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How are advances in digital technology changing the way you work, your industry and your community?

The teleworker vision of a decade or more ago is becoming a reality, with more people working across geographically diverse areas, and relying less on face-to-face connections (although they are still important). This, combined with access to better tools, is driving greater use of images (still and video) to assist communications.

We are seeing a shift to productisation, self-service and automation. This is reshaping jobs and shopping habits. It's also changing our literacy requirements – reducing the need for some skills while introducing new skillsets necessary for participating in modern society.

What is your vision for an Australia that thrives in a digital economy? Where would you like to see Australia in 5, 10 and 20 years' time? What is the role of government in achieving that vision?

The London Underground has as its vision "valuing time" – customers' time, staff time, supplier time. This drives decision making and encourages pursuit of efficiency. Such a sentiment for Australia might be reflected in terms of "doing it smarter" – which means using available information to adapt how we engage to suit the situation. Our public institutions in particular are rigid and "dumb" and miss opportunities to maximise value from engagement with the public. Over this period, Government needs to be an enabler and partner to industry.

5 years

- A clear plan for educating for industry 4.0 that is integral to our education system. It will describe a systematic approach for leveraging the know-how and vested interest of many industries to support teacher training and resource redesign.
- A global leadership position in data analytics to complement our reputation for punching above our weight in positioning and disruptive innovation (WIFI, Bitcoin).
- On the way to redefining the Australian identity in a global landscape with the Australian public.

10 years

- We will have well developed predictive modelling that underpins agile approaches to education, town planning and economic development.
- Our education system matches our identified growth opportunities

20 years

- We will be well advanced in transitioning from city-centric to region-centric population thinking as work becomes less connected to physical locations
- The 'Smart city' way of building will become the accepted norm, all aspects of new buildings and towns will be modelled before the soil is turned so that we can maximise space, waste reduction, urban footprint, demand on resources, planning of green space to mitigate CO2 gas emissions, transport needs and even integration of renewable resources into infrastructure- such as piezoelectric roads and bike paths currently being used in Norway that generate electricity just by being walked/ driven on. With a collaborative relationship between government, science and industry Australia has the space, the data and the people to make this a reality.

Spatial Industries Business Association
Geospatial Information Technologies Association (Australia, New Zealand)
National Office
64 Sylvan Road, Toowong, QLD 4066
ABN 98 095 895 819

E info@siba.com.au
P 1300 733 784
D +61 (0) 2 6282 5793
W siba.com.au

What key disruptive technologies or business models do you see? What do you predict is on the horizon in 5, 10, 20 years' time?

5 years

- Predictive models in big data analytics:
  - industry
  - agriculture
  - marketing
- Decentralised services e.g. power networks:
  - micro grids
- Government tax and revenue sources:
  - Coal royalties reduced significantly.

10 years

- Internationalisation of currency e.g. bitcoin
- Autonomous transport
- Integrating renewable resources into everyday infrastructure planning such as solar paint being used on cars, solar producing cells being used in windows and tops of buildings reducing our reliance on non-renewable resources but creating different revenue streams for the government through partnership with cutting-edge Australian innovators by keeping revenue within Australia.

20 years

- Autonomous services e.g. rubbish removal
- Workforce Robotics.
- Cyborg implants.
- Cease reliance on non-renewable resources

What communication services, and underlying data, platforms and protocols, does Australia need to maximise the opportunities of the digital economy?

Communications Services

- Wireless networks enabling the IoT applications and uses.
  - Mobile x-ray at spot fields
  - Vehicle to vehicle communications
- Hardwired / Fibre backbone for moving volumes of data
- We need Fibre to the home in urban centres

Underlying data

- Underlying data frameworks for data repositories to enable sharing.
- Community and government
- Geographic, location, and remote sensing frameworks to morph and keep pace with a changing landscape.

Platforms and protocols

- Security enabled
- To be determined

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What opportunities do we have to accelerate the development of technologies that will underpin Australia's digital economy?

- Shift to knowledge based industries.
- Decentralise training and R&D focus from cities to include all major regional centres.
- Transition expectations from services/hospitality industry to IT information services industry.
- Invest in Asian region/developing populations as a means to scaling the local opportunities.

What opportunities do we have in standards development and regulation to:
– enable digital entrepreneurship, innovation and trade?
– mitigate the risks associated with digital disruption?

- A standard MO to Partner with industry – NBN is a case where we did not partner with Telstra and Optus to roll out infrastructure. We did not share the risk and we will pass over the rewards to the two companies eventually.
- The government's role is to regulate and help enable commercial industry. By creating commercialisation of government departments creates further competition for private industry whilst also slowing down and confusing the regulation process. If the government was able to focus its energy more on streamlining and improving the regulatory conditions placed on private industry this would in turn remove barriers and improve the rate of productivity to allow greater scope for innovation within Australian industry and allow Australia to compete more equally on a world stage. Thereby increasing more revenue for the government by encouraging the growth of Australian owned and operated businesses.
- In order to mitigate digital disruption we need to encourage partnership between industry and the Asian region to enable scale and focus.

What digital standards do we need to enable Australian businesses to participate in global supply chains and maximise the opportunities of the digital economy?

Better understanding of fundamental data sets in the "big data" equation – who owns them, who creates them, who can access them? Who can modify them? How are they to be stored? Which of them are critical infrastructure in a digital economy?

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What opportunities do we have to build trust and community confidence through resilience to cyber threats, online safety and privacy? What roles should government, business and individuals play in protecting the community in a digital economy? What integrity and privacy measures do we need to ensure consumers can protect their data? What are barriers for business, particularly small business, in adopting cyber security and privacy practices? What is holding Australian businesses back in terms of benefiting from digital technologies?

We really need Government to work with industry collaboratively to develop new governance frameworks to be updated to match the digital economy. We have been seeing government engaging in entrepreneurship (labelled innovation) leaving the governance development to industry. Government does have a role to play in market-making – this is most helpful in the form of working with existing and emerging industries to remove Government-controlled barriers, for example developing appropriate open data policies. Other issues include:

- Aging CEOs and Boards
- Unreliable internet – fixed and mobile.
- Security - perceived and real threats.
- Data structures.
- Government's own inability to provide internet solutions including NBN.

What would help Australian businesses to embrace digital technologies? What efforts are you or your organisation making to respond to digital transformation? Why?

Helping businesses to plan for transformation – this needs to be relatively targeted and many of the available grants across Australia are excellent for this. Businesses embrace technology that solves an identified problem. If the business continues to make reasonable profit without the technology, what's the problem? In many cases, the problem is that they don't build a war-chest while the times are good, and by the time they realise they need to change, they lack the resources to do so. Financial support (direct to businesses needing to change and to organisations who might support them) needs to continue to be available for the foreseeable future.

What opportunities do we have to use digital technologies to improve linkages into export markets and global supply chains?

- Create proportional commitment from Google, Apple and others for the local development of technologies in Australia as part of being a corporate citizen.
- Focus development on emerging Asian countries and Australia's unique location and political stability in the region.
- Partner frameworks within STEM educational pathways between Asia and international institutions.

What opportunities do small and medium-sized businesses have to embrace digital innovation to drive customer value, improve their services and unlock their potential?

- Leverage the platforms developed and already available.
- Aim to be the leaders in value added services on these platforms.
- Localise content to the Australian and regional Asian market.

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What are the key new growth industries that Australia should be tapping into? In what technologies and sectors should Australian businesses take the lead, and where should we be a 'fast follower' of international trends?

- Geospatial Big Data – analysing remote sensing and spatial data at scale for business and corporate benefit.
- Algorithm development - getting the smarts out of the small niche industries and applying it at scale in national products.
- Corporate integration within the cloud – enabling linkages between analytics (Algorithm Development) and corporate systems in a way which adds value and delivers reporting in a business consumable form.

What opportunities do we have to equip Australians with the skills they need for the digital economy, today's jobs, and jobs of the future? What opportunities do we have to bridge the 'digital divide' and make the most of the benefits that digital technologies present for social inclusion?

We can concentrate on building the support networks around the digital development. Crowd sourcing help from the community in a structured way (just like we do for the Commonwealth Games for example) greatly increases our ability to maintain social connection and identify vulnerability.

What opportunities do we have to ensure digital technology has a positive impact on the cultural practices and social relationships of Australians?

We can include anthropologists and social "experts" in activities that initiate, implement, monitor and evaluate digital development. We can maintain collaborative networks, including community, industry and professional associations in traditional and emerging industries to help share the load of navigating the experiences of diverse members of our community. We can provide smarter support mechanisms that meet people where they are by improving education and making the innovation conversation a normal and natural progression for the Australian population. By pitching our ideas for change and innovation at the public brings them on the journey so that they understand and begin to champion our cause. Greater community engagement with science and data collection is already a reality through our younger generation of digital natives by businesses who are capitalising on the hive mind of the public by developing Aps to encourage them to become citizen scientists to collect data on our behalf at no or minimal cost but by doing so they become engaged and interested in their future world landscape. Only with the public's collective buy-in can we realise our digital future.

emailing: digitaleconomy@industry.gov.au.

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