

Key findings

- Smart systems offer the most promising path for Australia to lift its long-term economic growth potential.
- Adopting smart technologies in electricity, irrigation, health, transport and broadband communications will increase GDP by 1.5% within ten years; increase the net present value (NPV) of Gross Domestic Product (GDP) of \$35-80 billion over the first ten years, and add more than 70,000 to the economy in 2014 alone.¹
- In each of the five areas, the benefits far outweigh the initial capital costs involved.
- Smart systems will contribute to efficiencies and increase production throughout the economy – not just in the five areas selected.
- Investing \$3.2 billion in smart grid technology over seven years will lower electricity use by 4%; increase the NPV of GDP by \$7-16 billion over ten years; and create 17,600 jobs.
- Adopting smart systems through the irrigation areas of the Murray-Darling Basin will reduce water use by 15%; increase the NPV of GDP by \$420-670 million over ten years; and create 800 jobs.
- Investing \$6.3 billion in an integrated national electronic health records system will increase the NPV of GDP by \$6-13 billion over ten years; and create 12,000 jobs.
- Adopting Intelligent Transport Technologies will increase the NPV of GDP by \$12-26 billion over ten years, and create 30,000 jobs.
- It is understood that the NBN will provide fibre-to-the-home on a scale never seen anywhere before in the world, so there is insufficient data to quantify the economic benefits of this rollout. Instead, Access Economics has estimated the benefits of a less ambitious agenda: investing \$12.6 billion in national fibre-to-the-node broadband. This would: increase the NPV of GDP by \$8-23 billion over ten years; and create 33,000 jobs by 2011.

Access Economics Report Background

The Access Economics report reviews the potential economic benefits from the adoption of smart technologies and systems. The report considers five areas where intelligent technologies and systems may make a significant contribution. These are in electricity, irrigation, health, transport and broadband communications.

The report explores the fact that the amount of data collected in all areas of human activity is vast and is expanding rapidly. Smart systems will allow us to use this data far more effectively, providing the potential to radically alter our economy and society for the better.

The aim is to estimate the magnitude of the potential economic benefits that could be delivered through the widespread adoption of smart technologies and systems. The report does not identify specific policy actions that could foster this adoption although it does emphasise the importance of complementary microeconomic reforms in order for the technologies to realise their potential.

A considerable literature involving Australian and overseas studies of aspects of the economic benefits of the smart technologies has emerged in recent years. The findings from this literature have been used as a basis for estimating the economy-wide benefits of the adoption of smart technologies in each of the five areas identified. Access Economics' general equilibrium model of the Australian economy is used to analyse these economy-wide effects in a consistent fashion.

Given the difficulties involved in identifying and measuring many of the benefits that smart technologies are likely to deliver, a number of conservative assumptions have been adopted at various points of the analysis. In each of the five areas, the benefits far outweigh the initial capital costs involved. For example, the development of a fibre to the home (FTTH) would involve both higher costs and greater benefits than the FTTN network.

The precise extent of the economic benefits is dependent on the state of the economy that applies when the technology is rolled out. The closer the economy is to full employment, additional economic benefits will be reflected in higher productivity levels, while if the economy has spare resources, the benefits produce larger increases in employment. In addition, the total net benefits tend to be much larger in an economy that has spare capacity, as is currently the case in Australia where unemployment levels are rising.

¹ This is looking at the fifth year after introducing each of the economic shocks staggered over that time. In the fifth year, the number of jobs created will peak.

Key observations

Some of the key findings to be drawn from the Access Economics report include:

- Smart systems will contribute to efficiencies and increase production throughout the economy – not just in the five areas selected.
- Technological advancement lifted economic performance in the mid-1980s and through the 1990s. Smart technologies offer another significant opportunity to lift Australia's long term growth rate and standards of living.
- Access Economics found the benefits will be greatest if smart technologies are complemented by reforms involving suitable pricing and access regimes.

Electricity

- Smart grid technologies provide the potential to significantly improve efficiency in the electricity sector through better monitoring and control of the energy network as a supply chain through to end users.
- Investing \$3.2 billion in smart grid technology over seven years will:
 - lower electricity use by 4%
 - increase the NPV of GDP by \$7-16 billion over ten years
 - create 17,600 jobs

Irrigation

- Adopting smart systems through the irrigation areas of the Murray-Darling Basin will:
 - reduce water use by 15%
 - increase the NPV of GDP by \$420-670 million over ten years
 - create 800 jobs (due to the low-labour intensity of agriculture)
- If implemented across all Victorian irrigation districts, smarter water could save 400 million cubic metres of water (160,000 Olympic size swimming pools) per year.

Health

- The health sector is currently almost 10% of the national economy, a figure set to grow steadily as the population ages and health costs rise. Thus, any improvements in delivering health services will yield substantial gains to the national economy.
- Investing \$6.3 billion in an integrated national electronic health records system will:
 - increase the NPV of GDP by \$6-13 billion over ten years
 - create 12,000 jobs

Transport

- Intelligent Transport System (ITS) technologies have the potential to address a range of transport issues, in particular helping to: improve safety, efficiency and competitiveness; and reduce environmental impacts.
- Adopting ITS technologies will:
 - increase the NPV of GDP by \$12-26 billion over ten years
 - create 30,000 jobs

Broadband communications

- The NBN will open up new ways of communicating and delivering services whether by business, individuals or government. It will also allow the data from smart systems to be used more effectively.
- It is understood that the NBN will provide fibre-to-the-home on a scale never seen anywhere before in the world, so there is insufficient data to quantify the economic benefits of this rollout. Instead, Access Economics has estimated the benefits of a less ambitious agenda: investing \$12.6 billion in national fibre-to-the-node broadband. This would:
 - increase the NPV of GDP by \$8-23 billion over ten years
 - create 33,000 jobs by 2011.

Full report

A full copy of the report: *'The economic benefits of intelligent technologies'*, can be downloaded from IBM's Press Room: <http://www-03.ibm.com/press/au/en/presskits.wss>