Deloitte.

Deloitte
Access **Economics**

Clean cloud:
Meeting the climate challenge
in Australia & New Zealand

PRESENTED BY **Google** Cloud

Report 2022

"The climate crisis is the most important societal challenge of our time ...The greatest impact will come through the collective action of like-minded organisations, people, innovators and non-governmental organisations ..."

Punit Renjen, CEO Deloitte Global

Contents

Executive summary

Businesses across Australia and New Zealand have big plans to tackle climate change and reduce their emissions.

This research found 54% of businesses are reducing emissions today and 70% plan to in the next three years. However, only an additional 5% of businesses plan to reduce emissions indirectly in the next three years.

Cloud and related technologies can be leveraged across industry to unlock environmental benefits, far beyond the initial benefit associated with transitioning from on-premises data centres.

This research identifies 12 sustainability use cases for cloud and related technology, including supply chain transparency, predicative maintenance, disaster response management, real-time inventory tracking, and financial asset risk analysis and can be used across many sectors in the Australian economy.

These applications can help Australian industry reduce their carbon emissions from energy use to help achieve the 28% reduction target by 2030. Australia's National Greenhouse Gas Inventory shows that business's share of electricity sector emissions fell by 9.9 million tonnes between 2005 to 2019, but will need to fall a further 43 million tonnes by 2030 to achieve a 28% reduction.

Despite the opportunity, many businesses lack a coherent plan to take action on emissions.

Over a third of businesses (34%) have no climate strategy, and 44% of businesses without a strategy are not intending to develop one in the next three years.

With respect to sustainability, businesses operating in Australia and New Zealand are responding to different policy contexts. From 2023, New Zealand will introduce mandatory climate-related disclosures for large publicly listed companies, which is driving progress.

Currently, one-third of New Zealand businesses are taking action to reduce direct emissions, compared to just over one-quarter of Australian businesses. This is despite almost all businesses expecting a reduction in their emissions going forward.

While businesses intend to reduce emissions, the effectiveness of the climate strategies employed so far has been low: 60% of businesses with a standalone climate strategy have not seen emissions levels change much.

While businesses see benefits in reducing their emissions and improving environmental performance, many don't recognise the role of cloud in achieving environmental goals. Only one in five businesses saw 'improving sustainability' as a key benefit of adopting cloud systems. Within organisations, the decision to adopt cloud is undertaken after a narrow financial assessment of only costs.

Transitioning to cloud presents a major opportunity for businesses to take climate action.

Businesses with a climate strategy and that use cloud are the most likely to be realising emissions reductions. While many have recognised the need to move to more technology-based solutions, only a small proportion of businesses (9%) are currently using the cloud to host all of their data. 91% of businesses in Australia and New Zealand, realise more of the benefits of cloud computing.

New Zealand businesses are moderately more likely to have made more progress towards adopting cloud technologies, with cloud spend as a slightly larger share of GDP, relative to Australia.

Cloud is five times more energy efficient than the on-premises data centres of companies and public sector organisations in APAC, on average. Annually, 4.5Mt CO_2 emissions would be avoided if all businesses using on-premises servers switched their workloads to the cloud.

To support businesses to further their environmental progress through cloud, this report proposes that firms:

01 Strengthen adoption of cloud applications through communities of practice

02 Coordinate the technology and sustainability teams

03 Quantify the environmental benefits of technology investment decisions

04 Ensure cloud spending is guided by a coherent, overarching climate strategy

However, cloud applications can reduce business emissions even more, and will be key to achieving ambitious emissions reduction goals.

While shifting data and applications to cloud from on-premises servers will support direct emissions reduction, it is cloud-based applications that could provide the biggest dividend.

There is an opportunity for businesses to reframe cloud as an environmental initiative, rather than only a technological one.

Businesses that have both a climate strategy and host their data mainly or entirely in cloud servers are the most likely to be realising emissions reductions.

Reflecting this opportunity, cloud is set for growth in the coming years. In Asia-Pacific, Australia is considered one of the most advanced public cloud markets. The International Data Corporation forecasts that it's expected to be valued at US$10 billion in 2023, up from US$4.7 billion in 2018.

To unlock environmental benefits, it is critical to address the challenges which are stalling progress.

The most commonly-identified barrier to greater investment in cloud is a lack of knowledge about the ways that cloud can be used to achieve sustainability goals (39% of firms ranked in their top three).

A lack of integration between the technology and sustainability workforce was the second most

commonly-identified challenge (33%). Reflecting the challenges of knowledge sharing and collaboration between teams, the most commonly identified enablers to support greater action were improving the integration between technology and sustainability teams (47% of firms ranking this as key), followed by organisation-wide leadership to improve sustainability (37%).

To support businesses to further their environmental progress through cloud, this report proposes that firms:

1. Strengthen the adoption of cloud applications through communities of practice
2. Coordinate the technology and sustainability teams
3. Quantify the environmental benefits of technology investment decisions
4. Ensure cloud spending is guided by a coherent, overarching climate strategy.

Cloud-enabled sustainability initiatives

Complex cloud applications will enable businesses to realise substantial and ongoing emissions reduction. The potential of cloud to reduce business emissions is far greater than just the immediate benefits of transitioning from on-premises data centres.

This research identifies 12 sustainability use cases for cloud and related technologies:

1. Improving supply chain transparency

A traceable production process and supply chain is critical to ensuring compliance with ESG standards. Big data collection and real-time analysis can enable more responsible sourcing decisions.

2. Quality checks and predictive maintenance

A machine learning drone-based surveillance system minimises the need for humans to undertake potentially hazardous inspections, and avoids the emissions associated with staff travelling large distances to investigate faults.

3. Managing natural disaster responses

A fleet of cloud-enabled drones are agile, unstaffed vehicles, that can be used to deliver humanitarian support, to monitor and assess damage following natural disasters, and to provide evacuation warnings.

4. Reducing resource consumption

Cloud-enabled deep learning and high-resolution imagery can provide compelling and personalised analysis of the benefits of adopting sustainable practices, and is used by some solar providers to encourage households to make the switch.

5. Improving agriculture productivity

Farmers can boost yield, avoid blights (spread of crop disease), and cultivate crops more efficiently with real-time data and imagery.

6. Real-time inventory tracking

In the retail sector, cloud-enabled data collection allows for a richer set of insights about inventory, which can be used to predict waste of perishable items, allowing time for store managers to take action to minimise this waste.

7. Minimising retail waste

Virtual and augmented reality technology can save substantial emissions by making packaging and transportation redundant. It's a model already adopted by clothing and furniture retailers that offer a virtual try-on service, to minimise the waste and transport emissions associated with returns.

8. Transport decarbonisation

Cloud-enabled data collection and machine-learning models can enable more efficient fleet management, to support major emissions reductions.

9. Responsive building management

Smart heating, cooling and ventilation systems use real-time energy consumption data and AI to respond to building capacity and weather conditions. This can minimise the CO_2 footprint, by only heating or cooling a building when necessary.

10. Climate risk analysis of financial assets

The complex data required to model climate risk is hosted on cloud servers. These data are critical to enable financiers to account for climate-related risks in asset pricing – a model which embeds climate awareness into decision making.

11. Accelerated application development

Many of the preceding use cases for cloud involve developing bespoke software. Developing greater efficiency, minimising the time-to-market and ensuring sustainability benefits are realised promptly.

12. Transitioning to carbon-free energy

Cloud-enabled real-time data dashboards allow users to receive updates on the energy sources used to power their operations, to run analytics on sustainability performance and energy use, and to identify opportunities to switch to renewables.

28%

These applications can help Australian industry reduce their carbon emissions from energy use to help achieve the 28% reduction target by 2030.

Australia's National Greenhouse Gas Inventory shows that business's shareof electricity sector emissions fell by almost 10 million tonnes between 2005 to 2019, but will need to fall a further 43 million tonnes by 2030 to achieve a 28% reduction.
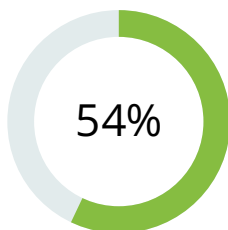
1. Big plans to tackle climate change

Australian and New Zealand businesses have big aspirations for carbon cuts –although the adoption and implementation of climate strategies varies.

34%

54%
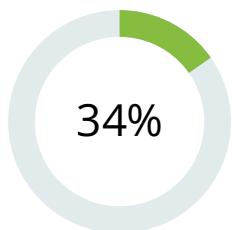
34% of businesses still don't have a climate strategy and of those with a strategy, 60% of businesses have not seen emissions levels change much.

54% of businesses report that they are reducing emissions today – a share which will rise to 70% in three years – the lack of progress puts the effectiveness of existing climate strategies in question.
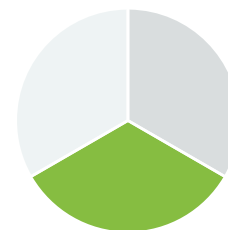
One-third of New Zealand businesses are taking action to reduce direct emissions, compared to just over one-quarter of Australian businesses, while Australian businesses are more likely to be investing in indirect emissions reduction.[1]

2. Cloud performance

Most businesses don't recognise the potential of cloud to achieve environmental goals, but those that do report a range of benefits.

1 in 5

businesses rank 'improving sustainability' as among the key benefits of transitioning to cloud technologies.

97%
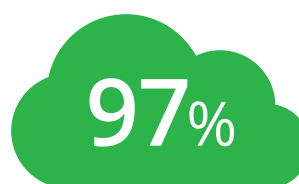
of businesses that use cloud technology report positive environmental impacts.

The environmental benefits associated with increased cloud use will rise, as internet traffic and data workloads rise exponentially. Cloud is five times more energy-efficient than the on-premises data centres of companies and public sector organisations in APAC, on average.

Few businesses host all data in the cloud. 7% of Australian businesses have fully transitioned to cloud, while 43% have made substantial progress in the transition. In comparison, 15% of New Zealand businesses host all data in the cloud, and 31% are making major progress in the transition.

3. Actions for the future

1

Strengthen adoption of cloud applications through communities of practice to combat the reported lack of knowledge about how to use cloud to achieve environmental goals.

2

Coordinate the technology and sustainability teams – to ensure efforts to support environmental goals are not siloed.

3

Quantify the environmental benefits of technology investment decisions – to ensure that the decision-makers account for environmental benefits.

4

Ensure cloud spending is guided by a coherent, overarching climate strategy – to embed environmental goals and to coordinate investment.

Introduction

The imperative for climate action has never been stronger, and technology will play a major role in navigating a cleaner future.

Over the past 50 years, there has been a movement to recognise that companies have a duty to all stakeholders in their value chain, not just their shareholders. This has sparked a focus on environmental, social and governance (ESG) issues. ESG is a way of describing the broad concepts that must be addressed to create a truly sustainable company – a concept that promotes sustainability in the long term because a company has societal relevance and societal purpose.

The growing concern around climate change also means it is imperative for companies to improve their environmental performance now more than ever. Technology and the breadth of innovative technologies enabled by cloud computing can play a role in helping companies improve this performance. It is in this context that Google Cloud engaged Deloitte Access Economics to research how businesses in Australia and New Zealand can use cloud and cloud-enabled technologies to achieve their ESG goals.

This report

Google Cloud Australia engaged Deloitte Access Economics to help it in researching the role of technology, particularly cloud services, in supporting businesses within Australia and New Zealand to improve their performance on measures of environmental impact.

The survey

The report is informed by a survey of 493 businesses across Australia and New Zealand, operating in a range of industries, in November 2021. Around three-quarters were in Australia and one-quarter in New Zealand. While overall survey results suggest businesses' experiences are similar across Australia and New Zealand, variation in policy settings motivated a comparison of cloud and environmental benefits between the markets and revealed some differences, which are explored in this report.

About half of survey respondents were managers, and half were executives or directors in their businesses. 39% had responsibility for IT or digital areas, 11% had sustainability responsibilities and the remaining half had responsibilities for both. The survey had respondents from a variety of industries across primary industry, manufacturing, construction, services and public sector organisations.

Figures contained in the report relate to surveyed businesses, unless otherwise specified. As such, results may be representative of only the surveyed population.

The role of cloud in reducing emissions.

Global internet traffic has grown exponentially in the last decade, as have the workloads of data centres. Thanks to clean cloud solutions, the energy use by cloud data centres has remained relatively constant.

Cloud computing enables sustainability benefits through:

Higher utilisation and shared systems

Pooling data storage minimises excess capacity and energy wastage, while dense computing environments can attain much higher utilisation rates than on-premises systems and with a smaller physical footprint per user.

Energy efficiency

Intelligent energy management tools thatare responsive to external conditions can minimise heating and cooling needs.

Accessing renewable energy

Through global cloud providers, data can be shifted to storage locations that run on carbon-neutral or carbon-free energy, to minimise emissions.

Cloud applications

A variety of cloud-enabled technologies can minimise organisations' environmental impact, from managing inventory to minimising waste, to tracking carbon emissions in real time.