

A stylized map of Australia is positioned in the upper right quadrant. It is composed of various shades of red and white, with a network of white lines and dots connecting different points across the map, suggesting a telecommunications network. The background of the entire page is a dark, aerial view of a city skyline with a river, overlaid with a semi-transparent network of white lines and dots.

Where next for telecommunications?

How the telecommunications industry can
reboot and help reboot Australia

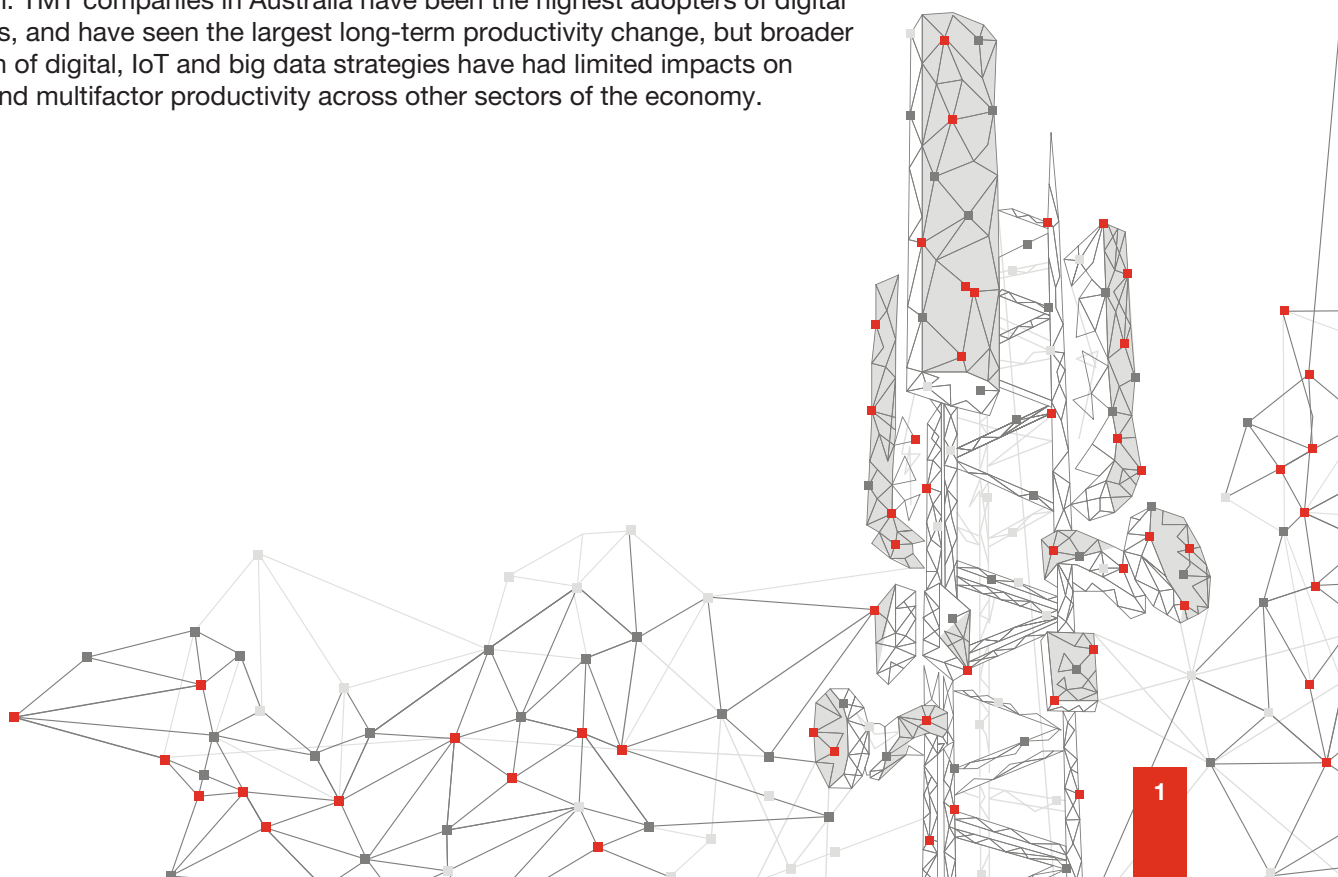
July 2020



Overview

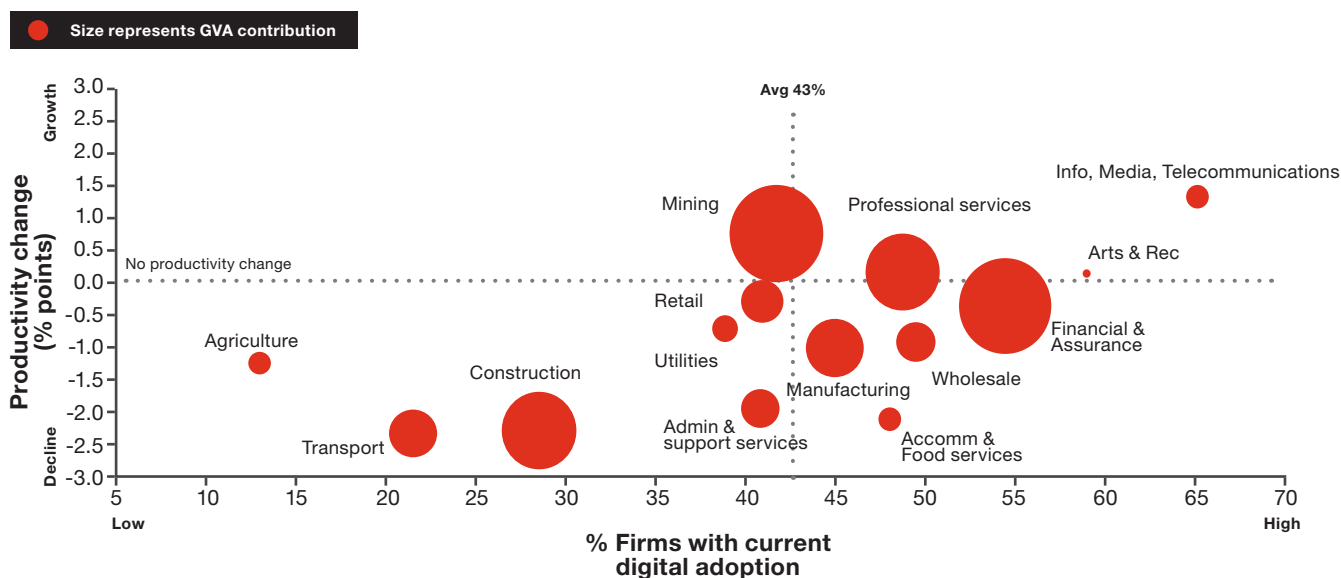
On 25 January 2020, authorities confirmed the first case of COVID-19 in Australia. By March, there were so many unemployed workers registering online for welfare support (100,000+ in a single morning) that some mistook it for a cyber attack. The International Monetary Fund has warned Australia could be one of the worst-hit economies in the Asian region, with the Australian economy forecast to shrink 4.5% this year. While businesses, government and society more generally are naturally focussing on the immediate 'shock' and 'management' phases outlined in [Australia Rebooted](#), it is important to look beyond to consider what the economy and nation will look like in a post-COVID-19 world.

The telecommunications, media and technology (TMT) industries have a critical role in navigating Australia through the crisis and emerging from it stronger. COVID-19 comes at a time when technology trends have been reshaping the economy, but arguably not fundamentally transforming it. Australian companies are increasingly spending on technology products and services, yet some of the largest contributors to the economy are still below average in their digital adoption. TMT companies in Australia have been the highest adopters of digital practices, and have seen the largest long-term productivity change, but broader adoption of digital, IoT and big data strategies have had limited impacts on labour and multifactor productivity across other sectors of the economy.

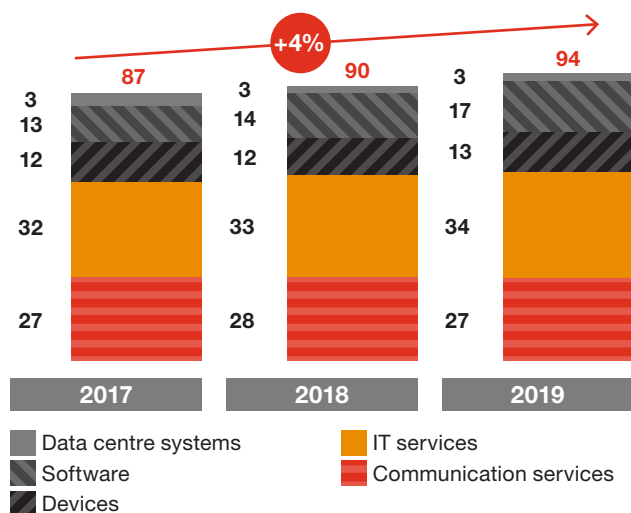


Digital adoption and productivity pre-COVID-19

Multi factor productivity change & digital adoption ^{1,2,3}



Australian spend on technology product and services 2017-19 \$Bn, AUD



The impacts and implications of COVID-19 on the telecommunications, media and technology (TMT) industries are different to other industries. TMT organisations play a critical role that affects how society and government respond during the initial shock and subsequent management phases. These organisations develop and test COVID-19 safe technology, create or deliver high-quality content that can be consumed in lockdowns, disseminate required news, health and safety information, and provide platforms to stay connected and run households and businesses digitally.





¹ Multifactor productivity measures the growth in value-added output (real gross output less intermediate inputs) per unit of labour and capital input used. Quality adjusted hours worked basis measures both changes in hours worked and changes in quality (that is, changes in educational achievement and experience).






² Productivity change refers to the difference between multifactor productivity compound annual growth rate (CAGR) in 1995/96-2006/07 and 2007/08-2018/19.

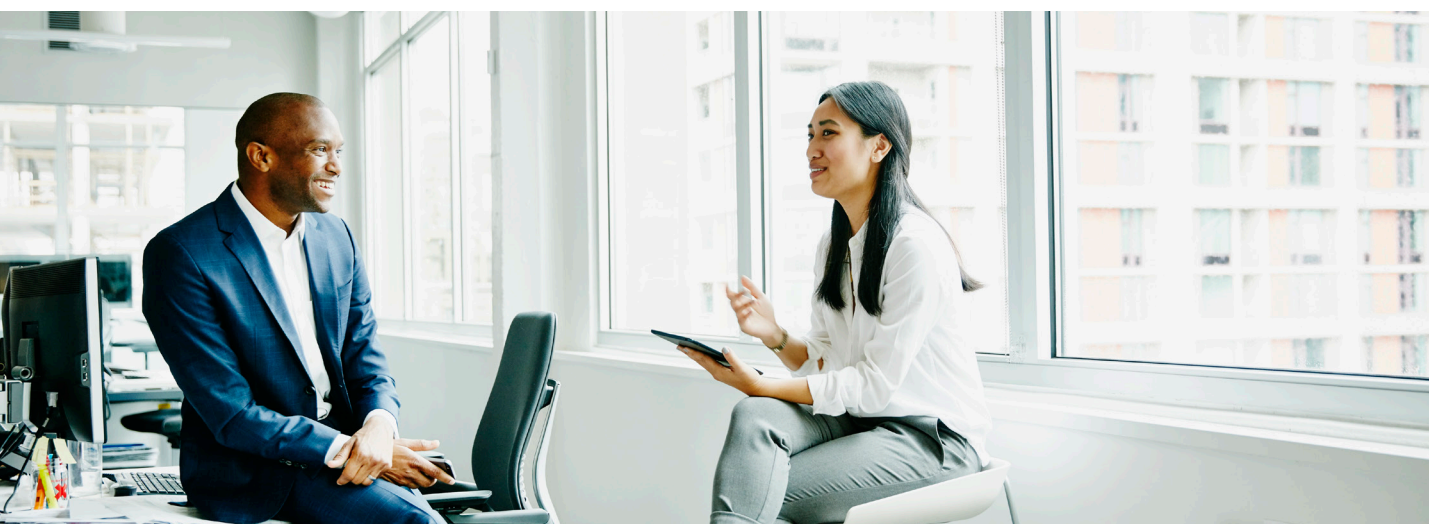
³ Refers to avg. % firms with a web and social media presence, that also used paid cloud computing in 2015-16. Industries with many small businesses (e.g. agriculture) will score worse than those with fewer small businesses (e.g. telecommunications).

Forces for change

Within a rapidly changing public and private sector environment, PwC has distilled nine forces of change that may shape the post-COVID-19 recovery phase of the Australian telecommunications industry. These originate from trends emerging in Australia and worldwide, enriched through discussions with clients, industry leaders and government experts. The sole objective is to identify factors that may have a high-level of influence on what Australia will look like in the future and take a medium- to longer-term view to assess the impacts of COVID-19 on the Australian telecommunications industry.

Forces	Implications	Selected challenges
 Government involvement	<p>COVID-19 has put pressure on federal and state governments to rapidly consider immediate and longer-term support for ICT industries, especially telecommunications, who are seen as critical to the economic recovery of Australia.</p>	<ul style="list-style-type: none"> • Prioritising where to intervene for ICT enablement: cities, regions, industries, emergency services, health and education • Identify win-win 5G and related network deployment models - where industry and government work together to expedite deployment, share infrastructure and reduce cost • Addressing disseminations of inaccurate information, such as fake news regarding 5G
 Debt and capital	<p>Through the crisis some operators and suppliers are likely to face cash flow and financing difficulties and some may also need to bring forward CAPEX for network upgrades and resilience at the same time. Some operators are also faced with additional cost burdens having to change network suppliers following the Telecommunications Sector Security Reforms.</p>	<ul style="list-style-type: none"> • CAPEX prioritisation and sequencing will be a balancing act, with the decision criteria changed by the COVID-19 impact on demand and affordability • For example, CAPEX slated for 5G may need to be redirected to network expansion and resilience, slowing the implementation of 5G
 Consumption behaviour	<p>Connectivity is now seen as the lifeline that it has always been. Customers will seek greater value and performance – appreciating data capacity limits and potentially needing ‘more for more’ through current plans. Enterprises may rebalance consumption as WFH becomes normal and on-site connectivity requirements change. SMBs may be slow to pick up – given many cohorts’ underutilisation of connectivity and ICT services.</p>	<ul style="list-style-type: none"> • Seek network optimisation solutions across fixed and mobile technologies that deliver better performance • Maintain margins as costs increase for network upgrades and operations. For example: <ul style="list-style-type: none"> – Telecommunications products have been traditionally priced and tiered on a data capacity basis – As unlimited plans become the new expectation, the ability to supply unlimited products given the network cost implications
 Accelerated digitalisation	<p>Network operators need to accelerate the digitisation of their operations to improve responsiveness as customers’ requirements change, and to control costs. Many are on the journey, but the job now needs to be accelerated. At the same time, increased digitisation will also magnify the impacts of cyber threats and disruptions.</p>	<ul style="list-style-type: none"> • Complexity of technology stacks, combined with legacy equipment throughout the network makes end-to-end digitisation a challenge • Focus on business continuity issues may shift resources away from existing transformation and digitisation programs • Ability to harden networks against cyber threats

Forces	Implications	Selected challenges
 Productive, flexible & distributed working	<p>Most Australian businesses will seeking new or alternative ways of working in the coming years (e.g. fixed broadband at home), with hybrid approaches emerging as restrictions on workplaces are removed.</p>	<ul style="list-style-type: none"> • Ability to manage, provision and bill more flexibly e.g. as enterprise and consumer usage blurs on the same product • Develop specific small and medium-sized businesses (SMB) offerings to enable their reemergence • Maintain an acceptable level of customer service while operations have been disrupted
 Resilient supply chains	<p>Operators are going to be more exposed to weaknesses in the supply chain than before, due to local partners' challenges or disruptions to the flow of imported goods or services (e.g. contact centre shutdowns in India and Philippines, and equipment shipping issues).</p>	<ul style="list-style-type: none"> • Business continuity for operations, particularly in light of supply line challenges • Speed of improving network resilience and reliability, particularly if using a myriad of suppliers to deliver and operate network • Ability to increase network capacity as majority of network equipment is imported, thus vendor supply chains may be disrupted, and overall demand globally from other telecommunications increase
 Industry consolidation	<p>The importance of telecommunications infrastructure has been underscored during this period. This will increase investor interest in assets and potentially bring new capital sources into the telecommunications industry.</p>	<ul style="list-style-type: none"> • Future asset prices may increase and inorganic growth options become more expensive • Higher prevalence of business and operating model reforms that impact infrastructure ownership • Pressure to maintain acceptable return on investment capital (ROIC) levels drive the need for greater infrastructure or network sharing
 Migration	<p>Given the maturity of the Australian telecommunications market, restricted migration may flatten consumer growth. As a key force underpinning Australia's recent growth, an overall reduction in consumption may impact discretionary consumer telecommunications spending.</p>	<ul style="list-style-type: none"> • Managing consumer growth, both for services and replacement handsets • Potential revenue and margin impact as competitors resort to price wars to generate growth
 Tax reform	<p>Whilst telecom operators are major taxpayers, some are also recipients of state and federal funding for building out networks to support connectivity where it is critical to topics such as emergency response and regional connectivity.</p>	<ul style="list-style-type: none"> • New opportunities to seek fiscal support from government for network expansion and capability development

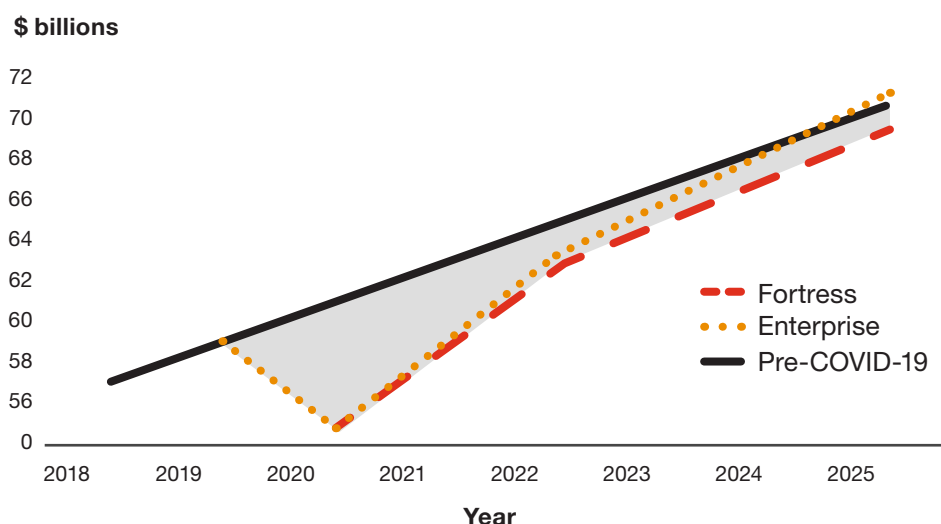


Potential impact scenarios

The forces of change could play out in a variety of ways. The future of Australia's economy will ultimately depend on government, business, and community actions. This uncertainty makes life difficult for executives who face serious choices now with potentially far-reaching consequences. To inform these tough decisions, we have modelled two potential scenarios for the Australian economy as we emerge from the mobilisation phase of COVID-19. 'Fortress Australia' assumes a greater focus on strong government regulation while 'Enterprise Australia' puts the recovery in the hands of Australia's enterprises. These scenarios were compared against a base case which models a continuation of pre-COVID regulation and market dynamics.

The Fortress Australia scenario sees government play an active role in protecting telecommunications assets and operations: an increased push to protect telecommunications supply chains, increase regulation on, and greater restrictions of foreign investment. By contrast, the Enterprise Australia scenario sees a continuation of the industry leading investment decisions based on market demand and seeking to maximise productivity and efficiency. The government reduces limitations on access to foreign capital and barriers to trade which sees the economy double down on globalisation. Existing digitisation plans are accelerated and new plans are implemented.

Impact on gross value added (GVA⁵) by scenario, 2018-2025, \$ billions⁶



⁵ GVA refers to monetary value of all goods or services produced by the industry

⁶ Values reported are total net impact vs. a base case over 2020-2025, reported in real 2019-20 dollars with net present values discounted at 1% pa

Note the ABS defines 'communications' as: publishing, motion picture and sound recording activities, broadcasting, internet publishing and broadcasting, telecommunications services (wired and other), internet service providers, web search portals, data processing services and library and other information services.

Main implications

PwC estimated the economic implications and the main impacts of COVID-19, then modelled how each recovery scenario would affect the communications industry.



Fortress Australia



Enterprise Australia

Description

Characterised by nation-first decision-making, strong border restrictions and high levels of government intervention in industry

Globally-connected Australia where private industry carries the burden of driving growth out of the crisis





Main impacts

- **Trusted supply chains and push for increased nationalisation:**
 - Sourcing of telecommunications infrastructure from 'supply champions' in trusted jurisdictions
 - Government intervention in telecommunications operations if security and stability are demonstrated to be at risk
 - Strengthened regulation to ensure consumer handsets and equipment meet security standards
- **Increased regulation:** Telecommunications viewed as a crucial service in recovery, leading to greater regulation (e.g. akin to utilities sector) and development of privatisation plans for NBN put on hold
- **Infrastructure investment to stimulate the economy:** Potential injections from government into telecommunications infrastructure, e.g. last-mile NBN upgrades, underlying infrastructure to support 5G rollout, smart manufacturing and industry 4.0, etc.
- **Increased scrutiny on foreign ownership:** Reduced M&A activity and consolidation associated with entities owned outside of the trusted supply chain
- **Costs increase:** Costs rise as localisation increases, leading to consumer price increases and potential for government subsidies to ensure accessibility for all citizens

- **Telecommunication enables corporate Australia to boost productivity:** As enterprises recover and accelerate digitisation, telecommunications invest in capabilities as demand for communication services rise:
 - Continue to implement 5G and IoT
 - Upgrade infrastructure
 - Develop solutions to enable smart manufacturing and Industry 4.0
 - Flexible and remote working fully enabled driving regional and rural Australia
- **Investments in technology and infrastructure rise:** Foreign direct investment (FDI) drives merger and acquisition activity as investors see the opportunities in a rebounding economy and telecommunications technology
- **Regulations facilitate development of industry:** Greater industry and government partnerships drive growth which supports 5G and fibre deployment models and innovation in IoT, as well as digitisation use cases across sectors





Subsector themes

The forces of change and broader impacts of the COVID-19 recovery vary under each scenario, and impact sub-sector/revenue streams in the telecommunications industry. PwC see four types of recovery trajectories that are conceivable for different types of revenue:





Recovery subsector trajectories	Trajectory	Description
1 New levels of demand		Demand surges during shock and management, and persists afterwards
2 Short-term growth spike		Demand surges during shock and management, then reverts to pre-COVID levels thereafter
3 Deferred demand		Demand falls during shock and management, then spikes during recovery, making up for lost sales
4 Gradual recovery		Demand falls during shock and management then slowly grows back to baseline over time

The anticipated impact of COVID-19 and recovery trajectories for the different revenue streams are explained below for the consumer segments.

Consumer segment




During recovery	Revenue streams	Key drivers	Fortress Australia	Enterprise Australia
New levels of demand 	<ul style="list-style-type: none"> Fixed broadband (NBN connected services) Mobile broadband (4G/5G) Fixed wireless access Online gaming 	<ul style="list-style-type: none"> Living and working from home drives greater use of fixed/WiFi offload Long term changes to future consumption patterns 	<ul style="list-style-type: none"> Fortress Australia policies subsidise cost of connectivity, either directly (e.g. wholesale access pricing) or indirectly (e.g. welfare) 	<ul style="list-style-type: none"> Improved customer experiences enabled by adoption of services and accelerated investment in networks
Short-term growth spike 	<ul style="list-style-type: none"> Prepaid mobile 	<ul style="list-style-type: none"> Consumers seek to stay connected Price-sensitive segments switch from postpaid to prepaid services 	<ul style="list-style-type: none"> No difference for Fortress Australia 	<ul style="list-style-type: none"> No difference for Enterprise Australia
Deferred demand 	<ul style="list-style-type: none"> Postpaid mobile Media and sport bundles 	<ul style="list-style-type: none"> Downturn drives plan downgrades for price sensitive segments and customers defer signing new contracts Restrictions prevents live events and disrupt content production Switching from cable TV to online streaming services accelerated 	<ul style="list-style-type: none"> Forced or incentivised use of tracing apps for personal safety drives need to maintain mobile data access Government intervenes to stimulate local media sector to produce new content (improving sector efficiency) 	<ul style="list-style-type: none"> Mobile plans maintained or stimulated by marketing/goodwill offers Innovation in content production and delivery of sporting events stimulates greater consumption and interest
Gradual recovery 	<ul style="list-style-type: none"> International roaming Handsets and accessories Advertising Consumer IoT (smart home appliances and wearables) 	<ul style="list-style-type: none"> Travel restrictions impact international roaming Economic downturn drives sensitivity on 'discretionary' items 	<ul style="list-style-type: none"> Potential for prolonged impact to international travel Restricted supply chains result in higher consumer electronics prices 	<ul style="list-style-type: none"> Enterprise Australia similar to pre-COVID-19 state

Business and wholesale

During recovery	Revenue streams	Key drivers	Fortress Australia	Enterprise Australia
New levels of demand 	<ul style="list-style-type: none"> • IaaS/SaaS • Cybersecurity • Unified comms • Managed services • IoT/Industry Solutions (e.g. health, manufacturing, agri, mining) 	<ul style="list-style-type: none"> • Employees working from home drives demand for distributed computing and networks. Heightened focus and government subsidisation of cybersecurity 	<ul style="list-style-type: none"> • Heightened focus by government on cybersecurity of critical telecommunications networks • Australians work from more rural and remote areas; a reduction in the 'central office' and transition to hub models e.g. contact centres • IoT/Industry 4.0 push from government sees greater demand for smart manufacturing equipment and services 	<ul style="list-style-type: none"> • Growth maintained due to businesses adopting digital solutions to transform and reshape business in innovative ways • Heightened focus by private enterprise on cybersecurity • Push for 'safe, smart manufactured, Australian products' to capitalise on slow South East Asia recovery
Short-term growth spike 	<ul style="list-style-type: none"> • IP & data/business broadband • International IP 	<ul style="list-style-type: none"> • Growth during shock and management due to workers needing to stay connected while working from home • Returning to normal levels due as restrictions ease 	<ul style="list-style-type: none"> • No difference for Fortress Australia 	<ul style="list-style-type: none"> • Innovation in business offers and fixed/mobile solutions to support employees working from home and/or flexible working • Surge in consumer demand for content drives international IP
Deferred demand 	<ul style="list-style-type: none"> • Video-conferencing and collaboration (between offices) • Enterprise mobility 	<ul style="list-style-type: none"> • Industries return to work at the office, requiring more advanced digital connectivity and solutions • Many workers continue to work remotely 	<ul style="list-style-type: none"> • Potential tax concessions or support provided as stimulus for businesses to work from regional or remote parts of Australia 	<ul style="list-style-type: none"> • Enhanced video conferencing solutions and infrastructure as a alternative to travel • Industry actively drives innovation and digital adoption
Gradual recovery 	<ul style="list-style-type: none"> • International roaming • Wholesale MVNO • Small/medium business solutions • International managed services 	<ul style="list-style-type: none"> • Cautious restart of international travel impacts roaming • Economic downturn leads to price sensitivity and damages SMB sector • Focus to onshore operations and build resilient/local supply chains 	<ul style="list-style-type: none"> • Travel restricted to select international destinations, impacting roaming • Prolonged downturn and economic activity damages to SMB sector • Government incentivises business to on-shore operations and build resilient/local supply chains 	<ul style="list-style-type: none"> • Faster economic recovery than otherwise sees a gradual return to normal revenue levels • Emergence of new SMB business models and platforms

How to respond

The scenarios of Fortress Australia and Enterprise Australia show how profoundly different the nation's post-pandemic economy could look, depending upon the decisions leaders take today. Amidst the nine forces of change, telecommunications leaders must consider trade-offs and make strategic choices to steer their organisations towards a better tomorrow. Below are some of the most pressing issues to consider.

Force	Potential responses
 Government involvement	<ul style="list-style-type: none"> • Make the case for reform of regulations to assist the telecommunications industry in rebooting Australia • Shape policy responses to fund critical capabilities, such as for emergency response, blackspot coverage and regional connectivity
 Debt and capital	<ul style="list-style-type: none"> • Review and reassess CAPEX timing and geo-locations, balancing the future gains from investment in network growth, network resilience and network operational efficiencies • Refinance or increase debts, taking advantage of low interest rates • Divest non-strategic assets, taking advantage of buoyant asset values for infrastructure
 Consumption behaviour	<ul style="list-style-type: none"> • Adjust value propositions aligned with WFH expectations and changing customer usage e.g. fixed mobile convergence • Launch new products for a post-COVID world e.g. data solutions to mitigate impact of pandemic, digital identity as remote activity becomes the norm • Develop innovative products and pricing plans that both empower, and make transparent, enterprise and personal usage while working from home • Align and optimise operations to maintain margins in an environment of 'unlimited' data capacity products
 Accelerated digitisation	<ul style="list-style-type: none"> • Review and prioritise balance of investment into business continuity vs. operational uplift • Review technology landscape and accelerate digitisation of operations, now with a focus on areas to improve customer responsiveness and post-COVID areas of opportunity • Work with suppliers to bolster networks and review vulnerability to cyber threats
 Productive, flexible and distributed working	<ul style="list-style-type: none"> • Create new products that soften the boundary between enterprise and consumer whilst enabling users to switch fluidly between both • Implement changes in operations and across the customer value chain e.g. product management, provisioning, billing etc. to enable faster changes from customer requests • Review delivery of customer service e.g. on/off shoring and operations of suppliers • Use chatbots/AI for routine service enquiries, use customer service agents for urgent/complex requests and consider new models of service delivery e.g. tele-help as importance of retail footprint diminishes
 Resilient supply chains	<ul style="list-style-type: none"> • Review and identify weakest points of the network from all lenses e.g. network capacity, network footprint, operations and maintenance • Deploy/upgrade intelligent/self-healing networks • Build agility to deal with international supply disruptions and deepen partnerships with vendors to secure equipment • Acquire other networks for capacity/footprint
 Industry consolidation	<ul style="list-style-type: none"> • The portfolios of some financial investors and assets managers may be impacted negatively. Given the attractiveness of telecommunications assets, they may be open to monetise these assets if the opportunities arise.
 Migration	<ul style="list-style-type: none"> • Review and assess future scenarios of consumer demand and adjust products and services to align with consumer expectations • Optimise operations to protect and maintain margins in a price competitive environment
 Tax reform	<ul style="list-style-type: none"> • Engage with state and federal government on channelling fiscal support to economic development, enabled through ICT measures

Examples observed in the industry so far

Globally, leading telecommunications organisations are responding to the COVID-19 crisis in various ways. They are evolving to meet higher demand for home connectivity, and adapting to pressures on their operating model, in areas such as sales and service.

Telecommunications provider (US)



- **Working from home models:** Established WFH infrastructure for call centre employees
- **Media and entertainment bundles:** Free bundling of paid subscription services for customers
- **Digital transformation:** \$6bn cost and efficiency initiative, incl. changes to retail and third-party distribution capabilities
- **Mobile broadband (5G):** Continued deployment of sub-6 GHz launch
- **Fiberisation:** Continued investment in fibre and broadband

Telecommunications provider (UK)



- **Reshoring:** Completed the reshoring of all call centre roles to the UK, and will give call centre staff a 1.5% pay rise following the increased workloads
- **Accelerated investment:** Suspended dividend payments to bring forward CAPEX
- **Fiberisation:** Additional focus on \$22bn plan to invest FTTP to 20m UK homes by late 2020
- **Remote working:** Invested in Green Tech Innovation Platform including 5G to support reduced travel and remote repair and diagnostics work
- **Internal transformation:** for “leaner, simpler and more agile” business with reduced workforce to reduce costs

Telecommunications provider (US)



- **Fixed wireless (5G):** Increased demand for a stationary 5G Home product and a clear prioritisation of 5G over FTTP
- **Accelerated network investment:** Budgeting an additional \$500m for network infrastructure improvements in response to COVID demand

Telecommunications provider (UK)



- **Support for frontline staff and facilities:**
 - Providing unlimited data for care workers and National Health Service staff
 - Providing emergency coverage for temporary new hospitals
- **Support for government:** Assisting governments in developing insights (e.g. location) based on large anonymised data sets
- **Support for customers:**
 - Free deliveries to customers
 - Vulnerable customers have access to 30-days free unlimited mobile data
- **Work from home models:**
 - Moved ~2,300 call centre employees to work from home
 - Phone lines to stores have been re-routed to store managers and staff

Emerging stronger

Telecommunications leaders face a multitude of competing priorities, and the decisions they make will have far-reaching consequences for their organisations and the wider economy. Part of the challenge is seeing the wood for the trees. To bring clarity in this uncertain environment, leaders can plan in three phases: immediate, medium-term, long-term. Contact the PwC team to dive deeper into what these phases might mean for your organisation.

Horizon	Immediate Next 6 months	Medium term 6 months to 2 years	Long term 2+ years
	Emerging stronger priorities <ul style="list-style-type: none">• Prioritise sustainability of WFH models across economy• Provide support to vulnerable partners and channels• Reshore/onshore target customer care activities• Launch SMB reboot offerings• Fast forward 5G deployment to complement 4G and fixed broadband• Invest in network resilience as well as cyber security• Engage with governments to identify immediate ICT needs to kick-start growth	<ul style="list-style-type: none">• Build agile work/office models for B2B including SMBs• Target long-term retail channel, as well as partner footprint and model• Identify capabilities to scale right-shored/automated care and back-office support• Prioritise 100% digitised operations• Develop infrastructure partnerships for FBB/MBB connectivity• Launch first of kind industry and regional partnerships to ICT-enable jobs and growth	<ul style="list-style-type: none">• Continuously evolve support for B2B operating models• Land on 'right-sized' retail consumer footprint for future• Iterate region/suburb/CBD working models and culture• Operate fully digitised, intelligent enterprise• Scale up 4.0 ICT services in all categories (large enterprise, SMB and home)• Evolve cross-industry business models to scale ICT-enablement roles across economy





Contact us to find out more

During these challenging times, PwC can share data and insights to stress test your scenario planning and inform your strategic decision-making. Our purpose is to build trust in society and solve important problems. Get in touch to find out more.



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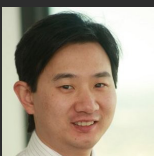
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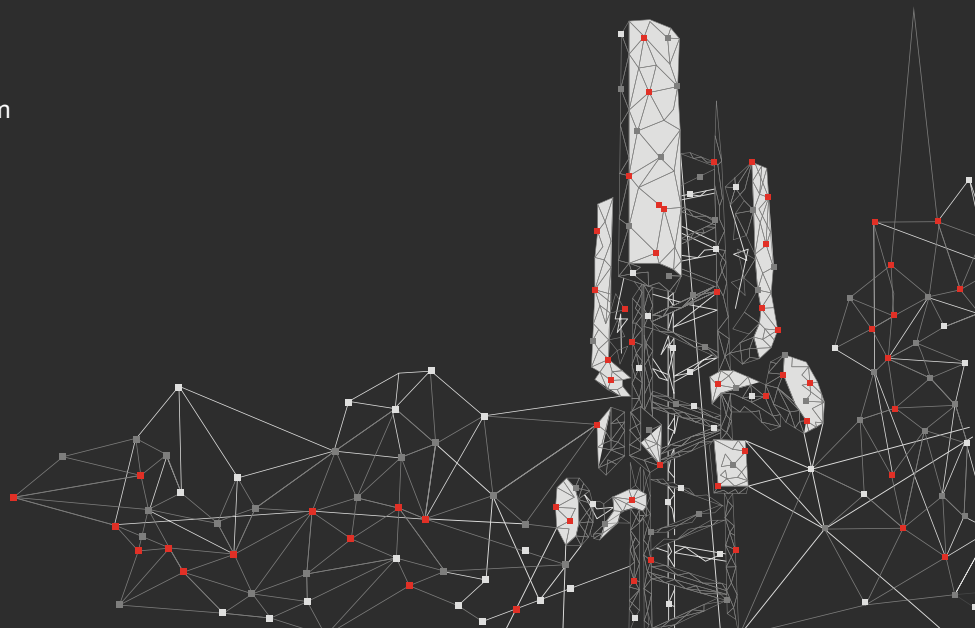


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