong traditional medicine culture and with a high uptake in complimentary medicine such as China, South Korea and India.

The universities will continue to develop traditional medicine research and seek opportunities to commercialise products. A strengthened clinical trial market will support the development of the evidence base.

To succeed in this burgeoning market, South Australia will leverage from the AU\$1 billion export of in demand high quality Australian complementary medicines. Asia is the fastest growing region of the world, with a developing middle class and ageing population that will further demand for Australian health and medical products.

The 'Made in Australia' brand, capitalising on our quality and pristine environment, has the potential to result in the supply of goods to growing markets across the Asia Pacific Region.

The Shanghai office will support the development of reciprocal opportunities with exporters and consumers of nutraceuticals and explore commercial opportunities.

South Australia will further develop industry connections and collaboration between Aboriginal and Torres Strait Islander communities and commercial enterprise groups and realise opportunities to carve out a niche nutraceuticals market underpinned by native bush flora.

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Pharmaceuticals

The pharmaceuticals industry is a multi-billion-dollar sector dominated by large multinational corporations, concerned with the discovery, research, development, regulation and commercialisation of human medicines, including all cellular therapies and regenerative medicine.

The subsector also includes the cultivation of medicinal cannabis and the manufacture of medicinal cannabis products for export markets.

The challenge

Australia represents a small market with approximately one per cent of global pharmaceutical and medical technology sales; however, it is well placed to capitalise on the rapid growth of the densely populated neighbours.

The development of the medicinal cannabis market is being hindered by a lack of Australian clinical peer reviewed evidence to promote the efficacy of medicinal cannabis in the treatment of a range of conditions. Medical professionals are unable to engage with formalised training in medicinal cannabis, and there is a lack of guidelines to support the provision of products and dosages required for treatment.

South Australia has recognised expertise in a wide range of areas including vaccines, oncology, immunology and endocrinology, and there is an opportunity to better match pharmaceutical investment to these specialist areas.

Achievements to date

With both Commonwealth and state government investment over the last ten years, pharmaceutical manufacturers in South Australia have been able to expand their facilities and grow the local industry.

At least three companies are focussing on producing medical grade cannabis end products in South Australia with an export focus.

South Australia is engaging in medicinal cannabis clinical trials for specific disease states.

What success will look like

The clinical trials environment will support research and development in this subsector, particularly in exploring the evidence base for medicinal cannabis.

Good Manufacturing Practice (GMP) training courses will be offered in South Australia and will link with opportunities in cross border care and training, bringing people to the state to study.

Partnership pathways will be developed with a focus on clinical trials, procurement, and research collaborations. More GMP compliant infrastructure will result in our companies becoming contract manufacturers for medium to large size companies.

Local expertise in a variety of other medical disciplines will be harnessed to create opportunities for pharmacological research and commercialisation.

Potential opportunity to support the establishment of high-value pharmaceutical operations, either for development and manufacture of originator products or for contract development and manufacturing services will be offered to global companies.

Our oncology expertise together with our GMP compliant infrastructure will attract at least one major pharma company to invest in production capability in South Australia.

The government should create an environment that supports greater international outreach of local manufacturers, including in developing economies which represent significant export markets for pharmaceutical products.

There will be growth in venture capital or other investments in pharmacology in South Australia.

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Collaborations for Growth

Opportunities for growth come from the ability to collaborate optimally across industry, research/academia and government. Many such ventures are already in place, such as the Adelaide BioMed City, Tonsley Innovation District and the Flinders Health Precinct.

As an emerging sector, and one with a rapidly changing profile due to technological innovations, the challenge is to build and manage a flexible innovative system that capitalises on this fast-evolving environment.

The government should focus on facilitating industry growth within the subsectors identified and through collaborative approaches on projects which can be developed across the subsectors for the broadest industry growth.

Developing our networks

Our strengths in defence, space and hi-tech industries also provide opportunities for health and medical companies to expand into these fields and develop new technological applications. The government should facilitate interconnectivity and collaboration to build and develop our capability.

The significant resources available in collaboration with the agriculture industry can be harnessed to provide for the development of pharmaceutical products and pre-clinical testing capabilities.

Our networks will include researchers, graduates and alumni and be focused on developing events which enable these groups to continue to grow, thrive and share the capabilities in the HMI sector.

Where possible, DTI will work with the Commonwealth to unlock funding for state-based health and medical industries initiatives and assist other state departments in driving research, innovation and skills development.

Working with our network of international and local students, the government should support linkages between these cohorts and industry as a mechanism for ensuring the graduates are interested and ready for the highly specialised roles in the sector.

DTI should collaborate with SA Health and Commonwealth initiatives and support the investigation of opportunities for de-identified data to be made available for local industry use, with opportunities for companies based in the state to have access to available data. DTI should use international state-of-the-art examples as guiding principles to propose solutions and/or best practice.

SA Health, as a public health system provider, continually seeks to work with industry, including through the establishment of the Healthy Ideas Portal.

DTI and SA Health will continue to work in partnership, promote the Industry Capability Network and the pathways for suppliers to work with SA Health, such as through the Tenders SA Website.

Opening our doors

A cross-government coordination point, whether organised or facilitated, is essential to growing our share in the national and international clinical trials markets. Industry is seeking a single point of entry into the state – and closer ties with local health facilities.

Our existing infrastructure will be opened up to support the growth of education and training opportunities in the state, and we will encourage the local universities to introduce further training in clinical practice and industry development.

We will document our capabilities and develop opportunities to collaborate locally and internationally, with the government facilitating the collaborations.

Promoting our strengths

To capitalise on these strengths, and to ensure international promotion of our capabilities, the government will facilitate the development of an industry capability statement and continue to promote our local expertise through the international trade office network and through outbound business missions.

The promotion of clinical trials will be both local, to support increased participation rates among the local population, but also international to ensure the state can grow the number of trials being attracted and undertaken here. There is an opportunity to extend our trial capability to promote whole of population wellbeing, not only disease treatment.

The ageing well industry development will be supported through the development of saleable elements from implicit intellectual property and providing commercialisation support.

Responding to disruptive ideas

The continually evolving sector presents both challenges and opportunities. Artificial Intelligence, the human/neuroscience/robotic/bionic interface, defence and space medicine are areas of cross-collaboration where South Australia has key initiatives. Our growing hi-tech sector and existing defence and space capabilities provide unique opportunities for the rapid development of the HMI sector in partnership with these sectors.

South Australia will be an agile and flexible state, ready to consider new ideas and support companies establishing here to develop and commercialise their ideas.

First Enablers

Industry has identified three key enablers which are targets for the next two years with sector wide impacts, building industry capability and scale, energising the industry and driving the sector forward. The key targets are a cohesive industry presence, renewed clinical trial arrangements and growth in the care sector. Achievement of these three targets will have an impact across the subsectors, and support wholistic economic growth.

Industry Connectivity Initiative (ICI)

Capability development and promotion, including the establishment a Health and Medical Industries Connectivity Initiative (HM-ICI), will support the development of a cohesive and coordinated sector, with improved linkages between all subsectors.

This industry-led connectivity initiative will support and sustain the health and medical industries, with members from industry, industry associations and research institutions. This body will become the industry voice to all levels of government, stakeholders and the broader community.

The government should facilitate the development of the connectivity initiative, and develop a mechanism for capability identification and growth, the growth of export market opportunities and promote investment in local industry.

Once established, this initiative will support the collation of industry data, including industry sentiment surveys. The success of the initiative will be determined based on industry take-up, the number of events held and attendance at the events.

Clinical Trials

South Australia will benefit from increased clinical trial investment through a single point of entry for clinical trials in SA Health and private health providers. The development of streamlined processes will further enhance the state's positioning, along with access to key researchers and facilities.

A sound clinical trials framework will support the various subsectors mentioned earlier in this document.

Industry will continue to investigate opportunities to have visibility of patient cohorts using technology, allowing industry to attract more trials to South Australia.

In March 2020, Adelaide had 741 active clinical trials registered on ClinicalTrials.gov. Of these, 666 had patient cohorts including people aged over 65. Through the successful development of the clinical trials environment, the number of trials undertaken in South Australia will increase.

The Clinical Trials Portal under development by SA Health will support increased reporting on clinical trial uptake in South Australia and provide insight into key research themes in the state.

Ageing Well and the care sector

Supported by Commonwealth initiatives such as the NDIS, and with the reinvigorated clinical trial environment, the opportunities for investment in the care sector will be recognised. There will be growth in funding to the care sector, which will support increased industry participation.

The industry growth will provide opportunities for local companies to market expertise nationally and open new international markets, growing the markets for our ageing well organisations, digital

health and assistive technology companies as well as supporting the pharmaceutical, nutraceutical and clinical trials subsectors.

The success will be measured through the industry sentiment survey, the growth in the value of international contracts by South Australian based businesses, and an increase in the number of projects based in South Australia with international partners. These investments and exports will be supported by the development of disruptive innovations in healthcare.

Growth in NDIS funding into the state, and the growth of the number of local businesses registered for NDIS will also be measured.

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