

WEF Global Information Technology Report 2015: summary of Australian results

15 April 2015

Australia's digital competitiveness: findings from the World Economic Forum's *Global Information Technology Report, 2015*

The World Economic Forum's (WEF) *Global Information Technology Report 2015* assesses the ability of businesses and the wider community to utilise information and communications technologies (ICT), in order to support growth, competitiveness and development. It then ranks them across 143 countries, as of 2014-15.

In this year's report, the relative ranking of Australian businesses' ability to utilise ICT improved to 16th place in 2014-15, from 18th place in 2013-14. This improvement followed a period of deterioration over the decade to 2014, but it remains below Australia's peak of 9th place in 2004 (see Chart 1).¹ This long-term loss of ICT competitiveness has occurred despite an outright improvement in Australia's Networked Readiness Index (NRI), which measures our national ability to use ICT to boost competitiveness. Australia's NRI has improved since 2011, from a score of 5.06 in 2010-11 to 5.50 in 2014-15. However, a number of other countries have achieved a greater degree of improvement over this period, and so Australia's global ranking - which is a purely relative measure - had worsened until 2013-14, despite Australia's improved performance. 2014-15 saw a welcome improvement for Australia in both the absolute NRI measure and the national relative ranking.

Chart 1: Australia's Networked Readiness Index (NRI), score and ranking



¹ The annual WEF *Global Information Technology Report* commenced in 2001-02. The methodology for constructing the indexes has evolved over time to reflect rapid changes in ICT over this period, with a methodological series break in 2007.

Global best practice in digital competitiveness: the top countries in 2014-15

In 2014-15, the WEF ranked Singapore as having the world's best 'ICT network readiness', followed closely by Finland. Other north European countries again featured heavily in the Top 10, as did advanced economies such as the US, the UK and Japan (see Tables 1 and 3).

Table 1: WEF Networked Readiness Index (NRI) 2014-15: the Top 20

| Rank | Country / economy | Rank | Country / economy |
|------|-------------------|------|-------------------|
| 1 | Singapore | 11 | Canada |
| 2 | Finland | 12 | South Korea |
| 3 | Sweden | 13 | Germany |
| 4 | Netherlands | 14 | Hong Kong |
| 5 | Norway | 15 | Denmark |
| 6 | Switzerland | 16 | Australia |
| 7 | United States | 17 | New Zealand |
| 8 | United Kingdom | 18 | Taiwan |
| 9 | Luxembourg | 19 | Iceland |
| 10 | Japan | 20 | Austria |

2014-15 survey detail: Australia's Digital Competitiveness

In 2014-15, Australia performed at or above the WEF average for high-income countries in each of the four key categories (or sub-indexes) that contribute to the overall NRI score (see Table 2). These four categories are: (A) environment; (B) readiness; (C) usage; and (D) impact. These four categories are in turn constructed from 53 individual indicators that are calculated from a range of international data sources.

Among the four key categories that make up each country's ability to utilise ICT for growth, in 2014-15 Australia was ranked:

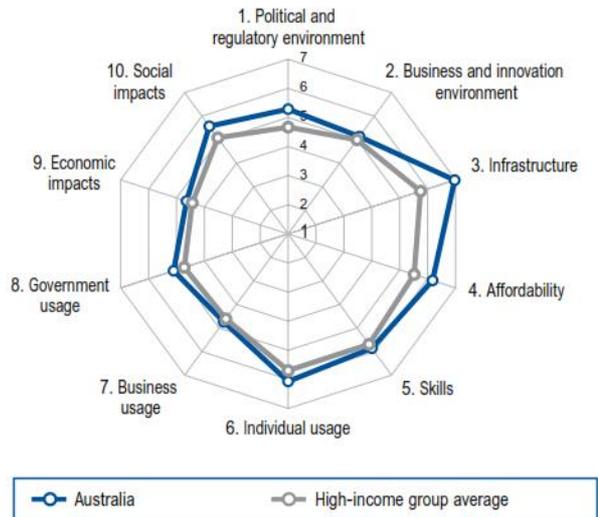
- 17th place in the “**Environment**” sub-index, down from 14th in 2013-14 and a peak of 8th in 2006-07. This indicator gauges the ‘friendliness’ of a country's market conditions and regulatory framework in supporting entrepreneurship, innovation and ICT development.
- 7th place in the “**Readiness**” sub-index, up from 9th in 2013-14 and a low of 26th in 2010-11. This was mainly driven by a large improvement in mobile ICT affordability. This indicator measures the extent to which a country has in place the *infrastructure* and other factors such as *affordability* and *skills* in supporting the adoption of ICTs across businesses and the wider community.
- 20th place in the “**Usage**” sub-index, down from 19th in 2013-14 and well down from a peak of 11th in 2007-08. This indicator assesses the extent of ICT adoption by each country's main ICT user groups including government, businesses, and individuals.
- 19th place in the “**Impact**” sub-index, up from 20th in 2013-14 but down from 16th in 2012.² This indicator measures the broad *economic* and *social* impacts accruing from ICTs.

One of the main reasons why Australia's relative NRI performance has deteriorated over the past decade has been that Australia's relative global ranking for the “**Environment**” sub-index has declined by 9 places, from 8th place in 2007 to 17th place in 2015 (Table 2). A supportive regulatory framework and market conditions are necessary to maximising the potential benefits of ICTs in boosting national competitiveness and performance.

² The ICT ‘impact’ sub-index was introduced in 2012, based on data that was previously embedded in other sub-indexes.

Table 2: Australia's NRI in 2014-15: detailed sub-indexes

| | Rank (out of 143) | Value (1-7) |
|---|----------------------|----------------|
| Networked Readiness Index 2015 | 16 | 5.5 |
| Networked Readiness Index 2014 (out of 148)..... | 18 | 5.4 |
| Networked Readiness Index 2013 (out of 144)..... | 18 | 5.3 |
| A. Environment subindex | 17 | 5.2 |
| 1st pillar: Political and regulatory environment..... | 15 | 5.3 |
| 2nd pillar: Business and innovation environment..... | 23 | 5.1 |
| B. Readiness subindex | 7 | 6.3 |
| 3rd pillar: Infrastructure | 6 | 7.0 |
| 4th pillar: Affordability..... | 28 | 6.2 |
| 5th pillar: Skills | 17 | 5.9 |
| C. Usage subindex | 20 | 5.3 |
| 6th pillar: Individual usage..... | 15 | 6.1 |
| 7th pillar: Business usage | 24 | 4.7 |
| 8th pillar: Government usage..... | 23 | 5.1 |
| D. Impact subindex | 19 | 5.1 |
| 9th pillar: Economic impacts..... | 24 | 4.6 |
| 10th pillar: Social impacts | 14 | 5.6 |



Within the 'Environment' sub-index, Australia's global ranking for 'political and regulatory environment', which measures the extent to which a country's political and regulatory environments facilitate ICT penetration and the development of business activities, fell from 7th place in 2010-11 to 15th place in 2013-14 and again in 2014-15. In particular,

- Australia's relative performance on **laws relating to ICTs** (e.g. electronic commerce, digital signatures and consumer protection) deteriorated from 3rd place in 2003-04 to 28th place in 2014-15.
- Australia's relative performance on **intellectual property protection** (including anti-counterfeiting measures) improved to 17th place in 2014-15, from 21st place in 2013-14, but it remains significantly below its peak of 10th place in 2008-09. The absolute index as well as the relative ranking for this variable declined over this period, suggesting intellectual property protection has somehow worsened in Australia since 2009 (although conditions appear to have improved in the last year).

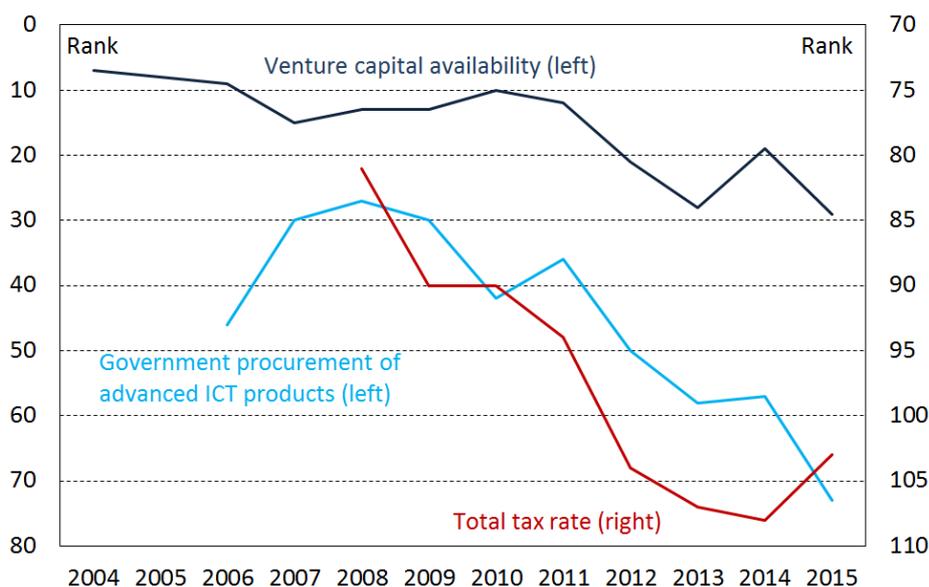
Also within the 'environment' sub-index, Australia is ranked 23rd in 2014-15 for '**business and innovation environment**', down from 21st in 2013-14. This pillar gauges the extent to which the business environment supports entrepreneurship and innovation. It takes into account for example, measures of red tape, the ease of starting a business and the complexity of taxation. In 2014-15, Australia is ranked:

- 103rd on **total tax rate**, from 81st in 2007-08 (see Chart 2). This variable measures the sum of a country's taxes (including company tax, labour tax, property tax and GST) as a percentage of total commercial profits. Although total tax as a percentage of profits declined from 50.6% in 2007 to 47.3% in 2013 (calendar year) in Australia, governments in other countries have lowered their tax rates further to facilitate ICT adoption and investment. As a result, Australia's *relative* global ranking on this measure has deteriorated over this period. The drop in Australia's total tax as a percentage of total corporate profits since 2007 is mainly due to changes in economic performance that have affected the country's taxable income base.
- 29th on **venture capital availability**, which indicates the availability of finance for entrepreneurs with innovative but risky projects, well down from 19th place in 2013-14 and a peak of 7th place in 2003-04.
- 73rd on **government procurement of advanced technology products**. This is down from 57th place

in 2013-14 and a peak of 27th in 2007-08. This measure indicates that Australian Governments' purchasing decisions have become less helpful in fostering ICT-related innovation, relative to those in other countries.

- More positively for the business and innovation environment, Australia is ranked 4th place globally in 2014-15 for the **number of days to start a business** (12th in 2013-14); 5th in **software piracy rate** (same as in 2013-14); 6th in **tertiary gross enrolment rate** (8th in 2013-14) and 8th in **intensity of local business competition** (13th in 2013-14).

Chart 2: Australian ranking on business and innovation environment measures: total tax rate, venture capital availability and government procurement of ICT*



* Rankings for “total tax rate” only available from 2008 and “government procurement of advanced ICT products” from 2006.

More positively, Australia continued to improve its relative performance in the “**Readiness**” sub-index, moving up to 7th place in 2014-15 from 9th in 2013-14 and a low of 26th place in 2011-12. This suggests that Australia is becoming better prepared to make use of affordable ICT infrastructure and digital content. In particular, Australia improved significantly on its relative **affordability of ICT**, moving up to 28th place in 2014-15, from 49th in 2013-14 and 100th place in 2011-12,³ although Australia remains behind many other advanced countries. Within the affordability pillar:

- Australia's **mobile cellular affordability** rose to 14th in 2014-15, from 26th in 2013-14 and 128th place in 2012 (see Chart 3). The WEF Report estimates that the average per-minute cost of different types of mobile cellular calls in Australia improved significantly, from US\$0.64/min in 2010 to US\$0.09/min in 2013 (adjusted for purchasing power parity or PPP).⁴ The improvement in mobile phone costs in Australia is greater than has occurred in other countries over this period.
- Australia improved to 76th place in 2014-15 for “**fixed broadband internet affordability**” from 101st place in 2013-14, but it is still significantly below a peak of 10th place in 2009-10. While Australia's average monthly subscription charges for fixed broadband internet services (i.e. connections at

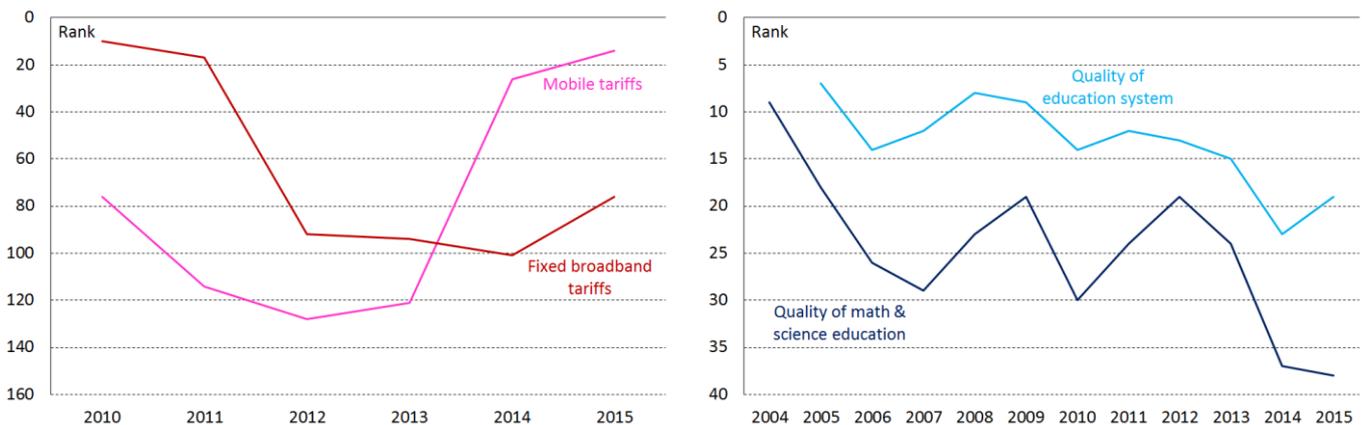
³ The “affordability” pillar was only introduced into the report from 2012, combining a range of measures from other categories.
⁴ Most recent data available and used by the WEF to construct rankings across economies.

downstream speeds of at least 256 kilobits per second, using DSL) dropped sharply from US\$41.30/month in 2012 to \$34.14/month in 2013,⁵ it remained significantly above the estimate of US\$20.98/month in 2008 (WEF estimates adjusted for PPP and inflation). Many other countries experienced smaller increases or even a decline in fixed broadband internet charges over this period. For example, the average monthly fixed broadband subscription charge in the UK declined from US\$22.51/month in 2008 to US\$14.38/month in 2013.

In terms of the **skills** of each country to make effective use of ICTs, Australia was ranked 17th place globally in 2014-15, up from 20th place in 2013-14 but down from 11th place achieved in 2011-12. This pillar is based on measures such as the overall quality of the education system, mathematics and science education, the enrolment rate in secondary education and adult literacy. In particular:

- Australia's relative **quality of education system** improved to 19th place in 2014-15 from 23rd in 2013-14, but remains well down from the peak of 7th place in 2004-05 (see Chart 3). Of more concern, this reflects an absolute decline in Australia's performance and not just a relative ranking decline, as the relevant index score for this measure also fell.
- Australia's ranking on **maths and science education** dropped to 38th place in 2014-15, down from 37th in 2013-14 and from 9th place in 2003-04. The absolute index for Australia declined over this period as well as the relative ranking, suggesting the absolute quality may have worsened over time.

Chart 3: Australian ranking on affordability and skills measures: fixed broadband and mobile costs, quality of education system, maths & science education*



* Rankings for “mobile cellular affordability” and “fixed broadband internet affordability” are only available from 2010.

The “**Usage**” sub-index assesses the extent of ICT adoption by government, businesses, and individuals, including their capacity to use ICTs and their actual use of ICTs in their day-to-day activities. In this category, Australia dropped to 20th place in 2014-15, from 19th in 2013-14 and 11th place in 2007-08. Within this category:

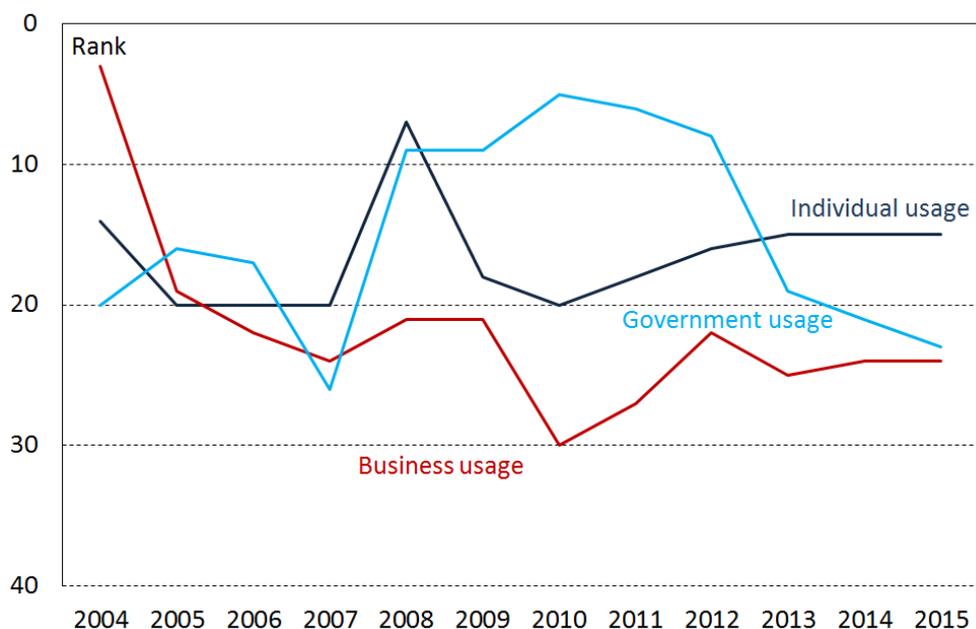
- Australia’s ranking on **individual usage** of ICTs sits at 15th place in 2014-15, the same as the previous two years (see Chart 4). More Australian individuals have access to and are using ICT products and services (e.g. mobile phones, fixed and mobile broadband subscriptions, personal computer ownership and the use of social networks) compared to a decade ago. Australia ranked 4th globally for mobile broadband subscription, with 110.5 users per 100 population in 2013, up from 53.1

⁵ Most recent data available.

users per 100 population in 2010.⁶ The number of mobile phone subscribers in Australia has risen from around 91.4 per 100 people in 2005 to 106.8 per 100 people in 2013, but other countries have improved more than Australia. As a result, Australia's ranking on this measure has fallen to 81st in 2014-15, from 28th in 2006-07.⁷

- Australia's ranking in **business usage** sat at 24th place in 2014-15, the same as in 2013-14 but well down from a peak of 3rd place in 2004.
- Australian business dropped to 27th place globally in terms of its **capacity to innovate** in 2014-15, down from 23rd in 2013-14, but remains better than the low of 35th place in 2006-07. In addition, Australia is ranked 30th place for **extent of staff training**, which the WEF interprets as a proxy for the capacity of management and staff to innovate. These results suggest there is further room for Australian businesses to increase their efforts to integrate ICTs into their day to day operating environment.
- Australia ranks 16th place globally for **business-to-consumer internet use** in 2014-15, down from 12th place in 2013-14. Local businesses are generally adept in using the internet to sell their goods and services to consumers, relative to other countries.
- Australia's ranking on **government usage** declined to 23rd place in 2014-15 from 21st in 2013-14 and 5th place in 2010. This indicates that Australian Governments may be utilising ICTs at a slower rate than their global peers. Furthermore, the Australian government is seen as becoming less supportive of promoting the use of ICTs in the community, with a ranking of 62nd globally for this measure in 2014-15, down from 48th in 2013-14 and 31st in 2004-05.⁸

Chart 4: Individual, business and government usage of ICTs, Australian ranking



⁶ Latest data available, which is used to calculate Australia's 2015 ranking. The measure was introduced in 2012 and is not comparable to similar measure (which calculated the percentage of mobile subscriptions with internet access) prior to that.

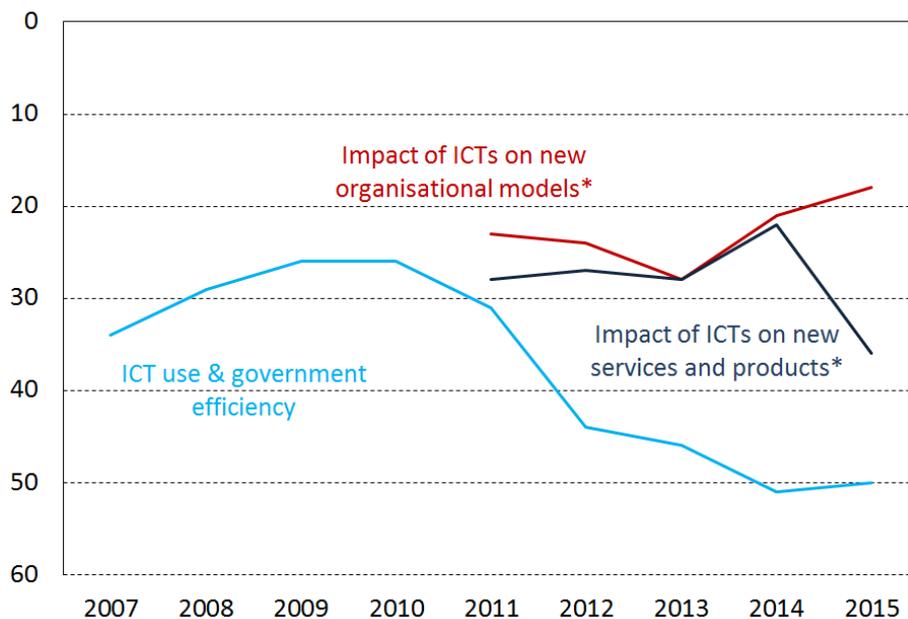
⁷ The 2013 (2005) data is used to compute the 2015 (2007) ranking to allow comparison across countries.

⁸ Although Australia was ranked 28th in a similar measure in 2012, the question was slightly different and focused on "Gov't prioritization of ICT" therefore it was not directly comparable. All other years measure government success in ICT promotion.

Australia’s ranking on the **impact** sub-index, which measures the broad economic and social benefits accruing from ICTs, moved to 19th place in 2014-15, from 20th place in 2013-14 and 16th place in 2011-12.⁹ Within this sub-index:

- Australia ranked 50th place in 2014-15 in relation to **government use of ICTs to improve the quality of government services to its citizens**, up from 51st place in 2013-14 but down from 26th place in 2008-09 (see Chart 5). This is also reflected in the measure for "impact of ICTs on access to basic services", in which Australia is ranked 32nd in 2014-15, down from 24th in 2013-14.
- Australia is ranked 18th in the world for its **ICTs capacity in enabling new organisational models within businesses** (e.g., virtual teams, remote working and telecommuting), up from 21st place in 2013-14 and 28th place in 2012-13. Australia is ranked 36th globally in 2014-15 for its ICTs capacity to generate new services and products (down from 22nd in 2013-14).¹⁰

Chart 5: ICT use by government and efficiency, impact of ICTs on new organisational models, services and products, Australian ranking



* Rankings available from 2011.

⁹ The ICT 'impact' indicator was introduced in 2012, based on data that had been previously embedded in other sub-indexes.
¹⁰ These measures are only introduced by WEF in 2011.

Appendix: About the WEF Global Information Technology Report 2015

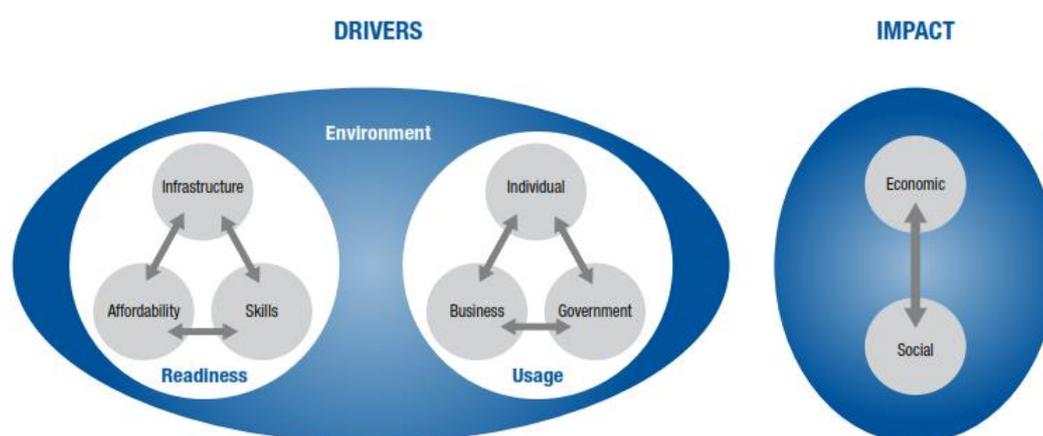
The *Global Information Technology Report 2015* is published by the World Economic Forum within the framework of the Global Competitiveness and Benchmarking Network and the Industry Partnership Programme for Information and Communication Technologies. Research for the Report is conducted by the WEF and its network of over 160 Partner Institutes, which help administer the Executive Opinion Survey around the world. The Survey is used in conjunction with many other data sources in the production of this Report. Ai Group is the WEF's Partner Institute in Australia. The full list of Partner Institutes is available at http://www3.weforum.org/docs/GCR2013-14/GCR_PartnerInstitutes_2013-14.pdf

Further information about the WEF and the *Global Information Technology Report 2015* is available at: <https://files.weforum.org/u5o1xfgs6q>

Table 3: WEF NRI Sub-indexes 2015: the Top 10

| Rank | Environment | Readiness | Usage | Impact |
|------|----------------|------------------|-------------|----------------|
| 1 | Singapore | Finland | Sweden | Singapore |
| 2 | New Zealand | Taiwan | Singapore | Netherlands |
| 3 | Finland | Iceland | Finland | Finland |
| 4 | United Kingdom | Sweden | Japan | Sweden |
| 5 | Hong Kong | Norway | Netherlands | South Korea |
| 6 | Norway | Austria | South Korea | United States |
| 7 | Netherlands | Australia | Luxembourg | Israel |
| 8 | Canada | Singapore | Norway | Switzerland |
| 9 | Switzerland | Germany | Denmark | United Kingdom |
| 10 | Luxembourg | Switzerland | Switzerland | Norway |

Chart 6: The WEF Networked Readiness Index (NRI) framework



Ai Group Economics and Research Team

Julie Toth

Pip Freebairn

Yi Ming Hu

David Richardson

Colleen Dowling

Elle Spyropoulos

Chief Economist

Senior Adviser, Economic Policy

Economist

Manager, Economics and Business Services

Senior Research Coordinator (part time)

Research Assistant (part time)

(03) 9867 0124

(03) 9867 0261

(03) 9867 0231

(02) 9466 5456

(03) 9867 0251

(03) 9867 0108