A Snapshot of Australia’s Digital Future to 2050

- Looking ahead of existing research: how can Australia harness superfast broadband and digitalised technology to create a sustainable economy?
- The first report in the world to rate all of a nation's industry classes against the impact of the Fifth Utility

In doing so, it asks...

- How will our lives, our cities and the way we interact change?
- Which industries are at risk? Which will prosper? And what new industries will emerge?

Report will be launched on 14 June – preview of the findings today!
Our Fifth Utility

- The Fifth Utility refers to the utility enabling the second half of the Infotronics Age from 2007 to the late 2040s: superfast broadband, plus artificial intelligence software, analytics and more.

- Progress is being driven by the convergence of digitalisation, cloud computing, analytics, artificial intelligence and ubiquitous fast broadband – fixed, mobile and wireless.

- These technologies will lead us to a point where a large percentage of Australia’s products and services – and work itself – will be strictly digital.
What the IBISWorld report reveals

- By 2050, the Fifth Utility will underpin 23% of existing Australian industries and contribute over $1 trillion to Australia’s GDP (in today’s price terms)

- Number 1 industry to receive transformational benefit is Public Administration, Safety and Defence

- 15 industries predicted to meet demise

- By 2030, Australia’s resource focus will shift from natural resources to ‘developed resources’ (educated labour force, internet, communications, infrastructure, tourism, services and utilities)

*Fast and superfast broadband essential – not a delete option*
Perspective:
Australia’s Progress
Ages of Australia’s Economic Progress

GDP /capita @ F2011 constant prices 1788-2011

Hunting Age
Hunting, trapping, fishing, crafts, religion

Agrarian Age
Agriculture, Mining, Banking, Commerce

Industrial Age
Manufacturing, Construction and Utilities (electricity et al) dominate

Infotronics Age
Service industries (esp. quaternary) and IC&T

Enlightenment Age
Service industries (esp. quinary)
Imbedded intelligence, neural network programs
More electronic “guardian angels”
New technologies
Enabling Utilities

There have been enabling utilities (pervasive new systems and technologies for industries and households) in each new age

Hunting Age
- No pervasive utility (even the wheel was not a pervasive utility)

Agrarian Age
- Transport (including the wheel and carts, roads, water transport etc.)

Industrial Age
- Mechanical Power (water wheel and steam engines) in Stage 1
- Electrical Power (electricity & telephony) in Stage 2

Infotronics Age
- ICT (information and communication technologies) in Stage 1 to 2006
- Broadband (plus artificial intelligence software and analytics) in Stage 2 to the late 2040s
Importance of Industries
Shares of GDP by Industry Division, 1800 - 2050

Note: At market prices to 1940, at factor cost thereafter
Source: N.G Buttin, ABS & IBISWorld
Report Findings
Three levels of benefit from the Fifth Utility across the 509 classes of industry

- **Transformational benefit**
  - Key driver of revenue growth in all areas
  - Underpin the industry in terms of product, features and delivery, or indeed enable the industry to exist at all

- **Significant benefit**
  - Product embellishment or productivity gains
  - Leads to faster growth; lower costs; higher profitability

- **Generalised benefit**
  - Horizontal productivity gains ➔ current processes become more efficient
  - Driven largely by applications and communications tools which rely on broadband

- **Likely Demise**
  - Only <1% of industries face demise – the rest benefit to some degree
Of the 509 classes of industry revenue assessed...

- 23% will be transformed
- 23% will have a significant benefit
- 54% will have a generalised benefit
- <1% i.e. 15 industry classes out of 509 may not survive

3 of the top 7 Industry Divisions to benefit will be from Public Sector

- Number 1 industry to benefit: Public Administration, Defence and Safety
- Health Care and Social Assistance number (4th)
- Education (6th)
Impact by Revenue of Industries

Weighted revenue¹ of prospective Industries, % of total

Revenue
$A 1.25 trillion
(31% of nation)

Public Admin. & Safety/Def. 16.6%
15.3% Retail Trade
12.1% Mining
11.0% Health
10.8% Prof/Tech Serv
7.1% Education
6.9% Transport
5.6% Utilities
3.6% Construction/Tel & Media
2.4% Telecom/Media
2.1% Others
1.8% Adm. & Support Serv.
1.6% Manufacturing

¹ Divisions with scores of 3 or 2 only. Public Adm & Safety weighting halved due to double counting of revenue (transfer payments) and social welfare.

The above proportions do not purport to be convertible directly to ICT spending in the same proportions.
Findings: Public Administration, Safety and Defence
Public Administration: 12 of the 13 industry classes will experience a transformational and significant benefit

<table>
<thead>
<tr>
<th>Industry Class</th>
<th>Revenue Guideline $billion, 2012(E)</th>
<th>Transform</th>
<th>Significant</th>
</tr>
</thead>
<tbody>
<tr>
<td>7510 Central Government Administrn.</td>
<td>209</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>7520 State Government Administration</td>
<td>160</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>7530 Local Government Administration</td>
<td>19</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>7540 Justice</td>
<td>17</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>7551 Domestic Govt Representation</td>
<td>&lt;1.0</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>7552 Foreign Govt Representation</td>
<td>&lt;1,0</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>7711 Police Services</td>
<td>13.0</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>7712 Investigation &amp; Security Services</td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>7713 Fire Protection, Emergency Serv.</td>
<td>1.1</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>7714 Correctional and Detention Serv.</td>
<td>3.8</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>7719 Other Public Order &amp; Safety Serv</td>
<td>1.5</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>7720 Regulatory Services</td>
<td>0.6</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>
Vision Of The Future

- Interconnecting dynamically with citizens, communities and businesses in real time to spark growth, innovation and progress
- From a citizen’s perspective, the different levels and jurisdictions of government work seamlessly together to present a single service
- Every element of society and our communities is actuated and full of sensors capturing and providing information
- By harnessing the information thrown off by the networked world, governments can understand the interconnected nature of policy making
- At a local level, our Councils understand how a proposed policy change will affect the whole system-of-systems that make up our towns and cities
- Governments have collaborated in building intelligent transport infrastructure that offer citizens seamless door to door solutions.
- Enhanced public safety through the use of location information will radically change emergency response
How can Public Sector prepare for this digital future?

- Invest in intelligent infrastructure
- Use regulation to support the development of the networked world
- Create a more flexible governance model that enables resources to be moved around more easily
- Address the culture change issues this future may create
- Develop more agile structures for government to include private sector and community resources
- Prepare for the privacy debate; continue to improve cyber security
- Re-evaluate factors which inhibit seamless operation across all levels of government
Findings: Healthcare and Social Assistance
Healthcare: 15 of the 16 industry classes will experience a transformational and significant benefit

<table>
<thead>
<tr>
<th>Industry Class</th>
<th>Revenue Guideline $billion, 2012(E)</th>
<th>Transform</th>
<th>Significant</th>
</tr>
</thead>
<tbody>
<tr>
<td>8401 Hospitals (except Psychiatric Hospitals)</td>
<td>50.7</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>8402 Psychiatric Hospitals</td>
<td>0.8</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>8511 General Practice Medical Services</td>
<td>9.9</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>8512 Specialist Medical Services</td>
<td>10.9</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>8520 Pathology and Diagnostic Imaging</td>
<td>5.3</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>8531 Dental Services</td>
<td>5.5</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>8532 Optometry and Optical Dispensing</td>
<td>1.6</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>8533 Physiotherapy Services</td>
<td>1.4</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>8534 Chiropractic and Osteopathic Services</td>
<td>0.9</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>8539 Other Allied Health Services</td>
<td>&lt;1.0</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>8591 Ambulance Services</td>
<td>2.4</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>8599 Other Health Care Services n.e.c</td>
<td>23.9</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>8601 Aged Care Residential Services</td>
<td>14.2</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>8609 Other Residential Care Services</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>8790 Other Social Assistance Services</td>
<td>11.9</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>
Vision Of The Future

- Healthcare is poised to become Australia’s biggest industry in 2050 (already the nation’s biggest employer in 2012)
- A health system we can afford
- Health professionals practice to their qualification
- By 2050, Australia has halted the spiralling cost of healthcare, with a new model founded on:
  - Home-based care, enabled by telemedicine
  - Early intervention and prevention, enabled by home health monitoring
  - Tremendous strides in personalised medicine, enabled by health data
  - Homes are the primary care-centres
  - Consultations at the patient’s convenience
  - Hospitals are for acute care only
- Rise of the wellness industry
How can the healthcare sector prepare for this digital future?

- Invest in remote monitoring technology
- Introduce patient-centric care with dedicated teams of healthcare professionals
- Begin extending health care practice to professional qualifications; e.g. expand the pharmacy remit
- Begin building out the fitness centre concept into preventative health care
- Include prevention and wellness in nurse training
- Building Patient-Centred Primary Care Health Service Centres as the delivery unit for ambulatory care and acute situations
The productivity challenge

Australia’s new Century has not begun well in terms of productivity.

Compared with a long term average of 1.7% growth in GDP per hour worked, it has slowed to 1.2% in the 10 years to 2011, and 0.7% in the 5 years to 2011.
Productivity Growth
10 years to December 2011, % pa

-12 -11 -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6

Percent

Very long term average 1.7%

1 Value added/hour worked. Source: ABS/IBISWorld 22/05/12
Fifth Utility Impact

Industries with the worst productivity over the past decade...are among the ones that the Research Paper suggests will obtain the *most* transformational or significant benefit for the Fifth Utility.

They are:

<table>
<thead>
<tr>
<th>Industry</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mining</td>
<td>12% of the total high-end benefit</td>
</tr>
<tr>
<td>Utilities</td>
<td>6%</td>
</tr>
<tr>
<td>Education</td>
<td>7%</td>
</tr>
<tr>
<td>Govt, Admin</td>
<td>17%</td>
</tr>
<tr>
<td>Health</td>
<td>11%</td>
</tr>
</tbody>
</table>

52%
Capitalising on our Digital Future

- We has already entered a new era over the past five years, the second half of the Infotronics Age.
- Australia has experienced a golden age just three times in its two and a quarter centuries of progress, where full employment and a fast rising standard of living were *de rigueur*.
- Will this be the next golden age?
- Only if we embrace the fast changing economy and society of this new Century
- We must make good use of this vision of digital future that is underpinning so many of these changes.