

Policy Position Paper



MAKING THE CHANGE - NEW THINKING AND BOLD IDEAS

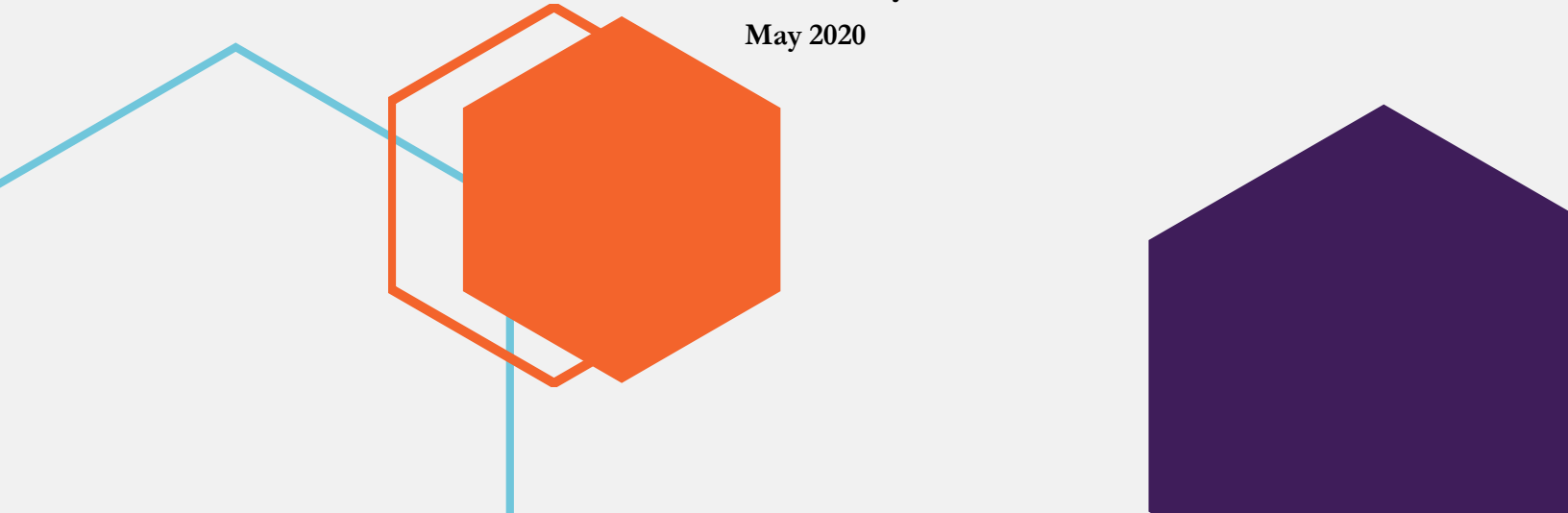
Long-term post COVID-19 Strategy and Policy Initiatives for
the Development of Queensland and Its Regions

This document looks more closely at the eight proposed focus areas set out in the policy position paper, **'Making the Change – New Thinking and Bold Ideas'**. It expands on the details of the paper, providing explanations and concepts, examples of policy initiatives and references to global best practice. Both documents have been developed by a group of contributors comprising active and semi- and retired government, academic and business professionals. This group brings a wealth of knowledge and experience to the discussion and raises issues to support Queensland's post COVID-19 recovery effort. They propose ideas and strategic and important solutions to guide the future sustainable and regenerative development of the State.

Supporting Document

Queensland Policy Forum

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Disclaimer

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1 INTRODUCTION

1.1 Considerations to Meet the Challenges for Post COVID-19 Development

The COVID-19 pandemic is a human tragedy and a catastrophic event of scale we have not witnessed in recent history. One thing is clear - that neither governments nor the private sector were prepared for the waves of disruption and distortions and the enormous economic, social, and technological change being triggered. The State has also suffered from a series natural disasters and poor management of the environment which add to the catastrophic effects of COVID-19.

To limit the extensive adverse impacts from the economic shock and social crises following the health crisis, and inherited environmental problems, and to emerge from these strongly, preparations are needed by the Queensland Government to develop recovery policies, strategies, and programs that are not necessarily orthodox.

The purpose of this Supporting Document (the report) is to provide a **knowledge product document** for discussion and thinking on ideas for policy change and direction for the future sustainable and regenerative development of the State and its regions. The report does not seek to tell government, business or communities what to do. It presents policy ideas to start broader conversation about opportunities to set the **new norm**, as the Prime Minister has called it, for the future we want for the State and regional development. The new norm will take some time to reveal itself, but in the meantime the State needs to begin laying down the foundations and building infrastructure for what will be a significantly **changed way of work, living and management**.

The report looks closely at the eight proposed focus areas set out in the policy position paper, *'Making the Change - New Thinking and Bold Ideas'* (the Paper). The Paper was developed by a group of collaborators comprising active and semi- and retired government, academic and business professionals. This group brings a wealth of knowledge and experience to the discussion. The Paper, together with this report, raise issues to help Queensland's post-COVID-19 recovery effort and to guide the future development of the State, its diverse regions, and their communities.

Bold ideas and strategic and implementable solutions are proposed by the group, recognising that necessity is the mother of invention and/or innovation and that the COVID-19 pandemic will bring to light opportunities for improvement and innovations. It could fundamentally change the fabric of society and bring about structural changes to institutions, markets, and the metropolitan and rural living models.

While the emphasis of this report is on **State and regional development**, the intent is to achieve **sustainable and regenerative development** by pursuing a '**quadruple-bottom-line**' approach which also enhances well-being and quality of life. This requires an integrated approach to:

- identify and implement **economic development** strategies that enhance **productivity**, generate **jobs**, and create **wealth**;
- create an **equitable society** with **inclusive** and **cohesive** communities;
- pursue ecological diversity, enhance **environmental conservation**, and improve **environmental management**; and
- build **institutional** - both formal and informal - capacity and capability using **government structures** and developing more effective **governance processes** to enhance trust and address culture concerns.

In pursuing those well-established **sustainable development goals and objectives** it is inevitable that **institutional reforms and innovation** occurs. The group proposes that **collaborative** effort and **engagement** embracing governments, business, NGOs, and community-based organisations are needed to underpin and facilitate the development and implementation of policies and plans.

An **unfortunate reality** of the COVID-19 crisis and the necessary sweeping measures that governments have had to take, is that profoundly **deleterious economic and social impacts** are occurring, destroying lives, businesses, and livelihoods. Addressing those impacts will be challenging and difficult. And repairing the widespread damage and overcoming the adversities facing society will be long and costly.

Another unfortunate reality we all will face is that governments, businesses, and many households will have extremely **high levels of debt** to address. That reality means it will be crucial to grow the economy to generate jobs and to create wealth, some of which will be needed to underpin government budgets to finance infrastructure and the social and environmental programs that will inevitably need supporting.



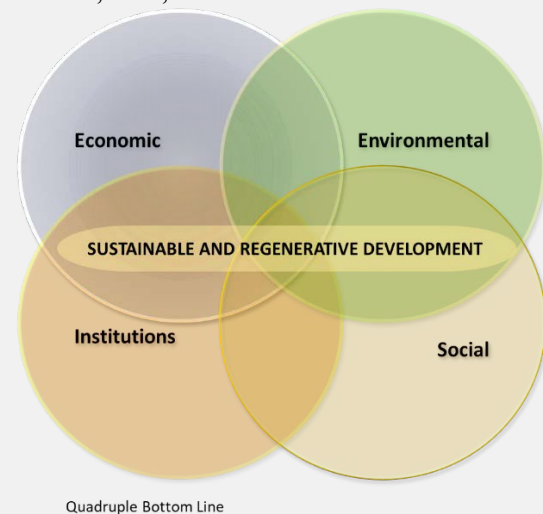
Overall, the complexities are enormous and the solutions to ensure the road to recovery of the State's economy requires **new thinking and bold ideas** which take us beyond the present and immediate concerns to **build a platform** for a more prosperous, resilient, and stable State of Queensland.

*We have **opportunities** to pursue **new directions** and map out **new paths** to rebuild the economy, create an equitable society and better manage*

1.2 Virtuous Circle for Sustainable and Regenerative Development

Queensland is encouraged to start developing and shaping strategies and policy initiatives which provide strategic directions to guide decisions taken amid the crisis - and not wait until the health crisis ends. One key lesson from major natural, economic, and conflict disasters is that **change management** goes hand in hand with **post-disaster planning** for recovery.

Even before COVID-19, our society and economy were undergoing irreversible changes. We are at the beginning of a new revolution - the **4th Industrial Revolution** - the outcomes of which, currently, are unknown. Innovative interventions can help create and shape desirable outcomes for the economy, society, and environment. Some bold **experimentation** might be appropriate. **Collaborative efforts** are needed by all stakeholders to work together to set directions and manage the disruptions of 'A **virtuous circle** approach to **sustainable and regenerative development**, using collaborative governance and 'quadruple-bottom-line' approaches, will achieve development outcomes that enhance well-being, quality of life, equity, and prosperity of all who live, work, and invest in the State.



A VIRTUOUS CIRCLE TO SUSTAINABLE AND REGENERATIVE DEVELOPMENT

using

COLLABORATIVE GOVERNANCE

to achieve a

QUADRUPLE-BOTTOM-LINE OF DEVELOPMENT OUTCOMES

To achieve these outcomes, calls for an integrated approach to development is needed to:

- pursue and implement economic development strategies that enhance productivity, recover old and create new jobs, and generate wealth;
- create an equitable society with inclusive and cohesive regions and communities; and
- pursue ecological diversity, enhance environmental conservation, and improve environmental management.

This will require **institutional reforms and innovation** to occur to underpin and facilitate the development and implementation of policies and plans through collaborative effort and engagement embracing all levels of government, business, Institutions, professional, labour, NGOs, community and interest group organisations. (See Section 3)

1.3 The Eight Thematic Areas of Policy Intervention

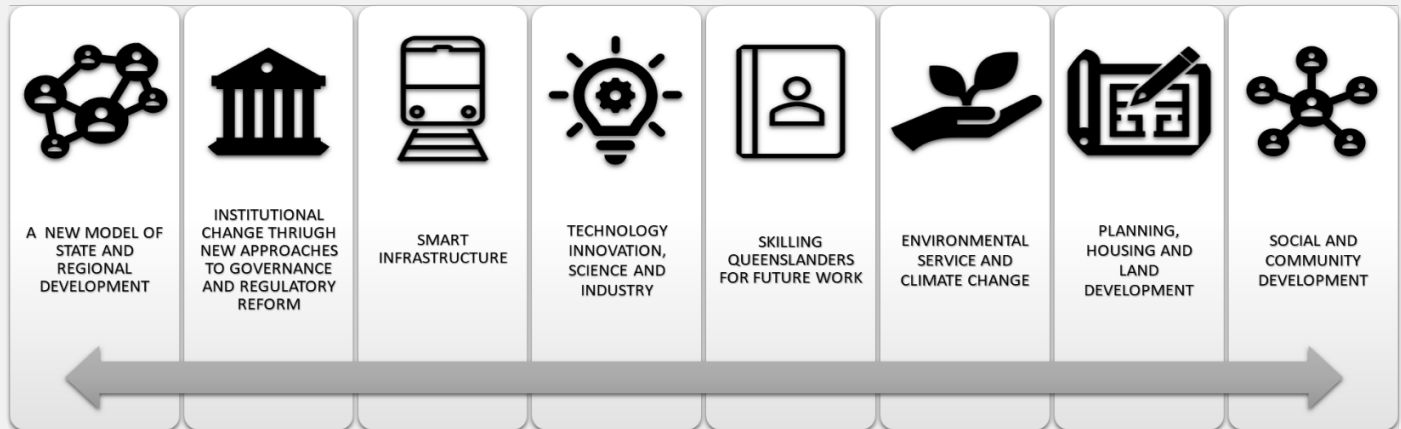
A series of policy position ideas and initiatives presented in the report are clustered into **eight thematic areas**. The thematic areas are not listed in any order of priority. Nor are they comprehensive. Many of the proposed initiatives are repeated under other thematic heading, indicating the necessity for an integrated approach to ensure the overall success of the policies and strategies.

*The term **economic development** encompasses social, environmental, cultural and governance factors, all of which will have significant influence on State and Regional development*



The range of **policy position ideas and initiatives** presented for thematic areas include some tried and tested, some are novel and innovative. Others relate to reviewing policy positions established before the crisis. These are presented as **Action Plan** agenda for consideration by the State government - in collaboration with business and communities - to adopt or adapt, as needed, to effectively restore the State and its regional economies to equitable prosperity in the shortest possible time, following the COVID-19 health crisis period. The ideas presented are clustered in an integrated manner, under the **eight thematic areas**.

SOME KEY AREAS FOR POLICY INITIATIVES



1.4 Integrated and Collaborative Approaches for Sustainable and Regenerative Development

More **integrated systems approaches** are encouraged by the government to State and regional development and land-use planning and development procedures, in collaboration with business and communities. Governance, finance, and implementation arrangements for programs and projects to support State and regional development need examining and possible revision. That may include a reorientation of economic development modelling, planning, and the future nature of work.

The COVID-19 crisis provides a unique opportunity for the State along with its regions and their local governments, to review and reset the clock on future economic, social and community development, which might best be achieved through a **spirit of collaboration and engagement**. Institutional innovation such as the collaboration seen in early 2020 between federal, state and territory governments in Australia known as the **National Cabinet initiative**, and between government, unions, and industry, is unprecedented and was unimaginable just a few months earlier. That innovation has been widely acclaimed as being highly desirable, indeed necessary. That momentum ought not be lost by reverting to old, somewhat broken processes.

This spirit of cooperation, collaboration, and engagement, echoed around the world, is driving and encouraging innovation, creativity, ideas and a willingness and ability to change. It is vital that this same spirit is continued and directed into medium and long-term post COVID-19 recovery efforts by government, particularly when setting new policy directions and pathways for the State and its regional economies in the decades ahead.

The COVID-19 crisis is a tipping point in social, economic, and technological change. The next decade has the potential to turn this change into a **'new age of enlightenment'**. Queensland can be at the forefront of this.

2 NEW MODEL OF STATE AND REGIONAL DEVELOPMENT

2.1 An Overview

The post-COVID-19 recovery will necessitate a **rewriting of the standard economic development model** of the Australian and Queensland economies, and of the State's diverse regions.

The world's leading financial institutions are acknowledging that as societies shift their economies to a [war footing](#) to address the impacts from the three crisis waves, it doesn't just help them survive. It alters them forever.

In many ways the crises will accelerate what was already happening as the nation moves into the 4th **Industrial Revolution** economy. It is leading to increasing calls for countries to **reassess globalization processes** to become more **self-sufficient**, with pressure to keep manufacturing and service industry jobs at home to become more **self-reliant**. This does **not** mean less emphasis is given to the development of foreign trade. Rather foreign trade needs to be an integral part of the mix of development strategies incorporating **localization**, and **globalization** to support sustainable and regenerative development of national, state and regional economies.

To position Queensland and each of its diverse regions to respond effectively to the challenges, an enhanced set of strategic objectives and desired outcomes will require the revision of the State Economic Development Strategy with a greater emphasis on, *inter alia*:

- structural diversification of sectors and jobs;
- focusing more explicitly in growing high value-adding economic activities;
- reforms to enhance **productivity performance**; and
- a balance between exogenous and endogenous growth underpinning;
 - a circular economy with competitive and collaborative advantages;
 - filling in supply chain gaps in the core industries that drive State and regional development and the onshoring of such industries; and
 - developing a 4th Industrial Revolution economy.

An objective is to **mitigate** the inevitable **exogenous** and **endogenous risks** that the State and its regional economies will potentially face.

A coordinated programme to undertake and implement **regional economic development strategies across the whole State** – using a common methodological framework but developed through bottom-up collaborative engagement between government agencies, businesses, NGOs and community organisations, – would be an important initiative. **Additional expert advice and analysis** of the proposals at the regional and local levels will be needed – see *Sections 3.6 and 10*. State government **funding support** will be needed to facilitate implementation of the strategies. See *Sections 3.54 and 5.45*.

2.2 New Model of State and Regional Economic Development - Details

Further pressure to **devolve functions and responsibilities** of government for economic development will occur in response to expected **significant structural changes** to the national, state, and regional economies. *The Senate Select [Committee Report](#) into Jobs for the Future in Regional Areas* reviews possible changes.

More [self-organising systems of government](#) are likely to replace inflexible governance and decision-making constraints. Demand for greater **business and community consultation** and engagement in decision-making at the regional and local government level can be expected, while recognizing the limited expert knowledge and experience currently available to regional and local governments.

All levels of government will need to **manage risks** to safeguard economies to deal with future shocks and protect assets. Responding to the crisis will force changes to governance, production, logistics, communications, and service delivery systems. Already at a **national level discussion** is occurring on how Australia might respond to recover from the economic impacts of the COVID-19 crisis and move forward to grow economic activity and jobs.



For example, the **Governor of the Reserve Bank of Australia (RBA)** has identified making Australia a **‘great place for business to expand, invest, innovate and hire people’** needs to be a priority. A broad framework for action is proposed.

State ‘needs’ include:

- *means and modes of thinking and analysis that are robustly fit for purpose, especially in investment and other evaluations;*
- *apt brokering of critical dialogues inclusive of multiple stakeholders;*
- *prudent investment evaluation complemented by sustainable financial relationships;*
- *appreciation of multi-functionality. including its practical possibilities;*
- *establishing of realistic market, trade and access prospects, including how evident impediments, pass-through problems, timing sensitivities and uncertainties might be practically and prudently managed; and*
- *evaluation of factor-utilisation returns and balance of payments implications, including risks, at regional to national levels.*

Areas in which there has been little policy reform in recent years and which will need addressing, include:

- Tax;
- Infrastructure;
- Education and training and skills development;
- Regulation; and
- industrial relations.

Those areas needing reform have long been identified by business groups and researchers. The crisis represents a **‘golden opportunity’** for action on reform at all levels of government.

It is noteworthy that the **Corona Commission** of business leaders and high-level bureaucrats established by the Prime Minister is discussing what sort of nation we want to be post the COVID-19 crisis. Two key questions being posed include:

- (i) What **balance of industry reform** and on-going industry support will there be?
- (ii) How much free trade should be replaced by **import substitution** to secure our disrupted supply chains?

The Commission suggests that, in a low A\$ environment and one with an ample supply of displaced labour, there will be opportunities for **local manufacturing expansion and diversification** to grow the manufacturing sector - especially in hi-tech flexible, high value-added activities - to be well above its current level of just 6 to 7% of GDP. There will be a need for:

- innovation in education and training to skill the workers that will be required;
- taxation and regulation reform - including development approval processes - to develop a strong investment environment;
- ensuring sustainable low-cost, low emissions power;
- reform in domestic shipping to help logistics, and maintaining competition in the airline industry; and
- maintaining Australia’s trading relationship with China but **diversifying our export** customer base.

Obvious areas for **import substitution** to create greater self-reliance include fertiliser, petrochemicals, and agrochemicals, pharmaceuticals and health supplies.

Australia needs to much more effectively use its abundant and good **sources of energy**.

And there is a need to **make our cities more efficient** with measures to address issues such as congestion. *See Sections 5.3.7*

These issues receiving attention at the national level have **relevance for State governments** to address while developing policy, strategies and plans for the post COVID-19 recovery effort.



2.3 Queensland's response to a New Model

There is wide [international consensus](#) that we will not return to a 'business-as-usual' state. **Rethinking, reorientation** and **innovation** will be needed for a whole range of issues including those outlined in this paper.

To meet the profound economic challenges being forged by the COVID-19 crisis and the necessary interventions being implemented by governments on an unprecedented scale, the Queensland Government would be well advised to **start immediately** thinking about needed policies for the **New Model**.

Government might create a **think-tank** of multi-discipline experts to advise on the preparation of an economic development strategy – see Section 2.13 - incorporating a **greater balance of endogenous and exogenous growth**, particularly at the regional level. There will be many new **opportunities**² that could be realised to make the State and its regions more **competitive** and **collaborative** in generating **high value-added** and **hi-tech** activities in **creating wealth**. Identifying, prioritising and suggesting solutions to address needs will be needed. The think-tank could be established quickly using the resources and inputs of experts with a good knowledge of, and experience in:

- economic development at the international, national, and state and regional levels;
- changes occurring in production systems;
- human capital development; and
- labour markets.

There are many existing challenges for the State including excessively **run-down capital** of all types, pervasive debt pollution, inflexible policy models, market inadequacies institutional inertia and insensitivities, adverse policy trade-offs and inadequate (conceptual and operational) understanding of development dynamics.

2.4 Important Issues to Address

These sections present for consideration some important issues that economic development policy might address in a series of **policy areas** to **rebuild and restructure the State and its regional economies**. Note that these are not presented in any order of priority.

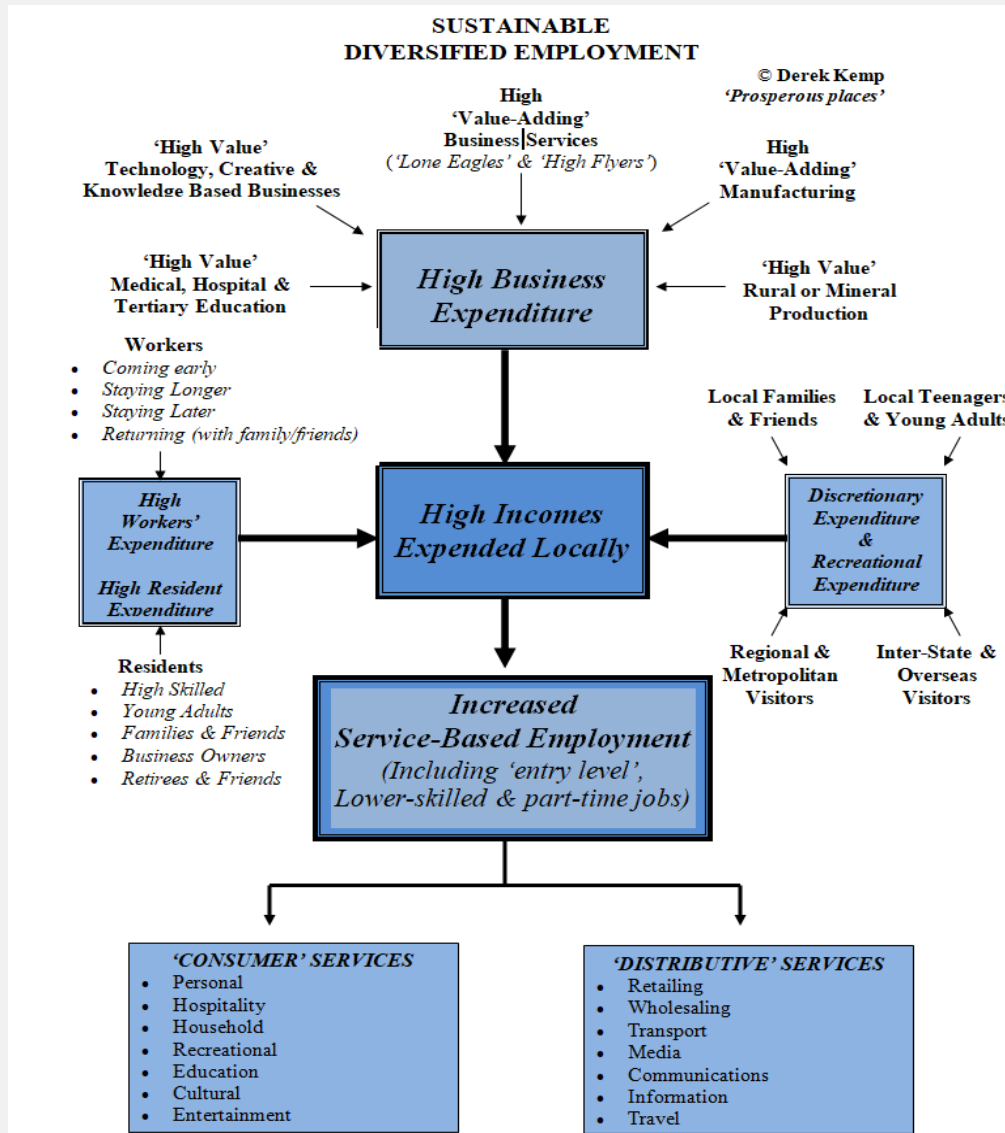
2.4.1 Growing Businesses and Jobs

Achieving sustainable growth and diversified employment is typically an objective of economic development strategies and plans (see diagram below). A route to broad based employment growth is to have incomes - particularly high incomes usually occurring in high value adding industries and services - expended locally. With the **multiplier effect**, that can provide broad based local and regional employment by underpinning other businesses and provide entry level, lower skilled and unskilled jobs.

Employment growth in Australia tends to come from newly established small and medium size businesses/enterprises (SMEs), many of which are founded by individuals with particular technical, technology, professional or business skills (some being 'lone eagles' with few staff).

Queensland has long recognised the importance of small business to its economy and local and regional employment. But it does not have the magnitude of SMEs in any business or industry sector to match the 'clustering' advantages that have been achieved by business and industry sectors in other countries.

² Opportunities currently identified include environmental stewardship services, hydrogen fuel provision, ethanol fuels, solar energy deepening and pro-active land use enhancement.



Source: Derek Kemp 'Prosperous places'

Consequently, much greater reliance needs to be placed on networking Queensland businesses with each other and with compatible and complementary small businesses inter-State and overseas. Such State-wide, inter-State and global business networking can provide a powerful business accelerator and competitive advantage for Queensland small business by:

- sharing scarce skills, resources, technology, and equipment;
- the transfer of technical and business skills;
- timely access to important business and market intelligence; and
- increased opportunities for collaboration and joint venture contracting.

There is also a role for the public sector to contribute to jobs growth, especially in regional Queensland. It is well known that **public funded jobs** do constitute significantly to regional economic development, especially to provide services such as education and health, but also through the regionalisation of administrative functions. Regarding the latter, Queensland has not done as much as States such as NSW to decentralise government functions, including whole public sector departments and agencies, many of which could well be relocated to regional hubs. That is something to consider in new State and Regional Development plans as it can have a profound impact on the economic development of a region.

2.4.2 Towards a Circular Economy: Embracing Green Practices

A New Model might be developed addressing the potential benefits and advantages of the concept of a ‘**circular economy**’ to encourage innovation and entrepreneurship and improve efficiencies that not only enhance economic development and jobs creation, but also improve social and environmental outcomes. That can include embracing green principles and practices which could be enshrined into the model. See Section 8.

A key message emerging from the **World Economic Forum** is that building a **green economy** can provide both the impetus for economic recovery and address climate change, while at the same time achieving a ‘just transition’ and making the economy ‘anti-fragile’ (i.e., capable of responding to ‘Black Swan’ type events that cause disruption to communities, production and transport supply chains).



In this process, building a circular economy and with a greening of industries and performance where appropriate and readily achievable - especially for large metropolitan cities which generate 70 to 80 % of GDP - could be a mechanism for providing the employment relating to a ‘greener’ performance in areas such as transport, building and construction, distributed energy, enterprise capital and local agriculture.

Achieving that does require a **re-thinking of classical neoliberalism**, but not its complete rejection. The emphasis given to ‘efficiency’ in terms of market prices does fail to take into consideration the full cost accounting (lifecycle cost which become externalised) and the propensity to consume more than might be necessary.

The engineering principles of ‘**modularity**’³ and ‘**redundancy**’⁴ also can be included in the New Model to optimise operations. Modularity can provide opportunities to engage in ‘gene splicing’ in components of production processes and supply chains by substituting or replacing specific modules, materials or components of production processes, and consumption, that may be environmentally damaging.

Redundancy will provide opportunities to duplicate critical components or functions of a system to increase reliability of the [system](#).

Such an approach implies investment in both State capacity and in other sites for the State and its regions to have industries and firms that produce enough goods to maintain a **strategic supply**, but with capacity to scale up production or adapt in response to unexpected or unusual demands. In the context of the COVID-19 crisis, this has already occurred with medical supplies, but the State needs to ensure there is redundancy built into other industries, such as food, energy, shelter and community services.

³ ‘Modularity’ is the degree to which a system's components in production supply chains may be separated and recombined in other ways, often with the benefit of flexibility and variety in use.

⁴ ‘Redundancy’ requires a greater spread of production to multiple sites to upscale their production so if one ‘module’ is taken out, the physical, human and IT inputs can sustain a basic level of critical services.



Redefining efficiencies, and incorporating modularity and redundancy, could be important cornerstones of a new paradigm for State and regional development to help:

- **maximise resilience** in the face of the impact of recurrent of climate related hazards that characterise the Australian environment and to address climate change (See Section 8.3)
- **minimise emissions** from far flung supply chains and concentrated, high energy sustainable production centres.

2.4.3 Collaborative New Model of Development

Both **comparative advantage** and **competitive advantage** have underpinned the economic model of development in open market economies for more than five decades. While those paradigms will remain important, it places a heavy, perhaps over-emphasis on the role of **exports** as the focus of economic development and growth.

Queensland has relied traditionally on the **export of coal** (in particular) and other **mineral resources**, the **agricultural sector**, and more recently on specific **consumption services** - especially **tourism** and **education** - which have been the main areas of job growth. But many of those services jobs require largely unskilled workers on low wage and are often part-time, casual or seasonal. This has made Queensland, and especially some regions, highly **vulnerable to external risks** and economic downturn.

A model focusing heavily on international exports as a driver of development may no longer be as suitable, nor sustainable. OECD data shows that, before the crisis, peak trade may have been reached, with countries like China, Japan, and the US beginning to switch their economies towards a more **endogenous** and **self-sufficient** model of growth and economic development. Australia, and its States, will likely be forced to do the same - Queensland, perhaps more so than other States. The current competitive advantage model is likely to be replaced by a model of **mixed collaborative and competitive advantage**. Victoria is already moving in this direction

Comparative Advantage 1950 – 1970s	Competitive Advantage 1970 – 2000s	Collaborative Advantage 2000 – Current
<ul style="list-style-type: none"> • Land and rental costs • Infrastructure • Low labor costs • Proximity to raw materials • Transport and capital costs • Tax holidays and incentives • Market share • Economies of scale 	<ul style="list-style-type: none"> • Research & Development • Technology • Regulation • Labor efficiency & productivity • Skills base • Core competencies & skills • Social and corporate capital • Quality of life and services 	<ul style="list-style-type: none"> • Partnerships (PPPs) & joint ventures • Networks and strategic alliances • Customer services management • Skills and competencies fit • Open and inclusive governance • Smart systems (value-engineering) • Sustainability accounting (TBL) • Seamless logistics and transfers centers

Land-use Development Planning, Policy and Infrastructure for Economic Development Models

Comparative Advantage	Competitive Advantage	Collaborative Advantage
<ul style="list-style-type: none"> • Industrial parks and estates • Regional industry growth poles • Economic enterprise zones • Conference and trade centers • Subsidized infrastructure • Rent free or subsidized land • One district one factory 	<ul style="list-style-type: none"> • Technology and science parks • Incubator centers • Aerotropolis's • Business parks and technopoles • Industry clusters and ecologies • Demand-side infrastructure • Incentive zoning 	<ul style="list-style-type: none"> • Smart infrastructure and local area networks • Employment hubs, industry colonies • Inter-modalities logistics centers and hubs • Regional cities networks and development corridors • Industrial ecologies • Co-location of services

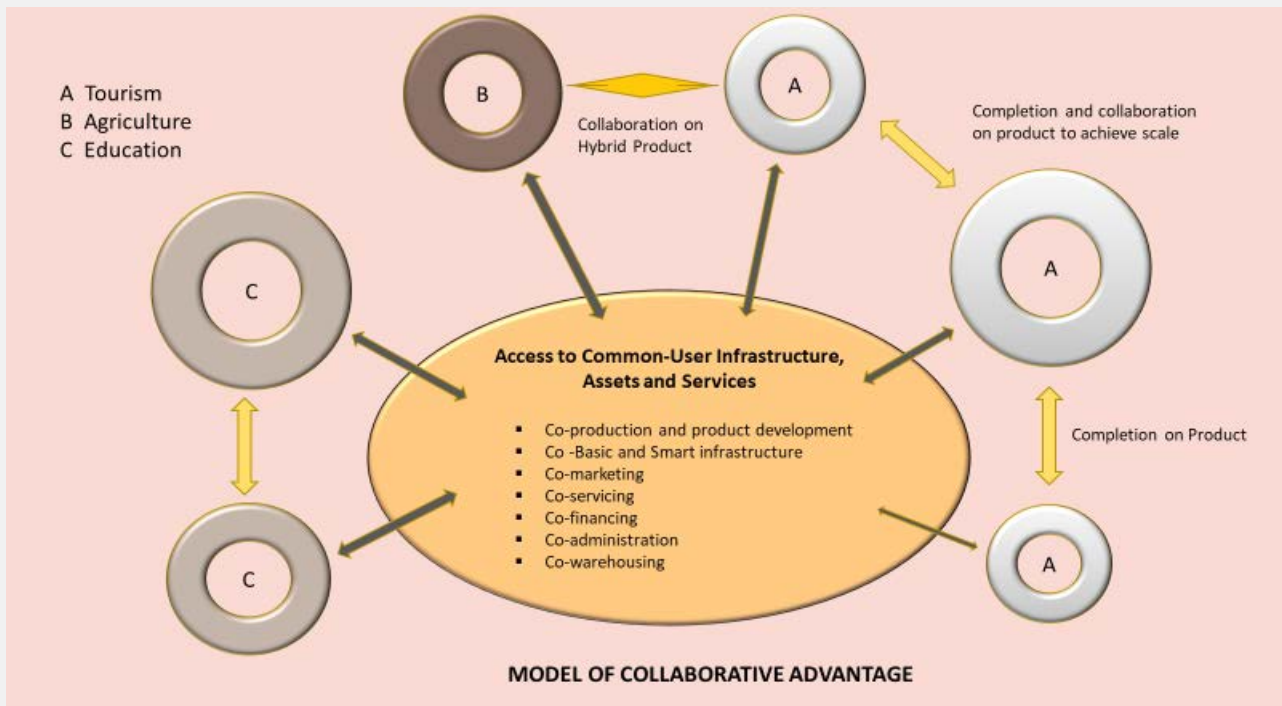
Global supply chains are expected to remain significantly **disrupted** for some time, especially where there are high levels of dependency in accessing raw materials and supplies from developing economies. Forty percent of China's minerals are sourced from developing economies in Africa and Latin America. Those regions are likely to be severely affected by COVID-19 with internal logistics and supply chain capability within those countries weakened for many years. Thus, constraints on the capacity to produce within China, Korea and Japan can be expected, bringing pressure on their current trading partners to develop substitute sources of supply.

A **collaborative model for economic development** will necessitate both collaborations engaging business and communities. **Public-private partnership** collaborations will be important facilitated through building **regional innovation systems** and enlightened **collaborative leadership**, facilitating **entrepreneurship**, both private and public.

The figure below shows a model for collaborative advantage. The model works on the advantages of the sharing economy. There are many ways access to common-user assets, infrastructure and services can be applied to reduce transactions costs to business and government and to create scale to develop new products and overcome barriers of entry into new and existing markets.



The **process of creating collaborative advantage** begins with regional firms and local governments identifying elements of common-user assets, infrastructure and services within industry sectors where there is duplication, under-utilization, high establishment and maintenance costs associated with production and other value-adding activities. An example of collaborative advantage is **warehousing**, where individual firms have large areas of space which is seldom fully utilised. Firms can build small just-in-time delivery warehousing, while sharing warehouse space in a common facility with other competitor firms, where they only pay the cost of the space they use. That results in less need of land and buildings for production, lower construction and operational costs for space that is seldom filled.



The overall effect of adopting collaborative advantage is that the **marginal cost of production falls**. Risks are reduced and collaborations may occur within and between industries to create new jobs, products, services and marketing. Share costs of advertising and marketing of similar products between competitive firms and businesses offering the same product or services, i.e. accommodation, freight transport and foods products, minimises advertising overhead costs, enabling them to compete on product range, quality and service.

New Zealand does this well with its tourism and berry fruit industries. Local government - especially by participating collaboratively in a regional context - can also achieve significant **savings and utilization of assets by pooling** machinery and equipment for road and infrastructure maintenance, or accounts and financial management. Some Queensland councils are already collaborating on resource sharing of staff and other procurements.

Collaborative procurement and **collaborative contracting** is a way of using the advantages of the shared economy for competitive advantage – especially for government. As Australia and Queensland seek to identify opportunities to **create new localised industries**, and bring back elements of industries which have been off-shored, it will be critical to identify how collaborative advantage can be used and incorporated into local and regional economic development planning and investment processes. Crucial to its success in local and regional economic development will be to identify ways firms and local governments can create a **critical mass** of assets, infrastructure and services through collaboration and pooling to create competitive advantage for new local firms and enterprises to hatch and grow.

China has a virtual integration system of **collaborative procurement** called **Taobao**, run by the integrates market information, production capacity, logistics, financing and payment, trading, exchange of innovation/practices, and future services. It services some 3000 Chinese villages. The model is being adopted in other countries, including Malaysia.



A lack of critical mass is holding back the development of the State's regions - especially the limited pool, availability and quality of skills and expertise. These can be supplemented by building virtual networks of expertise to service regions. This is emerging in health and can be extended to education and business services.

2.4.4 More Self-Sufficient Economies

It seems almost inevitable that Australia will adopt a more nationalised, self-interest approach to economic development and trade, post the immediate crisis. There has been a move towards the **shortening of global supply chains** and **localising production** by large multinationals in response to the US trade war with China.

A policy shift to more self-sufficient economies would have significant benefits to regional Queensland in the agriculture and mining equipment and services sectors, regional health and logistics industries. Other indirect multiplier effects could be expected across the economy.

Priority could be given to investigate how to **shorten supply chains**, **re-shore industries**, and develop or incentivise new **import substitution** industries within selective industries to create jobs. The Queensland Government could use the resources of Treasury to investigate this in conjunction with industry and the logistics sector. *See Section 2.9.*

Currently Queensland, and Australia generally, is dependent on supply from a few producers in North-east Asia. This has become clear during the current crisis, especially with shortages of medical supplies. **On-shoring** and creation of **import substitution** industries is required, to create local jobs as quickly as possible for the rapidly growing number of under- and unemployed which are the economic consequence of the necessary government responses to the COVID-19 health crisis.

Significant **time-lags** can be expected for recovery of the tourism, education, logistics and construction sectors. It is very unclear whether all these sectors will ever recover to previous levels of activity - especially international and cross-border domestic tourism. **Old market concentrations of export market demand may not be recouped.** Some regions and their economies with high levels of economic dependence on those sectors will be severely damaged. **Queensland has some of the most exposed such regions in Australia.**

2.5 Import Substitution Opportunities within Key Industry Sectors

Australian industries have experienced a major **hollowing out of manufacturing** since the 1980s. The inability to lift productivity, to contain costs, and to create scale, together with inefficient supply, distribution and logistics systems and high energy costs, have significantly reduced our once competitive advantage as a low energy cost economy, leading to a supply dependence on production centres in China, and other Asian economies.

A shift to **self-sufficiency** will necessitate a new set of priorities for **education and training** with the **human capital and skills development** needed to underpin the growth and success of these new businesses that could be developed to diversify the economy. That will require dramatic reform of our universities and TAFE institutions to produce the human capital required. A **new labour force strategy** will be needed to guide State policy on the future of work. *See Section 6.*

Significant **surplus labour capacity** can be expected in the services sectors of the economy requiring **reskilling** and the creation of more **para-professional/technical** types of jobs in new industries. The State will need to support these types of jobs to **diversify** the economy and create new **hybrid** and **localised** industries to shorten national supply chains in the construction, logistics, mining, petrochemical, agriculture education, health, creative, and e-business sectors. *See Section 2.9.*

2.6 System of Trading Cities and Regions

Trade is an important driver of economic development in the State. Queensland's export trade will continue to be a major driver of economic development and as an important **creation of wealth** and to **fund public revenues** after the crisis has passed. But significant **disruption** and **reduction** in trade volumes and contributions to State revenue can be expected for many years until trading partner economies recover. The World Trade Organization has already flagged this issue, with over half a billion people being returned to poverty for many years to come.



A switch to a more **endogenous model of growth**, with a focus on expanding domestic trade - as countries like Japan and Korea are already doing - will require policies to **foster expansion of domestic markets** and consumption and the **expansion of trade and investment between cities and regions**. Approximately 80% of the nation's GDP is produced in cities and they will play a major role in shaping the future economic structure and development of the nation.

There are significant opportunities to develop national and subnational **regional clusters** and economic development **corridors** to booster trade and co-investment within the nation and States' cities. This involves cities, i.e. business, institutional and local governments within regions and/or along transportation corridors, working collaboratively to leverage support for inter-city trade and development through an [economic partnership agreement](#).

Under such arrangements, business, local governments, and other interest parties, for example in cities along the Pacific, Bruce, or New England highways, might work collaboratively to identify and develop partnership opportunities to:

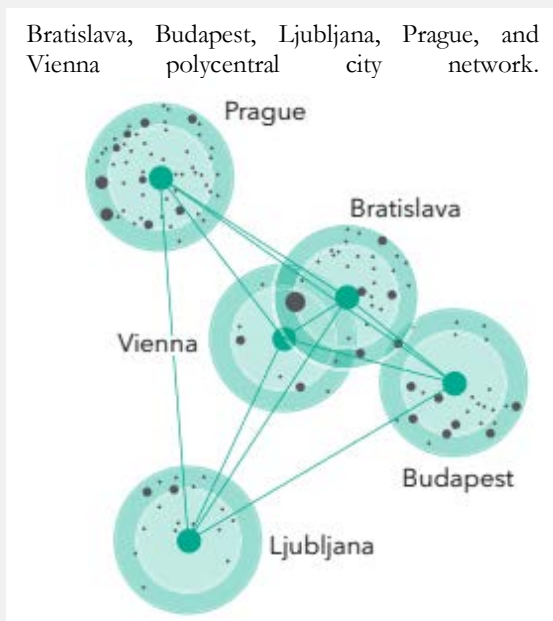
- value add to industry supply chains and production systems;
- identify import substitution opportunities;
- encourage co-production;
- build of common-user infrastructure networks and information platforms, and
- information sharing and marketing,

to support endogenous growth opportunities for the National, State, and regional economic development and employment growth opportunities.

This calls for the establishment of a **new system of trading for cities and regions**. That model of development is working well in [Bratislava](#), where five cities in three Central European neighbouring countries are engaged in a poly-centric cities trade partnership arrangement to support local economic development and expand sub-regional domestic markets within the European Union. Queensland will need to identify ways its cities and regions can **expand trade and investment flows** within and between Australian states and territories, regionally, and internationally. That will require cities and regions to **self-organise** and **repurpose local production and supply chain systems**, with support from the State Government for the hard and soft - and smart - **infrastructure** needed to enhance **connectivity**.

See Section 5.

Trade agreements can be devolved below State level, to include trade agreement between cities within and outside Australia (i.e., Brisbane/Auckland or Cairns Port Moresby). **New trade partnerships** can be struck between cities, such as that between [Chicago and Mexico City](#). These go beyond sister or twin city partnerships (which seldom bring significant trade development) to trade agreements between cities incorporating co-production within supply chains for multiple industry sectors.



Building a **strong system of trading cities and regions** within the State, country and the Asia Pacific Region offers new opportunities to:

- expand trade; and
- diversify markets and employment within the State and Australia, and at a regional level.

Incentives can be examined, to encourage opportunities to develop competitive regional industries that can expand into global export opportunities.



2.7 Move to Online

The current crisis has accelerated the rapid **transition to ‘on-line’** - use of digital technology - as a primary business tool. NBN has doubled its service capacity since the crisis began.

Many service businesses will return to normal with face-to-face interaction, but others will remain online in the realization that business transaction costs and office space utilization can be reduced and that working remotely offers employment flexibility and other advantages.

The **shift to online learning and telecommuting** may change journey-to-work patterns, demands on roads and public transport systems, office, warehouse, social and recreation spaces. *See Section 6.7.* The impact on land-use and infrastructure planning will need rethinking in response to changes in demand for land and location of services. The **spatial structure of cities is likely to evolve in new ways**. One immediate impact being seen in the mining sector with its ‘fly in fly out’ employees, are showing an increase in **demand for housing in country towns**, nearer to work sites.

2.8 Managing Risks

The unprecedented challenges will change how Queensland and regional economies:

- will work;
- will be structured; and
- will function in the future.

State and local decision-making will be shaped increasingly by things beyond the powers of governments to control. All levels of government will need to consider more carefully external risks and threats to local economies and manage these as best they can.

Risk management - both **exogenous** and **endogenous** - can be expected to become more important in planning, programming and delivery of major projects. Devolving and sharing responsibilities for risk management is expected. The **capacity and capabilities of institutions** will be important in this regard.

A crucial **missing element** of State and local planning and development has been an adequate comprehensive assessment of risk for land use, economic and development plans.

Chapter 5 Part 1 Section 164(1) (a) and (b) of the Local Government Regulation 2012 requires Councils to keep a written record stating risks operation.

*All **public planning and budget** documents prepared by public agencies should include a proper risk assessment guided by [AS/NZS 4360:2004](#): risk management **standards and measures** for risk mitigation. Risk plans must be reviewed regularly, and revised as appropriate, to an organisation’s level of risk exposure.*

Risk management planning, except for natural disaster planning, is not done well in the State – especially at the local government level. Risk management statements by public agencies do not pay adequate attention to **exogenous risks**, to test the robustness of assumptions underpinning the successful implementation of plans and proposals.

Business, and State owned and non-profit enterprises, will also need to examine how **new tools and technologies** can provide greater **risk intelligence**. Risk evaluation tools that make use of machine learning and modelling, such as that used to model COVID -19 impacts, can find patterns and identify the probability and potential impacts of risks to assess the way macroeconomic, geopolitical and technologies, exchange rate and other data, affect organisations risks. Risk assessment and management is a significant industry with future job and provision of training opportunities due to expected growth in demand in the State and nationally, as the COVID -19 crisis ends. *See Section 6.3.3.*

Risk management has two components:

- **exogenous**, which are external to the organization and
- **endogenous**, which affect the operations and functions of an organization.



2.9 Shortening Supply Chains

Globalization has led to concentrations of production and supply which has resulted in a **narrowing of focus on price at the expense of supplier diversity**. Consequently, levels of stock and strategic reserves have become very - often dangerously - low, and the current pandemic has resulted in a critical shortage in supply of medical and other health and essential products.

The current crisis has shown, however, that Australian business can **respond and adapt to supply disruption problems** by very quickly retooling manufacturing within medical and health supply chains. Such adaptation is needed in other core domestic industry sectors such as construction, machinery and chemicals manufacturing.

Queensland is one of the **more decentralised states** in Australia. Transaction costs are high and intermediary steps within supply chains are long. **Shortening of supply chains** is crucial to the creation of regional jobs.

Unfortunately, the competitive advantage model of economic development has resulted in states, cities and regions competing fiercely and independently, to attract jobs and new industries to diversify local economies. Little consideration has been given to a **collaborative model** of regional manufacturing involving co-production, co-investment in intercity and State hard and soft infrastructure, and maximising the back-loading of freight carrying capacity within supply chains. Shortening the States' supply chains is crucial to achieving economies of scale, reducing high regional transaction and externality costs for doing business, and ensuring the nation has strategic reserves in preparation for a future crisis.

The Queensland Government could use the resources of Treasury to investigate on-shoring of selected industries within the State to support **import substitution** industries. A **policy shift** by the State to **import substitution** would have significant benefits to regional Queensland in the agriculture and mining equipment and services sectors, regional health and logistics industries. Other indirect multiplier effects could be expected across the economy. This could be conducted with research into blockchain technology to trace the source of materials and product supply (see later discussion). *See Section 4.5.*

COAG effort may be needed to develop a better understanding of supply chain and import substitution gaps in Australia, possibly also including New Zealand.

2.10 Industry Clusters

Australia and Queensland have arguably never really embraced the concept of fostering the growth and development of **industry or innovation clusters** and co-production between firms in other cities and regions sharing common supply chains and use of infrastructure. The State has developed [roadmaps for industry clusters](#) involving advanced manufacturing, Aerospace, biofutures, biomedical, defence, mining equipment, technology and services and superyachts.

There are many examples of high functioning clusters operating independently of government intervention.

Clustering involves a strategic intervention by government to foster the development of regional **industry smart specialisations**, and facilitate **collaboration** between the **'quad helix'** of industry, government, research and academia and civil society interest groups, to develop common user infrastructure and shared use of resources and services with neutral costs advantages to all users. Collaboration does not happen by magic and almost always requires a partnership with some funds provided by governments, at least in the early stages. Importantly, Industry cluster development tends to enhance agglomeration economies.

Industry cluster development is also moving to greater collaboration between cities, between regions, between cities and their regions and the creation of new partnerships within industry supply chains and cross - industry clustering (that is, agriculture and tourism) to develop hybrid industries. The model was crucial to develop the Australian **regional wine industry**. Importantly, clustering helps create agglomeration economies that attract grow business activity.

A Queensland example is the FAN Food & Agribusiness Network Sunshine Coast. Industry cluster initiatives, with a focus on shortening supply chains, is a model that has underpinned manufacturing in most of the North-east Asia economies. There are more than 2,500 cluster initiatives across the EU, accounting for more than 1 in 3 jobs and over half of European wages.

Industry cluster development needs to become a central component in regional economic development strategies and plans across all Queensland regions. Building **regional innovation systems** needs to become a mantra for regional development.



2.11A New Approach to State and Regional Economic Development Strategies and Plans

2.11.1 The Existing Focus and Experience

In the past, State strategies for industry investment and regional development by and large have focused on Queensland becoming a **larger and more diverse exporting state**. While that has created significant economic growth and generated employment, especially in the mining, education, agriculture and tourism sector, nevertheless it has led to dependence within the State and regional economies on critical elements of supply to industries and government from international sources.

Queensland's existing economic policy [*Our Future State: Advancing Queensland's Priorities*](#) does include many initiatives that can be implemented relatively quickly to benefit the recovery effort, such as those related to e-governance.

However, the focus on building economic prosperity through exports to the Asia-Pacific region does need to be reviewed in the light of the current pandemic. The [OECD](#) has flagged "A longer lasting and more intensive coronavirus outbreak, spreading widely throughout the Asia-Pacific region, Europe and North America, would weaken prospects considerably". The OECD also recognised that a **more endogenous monetary and industry policy** may be necessary to respond to the immediate - and longer term - need to create jobs and minimise further business failure.

The economic development policies, prepared under different times, have **vulnerabilities** due to:

- a current focus towards the Asia-Pacific region;
- limited economic diversification; and
- an emphasis on jobs growth, predominately in consumption and international trade services in the tourism and education sectors.

Through the lens of the 'new norm', this approach has shown that the State economy - and some regions in particular - are **highly vulnerable** to **external shocks** and disruption to global supply chains. In adapting to the new situation, a stronger focus on **interstate and inter-regional trade**, especially between capital and secondary cities, can provide job growth and investment opportunities that, under previous economic circumstances, may have been overlooked or not considered of sufficient quantities. These are now important areas of consideration to start rebuilding the State's prosperity.

Queensland and its regions will need to move to further **diversify** and **endogenize** their economies. More significantly, the State needs to develop a more **endogenous growth model** to reduce the risk of supply chain disruption and ensure sustainable and create quality jobs within the State's regional economies.

The State is a significant net exporter of mining and agricultural resource products - its key resource endowments - and will need to continue in the future, but it relies too heavily on imports of consumer goods, technology, plant and equipment, IT, and other services to maintain the economy.

Unfortunately, over the last decade Australia, in general, has lost comparative and competitive advantage as a low energy cost economy. This is something to be addressed, and quickly, at both a State and national level. It will be crucial if the State and its regions are to pursue economic development strategies and plans that address and incorporate the important issues canvassed above.

2.12 The Way Ahead: Developing New Policy, Strategies and Plans

To help guide and identify **economic recovery** and **set out directions and develop policy and implement actions** for economic growth moving forward, it is proposed that the Queensland Government:



- undertakes developing a **new State Economic Development Strategy and Plan**; and
- embarks on a co-ordinated programme of **collaborating with local government to develop regional economic development strategies and plans for all regions across Queensland**.

In doing so due attention needs to be given to incorporate actions that address the issues discussed earlier.

Of special importance will be the recognition of the rapid shifts occurring with the emergence of a **4th Industrial Revolution economy**. The spatial structure of cities and regions will evolve in new ways. That will see the introduction and expansion of:

- new and improved technologies;
- new government and governance services (including accelerating the development of blockchain technologies to enhance transparency, security and privacy);
- 3-D cottage and small and medium business and industry development; and
- digital enablement platforms and systems for strategy; and programmes and projects to improve the integration of logistics systems and networks.

Government might create a **think-tank** to write the terms of reference to begin preparation of a new development strategy for the State and its regions incorporating a greater balance of endogenous and exogenous growth, particularly at the regional level. This is something that can be done quickly, using resources of experts with a good knowledge of the State and international economies, and change management in production systems and employment.

A new generation State and regional economic development strategies and plans across all regions could reflect the goals and objectives of the revised State Economic Development Plan. Most appropriately, those regional development strategies and plans would be undertaken for regions that incorporate groupings of local governments, collaborating as a **functional economic region**. That functional region needs to be the spatial entity for developing and implementing regional economic development strategies and plans.

Those regional economic development strategies and plans would best be undertaken using a **common methodology**, using processes that **produce ‘bottom-up’ strategies and plans** that are explicit for each region. An imposed ‘one-size-fits-all’ strategy needs to be avoided. The recently undertaken programme in NSW to produce regional economic development strategies and plans across 38 regions outside the metropolitan region could serve as a model framework for that to be done in Queensland.⁵

It will be important for those regional economic development strategies and plans to give attention to the issues raised in this report. The strategies and plans would need to ensure that:

- existing regional resource endowments and economic strengths (core competencies) are built on and enhanced, not jeopardised;
- opportunities and possibilities for diversification and new industry initiatives are identified and pursued, including those being driven by new technologies and those where there are opportunities for import substitution;
- exogenous and endogenous risks are identified, and risk management measures are developed and implemented;
- institutional capacity capabilities - including deficiencies - are identified, and ways of strengthening institutions and for institutional reforms are identified and pursued to build institutional capacity and capability so as to enhance economic development and implementation of regional strategies and plans; and
- generate regional innovation systems and build industry clusters.

The new State and Regional Economic Development Strategies and Plans would need to give **explicit attention to achieving outcomes** such as:

- structural diversification of sectors and jobs;
- growing high value added, hi-tech industries and jobs;
- enhancing productivity performance;
- achieving a greater balance between exogenous and endogenous growth;
- filling supply chains;

⁵ The programme in NSW was initiated and implemented by the Centre for Economic and Regional Development in the Department of Premier and Cabinet. Two of the contributors of this report were Expert Advisors to that programme designing the methodology and reviewing the strategies and plans produced.



- growing the circular economy, including the greening of economic activity where appropriate and achievable;
- building competitive and collaborative advantage;
- mitigating exogenous and endogenous risks; and
- building institutional capacity and capability that is crucial to enhance implementation of strategy and plans.

Those strategies would need to include **Action Implementation Plans and Programmes**, incorporating the **funding and the provision of enabling infrastructure**.

A co-ordinated programme to undertake and implement the programme of Regional Economic Development Strategies and Plans would involve using a **common methodological framework** but producing strategies and plans through a **collaborative, 'bottom-up' process**.



3 INSTITUTIONAL CHANGE, NEW APPROACHES TO GOVERNANCE AND REGULATORY REFORM

3.1 An Overview

Institutional performance, both public and private, is a crucial issue for State and regional development and efficient public services delivery. The quality of institutions – their effectiveness and efficiency – can be **a catalyst to facilitate** and enhance economic development, or conversely can impede it. Institutions encompass both government structures and governance processes, including regulatory frameworks. They also embody leadership. Institutions play critical roles in the economy and in society, and in addressing environmental issues. They can have **positive and negative effects**.

It is an opportune time to review governance processes and the nature and operation of regulatory frameworks to be the subject of innovative change in the post-COVID-19 world.

Institutional capacity and capability - including leadership - is a crucial issue to **facilitate regional economic and social development** and enhance **environmental management**. Contemporary governance recognises the engagement with informal institutions is as important as working with established business and other government organisations. NGOs, business and professional associations and service clubs and groups, for example, play an important role in society and need to be engaged, over time, in discussions about how government actions impact their members and clients.

Objectives to streamline processes to minimise transaction costs for doing business and improve efficiency in the delivery and effectiveness of outcomes to provide infrastructure and services need to be examined and may require innovation in **governance arrangements**, processes, and related regulatory measures. New or enhanced models for public-private partnership need to be incorporated. Initiatives might include actions to:

- establish a State Planning Commission - see *Section 3.4*;
- reform local government, especially in municipal management and finance, including issuing bonds, obtaining Sovereign guarantees, and co-financing;
- formulate and adopt a new model of **collaborative governance** – to incorporate institutional reform and innovation adoption; and
- bring greater professionalisation to the public sector through enhanced understanding of how industry/the private sector works, and enriched corporate capital (corporate knowledge; finance; intellectual property relevant negotiation and research skills, risk management skills).

Such reforms need to work with the private sector on property development, construction, infrastructure, and services delivery through **new public-private partnership models**.

3.2 Institutional Change, Governance and Regulatory Reform

The historical model of governance upon which the nation was founded and has relied for more than a century has changed. The **Australian National Cabinet** formed to deal with the COVID-19 crisis is a hybrid model of government which has demonstrated a level of **unprecedented effectiveness**. The model ought to be retained as the country enters the difficult and complex economic recovery phase. The efforts required to restore the economic prosperity of the nation, states and territories will be enormous, and it is imperative the collaborative approach to governance in overseeing the recovery effort continues.

Replication of the National Cabinet collaborative model between State and regional levels of government is necessary to ensure **uniformity of effort** so that no region is left behind. Greater devolution of governance arrangements to regional and local government levels, with the State's larger cities playing a key role will assist to create jobs to support economic recovery. New collaborative governance models will also be necessary to leverage resources needed to build the State's regional economies. **Self-organising systems** of governance could be encouraged to overcome the problems of friction in decision-making processes.

The current crisis, and the wave of economic and social shocks that will follow, will challenge **government and governance systems** to cope with recovery. Now is not the time to implement rapid structural changes to the two levels of governments



within the State, although these are needed. However, some governance arrangements need immediate reform to ensure governments operate more efficiently to meet critical needs.

The following **policy reform changes** will be necessary to develop new governance systems which are responsive to the recovery of the State's economy to create more inclusive, equitable and sustainable State and regional economies.

3.3 Collaborative Governance

The Australian National Cabinet, set up to manage the COVID-19 crisis, has introduced a new dimension to governance in this country. The system needs to be replicated at a State and regional level within Queensland. Collaborative governance models, which have their origins in the **sharing economy**, are widely used by the private sector as a means of identifying ways to solve supply problems and to reduce transaction costs to doing business, achieve scale to overcome competition to realise development opportunities, and to solve common problems by using shared resources – especially for utility and government services. This would represent important and necessary institutional reform.

Collaborative governance is not new. In ancient Greece, tribunals of citizens, selected-based to introduce accountability, checks and balances into government decision making processes. Several countries - for example, [New Zealand](#) and [Finland](#) - are adopting collaborative governance arrangements into local economic development, water management, tourism and services delivery.

Queensland needs to adopt similar kinds of models, given the decentralised nature of the State. Queensland's Goss Government, after the Fitzgerald crisis, used collaborative approaches through the **SEQ2001 project** for governments, business, and the community sector to successfully work together to solve complex social problems of growth management. *See Section 9.2.1.*

Collaborative governance will become the new norm for planning, development and service delivery in the post-COVID-19 era of development. The competitive model of governance, which fosters parochialism and pits local governments against each other for very limited public resources, is not sustainable. It does not help the State to achieve critical mass and the smart infrastructure needed to drive the development of a more innovative, efficient, creative, and advanced economy. Collaborative governance also provides a means of [counter governance](#), **broadening the level of inclusiveness**, introducing a **wider peer review** and widening the **checks and balances** processes into state and local government decision-making — especially associated with the planning and permitting. The adoption of collaborative governance would not, however, absolve the government of the responsibility in making the final decision on matters where they are so mandated by law or regulation.

Reform of institutional governance arrangements within the State is crucial to improve the efficiency and effectiveness to deliver infrastructure and public services and support industry investment and job creation. The current administrative models do not respond well to rapid change; they lack innovation and have become risk-averse.

3.4 State Planning Commission

Planning for development in Queensland is not conducted in a holistic, spatial, or well-integrated manner as in some other developed countries. Agencies and departments are responsible for formulating sector and corporate strategy, annual planning, budgeting and monitoring recurrent expenditure. The [Cabinet Budget Review Committee \(CBRC\)](#) oversees the integration of the department's budget proposals as part of the budget preparation process. There is cross-agency consultation during the annual plans and budget preparation cycle, but this occurs mainly at the central agency level. There is a similar process involving local government budgets and capital works programs at a regional level.

The current State and local government planning and budgeting have reasonably well-developed **vertical integration systems** within ministries, but **horizontal integration** between State agencies and local government budgets for planning, development and recurrent expenditures is weak and could be improved substantially. An attempt to address this problem was made in 2004, when the [Office of Urban Management](#) was set up. It was charged with overseeing an integrated framework and capital works planning for the South East Queensland Regional Plan 2009-2013. The Office was disbanded, and the weaker coordination framework of the [SEQ Council of Mayors](#) remains operational.

The weakness in horizontal sectoral and spatial budgeting planning and operations, leads to **shortfalls in cross-agency budget allocations** to ensure the efficient lifecycle operations of infrastructure and services delivery, especially at the local government level. **Unnecessary duplication of effort and under- or over-allocation, poor coordination, and use of resources** by the three levels of government - especially at the local level, means many essential items of infrastructure and services delivery are not performing optimally.



Better integrated horizontal **spatial packaging and clustering** of budget outlays for the provision, maintenance and recurrent expenditure on assets and systems would reduce costs and help to deliver public services more efficiently to support the State's development (see next section). It would also help the private sector to better align its investments to support regional and local development and job creation.

There is no overarching body in Queensland responsible for **oversight of the vertical, horizontal, spatial, land-use and lifecycle financial planning, budgeting, and development** within the State. Without this oversight, many designs, construction and lifecycle operational cost saving, value capture and adding, opportunities are being lost. There is significant merit in the Queensland considering the establishment of a **State Planning Commission**. Its role would be to improve the spatial, horizontal, and vertical inter-agency and government coordination and lifecycle budgeting and funding of public investment in capital work projects and service delivery programmes that support the State's development.

An important role of a State Planning Commission could be **to liaise and coordinate with federal corporations** – such as NBN Co - and private sector utilities services providers on the planning and development of land, infrastructure, facilities, and other related assets. The objective is to ensure better planning, coordination of development projects and programmes between the public and private sectors.

There are **significant benefits** for the State to establish a State Planning Commission. It would create opportunities to share geospatial, plans and budget data related to long and short-term planning, delivery and ongoing operations and maintenance of development projects and built assets across the State and regions. This can identify cost sharing arrangements to deliver lower cost, more efficient, effective, and sustainable services delivery and use of public and private sector resources, and to optimise development efforts.

A **State Planning Commission** can also support post-COVID-19 recovery, through more effective allocation of public funds on capital investment projects, resulting in better value-for-money and cost savings realised in the State's future budgets. Overlapping and poor lifecycle funding support for operations and maintenance of public investments is a lesson gained from the world's most recent disaster recovery efforts. A State Planning Commission headed by a Commissioner, with commissioners appointed from ministry line-agencies and local government, along with business and community representation from outside government will prevent, or at least limit, such failures. A **secretariat** would support the Commission.

State Planning Commissions are models which have been used very effectively elsewhere to ensure governments get **value for money** from public investments, and that these investments continue to operate efficiently throughout their lifecycle. Linking multi-agency recurrent expenditure for maintenance of public assets during their lifecycle could easily become line-items in State and local government budgets. The [California](#) and [New Jersey](#) State Planning Commissions are good models for Queensland to positively consider such adoption.

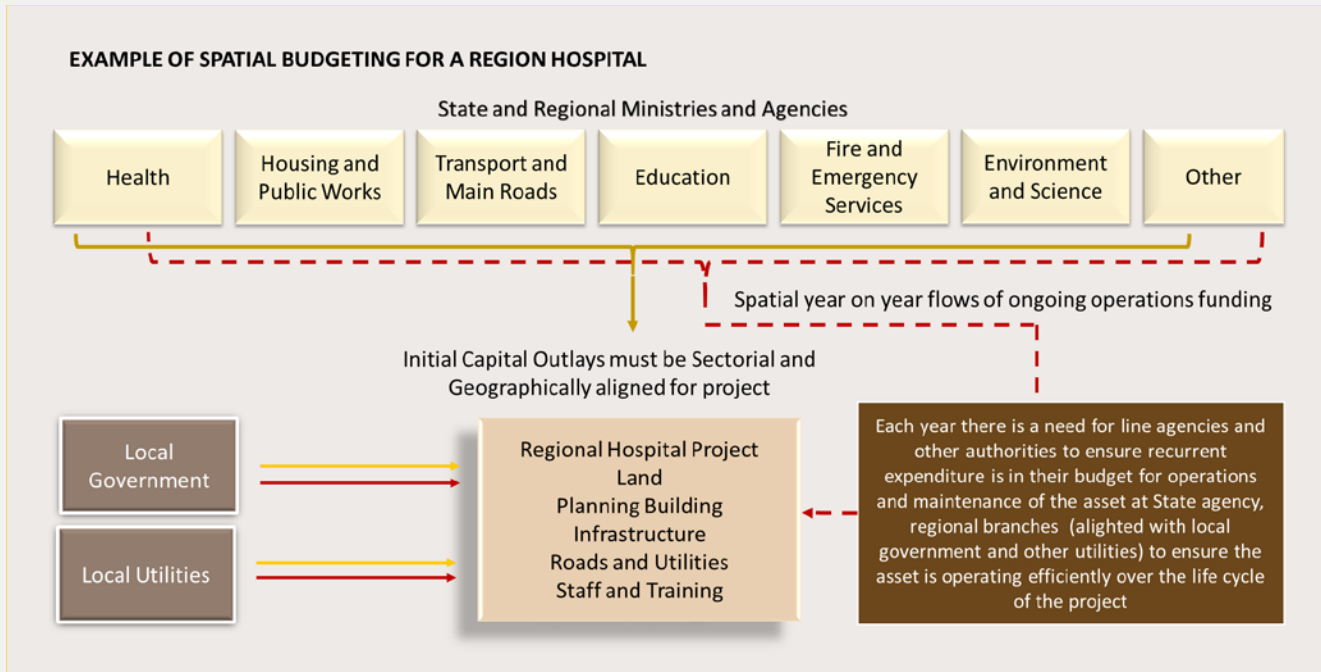
There is also merit in Queensland considering regional planning commissions to ensure more effective and efficient coordinated delivery of infrastructure, services and budgeting in the regions. This could be achieved by expanding the mandate of regional organisations of councils.

3.4.1 Spatial Planning and Budgeting

There is a need for a more holistic spatial budgeting process for the planning and implementation of capital works at a regional level in Queensland. **Spatial budget planning** involves integrated multi-sectoral approaches to project planning, implementation, and lifecycle ongoing operations. It takes into consideration whole of life costs of a project, to ensure funding and other resources allocated in State line agencies and local government are assured for the continuous operation and maintenance of infrastructure and assets for their functional life.

The practice of **spatial budgeting**, a process where composite budget outlays and fiscal flows for development, capital works and recurrent expenditure for infrastructure and other asset creation projects are geo-coded, is not a practised widely by State and local governments in Queensland. Some countries have started adopting a [Spatial Development Framework](#) to facilitate improved urban management and budgeting.

[Smart City](#) is a web-based participatory e-Budgeting software which empowers citizens to be involved in the process. [Kozhikode Municipal Corporation](#), in India, has introduced E- Budgeting linked to a web-based Geographic Information System (GIS). The [Urban Institute](#) has developed spatial tracking tools for the allocation of funds by use to local government in the USA. In [South Africa](#), the National Treasury, as part of a planning reform agenda, is examining inter-linkages to policy and regulatory reforms in a programmatic and systematic way using MIS and GIS.



The **lack of spatially integrated multi-agency budget information and data** results in fiscal outlays on capital investment projects and associated ongoing recurrent expenditure, results in State, and local government not realising the development potential and expected economic returns of projects. This is a product of **the silo process** in the way plans and budgets are formulated. Poor incentive structures and budget restraints have shown limited willingness to collaborate with other agencies to leverage resources, innovate or cooperate to achieve higher economic, social, or environmental benefit. The result is opportunities for greater economic, environmental, and social (quadruple-bottom line) benefits generated from public capital investment projects are seldom fully realised.

3.4.2 Deregulation

Engaging citizens in governance processes is being driven by legal and regulatory reform processes. Designed to protect the rights and safety of individuals, business and communities participating, there is, however, a negative consequence: decision-making, time taken, and costs of processes are increasing. Federal and international laws are adding to the complexity of regulation, and it is not easy to obtain consistency or universal agreement between governments in the spirit of effective local governance.

For the development sectors of the State economy, reorienting the reliance on policy and regulation to support facilitation is necessary to **reduce transaction costs for business** and to encourage and facilitate creativity, innovation, and entrepreneurship.

Artificial Intelligence will help to achieve this, but holistically, it is better to shape development processes through a more consultative and negotiated model to achieve outcomes, that is, between the development industry and communities, without reverting to 'black letter' law and regulation. This will require the restructuring of the type of jobs, skills, and knowledge base that State and local government, business, and interest groups require to achieve better development outcomes.

3.5 Strengthening the Role of Local Government in Development

Queensland has the greatest diversity of local governments in the Australian federation. From Brisbane City Council - the largest council in Australia - to remote Indigenous councils, local councils represent diverse communities and economies. The impact of the crisis across Queensland councils will be highly variable. This suggests a policy response that takes local governments to a fundamentally different role in **social and economic recovery and development** - one that partners with State and federal government, business and local communities. Reforms for the local government system need to focus on structure and function, autonomy, and responsibility.

3.5.1 Institutional Reform

As a resource-rich State, covering diverse mineral, agricultural and tourism-based economies, local governments face enormous challenges. Their differences are a function of their local economies and the nature of their communities. The one thing they share



is control by a system of local government that sees them dependent on the State for local and regional projects. Because of this, **initiative is often lacking or uncoordinated**. Australian local government is one of the most highly codified systems of local government in the western world. It is not surprising that the culture of local government in so many Queensland councils is one of cautious involvement participating in initiatives that go beyond their formal mandate. Thus, institutional reform and change are needed if local government is to play a key role in the post-COVID-19 world.

3.5.2 Role in Economic and Social Development

Social and economic development is the responsibility of State agencies with some delegations to regions. Local governments are engaged in regional development organisations of councils, but the capacity of these to build economic and social infrastructure is very limited. Part of the challenge for local governments to engage in local economic development is that **local economic development plans are poorly integrated** with land use plans and council long term financial planning is lacking.

A similar situation arises with social development and services delivery, especially in health, education, and housing. In both economic and social development, the local government is responsible for planning and providing many services to support facilities and equipment provided at the local level. There is a need for stronger partnering arrangements between State and local government at a regional level for planning and delivery of services for economic and social infrastructure. In some cases, it may be expedient for local governments to operate and maintain state-run economic and social infrastructure and services delivery. (*See Sections 7.2 and 9.2.2*)

3.5.3 Fiscal Transfer Arrangements and Revenue

The catch cry of local government leaders, historically, is that they do not receive a fair share of financial resources under the Australian federation. They receive - on average across the State - approximately as much in general revenue sharing from the Federal and State grants commissions as they raise from their own sources. This masks the fact that the proportions within each council are highly variable: large urban councils receive much less per capita than remote councils. This diversity suggests a different response across the spectrum of local governments. Brisbane, Gold Coast, Ipswich, Townsville, Moreton Bay Regional and the Sunshine Coast Councils, for example, are large public bodies working in partnership with the State and Federal governments to deliver large infrastructure projects, especially related to transport.

These projects are dependent on government grants determined by the State in partnership with the Federal Government as the principal funder. What are the opportunities for local governments, especially large urban councils, to raise funds themselves against long term economic plans for their communities? As the powerhouse of local economic development, these urban councils have far greater ability to service such borrowing than their rural and remote counterparts.

Individually, **remote councils would have far less ability to undertake such initiatives**. However, by working together, they are in a better position to engage in such borrowing. There are currently various examples of councils collaborating on a regional basis where fundraising for regional projects would be feasible. The Far North Queensland Region of Councils, a long-standing cooperative relationship, is one example. Cooperative funding models between two or more councils are not new to Australian local governments. The Federal Government's *Roads to Recovery* programme is one such model based on cooperative infrastructure funding. It was originally developed by the South Australian Government in partnership with local government and then adopted by the Federal Government.

Notwithstanding this diversity of the type of community and local economy served by Queensland local governments, there is **a high dependency on the State Government for system-wide strategic responses**. The dilemma created, is a system of local governments reluctant to take the initiative for fear of State government intervention. A consequence of having a highly codified system of local government is that it creates a level of dependency on the State Government contrary to the desire to see local governments leading on local and regional issues in partnership with their neighbours. A change would positively impact the State.

3.5.4 Long-term Financial Planning

Long term financial and development planning in many of the States smaller regional local governments is weak. This is due mainly to **resource and capability issues**. These can be overcome, to some extent, by regional local government collaborating to develop a common pool of expertise and capacity to prepare **long term plans**. Long term financial, infrastructure and development planning has been adopted in [Queensland](#) by the larger cities; however, compared to some other OECD countries, the process is not as advanced. The Queensland Audit Office oversees the auditing of these plans.

A good practice for Queensland would be to adopt an independent assessment of financial plans every three years. This is a practice adopted in [New Zealand](#) under the office of the [Auditor-General](#). In New Zealand, it has resulted in improved services delivery and financial management by local governments with the [forecast operating revenue](#) up 19% more than 2015-25 forecasts.



Independent tribunal or Auditor-General assessments of local government long-term financial and infrastructure plans have benefits of ensuring value for money of proposed capital works and other outlays, included in 10-year and shorter-term plans. They also ensure public funds are expended in a way that supports, economic, market, social development and environmental management needs of local communities.

The introduction of ten and 3-year auditing of local government financial plans have helped to reduce political and electoral cycle interference in the financial planning process. It brings in a higher level of expertise, transparency and accountability into medium- and long-term planning and helps restore public and business trust in local government. Trust in financial planning is something that has been missing in local government in recent years, mainly because several councils in Queensland have been dismissed over misappropriation of public funds.

Long-term planning (LTP) provides the basis for all the **annual planning and reporting** a local authority undertakes. The financial and non-financial targets in these documents come from LTP. It also helps local governments to iron out and plan for the lumpiness of capital outlays when big budget items are required for large capital works projects.

3.5.5 International Credit Ratings for Local Government

The use of sub national **international credit rating** for [local government](#) is a practice used in some developed countries as a means to establish the creditworthiness of local government to issue bonds and secure loans to support local development projects. It is also used as a marketing status device to promote and attract investment. Rating of Queensland councils by an international credit rating agency is not a common practice, although Brisbane and Gold Coast have done it. International credit ratings of large local governments are a good practice which could be adopted by cities in the State with populations over 50,000. It could help improve financial management and wider creditworthiness of local governments in the State and establish an international benchmark to promote regional and local economic development. The Queensland Treasury Corporation employs a system of credit rating for local governments.

3.5.6 Local Government Taxation and Revenue Reform

Taxation is high on the agenda of post-COVID-19 reform at Federal and State level. These reforms need to be extended to include local government. **Local Government tax revenue is less than 3.5% of total national tax collection in Australia** - one of the lowest in the OECD. Its revenue base is confined mainly to grants, property taxes, infrastructure, and user-service charges. With limited capacity to raise additional revenue, they are being delegated to take on more responsibilities for services delivery without being given additional resources or powers to expand the local tax and revenue base to do so.

There is need to expand the capacity of **local governments to raise revenue** and for a more equitable sharing of State tax and other revenues, such as land and vehicle registration taxes for use in local road improvements. The taxation and revenue base of local governments in Queensland could be expanded to bring it closer to the unweighted average for [OECD federated countries](#). However, this needs to come with reform conditions, especially in financial planning and asset management, and regional local governments accepting pool funding agreements for building economic and social infrastructure where it creates critical mass and benefits for more than one local government.

Initiatives the State government could consider are:

- local governments gaining a greater proportion of land tax and royalties to be spent on local hard and soft infrastructure;
- adoption of capital rather than **unimproved land value** rating system;
- **visitor tax** on all accommodation, including Airbnb;
- creation of a **regional development grants and capital fund** for shared funding of local government PPP infrastructure and services;
- share of any future State carbon, waste management and road-user taxes and congestion charges, and
- freedom to set property tax rates, and rights to raise bonds and loans, (see discussion below).

3.5.7 Local Government Sinking Funds for Infrastructure and Asset Replacement

Sinking funds are used widely by companies, corporations and body corporates to cover the cost of major asset repair, replacement when destroyed, or fully depreciated. Local authority sinking funds operate in some countries for the purpose of repayment of special loans for replacement of major public assets. Sinking funds are not a requirement of the Queensland Local Government Act, however, some local authorities still use sinking funds for long term payment purposes. There is merit to bring back the use of sinking funds, especially when linked to longer-term financing needs of infrastructure development and maintenance plans.



Local governments are required to prepare long-term financial forecasts which are submitted to the Auditor-General. Forecasts include value of assets, liabilities and equity of the local government. Some of the larger local governments hold significant funds in reserve for capital works renewal linked to infrastructure plans. The amounts vary across the State and are often the first budget item to be cut in times of austerity.

Public Infrastructure expenditure includes large capital outlays for replacement machinery, plant, and equipment. The timing and amount over a 30 to 40-year infrastructure plan is lumpy and difficult to predict. Local governments may not be in a position to borrow to raise the funds needed. Sinking funds provide an insurance of access to capital against such events or times of austerity.

The use of sinking funds linked to asset management plans is worthy of consideration. There are [good practices](#) used in Ireland, that could be a model.

3.5.8 Local Government Infrastructure Bonds and Loans

Local government lending is controlled by [Queensland Treasury Corporation](#). Councils seeking to borrow funds for capital works projects submit an application under the [Local Government Borrowing Programme](#). Local governments are subject to borrowing limits, are not permitted to raise loans or issue infrastructure bonds - a [common practice in many countries](#). Consideration could be given to reviewing this practice to introduce competition and choice in local government finance markets as part of local government financial reform in Queensland.

OECD and WEF support local government lending for infrastructure, including the use of [Qualified Public Infrastructure Bonds](#). International development banks are also supportive of sub-sovereign lending arrangements to local governments, provided they have an international credit rating. Many countries are reluctant to permit this.

Policies to encourage superannuation/pension funds to be invested in bonds or loans for national, State and local infrastructure building projects, a [practice in OECD countries](#) like Singapore and Korea, could expand the pool of capital available for inner-city funding redevelopment and greenfield land development and infrastructure in the State's cities and regions.

Giving authority to **local governments in Queensland to issue bonds** and raise loan from open capital markets has, generally, not been supported by current or past State governments. This is mainly because of the high debt levels carried by some local governments, poor financial management by some councils and the lack of trust between the two levels of government.

There are several large local governments in Queensland which have substantial assets and collateral which would allow them to take on higher levels of debt to fund essential local infrastructure. Borrowings of local governments ought not be curtailed unreasonably, if there is the clear capacity of local governments to fund infrastructure projects (including PPP projects) that are **low risk** and have **satisfactory economic and social rates of return**.

At the regional level, single councils are not in the position to take on additional debt, but **debt sharing and guaranteeing arrangements** between regional councils could be introduced to fund regional development common user-benefit projects. If introduced, risk-sharing arrangements would enable local governments to gain access to capital for economic development projects through open bond markets and loan facilities, provided they have international credit worth status. This practice is used in some countries, reducing borrowing rates and imposing loan conditions on funds for regional and local infrastructure projects.

The New Zealand model is a good example of how to devolve and spread risks of borrowing to the State Government by on-lending to local government. The model fosters **greater cooperation and reduces parochialism within local governments** and shifts the responsibility of risk and liability away from State government in the case of financial failure. There is merit to open the financial market for local government but as a quid quo pro to financial management reform.

New Zealand Local Government Funding Agency

*The devolution of municipal financial authority, including the issue of **local government infrastructure bonds** and loans, occurs successfully in New Zealand. Opening the local government financial market to competition in New Zealand resulted in significant improvements in financial management performance. The New Zealand reforms were accompanied by the introduction of the **international credit rating of cities and regional local governments** and the establishment of the [Local Government Funding Agency](#). The Agency raises capital through the issuance of bonds and makes loans to local governments based on financial management performance and creditworthiness.*



3.6 Strengthen the Professional Expertise of the Public Sector

The level of in-house professional expertise within the public sector, over many years, has been in decline, often with a notable erosion of sectoral knowledge depth and experience within agencies and departments. There has been a propensity to outsource which has led to significant loss of corporate capital, knowledge, and skills within public agencies. Public employees change jobs between agencies, sometimes without professional qualifications or adequate expertise.

The processes of government have also become more policy and regulation-driven and high risk-averse – rather than contesting alternative ideas and experimental approaches to achieve policy outcomes. Innovation and creativity are not encouraged, with the precept that: if it has not been tried and shown to work elsewhere, it should not be permitted here. The policy has been driven by the political economy process, rather than by good research, expert advice and evidence.

There is a need to re-orient and restore a greater level of **professionalism**, objectivism, and expertise within the public sector -i.e. government agencies and State departments. The way government, business, civil society will operate in the future will change. The government will still have the role of policy formation and regulation. Still, public policy needs to focus on streamlining processes of government, with a professionalised public sector working collaboratively with business and civil society to encourage and facilitate innovation and entrepreneurship. Public policy also needs to be driven and implemented by a combination of systemic and self-organisational management arrangements. This is a revolution that is going to occur – it does not mean additional new public sector jobs, but a restructuring of the type of jobs and the skills and knowledge base required.

The reform of government during the post-Fitzgerald enquiry led to an innovative and creative period of government, with many public servants having highly technical and professional skills, which were brought to negotiations. There is a need to increase the professionalism within the public sector, especially to bring back high levels of technical skills within departments and agencies, particularly in engineering and construction, industry (agriculture, mining, technology-based manufacturing) development, health, education, and environmental services. Queensland needs a **highly professionalised public service**, commensurate with the business sector at State, local government, and public corporation levels to become a smarter State for doing business.

Significant **investment** is required to enhance professionalism and skills in negotiating and running large infrastructure projects within the Queensland public sector. Government's approach to doing business with the private sector will need to be more flexible, smarter, collaborative and transparent. Skills and arrangements for managing risks associated with public-private partnerships will need enhancement in both sectors. The adoption of **action learning processes**, technical advisory and in-house panels of thinkers is necessary to address and develop systems, and critical thinking approaches problem-solving and services delivery. *See Section 6.3.*

A multidiscipline and industry sector **reference group** could be formed to advise the government on ways to enhance professionalism (enhanced understanding of how industry and the private sector work), to enrich corporate capital (corporate knowledge; finance; intellectual property; relevant, negotiation and research skills); and risk management skills across all sectors of government. The group could advise how State and local governments can adopt a more systems-oriented approach to problem-solving, crisis management and service delivery, based on best practice models. Local governments will be expected to play a more direct role in the delivery of programmes of activities to support economic recovery throughout the State. An immediate focus will be needed to accommodate these changes.

4 SCIENCE, INDUSTRY, TECHNOLOGY, AND INNOVATION

4.1 An Overview

A strong focus on Science, Industry, Technology, and Innovation will be required in the post COVID-19 era to restore prosperity, create jobs and to ensure Queenslanders enjoy a high quality of life and well-being. Investment in these fields has the potential to create long-term State and regional jobs and play a significant role in sustainable and regenerative development.

The State will continue to be driven by the strength of its natural resources and build assets, its service sectors, and the dynamics of its people. But the three waves of crises have demonstrated the need for advances and changes to technology, innovation and production. The crises will bring rapid long-term change to the State's economy and to the economies of its diverse regions. There will be a need to rethink the economic development paradigm for the State and the regions. *See Section 2.*

The Advance Queensland strategy provides a useful starting framework to move Queensland to a 4th Industrial Revolution economy. The current crisis is bringing about the realisation of elements of this revolution. A review and some adjustment of the **Advance Queensland strategy** will be required to reassess priorities and set new strategic directions for industry growth and development. However, the focus of science policy in the State does not need to be primarily on new advances in applied sciences. It needs to be broader. The development of science and technology could support **retrofitting, repurposing and adaptations** of the State's infrastructure, assets, and production. Balance is also required in science policy between pure, applied, and social sciences. Social science research is crucial to the State's development, especially in making improvements to productivity, needs assessment and more targeted services delivery to marginalised or special interest needs.

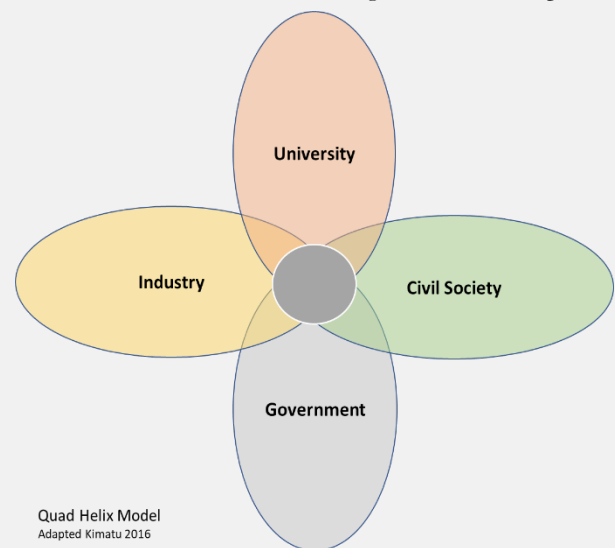
A useful framework to consider in building the foundations for a future strategy for science, industry, technology, and Innovation (SITI) in the State is to expand the original 'triple helix' to a [Quad Helix Model](#) for sustainable and regenerative development for R&D, innovation, entrepreneurship, product, business, governance and social science development. The quad helix' model adds the dimension of civil society interest groups to universities, government and business efforts to support the development of SITI in the State and regions.

The model recognises the growing importance of communities of interest outside universities, government and business that play an increasingly important role to advance and shape the directions and efforts in research and development, creativity, innovation, and commercialisation of products.

The **civil society dimension** of the Quad Helix expands the dimensions, range, and level of inclusiveness and advancement of SITI to sustainable and regenerative development in the State and regions. It introduces citizen science, the whole sharing economy outside formal structures, i.e. the app economy, special and multi discipline, and [peer-to-peer](#) (P2P) learning and sharing of research and development interests.

The Quad Helix Model provides a strong framework for the State to conduct more **collaborative research** and development in science, industry, social and technology development and the environment, knowledge sharing and networking, co-sharing infrastructure and stretching the use of limited resources using a more collaborative and sharing model of development for the State and regions. The Quad Helix Model also provides a strong focus for advancement of Science, Technology, Engineering and Mathematics (STEM) in teaching, learning, research and development within the State.

The following sections address key areas of Science, Industry, Technology, and Innovation which could help boost the long-term development, prosperity and well-being of the State and regions.



*The **Quad Helix Model** adds a very significant and powerful fourth dimension to the advancement of science, industry, technology, and innovation in the State.*



4.2 Science

Science - especially scientific research - is crucial to the future development of the State and regional economies. The Department of Environment and Science is responsible for science in the State but does not have a science plan. Several Queensland **universities and research centres are engaged in world class research**, especially in the fields of medical, agriculture, mining, and marine science. Continued support for research precincts that involve thematic, applied, pure and collaborative research between universities, CSIRO, private and government research centres is important to making Queensland a smarter state, and to create jobs for the future.

The [Advance Queensland: Engaging Queenslanders In Science](#), provides the framework for the development of Science in the State. The Strategy has four goals to increase:

- the number of students participating in school STEM subjects engagement;
- participation of the Queensland community in science-based activities;
- the number of scientists directly engaging with the Queensland community, and
- awareness and understanding of the great science taking place in Queensland.

These goals are important to the development of science in the State; however, advancement is dependent on national and global **linking** and the cooperation of **researchers and scientific communities of interests**. This integration of science is noted under the umbrella of the [Australian National Science Statement](#).

The development of a more **collaborative** and **networked** approach, applied to advance the fields of science in which the State has the infrastructure, STEM skills, and critical mass in concentrations of research and development is crucial. Such an approach will help the State create a **competitive advantage** in a range of scientific fields. It is crucial at all levels, but becomes more focused at the tertiary level, honing the development of research and development skills, innovation and creativity. This approach can also take advantage of State and regional endowed natural and infrastructure resources.

The State can also encourage collaboration with other Australia-wide and international associations and partnerships where these are of mutual benefit and create the critical mass of skills, resources, knowledge and infrastructure. This approach enables local firms and industries to add-value to science research and the economic development in the State. This does not mean the State does not encourage Science to pursue investigations into emerging fields. But the priority for Science needs to target innovation to develop new businesses and create jobs in the State and to achieve critical mass and viability.

SLINTEC is a pioneer in nano and advanced technology & research. Research focuses on six areas –advanced materials, smart textiles, advanced agriculture, graphene technologies, energy research as well as process and engineering systems. SLINTEC, a public-private research institute successfully selling research output.

Failure to do that has effectively excluded Australia and Queensland from value-adding to the outstanding research and science conducted in the country for many decades. There are lessons how other countries have successfully achieved that. [Sri Lanka Institute of Nanotechnology](#) (SLINTEC) is a great example.

4.3 Technology, Commercialisation and Industry Articulation

For Science to become a major driver of economic development, investment, employment creation and support for the well-being of Queenslanders needs to be a focus. All manner of ideas has to be turned into commercial technologies and products that can foster enterprises and provide the basis of industry and advanced manufacturing. An example is the [CSIRO Advanced Manufacturing Roadmap](#).

Building an industry without 'well-priced' product markets is ultimately a waste of time, and an invitation to insolvency. Recent reliance upon markets - competitive in the sense of neoclassical economics - has not provided technically adept enterprises sufficient financial profits in many cases. Three of the relevant reasons are:

- theoretically, firms can continue to supply competitive markets while continually making a loss (as the optimising neoclassical enterprise supplies as long as price covers average variable cost);
- financially, Australian banks and financiers typically offer SMEs inferior business products so too many local enterprises suffer from inferior and not-fit-for-purpose financial arrangements, so attractive start-ups become acquisition targets for offshore finance; and
- organisationally, risk exposures are excessive as necessary triple-risk management arrangements are not in place to deal with fluctuating market prices, and exchange and interest rates.



Pop internationalism - to use Paul Krugman's phrase - along with trade mantra have displaced prudent informed evaluations of prospects, investment sensitivities and risk exposures across the regional, domestic, and international domains in recent decades.

Resources and policies to support industry growth and development need to be refocused on more sensibly balancing public, private and community returns, risks and exposures across the mix of investment areas.

4.3.1 Policy reframing

There are a several policy issues related to Science, Industry, Technology, and Innovation that will need to be addressed in the post COVID-19 era:

- It is crucial Queensland invest in **applied sciences** which support growth industries that add value to the primary stages of production in food, crops, minerals, energy, bio-services and climate, for which the State has significant competitive advantages, by these being present in significant quantity and accessible.
- This calls for government to facilitate **scientific research, incentives, and commercialisation policies** for the development of technologies, systems, and infrastructure to extend the forward linkages in supply chains which used these resources as feed stock.
- Well-based investment involves detailed evaluation - up-front and ongoing - along with much more adequate risk arrangements and response capabilities.
- **Supply chain fragility**, corruptibility and likely occasional freezing up (illiquidity) are part of the new normal with implications for not just the movement of product but also for the 'proper' (routine and sustainable) remuneration of capitals, be these human, natural, financial, intellectual or otherwise.

The first impact of the Global Financial Crisis climaxed in 2008 with highly illiquid bank channels stranding funds as counterparty risks escalated rapidly and unpredictably. The threat of COVID-19 infection stranded people to again avoid 'counterparty' risk. Although conditions have stabilised, counterparty risks remain unknown. The foundational threat faced is three-pronged illiquidity in the movement of funds, products and persons.

If serious, loss of core private and public capabilities could be quick and comprehensive, especially for those employing remote specialisation and over-extensive division of labour with little overall effective means of responsive control. This could see largely **autonomous systems performing as normal practice**. An example is when the bank continues to apportion interest as normal, rather than recognising a client's inability to service the debt, as normal. Consequently, much of the real load is likely to move strongly back to communities, most of whom are not prepared after years of adverse impacts.

Attempts to trade out of the GFC only worsened problems as we "kicked the can down the road" by redistributing debt, usually from private to public hands. The real solution was reconstruction of existing positions, as it is with the positions of today's stranded enterprises. This needs to be accompanied by prudent development of new enterprise and product arrangements which sensibly recognise and address the four issues above. Revitalisation of **community capacities and solidarity** provides the complementary foundation. Such are the lessons of various economic, financial, and political crises over the years. We should learn from those who have "transitioned well" and avoid the tragedies and needless loss of key capacities and wealth of those who did not.

4.3.2 State Industry Development Initiatives

The [New Smarts](#) **Supporting Queensland's knowledge-intensive industries** through science, research and innovation provides the framework for future State industry. The strategy outlines a framework for eight emerging industries:

- sustainable energy;
- cyber-physical security;
- smart mining, exploration, and extraction;
- personalised and preventive health care;
- advanced materials and precision materials;
- aerospace and space technologies;
- advanced agriculture; and
- circular economies.



Queensland has some competitive advantages in these frontier industries fields, but it will only be in the position to support and advance the development in a selected number of these. The challenge is how to create niches, scale, critical mass and minimise production margins. The State's natural advantage is in the resource industry sectors, creating opportunities for hydrogen, solar, metals and new materials (i.e. green concrete, engineered timber, carbon fibre and biomass products). [Carbon fibre](#) offers opportunities to utilise the States abundant [coal](#), gas, biomass and solar energy resources for more sustainable uses, provided cost and environmental issues can be addresses.

Queensland lacks the mass of finance, human resources, skills and capacity to create the critical **hard and soft infrastructure** to gain a position of significant competitive advantage needed to overcome barriers and entry into many markets. The State will need to develop more **collaborative approaches** to develop new industries providing the new jobs to maintain strong growth the standard of living. The approach taken to develop the [Australian Wine Industry](#) is a good model for the State.

New approaches to industry strategy development in Queensland is needed involving whole of State government, science, industry, and other stakeholders collaborating with counterparts in other States and the Federal Government to build a national system and platforms of shared hard and soft infrastructure to support the growth and development of new **smart industries**, with competition and collaboration between geographically dispersed industry clusters within the States providing a platform for innovation, creativity and new product development.

Australia has lost many opportunities in the past to develop new industries by adopting policies and practices where States compete for investment and new industries, only to be out-bid by other States with payroll and other incentives. This practice has resulted in Australian businesses not being able to create scale, achieve critical mass of infrastructure capability or to leverage resources from a nationwide pool of capital and resources. Developing a **model for collaborative advantage** will be critical to the State realising the many opportunities which the **New Smart Strategy** identifies for the new industries for the future development of the State and regions.

4.3.3 Development of Social Science

Science policy typically neglects or downplays social science, which is particularly important to support the realisation of science policy through innovation, entrepreneurship, and business development. Jobs creation directly and indirectly involves social science disciplines such as economics, sociology, geography, psychology and management, and law. Indeed, the whole area of policy formulation is embedded in the **social sciences**.

Within the State's universities there are numerous research social centres that could be more directly integrated into initiatives to generate science-based R&D, innovation, commercialization, and business development.

Social science can generate new knowledge and strategy in the post COVID-19 period around such issues as: the social determinants of health; the impacts on social relationships, mental health, the role of digital technologies throughout the crisis, lived experiences of health workers and deeper questions about social and economic inequalities across groups of people and places.

The whole area of regional economic development strategy and formulation (see *Section 2.2.11*) is an area of applied social science. A key component of regional development strategies and plans and their implementation need to be the identification and opportunities to apply the '**quad helix**' model to build regional innovation systems and create new businesses arising out of scientific R&D and its commercialisation.

4.3.4 Spreading Research to Regions

It is desirable to spread scientific research efforts within the State. However, Southeast Queensland will remain as the focal centre for science in the State because of the concentrations of skills, knowledge and specialised infrastructure in that region as the location of multiple universities and other research institutions with critical mass.

Where possible, the State could encourage pools of research skills and support services - i.e. young researchers and data analysts - in the regions, especially where the nature of the research work is not dependent on physical access of specialised infrastructure or equipment. This helps develop the spread of science and research expertise and knowledge within the State, some of which can also be applied to industry, education, and community development in regions

4.3.5 Accessibility to Data

Access to data and information is critical to the advancement of science. **Community** or **citizen science** has been recognised as important for the collection of data and information about the environment. It involves individuals or communities of interest collecting data, photos, making observations and keeping records used in science and the monitoring of the health of natural habitats and development change.

Community science activities are important for education, learning, local knowledge keeping and dissemination, and modelling. It also helps to dispel stereotypes about science.

*The **Regional Innovation Data Lab** at Griffith University's Logan campus provides a data ecosystem offering new opportunities to fast-track innovative solutions that address long-standing urban and regional problems by using "place", rather than discipline or agency, as the data linking framework.*

4.3.6 Advancement of Citizen Science

The State has a [Citizen Science Strategy](#). This needs stronger government support and resources to give schools and communities resources to advance science in the State. Community science will bring significant benefits to the State in the future, for very little budget outlays, by improving data collection, engaging local communities in research and aiding the advancement of science.

4.3.7 Advancement of Traditional Knowledge Science

[Indigenous Knowledge](#) has been recognised as making a significant contribution to value-add to science and innovation. Indigenous knowledge includes know-how, practices, skills, and innovations. These can be used and developed in wide variety of contexts, such as agricultural, scientific, technical, astronomy, archaeology, anthropology, ecological and medicinal fields, as well as biodiversity-related knowledge. Indigenous knowledge is intertwined with artisan, cultural and social practice, and Indigenous language. There is need for greater inclusion of indigenous knowledge in the application of science, among other things in areas of fire, forest and land management, agriculture and development and protection of cultural land scape and heritage. *See Section 8.2.*

4.3.8 Health and Community Development Applications

The current COVID-19 crisis has opened the eyes of many people and professionals to the practicalities and possibilities of smart digital technologies for the delivery of health services and for social interaction and community engagement

Social distancing requirements have necessitated the use of telehealth applications in COVID-19 screening, by doctors in general practice, and by hospitals. Changes in behaviour, that may have taken five years under normal circumstances, have been achieved in five weeks. Telehealth offers many cost effective and accessible ways to provide health services and to reach less mobile, marginalised and remote community groups. Integrated electronic medical records (i.e. MR) are a key part of providing medical services digitally and remotely.

Social media and electronic meeting applications, such as Zoom and Teams, also provide opportunities for community engagement and participation. Voluntary community groups can engage and activate their members about potential project and local campaigns. Local governments can inform and consult their residents and communities, particularly in remote areas, and provide opportunities for input to the political process and e-democracy. These health and community development applications are key parts of the smart cities and regions of the future.

4.4 Industry Development

For many decades, Queensland governments have adopted a **sectorial approach** to industry policy, planning and development. This has resulted in public policy and support for industrial development becoming siloed, and opportunities for innovation, creativity and development of new hybrid industries being constrained.

The most recent [Advance Queensland](#) strategy identifies six emerging industry sectors considered important to the State's development:

- advanced manufacturing;
- aerospace;
- bio-futures;
- biomedical;
- defence equipment; and
- mining equipment, technology and services (METS).



The State's preparing of industry plans, dating from Federation, show a long history of inconsistency in direction and focus as one plan replaces another.

Queensland has traditionally suffered from a lack of public or private institutions able to develop sound strategies for the development of a productive modern economy. The State therefore has *not* achieved the level of **economic diversification** aspired to in a series of economic development and industry plans. As indicated previously, the structure of the State's economic base can be expected to change as the country focuses on ways to **become more self-sufficient**.

A re-examination of the focus and priorities for State industry development with a smarter approach is required to identify opportunities to move into **industry supply chain gaps** and **specified demand** for goods, products and services that will emerge from the crisis and which will offer firms a competitive advantage. Many of them are new industries that will emerge, develop and grow in the space between traditional sectors. Many will be based on the State government's renewable and hydrogen economy work. Known as **cross-industry hybrids** or **new colony industries**, they emerge to fill demand for products and services that result from new ideas, discoveries, and products and the personalisation of these. All crises and technology revolutions spawn these new types of industries, often initially as cottage industries, some of which evolve into small scale and larger industries.

4.4.1 Industrial Metabolism

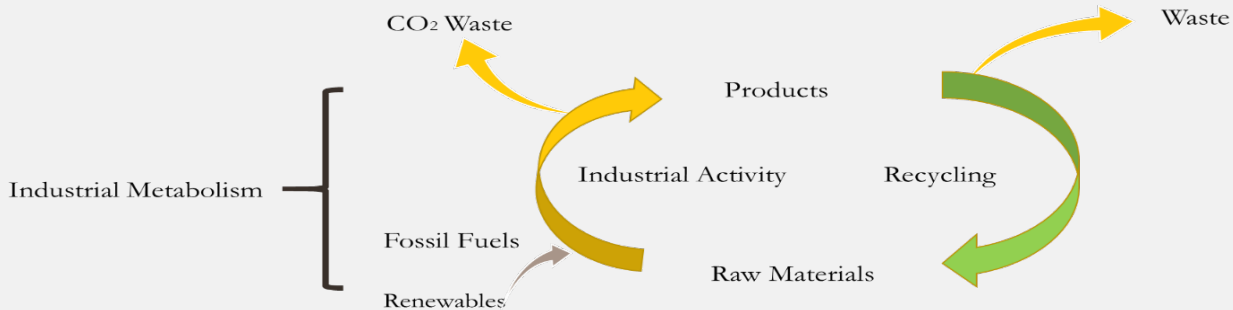
Smart industry policy involves a shift away from a sectorial to a multi-sectoral approach to support **value-adding processes** within industrial production systems. Many production processes have similar or common needs for access to technologies, skills, data, information and infrastructure to support plant and equipment operation, regardless of the nature of the industry.

Industrial metabolism is a paradigm used to describe the synergy involving the exchange and use of materials, technology, skills, etc., among different types of industry operations used for the production of wide range of goods and of services.

Industries may use one, or a combination, of the following processes: extraction, growing, harvesting, processing, transformation, construction, technology, waste and materials recovery and logistics. In some industries, there is significant overlap

and interconnection between these processes.

The COVID-19 crisis provides an opportunity for the State to rethink its approach to industry development based on **industrial metabolism** thinking, planning and production. Multi-sector industry metabolism analysis of production and supply chain systems contributes to a deeper understanding of technological, economic, and policy instruments needed to change and improve industry production performance. It also has the advantage of addressing social and environmental concerns associated with industry.



Source: Lorenzo et al 2016

Productivity, transaction costs and processes within production and supply chains will need to be improved if new industries and jobs are to be created in Queensland, especially in the regions. An industry metabolism policy is needed to be developed with a **multi-sector focus on improving industry processes and supply chain systems**. Such a policy would provide a clearer quantitative relationship between material flows, social dynamics, demands on the environment, and how to make production processes more sustainable.

The policy could include industrial metabolism indices which provide a **measure of industrial production and consumption using social and demographic variables**, such as population, gender, age, land-use, and economic activity. These indices will inform the monitoring and evaluation of industry policy by government, including economic incentives and social factors that influence the flow of physical resources and their impact on the natural environment.

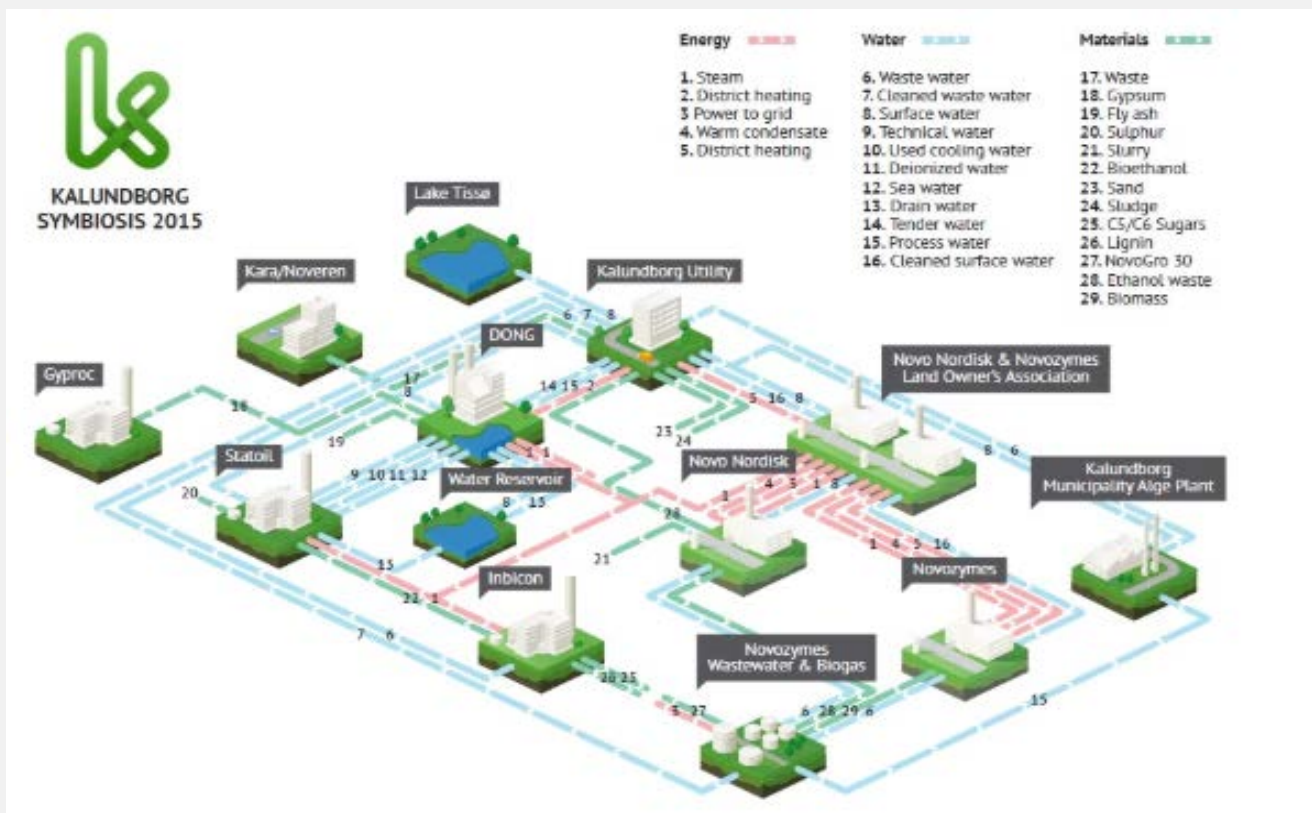


4.4.2 Waste Management

Significant opportunities exist to develop the **waste and recycling** industries in Queensland. Waste management and recycling provide opportunities for job creation, development of new industries, recovery and repurposing of valuable resources for industry and energy use, and reducing reliance on virgin/imported materials. There would also be significant environmental benefits including reductions in landfill. *See Section 8.2.*

The [Waste Management and Resource Recovery Strategy for Queensland](#) could be broadened to include sourcing of waste streams from outside Queensland to achieve the critical mass of material recovery to support supply chains into local manufacturing industries. The State needs to revisit its earlier investigation into applications of [industrial ecology](#) to create a large industrial symbiosis involved in integrated recycling and reprocessing industry within Queensland, based on current best-practice and experience in other parts of the world. Gladstone and Townsville offer opportunities to enhance industrial symbiosis.

[Kalundborg](#) in Denmark is a good examples of very successful industrial ecology centre, which could be easily replicated in Queensland.



Source: [Kalundborg Symbiosis](#)

Environmental services restoration could also become a significant growth industry and employment opportunity in local economies post COVID-19. Investment in **environmental services restoration** can create diverse and sustainable regional development jobs in the agriculture, manufacturing, construction, forestry, mining and marine industry sectors. Areas of the State need significant investment to restore landscapes and improve the quality and support of environmental services these provide. A programme to support the restoration and management of rural, coastal and mining landscapes would generate local employment in regions and help restore environmental capital in the State. *See Section 8.2.*

4.4.3 Embracing New Technologies: 3-D Printing and the AI Economy

Australia has been slow to take up **3-D printing**. It has the potential to **spatially diffuse** and **localise** production with obvious benefits for enhancing regional economic activity and jobs creation. *See Sections 4.4.3 and 7.4.2.*



3-D printing has already shown value in the current crisis in the production of ventilators and other medical equipment. It offers a way to produce a wide range of accessories and spare parts within the State at almost zero marginal costs.

Priority needs to be given to support and incentivise upscaling of 3-D printing in targeted spare parts industries associated with mining, agriculture, transport, infrastructure and utilities maintenance sectors.

Other opportunities for 3-D development have been identified in the State, but priority is needed to target import-substitution opportunities first, with new development focus in fields in pharmaceuticals, medical, specialised equipment, as these arise in the future. Regional industry policy could focus on 3-D printing initially for replacement spare parts that support the mining, agriculture, construction and medical machinery sectors. More advanced applications in pharmaceuticals, clothing and growing artisan industries will shorten regional supply chains and benefit regions with jobs. (See Section 2.11). Critical to the development of 3-D printing in Queensland is creation of more **local material supply chains**, and areas of consideration for **logistics and production management**.

3-D printing has been identified by the [World Economic Forum](#) as offering significant new job and micro business development opportunities as a re-emergence of advanced technology cottage-based industries.

The State could also move much more rapidly to develop hard and soft infrastructure to build a stronger and smarter economy, using **artificial intelligence** (AI). Application of AI will be crucial to support the rebound and development of the State's economy. Government is already devoting significant resources to this. However, realisation of benefits from developments in AI will require a focus on how the State can create advantage. In many cases that will involve collaboration with other States and countries. Government could consider city-to-city partnerships within the State, nationally and internationally, to develop AI applications. See Section 6.3.1.

4.4.4 Creative Industries

Creative industries comprise the arts, music, theatre, dance, screen production, film, software development, multi-media, and entertainment activities – including growing online events. The activities range from large organisations like Queensland Ballet to institutions such as galleries, museums and performing arts venues and thousands of small micro-enterprises in cities, towns and rural regions across the State. **Creative industries** are essential to sustain wealth and job creation in the State through the utilisation and commercialisation of their intellectual property. COVID-19 has stimulated the development and increased the recognition of online creative industries.

[Queensland's creative industries](#) generated output to the value of approximately \$3.4 billion in 2005, a figure that has grown substantially since then. They focus on local markets; they can develop into economic clusters, for example, the cultural precinct between Southbank and Kelvin Grove in Brisbane, within the CBD of the Gold Coast or Cairns in Far North Queensland with its proximity to Indigenous arts and culture. The Industry has established global recognition through initiatives such as the award winning cartoon series [Bluey](#) and Circa Contemporary Circus company. Queensland's Aboriginal and Torres Strait Islander arts and culture has a national and international reputation.

While many activities associated with creative industries are small scale, start-up, and part-time employers, they have the potential to help drive economic growth, expand choice and boost the creative arts, by [exporting their intellectual property](#) outside their own regions, either nationally or internationally. Educational institutions such as Queensland University of Technology (QUT) with its world first Creative Industries Faculty and the Queensland Academy of Creative Industries High school help position Queensland as a creative industries leader.

The economic and multiplier effects of creative industries suggest \$1 of production from creative industry activities results in [over \\$3 output to the Queensland economy](#). It is a fast way to create jobs for relatively low capital costs. Aside from economic value, Creative industries have social and spiritual value by leveraging cultural roots and assets that contribute to cultural development, improving meaning and well-being in society and communities.

Creative industries are expected to be one of the [fastest-growing employment sectors](#) of the economy in the future. There are significant opportunities for all levels of government to work with creative industries groups in the State to engage in partnerships and other collaborative efforts to create and build local, State and nation-wide infrastructure, networks and creative industry clusters to support this value-adding growth sector of the economy.



4.4.5 Vertical Farming

[Vertical farming](#) is the practice of growing crops, fish, and shellfish in vertically stacked layers in a controlled environment. It seeks to optimise plant growth, and soilless farming techniques such as hydroponics, aquaponics, and aeroponics. The advantages are food and seafood can be grown 24 hours a day, all year round, and in an environment relatively disease-free and protected from other hazards. Countries which rely heavily on the importation of food, such as [Singapore](#), Hong Kong and [UAE](#) have begun to use vertical farming as a way of growing fresh food within neighbourhoods close to the local market. Structures use for vertical farming systems include buildings, shipping containers, tunnels, and abandoned mine shafts. Old office buildings can be used for vertical farming.

Vertical farming is not economic in areas of the State that have good rainfall; however, there are [small farms](#) developing in the Southeast of the State. In drier areas, such as Mt Isa and small towns in the centre of the State, where water is scarce and temperatures are unsuitable for cropping, small scale vertical farming may offer possibilities for growing free food and fish. Vertical farming is sustainable, especially when combined with aquaculture, with water and nutrients being circulated within a controlled environment, drawing on solar panels to generate electricity for running plant and equipment and temperature control.

4.5 Technology and Innovation

Queensland's cities and regions are becoming smarter and more creative with the advent of digital technologies. However, they will need to become even smarter and more innovative to develop their respective economies and ensure inclusiveness, equity and well-being for all citizens.

Focus is needed to develop new and sustainable industries, and there is need for smartness and creativity to ensure **better-managed cities** and regions, the creation of new [4th Industrial Revolution industries](#), and more efficient production, logistics and distribution systems.

Becoming smarter requires the development of teaching and [learning communities](#). These will become increasingly dependent on ITC networks and technologies. The soft infrastructure of smarter learning will be developed around learning management systems, collaborative learning, multimedia content delivery systems (such as YouTube) and learning analytics and prediction systems which will be used to develop predictive game and scenario simulation, and anticipative learning. These systems are part of the vocabulary of the 4th Industrial Revolution that will be built into smart and creative learning programmes.

Greater use of ITC, robotics and nanotechnologies are inevitable, not just to improve economic productivity, but for improvements in public health and well-being, time management, creativity and innovation. However, learning communities are concerned not just with education, but with the development of **social capital, learning networks, virtual communities of interest and knowledge gathering systems**. Local governments can make a significant contribution to support these areas. However, the reskilling of planners and development managers is necessary, so they have greater awareness of the 4th Industrial Revolution, societal learning and creativity needs.

Application of [blockchain technology](#) can be expected to advance just as rapidly as other fields of information and data management. State and local governments and public sector organizations can leverage blockchain technology to move away from siloed and inefficient centralised systems.

Significant unlearning and changes of practices will be required as part of culture change within the public and private sectors. Current blockchain technology systems are costly; however, they are crucial to **records management and transparency and accountability**. As indicated above, blockchain networks will offer more secure, agile, and cost-effective structures to deliver and maintain trust in public services. A **whole -of-government approach** is required to the phased introduction, prioritisation, development and application of blockchain technology as part of the State's information strategy.

4.6 Integrated Logistics Systems

A significant impediment to trade and investment in cities and regions is the poor quality of intermodal [integrated logistics systems](#) and [common-user facilities](#) i.e. warehouse and distribution centres. The need for just-in-time delivery of materials or export orders is critical to successful business development in an increasingly globalised economy.



Logistics systems need to be integrated, not just regarding physical infrastructure, but timeliness, information and knowledge, quality and intelligence. Intelligent logistics systems, including **common-user systems** and shared services for freight and public/private transport will become an increasingly important mechanism for maximising the utility capacity of the infrastructure and logistics services needed to support the operation and management of local economies.

Planning of the infrastructure, services, and support systems for these needs to become an essential component of **land-use, economic and human resource development planning** to capture opportunities created by the 4th Industrial Revolution. *See Section 7.*

4.7 Summary

A concerted new strategy will be needed to:

- develop the solar, hydrogen and other clean, energy initiatives, new materials, health and smart transport infrastructure services sectors;
- embrace more widely existing technologies and to adopt emerging, new, and yet unknown technologies;
- enhance and build regional innovation systems and ecologies, entrepreneurship and new businesses;
- support **Citizen science and Traditional Knowledge** including better meta data gathering, integration and synthesizing of cross science data collection and information;
- incorporate policy and regulatory reforms to reduce business transaction costs, including drastically reducing energy costs and reviewing processes to effectively identify and streamline administration;
- facilitate the development of local, regional and national networks of industry clusters; and
- adopt cleaner production systems, industrial ecology and repurposing of used assets and products.



5 SMART INFRASTRUCTURE

5.1 An Overview

Infrastructure is crucial to underpin economic and social development and enhance community well-being and quality of life. It **encompasses hard, soft, and smart infrastructure**.

Infrastructure financing, provision, and management will be crucial elements of development strategies and plans for both the State and its diverse regions. It is important that infrastructure projects undertaken are explicitly linked to the infrastructure priority requirements identified in those plans. It is an unfortunate reality that public and public-private partnership major infrastructure projects in Australia typically are characterized by significant cost and time blowouts. Construction costs are too high on an international comparative basis. There is a need to reform and improve tendering processes and address inefficiencies/deficiencies in procurement, sub-contracting, industrial relations and the overall management and oversight of project delivery. There is also a backlog of current long-term infrastructure projects being undertaken in the State which need to be reviewed and revised to take account regulatory changes to environmental mitigation and other concerns. Smart integrated systems of infrastructure, finance and revision of the prioritisation of outstanding infrastructure projects will be required.

Smart infrastructure **elements** to be considered **include**:

- preparation of **lifecycle asset management plans**, incorporating programmes, priorities and funding arrangements to maintain, sustain and dispose of public utilities, infrastructure, and assets to optimise their capacity and use to support State and regional development;
- the development of local area energy, water, wastewater, and transport networks;
- investment in hard and soft infrastructure to strengthen connectivity and efficiency of intra and inter regional and city networks and systems;
- new modalities and instruments for funding Infrastructure;
- introducing intelligent transport and logistics systems to support seamless intermodal transfers;
- water infrastructure, including drought resistance;
- development of meta data infrastructure; and
- Value-added Engineering and Management processes.

5.2 Smart Infrastructure to Support Urban and Regional Development

Queensland developed a comprehensive [State Infrastructure Plan](#) in 2016, to guide infrastructure investment in the State. It identified a large backlog of infrastructure projects required to support State and regional development, investment, and job creation. In many cases, co-financing is required from the federal and local governments to implement these projects. Most local governments in the State have very limited resources to co-fund infrastructure.

The impact of the current crisis, given the changes that will occur in the global and State's economies, will require an immediate review of priorities set out in the Infrastructure Plan. Many projects listed in the Plan will remain after the current health crisis is over. The traditional definition of "infrastructure" in the Plan needs to embrace "social and environmental infrastructure". This will facilitate the urgent and necessary community, environmental and landscape restoration programmes required, particularly in the regional areas of the State. These infrastructure needs are addressed in other theme areas. *See Sections 8 and 9.*

The need to change the economic model for the development for the State and its regions, noted above, calls for a review of the Plan. Some large infrastructure projects associated with the Plan may not be supportable, given the changes expected in the **future of work** and demand for infrastructure. Private capital markets are moving away from funding or co-funding infrastructure projects where there are environmental and/or climate change concerns. **Green certification** of infrastructure public private sector projects is likely to be mandatory in future.

It is important for infrastructure programmes and projects to be prioritised to meet the strategic objectives and priorities that are identified in a revised State Infrastructure Plan and in the regional economic development strategies and plans.



5.3 Revise and Fast-track the State Infrastructure Plan

As indicated, the State currently has a **backlog of infrastructure projects** needed to support its development, investment and to create jobs. In many cases, **co-financing is required** by Federal and local governments. An immediate priority focus could be to identify ways to fast track programmes that will have benefit to the future economy and nature of work. A revision of priorities needs to be undertaken based on benefit costs related to employment and economic multipliers. Some larger and longer-term projects may need to be deferred or cancelled considering post covid-19 events.

Projects that enhance connectivity of infrastructure networks and logistics systems to improve the capacity and efficiency of supply chains, and production systems within the State need, for the reasons noted, to be given development priority. In revising the infrastructure programme, ways to support bundling and clusters of investment to achieve critical mass need to be investigated. Priority applied to regional corridor and cluster developments, including multi-sector co-investments in industry production, logistics and supply chains, could optimise results.

There are experienced people within this State that have extensive national and international knowledge on fast-track project delivery involving **disaster and financial crisis management**. The State can draw on this expertise to unlock and revise this backlog of infrastructure projects. The State will need to recruit highly experienced project managers to oversee the implementation of such projects. *See Section 6.3.*

5.3.1 Inland Rail

Plans are well advance in the planning and design of the [Inland Rail](#) between Brisbane and Melbourne. A review of the corridor shows that cities like Warwick and Dubbo are not directly connected to the route. This greatly reduces the opportunities to enhance connectivity and trade between all the larger cities on or near the route. [International research](#) shows secondary cities are disadvantaged by poor quality rail and roads connecting city centres, a core feature of the Chinese [Belt and Road initiative](#).

The [financial analysis](#) of the Inland Rail project shows it would not generate enough revenue to provide a return on its full construction cost. Reconsideration of the alignment of the proposed inland rail route to incorporate freight, passenger, and the co-location of multi-utilities (i.e. water, gas, optical fibre, and electricity (see discussion next section)) between major city centres along the route could improve the viability of the project.

The designation of the Inland Rail route as **an economic trade development corridor** with the establishment of an Economic Corridor Development Authority (IREDCa) to foster trade and investment within the corridor may encourage **second stage value added industries** to relocate to inland secondary cities and towns on the route. The establishment of an IREDCa, incorporating and representing the interests of three state and local governments, business, education and transport interests has the potential to provide a focus to drive to **create more new jobs and diversity the economic base** of regional inland areas.

These initiatives, particularly if accompanied by industry development tax incentives and the encouragement of inter-city trade partnerships between local governments and clusters of firms located along the route, offer a new way of thinking and ideas to add value to potentially Australia's largest infrastructure project. It is not too late to rethink how this important nation building project can be configured to leverage greater economic returns and bring new investment and jobs to inland areas of Australia.

5.3.2 Area Infrastructure Networks and Grids

The experience of Hurricanes Sandy and Katrina resulted in the rethinking about vulnerability of big systems infrastructure and the benefit of developing local area networks. Big systems Infrastructure is expensive to build, maintain, has long pay back periods and the utilization levels are often low. Given this, there has been a shift to develop regional and local area **infrastructure networks** and grids as infrastructure is extended into new development areas or needs replacing.

Large telecommunications systems such as the NBN and energy systems are being broken down into regional and [more localised networks](#) to prevent total systems failure or for security, in the case of broad band. There is need to consider the long-term planning of energy, water, sanitation, public transport, and logistics for utility agencies in the State to what is called [scale-free infrastructure networks](#) for distribution and supply of services, which operates like the internet. These network systems help improve the security and disruptions to large systems when failures or destructive hazards occur.

5.3.3 Very Fast Trains and Multi-Function Utilities Corridors

Improving **connectivity** between the nation's cities, towns and regions is crucial to the future development of urban and regional areas. In reviewing the priorities for State Infrastructure projects, consideration needs to be given to revisiting very fast train



(VFT) services in the mix and choice of intra and interstate transport services and facilities. Fast trains have been discussed for 30 years in Australia. They have played a crucial role in China's, Korea's and Japan's national and regional economic development. They significantly improve connectivity between cities leading to expansion in trade, business and tourist traffic flows.

Cost of construction and location have been the major reasons the very fast train proposals have not proceeded. The VFT project is conceptualised as a transport project. If the VFT were to be re-conceptualised as a **multi-function utility corridor** (MFUC) project, the benefits and quadruple bottom line returns would be much more significant.

A multi-services infrastructure utility corridor project would still require the dedication of a land corridor. This would also provide for the co-location of other utility services including: fibre optic cables, gas and petroleum pipelines, electricity, water, waste and liquid materials transfer, and [pneumatic tube transport](#). The later could provide for the rapid movement of documents, packages and medical products between Australia's east coast cities, based on the same principles as vacuum sewage systems.

A significant cost item of VFT projects is compulsory **land acquisition**. These costs can be significantly reduced by the construction of elevated box girders with an enclosed gantry to house other utility services. The advantage of building elevated structures is that air space rights are owned by government and minimal compensation is likely as most land use rights would not be affected. There are other advantages with the enclosed co-location of services with exposure of infrastructure to the elements, natural hazards, and shared cost for building and maintenance of the asset.

Environmental impacts are minimised as overland drainage channels, vegetation and wildlife corridors are not obstructed by earth works. Construction costs are higher, but modulated construction using 3-D box girder beams printing, built in multiple sections, would significantly reduce construction costs.

Dedicated very fast train corridors can be used to develop a network of MFUC corridors between the Australian cities to ensure security of supply chains, resource deployment and trade between the nation's cities. Thus, water shortages or a critical loss of water supply in one part of Queensland or NSW can be replenished in an emergency. A market system of **trading water** between corridor city hubs is possible. The concept of a national network MSIUC grid incorporating a multiplicity of utility services, built around the construction of VFT infrastructure, is a way of future proofing the State and regions against emergency events, while offering opportunities to develop increased trade between cities.

China has significantly advanced applications of 3-D-girder construction and large span structures using carbon fibre in building elevated infrastructure.



[China High Speed Trains on elevated infrastructure](#)

5.3.4 Improved Road Network System in South East Queensland

Most Australian cities are designed with a hierarchical radial road and rail network converging on the central business district. Only in the Central business district is the network laid out as a grid. Grid systems are a more efficient system of handling and dispersing large volumes of traffic. They also maximise route choice. The polycentric systems of cities which has developed in South East Queensland left many gaps in the links and connections to create a comprehensive integrated road and rail transport



system. The failure to increase the number of road bridge crossing across the Brisbane River has left the city with five main bridges and the Clem Jones tunnel carrying the bulk of the cities north south traffic crossing of the river. There is need for a wider debate and discussion on long term integrated transport policy and development in the State's cities, given the possible change in the future of work and the future introduction of autonomous and short hiring of vehicles to reduce car ownership rates.

5.3.5 Lifecycle Asset and Risk Management Plans

It is essential that local governments keep an inventory and maintain assets in good repair to support the delivery of high-quality urban services and economic development. [Asset management plans](#) are required to be prepared by local governments in the State; however, outside the large cities, many local governments face difficulties to prepare these. In many cases, the details of assets of smaller regional councils are poorly documented and the geo-coded location is uncertain. This makes it challenging to complete accurate information, values, and replacement cost schedules of publicly owned local government assets.

The practice of using **asset management plans** (which incorporate current depreciated value) is crucial to long term capital works and fiscal development planning. In New Zealand, infrastructure plans are prepared for **30 years**, incorporating long-term maintenance, operations, and **contingency costs**. The value of assets and depreciation are included in corporate balance sheets. In Queensland, some of the larger city councils do this, but asset management and capital work planning within local government in the State needs significant improvement. For smaller cities and regional councils, with limited resources and expertise, consideration can be given to **collaborating** to prepare and update asset management and capital works plans.

As a good practice State and local Government could conduct AS ISO 31000:2018 **risk assessments** of public infrastructure and built asset (including climate change risk – see Section 8.3), short- and long-term maintenance requirements, and insurance requirements for public assets. This is not required in Queensland but is in other countries. [New Zealand](#), has well-developed **asset risk management practices** which could be used as a model by local governments to manage critical infrastructure and assets exposure to risk hazards. Risk management assessment of public assets will become increasingly important as infrastructure ages, and the impacts of climate and environmental change become more apparent. Strengthening the **capacity to improve risk management** of assets and capital works planning is important to enhance the delivery and efficiency of local governments services within the State.

5.3.6 Seamless Inter-Modal Transfers and Logistics Systems

The cost of transport for goods and services in Queensland, are high, especially in regions, because of the size of the State. Inefficiency in the State's logistics systems is not confined to hard infrastructure; soft infrastructure involving the integration of freight and other transfer data systems and protocols is an issue. Poor siting, co-location and integration of intermodal transport-transfer facilities added to transfer costs, although the [Brisbane Trade Coast](#) is an exemplar of good practice.

The effect of poor physical and seamless transfer systems is that **regional transaction costs to business**, and communities is high. The cost of doing business could be improved significantly by improvement to transport logistics and transfer point systems for a broad range of goods and services. Efforts could be made to improve the integration of road and rail, ride sharing capacity and future drone services delivery. [Co loading and Integration of freight load sharing](#) are systems that could significantly improve the level of service in freight delivery and receiving in regional centres and cities.

5.3.7 Flattening the Curve on Traffic Congestion

Traffic congestion in South East Queensland is increasing. The dual peak traffic flows for the day have resulted in high levels of investment to widen roads and intersections to accommodate increased levels of traffic. Australian cities are over-roaded, and rank among the **worst in the world for vehicle emission**. This is a problem created by land use planning which has historically involved low density detached housing development and segregation of land uses according to activities. The use of the motor car will remain as the principal means of transport, as maintaining a viable and convenient public transport is expensive because of the low volume use, radial centric nature of the network, and low and inconvenient levels of service in outer urban areas.

Funds for large road and public transport infrastructure projects are expected to become more difficult to secure in the post COVID-19 era as other demands are made on limited public funds. Public Private partnerships can be used to fund critical elements and links in the road network. The problems of congestion will not be solved by building more roads, but through initiatives designed to flatten the **peak demand level** on the use of urban regional arterial roads. These might include **congestion and road pricing**; greater use of co-sharing, and changes to stagger and stretch work hours.



To some extent the COVID 19 has flattened road peak usage with many employees and managers working from home. Approximately 40% of the population have jobs than can be done from home, but once the COVID crisis is over, home-base employment levels are unlikely to rise above 20%. Co-sharing involving use of intelligent autonomous vehicles will add flexibility and choice in travel arrangement for business, education, and leisure. This is some way off. Online and flattening the hours of education at university, TAFE and senior high school are measures that can be phased in to reduce the curve on traffic. **Franchising and possibly subsidizing localised area transport networks** as part of the public transport system, with links to public transport hubs and nodes are ways of taking pressure off local road networks and creating local jobs. Consideration might also be given to creation of **longer cycle routes** in the South East of the State using old unused railway line reserves.

5.3.8 Water infrastructure

Queensland regularly suffers from severe droughts and floods, and it is essential there are improvements in the provision and management of water, not only to 'drought proof' the State but also to facilitate economic development and meet the varying needs of a growing population across the regions.

Current and potential future demand for water needs to meet demand in both an urban and a rural context, and for multiple uses – agricultural, mining, industrial and commercial, and domestic. Management of water does not stop at the border and needs to be integrated with the Murray–Darling Basin Authority Water Management Plan.

The issues are complex and wide ranging. There is a long history of attempts, mostly failed, to develop far-sighted water infrastructure initiatives. In 1938 the Bradfield Scheme proposed Australian water diversion scheme as an inland irrigation project designed to irrigate and drought-proof much of the western Queensland interior, as well as large areas of South Australia. That Scheme was abandoned, but periodically moves have been made to resurrect it, including recent efforts.

In 2013 a report, *Queensland's Water Sector: A 30-Year Strategy Discussion Paper: Shaping Our Water Future*, set a vision to “create a Queensland water sector with the capability to deliver integrated catchment-based recreation, water supply, sanitation, irrigation and environmental services at the lowest cost. Achieving that vision will involve **challenging current arrangements**, and include efforts to:

- create stand-alone, financially self-sustaining, scalable water supply and environmental service entities based on catchments;
- establish simple regulatory frameworks that **incentivise innovation** to reduce cost pressures and enhance liveability and the environment;
- recognise the role of catchments, urban and rural run-off and sewage treatment in the overall health of water supplies and waterways;
- empower consumers to encourage smarter use of water and signal fair pricing;
- establish a recognised and respected industry underpinned by a nationally based skills framework, with commonly defined roles and career opportunities;
- create greater opportunity for private sector involvement and investment;
- foster more sophisticated integration of water and sewerage services planning in regional planning;
- introduce long-term urban water planning that takes account of the variable nature of our climate and smooths the price path for consumers; and
- provide greater opportunity for rural water users to maximise the potential of their entitlements and irrigation infrastructure.

The North Queensland Water Infrastructure Authority (NQWIA), established March 2019 provides the strategic planning and coordination needed to deliver water security and boost agriculture throughout the region. The focus of policy initiatives is predominantly on schemes to support agriculture, with some schemes supporting development of new 'food bowls' for export. Future initiatives - with proposed federal funding - include:

- \$54 million for the 'Big Rocks' Weir/Hells Gates Dam;
- \$182 million for the Hughenden Irrigation Scheme; and
- \$176 million for Rookwood Weir.

The needs of the **South East Queensland metropolis** require increased specific attention. In that context, there is an opportunity for innovation to integrate water supply and water waste management through **recycling** and the use of **closed systems** in small and large scale greenfield urban developments, embracing new approaches in environmental engineering science and water sensitive urban design to enhance long-term ecological sustainability.

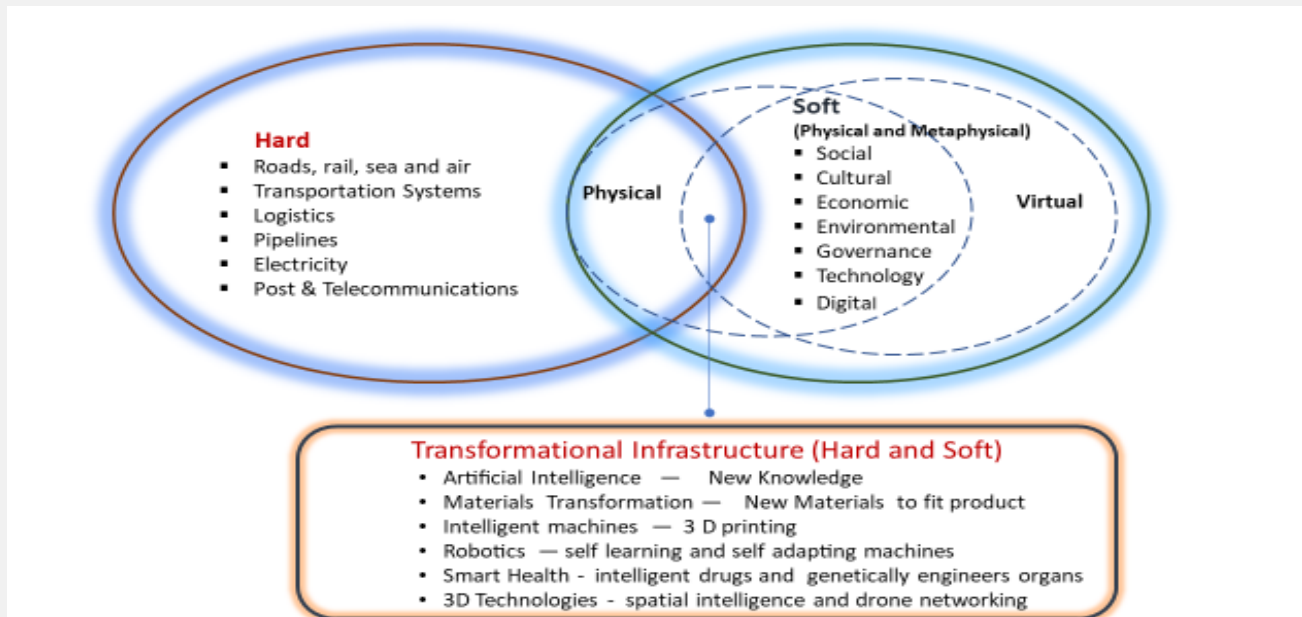
5.4 Smart Infrastructure

Infrastructure has traditionally been divided into two types or categories: Hard and Soft. **Hard infrastructure** is physical things, roads, airports, buildings, structures (physical assets/ stocks) that are essential to the economy, basic services and quality of life. **Soft Infrastructure** is institutions, social capital and basic technologies (flows) which are essential to run the economy and deliver services and quality of life. The availability, quantity, quality, accessibility, efficiency and effectiveness of hard and soft infrastructure has a significant impact on the economy, community services, quality of life, and the environment.

[Smart infrastructure](#) encompasses both hard and soft infrastructure, but focuses on secure, low-cost inter-connectedness and facilitation of collaborative, high value-add work – both online and in person. Cities using smart infrastructure are informationally and physically dense - compared to current densities - highly connected by learning/ICT and transport infrastructure, have high physical amenity in terms of attractive places to meet and ready access to nature and leisure. South Korea's Smart/ Ubiquitous Cities are good models. Queensland will need to achieve these goals in its own way.

5.4.1 Transformational Infrastructure

The advancement of knowledge, materials, and technology has created a new field of infrastructure: [transformational infrastructure](#). It is a hybrid type of infrastructure merging hard and soft infrastructure to **value add** and to **enhance the development and diversity of economies**, improve wellbeing and restore the environment. Much of this infrastructure is **virtual**: data in storage, which when merged, **synthesised and transposed** can be combined with existing hard and soft infrastructure to produce new forms of infrastructure to be used to benefit business, government, institutions and civil society. The purpose of transformational infrastructure is to make **a significant, observable impacts on the economic performance** of a whole area by taking information and data, and elements of soft and hard infrastructure to create completely new types of products and services to benefit many people.



Transformational infrastructure has many forms — machinery to effect transfers or transactions of intangible capital, ideas, information, data, and knowledge exchanges between governments, business, and individuals; 3-D printing which takes ideas of artisans to produce designer products for specialised needs of clients, carbon fibre built infrastructure designed to fit difficult site conditions or repairs to [existing infrastructure](#), and [liquid glass](#) to produce advanced nano-coatings.

Advancing the development of transformational infrastructure as part of a strategy to introduce and build smart Infrastructure in the State and regions needs to be considered. The analysis of the State's supply chains (*See Section 2.9.*) would help identify niche opportunities for investment in transformational infrastructure which could help create new industries and jobs — especially in the regions. However, there are unique opportunities for the State to develop transformational infrastructure to support advanced hybrid industries, such as carbon fibre, hydrogen, precious metals, advanced materials, water, and energy applications — including local energy networks. Many of these depend upon resources and materials which the State has in abundance.

5.4.2 Big Data and Open Access Information Infrastructure

We are in the era of **Big Data** and **Big Data Analytics** being enabled through rapid innovation and advances in ICT infrastructure. Massive volumes of data are being generated, particularly by IT multinationals, but also by government agencies. Applications and use of Big Data are diffusing rapidly, which is seen, for example, in the **Smart Cities initiatives** that are proliferating around the world. *See Section 3.4.*

Queensland could develop a Big Data Strategy that would benefit not only scientific and other research, but also applications in business and governments, especially to better manage infrastructure performance and services delivery.

Opening **access** to Big Data tends to be restricted or slowed by both privacy concerns and by inertia (and not always necessary proprietary protection of data by public agencies). That can dampen the potential to use Big Data and Big Data Analytics to facilitate R&D and innovation. *See 4.19.*

There are many examples of government sponsored initiatives that have developed platforms to facilitate access to massive integrated databases drawn from diverse sources and with built-in analytics capabilities that are open sourced. The **Australian Urban Research Infrastructure Network (AURIN)**, funded by the Australian Government's NCRIS initiative, is an example.

As part of its Science and technology innovation strategy, the Queensland government could take initiatives to facilitate Big Data and Big Data Analytics capabilities in the State, opening up access to government data bases using **secured software to protect privacy**. Opening up access to Big Data generated by big business also needs to be pursued, again ensuring security protection of business operational information. Such initiatives would benefit research, business, and government.

5.4.3 Low carbon and resilient infrastructure

Low carbon and resilient infrastructure combined with high value-add, high amenity and resilient economic development systems will underpin the economy in the future. Capital investment in infrastructure, industry and community services assets needs to be integrated and will increasingly be aligned to reflect changing attitudes towards climate change and sustainability. Already some investors are refusing to fund environmentally unsustainable projects. This integration will enable access to a larger pool of international and national investment financing.

5.4.4 Business Infrastructure

Business Infrastructure means the basic facilities, structures and services business, governments, institutions, and other commercial and service delivery organizations need to operate. Business Infrastructure includes basic communications and network systems, computing, software systems, facilities such as data storage capability, vehicles fleets, and disaster recovery sites, facilities, and systems. Critical to the development of **smart business infrastructure** is the building of common-user open source data banks, where data (subject to commercial, confidentiality and security clearance) can be released into the public domain. Once available, it can be used to create new products and services, and transformational infrastructure which value-adds to the economy, improves public and community well-being and environmental movements.

Initiatives can be developed in Queensland to improve the utilisation and efficiency of business infrastructure to:

- pool machinery and equipment surplus to production (this also applies to the public sector and institutions);
- integrate shared freight services (utilising free and backload capacity within the State freight movement system); and
- build stronger virtual communities of interest within professions, trades and other disciplines within and between regions to develop virtual social capital networks to:
 - utilise networks to solve business and institutions problems,
 - spawn creative ideas and innovations; and
 - build critical mass of skills using firm assets, capital and skills to compete collaboratively for large national and international development projects.



Windows that can collect #solar energy: pinterest.com



5.4.5 Innovative Delivery Programmes

Given the above model, mechanisms are needed to fund the transition to smart infrastructure. In China it is common for provinces to establish **debt/ equity funds** to catalyse such transitions – the [Shandong Green Development Fund](#) is an example. There are several such funds based in London. Crucially they finance infrastructure *and* companies transitioning to a lower-carbon, more resilient footing. Such funds have the flexibility to include a range of private and institutional financing sources – acknowledging and structuring for different risk-return profiles of investors.

However, a catalyst financing mechanism is insufficient if there are no viable projects that embody the ‘transformational’ elements of a smart city. The development of pipelines of such projects needs area-based entities focused on facilitating local endogenous/ resilient economic development and on implementing the infrastructure to support such development in the context of State-level structural plans. These entities, in turn, will need a mandate for long-term integrated economic and physical planning, and the capacity to develop, bid and procure **long-term contracts** to support infrastructure development.

The State needs to achieve greater **utilisation and common use** of infrastructure and public assets. Programmes to support more clustered, specialisation of regional infrastructure and the development of **economic corridors** are necessary to attract economic development activities in regions. Industry clustering along development corridors, comprising a system of connected cities, could be created along the State’s main transport corridors and beyond its borders into NSW along the Pacific, New England and Newell highways. The alignment of the inland rail could better connect cities in NSW and Victoria to cities in Queensland. *See Section 5.3.1.*

The introduction of regional bundling and cluster programmes of infrastructure investment is required to create critical mass of assets and services, and enhance competitiveness and productivity gains. Co-location and undergrounding of infrastructure services in urban areas needs to be mandatory and included in State planning policy, as it is in many OECD countries, to protect services and reduce long term maintenance costs.

5.4.6 Infrastructure Finance

Most urban infrastructure and other transformational investments will be repaid through user charges and/or taxes. The question is what combination of user charges and taxes are most efficient. **Development levies**, to capture value from new infrastructure are politically palatable. However, the connection between the levies and land values is unclear and indirect. A more equitable method may be to use **tax increment financing** (a form of land value capture) to fund new infrastructure, based on revenue from land tax, augmented based on the benefits of better infrastructure provision. Bonds can be issued to pay for infrastructure.

Smart infrastructure requires **long term financing** to match long term commitments. Options are available – for example, earmarking some proportion of **superannuation funds** for infrastructure financing, as happens in Singapore; and in Australia asset recycling processes have integrated such institutional funds. This enables the government to exit from an investment at a time when the private sector can better understand and value the project risks. After such an exit, the funds raised can be redeployed to other catalytic investments.

New models for public-private partnership for infrastructure financing, delivery and management need to be considered. The timing to issue **municipal bonds** is important, with many municipal bonds currently being sold off in the US market as part of the current volatile market situation. Amalgamating projects from several local governments has been effective in Australia. Added security for municipal bond issues can be gained by having the **bond guaranteed** by the Federal or State Government. **Structured bonds**, secured by income streams, can also be considered.

5.4.7 Value Engineering and Management

Value-added Engineering and Management (VE/VM) involves adopting practices and technologies to enhance and customise a standard solution so that infrastructure and other constructed assets work better; offers costs, reliability and performance benefits; or uniquely solves a long-standing challenge. VE/VM:

- is a systematic and organised approach to provide the **necessary functions** in a project at the lowest cost to value ratio;
- promotes the **substitution of resources** and methods that improve cost to value ratios alternatives, without sacrificing desired outcomes and in fact, aims to improve the outcomes; and



- is focused solely on the cost to **value ratio functions** of various project components (quadruple-bottom line) rather than just cost.
- The VE/VM process is one that has been used internationally and in Australia for more than 70 years on major projects both by government and industry. It is applied widely in the construction of State infrastructure projects; however, there is need to **widen the VE process** to value-add to infrastructure projects.

Major infrastructure projects in the State tend to be compartmented into road, water, or facilities projects. Many are stand-alone projects and perform well to improve systems flows. However, there is a need to [extend the model of value engineering](#) into **value chains** by considering the manufacturing processes as well as supply chain networks in the design of infrastructure projects. This could have significant benefits to reduce drivers for costs and add value to manufacturing firms, government, and business services delivery.

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6 SKILLING QUEENSLANDERS FOR FUTURE WORK

6.1 An Overview

The COVID-19 crisis will change the way we work, jobs and the skills needed to do them. The Committee for Economic Development of Australia (CEDA) found that “almost five million Australian jobs – around 40 per cent of the workforce – face the high probability of being replaced by computers in the next 10 to 15 years. Another report notes a completely new skills sets will be required for work in a **4th Industrial Revolution Economy**. A major challenge will be how equipped our education and training institutions in Queensland will be to generate the human capital knowledge and skills that will be needed for a fourth Industrial revolution economy and a dramatically changed post COVID-19 world?

Current institutional arrangements and education and training programmes for producing human capital will be somewhat ineffective and inappropriate for providing the skill sets of the changed economy and the nature of jobs that will occur.

Skills will be needed to:

1. build on existing **resource endowed strengths** and comparative and competitive advantage, and to develop collaborative advantages;
2. create new strengths to diversify the **structural composition** of the economy to generate sustainable wealth creation and grow employment – especially development of para-professional and technical skilled workforce and higher wage jobs – underpinned by the appropriate mix of human capital; and
3. develop Community Colleges, On-line and **Communities of Practice** learning.

A **skills and competency audit** of the under- and un-employed, together with surveys of what skill base businesses need, will be important to reshape the State’s education strategy for a new, more diversified economy with a focus on competitive and collaborative advantage, value-adding and wealth generation. That needs to be undertaken to relate explicitly to, and enhance the implementation of, the State economic development strategy and objectives and needs of the regions and private sector partners.

Substantial reform of the education and training system will be required, which will be a major challenge for schools, TAFE colleges and universities to step-up to the job. Areas of focus include human capital to meet STEM related future skills requirements, and preparation of online core instruction material involving online learning for remote communities, indigenous people, and foreign languages for migrants. There are opportunities for secondary and higher education institutions to deliver online services to the Asian and Pacific regions taking advantage of diaspora language and education skills.

6.2 Future Work Skills

Many skills now used in the workplace, home and elsewhere for employment, and the use of technology, equipment and communications in daily life will change. Significant resetting and adjustments of labour markets responding to future work skills can be expected. Many new skills will need to be acquired through a range of learning processes, but it is impossible to predict what many of these might be. In setting strategies and policies for the future of work and skills development, at every level of deployment, the following steps will be necessary:

- prioritise re-deployment and re-employment of skills within the labour force;
- identify the jobs of tomorrow – at least a 3-year horizon;
- double down on upskilling and reskilling for redeployment and repurposing;
- revalue essential work and improve the quality of jobs; and
- Unlearn skills and practices which will become redundant in future work.

The World Economic Forum notes “urgent action is needed to protect jobs, maintain links between employers and employees, keep large and small employers afloat, and provide income support and other safety nets directly to workers and households”



Education, training, and pedagogy can be expected to undergo rapid change, as learning moves to more on-line applications of formal and tacit learning. While on-line teaching can be expected to grow, **place-based instructional instruction will remain core to teaching** and learning — especially in the sciences, arts, and practical skills-based jobs.

Course content to support skills entry to work and career development will be increasingly driven by industry work-place demand, with supply-side education and training courses adapted to rapidly meet upgrading and improvement of skills and qualifications. Employees, management, self-employed and volunteer workers will need to commit more time to self-development of skills to remain competent and to secure promotion in the workplace.

Equitable arrangements to meet the costs and incidentals of skills development will be necessary to safeguard disadvantaged groups so they are not left behind. The range of skills needed in the workplace will also change from **formal hard qualifications** (i.e. degrees, certificates, partnerships and diplomas) to **soft skills**. Increasingly, bespoke work-based learning offerings through modules will offer greater flexibility to the learner and industry.



6.2.1 Enabling Skills

The State's workforce is made up of trained professions, technicians, trades, and other categories of skilled, semi-skilled and unskilled workers. Each category has skills sets ranging from basic to advanced specializations, depending on the nature of work performed. Skills set range and types of work have changed with multi-tasking and increasing use of technology, changing the nature of work. Rapid changes in technology, robotics, machines learning, and smart systems driven by artificial intelligence (AI), will create a demand for new cross-discipline skills, to enable individuals and teams to perform their job. These are 'enabling skills'.

Enabling skills differ from discipline or artisan skills. They are combinations of soft skills needed in the workplace to operate using new technologies, equipment, and infrastructure; and to communicate, negotiate, and manage people in business, governments, institutions, and civil society. The need for continuous development of core skills and competencies is important; but the modality of learning new skills will change. Tacit or implicit learning and mentoring is expected to play an important role in the development of enabling skills.

The types of new skill sets needed to run the economy post COVID-19 include:

- complex problem solving;
- critical thinking;
- creativity;
- people management;
- coordinating with others;
- emotional intelligence;
- judgment and decision making;
- service orientation;
- negotiation; and
- cognitive flexibility.

It is important to recognise that the skill itself may vary from industry to industry, just as the nature of change will depend on the industry. Many services industries and public organisations will realise that operating more virtually and having staff operating from home, will significantly reduce transaction costs and the demand for office space and personal services.

Cafés and leisure facilities will increasingly become the new business social space, addressing the human need for physical interaction and socialisation.

Skills and competencies in critical and systems thinking, creative solutions, personalised problem-solving, design thinking, communications, learning-by-doing will become part of the skills sets needed to get a job or establish and run a small business. Routine or repetitive processing jobs will be replaced partially by AI, robotics, and 3-D printing technologies.



6.2.2 Skills for Managing Change

The post COVID-19 era will necessitate skills across all levels of employment to manage change in the workplace. **Change management** is a well-accepted practice used in institutional and business reform. Change management has tended to be a top down driven process; however, in conditions of rapid change and uncertainty, bottom up imitating and responding to change is necessary. In these conditions, there is a need for more holistic approaches to change management in business, institutions, government and civil society organisations which is **less driven by the hierarchy of command**, but more focused on how teams can work collaborative to change and improve systems and process to improve outcomes and conditions of work.

In adapting to change in the strategic and business planning process, management in business and government will need to give attention to reform programmes in communication, leadership, vision, strategic analysis, and planning, knowing change management principles and best practices, other soft skills, and digital literacy. These skills need to be learned and embedded as **core values in the training of the workforce**, so that employees and managers are better equipped to manage change. Unless the State's workforce appreciates and accepts the need for change (where needed), resistance will slow reform processes and undermine productivity and the well-being of workers in the State and regions.

6.2.3 Upskilling and Re-skilling

There is an urgent need for up-skilling Queenslanders for a **future of work revolution** which the current crisis has precipitated. This will represent a significant challenge for education and training institutions which will require dramatic rethinking and reorientation of their current programmes and priorities.

The changes in governance, production, education, and learning, health, and logistics that this crisis has brought on, will require a massive re-skilling of the State's workforce. The [Skilling Queenslanders for Work](#) strategy will require review as the economy is re-oriented with a stronger focus on endogenous growth. **Substantial re-skilling of the workforce** is necessary as the economy moves to greater applications of technology and personalization of services in the home and workplace. Learning and education modalities, and content, will need to be adapted to the changing structure and nature of work at the State and regional level.

A significant shift in education and employment from higher level professional jobs in the design, legal, health, and education professions to para-professional, technical, and services will occur. **STEM based and enabled knowledge** and skills will be particularly needed.

The State needs to urgently develop an agility to re-skill people made redundant, build capacity, and create the resources needed to have a smarter and more adaptable workforce. There will be a need to change thinking and unlearn many skills, behaviours, and practices to equip the government to rebuild State and regional economies.

6.3 State Skills Audit of Unemployed

Unemployment in the State is expected to remain high after social measures to contain the virus are lifted. Identifying opportunities for employment could be enhanced by developing a [skills audit](#). Government could consider how it can work with Centrelink to develop an audit of skills and competencies of people who have been made redundant because of the crisis. There are many working in the hospitality industry for example, that as the current pandemic has demonstrated, have skills and training that could be applied to different areas, including new economy jobs, with supplementary training and workplace experience.

To prepare the state and regions for significant change in in the nature of work, there is a need to identify the basic skills and competencies required for jobs created in the para-professional, technical and services industries. There is a surplus of graduates and postgraduates, whose qualifications are underutilised in the job market. This results in significant under-employment and under-utilisation of qualifications. There are, however, skills shortages in the para-professional, technical and service industry sectors, **particularly STEM knowledge and skills**. The future economy in Queensland will require more of these para skill sets, particularly at a regional level.

There is a need to identify what latent skills and resources are being underutilised because of under- and unemployment, and to develop re-training and education strategies to reposition qualified people in the new economy in Queensland. The uptake of online training courses during the lockdown period shows how incentivised workers are to re-skill.

An inventory generated by a skills audit would help government formulate economic and training policies to develop the skills and competencies necessary to meet the demand for new economy jobs that will emerge once the nation moves past the current health crisis.



A **labour force strategy** for the future development of the State and its regions will need to be developed and implemented, reflecting the strategies and priority needs of the State development plan and the economic development strategies and plans of regions.

6.4 Skills Development Aligned to the Needs of Local Economies

The Government needs to be prepared for significant **structural changes** in demand within the education sector, particularly within the vocational college system. As indicated, more para-technical/ management/ service skills will be needed – particularly at a regional and local economy level. This will lead to a need for **community colleges**. The need for on-going professional and technical up-skilling will also rise, with greater flexibility and choice in modes of learning. Not every course and not every student will seek to use on-line learning as a way of improving their qualifications and skills. However, the mix-and-match of teaching and learning methods, and the infrastructure needed to support these, needs to be investigated to develop a skill strategy for the State to rebuild a more **dynamic workforce** and robust economy.

6.5 Building New Hybrid Communities of Interest for Upskilling

Communities of interest are groups of people who share a common interest, association or passion in activities and can cover a wide range of professional, social or personal needs. Communities of interest are associated with professional, industry, union, religious beliefs and cultural groups that share ideas, information, endeavours, beliefs and aspirations. Participation in a community of interest can be formal, or informal, compelling and entertaining. A community occurs where people return frequently and remain for extended periods. They are not easily defined by a geographical area, but large communities of interest may have branches and chapters on geographic areas. While some communities of interests are in decline, social media and the internet has created new opportunities for their revitalising, and the development of new communities.

Continued support for the **development of communities of interest** is important to create social capital and knowledge networks. To stimulate creative and innovative thinking and creativity will be important to support new industries and job creation. The creation of **hybrid communities** will be important to develop paraprofessional, technical and scientific skills sets needed to address many systems problems – especially the integration of systems across disciplines and trades. Creating new chapters of interest within professions, trades and labour markets can bridge communities of interest and is important to upskill the workforce to identify solutions to technological and other challenges and respond to changes that the State and regions can expect over the coming decades.

6.6 Switch to Online Learning

Online learning is being used more progressively by Australian universities. The closure of schools during this pandemic has expedited the rapid migration to online learning in primary and tertiary education by several years. While there will be a return to classroom learning, this will not be the same. Online learning could move to a model where students take some **core subject lessons** delivered by a pool of talented State or national instructors (i.e. Eddie Wu in mathematics) into multiple schools, universities, and TAFE colleges, with teachers playing a **more direct role in face to face detailed tuition** and laboratory instruction for science, engineering and other disciplines. Student to teacher ratio is not expected to change significantly, but the pedagogy and modality of learning and instruction will. The State needs to plan for one of the greatest transformations in teaching and learning since universal education was introduced at Federation.

6.6.1 Delivery of Core Subject Material in Indigenous and Foreign Language Online

Online learning will create opportunities to reduce transaction costs of formal learning within the primary, secondary, and tertiary education system and to provide opportunities for specialist teaching. It is likely that many core subjects will be taken via online learning, with tuition and other support for education occurring within the classroom. It will also change the infrastructure needs of education facilities and the level of technical support needed to maintain the service. Online learning provides a unique opportunity for the State to introduce **on-line class teaching in local and foreign languages** to indigenous and migrants whose first language is not English.

6.6.2 Engage Diaspora to Develop an Export Market in Online Teaching

Given Australia's advantage in remote education, and the significant number of migrants living in the State with high level teaching skills and experience (many of whom have very limited opportunities to use these skills in an Australian class room), the State's



Education sector could collaborate to utilise this pool of diaspora talent to engage in the export of education services on-line. Significant opportunities will arise to deliver on-line education and learning programmes and services into Asian cities and regions, where the need for teachers, especially in remote regions, is great. The State's universities, TAFE and private education providers could do likewise. The development of on-line education, learning and training is a substitution opportunity which can be used to offset the reliance on foreign students to maintain the State's higher education system.

6.7 Community Colleges

A focus is needed on the opportunities to expand [community colleges](#) to develop skills and training more aligned to local economic development needs. The **University of Tasmania** has created such an intermediate system with support of the Tasmanian government. Community colleges are designed to align education, training and learning between tertiary and secondary education with skills needed in regional and local economic development. There are many good models developed in the USA designed to re-skill regions where high employment losses have occurred. A **technical working group** could be established to advise the State Government on how best to utilise retrenched and latent human capital and support the development of a post-COVID-19 economy.



7 PLANNING, URBAN DESIGN, HOUSING AND LAND DEVELOPMENT

7.1 An Overview

Urban and regional planning needs to play a key, positive and facilitative role in the State's development underpinned by **integrated strategic planning and budgeting**. The changes that COVID -19 will bring to the State's planning and development system and processes will be significant. Institutional reform through a root-and-branch review of the current planning system will be needed to ensure more systems and a self-organizing approach to planning are implemented, mirroring changes in technology. This will require:

- reviews and changes to many of the State's regional and local development plans;
- increased collaboration with the private sector;
- adoption of merit, performance, and evidence-based planning;
- incorporation of an adaptive management approach to planning and urban design;
- using the power of the planning system to facilitate good outcomes and not rely on the negative "control" functions, and
- incorporate risk assessment and management in all planning processes.

Institutional reform could include a review of the current regime of taxes, charges and levies on development which substantially increase transaction costs that help make housing less affordable, with possible replacement by a universal land tax to fund and maintain urban infrastructure.

Housing market reform and innovation in the financing, provision and management of social housing, is needed to improve housing affordability and an increased emphasis on the benefits of "build-to-rent" affordable housing. This will require a change in the **land development model**, including;

- increased collaboration with the private sector; and
- consideration of new approaches such as (accumulation of inner-city developed land, packaging, and tendering it for redevelopment).

7.2 Planning

There are many stakeholders whose involvement, decisions, and choices shape the form of the nation's urban and regional areas. The planning and development of cities has nearly always involved controversy and the contesting of ideas about design, scale, and appropriate responses to the introduction of new technologies and economic drivers.

The political and economic process continues to shape the planning process and subsequently, the form of towns and cities. Planning is also being shaped, increasingly, by special interest groups and social media.

Planning plays a vital role in the development and function of modern societies, providing direction for change and sequencing of development. Effective land-use planning predetermines the location, types and timing of development and regulation of activities. It is crucial to the operation of efficient property markets.

In this context, planning systems in Queensland have considerable deficiencies that can add unnecessary costs to businesses and uncertainty to the transparency and safeguards of the development approval process. There is need for institutional reform to address these and other issues, including aligning environmental planning with statutory planning, education, health, economic and transportation and the planning for peri-urban areas.

7.2.1 Regional and Local Plans

The fundamentals of the current Queensland planning system will not necessarily be appropriate for the future. **Current regional plans and local government planning schemes will need to be revised** to reflect changed underpinning **assumptions, projections, and aspirations** held before the COVID-19 crisis struck. Economic and Community Development Strategies,



proposed in this report to activate the recovery and resilience of regional and local areas, could help inform and guide a review of existing and new regional plans and local government planning schemes.

Regional and local plans need to be more aligned to the future of work and leisure, be responsive to other civil society needs and provide stronger institutional links between plans and infrastructure commitments. This requires a more dynamic, responsive and futurist approach to planning, smarter planning systems and the depoliticization of the planning policy, development control and approval processes. Planning frameworks and institutional cultures need to explicitly recognise the links between different types of planning documents.

In the short-term, considerable benefits could be gained by completing **web-based e-Planning systems** to access property information, planning documents and application processing for all local government areas, and making available high-quality systems for e-meetings with government officers.

Collaborative governance approaches could be used more widely in urban and regional planning as was done successfully in Queensland in the 1990s with the SEQ 2001 Project. *See Section 3.3.* The community and the development industry also would benefit from working collaboratively with government planners to contribute to the planning and improvement of projects better to meet State and local government planning and community objectives.

Enhanced collaboration between government, the development industry, civil society, interest groups, including Indigenous and marginalised communities, will result in a more efficient, inclusive, and balanced planning and development process.

7.2.2 Mixed Use Planning Provisions

The traditional separation of land uses still applied in planning was appropriate for the old 'industrial economy' but is not well suited to the 'post-industrial service economy' where home-based working is likely to increase significantly. The COVID-19 crisis has demonstrated that more employment in residential areas will generate less peak period traffic; enable more diverse and adaptable lifestyles; and reduce the need for costly road and public transport infrastructure.

Changes are needed in the planning system to respond to the post-COVID-19 economy to permit low impact mixed business activities that attract few clients to operate from residences and in residential areas. This call to relax the 'home based business' provisions is to also permit small businesses - not operated by residents - to operate from a residence in residential areas.

Encouraging small low intensity **residential warehousing** with display show rooms could be encouraged, as permitted in Gold coast, to add to the employment mix in more densely development residential areas. The permission of small shop **and office front housing** is also another avenue of opportunity to kick start micro enterprises as a home-based business, subject to operational guidelines.

Local governments could encourage new and enhanced forms of mixed-use development. Major project home builders and 'display homes' could also be encouraged to include designs that integrate attractive low impact business premises in their residential designs.

7.2.3 Transparency and Accountability of Planning Decision Making

Recent examples in Queensland have highlighted the **susceptibility of the development assessment system to political bias, or even interference**. This, in turn, has contributed to a growing lack of confidence in the planning system by the community. As a consequence, reforms to improve transparency, accountability and independence in the State's planning systems are needed. Greater separation between plan-making and planning administration is essential to a robust State planning system. The planning policy and **plan-making process need to be separate from the administrative decision-making process** to assess development applications. As a practice adopted in some other states and territories, the introduction of independent panels/tribunals to deliberate on impact-assessable projects would ensure **political independence**, greater accountability and **high-level professionalism** is introduced into the State's planning system. It would also facilitate a return of community confidence in the planning and development process.



7.2.4 Integrated Planning

Planning systems throughout Australia have also become more complex, and the processes to deal with big issues like climate change, bushfires, congestion, housing affordability and homelessness seem to be out of step with risk-averse planning controls. There are an increasing range of [Federal](#), [inter-governmental](#) and [International agreements](#), [treaties](#) and [protocol provisions](#), such as World Heritage which also need to be incorporated into State and Local Government plan-making and decision making processes.

Australia, compared to other countries, has tended to adopt a systematic approach to **land-use planning**, which is backed heavily by legislation, regulation, and policy. Australian states were slow to **adopt integrated planning**. Current State systems of planning are not particularly adept in responding to change or embracing new ideas, innovation, and creativity. They are generally weighted in favour of maintaining the status quo, for fear of self-interested community or stakeholder backlash. This complex layering of regulation calls for a more holistic and integrated approach to planning and development in the State with the **introduction of technology-aided systems to support detail planning** and design, conduct assessments, evaluate risks, and adopt appropriate mitigations measures.

Integrated planning within the physical, social, and environmental context is needed to reduce the complexity and siloed nature of planning and decision-making processes to create a more efficient and holistic planning system in the State.

However, integrated planning needs to be extended and **linked to financial planning of capital works** and recurrent expenditure considerations, mainly associated with large public and private sector projects (including Public-Private Partnership projects). There also needs to be a greater assessment of risks for all Statutory plans and planning policy documents.

The paucity of integration and alignment between physical land-use, economic, and capital works planning; State and local government financial plans and budgets, and risk assessment and mitigation; has resulted in a planning system which does not incorporate many critical elements of planning into decision-making processes focused on sustainable and regenerative development.

A crucial requirement of the State's planning systems, especially the plan-making processes, needs to be a test of the capacity of State and local governments to finance the **delivery of expected outcomes of land use and development plans**. See [Section 3.5.8](#).

*The adoption of best practice used in the [Auckland Unitary Plan](#) linking land use and economic planning strategies to 10-year financial planning budgeting could be considered to improve integrated planning throughout local government in Queensland. In New Zealand councils' 10-year long term plan must be reviewed every three years and along with the 30+ year infrastructure strategy (IS), which considers the **lifecycle cost of public assets**. One particular feature of this system is the long term plan is subject to external audit by NZ's [Office of the Auditor General \(OAG\)](#).*

Queensland could consider adopting a similar process to ensure strategic land use and development plans can deliver on expected development outcomes.

7.2.5 Planning Skills

Planners have a key role to shape future-making decisions concerning urban and regional development in the State. Planning is a multi-disciple profession, and the skill sets of planners can be applied to many other disciplines beyond land-use planning. The potential for government **planners to contribute to the planning and improvement of projects** to better meet State and local government plans and community objectives is often lost by too much focus (both in a policy and resource sense) on a narrow development assessment role. Broadening the focus of plans from their current emphasis on land use and involving the business and community sectors more, would be a significant reform. This is acknowledged as not being a quick process. It would, however, represent a significant and essential cultural shift.

At this time of crisis, and in the future, governments need to heed professional multi-discipline planning advice when making and implementing future urban and regional development plans. This advice is not just confined to land-use planning and development, but to the domains of education, health, industry, economy, and the environment. Governments also need to seek and use the advice in areas of planning related to climate change, housing and future industry development. A challenge for planners in Queensland will be planning for a more **virtual world**. **Systems thinking** needs to play a greater role in planning within the State.



7.2.6 Transition to Self-organizing Systems of Planning

The systemic hierarchical approaches to planning within the State used by government and business, reinforces support for the siloed - vertical and horizontal - decision-making structures and corporate culture in planning, that stifles innovation, creativity, and ingenuity at the local and regional level. Planning needs to continue to move quickly from a model of command and control type systems to **self-organizing systems**. Self-organizing systems are structures and decision-making processes that occur where some form of overall order or coordination arises out of the local interactions between smaller component-parts distant from a larger system. The responses to COVID-19 have spawned many of these. The State needs to incorporate a systems approach to development planning so that it complements IT, business, e-governance, communications, and discretionary choice decisions that are beginning to emerge.

7.2.7 Technology, Innovation, Creativity, and Planning

The future will introduce new technologies, **use new materials**, consumer products and services, and change work, travel, living and behaviour practices. These will require responsive changes to the way we plan and develop the built environment.

Innovative, creative, and more **adaptable approaches to planning** which are more responsive to changes in development, work and behaviour are required. For example, current planning decision-making practices need streamlining to support mainstreaming of climate change adaptation, the adaptation of buildings, infrastructure, production, and service delivery processes to rapid change. *See Section 8.3.*

The application of computer aid design and 3-D printing technology offers significant opportunities to improve the planning design, construction and development of cities and regional area. Advances in computing and technology have enabled online development applications; however, the process to assess impact projects is time consuming. Planning development applications in Queensland could gain much by developing a collaborative partnership to use big data to accelerate the development approval process, similar to the systems developed for [fast patent](#) licensing and planning approvals in [Singapore](#).

7.3 Urban Design

More than 88% of the Queensland's population lives in 45 cities and towns with a population of more than 5000. It is in these cities and towns that people in the State will live and the future jobs will need to be created.

The design of the State's towns and cities affect not just appearance, but factors such as well-being of residents, productivity, use of public assets and cost of providing urban services. [Urban design](#) deals with the larger scale of groups of buildings, infrastructure, streets and public spaces, whole neighbourhoods and districts, and entire cities, to make urban environments that are equitable, beautiful, performative, and sustainable. Recognised as an important element of urban planning to create the physical spaces and places, its role in meeting **social, behavioural, cultural, spiritual, and intrinsic needs** could be more widely recognised. This calls for a greater emphasis on place and less on individual projects, which tend to dominate the political agenda.

7.3.1 Design of Social Business Spaces and Places

Approaches to detailed planning and development in Queensland have followed an international model where specified uses are segregated according to land-use activities.

The post-COVID-19 economy will likely see a greater merging between business and social activities, with an increasing demand for the development of **social business spaces and places**. Urban cafés and bars have become important social business spaces where personal, recreational, entertainment and work need of places and spaces merged through the process of networking.

Expansion of social business space and places can be expected to grow as the demand for more common user facilities, such as libraries, places of worship, and in the workplace, arise. These changes challenge the **traditional model of segregation of land-use activities** and call for an improved understanding of how public and private spaces can be used for **multifunction purposes**. This may require changes to Land-use planning and codes which are unduly restrictive on the use of public and semi-public spaces and places used for multifunctional activities and gatherings. A **more multi-discipline and inclusive approach to urban design**, involving broader input from the urban development professions, social, economic, behavioural, safety and governance skills, is needed in the shaping of urban policy and development policy.



7.3.2 Urban Design Skills

Urban design skills and capacity in Queensland can be strengthened. State development agencies and urban local governments would benefit from the **appointment of qualified urban designers** to provide guidance and improve the quality and benefits of urban development projects. For smaller cities, arrangements **for co-sharing urban design expertise** with larger cities can be arranged.

7.3.3 Behaviour and Built Environment Research for Better Communities

There is a duality in the relationship between behaviour and the environment. Behavioural studies have been used for more than a century to shape planning and the physical development environment to achieve political, design and behavioural outcomes. Applications of surveillance, GIS and modelling have led to the **design of better and safer public spaces**. Modelling is used in many larger cities, to test the behaviour of pedestrian flows, use of public spaces and security. The role of artificial intelligence and surveillance will be very significant in tracking movements and use of public spaces.

Despite some reservations about the increasing level of surveillance in cities, Queensland could seek to take advantage of these technologies, conducting research and developing tools to improve the design of the built environment in cities that **respond to change** in personal behaviour, workplace and social needs of public spaces, places and facilities.

7.3.4 Balancing the Old with the New

Harmony and contrast in the shape and density of urban form, appearance, mix and use of old and new materials are important to achieve good and responsive urban design outcomes to support the needs of people living in urban areas. The encouragement of contrast, boldness, newness, and complexity are also important. Blending these elements of design between modern and past styles is a challenge.

Heterogeneity of character and density of many urban areas will become increasingly difficult to maintain, as many buildings and structures will need significant repairs or replacement because of age, safety, loss of function or the inability to generate adequate returns to maintain keeping these. Where possible **heritage planning** and urban design need to seek to accommodate a balance between the old and the new in considering the character, façade, shape, and construction materials used in change nature or form of buildings and local neighbourhoods.

Three-dimensional and virtual reality technology can be used to test urban design solutions when configuring old and new styles of architecture, designs, details, and construction materials in inner-city areas. New materials, machine technology and 3-D printing, will enable interior and exterior fittings and fixtures for historic and character buildings and areas to be retained in style and design.

Wide-ranging applications of new materials and furnishings can be expected in the post COVID-19 economy. The use of carbon fibre, liquid glass, a new range of polymers, offers opportunities to create a **new architecture and design for buildings**. Many of these materials and products will enable the historic architecture of buildings and structures in the State to be extended, but also create opportunities for new infill designs for these. Such materials will enable larger and more efficient buildings to be constructed. The blending of old and new materials and furnishings need to be treated sensitively in retrofitting buildings cities. **Urban design skills** need to be developed in the application and blending of new materials in use.



Former Queensland Country Life building, Queen Street, Brisbane
Photo: J Brannock



7.3.5 Human-scale Development

It is unclear what impact the post-COVID-19 era will have on the planning and design of towns and cities in the State. However, the crisis provides a unique opportunity to consider introducing a more **human scale to the design and development of cities**. Demand for certain types of buildings and facilities could decline if the floor space needed for work, leisure and other activities changes and meetings and events become less location depended. This is expected to create demand for more friendly human-space working and living environments. As such, changes to planning policies related to urban design which are more **responsive to human-scale needs** can be expected. Many commentators are predicting a greater emphasis on suburban environments and local high streets and parks as a response to the COVID-19 experience.

7.4 Housing

Housing is a significant contributor to Queensland's economy and employment and will continue to be so.

Australia, and Queensland in particular, has taken a **somewhat laissez-faire approach to urban land and housing development**. As a result, Australia has distorted and expensive housing industries and markets. There has been a market failure at the lower end of the rental market. The reasons for this have been extensively documented by the **Australian Housing and Research Institute** (AHURI) over many years and is also identified in several reports from industry groups.

If the housing market were to collapse as the result of the current COVID-19 crisis, State and federal government intervention in the land and housing markets might be necessary.

A review by the government of the economic and social impacts of the crisis of the housing industry is needed to better prepare the State for intervention that may be necessary. This may best be conducted at a **COAG level (National Cabinet)**.

In general, Queensland is successful in having more affordable housing than other States. Still, there are specific socio-economic groups and household cohorts that are severely disadvantaged and experiencing housing financial stress. State governments in Australia for more than 30 years have preferred to **support rental subsidy schemes** rather than building **public housing for low income** and distressed family situations. The current crisis will inevitably have an impact on the State's housing market, and there will be opportunities for lower-income groups to access the housing market if prices fall. Nevertheless, there is a substantial number of people in Queensland who have problematic access to affordable and safe housing and experience housing-related financial stress. An outcome of the current crisis is likely to be more people and households in financial stress and possible shifts from home ownership to the rental market.

7.4.1 Low-income Housing Programme

The current crisis creates an opportunity for the Queensland government to introduce **housing affordability and industry reforms** for both home purchase and rental to enhance housing affordability. That includes initiating a programme of financing, providing and managing social housing for those with low incomes to find secure shelter. This could be funded, for example, on a long-term bond programme, with opportunity for the purchase of a public residential rental property in the event an individual's circumstances change, and they have the capacity to acquire the home. A new social housing programme for those on low incomes will provide opportunities for employment in the housing construction sector in the short to medium term.

Substantial policy research has been done by the Queensland Government, [AHURI](#) and [Property Council of Australia](#) on housing needs of those with low income. This research needs to be revisited in light of the COVID-19-crisis to see if there are opportunities to create a low-income housing programme to provide support to the residential construction industry in Queensland.

7.4.2 3-D Printing of Housing, Offices, Fittings and Fixtures

3-D printing of housing, offices, fittings, and fixtures offers a significant opportunity to lower construction cost and reduce the demand for importing these. Housing construction contributes to over 25% of total construction or around 2% of national GDP. The value of new residential construction for 2018 was around [\\$13.4 bn](#). Housing construction costs could be lowered through wider application 3-D Printing.

[3-D printing of housing](#) and housing has seen labour cost reduced between by 50 % to 80% and construction waste by 30% to 60%. The use of 3-D printing also reduces the time it takes to build, [roughly 6 weeks](#) versus 6 months needed for a typical new house.



The application of 3-D printing for production of fixtures and fittings in residential and office developments and renovations – especially in printing character housing. 3-D printing is a means to create more affordable housing. Marginal costs of production using 3-D printing for construction of dwellings and commercial buildings are significantly reduced, allowing for significant modification and “affordable design shapes, for architects and homeowners seeking a different style, and personalization of dwelling and office design and construction”. [Energy costs](#) associated with 3-D printing of buildings and concrete structures can also be significantly reduced, bring environmental benefits.



Photo: 3-D Housing Reno, Nevada, Neil Strother [Forbes](#)

There are significant opportunities for Queensland to incorporate the development of 3-D building into the mix of the construction industry. 3-D will have wider application across the economy as whole in the future, but it has the potential to reduce, labour and construction costs, and wastes and could enable the State to build more infrastructure and assets to support the growth and development of the State, and the construction sector.

7.5 Land Development Reform

The model of land development for the housing industry in this State is one where the property development industry has been involved in **greenfield masterplan communities** and piece meal consolidation of inner-city properties for more medium and high-density residential development. The net density of Australian cities is rising, with significant increases in redevelopment involving apartments and townhouses. However, low population and site utilization densities in comparison to OECD countries, means Australian cities have higher unit length infrastructure and operational cost per capita. There are significant inefficiencies in the land development sector, which need reform to improve the efficiency of delivery, choice, and cost of housing.

7.5.1 Land Taxes and Charges

The cost of land for housing and redevelopment could be reduced by **abolishing developer levies and charges** and replacing them with universal taxes and long-term bonds and loans to fund and maintain essential urban infrastructure services. The introduction of forty-year bonds or loans at current interest rates would significantly reduce the burden of homeowners having to pay for the cost of services upfront. There are significant opportunities within the infrastructure bond market to make funds available for local infrastructure, funded through local governments. (See Section 3.5.8)

7.5.2 Inner City Land Reform

Land and property markets operate efficiently in Australia compared to many other countries. However, in inner-city areas, redevelopment has become disjointed as developers compete to amalgamate smaller plots into larger parcels of land for larger-



scale and more intensive land use developments. The effect of the intense competition amongst property developers seeking to acquire enough properties to make project viable is that land prices are driven-up, and often the configuration of sites are not optimised. This results in pressure to intensify height and plot ratios to make redevelopment projects viable.

An alternative approach is to establish a public agency to purchase land at a market rate, to accumulate incrementally, and reconfigure, land into larger plots which would be sold by tender to the private sector for redevelopment. This approach to redevelopment has the advantage that excess land currently devoted to road and other verge use can be incorporated into making larger development sites. The land gain from road excess to requirement, could be used in negotiating offset for social or other local community facilities to be incorporated into comprehensive local areas redevelopment projects.

‘Grey land banking’ is an extension of [land banking](#), used widely by state governments in Australia. The approach would not involve the compulsory public acquisition of land, except where there is an absolute need to do so to create viable redevelopment plots. Grey land banking would require establishing a State **urban redevelopment corporation** or authority (legislation and capitalisation will be necessary) with the **option of the first-right to purchase land or property for sales**. The purchase price would be the market-price, determined by three valuations (the sellers, local government, and a mutually agreed valuation).

The advantage of this approach is that redevelopment sites and areas become comprehensive and better planned. More workable parcels of land become available to developers, new infrastructure and services can be provided comprehensively. The government also gains from value capture. It is in a position to negotiate fair and equitable inclusion of social and community infrastructure, and property purchased could be used for social housing and other community use until the redevelopment sites are ready for tender.

Governments have tended to avoid engaging in **land markets** to amalgamate property for redevelopment purposes. However, where this occurred under the Better Cities programmes in the early 1990s, State governments were able to package land for the private sector to successfully develop inner-city area housing projects, with a mix of housing responding to income needs.

There are good examples of models of government **redevelopment authorities** such as the [Singapore Redevelopment Authority](#), [London Dockland Corporation](#) and the Brisbane South Bank and Newstead redevelopment areas. Other models of redevelopment corporations and authorities in Australia were developed under the [Better Cities Program \(1991-96\)](#). There is significant expertise in the State to establish a redevelopment authority to improve current approaches to urban renewal and revitalization of inner-city areas in South East Queensland and other cities of the State.

7.5.3 Land Supply and Development Monitoring Programmes

The Queensland Government could continue to refine and expand its recent [Land Supply and Development Monitoring programmes](#) to ensure timely and accurate information for all governments and the property sector. This will assist to understand emerging trends and underpin appropriate policy and investment responses.



8 ENVIRONMENTAL SERVICES AND CLIMATE CHANGE

8.1 An Overview

The advent of the COVID-19 pandemic in Australia was preceded by a period of extended severe drought, widespread floods and an unprecedented disastrous bushfire season which individually and collectively placed the Australian environment, as well as affected communities, under enormous stress. The post COVID-19 recovery needs to include support in regional and rural areas as well as urban and peri-urban areas for environmental and landscape restoration of our highly stressed landscapes.

Whilst the immediate post-COVID-19 recovery phase need to have a strong economic focus, long term sustainable success will only be guaranteed if recovery programmes include complementary social, environmental and cultural (including institutional) dimensions. This Quadruple-Bottom-Line approach complements the [Wentworth Group](#) of Concerned Scientist position that a productive economy is not possible without a healthy environment (see their 2014 “Blueprint for a Healthy Environment and a Productive Economy”).

The Australian National University’s annual “**Australia’s Environment Report**” for 2019 (Van Dijk, A. et al, 2020), has highlighted the dire condition of the nation’s environment, made worse by these recent events. The report concluded that Australia’s environmental condition score fell to a very low 0.8 out of 10 - the lowest score since 2000. Scores were below average in all states and territories. The report warns that 2019 was neither an outlier nor the “new normal”, concluding that conditions will get worse (www.ausenv.online).

The **State of the [Environment Reports](#)** for Queensland show a significant decline in many environmental indicators, compounded by the recent effects of fires, floods, long term droughts, and bleaching of the Great Barrier Reef. This requires a greater focus to restore natural resources, environmental systems and ecosystem services allowing future generations access to the same resources and choices we enjoy today, in accordance with the ecologically sustainable development (ESD) principle of **intergenerational equity**.

Hence, post-COVID-19 recovery programmes could integrate economic and environmental restoration (regenerative development) wherever possible, taking every opportunity to concurrently address these serious environmental impacts. Consideration of environmental and sustainability issues, in all their **biophysical, social and cultural dimensions**, needs to be mainstreamed into all post-COVID-19 recovery programmes, whether they be directed towards infrastructure, services or community development. This will require innovative and strategic thinking and appropriate participatory and consultative processes. Rebuilding the State’s economy to a more sustainable basis will require significant investment in programmes related to environmental services restoration.

As part of the State’s contribution to supporting the [Sustainable Development Goals](#) (SDGs), resources can be applied relatively quickly to create jobs, train future resource managers and restore environmental capital in damaged ecosystems throughout Queensland. The focus could be where multiple SDGs and economic recovery can be integrated. Initiatives seeking to achieve SDGs will need to be continuously monitored, evaluated and reported on. Programmes can then be adaptatively managed in the light of lessons and feedback from monitoring.

Proactive planning for natural hazards and addressing the complex issue of climate change is an important priority area for State and regional development and environmental management. Greater focus could be given to the localisation of responses. Decentralised programmes can be initiated and financed at the State and regional levels. It is important that they are designed and implemented in collaboration with local community groups. This ensures that they address local and regional priorities, and will be delivered at this localised level.

For 17 plus years, NRM Bodies have developed strong governance frameworks, overseen by community based Boards, with fiduciary duties accountable to the [Australian Securities and Investments Commission](#) (ASIC). NRM Bodies are best placed to ensure restored ecosystems contribute to resilience in the face of further natural hazards.

NRM Bodies’ **core business** is to deliver on-ground environmental programmes that provide innovative and science-based solutions to challenges affecting the environment and the State’s landscapes. They work in partnership with Traditional Owners, state and local government, private industry (especially famers), utilities, and the community. Their efforts are guided by Strategic NRM Plans (NRM Plans)

*Eleven well established and fully-functional **Regional Natural Resource Management** (NRM) Bodies form Queensland’s organisational infrastructure to address management and landscape restoration, and have responsibilities across the entire State.*



developed collaboratively to define local priorities and ensure there are strong cultural, social and economic foci.

NRM Plans also provide the framework for the delivery of integrated catchment management initiatives which are directed towards improvements in biodiversity, land and waterway health and increased productivity for the agriculture sector. This is a critical distinction especially as freehold and leasehold tenured land far exceed Crown land (e.g. >80% of South East Queensland is held as freehold tenure). NRM Bodies have an excellent record of working collaboratively with property owners, catchment and Traditional Owner groups, local government and other local community organisations.

*NRM Plans enjoy broad community support (including Local and State Government) and are the **only such environmental plans** in place across the whole State.*

The activities and interests of the NRM Bodies are coordinated and represented by the NRM Regions Queensland (NRMQR), whose Board consist of the 11 NRM Chairs plus the Torres Strait Regional Authority as an associate member.

The primary responsibility for environmental management across the State rests with NRM Bodies. However, Local Government has an important role to play in the environmental management and landscape restoration within their legislated jurisdictions and need encouragement and financial funding to provide a critical support

role for the regional NRM Plans.

8.2 Environmental and Landscape Restoration

The economic success of the State has come, in part, at the cost of the destruction of our environmental capital. Large parts of the State's inland, coastal and river vegetation systems have been cleared and used for agriculture, mining and productive urban purposes. Many pastoral and mining areas have been degraded to the point where their contribution to improving environmental services, i.e. reducing toxic runoff and erosion, offers little prospect of environmental recovery without restoration. These areas have been investigated and mapped through local and regional natural resource management studies.

Economic recovery of the regions will require the restoration of known degraded landscapes to provide a healthy environment that can provide and sustain a productive economy. As noted, the [Wentworth Group](#) of Concerned Scientists articulated a Blueprint for this fundamental approach in 2014. Restoration programmes could also be directed towards the prevention of further degradation of rural and urban environments, regional vegetation, coral reefs, wetlands, estuarine rehabilitation and especially restoration of riparian corridors - the 'arteries' of our catchments. These programmes could be supported through a State/national environmental levy delivered through the bundling of financial support to regions.

Civic science is an evolving field that is gaining acceptance in the broader policy making arena as a complement to conventional

*Many cities have turned **restoration programs** into environmental, economic and community development success stories such as [Sydney's Olympic Park](#)*

science. For example, civic science is a participatory process that can include all sectors of society in the development of public policy. It provides a place-based focus, grounded in the social activities of communities in specific places and offers local information that can often dispel citizen distrust of otherwise effective policies and action. Recent Australian examples of these **community-based efforts** have included Integrated Catchment

Management strategies, Water Watch, Landcare, Bushcare, Coastcare, Seagrass Watch, Nature Search and the regional NRM plans.

Increasingly, the management of large tracts of peri-urban and rural lands throughout Queensland are becoming the responsibility of **Traditional Owner** groups as a result of positive Native Title determinations. This is fostering a resurgence of Indigenous culture enabling the traditional custodians to care for their land and sea country through some ground breaking initiatives that has seen the blending of **Traditional Knowledge and Traditional Science** with Western Science to inform policy and management decisions.

Traditional Owners are gifted with Traditional Knowledge through observations and repeated practices for thousands of years. This knowledge encompasses all things relating to the natural environment and often aligns with a western notion of scientific practice. It is derived from a dataset that is much longer than any post-colonial set of scientific observations. The knowledge is also important as it tells a story and enables future custodians to use the same knowledge and expand on it. Traditional Owners are now **enhancing the ways** in which to use this knowledge to care for their Country by working with contemporary scientists and including their science into their practices where appropriate. This emerging approach is best exemplified in the development of **fire management strategies** and fuel reduction burning practices for a number of Native Titled and joint management lands throughout the State from South East Queensland to the northern Cape.

Based on the success of these practices to date, a greater emphasis is needed to incorporate these approaches into future environmental management and landscape restoration programmes.



(Source: Healthy Land & Water)

8.3 Climate Change

The COVID-19 crisis will dominate the attention of governments at all levels and policy makers through, and beyond, the recovery phase. However, climate change will continue to be a challenge well into the 21st Century. Irrespective of the events being played out at present, our communities, our environments and our economy will continue to be impacted by severe weather events and changing climatic conditions. **Adaptation as well as mitigation measures** will continue to be required. Based on recent natural hazard events, these measures need to be stepped up if our communities are to gain a higher degree of resilience to withstand and recover from **future hazard events**.

Like COVID-19, the impacts of climate change are being felt globally, and will affect the future of the planet's ecological and human systems. As well as challenges however, climate change creates opportunities to change economic development, consumption and behaviour patterns so they are more sustainable and resilient. In order to build resilient communities, environments and economies that are sustainable, we will need a range of climate change response policies and initiatives. These will include those related to the adaptation of our human settlements to enable them to cope with future climates and associated extreme weather events.

Queensland's human settlement, infrastructure, unique ecosystems, and primary industries all face threats from more extreme weather events, increased temperatures and altered rainfall patterns, resulting from increased greenhouse gas emissions. Recent United Nations (UN) and [Intergovernmental Panel on Climate Change](#) (IPCC) reports show that not enough effort is being made at local levels to address climate change. Mitigation and adaptation measures for climate change need to be embedded across multiple levels of public policy, planning, and decision-making instruments, in resource use, and development practices and behaviour. At the same time, potential economic and social opportunities that present themselves as a consequence of changing climates need to be identified and scoped into our policy responses.

The clean growth economy [Queensland Climate Transition Strategy](#) sets out three pathways and six key responses for climate change adaptation and mitigation. It includes a **well-defined set of targets** consistent with the IPCC and other UN protocols. A substantial body of research has been undertaken on climate change adaptation in the State and especially South East Queensland, which is one of the six principal climate change 'vulnerability hotspots' in Australia (Hennessy et al 2007). This research, particularly the applied components, could be used to support the preparation of climate change adaptation policies and measures in the State and regions in parallel with the emerging policies and initiatives to address the post COVID-19 crisis recovery. Innovative ways to link the State climate change policies and a range of hitherto isolated and unilateral policy responses to regional levels is essential to safeguard against the perverse and unintended consequences and possible "black swan" events: i.e. an unpredictable event beyond one normally expected with potentially severe consequences. Black swan events are characterised by their extreme rarity, their severe impact, and the widespread insistence they were obvious in hindsight.



Policy and partnership programme support for the localization of climate change mitigation and adaptation measures is essential for ‘fire front’ responses to climate change. However, funding mechanisms for the localisation of climate change responses to protect essential public and private assets and infrastructure are required.

The Australian government has a \$3.5 billion [Climate Solutions Package](#), and plans that build on existing policies and success to meet Australia's Kyoto commitment. This package provides funds for a range of targeted assistance to Australian farmers, businesses, and Indigenous communities to reduce emissions, derive additional revenue, and provides direct, local benefits. Queensland does not have a **climate adaptation fund**, although the government has considered one. Some countries have established State and City climate change funds to finance local government climate change mitigation and adaptation measures. Queensland could lead this nation to establish such a fund to provide opportunities for complementary leveraging of funds from the national Climate Change Solutions Package. Such funding could be bundled and packaged or bundled and dispersed in a similar way to the Transport and Main Roads funding of regional infrastructure involving several local governments.

Examples of integrating climate change adaptation with **ecological restoration** and incorporating **civic science** through local NRM action to improve ecosystem resilience can include the functional restoration of regional biodiversity corridors and riparian zones of our waterways.

Investing in environmental capital restoration would generate significant long-term benefit cost returns to regional economies, especially ensuring better quality water, reducing run-off in river catchments, and protecting soils and coastlines

8.4 Potential Initiatives

On-ground implementation of the expansive range of initiatives needed to achieve the objectives of policies related to the environmental services and climate change theme will require the coalescing of government, community and science. They will need to be of a cross cutting nature and address multiple objectives, some of which are noted in other parts of this report – *see Sections 2.42, 5.2, 5.35, 5.43, 7.24 and 7.25*. It is important that the complexity of climate change is recognised and that initiatives complement the economic recovery programmes that will spearhead the post COVID-19 recovery.

In terms of the potential initiatives associated with the environmental services and climate change theme, the following set of principles could be used to guide the development of specific initiatives, where they:

- focus environmental services and restoration programmes towards known priority landscape restoration targets;
- adopt a collaborative process involving local communities to identify solutions to challenges and to implement these in line with agreed priority targets;
- engage the State's NRM Bodies and complement their ongoing efforts to protect the State's environmental services and address climate change adaptation;
- incorporate citizen science and Traditional Knowledge into environmental management and restoration programmes;
- initiate the process to establish a State climate change fund, with thematic and bundled programmes of assistance made available to regional NRM Bodies and local government groups for localised projects and programmes to support mitigation and adaptation measures; and
- address [Sustainable Development Goals](#) reporting.

To these ends, a number of issue specific environmental management and landscape restoration and climate change initiatives are emerging, addressing:

- Community Gardens;
- Fire management (incorporating Traditional Knowledge on Indigenous land management);
- Biodiversity Linkages;
- Habitat Rehabilitation; and
- Riparian Restoration.

These initiatives and others are addressed in a series of stand-alone Policy Position Implementation Notes relating to the report.

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9 SOCIAL AND COMMUNITY DEVELOPMENT

9.1 An Overview

As nations struggle to come to grips with the global pandemic, the focus appropriately is on the public health crisis and how lives can be saved. Alongside this, to address the economic shock, rapid and drastic measures are being taken to secure people's livelihoods with massive injections of public money to keep the basic infrastructure of the economy together for when we emerge from the health crisis.

There is, however, a third shock: a **social and community crisis**. This has only been partly felt so far and can be reduced if we act now. The impacts of this third shock - seen in disasters such as tsunamis and the 2013–2016 Ebola outbreak - have the potential to create anxiety and social divisions within society, leading to mental illness and growing inequality between those who can re-establish themselves and gain employment – and those who cannot. These impacts are often more severe in regional areas where social infrastructure and support is less accessible.

People in Australia are already in crisis or severe stress through loss of loved ones, physical and mental illness, loss of jobs and businesses, trying to balance working at home with home-schooling, and uncertainty about the future. As usual with disasters, the impacts of COVID-19 and the government's responses, are not shared equally among groups in the community. The impacts on **vulnerable and marginalised groups** are greater, and this can increase pre-existing anxieties and inequalities.

Australian communities have faced severe and repetitive natural hazards - floods, drought and bushfires for centuries - with their frequency and intensity likely to increase. Until now, the State has not faced an epidemic as grave and far-reaching since the 1918–19 Spanish flu. Nor has it experienced such devastation from fire and drought and other climate-induced impacts. In times of adversity, communities often demonstrate a remarkable capacity to come together, identify pressing needs and respond quickly.

A recurrent theme from these events is what disaster researchers and scholars' term '**community resilience**'. We can learn a great deal from past responses and from the **basic tenets of community development** to mobilise people and resources to act on issues that are important to them. Currently, people do have a feeling of shared experience and being in this together and a willingness to work together and collaborate to find future solutions.

Many elements of **social capital** have been severely damaged by this health crisis. Amongst these are confidence, trust, and face-to-face engagement. Shocks create a grief cycle which go through five stages: denial, anger, bargaining, depression and acceptance. We are currently in the denial stage of this cycle with respect to long-term recovery. As discussed in this report, the State needs to prepare regional economic and community development strategies that include strategies, programmes and projects for **resilience, community development and social infrastructure** to restore the State to social and economic prosperity. Such programmes are crucial to mental health, a confident community, personal well-being, a life-sustaining environment, and a productive work force.

The enhancement of **social capital and community development** is indeed crucial to build institutional capacity and capability, needs to go hand in hand with the injections of capital into economic recovery and regional economic development. Failure to do so will result in a widening of the inequality gap between the haves and have nots – especially at the regional level. A consequence will be a rising health, welfare and income support budget with less public money available to support new jobs and investments that lead to improved well-being and prosperity.

9.2 Focus Areas for Support

To address these issues, the following areas of support can be considered.

9.2.1 *Using Community Development and Collaborative Governance Frameworks*

Community development is a process where community members, public and private sector leaders, professionals and others come together to take collective action, typically aiming to build stronger and more resilient local communities and generate solutions to common problems. Already **communities of interest** are developing within the State as localised responses to the crisis. The foundation principles of community development include self-determination, empowerment, collective action and working and learning together.



Within government processes in Australia, social and community development issues and approaches are often viewed as being less important than economic considerations. This needs to be squarely addressed in the responses to COVID-19 by integrating economic and community development considerations, by adopting collaborative governance approaches at all spatial levels, and by engaging rather than isolating individuals in the community.

Institutional reform including new **governance arrangements** are needed in this time of crisis to better involve and activate community networks and associations. Governance is a broader concept than government and includes the roles of the community and business sectors, as well governments, in guiding society. Collaborative governance is a process where people are engaged and work together constructively across the boundaries of governments and public, private and community spheres in managing and guiding social processes and projects.

[Collaborative governance](#) approaches have been used successfully after crises in Queensland in the past. After the Fitzgerald crisis, in the early 1990s, the new Goss Government set up the **SEQ 2001** regional planning project for governments at all levels, business and the community sector to work together to co-define and solve complex problems of growth management. (See Section 3.3)

The Federal government's Department of Social Services (DSS), working with Queensland State and local governments have supported Stronger Places Stronger People programmes and State government support for initiatives like the [Logan Together Collective](#) Impact project, are examples of ways of **mobilising local human capital** [RS2] and **leveraging State resources** in support of **community development**, with good outcomes.

The State government's [Social Cohesion Implementation Committee](#) could provide a mechanism for collaboration with the Federal DSS to scale up community development initiatives throughout Queensland. The [Queensland Reconstruction Authority](#) could have an expanded community and social role in recovering from the current crisis and engaging at the grassroots level.

Identification of new ways to use community development and collaborative governance is needed to localise actions and responsibilities for building stronger, more **inclusive, learning, and resilient communities**. Crucial in a post-crisis scenario is the recognition that local community members wish to engage in rehabilitation through whatever mechanisms are readily available to them. Being quite agile and concerned, members are often readily willing to assist both community-led initiatives and government programmes that instil stability within its locality with social, economic and environmental advantages.

Community development can empower disenfranchised members of a neighbourhood and enhance social bonding and community pride. Support for community development encourages the formation of self-organising groups and networks of interests at a regional and local level to mobilise and manage resources and manpower to rebuild communities. Community development initiatives can be used by government to support the recovery effort. However, both the type and scale of initiatives could be expanded beyond crisis recovery phase, focusing on support for creative industries, art, music and culture. The creative industries can play an important role in the crisis recovery phase, particularly in terms of connection, e.g. storytelling, art, music, building a sense of belonging and cohesion.

9.2.2 Regional Economic and Community Development Strategies

Resilient and sustainable communities can be significantly enhanced through well supported and facilitated government and community-led development strategies and action programmes. Delivery of these programs will be more effective if the focus is local and regional, with an emphasis on self-organisational delivery arrangements. Regional economic development measures need to be integrated with community initiatives. *See Section 2.12.*

The notion of resilience, while useful, will not be enough to return Queensland regions and local communities beyond the status quo to a better future. The State and regions need to build on past positive resilience efforts where communities came together and solved major problems, e.g. the moving of the whole [Grantham community](#) to a safer location. Recovery will require systems thinking, adaptability and sustainable responses. But above all, it will require people and courage. Communities are key to meeting this challenge.

Regional and local taskforces - similar to that formed for [Cyclone Larry](#) - are required to oversee the restoration and support resilience of communities in regions throughout the State. Local governments need to play a leading role in coordinating these. Programmes designed to support those most affected by the crisis to rebuild their careers, develop new skills, overcome trauma and loss of confidence will be crucial to support community recovery, development and learning.

The established **Australia wide scheme of Primary Health Networks (PHN)** could provide a mechanism for regional clusters focused on health and well-being which could foster collaborative cross-sector efforts around community development, improved mental health programmes and community services.



Voluntary associations, such as local SES groups, Rural Fire Service, Landcare and catchment organisations need to be actively engaged in strategy development and implementation. These organisations, working collaboratively, can encourage community development, environmental sustainability and social interaction, and which engenders pride and safety amongst both active and passive participants. Various models in the State have proven very successful with very little further government intervention required after approval.

9.2.3 Closing the Gap on Marginalisation

Indigenous people, recent migrants, the frail elderly, the mentally ill, special learning and disabled persons and marginalised groups in urban and regional communities may experience significant hardship as the after-effects of COVID-19 impact upon the State.

New models are required for engaging with these groups to ensure that **further marginalisation does not occur**. Significant opportunity exists to boost resilience and confidence within high-risk and marginalised groups, especially by introducing more self-organising arrangements for programme design and delivery. This is an important lesson gained from disaster recovery. Such programmes, and modalities of support, need to be designed to move beyond the recovery effort.

Addressing marginalisation and inequality requires ongoing and **tenacious coordination of economic and social agendas**. We have an opportunity to advance strategies towards inclusive growth, whereby everyone has a stake in economic recovery. At the community level, this can involve working with local businesses, attracting new enterprises bringing together people and places.

Invest in creative Recovery Programmes can be put in place at the local level connect people and build pride and a sense of identity. Programmes could include storytelling, music and art. Many initiatives are already underway (e.g. Couch choir, providing art materials to homes, music on ANZAC day). These could provide a framework for further support and coordination.

Community Gardens provide food sustainability, social interaction and social identity while being of low space intensity. Many and varied models are available to meet specifications of different types of neighbourhoods via existing local government programmes in Queensland.

9.2.4 Social and Community Infrastructure

A key sustainability issue for State agencies and local governments to address is to **improve the utilisation and quality of community and social infrastructure**. The location, condition, types and range of services and infrastructure available to communities in the State is poorly documented. Many of these services and facilities make significant demands on public and private organisations' budgets to deliver a basic level of support service and maintenance of assets.

Smart infrastructure and digital technologies offer many possibilities for better and more cost-effective delivery of health and community services and for social interaction, community engagement and e-democracy.

There is a need for both State and local governments to **conduct social and community infrastructure audits** to identify, locate, and document the range of services and networks that support the well-being of our communities. Rationalisation and selective closure of social and community infrastructure assets and services are necessary, as some do not meet the level of service demands, safety and other regulatory requirements. Any proceeds from a sale of redundant local government assets need to be returned to a fund to support improvements and development of new community and social infrastructure.

A better **network and hubs for community and social services and facilities** in local government areas is needed. Co-location of services provides opportunities to share and leverage resources between different public and private service providers. Changes to policies which encourage co-sharing and collaboration between social and community services organisations will be necessary to create a critical mass and to improve accessibility and quality of services delivery.

Local governments need to consider allocating additional funds in long-term social and economic development and infrastructure management plans for the development and maintenance of community and social services assets and infrastructure. Greater attention needs to be given at both State and local government of incorporating community and social development, assets and services delivery into the mainstream planning and budget process.



Photo: [Yarrabilba Sports & Community Hub](#), Queensland

9.3 Other Policy Initiatives to Support Social and Community Development

Other potential policy initiatives that can have an impact across all the areas of social and community development include:

- investment in affordable and social housing (*see Section 7.4*). The crisis has exposed the precarious housing situation many vulnerable people face;
- building on the Federal government's Stronger People Stronger Places, Queensland could target those communities doing it toughest;
- link with the [Thriving Communities Partnership \(TCP\)](#) a cross-sector collaboration with the goal that everybody has fair access to the modern, essential services they need to thrive in contemporary Australia: including utilities, financial services, telecommunications, and transport. (www.thriving.org.au);
- building on established infrastructure can mobilise further action. For example, the network of approximately 124 Neighbourhood and Community centres across the State play a key role in a range of community activities and services. Targeted investment in this network could contribute to building connections and community strengths with other organisations such as Foodbank, OzHarvest; and
- building strengths-based approaches from the connections and networks emerging from COVID 19, e.g. neighbours delivering food, groceries and medication, neighbourhoods talking on footpaths and over the fence. This sense of neighbourhood and community can contribute to a focus on locally-driven recovery.

Cities at night are important social and recreational places and create jobs for up to 10% of urban populations. More people are expected to work during night hours in the future and this will be linked with social and recreational activities. The Night economy in London is worth over £28 bn. Several large cities, i.e. Amsterdam, Milan, have appointed **Night Mayors**. Night mayors are involved in city [planning after dark](#) and bring the same rigour and focus on solving challenges in the night-time economy as they do during the day. Restoring the social life and vitality of the States cities at night will be a significant challenge in the post-COVID-19 era. Queensland could explore the concept of **appointing Night Mayors** to oversee the revitalisation and a return of prosperity to the night-time economy, cultural and social life of the State's largest cities.

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10. BUILDING BRIDGES FOR GOING FORWARD

The challenges of the COVID-19 crisis and recovery are complex and significant. However, they present opportunities to refine and rethink existing paradigms and to develop **new innovative models** and approaches to support a new norm for the sustainable and regenerative development of the State and regions. **Substantial and sustained collaborative efforts** will be required to **build the bridges** to go forward towards the new norm. It will require **courage, new thinking, and bold ideas**.

The focus of this Report identifies thematic areas where **opportune policy changes** can be identified, agreed upon by all relevant parties - including government, private sector, and community - and, through such efforts and collaboration, be brought to their full potential for the benefit of regions and their communities across Queensland, and for the benefit of the State as a whole.

The recovery, restoration, prosperity and future development of the State and its diverse regions will need to be set against the context of the realities of the shockwaves of the four-pronged crises – the health pandemic, the economic shock, triggered by the necessary interventions. the subsequent social disruption created, and the inherited stressed environments - that have, and will continue to occur. **Massive levels of debt** will have been created placing great stress on government budgets for a long time. The reality is a situation is that any **snapback will not be quick**, nor will it be easy. The economic, social, and environmental recovery process is more likely to be parabolic than V-shaped.

Flattening the curve on debt will be long and lumpy. Resources, especially public capital for development, will be limited, meaning the State and local governments will need to **stretch and leverage their human capital**, built assets and resources, and spend more effectively and efficiently. The big-ticket items of public investment expenditure will need to be carefully **selected, prioritised and targeted** - especially towards investments that will optimise economic, social, environmental and cultural benefits, create jobs, generate wealth, and bring social stability.

All the issues and possible policy position initiatives discussed in this Report will require a **new set of priorities for development** to underpin the growth and success of the new businesses and initiatives to diversify the State and regional economies, and to restore prosperity and well-being. That will require **dramatic reform in many sectors** of the economy, business, government, and institutions, along with changes in attitude towards the management of the environment, engagement with communities, and consumption.

All levels of government, business, institutions, and communities in shaping the initiatives for future development of the State and regions will need to ensure a **more balanced and sustainable approach** for economic and social development, for environmental management, and for governance. Many of the issues raised in the Report are long-term and structural. They will not be effectively be resolved in silos of government and isolation from the rest of Australia, its neighbours, or the world. The need for **connectivity and collaboration within systems and networks has never been more urgent**.

Investment in the future development of the State and its diverse regions will need to be directed towards building the **hard, soft and smart infrastructure** to:

- underpin the needs of both existing and future new industries;
- create sustainable jobs;
- achieve socially equitable outcomes for communities;
- achieve environmentally responsible outcomes;
- create quality living and working environments; and
- develop better systems of governance.

To these ends, it will be imperative to establish a healthy environment in order to facilitate a productive economy.

Arguably, the biggest challenge to realise these concepts, and to reshape the future development of the State and regions, is to get the people of Queensland, to back the changes that will be needed in our thinking and attitudes. **Enlightened strong leadership** will be required – people and communities will expect that.

The propensity to revert to **what was**, to continue adopting pragmatic and vested-interest approaches to problem-solving and other decision making, will hamper and make these proposed changes difficult. The COVID-19 crisis has forced a change upon



government, business, our society, and each of us, which few anticipated, and that has happened with lightning speed. We will need to be ready to react to find effective solutions to the challenges.

Keeping the momentum of the progressive change going will be difficult without a huge effort on change management within government, business, and the community. Managing change will require **leadership** and a **collaborative effort** to implement some **bold steps** to restore confidence and certainty across all levels of society and local communities.

This will involve a clear understanding that everyone needs to adapt to the **‘new norm’** for their work, activities, the way we live and behave, and interact with each other. There will be a need for consultation, mutual respect and tolerance of viewpoints, and the implementation of meaningful engagement practices across all sectors of society. Different ideas and approaches on how to change will need to be managed.

There will be **no clear picture or vision** of what the new norm will be for the development of the State and its regions in the post-COVID-19 era. Decision-making can be expected to be disjointed and incremental for the short-term while the ‘unknown known’ impacts of the COVID-19 crisis can be stabilised.

There needs to be a progressive **restoring, retrofitting, repurposing**, and development of established strategic and soft infrastructure for the sustainable and regenerative development of the State and its regions. At the same time, building and grafting new hybrid infrastructure stock will be needed to support future sustainable and regenerative development.

State and local governments will need to create and develop wide ranging partnership with business, institutions and civil society interest groups to improve and develop new infrastructure, services delivery and governance arrangements to support State and regional development. There will be a need to focus on the **building blocks** required to create, restore, fund and support new and more sustainable industries, jobs, built assets, social infrastructure and services, and to the **restoration of environmental capital. Institutional reform and improved governance systems** will be vital. The challenge, at this critical time, is to identify policies for the medium to long term, which, in turn, will help develop strategies to achieve those outcomes.

Setting priorities on what building blocks are needed to support State and regional development is challenging. This Report notes that it seems advantageous to focus on the development of **human and social capital** — especially skills and competencies; smart, circular and systems approaches to economic, logistics, infrastructure, industry, science, community and well-being; climate change and environmental management. These are **future building assets** than can serve the development of the State and regions well in the face of the COVID-19 crisis disruptions.

An important role of government is to determine **what public resources to allocate** to these areas and how it can be optimally used to attract and leverage private sector and community capital investment and co-investment to multiply the benefit of these new assets quickly.

The purpose of this report and the related Policy Position Paper, together with a number of suggested Policy Position Implementation Notes. is to provide a **knowledge product** to widen the discussion within government, business, and the community to think about the future we want and the future direction of development for the State and its regions. It argues, strongly, the need for **new thinking** and **bold ideas**, and the need for **resetting the clock** for the State’s development to a new time zone era.

The Queensland [Economic Functional Recovery Group](#) has been established and a [recovery plan](#) prepared. A crucial issue for this recovery group is to define how to key players in the State’s development build the bridge to the **new norm** when it is not clear what that is. Substantial work, research and critical thinking are required to define and build the bridge to recovery of the new norm.

The **contributors** to this report, the Policy Position Paper and the Policy Position Implementation Notes are all professionals in fields of State, urban and regional economic and social development and environmental management. There are many other professionals like the co-contributors who are in a post-full-time work age group which can be called upon by the State, local governments, NGOs and CBOs to **advise, help formulate and deliver public policies** for sustainable and regenerative development in the post COVID-19 era. Within this age group, there is enormous knowledge, expertise, experience and wisdom that can be called upon to provide advice on research, formulation and implementation of future development policy, and in other areas, to help in define and steer a pathway to the future development of the State and its regions.



The **contributors** consider there is merit utilizing this latent human capital resource, to appoint **honorary professional advisors** (who do not represent a particular interest group) to support government agency think tanks, act as expert persons, **peer reviewers of policy**, in-house thinkers and mentors and advocates for policy reform. There are many professionals who have served the State in the past as well as some from other places, who are all willing to volunteer time to support the recovery effort.

Appointment of **non-aligned professional advisors** to agencies could help create stretch and leverage the capacity of government agencies to effect policy change and add knowledge and wisdom to policy development and delivery in the State at this critical time.



11 PRINCIPLES TO GUIDE THE DISCUSSION ON THE FUTURE WE WANT

This report contains a long list of policy agenda items. But it does not suggest a list of priorities. That would be presumptuous. However, it might be useful to set out some principles to help guide and give focus to the public discussion that will be needed to address solutions for the post-COVID-19 crisis recovery and to add to the discussion on the **Future We Want** for the sustainable and regenerative development of the State and its regions.

The report's contributors suggest it would be useful to have some principles to focus discussion in setting priorities for preparing a new road map for the State's future development by investing in policy initiatives that:

- reflect the **principles of sustainable and regenerative development**;
- **improve and develop institutional capacity and capability** and **reform governance processes** to move to an integrated **collaborative model** of state and regional economic and social development and environmental management engaging government, business, and civil society;
- ride the **“renovation and innovation wave”** to make better use of, and stretch the resource endowments, capital, infrastructure, assets, technologies, and systems;
- **go local** to get **community support** to identify regional/localised opportunities and solution for economic and social development, and environmental management;
- **improve the function and efficiencies** of systems of governance, especially for planning, technology, knowledge and logistics;
- **develop human and social capital** - knowledge and skills - needed to build the industries and create the jobs, assets and skills needed to the transform the economy and improve the well-being of communities;
- restore environmental capital to return the land, waterways and oceans into **resilient, healthy and sustainable systems**;
- propel the state into **emissions reductions** and adoption of **multiple clean energy technologies** growth to supply **affordable and reliable energy**;
- improve **affordable housing** with a sustained program of financing and providing social housing, especially for lower income renters;
- **build resilience in local communities** and support the making of a more inclusive, equitable, engaging, collaborative and mindful society; and
- take actions which result in **“value for money”** and **investment of human effort**.

We are in a new age of enlightenment, with new thinking and bold ideas needed to build the foundations and a strategy for the road to recovery for sustainable and regenerative development in this great State of Queensland.