

Making the switch to cloud-based geotechnical information management

The route to faster, more efficient, more collaborative geotechnical information management



OpenGround®



Introduction

Data is key to the modern ground investigation, allowing sites to be characterised and risk assessed to a growing degree of confidence. With a robust data solution the engineer can spend more time doing what they do best – engineering.

That means getting three things done:

1. Collecting accurate, high quality data and conducting QA/QC.
2. Making data available to the right people in a timely fashion with nothing lost in translation between different types of software along the way.
3. Using your data to make more informed decisions, create better designs, and really add value for your team or your clients.

The difficulty inherent in collecting, distributing and using data quickly and efficiently – as well as a number of major changes that are sweeping across the industry – is pushing many companies to finally make the leap from desktop-based data management tools to cloud-based systems that help them:

- Collaborate
- Collect data accurately
- Analyse data efficiently
- Finish projects which add value

In this eBook, we'll explore the biggest challenges in geotechnical information management, the market forces that are encouraging companies to make changes, and how you can leverage the latest technology to make your data collection and information management your competitive edge in a rapidly evolving space.

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What is pushing geotechnical teams to move to the cloud?

The changes that are redefining the industry



Finding ways to manage subsurface investigation data more efficiently is something that most geotechnical engineering companies have on their to-do list. A move to the cloud is often a major step in this process.

Making this change isn't always easy. You might be worried that you don't have enough time or resources to pull off the transition, or that you'll struggle to get management to prioritise it as a corporate objective over billable projects. You wouldn't be alone.

But ground investigations are changing.

Clients are asking engineers to add more value, instead of just recreating existing data in other forms and applications. They're also asking for that value to be delivered faster, and with more confidence.

Times are changing within companies as well. And with more and more of us now working from home, we're also changing how, when and where we work.

All of this is coming together to create a big push towards change – and a new demand for technology that can keep up.

If you can make the necessary changes and equip yourself with the right tools, you'll be in an excellent competitive position – and cut out lots of stress in the process.

But what's actually changing? And why is that driving a need for cloud-based geotechnical data management tools?

Data volumes are exploding

The amount of data generated from ground investigations is growing every day. Certain specific activities – such as CPT, water monitoring and contamination testing – naturally lead to large datasets. Additionally, the historical data which available for reference is by definition growing. That's a huge opportunity for geotechnical engineers to run more complex analyses, build more accurate designs, and add value for their clients – but it's also a real strain on the ad hoc, desktop-based processes that engineers have relied on for so long.

Most desktop-based data management tools struggle to keep up with such a huge influx of data. And it's not just the new data that your solution needs to handle, it's also the historic data that's sitting in your databases waiting to be put to use.

Flexible working and remote working present new opportunities

The way we collaborate and work is changing; flexible working is on the rise, remote working is becoming the norm, and teams are distributed.

All of this means you need ways to collaborate remotely, without being slowed down, held back by silos, or spending too much time searching for the most recent version of your data. You can't just assume that everyone in your team will be able to gather around one computer anymore.

This means that, more than ever, you need tools that give you a single source of truth, and the ability to share data, track the progress of projects, and maintain control over the information held in your systems.

Mounting compliance requirements

Every industry is seeing tighter regulations around the way they store and use data, and geotechnical engineering is no exception. The way you collect, use and share data is under extreme scrutiny.

So the old ways of sharing data – whether it's physical documents that can be stolen or tampered with, or files attached to emails – can't provide the levels of security that governments and customers alike are demanding.

Not to mention that, with so much data sitting around forgotten on desktops and thumb drives, it's easy to lose track of who's accessing data, and for what purpose. That's a compliance nightmare for management teams.

Customers want tighter turnarounds

Clients are demanding that data is delivered faster. Their expectations are higher.

It's very difficult to meet those standards when you're working in a disconnected desktop environment. Getting the data all the way from on-site to QA and through to the client as fast as possible is essential, but could take days to move from team to team, system to system.

More efficient, lean ground investigations are becoming the norm

If you're keeping up with the thought leadership around ground investigations and geotechnical engineering, you'll probably have noticed a huge shift towards leaner, more efficient ways of working across organisations. Engineers in particular are being asked to do more with less – and many are understandably struggling to meet those expectations with the technology they're currently using.

The subsurface investigation is often where organizations see the least value, and it has the smallest portion of a project budget. As projects become bigger, the budget for the subsurface investigation often does not reflect the bigger scope. Geotechnical professionals often make assumptions off of a small sampling of site specific conditions. Sites are bigger/deeper/more difficult (less optimum sites are being developed as the prime sites are already taken), and the subsurface budget often does not reflect this reality.

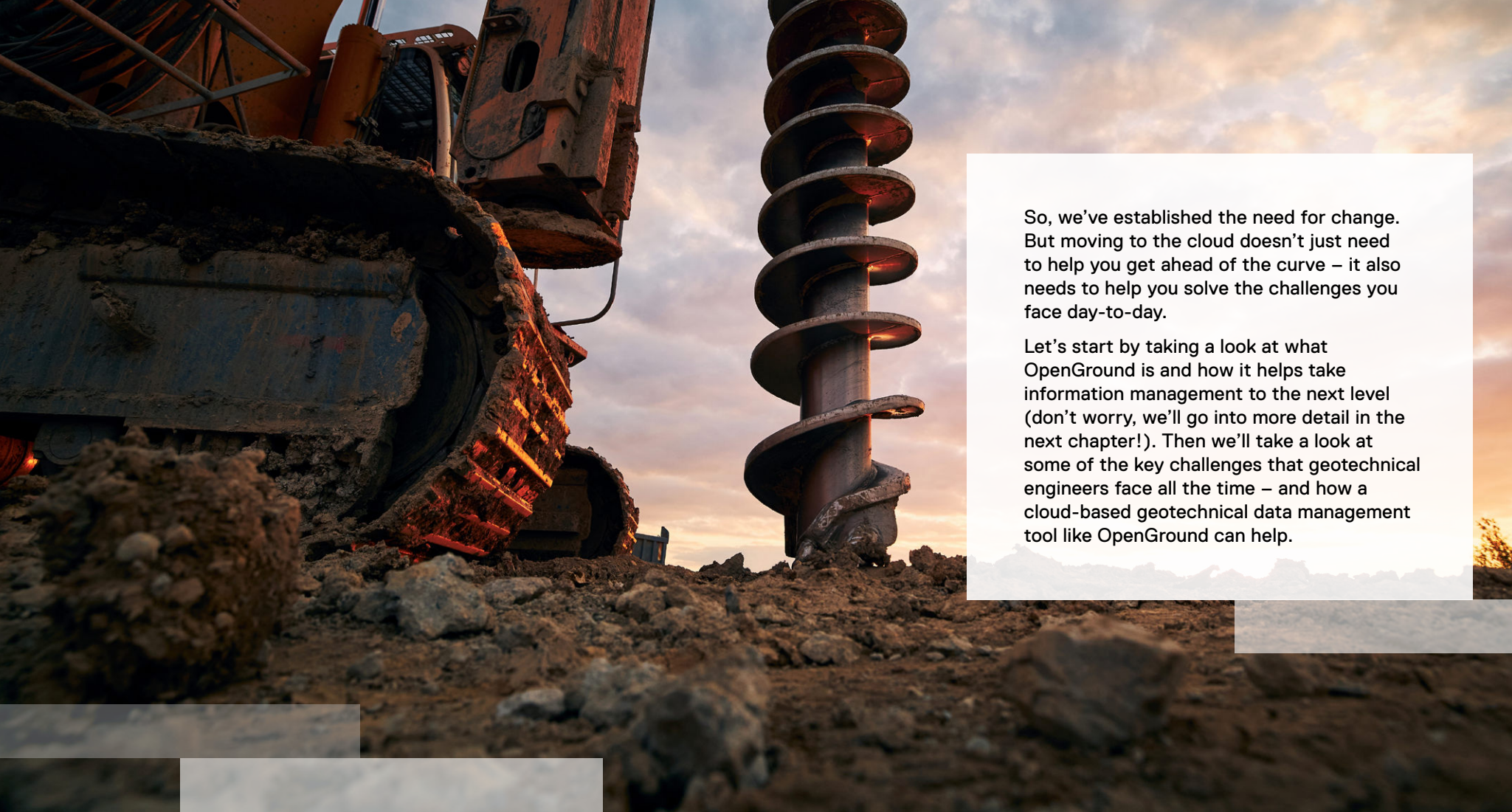
Succeeding means being more iterative and incremental – optimising everything. That can mean anything from making sure that everyone can access the data they need when they need it, to improving communications between different teams and parts of the pipeline.



Cloud-based geotechnical information management allows for easy access to project data from anywhere, at any time, increasing collaboration and efficiency.

The biggest challenges in geotechnical data management

How a cloud-based information management solution can get you on the right track



So, we've established the need for change. But moving to the cloud doesn't just need to help you get ahead of the curve – it also needs to help you solve the challenges you face day-to-day.

Let's start by taking a look at what OpenGround is and how it helps take information management to the next level (don't worry, we'll go into more detail in the next chapter!). Then we'll take a look at some of the key challenges that geotechnical engineers face all the time – and how a cloud-based geotechnical data management tool like OpenGround can help.

What is OpenGround?

OpenGround is a secure, scalable, cloud-based geotechnical information management platform that brings together every stage of the information gathering process in one connected data environment.

- Collect data**
 Streamline site investigations, increase visibility and cut down on human error with mobile data collection providing real-time synchronisation or offline working as required. As an alternative, desktop data entry is also possible.
- Centralise data**
 One source of truth, accessible to everyone who needs it. Collect all of your data in one place and control access to federated data across your teams and the wider supply chain.
- Utilise data**
 No more data languishing in tangled up databases or forgotten filing cabinets. Easily turn the information you collect into actions with easy report generation, integrated GIS, data validation and quality assurance.
- Visualise data**
 Dive deeper into the information you gather on-site with dynamic visualisations and standardised enterprise reporting.
- Integrate data**
 Feed data into finite element analysis and modelling applications – both within the Sequent and Bentley ecosystem, and from popular third-party providers.



The biggest challenges in modern geotechnical data management

Human error and data loss make on-site data capture a headache

Whether you're writing figures down or typing them into your tablet, manual data entry processes create lots of opportunities for human error to creep in.

And there's always the possibility that, if you don't transfer it straight away, your data will be lost entirely. Anyone who's spent time on-site knows that, every now and then data gets lost – whether that's a piece of paper being damaged by the elements, or a tablet losing a battle with the tyre of a reversing vehicle...

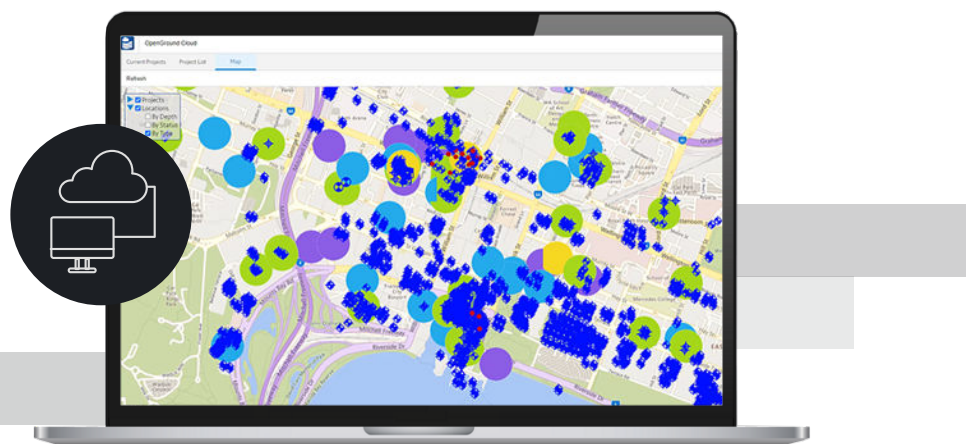
How OpenGround can help

With a solution like OpenGround, data doesn't just sit in your notebook or on your tablet once it's collected, waiting to be entered into your system later. It's safely stored in the cloud as soon as the device syncs – logged safely where everyone can access it.

Crucially, that synchronisation goes two ways: as soon as you add data collected on-site, the other members of your team can access it in the back office. And, if a change is made in the back office – or data from another location is added – you can access it straight away, while you have boots on the ground.

No more retyping or importing data files. Everything happens dynamically within OpenGround.

And, with the onsite collector, the site team never needs to even enter a borehole ID; they can just download the borehole location information and start logging data.



Data needs to be centralised and standardised

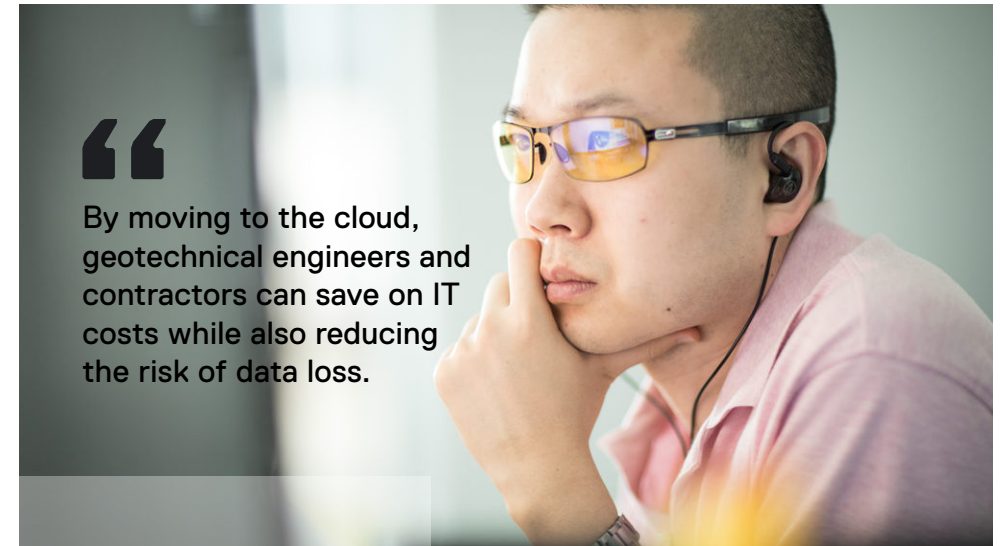
In short, everyone is collecting data in different ways, in different formats, and storing it in a different way – which makes it very difficult for any one team or individual to see the whole picture, or get access to the data they need in a timely manner.

Worse still, there's no central place to store data, which means it gets funnelled into forgotten folders, 'lost in action' on C drives, or lost completely.

■ How OpenGround can help

OpenGround creates a single, centralised source of truth for everyone involved in a project – from geotechnical engineers to project managers, CAD designers and field technicians.

When everyone can access the most up-to-date information, cross-discipline collaboration becomes much easier. Whenever someone needs to get up to speed, share updated figures and drawings, or analyse information, they can find the information they need straight away – from any device and any location.



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By moving to the cloud, geotechnical engineers and contractors can save on IT costs while also reducing the risk of data loss.

Integrating data with geotechnical models

The whole purpose of the data you collect on-site is to feed into other parts of the geotechnical engineering process – to provide new layers of insight and inform your final designs. But right now, integrating the data you collect on-site with geotechnical models is often difficult and unintuitive.

■ How OpenGround can help

OpenGround integrates with the biggest third-party applications for geotechnical engineering, making it easy to fit your new cloud-based system into your wider processes.

For those that have adjacent systems and work process which they would like to connect to consume or produce data for OpenGround our API (Application Programming Interface) will give you the tools to make those connections. For example, connecting a CRM system to produce projects on OpenGround when they are added, connecting OpenGround to a organization wide GIS system to help with communicating location of data.



Introducing OpenGround

The secure way to manage geotechnical information



OpenGround is helping geotechnical teams collect, report, manage, visualise, analyse and access their data – cutting through inefficient processes and fiddly data collection to make ground investigations easier than ever before.

Why use OpenGround for onsite data collection?

OpenGround is built to make accurate, timely data accessible to everyone, at every stage of the process – from site exploration to ground modelling and engineering analysis.



Trusted

OpenGround is built by a team with decades of experience in geotechnical data management. That's why over 12,500 users rely on our system to manage over 2.75 million boreholes.



Scalable

Get the capacity you need, when you need it, with fast and flexible cloud-based scaling



Connected

OpenGround integrates with the Bentley and Seequent ecosystem – and third-party apps – so you can share and use geotechnical data faster and more effortlessly than ever before



Competitive

With data at your fingertips, you can work faster, discover more and go above and beyond for your clients



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The scalability of cloud-based geotechnical information management allows companies to easily adapt to changing project needs and workforce demands.

Bentley Systems and Seequent: Outstanding geoscience software meets infrastructure expertise

Seequent is a Bentley Systems company – which means OpenGround customers get the best of both worlds when it comes to geotechnical information management.

First comes **Seequent's** wealth of experience in subsurface modelling and analysis – which includes getting geoscientists outstanding software that helps them work faster, gather and use data more efficiently, and create better subsurface structures.

Seequent, the Bentley subsurface company provide ground specialists with all the subsurface solutions they need to succeed.

It's the perfect partnership – and, as you'll see in the next chapter, it's already paying off for OpenGround customers.

Creating a one-stop-shop for CDM Smith's geotechnical data

OpenGround in action, out in the field



CDM Smith is an engineering and construction company that provides solutions for public and private clients in water, environment, energy and facilities.



They were looking to take their client service to the next level – in the words of CDM Smith's Senior Vice President and interim Geotechnical Practice Leader:

“One of our primary objectives was to better serve our clients with a reliable means of gathering and transmitting field data.”

– Michael Schultz
Senior Vice President and Geotechnical Practice Leader, CDM Smith

The challenge

CDM Smith had been using gINT desktop-based software for decades.

But manual data collection processes meant the geotechnical team had to keep an eagle eye out for transcription errors, which could affect the quality of their designs.

On top of this, clients were asking for more sophisticated services – more specifically, they wanted to know how CDM Smith would collect and manage field data in a way that would make the insights gathered immediately accessible to stakeholders.

CDM Smith saw a chance to remove a headache, delight their clients and set themselves apart from the competition – all by moving to a more advanced cloud-based data management solution.

The solution

In August 2020, CDM Smith began working with our team to implement use of OpenGround.

The more challenging aspects of implementation included rethinking the logging and data management workflow, and designing a flexible data entry template to accommodate the needs of CDM Smith's diverse client base and future needs.

OpenGround Data Collector allows for data logging live to the cloud. Data is available immediately for interpretation and analysis, saving time and improving decision-making. This enhances quality, visibility and security while positioning the firm for a wider cloud-based adoption.

Of course, there were some challenging aspects of implementation.

These included rethinking the logging and data management workflow, and designing flexible data entry templates to accommodate CDM Smith's diverse client base and future needs.

For example, the United States Army Corps of Engineers had specific requirements, compared to more standard transportation, industrial, and infrastructure clients.

That's why it was important for flexibility and robustness to be built into the system. End-to-end – from collection methods and classification systems, to geographic area sampling and testing.



With cloud-based solutions, geotechnical data can be securely stored and shared with team members and stakeholders, leading to better decision making and project outcomes.

The power of OpenGround

Thanks to dedicated support from our team – and training to get frontline users ready to use OpenGround to its full potential – CDM Smith were up and running fast.

Loggers on the team were using OpenGround's complete capability within 1-3 days.

And the results became clear fast.

Moving to OpenGround helped CDM Smith drastically cut down on errors and rework, saving up to 40% in log development time.

With everyone working from the same templates, this also improved logging consistency. Changes to templates can be easily rolled out to everyone. Data can also be more easily audited.

“There's been a reduction in transcription errors, and an increase in logging quality and consistency. We have cloud-based access from anywhere. We can look at all data much easier, with the potential to look at an earlier project from nearby,” explains John Brand, a senior Geotechnical Engineer at CDM Smith.

“Previously we might have lost access to that data, or it may not have been as accessible if it was on a different server. Now we have one central location for everything, and global cloud-based quality and security.”

Striding to the cloud

How our product and implementation team help you make the most of OpenGround



Moving to cloud-based geotechnical data management – finding the right partner, updating your processes and systems, training your team – can be an intimidating prospect.

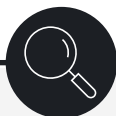
We've shown in previous chapters that the rewards are significant: more accurate data collection, smoother collaboration, more agility and a greater ability to keep up with the competition.

But it's still a change that deserves care and attention.

That's why we put change management and integration at the heart of every OpenGround implementation.

Complete support from start to finish

A process that gets you on the path to success, informed by our experience implementing OpenGround with global companies of all sizes.



01. Discovery

Your ambitions and what it takes to reach them

You want to weave OpenGround into the heart of your processes, so it needs to be tailored to you. We'll start with in-depth interviews that help us understand your people, your processes, and your goals. And, most importantly, we'll get to know the challenges that are motivating your switch to OpenGround, so we can make sure we're targeting the right areas.

Then we'll use our **cost savings calculator** to help you predict exactly how much money you're likely to save with OpenGround, so you can start making plans and ensure you're getting the results you need from your investment.

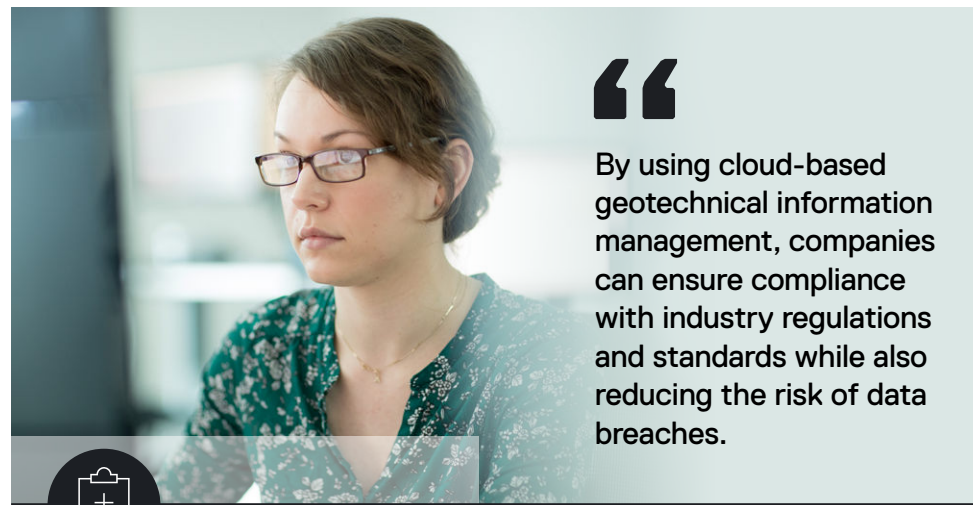


02. Implementation plan

Drawing out the roadmap

At this stage, we'll work with you to figure out what the road ahead should look like.

- **Specific goals** – How are you going to measure success?
- **The needs of power users** – These are the ones who will use OpenGround the most. Together, we'll figure out how to get the rest of your team onboard as part of a wider change management strategy designed to make your implementation a success.
- **Your priorities** – What needs to be delivered first?
- **The perfect pilot project** – A project where you can test OpenGround and iron out any creases before you roll it out across all of your teams and projects.



By using cloud-based geotechnical information management, companies can ensure compliance with industry regulations and standards while also reducing the risk of data breaches.



03. Pilot project

Giving OpenGround a test run

The pilot project is designed to give you a definitive checkpoint at the end of your OpenGround implementation – a chance for you to assess whether you've reached your goals, and make any tweaks and improvements you might want to make before you roll the technology out to other projects.

That means no nasty surprises during a company-wide rollout; you've already worked out the kinks and got to know the software. You can pick up OpenGround and run with it straight away.



04. Full rollout

Putting OpenGround to work

Once we've completed the pilot project, we'll feed all of those learnings into the final rollout. With dedicated training and support from our teams of geotechnical data management experts, we'll help you manage the transition from on-premise to cloud with complete confidence.

Ready for the next step?

The cloud is closer than you think

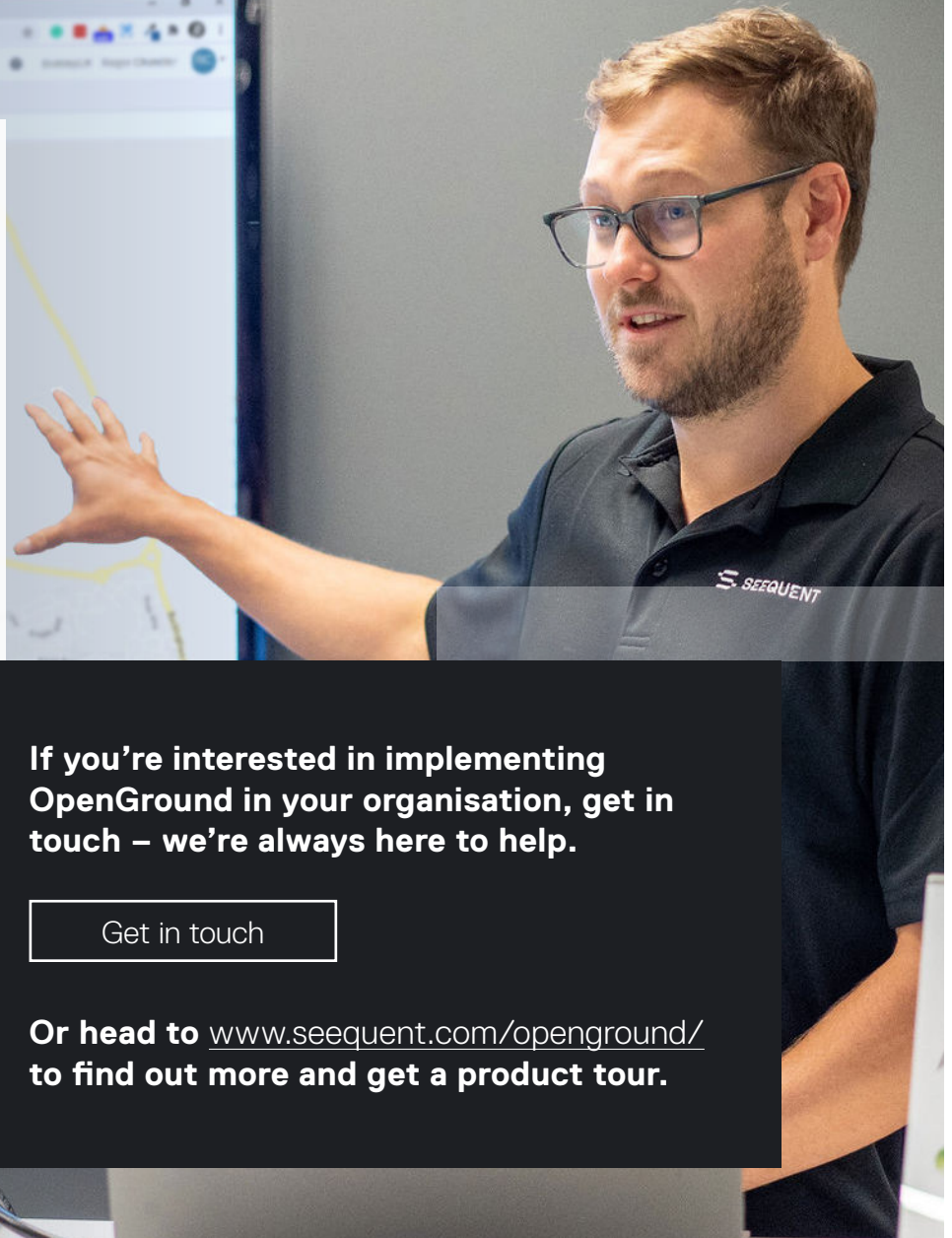
Moving to cloud-based geotechnical information management – finding the right partner, updating your processes and systems, training your team – can be an intimidating prospect.

But, if you get it right, the rewards are significant: more accurate data collection, smoother collaboration, more agility and a greater ability to keep up with the competition.

That's why we put change management and integration at the heart of every OpenGround implementation: so you can make the change with all the support you need to make the transition a success.



OpenGround®

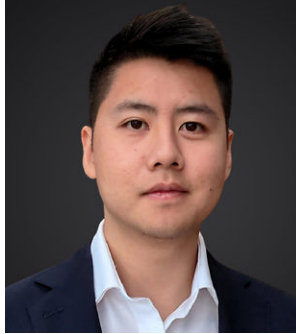


If you're interested in implementing OpenGround in your organisation, get in touch – we're always here to help.

Get in touch

Or head to www.seequent.com/openground/ to find out more and get a product tour.

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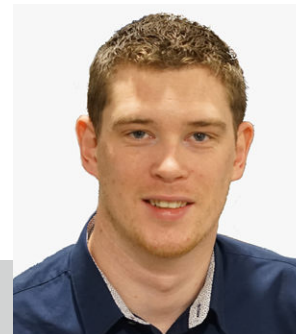
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