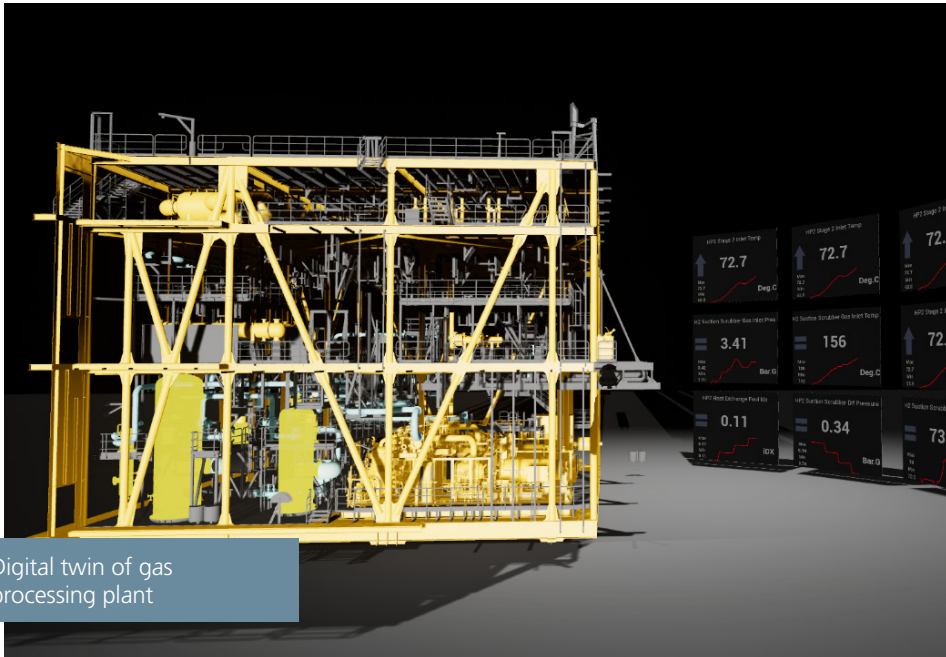


Geologix



Digital twin of gas processing plant



Dr Julian Pickering

Geologix develop software applications and provide advisory and technical services to the oil and gas sector. Director Julian Pickering says the company helps to optimise drilling and production through specialist technology platforms that drive better decision-making and higher levels of efficiency. As a director of an organisation with a focus on digital transformation, Julian discusses the importance of embracing technological innovation and looks at how Geologix is positioning itself for the future.

We have been growing our business over the last few years to meet the changing demands of global energy support. We have been a leading supplier of geological software tools and services to support oil and gas drilling for more than 25 years but we now have new products that optimise oil and gas production, predict the declining performance of major equipment long before failure and enhance collaboration through advanced visualisation methods.

These are all valuable to UK producers directly but also create UK business through their sale to overseas operations. We are very aware that the UK and other leading energy consumer markets are looking to reduce their dependency on fossil fuels and for this reason, we have been promoting the application of our tools and work processes to support the development of green energy. An example of this is the transition of our oil and gas well monitoring services to lithium mining, an essential technology for electric vehicles and all applications where remote electricity storage is required.

FACTS ABOUT GEOLOGIX

- » Managing Director: Samit Sengupta
- » Director: Dr Julian Pickering
- » Established in 1994
- » Based in Norwich
- » Services: Technological and software support to the oil and gas sector
- » No. of employees: 12 in the UK; 33 worldwide
- » www.geologix.com

“We see the career development and job stability of upcoming engineers as essential to our business as well as to the future success of the UK economy”

Surviving sector adversity

The oil and gas business has been through a tough economic time over the last five years, with low energy prices and a sharp decline in major projects. We are proud to say that we have retained all of our UK staff, apart from a small number of voluntary leavers throughout this period. This is a claim that very few service providers can make.

We employ a large number of young professionals in our organisation and we see the career development and job stability of upcoming engineers as essential to our business as well as to the future success of the UK economy.

Embracing technological innovation

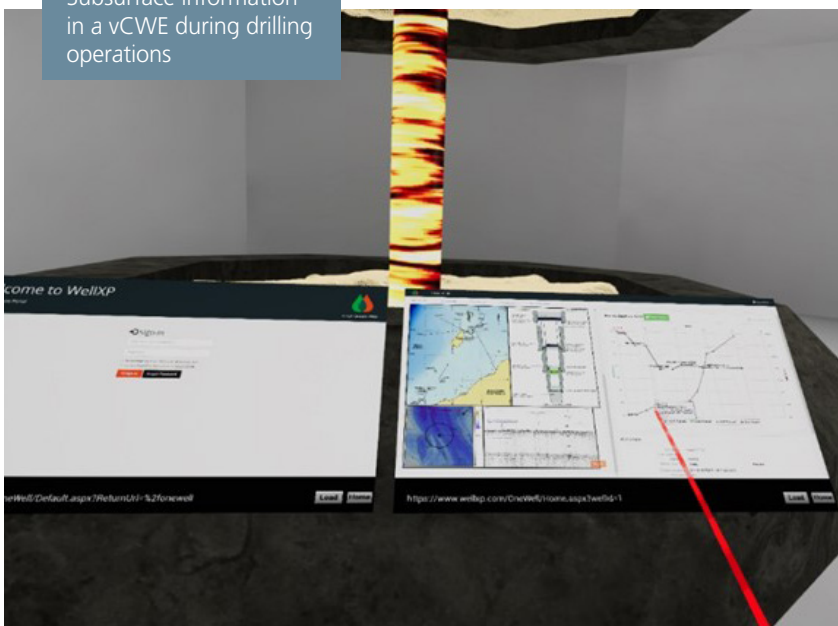
Our most recent products apply virtual reality and augmented reality to “digital twins” of process facilities. These are potential multi-industry solutions but our focus so far has been on our traditional drilling and production operating areas within oil and gas. These digital twins may be viewed on conventional video screens in 2D or navigated in 3D using VR technology. We have animated the digital twin with live plant information,

which gives the user a true sense of “being there”. This brings enormous value to operators and their training programmes by providing realistic plant simulation. It also reduces the number of personnel working in a hazardous environment and improves efficiency by enabling experts to diagnose performance issues without having to attend the plant.

For some years, our staff have been involved in the design and installation of collaborative work environments, or CWEs, for oil and gas drilling and production. These are work rooms where experts from operator and service companies can share knowledge and make informed operational decisions, as well as addressing problems as they occur. Some operators have invested very large amounts of money in these environments but physical CWEs come with a number of problems in addition to cost: they cannot be reconfigured easily as operational requirements change, personnel must be in the CWE to contribute and the rooms occupy a finite amount of building space whether in use or not. Through our experience with VR, we are now able to offer a virtual CWE, a vCWE, which solves these problems and is much lower cost to set up in the first place.

The vCWE mimics a physical CWE by having a number of large display panels on the walls showing live operational information. In the physical room, experts collaborate around the display panels and generally there is a videoconference link to the control room on the plant or offshore platform. As the control room operators are remote from the CWE, it is difficult for them to share in the same collaborative experience. With the vCWE, however, personnel can collaborate remotely. They can join the room from anywhere with a good internet connection and

Subsurface information in a vCWE during drilling operations





are represented to other remote attendees in the vCWE by avatars. They can communicate vocally either by conference phone or VOIP. It is very easy and quick to set up multiple vCWEs as required, which makes them ideal for adapting to changing operational requirements.

Our other main area of business is providing advisory services to clients in digitalisation. This is not concerned with applying digital technology in isolation but is about creating a blend of appropriate monitoring and automation technology, matched with best-in-class work processes to deliver maximum efficiency and value. Once again, our focus so far has been mainly on oil and gas but in the future, it is our intention to offer similar services in other industry sectors.

In addition to our own staff, we have access to other senior personnel who are former members of major oil and gas operators and service companies and we have developed a business model that allows them to work for us on a part-time basis, as required. This is often attractive to people who may have retired from the industry but are keen to stay involved and connected, and we are able to benefit from their significant experience and knowledge. When working for us, they adopt our business methods and

work processes and we encourage advisors to integrate fully into the client organisations so that they are seen as members of the client teams. Many overseas clients, in particular, are very keen to have industry figureheads available to them.

Repositioning our delivery

As with many businesses supporting the energy sector, we are on a journey to reposition our delivery. We are transitioning from software development alone to providing integrated products and specialist services. We now enable our customers to monitor their drilling, completions and production operations remotely in real time on any device, using secure cloud technology.

We also offer experts who monitor client operations remotely in our offices, thus optimising performance and safety. This satisfies the growing demand for turnkey solutions. Additionally, we are investing in products and services for real-time integrated asset management that are designed to digitally transform the way customers manage their assets. Our further goal is to transpose our products and services into green energy sectors.

Collaborating with other discipline experts in a vCWE

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