

Exciting times

There's never been a more exciting – and important – time to be in ground engineering, writes Fugro commercial director Mark Richardson.



Wireline geophysicist preparing to log a deep borehole



Fugro's Skate 2 jack-up barge on the River Thames

For many decades, the fundamentals of evaluating the earth for the purposes of design and construction have not evolved. Thankfully, structures generally do not fall down, but the conventional approach perpetuates design conservatism, extends timelines and adds unnecessary costs.

The status quo is not supportable in today's accelerating environment where sustainability is key, finances are constrained and talent has choices, and so things are changing at an exciting rate.

I have been fortunate to have built a varied and rewarding career at Fugro over the past 20 years. Starting as a geotechnical engineer, I've progressed through several operational and technical roles both onshore and offshore. In my current job, I am part of our UK land leadership team, revolutionising the way in which we offer ground risk reduction to our clients. Fugro's purpose – "Together We Create a Safe and Liveable World" – orientates us as we look to deliver



Mark Richardson

innovative ground risk mitigation solutions, and I find this hugely personally motivating.

At a time when a change of approach is required in energy and infrastructure to meet our planet's needs, it is perhaps surprising to note that global cement production – 4bn.t annually – accounts for around 8% of global CO₂ emissions each year. As we strive for a net zero existence – Fugro's own target is to achieve net zero by 2035 – at the same time as dealing with a growing global population, we need to finesse the way in which we approach structure design and life cycle management to eliminate over-specification.

Digital delivery is key. Internally, it makes us more efficient as data acquired in the field is available to our engineers in real time and it improves accuracy through single entry. We are able to track the performance of our field assets, such as drilling rigs, and intervene early to solve problems before they have a delivery impact.

Externally, it allows us to materially reduce lead times to our clients, and

through ground modelling, iteratively build up a picture of the ground.

New technologies are also critical. Non-invasive techniques, such as seismic reflection, allow site screening providing early data and reducing the amount of invasive data collection.

Autonomous asset monitoring, such as high speed train mounted rail scanning provides insight into the condition of railways in a way that was previously unimaginable. These techniques shorten timelines and move people away from high hazard operations.

Our industry is therefore attracting talent from disciplines that were previously not associated with ground engineering – software engineers, programmers and artificial intelligence specialists, to name a few. Coupled with a transformed work environment where individuals seek a compelling purpose and demand flexibility, the ongoing transformation is a great challenge.

So, it is an exciting and important time to be in ground engineering, and I wouldn't like to be anywhere else.