6 August 2019

Infrastructure SA
GPO Box 2343
Adelaide SA 5001

Dear Sir / Madam,

Infrastructure SA 20-Year State Infrastructure Strategy Discussion Paper – AIIA Submission

Thank you for the opportunity to provide feedback on the 20-Year State Infrastructure Strategy Discussion Paper released for public comment by Infrastructure SA.

ICT and digital technologies play a pivotal part in the South Australian economy. The Governance Institute of Australia estimates that over 85% of a modern organisation's assets are now intangible – that is, data and content. The South Australian Government has made a commitment to embracing new and emerging technologies to both serve and support the community, and provide an enriched digital experience for all South Australians.

In order to meet the state's proposed infrastructure growth agenda, ICT and digital technologies will have a prominent role in addressing not only short-term issues but more broadly building sustainable solutions that will define future infrastructural development. The Australian Information Industry Association's (AIIA) - South Australia Chapter is committed to collaborating with the South Australian Government in fully harnessing the benefits of ICT in meeting infrastructural demand. The AIIA is well placed, through its membership, to assist Government in designing new approaches and frameworks and would welcome the opportunity to add value in this space.

About the AIIA – SA Chapter

The AIIA is Australia's peak representative body and advocacy group for those in the digital ecosystem. We are a not-for-profit organisation to benefit members, and AIIA membership fees are tax deductible. Since 1978, the AIIA has pursued activities to stimulate and grow the digital ecosystem, to create a favourable business environment for our members and to contribute to Australia's economic prosperity.

We do this by delivering outstanding member value by:

- providing a strong voice of influence

- building a sense of community through events and education

- enabling a network for collaboration and inspiration; and

- developing compelling content and relevant and interesting information.

We represent technology organisations of all shapes and sizes all around Australia, including:

- Global corporations such as Apple, Adobe, Avanade, EMC, Deloitte, Gartner, Google, IBM, Infosys, Intel, Lenovo, Microsoft and Oracle

- Multinational companies including Optus and Telstra

- National organisations including Data#3, ASG and Technology One; and

- a large number of small and medium businesses, start-ups, universities and digital incubators

Some 92% of AIIA members are small and medium Australian businesses and 8% of AIIA members are large Australian companies and multinational corporations

The AIIA has six State and Territory Councils, including the SA State Council. Membership of the SA Council is representative of the wider AIIA profile and includes both large multinationals, small to medium businesses and start-ups.

At present the AIIA SA State Council includes representatives from the following sectors:

- Start-ups

- Scaleup companies

- ASX-listed and/or Multinational companies

- CRC research organisations

- ICT industry service providers

- South Australian public sector

AIIA Response:

What infrastructure investment would make the biggest impact to unlocking economic growth in South Australia in the next 0-5, 5-10 and 10-20 years?

Internet connectivity in metropolitan, regional and remote areas will be a key facilitator for future infrastructure development. It will enable businesses to operate in both a national and global context, and fully participate in the increasingly data-driven economy.

In tandem to these developments there will also be more opportunities to interact with various tiers of government digitally as service provision transitions to online systems. As a result, this will over time reduce the overall costs incurred by both industry and government, as digital channels have in many instances proven to be more cost-effective than traditional face-to-face transactions.

Access to internet services is not solely an economic matter, it should also be regarded as one of social inclusion. The Australian Digital Inclusion Index[1] has seen South Australia fall in rankings in terms of accessibility/ability and affordability in connectivity. This in turn affects social and societal participation.

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[1] https://digitalinclusionindex.org.au/wp-content/uploads/2018/08/Australian-digital-inclusion-index-2018.pdf

Teleworking is becoming commonplace in a number of industries, but this is only possible by having the necessary connectivity in place to support the transition to this working model.

Connectivity, however, is not limited to access by people. Increasingly a large volume of data is produced and consumed by devices, therefore connectivity needs to incorporate the Internet of Things and the ability to extend networks to enable future capabilities, such as autonomous vehicles.

Improved regional connectivity could enhance existing public infrastructure, where facilities such as libraries or local councils can function as hubs. Whilst this type of leverage does exist these activities are localised and done at the instigation of individual municipalities. In order for this system to be effective it will need to be a consistent capability that is extended across South Australia.

Improved connectivity in South Australia's many tourist attractions would also significantly enhance its economic benefits to the state, in particular in supporting local businesses to capitalise on the burgeoning influx of tourist from Asia. One key example of this is Kangaroo Island, which suffers from consistent internet connectivity issues.

How would Adelaide's infrastructure need to change if its population hit two million?

Under these circumstances, a significant increase in WIFI infrastructure would be required to support both long-term and medium-to-short term residents in Adelaide. This will need to be complemented by other networks, such as transitioning to 5G to support future transport systems.

A number of countries have also WIFI-enabled public transport, enabling greater connectivity during commute times.

What strategies should be adopted to ensure Adelaide maintains its liveability as it grows?

Due consideration should be given to mandatory "Green" areas when planning infrastructure. We are aware that this practice is in place; however, it is not as high profile as some other jurisdictions. The significant positive effects of green environments on health and wellbeing have been proven in a number of studies[2], and Adelaide has the opportunity to extend green areas, including vertically on a number of existing buildings.

How can technology and data be embraced to improve quality of life?

It is the Council's opinion that an exceptional quality of life and unmatched business environment can be achieved by embracing technology and data sharing initiatives.

Leveraging and enhancing existing data sharing policies within the SA Government can create outcomes similar to those of NYC OpenData, which provides a full range of data on key operations and infrastructure to engage the public, guide decision-making and make government more effective.

Whilst the South Australian government currently has an open data policy, most data sets remain static and there are few real-time data services available to industries and entrepreneurs[3]. Increasing

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[2] An example of such a study is Brubach et al *Effects of Urban Green Space on Environment Health, Equity and Resilience* (Nature-based Solutions to Climate Change Adaption in Urban Areas pp 187-205). https://link.springer.com/chapter/10.1007/978-3-319-56091-5_11

[3] Key exceptions to this are publicly available data on water and air quality, and some transport data.

open access to State Government data 'as a service' would provide significant opportunities for South Australia-based enterprises to develop innovative and inclusive public services.

We have seen smart initiatives measure quality of life aspects, such as water, air and population density to influence positive infrastructural change and improve regional diversity. For example, the NSW CityLink transport service enables residents to commute daily from the Blue Mountains and beyond (some 100Km) to Sydney, contributing to greater quality of life outcomes for locals.

It is also noteworthy that other state and territorial jurisdictions have more comprehensive obligation management and compliance regimes for infrastructure project than South Australia to ensure quality aspects are not adversely impacted by noise, vibration, dust, emissions, etc during construction. For example, the Melbourne Metro Tunnel Project received approval only after a comprehensive environmental management plan was confirmed by all contractors, which included real-time public facing dashboards.

How can South Australia best prepare its infrastructure to be able to adapt to and embrace future technological disruptions?

In the first instance, it is recommended that the South Australian Government move away from using terms such as "disruption" or the need to "adapt to" technological change.

As an example, the Victorian Government has adopted the term Digital Innovation, and introduced the practice of budgeting for R&D for all infrastructure proposals. The Victorian Government has also been proactive in attracting new tech investment in the state, and now holds an annual event to celebrate technological advancement. Over time, this has contributed to Melbourne becoming a new centre for ICT development in Australia. KPMG ranks Melbourne as having the most attractive R&D location costs in the Asia Pacific[4].

The South Australian ICT industry is a keen observer of developments in other jurisdictions, where exciting opportunities exist for those cities who are seeking to attract industry leaders. Profiling cities and regions as international hubs can entice tech giants such as Google, Uber and Canva.

To prepare for this, we recommend that the South Australian Government consider developing benchmarks that would need to be met in order to create business and R&D opportunities for major ICT to establish a base in SA, and considers creation, retention and attraction initiatives for technology enablers when designing infrastructure projects to support technology-enabled or "smart" infrastructure services.

Data and technology will also be key in modelling options for South Australian planning and infrastructure development, allowing a virtual experience of experimentation before physical implementation.

The energy sector is a key focus area, and leveraging technology to assist in future planning to meet population demand will ensure the Government is prepared to address any sectoral issues.

It should also be noted that technology is has been supporting infrastructure models in the private sector for a number of years. Heavy industrial sectors (i.e. mining, oil and gas, utilities, etc) have had the ability to predict maintenance and operational improvements for over a decade thanks largely to their use of emerging technology to monitor their operations. Adopting a more data-driven, evidence-

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[4] Competitive Alternatives KPMG's Guide to International Business Location Costs, 2014 Edition.

based approach towards public sector infrastructure planning will ensure that the South Australian Government can support future population growth.

How should infrastructure be planned in increasingly urban environments with ageing populations?

Infrastructure planning for an ageing population needs to account for access, transport and also embrace assistive technologies (i.e. mobility, hearing, vision, etc). Consideration also needs to be given to providing opportunities, both physical and virtual, to assist older persons in maintaining social contact.

With a suitably digitally literate ageing population, it would also be possible to reduce the need for face-to-face services for more straightforward service transactions, and provide these via a virtual agent online. This would increase access and availability without the need to maintain significant numbers of physical points of presence.

How can infrastructure provide resilience against bushfires, drought, flooding, sea level rises and the like?

By integrating IoT capabilities into physical infrastructure (i.e. sensors), it will be possible to provide continuous monitoring and develop alert systems for local communities if sensed data falls outside determined parameters.

The Netherlands uses sensor data extensively to monitor the integrity of its dikes (*Dijk*) – an essential infrastructure network to protect a country that is largely below sea level from seawater incursion. There would be significant knowledge sharing opportunities with states such as The Netherlands on the application of sensor technology in both operational and emergency contexts.

What strategies should the Government adopt to ensure the necessary infrastructure is in place so our regions can thrive?

Aside from connectivity, there is already abundant evidence to demonstrate that the technological readiness of a region's workforce and economy are fundamental to its competitiveness. Access to technology and ensuring it can be utilised will be essential facilitators for regional growth. In this respect, regional areas in South Australia are at a competitive disadvantage compared to their metropolitan counterparts, as improvements to ICT infrastructure in regional areas are required to support long-term economic and population growth.

Whilst the extension of the NBN to regional centres in South Australia is an important step, ongoing improvements to ICT infrastructure will be required to support future population growth. In this context, the South Australian Government should devote resources into conducting research into emerging demographic trends to determine future need and projected goals / targets for regional areas.

How can we best plan and accommodate the infrastructure needed to create vibrant and economically productive precincts?

The Council notes that a number of cities have developed infrastructure models to enhance economic growth. For example, in the United States the cities of Denver[5] and Salt Lake City[6] implemented long-

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[5] https://choosecolorado.com/colorado-became-global-tech-hub/
[6] https://www.slc.gov/ed/businessresources/salt-lake-citys-opportunity-zone-incentives/

term strategies targeting technology-based companies to establish hubs by creating an environment that was conducive to long-term investment. This included creating the necessary ICT infrastructure (i.e. broadband, speed and connectivity improvements), tax incentives and assistance packages for location to these centres. In these instances Government dispensed with relying on tender processes to attract business and actively engaged directly with companies on the benefits they would receive. This strategy has contributed to Denver becoming a new base for games development, which is now a hub for Start-ups and established companies, as the Government implemented the necessary infrastructure.

Additionally, in attracting companies to set up bases in South Australia it is necessary to consider the support infrastructure employees and their families would require, and their effect on broader demographics. A growing economy will translate into population growth, so education and training, health and social services, residential and transport infrastructure would also need to form part of future planning strategies.

How can South Australia better manage demand on current infrastructure?

A significant opportunity lies in the use of data and data analytics to understand usage trends and patterns, as well as in modelling possible future scenarios.

Another opportunity is in the introduction of a more integrated approach between tiers of Government, e.g. ensuring consistent approaches of road / traffic prioritisation between the three tiers of Government, or the provision of data-driven, real-time information on waiting times in public hospitals. Whilst this data does exist and is publicly available, it is often difficult to find and therefore not effectively utilised in aiding service improvement.

What services are we likely to use in the future that will require supporting digital infrastructure?

In the proposed 20-year plan there is provision for a degree of automation in service provision. It is expected that in the next year or so Australia will transition to the 5G network, where the corresponding changes in speed and bandwidth will contribute to increasing public demand for improved services. Under these circumstances the Government will need to review its hardware and connectivity and well as service design requirements for supporting public services, as well introduce plans to decommission and phase out outdated services.

More positively, the capacity of the 5G network to manage large amounts of data and corresponding data traffic will provide new opportunities to Government in terms of public service provision. Future planning for digital infrastructure will require logic-driven models, and any predictions on digital infrastructure will need to be supported by hard evidence. Accordingly, the Council recommends that the Government develop data and analytical models to inform planning for consumer and commercial trends, as responding to new service needs and emerging competition.

How will changing delivery models in education and training impact infrastructure requirements?

Advances in technology will facilitate fundamental changes in how South Australians both access and engage in education and skills training. As the South Australian Government has committed itself to creating 20,000 new apprenticeships and traineeships, it is timely consider strategies to meet these goals that will contribute to long-term economic growth. Whilst the introduction of the 5G network will provide enhanced opportunities for online / distance education, there is a need to consider the best delivery methods in meeting education need.

The Council recommends that consideration be given to engaging in public-private sector partnerships. Within the ICT industry, a number of companies are actively involved in developing apprenticeship and traineeship opportunities, which enable trainees to benefit from onsite training and industry exposure.

How will technology change the transport system in South Australia?

Over the course of the project 20-year planning cycle, transport demand will contribute to changes in public transport systems in South Australia.

In tandem to more traditional public transport methods, the consumption economy will provide commuters with a diverse range of options such as car sharing, ride sharing and autonomous public transport vehicles. Commuters will also have comparison tools available, such as auto-updating GPS, systems to compare travel times in real-time between taxis, Uber/Lift, Busses, trains, trams etc, enabling them to make informed transport choices and "vote with their phones".

We would expect continuation of the trend towards metro systems, and with this emerging Hyperloop and MagLev concepts or innovative iterations of the frictionless monorail systems to become commonplace public transport systems.

The South Australian Government should also begin the process of surveying the state's changing public transport needs, particularly in light of its recent relocation of Government Departments away from Adelaide (e.g. Department of Treasure and Finance move to Port Adelaide). Large ICT firms are progressively moving to hubs such as Tonsley, and employers are progressively introducing more flexible working conditions, which will have some positive effect on public transport usage, this in turn contributes to the need to introduce ICT infrastructure to support a growing remote workforce.

The AIIA SA Chapter would like to take this opportunity to thank Infrastructure SA for the opportunity to provide input and feedback on the Discussion paper.

Yours sincerely,

Mr Tim Chopping
Chair, Australian Information Industry Association – SA Chapter