DIGITAL AND INNOVATION

Cable laying at sea to link to Cable Landing Station at Maroochydore (Source: RTI Cable)

DIGITAL AND INNOVATION

OVERVIEW

The world is becoming increasingly interconnected and competitive as innovation and technology transform traditional business models and how we access goods and services. Queensland needs to keep pace with global change by driving innovation alongside faster, more reliable digital infrastructure.

Innovation and digital transformation are improving the lives of everyday Queenslanders and are a vital driver of our economic success. Emerging technologies are rapidly changing the infrastructure landscape – both what we build and how we build it – fostering innovation and improving services.

The Queensland Government is building an innovation economy with innovation places such as knowledge precincts critical to this. They bring together government, research and industry, to attract talent and capital, facilitate collaboration and deliver new businesses, jobs and export opportunities. The state owns and invests in precincts to support our science and innovation capability such as the Ecosciences Precinct in Brisbane, the Gold Coast Health and Knowledge Precinct, and the Townsville Tropical Intelligence and Health Precinct (TropiQ). The $25 million Research Infrastructure Co-Investment Fund also ensures Queensland maintains its leading-edge science and innovation capabilities.

Queensland is well positioned to build a strong and diverse digital economy as a part of our innovation economy. Our industries are embracing rapid digital transformation (commonly known as Industry 4.0), creating new high-skill jobs in industries like advanced manufacturing. A surge in the uptake of AgTech solutions is seeing the development and increasing adoption of data and digital technologies such as robotics, sensors, blockchain and artificial intelligence.

Digital technologies and data analysis are rapidly evolving and can vastly improve the way we plan, design, operate and maintain infrastructure. Embedding 'digital by default' approaches across the infrastructure lifecycle, where digital tools are used as the accepted standard, opens significant opportunities for the infrastructure and construction sectors. Embracing technology and innovation is essential to support new ways of interacting, working and delivering services.

Critical to all this is digital infrastructure, comprising the physical technology that connects people, businesses and communities to a variety of online products and services. It includes mobile networks, fixed-line and satellite broadband services, data centres and the Internet of Things (IoT). This digital infrastructure is also vital in keeping residents and emergency service workers safe during natural disasters (including pandemics) and assisting with the response, recovery and reconstruction phases.

Opportunities for economic development, and innovation are dependent on infrastructure that enables digital inclusion for all Queenslanders. Action led by the Australian Government and NBN Co over the coming years will be critical to avoid the digital divide widening in Queensland. The Queensland Government wants to work with responsible parties to ensure rural and regional Queenslanders aren't left behind as metropolitan areas have access to more services.

While telecommunications networks are regulated by the Australian Government and delivered largely by NBN Co and commercial providers, the Queensland Government continues to use its influence with the Commonwealth and actively works with other jurisdictions to improve digital infrastructure and services. The state also makes strategic investments and leverages government telecommunications expenditure, state government-owned investments and programs, and state planning frameworks.

In a decentralised state such as Queensland, there is enormous potential to provide the community with new and improved digital services through improvements to underlying digital infrastructure and optimising digital infrastructure provision – particularly in regional and remote areas. Digital capacity, security and resiliency also needs to be built into all infrastructure to future-proof investments and assets, and capitalise on capabilities.

Innovation in agriculture (Source: Department of Agriculture and Fisheries)

CURRENT KEY INITIATIVES

Digitally connected regions

The Queensland Government is exploring opportunities to improve connectivity in regional and remote Queensland, including driving a more competitive market through co-investment, and leveraging government buying power and existing infrastructure.

Digital Infrastructure Plan (DIP)

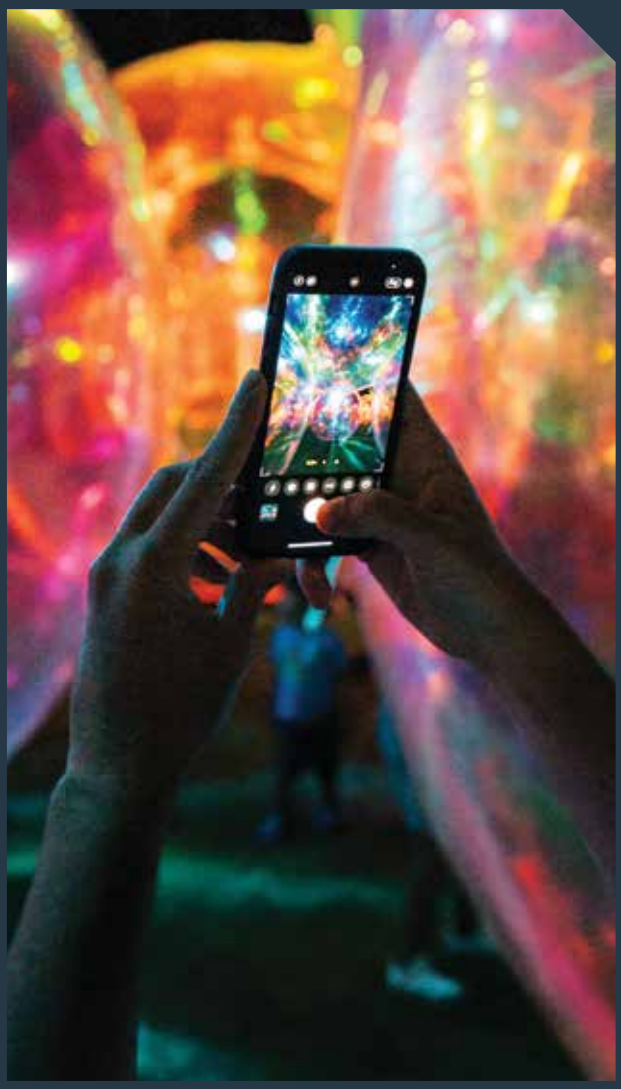
Developing a 10-year plan to focus the collaborative efforts and investments required across government and industry to bridge the digital divide.

Strengthening Telecommunications Against Natural Disasters program (STAND)

Working with NBN Co and councils to improve emergency telecommunication facilities in emergency shelters and assembly areas (approximately 60 sites), allowing communities at risk of natural disasters to access online support services, social media and news.

Queensland Innovation Places Strategy 2022–2032

Developing a 10-year whole-of-government strategy to drive the coordinated development of innovation places that bring together our economic strengths, assets and people to deliver long-term economic growth and jobs for Queensland.



Curiocity Brisbane 2021 (Source: Tourism and Events Queensland)

TRENDS

CSIRO AND NBN CO RESEARCH SUGGESTS THAT 20 PER CENT OF AUSTRALIANS will continue to work from home indefinitely, compared to 5 per cent pre-COVID-19[40]

THIRTY-SIX PER CENT OF THE QUEENSLAND WORKFORCE (867,667 QUEENSLAND JOBS) are at risk of disruption from digitisation and automation by 2038, presenting both challenges and significant opportunities[41]

CSIRO Futures has estimated that $1 of research and development investment creates an average of **$3.50 IN ECONOMY-WIDE BENEFITS.**[42]

DIGITAL AND INNOVATION

CHALLENGES

Tyranny of distance

Queensland has Australia's most decentralised population. This higher proportion of regional and rural households means more limited optical fibre connections, longer distances between telecommunications towers, a higher dependency on satellite services and higher connection costs per customer.

Digital by default

Implementing and integrating 'digital by default' into infrastructure projects will require a cultural shift for government and the infrastructure sector, including the need to build knowledge and capability and demonstrate the benefits of digital approaches.

Digital literacy

Addressing digital literacy and increasing familiarity with digital service delivery is a key challenge. While improving services and access is important, informed and savvy consumers are key to getting the most out of digital opportunities.

Great digital divide

The digital divide between our cities and smaller communities can be a barrier to people accessing online services for business, education and training, health, diminishing their ability to effectively participate in modern society.

Increasing reliance

Reliability of digital services is increasingly important for the success of Queensland's economy and the safety of its residents. Service outages can be life-threatening and inflict serious damage on the economy (e.g. payment systems). Queensland is also Australia's most disaster-prone state, with community safety and recovery dependent on digital infrastructure.

Ability to influence

While the Queensland Government is a strong advocate for improved digital infrastructure to grow the economy and provide more digital services, the Australian Government and the private sector are responsible for the majority of infrastructure.

OPPORTUNITIES

Leveraging existing investment

Leverage existing state government expenditure, assets or other investments to help reduce provider costs and facilitate greater investment to improve regional connectivity.

Partnering for success

The Queensland Government will continue to work with the telecommunications sector and the Australian Government to improve digital infrastructure in the best interests of Queensland, and further develop cross-jurisdictional data collaboration to improve discovery and access to public sector data.

Continue to participate in co-investment programs aimed at improving regional and remote digital infrastructure where it is not otherwise commercially viable, such as mobile black spots or regional connectivity programs.

Increasing market competition

Explore a variety of avenues to increase market competition, encourage further network investment, drive down service costs and improve service availability, for example, by enabling more shared infrastructure.

Enabling the digital economy

Leverage digital infrastructure and data to enable and grow the digital economy. For example, following the joint investment of the Queensland Government and the Sunshine Coast Council, the $35 million Sunshine Coast international broadband submarine cable is the first undersea optical fibre cable in Queensland and it will encourage ICT investment in the region.

Places to drive innovation and enhance productivity

Genuine collaboration between the private sector, research organisations and government can be facilitated by a coordinated and collaborative system of innovation places and precincts to share ideas, drive innovation, harness investment and deliver long-term prosperity.

Creating opportunities across the state for investors and entrepreneurs to connect in convenient locations will enable the development of smart and innovative physical and digital infrastructure, platforms, tools and networks to drive Queensland's innovation and start-up ecosystem.

DIGITAL AND INNOVATION

PRIORITY ACTIONS

1 Championing digital infrastructure (DCHDE)

Provide a single point of coordination and collaboration for the development of Queensland's digital infrastructure. This centralised coordination unit will work with local governments, the private sector, the Australian Government and government-owned corporations to advocate in a coordinated manner to align interests for the benefit of the state.

2 Developing a Digital Infrastructure Plan (DCHDE)

The Queensland Government is developing a Digital Infrastructure Plan to focus the collaborative efforts and investments required (across sectors) to bridge the digital divide. The Digital Infrastructure Plan aims to establish a statewide view of gaps and opportunities for future investment.

3 Enabling a digital economy (DCHDE)

Continue the development of a draft Digital Economy Strategy that explores opportunities to enhance our digital economy and positions us as an attractive place to live, work, play and do business. This includes investigating ways to attract new industries and support businesses to grow digital capability, improving digital connectivity in our regions and communities so they're able to participate in the digital economy, and unlocking new and better ways of delivering online government services.

4 Growing our innovation places (DTIS with other agencies)

Develop innovation places and precincts to bring innovation ecosystems together and enable clustering of knowledge-based activities. This includes partnering with universities, industry and other stakeholders to accelerate emerging industries and drive collaboration to improve competitiveness, productivity and capacity to innovate. This is supported by the 10-year Queensland Innovation Places Strategy which is currently being developed along with specific initiatives to take the strategy forward.

5 Bridging the digital divide (DCHDE)

Work with digital infrastructure providers to better understand and address the growing digital divide between cities and regional communities (including optimum NBN cover). Improvements are critical for the future of essential services such as e-health that need improved reliability, capacity and coverage.

6 Leveraging government expenditure (DCHDE with other agencies)

Assess opportunities to improve connectivity across the state by leveraging the Queensland Government's digital purchasing power and telecommunications expenditure. Improved connectivity will help drive more digitally connected regions and enable the delivery of government digital services.

7 Leveraging government fibre (QCN Fibre, DCHDE)

Queensland Capacity Network (QCN) Fibre will leverage fibre owned by government owned corporations to improve the wholesale backhaul market in Queensland in terms of bandwidth and cost.

QCN will also work with retail service providers to pass the benefits of government owned fibre to Queenslanders and Queensland businesses.

8 Improving network redundancy (DCHDE)

Work with the Australian Government and industry to strategically improve redundancy across digital infrastructure networks, particularly in remote areas (e.g. Cape York) where network outages have single points of failure that affect stability and uptime.

9 Addressing mobile blackspots (DCHDE, DTMR)

Continue to work with the Australian Government and mobile service providers to advocate and facilitate network upgrades in rural and regional Queensland, to address blackspots in key communities and transport corridors.

10 Introducing Digital Twins (DSDILGP, DoR)

Investigate the phased introduction of a statewide digital workbench to help plan, predict and understand Queensland's infrastructure to inform better decision making through more effective use of data. Digital twins have been emerging as a leading tool to present a more comprehensive understanding of the real world.

11 Driving digital enablement (DSDILGP with other agencies)

Review and update the *Digital Enablement for Queensland Infrastructure – Principles for Building Information Modelling Implementation* to further advocate a 'digital by default' approach to government infrastructure.

12 Improving data sharing and transparency (DCHDE)

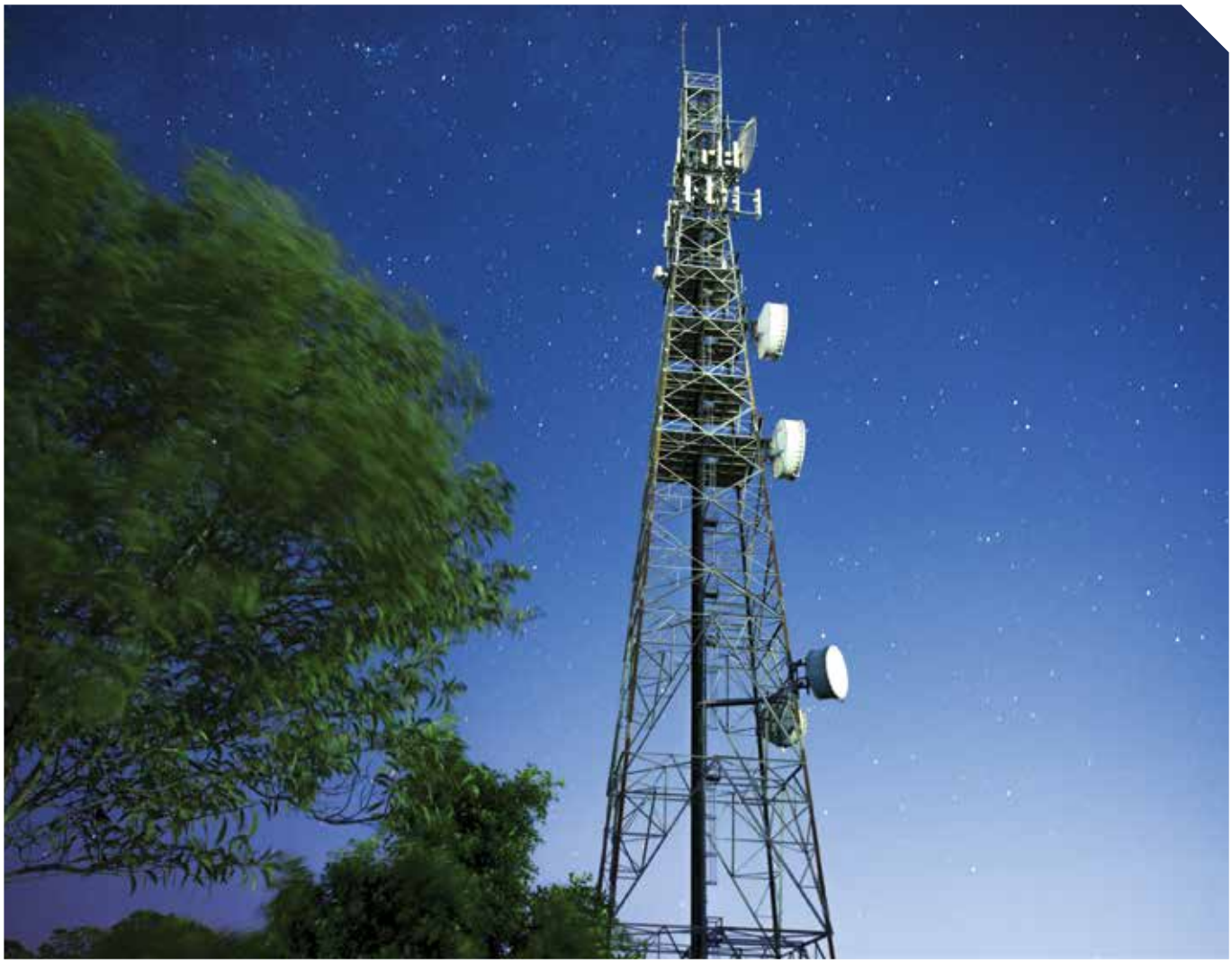
Continue to work across government and industry to maximise the integration, coordination, collaboration and sharing of data. A strategic approach to guide the management and use of data for infrastructure planning, delivery, maintenance and performance monitoring will promote the safe and trusted use of public and private sector data.

13 Sharing mobile infrastructure (DCHDE with DSDILGP)

In partnership with local governments and industry, explore policy and planning provisions to optimise the 5G rollout and reduce duplication of investment through shared infrastructure. Mobile carriers could share towers and equipment spaces through neutral host models and even network functionality through radio access network sharing, to reduce costs.

14 Increasing public safety communications (QPS with QFES, QAS and DCHDE)

Government has endorsed a long-term Public Safety Communications strategy developed by the public safety agencies. It provides departments with shared direction and capability targets to enhance operations, resulting in better and safer outcomes for the community.



Digital mobile towers

INFRASTRUCTURE OBJECTIVES

- Encourage jobs, growth and productivity
- Develop regions, places and precincts
- Enhance sustainability and resilience
- Adopt smarter approaches

DIGITAL AND INNOVATION

CASE STUDY

Queensland Capacity Network (QCN) Fibre

Queensland Capacity Network (QCN) Fibre is the state government's telecommunications carrier, jointly owned by Powerlink and Energy Queensland. It was established to boost internet connectivity and leverage telecommunications infrastructure and spare capacity to lower prices and improve digital and data services for regional communities. The optical fibre network stretches west from Brisbane to Toowoomba and north to Cairns.

High capacity backhaul is provided to strategically important data centres in regional areas, including the Pulse Data Centre in Toowoomba, the North Queensland Regional Data Centre in Townsville and the new submarine link at the Sunshine Coast Cable Landing Station. The Australian Government Regional Connectivity Program has funded QCN Fibre to deliver fixed wireless networks, extending high-speed broadband connectivity to the Central Highlands towns of Bluff, Dingo and Duaringa.

More competition in regional telecommunications will improve access to essential online services such as telehealth, e-commerce, online education and training, AgTech and cloud-based solutions, which are currently not viable in many regional areas.

Laying cable (Source: Queensland Capacity Network Pty Ltd, trading as QCN Fibre)

CASE STUDY

Agtech and Logistics Hub

The Advance Queensland Agtech and Logistics Hub will transform agriculture through facilitated connections, collaboration, partnerships and opportunities to solve industry's biggest challenges.

Global Agrifood Innovation Centre Ltd received funding from Advance Queensland to establish and run a multi-million-dollar Agtech and logistics hub in Toowoomba over three years. The vision for the hub is to grow the agriculture industry through the development and adoption of innovation and technology.

Located at Wellcamp, the hub will work across the food and agriculture supply chain, exploring opportunities ranging from enabling more sustainable growing practices, to creating efficient logistics services and new consumer products. This will involve connecting start-ups, SMEs, industry and researchers on industry-led projects, trialling new techniques and specialised equipment (such as virtual reality, robotics and drones) and providing access to commercial networks.

It will create opportunities for Agtech start-ups to develop solutions directly with industry and researchers, to create real value for our agriculture and to export Queensland technology to the world.

AgTech logistics hub (Source: Department of Agriculture and Fisheries)