

Decarbonising Australia's built world with technology

How Construction, Engineering and Property
sectors can achieve decarbonisation goals
with location intelligence

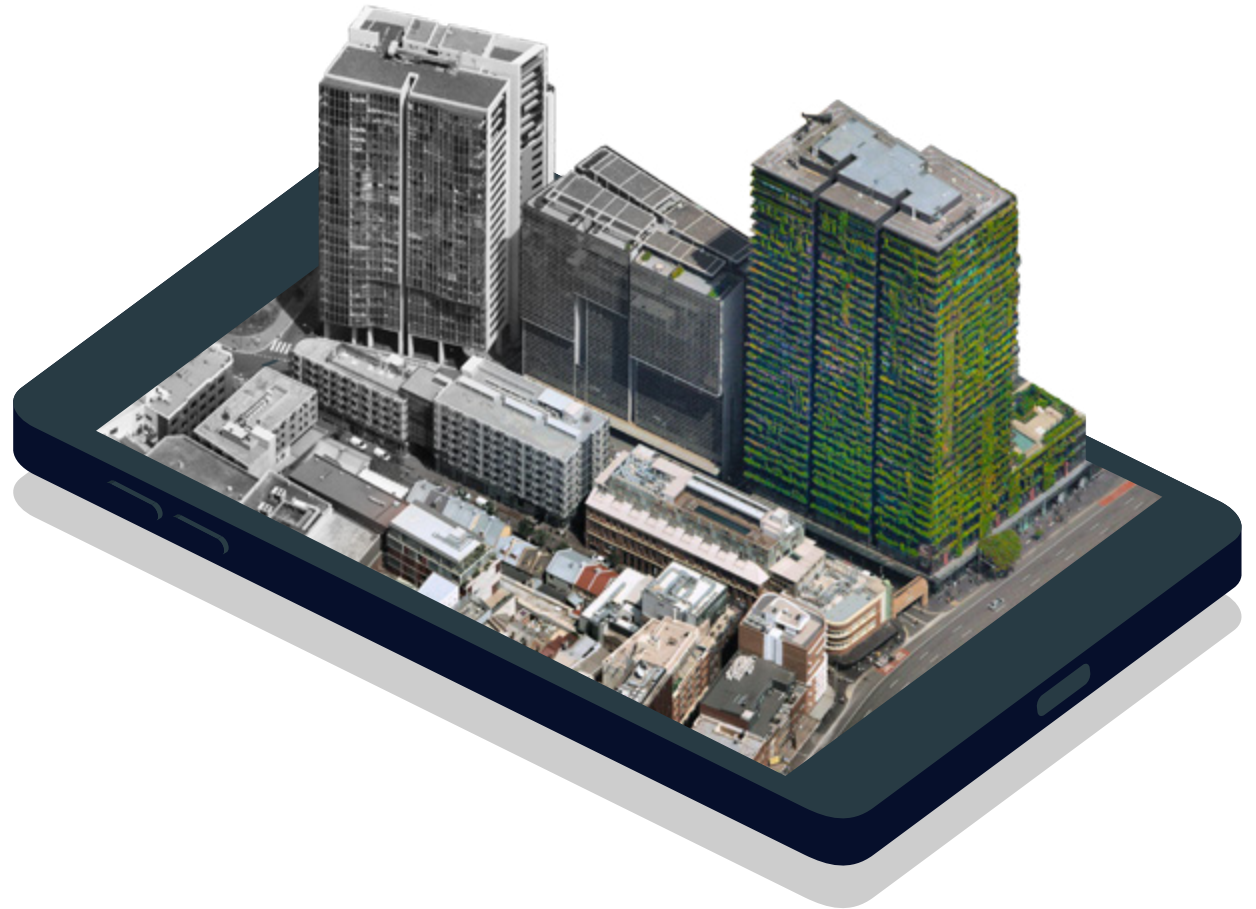


Table of contents

- P3 Introduction
- P4 The research
- P5 Technology is dubbed as critical for successful decarbonisation
- P6 Industries weigh in on decarbonisation technologies
- P7 Optimism around technology for sustainability is high, but adoption is low
- P9 The biggest barriers in achieving carbon emission reduction goals
- P10 How Construction, Engineering and Property sectors can help reduce emissions
- P11 Practical recommendations that help reduce carbon emissions
- P12 Summary
- P13 How much CO₂, time and money could you save?
- P14 Methodology

Introduction

The construction, maintenance, and use of buildings is responsible for a quarter of Australia's annual carbon emissions¹. Globally, building and construction is responsible for almost 40 per cent of carbon emissions².

With Australian states and territories committing to net zero carbon emissions by 2050, and the Australian Federal Government aiming for a 43% reduction by 2030 (against a 2005 baseline) — the built environment has been identified as playing a critical role in meeting these targets and contributing to a more liveable future.

The introduction of the safeguard mechanism, changes to the National Construction Code, and a plan to extend mandatory Environmental, Social and Governance (ESG) reporting to include sustainability targets (such as those around emissions) indicate regulatory pressures will increase.

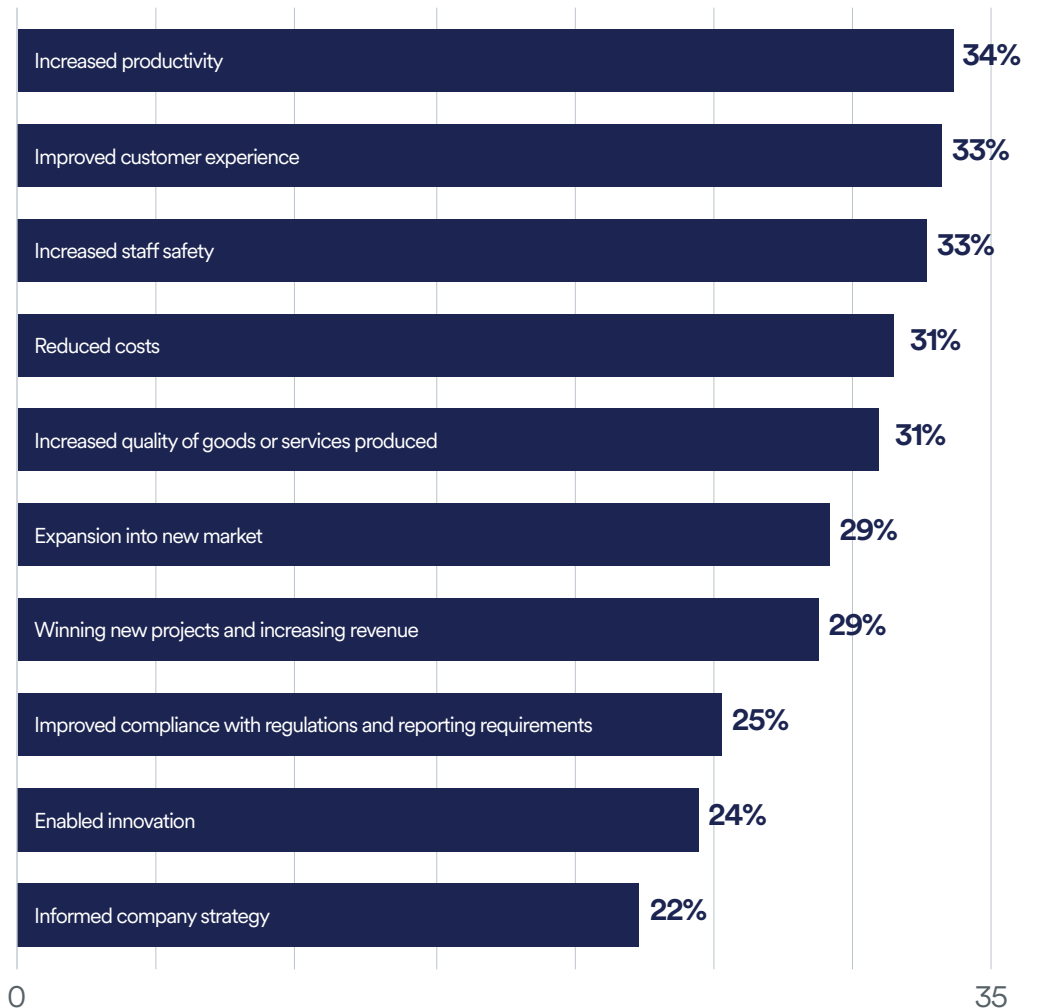
For the Construction, Engineering and Property sectors that are tackling escalating prices of materials and labour, shrinking profit margins, and increasing skills shortages — establishing sustainability strategies and decarbonisation goals fulfils more than a legal requirement.

Sustainable companies are known to be favoured by investors, customers/clients, and prospective employees alike, and investing in sustainable practices can improve the performance and value of a company while reducing costs.

It is well documented that digitisation and technology adoption within the Construction, Engineering and Property sectors improve productivity and performance, and reduce costs.

However, the Construction, Engineering and Property sectors are often identified as laggards in adopting digital solutions — for example the Australian Broadband Advisory Council's Construction Expert Working Group indicated digital maturity is fragmented and the take up of technology varies significantly⁴.

Types of benefits realised from introducing technologies³



¹ Jeroen van der Heijden (2018) From leaders to majority: a frontrunner paradox in built-environment climate governance experimentation, Journal of Environmental Planning and Management

² World Green Building Council Global Status Report 2017

³ Deloitte Access Economics based on construction and engineering business survey (2022)

⁴ Construction Expert Working Group, March 2022, Australian Broadband Advisory Council

The research

These insights raise the question — what impact can the use of technology have in helping Construction, Engineering and Property companies achieve sustainability and decarbonisation targets?

To better understand the attitudes towards technologies that can help reduce emissions, and the biggest barriers in achieving carbon emission reduction, Nearmap commissioned YouGov to survey more than 500 business leaders, including more than 250 from the Construction, Engineering and Property sectors.



Construction, Engineering and Property industries are more optimistic than others about technology's ability to help them reach sustainability targets



Despite this, the number of business leaders who believe technologies are useful in helping reduce emissions far outweighs the number of those actually using the technologies



The majority of business leaders in Construction, Engineering and Property industries are confident Australian businesses possess technologies to effectively reduce carbon emissions



However awareness and understanding of available technologies and lack of helpful solutions were identified to be among the biggest roadblocks to achieving carbon emission reduction goals

500+
business leaders

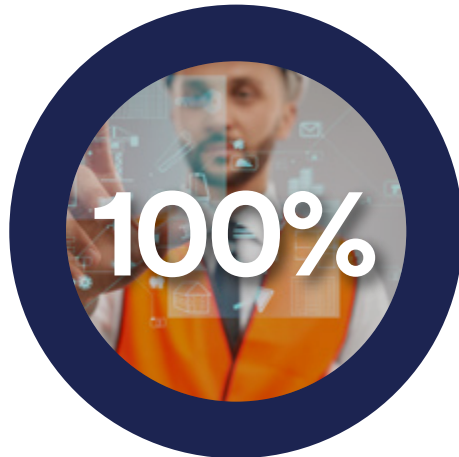
250+
from the Construction,
Engineering and Property
sectors surveyed

Technology is dubbed as critical for successful decarbonisation

95% of Construction, Engineering and Property leaders say decarbonisation and emissions reduction are central to their overall sustainability agenda.



There is a clear consensus that technology is a powerful tool for meeting related objectives:



Believe technology is important to achieving their organisation's sustainability goals



Believe technologies including aerial imagery and geospatial analytics can help their organisation reduce carbon emissions or achieve their sustainability goals



Feel confident that most Australian businesses currently possess the necessary technology tools to address and reduce carbon emissions effectively



Industries weigh in on decarbonisation technologies

The technologies identified as being most useful in helping reduce carbon emissions or achieve sustainability goals by leaders from the Construction, Engineering and Property industries include:

57%

Environmental impact assessment and monitoring tools

49%

Geospatial analytics and insights powered by AI

47%

Advanced measurement and measurement tools

45%

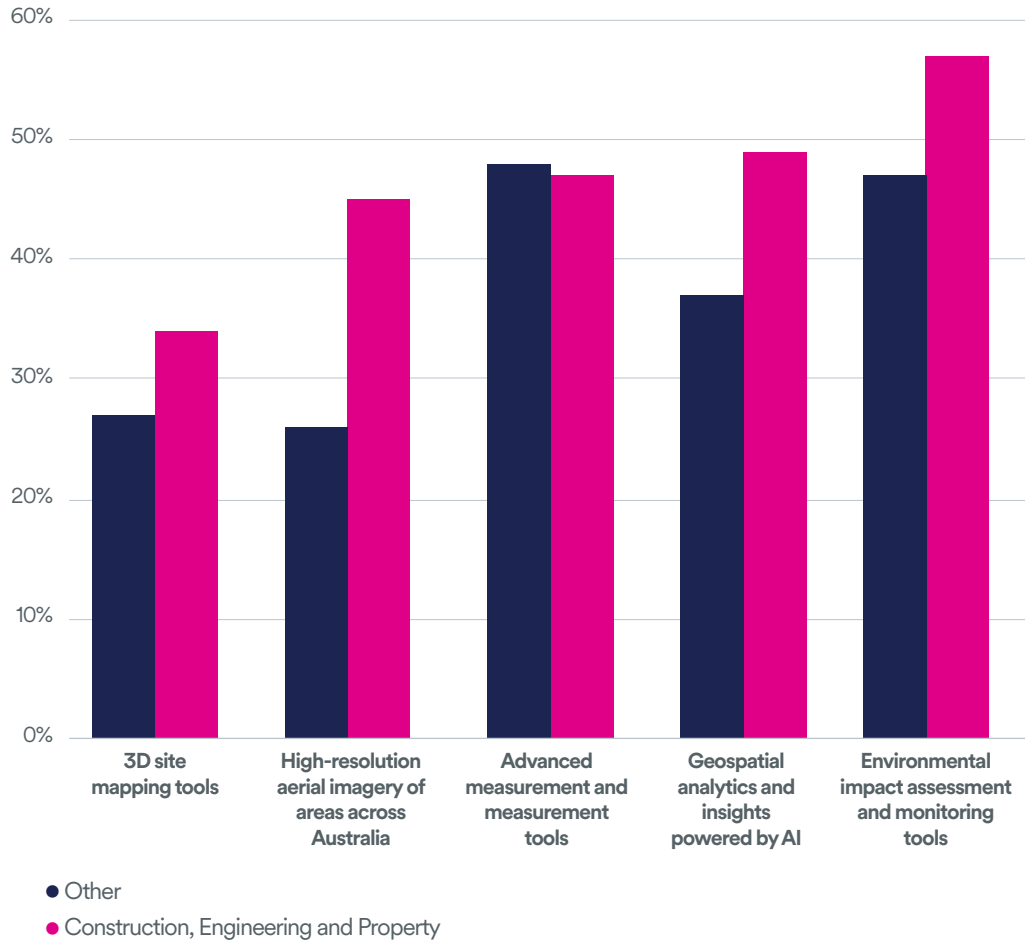
High-resolution aerial imagery of areas across Australia

34%

3D site mapping tools


In comparison to other industries, the research suggests Construction, Engineering and Property companies better understand how technologies can be used to help reduce carbon emissions or achieve sustainability goals.

Technologies useful in helping reduce carbon emissions




This is compounded by the fact that more than 83% of leaders from Construction, Engineering and Property companies are more optimistic about the potential of location or geospatial technology and AI to drive substantial carbon emission reductions across various industries in Australia.

The research also reveals that 89% of business leaders who use location intelligence technology or AI to achieve their sustainability goals feel confident that most Australian businesses currently possess the necessary technology tools to address and reduce carbon emissions effectively. 34% are very confident, which is almost six times more than those whose organisations do not use such technology.



4 in 5

CEP leaders are optimistic about location/geospatial technology and AI to drive substantial carbon emission reduction



9 in 10

business leaders whose organisations use technology to achieve their sustainability goals feel confident that most Australian businesses possess the necessary tools to reduce carbon emissions

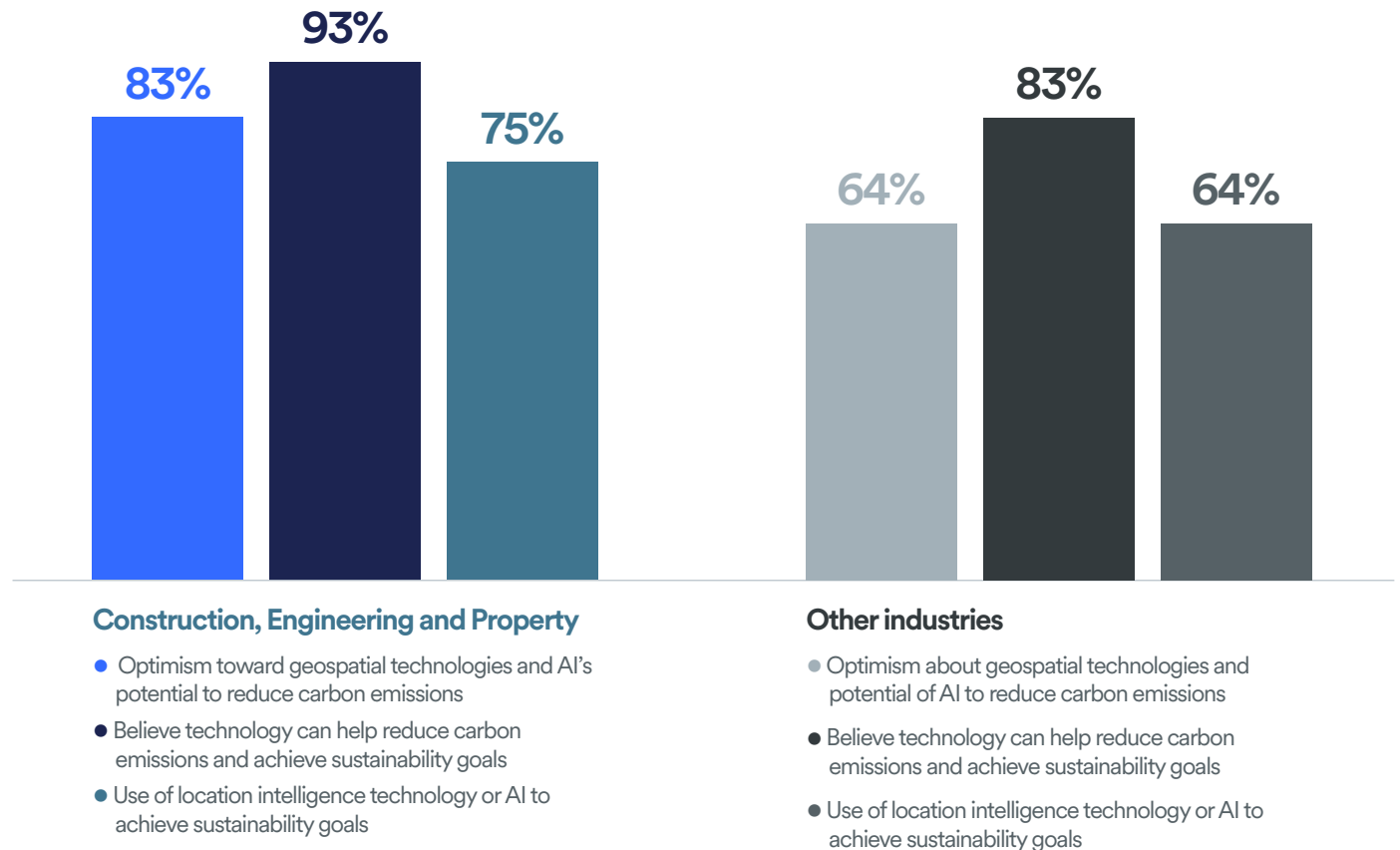
Optimism around technology for sustainability is high, but adoption is low

The research shows that three quarters (75%) of business leaders in Construction, Engineering and Property industries say that their organisation uses location intelligence technology or AI to achieve sustainability goals — which at face value is an encouraging number.

However, there is a significant gap between the usage of these technologies and the positive attitudes towards their impact — that is, 83% business leaders in these industries are optimistic about the potential for geospatial technologies and AI to drive substantial carbon emission reductions, and 93% believe that technology such as aerial imagery and geospatial analytics can help them reduce carbon emissions or achieve their sustainability goals.

In comparison, only 64% of business leaders in other industries are optimistic about the potential of location or geospatial technology and AI to reduce carbon emissions. However this is aligned with the lower uptake of location technologies among these industries (64%) as compared to Construction, Engineering, and Property (75%).

Business leaders' optimism versus implementation of technologies that help reduce carbon emissions



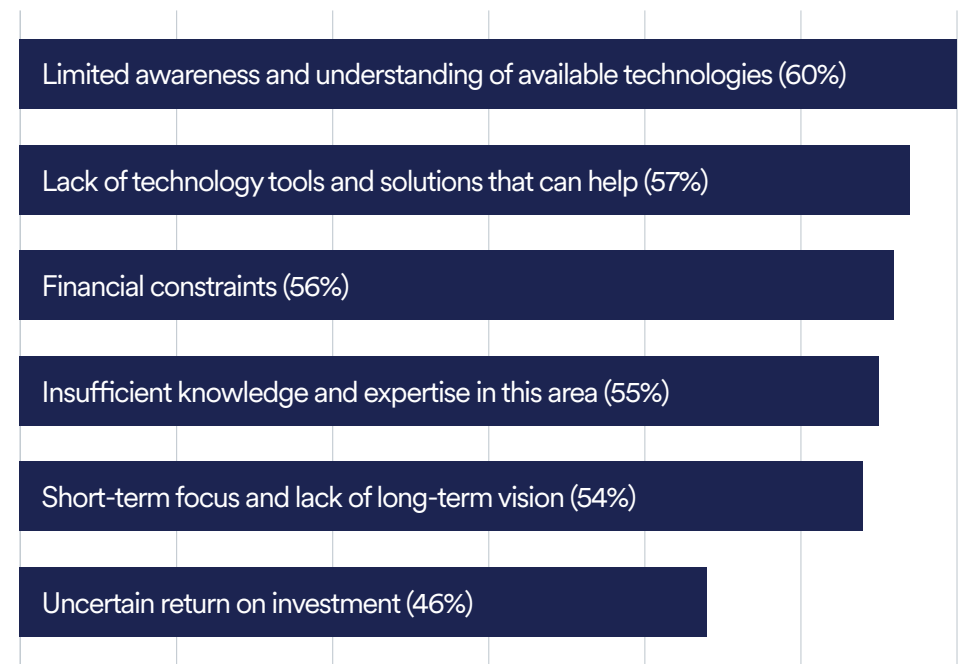


The biggest barriers in achieving carbon emission reduction goals

While **86% of Construction, Engineering and Property leaders** surveyed feel confident that most Australian businesses currently possess the necessary technology tools to address and reduce carbon emissions effectively — the top challenges they face in achieving carbon emission reduction goals tell a different story.

It is clear that further education is needed to unlock the full potential of technology in helping Construction, Engineering and Property companies reduce emissions.

The biggest barriers include:



How Construction, Engineering and Property companies can help reduce carbon emissions with technology

The transport sector was responsible for 19% of Australia's total carbon emissions in 2022 — making it the country's third biggest emitter. Of note, light vehicles — that is, cars, 4x4s, SUVs and small commercial vehicles up to 3.5 tonnes — accounted for 10% of Australia's greenhouse gas emissions⁴.

Therefore, one of the simplest yet most impactful ways you can apply technology to your workflows and reduce your carbon emissions while seeing a return on investment is to reduce multiple, unnecessary site visits.

Nearmap [estimates](#) that a company can potentially save up to 5,280 kg of CO₂ a year by having even just one worker conduct two site visits virtually each day — instead of spending an hour travelling.

And when financial constraints and uncertain return on investment create barriers to achieving sustainability goals — this would also potentially save companies AUD 34,100 a year⁵. Those savings can then multiply with each additional worker that conducts virtual site visits, and again with each additional site visit that is conducted virtually. You can calculate your return on investment yourself with the [Nearmap Savings Calculator](#).

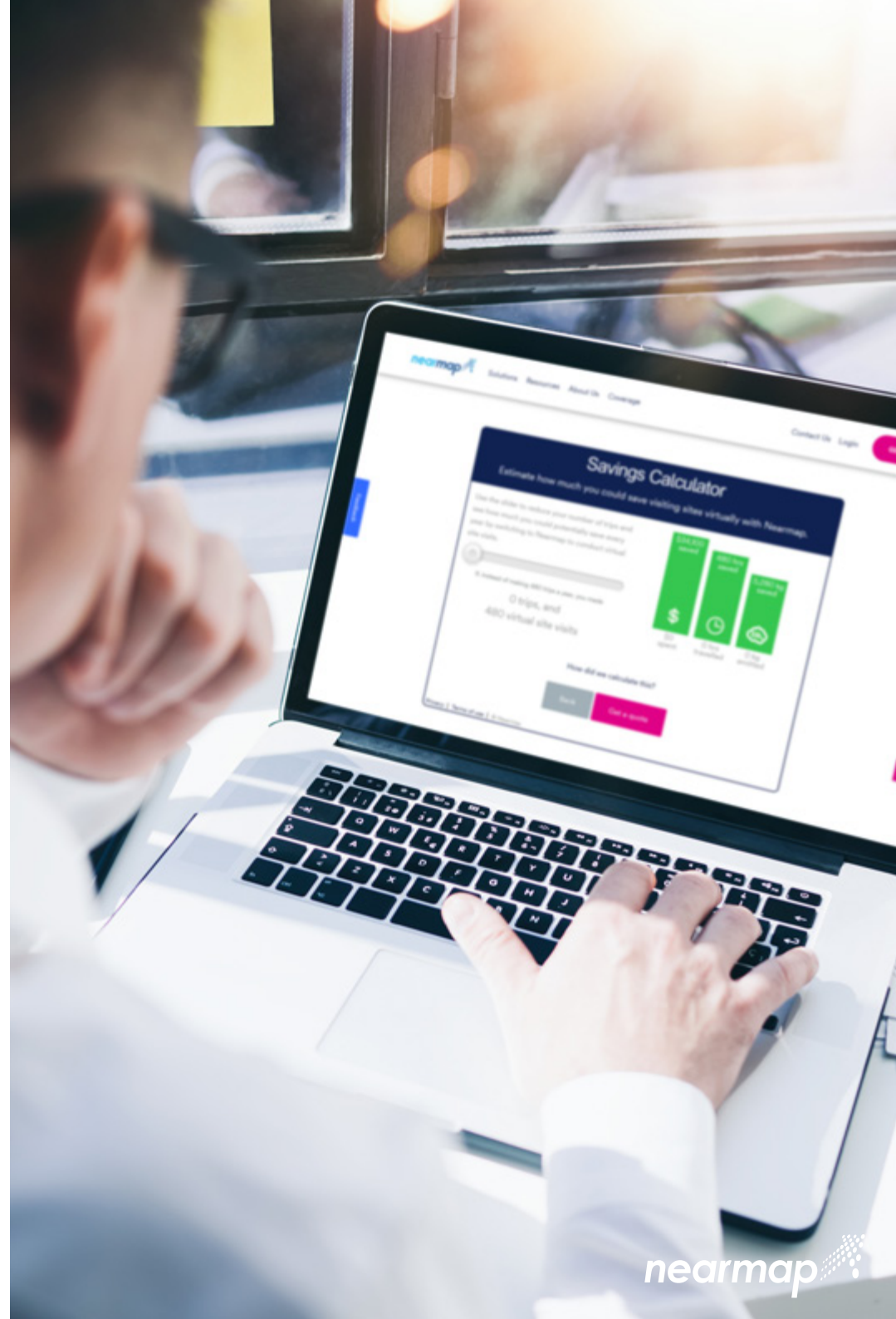
This doesn't require extensive technical or geospatial expertise, nor a download or implementation of another GIS software. Emission-reducing, web-based tools can be used alone or integrated into your existing tech stack. For industries that have traditionally been slower in adopting technology solutions, this is encouraging.

But how do you know which of your site visits can be replaced by technology?

Aerial imagery, 3D content, and geospatial location intelligence from AI can be used to reduce the carbon emissions of countless workflows — regardless of your level of technical or GIS expertise.

⁴ Department of Climate Change, Energy, the Environment and Water

⁵ Nearmap ROI Calculator (Disclaimer on Page 14)



Practical recommendations

Four remote workflows that help reduce travel-related carbon emissions, save time, and cut costs:



Assess and bid on projects:

- Access to project sites is not always possible in the early stages of the project. Determine the viability of the project, and whether it will align with your organisation's sustainability goals, before taking on any significant expense



Accurately plan your project:

- Assess sites, make accurate measurements, and validate them multiple times, at any time, over the months and years it may take to complete a project — reducing risk of costly error and waste
- Prepare a site for sustainable operation by determining with accuracy transport, equipment, and material logistic requirements



Prolong the life of your assets:

- Keep track of the condition of your assets and infrastructure from your desk, and plan and forecast maintenance requirements proactively over a large site — reducing need for carbon-producing retrofits
- Use 3D content and use AI-powered location intelligence — such as automated tree overhang, debris, and roof ponding insights — to remotely identify potential issues or vulnerabilities before they escalate



Monitor project progress:

- Stay informed about what's happening on-site to avoid costly rework, allow iterative design as projects evolve, support project reports, and execute procurement, transport, and the stationing of workers and materials in an agile way
- Evaluate performance and compliance against goals, and proactively identify problems that could be roadblocks to project and ESG success

Summary

There is optimism that technology solutions can effectively help reduce emissions, and confidence that Australian companies currently possess said technology tools. But actual usage of these technology tools is low in comparison — a limited awareness and understanding of available technologies the likely reason.

A better understanding of which workflows can be easily digitised — and how this contributes to reduced emissions and a greater return on investment (ROI) — will see optimism in the potential of these technologies evolve into proven effectiveness across the If the Construction, Engineering and Property sectors.

- The desire to use/importance of using technology to achieve decarbonisation and sustainability goals is clear
- However the level of current use does not match this desire
- Limited awareness and understanding of available technologies is standing in the way of Construction, Engineering and Property companies achieving their carbon emission reduction goals

To help the Construction, Engineering and Property sectors deepen their understanding of the technologies that can help them reach their sustainability goals, Nearmap is breaking down a few ways and solutions that seamlessly integrate into existing workflows.

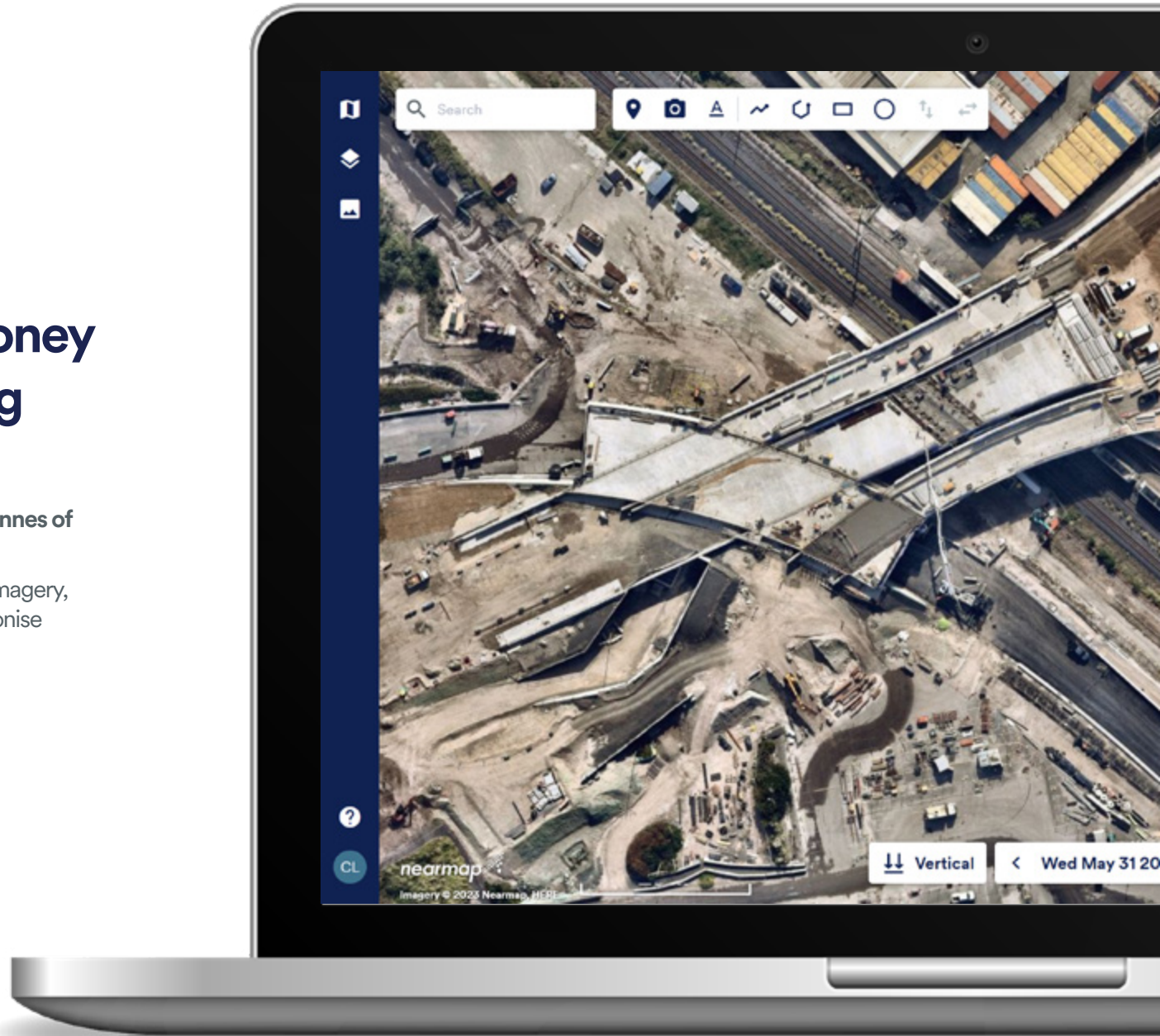


How much CO₂, time and money could you save by conducting virtual site visits?

Nearmap Australia customers saved approximately 863,728 tonnes of Greenhouse Gas (GHG) emissions in FY23⁵.

If you're ready to use easy, instant access to high resolution aerial imagery, city-scale 3D content, AI data sets, and geospatial tools to decarbonise your workflows, let's talk.

[GET IN TOUCH](#)



⁵ Nearmap ROI Calculator (Disclaimer on Page 14)

Methodology

Study:

This study was commissioned by Nearmap and conducted by YouGov, online, between the 23rd and 26th of June 2023. The sample comprised of 506 Australian managers, directors, C-Suite, chairpersons, partners and owners/proprietors of businesses with 500+ employees in Australia, including 253 from Construction, Engineering and Real Estate businesses, and 253 from other sectors.

Analysis of Greenhouse Gas (GHG) emissions saved by Australian Nearmap customers:

The analysis is based on all search events conducted in MapBrowser during the last fiscal year. Only locations in Australia which are within Nearmap coverage are included in the calculations. Locations that were searched for at least three times by the same user were counted. Nearmap estimates that each search-related Nearmap survey produces 10 kg GHG emissions. Nearmap assumes that without using Nearmap, the user/organisation might have travelled to included location(s) by either driving or flying. The fuel usage and greenhouse gas emissions referenced depend on the chosen mode of transport (vehicle or airplane). Please refer to the table below for assumed distances, estimated fuel usage, and greenhouse gases per kilometre. Nearmap assumed each searched location as a round trip, so double the one-way distance to calculate the approximate total travelled distance.

Searched Distance (assumed by Nearmap)	Mode of transport chosen based on searched distance	Grams of Greenhouse Gases (GHG) per passenger per KM
<400KM	Vehicle	43.6*
>400KM	Aeroplane	101^

Estimated Greenhouse Gas Emissions (GHG) calculation: Searched distance (in KM) x 2 (round trip) x GHG per KM

ROI Calculator Disclaimer

This is a guide only, based on various factors including but not limited to your individual workflows, the Nearmap products subscribed to and your usage of those products. Your actual savings may be higher or lower than this estimate. The savings estimate does not factor in the additional costs of a Nearmap subscription. For more information and to see the assumptions underpinning this estimate visit: www.nearmap.com/roi-savings-calculator

* Based on the Ford Ranger vehicle calculations from National Transport Commission Carbon Dioxide Emissions Intensity for New Australian Light Vehicles Report 2021

^ Based on Boeing 747-400 calculations from Carbon Independent



www.nearmap.com