

# DUG Technology

## Sorting signal from the noise

**DUG Technology (DUG) provides seismic data processing services and software primarily to the oil and gas industry. As a small but innovative player in the field, the recent launch of elastic multi-parameter full waveform inversion (MP-FWI) technology gives the company the opportunity to gain market share despite the uncertain industry outlook. The recent Q325 update confirmed that order intake has returned to growth, supporting our forecasts for a recovery in revenue and profitability from FY26. In our view, this is not factored into the current share price. Uptake of solutions for immersion cooling and mobile high-performance computing (HPC) could provide further upside to our forecasts and valuation.**

Year end	Revenue (\$m)	EBITDA (\$m)	PBT (\$m)	EPS (\$)	DPS (\$)	EV/EBITDA (x)	P/E (x)
6/23	50.9	15.1	7.5	0.04	0.00	9.2	21.4
6/24	65.5	16.6	8.0	0.02	0.00	8.4	39.0
6/25e	63.6	14.3	(2.4)	(0.01)	0.00	9.7	N/A
6/26e	73.8	21.1	4.9	0.03	0.00	6.6	35.4

Note: EPS is diluted.

## Elastic MP-FWI to support market share gains

The company raised A\$31m in October 2024 to support its growth programme. This includes Middle East expansion, strengthening the business development team, initiating a joint venture in Brazil and providing market education around its leading elastic MP-FWI technology. Eight pilots for elastic MP-FWI have so far resulted in two production orders, and we expect it to be a key driver of order intake for the foreseeable future. With its estimated 7% share of the seismic data processing market, we believe there is scope for DUG to grow through market share gains even if oil and gas exploration budgets are flat to down in the near term.

## Return to growth in FY26

With Q325 marking a resumption in order growth and a significantly stronger backlog, we forecast a return to revenue growth in FY26 (+16%) followed by growth of 11% in FY27. This supports EBITDA growth of 47% in FY26 (margin 28.6%) and 16% in FY27 (margin 30.0%). After depreciation of HPC assets, we forecast an operating margin of 2.5% in FY25 increasing to 11.4% in FY26 and 14.4% in FY27. With higher compute requirements than traditional processing, the pace of elastic MP-FWI adoption will influence the rate at which the company invests in new HPC assets, with investment planned on a just-in-time basis.

## Valuation: not reflecting growth potential

Based on our forecasts to FY27, a WACC of 9.1% and a long-term growth rate of 2%, using a reverse discounted cash flow (DCF) we estimate that the share price is only factoring in modest revenue growth of 3% for FY28–34 and a drop in the EBITDA margin to 26.9%. Using still conservative growth of 5% for FY28–34 and a margin of 30% over the same period (flat versus FY27), we estimate the valuation would increase to A\$1.71 per share. This does not include any contribution from DUG Cool (revenue would drop through at a close to 100% margin) or DUG Nomad.

Initiation of coverage

Software and comp services

10 June 2025

**Price** **AUD1.365**  
**Market cap** **AUD184m**

Current spot rate: A\$1.54/US\$

Net cash/(debt) at end H125 \$(19.8)m  
 (includes lease liabilities)  
 Shares in issue 134.7m  
 Free float 79.1%  
 Code DUG  
 Primary exchange ASX  
 Secondary exchange N/A

### Share price performance



%	1m	3m	12m
Abs	9.3	(5.1)	(57.1)
52-week high/low		AUD3.3	AUD0.9

### Business description

DUG Technology provides geoscience data analysis, imaging and interpretation services and software as well as high-performance computing-as-a-service (HPCaaS).

### Next events

FY25 results August

### Analyst

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**DUG Technology is a research client of Edison Investment Research Limited**

## Investment summary

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### Innovative services and software for scientific data analysis

DUG Technology (DUG) provides seismic data processing and imaging services, predominantly to the oil and gas sector. These analytical services help customers to understand subsurface structures and rock properties for use in identifying promising areas to drill for resources. The company has also developed software that can be used to process, image and interpret data. For software customers and other third parties, it provides high-performance computing-as-a-service (HPCaaS), making optimal use of its HPC estate.

Key investment considerations are as follows:

- DUG has developed innovative analytical techniques for seismic data processing and estimates that its elastic MP-FWI methodology is at least 18 months ahead of the competition. We believe that this will help the company to gain market share.
- The company has a growing presence in the oil and gas sector and counts oil majors, independents and national oil companies as customers, including BP, CCED, Chevron, Eni, Equinor, ExxonMobil, Petrobras, Petronas, Shell, TotalEnergies and Woodside.
- DUG's software and services can be used in other verticals, and the company has customers in the wind power and mining sectors as well as academic and research institutes.
- DUG is commercialising two solutions that have emerged from its work in HPC: DUG Cool, where it is licensing data centre immersion cooling technology to a large US cooling equipment company, and DUG Nomad, a mobile ruggedised container-based HPC with immersion cooling. Neither have yet contributed revenue, although the first contract for DUG Nomad has just been signed, and they could provide upside to our forecasts and valuation.
- The company is profitable at the operating profit level and has a strong balance sheet, bolstered by a fund raise in October 2024. We forecast it will return to profitability at the net income level from FY26.

### Financials: Forecasting a rebound from FY26

DUG generates the majority of revenue from services; these are project-based but repeating in nature. The services business saw strong growth in FY23 and FY24. Order intake declined in H224 and H125, which we forecast will result in a revenue decline in FY25. A rebound in orders in Q325 supports growth in FY26, helped by growing demand for elastic MP-FWI. The high-margin software business is growing at double-digits, with 20% revenue growth forecast for FY25. We expect a decline in HPCaaS revenue in FY25 before modest growth in FY26 and FY27. At a group level, we are forecasting a small revenue decline of 3% in FY25 before growth of 16% in FY26 and 11% in FY27. This drops through to a decline in forecast EBITDA margin to 22.5% in FY25 (from 25.4% in FY24) before rising to 30.0% by FY27. Factoring in the cost of HPC assets (depreciation), we forecast an operating margin of 2.5% in FY25 rising to 11.4% in FY26 and 14.4% in FY27. The company recently invested in HPC capacity and should have headroom to meet our forecasts. The company tends to invest in computers on a just-in-time basis and should have sufficient visibility to do this if order intake is higher than we anticipate. The current net debt position includes \$24m of asset financing for the recent computer purchases, which is being paid down over two to three years.

### Valuation: Not reflecting growth potential

Based on our forecasts to FY27, a WACC of 9.1% and a long-term growth rate of 2%, using a reverse DCF analysis we estimate that the share price is only factoring in modest revenue growth of 3% for FY28–34 and a drop in the EBITDA margin to 26.9%. Using still conservative growth of 5% for FY28–34 and a margin of 30% over the same period (flat versus FY27), we estimate the valuation would increase to A\$1.71 per share. This does not include any contribution from DUG Cool or DUG Nomad.

### Sensitivities

Our forecasts and the share price will be sensitive to the following factors: exploration budgets in the oil and gas industry, the oil price, climate-related regulation, customer adoption of elastic MP-FWI, the cost and ability to source HPC assets on a timely basis, the uptake of immersion cooling technology by Baltimore Aircoil (BAC) customers and customer adoption of DUG Nomad.

## Company description

DUG (originally named DownUnder GeoSolutions) was founded in 2003 by Dr Matt Lamont (current CEO) and Dr Troy Thompson in Perth, Western Australia. Both have PhDs in geophysics from Curtin University in Perth, Western Australia. The business was created to provide high-performance compute solutions for scientific data analysis, with Troy working on quantitative interpretation workflows and Matt developing a processing and imaging system for the resources sector. Together they built the DUG Insight software suite, which was released commercially as an interpretation package in 2009. The business provides geoscience services, predominantly to the oil and gas industry, to help clients analyse and interpret seismic data. In 2019, the company launched its fully integrated DUG HPC Cloud platform, supporting its HPCaaS offering and software solutions outside the resources industry. The business has c 270 employees and five offices in Perth, London, Houston, Kuala Lumpur and Abu Dhabi.

DUG listed on the ASX in August 2020, raising gross proceeds of A\$26.0m from the issue of 19.26m shares at A\$1.35 per share. The company has since raised money twice: A\$16.8m gross proceeds in September 2021 (18.6m shares placed at A\$0.90 per share) and A\$31.4m in October 2024 (16.5m shares placed at A\$1.90 per share).

The company reports across three divisions and has two promising new areas that could contribute to growth. In the table below we summarise the group structure and key business lines.

**Exhibit 1: DUG's key lines of business**

	Services	Software	HPCaaS	DUG Cool	DUG Nomad
FY24 revenue (contribution)	\$54.8m (84%)	\$7.4m (11%)	\$3.4m (5%)	Pre-revenue	Pre-revenue
Activity	Geoscientific analysis of seismic data	Modern seismic imaging, interpretation and visualisation	High-performance computing as a service	Licensing of Immersion cooling technology	Mobile AI & HPCaaS: edge computing utilising immersion cooling
Business model	Project-based	Annual subscription licence	Consumption-based	5% royalty on value of tanks sold	Annual rental or upfront purchase
Growth drivers	Elastic MP-FWI adoption; Middle East expansion	Partners servicing smaller end of the market	Software customers	AI adoption; environmental regulations	Remote processing of data in inaccessible places

Source: DUG, Edison Investment Research

## Founder-led management team

As described above, the current CEO Matt Lamont is a co-founder of the business. He is supported by interim CFO Daniel Lamont while the company seeks a permanent CFO. The non-executive chairman of the company, Frank Sciarone, joined the DUG board in 2015 and was appointed to the chairman role in 2022. The board also includes three independent non-executive directors: Louise Bower (ex-CFO of DUG, currently NED of Babylon Pump & Power and Lycopodium), Mark Puzey (spent 33 years at KPMG, currently deputy chair of Horizon Power and NED at Sircel) and David Monk (previously director of geophysics and advisor at Apache Corporation, currently technical advisor for several geophysical companies).

## Services: Seismic data processing innovators

### Seismic data processing with a focus on the oil and gas industry

DUG's longstanding core competence is in providing seismic data processing services, primarily to the oil and gas industry. The company's services combine proprietary software, algorithms, HPC and human expertise to transform raw, field seismic and ancillary data into numerical 3D properties that describe the subsurface geology. These are then used by the client to interpret and evaluate structure along with quantitative rock and fluid properties in the subsurface, to

optimise their exploration and production activities.

The oil and gas industry relies heavily on accurate subsurface imaging. Drilling is expensive, with a new well costing as much as \$500m, so gaining an accurate picture of the geology is crucial to locate reserves, understand reserve sizes, identify geological complexity (eg faults), improve drilling location accuracy and reduce the risk of dry wells. It is also used, albeit to a lesser extent, in other fields where understanding the structure of the subsurface is mission-critical, such as exploring sites for carbon sequestration, wind turbine placement and geothermal energy exploration.

### **Specialist technologies, expertise and workflows**

Seismic is the predominant means of subsurface imaging used by the oil and gas industry. It works through generating sound waves on the Earth's surface then recording the returning echoes (reflections). Each rock layer possesses unique physical properties, and the boundaries between these layers cause sound wave reflections. This raw data is then processed to calculate the numerical 3D properties of the subsurface.

As processing requires specialist technologies, expertise and workflows, oil and gas companies typically outsource this to specialist providers such as DUG and its peers, which include Viridien, SLB and TGS. DUG's client base includes major oil companies such as Exxon, Chevron, Shell, Aramco, Santos, Woodside, Total and Eni, as well as national oil companies and smaller players.

These customers provide DUG with raw seismic data, which can be from new surveys but more often than not is from existing libraries (or a combination of both). Geological data is typically reprocessed every two to three years in order to leverage technological advancements, improve data quality and integrate updated geological models with the ultimate goal of identifying drilling opportunities, optimising oil field yields and reducing exploration risks and costs.

### **Project based but repeat customers and services**

DUG typically works on a project basis with its clients, delivering detailed subsurface insights – such as rock properties and geological interpretations – using the data provided. These projects typically last nine to 12 months using conventional processing, with the company's newer MP-FWI imaging reducing this timeline by about 50%. As with all good services companies, DUG benefits from repeat business from key clients, giving the business a degree of predictability, as does the diversity of the project base. DUG is currently working on c 90 projects with c 80 customers.

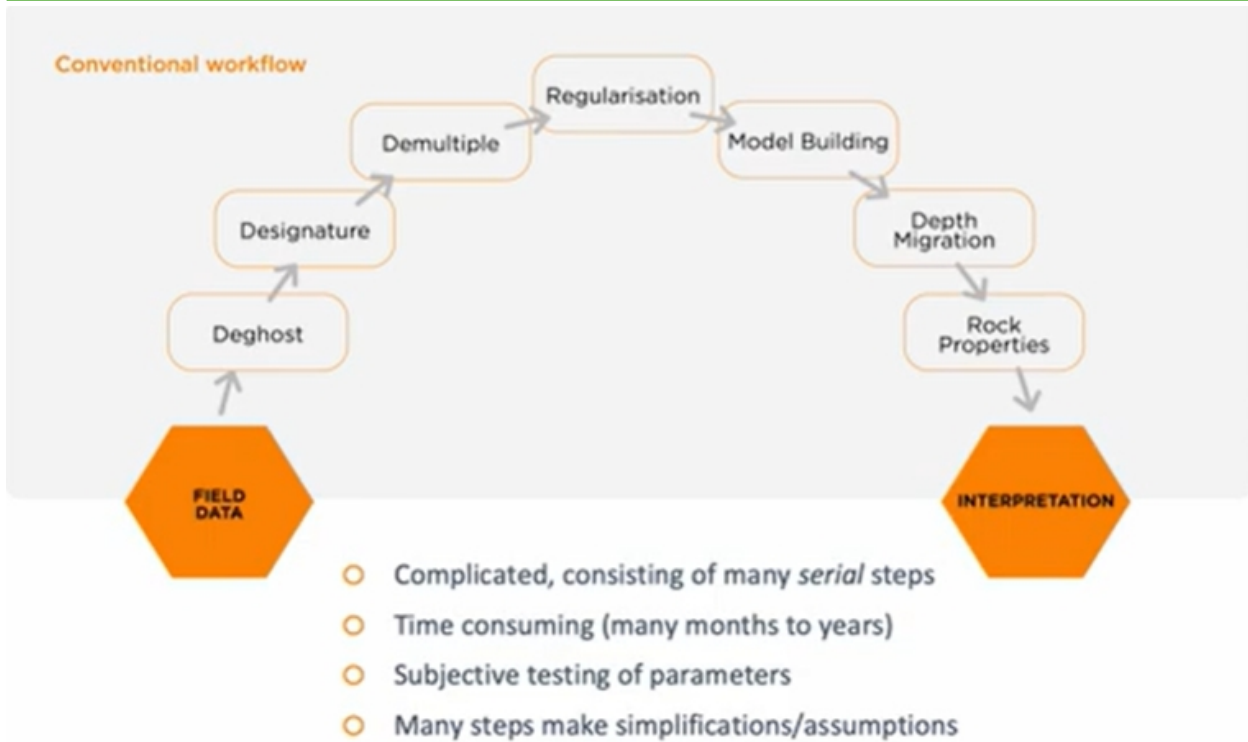
### **Targeting significant market share gains driven by technological innovation**

Management estimates that DUG currently holds a c 7% share of the external seismic processing market, but it is targeting significant market share gains to above 10% driven by the company's multi-year investment in technological innovation. Through combining deep expertise in geophysics, software engineering and HPC running over huge data sets, DUG has developed a leading position in a field called MP-FWI imaging, which has the potential to deliver a step change in the processing time, detail and accuracy of results.

### **Conventional processing**

To understand the benefits of MP-FWI imaging, it is useful to first understand the basics of conventional seismic processing techniques. This involves multiple steps to process the raw field data and then to build the model ready for interpretation. Many of these steps require subjective testing of parameters, simplifications or assumptions and as a result the process is drawn out (9–12 months) and subject to human error. Conventional processing accounted for around 70% of DUG's service revenues in FY24.

Exhibit 2: Conventional seismic processing workflow



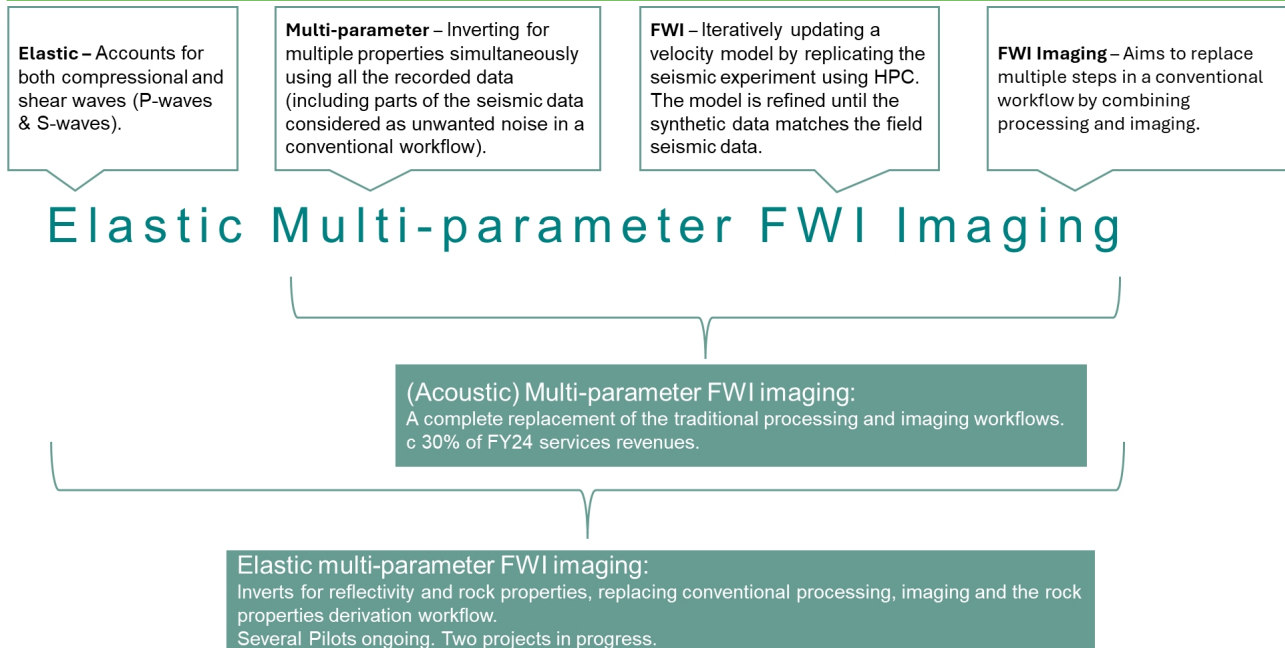
Source: DUG Technology

### MP-FWI and elastic MP-FWI imaging

MP-FWI technologies use HPC to run sophisticated algorithms to invert (estimate) key sub-surface Earth properties directly from the field data. This generates more accurate and detailed results than conventional processing, imaging and rock property derivation workflows, while significantly shortening turnaround times.

The terminology here is somewhat involved, which we attempt to clarify in Exhibit 3. For more detail, DUG has produced a video explaining the technology in some depth: [The science of seismic, DUG's role in its revolution and the exciting future!](#)

### Exhibit 3: Elastic multi-parameter FWI imaging – explaining the terminology



Source: Edison Investment Research

## Full waveform inversion (FWI)

This is a fundamental building block around which the more advanced processes are based. FWI iteratively updates an initial model of the Earth by replicating the seismic experiment inside a supercomputer and comparing the resultant synthetic seismic data to the raw seismic field data. It keeps updating the Earth model until the synthetic data that it produces matches the field data that was acquired in the real world. When the synthetic data matches the field data, then the build of the Earth model is complete. This method was conceptualised in the 1980s, with adoption growing over the past couple of decades as algorithms have been refined, compute cost has come down and better seismic data has become available. FWI has been used as one of the steps in the traditional workflow for many years now. It is used by all the major seismic processing players as a model building tool prior to imaging with conventional techniques.

## Multi-parameter FWI imaging: A fundamentally different approach

MP-FWI imaging (or acoustic MP-FWI imaging) represents a fundamental shift in how seismic data is processed, in that it attempts to replace the conventional workflow – both processing and imaging – in its entirety with a single step.

MP-FWI imaging achieves simultaneous model-building and full-wavefield depth imaging directly from field data, without the need for the traditional processing workflow and its various assumptions. It determines a wide range of Earth properties (eg attenuation, anisotropic velocity and true-amplitude three-component reflectivity) and allows parts of the data traditionally considered as noise to be retained and treated as valuable signal. Using primary reflections, as well as all forms of multiples and ghosts, guarantees significantly better sub-surface sampling, which in turn provides much-improved illumination and resolution over conventional imaging.

DUG launched its acoustic MP-FWI imaging solution in 2022 and the company has since completed more than 50 successful projects from all over the world. In FY24 MP-FWI accounted for c 30% of Service revenues. Management believes that DUG still has a clear significant technology lead in this field, although competitors SLB and TGS have also launched their own MP-FWI capability.

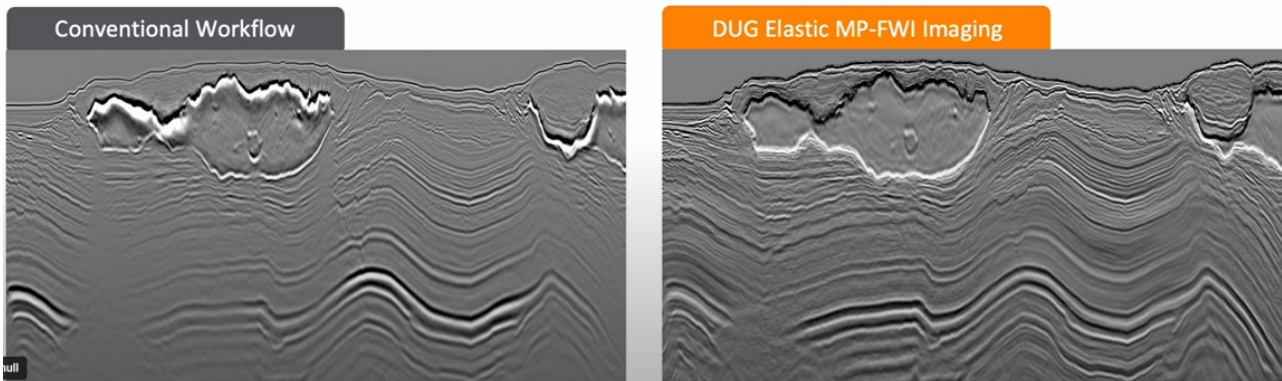
## Elastic multi-parameter FWI imaging: Potential catalyst for market share gains

In late August 2024, DUG launched elastic MP-FWI imaging, a further step forward in seismic processing and one that has the potential to drive material market share gains. Elastic MP-FWI imaging is not only a complete replacement for the traditional processing and imaging workflows, it also replaces the subsequent inversion (estimation) workflow for elastic rock properties, which then helps determine important factors such as lithography (rock type) porosity, fluid content and the presence and orientation of fractures. Elastic MP-FWI accounts for both compressional and acoustic

shear waves. Moreover, multiples (seismic waves that bounce more than once between layers before returning to the surface) and converted waves (waves that change type as they pass through different materials) are now treated as valuable additional signal, increasing sampling and resolution and constraining the inverted properties. This all translates to superior imaging of the subsurface. Elastic MP-FWI imaging simultaneously resolves subsurface structural features and quantitative rock property information, while avoiding the need for extensive data pre-processing and post-imaging workflows.

DUG is currently the only processing specialist to have introduced elastic MP-FWI imaging technology (although Shell and Chevron have demonstrated results) and management believes it has a lead of at least 18 months over competitors.

#### Exhibit 4: Improvements to imaging using elastic MP-FWI



Source: DUG, with data courtesy of Shell

#### Early stages, but lead indicators look positive

As of H125, DUG has been conducting eight elastic MP-FWI pilots across a diverse range of clients, basins and geological settings. Management has reported that the outcomes of these pilots have exceeded expectations, while two production projects have now been awarded. Supported by elastic MP-FWI, the company's service order book grew 30% sequentially to \$42.7m in Q325 (the quarter ending 31 March 2025).

We anticipate that initial wins will likely be for complex geologies or on focused areas for detailed analysis to support accurate drilling. However, as the cost of compute reduces and the technology becomes more accepted, there is the potential for usage to broaden.

*"The data has indeed delivered some exceptional results! The resolution and continuity of the reflectors are significantly better and the overall imaging is excellent. The MP-FWI image has solved both multiple and noise issues which has in turn simplified the interpretation. There is some amazing shallow detail at the sea floor, some Lower Cretaceous reservoir amplitudes, some spectacular Upper Jurassic unconformities and specific reservoir sand units that are now clearly resolved."* Tor Åkermoen, CEO Europe Geox MCG

#### Further evolutions of the technology are being developed to maintain a lead

MP-FWI can be considered a platform technology upon which elastic is a significant evolution. DUG continues to invest in its development in order to maintain the company's technological lead, and we expect further evolutions delivering further improvements in the quality and accuracy of imaging to be revealed over the next 12 months.

#### Business model evolving as compute costs take over from labour

Management estimates that acoustic MP-FWI uses 10% of the labour of conventional processing, for a similar project, but with 10–15x more compute. Elastic MP-FWI shifts this dynamic even further, using 3–4x more compute than acoustic and further iterations of the technology will likely extend this transition further. This will fundamentally change DUG's financial profile as these technologies command a greater share of revenues. The reduced dependence on skilled geophysicists to complete each project should make the company less exposed to capacity constraints or low staff capacity utilisation, facilitating rapid scaling if compute capacity is available. Equally, the model demands that compute capacity is put in place ahead of the curve, resulting in a more capital intensive model, which is reflected in our forecasts. The company's A\$30m capital raise in October 2024 earmarked A\$19m for data centre upgrades, which are now underway.

## Multi-client: Creating a new revenue opportunity

Multi-client involves acquiring and processing seismic data that is then licensed to multiple clients. This differs from DUG's main services business where clients own their seismic data and contract DUG to process it. DUG will only undertake projects that are underwritten by two or more clients. Typically, clients that underwrite such projects are able to acquire the processed data at a discount or for a limited exclusive period. As noted above, DUG has earned multi-client revenue before but this tended to be as the data processor for a partner that had acquired the data. It has now decided to formalise its focus on this area and plans to acquire its own data. We would expect the cost of future acquisitions of seismic data to be capitalised and amortised as revenues are earned.

DUG launched a new multi-client business unit in January after acquiring all the multi-client seismic data assets of Multi-Client Resources (Australia). The assets include two very large 3D seismic reprocessing projects in the Vulcan sub-basin and Northern Carnarvon Basin of Australia's northwest shelf, incorporating 34 legacy surveys over 43,200km<sup>2</sup>. The deal will be paid for via revenue share of future sales. The founder of Multi-Client Resources (Australia), Stephen Doyle, has been appointed to head up the business unit.

## Expanding distribution to cover more key oil and gas regions

DUG has been progressively expanding its international footprint to provide greater coverage of oil and gas regions and companies, building on the company's presence in Perth (headquarters since 2003), and long-established offices in Kuala Lumpur, Houston and London (2007, 2009 and 2013 respectively):

- **2024 – UAE:** the company opened an office in Abu Dhabi to strengthen its presence in the key Middle East/Gulf region and management states that the business is now seeing significant opportunities in the region.
- **2025 – Brazil:** more recently, on 7 May 2025, the company launched DUG DO BRAZIL, a joint venture with local management, to enhance its geoscience services across Latin America, currently one of the most active regions for oil and gas exploration.
- A sales presence has also been established in India.

The rate at which DUG is able to grow revenues from new offices hinges on DUG's ability to establish trusted relationships with key players in the region, execute successful pilots and compete against incumbents with longstanding business relationships. This process may be accelerated by the launch of elastic MP-FWI, while the company also has a policy of hiring what it terms 1%'ers – key executives with the established relationships and drive to penetrate the market.

### Exhibit 5: DUG's global presence



Source: DUG

## Competition

DUG estimates its share of the external processing market at around 7% and management is targeting increasing this to over 10%. The two largest players in the seismic data analysis market are Viridien and SLB, with TGS and BGP as smaller players with market shares below DUG's. Oil majors such as Shell and Chevron also have their own advanced seismic data processing capability, but do not offer services to competitors and also use third-party service providers for a proportion of their projects.

Our research indicates that DUG has carved out a reputation for innovation and that it does have a lead in MP-FWI technologies, particularly with elastic MP-FWI imaging. Equally, the company is competing against companies of significant scale, experience and capability with well-entrenched relationships and their own technologies claiming similar benefits to MP-FWI. We believe that DUG has a good opportunity to grow market share with elastic MP-FWI, but the pace and extent to which this can be done is consequently difficult to gauge.

**Viridien (Euronext Paris: VIRI)** operates three lines of business: Geoscience, Earth Data (multi-client) and Sensing & Monitoring (seismic and marine data acquisition equipment and services). In 2024, of \$1.1bn revenue, 36%/\$404m was generated by Geoscience, 34%/\$383m by Earth Data and 30%/\$330m from Sensing & Monitoring. Within the Geoscience division, Viridien includes seismic data processing and imaging, software sales and HPCaaS revenue (at the end of Q125, the company had 555PF of compute capacity on a single precision basis, or half that on a double precision basis). The company estimates it has a c 50% share of the seismic data processing and imaging market, having gained significant market share over the last two years or so.

**SLB (NYSE: SLB)** provides both physical and digital services to the oil industry and in FY24 generated revenue of \$36.3bn. It operates through four business lines: Digital & Integration (12% of FY24 revenue/\$4.2bn), Reservoir Performance (20%/\$7.2bn), Well Construction (37%/\$13.4bn) and Production Systems (33%/\$12.1bn). Only Digital & Integration competes with DUG; this division comprises Digital Solutions (FY24 revenue of \$2.44bn and includes seismic data processing and imaging and multi-client) and Asset Performance solutions (an integrated business model for field production projects). SLB has an estimated 30% share of the seismic data processing and imaging market.

**TGS (Oslo Stock Exchange: TGS)** is involved in both data acquisition and data analysis, with only a very small proportion of revenue from seismic processing for third parties. It is, however, noted for its considerable in-house processing capabilities and a strong multi-client library. In FY24, of external revenue of \$1.44bn, it generated 55%/\$793m from Multi-client, 39%/\$564m from Contract services (ie undertaking seismic surveys), 3%/\$42m from New Energy Solutions and 2%/\$36m from Imaging.

**BGP (Bureau of Geophysical Prospecting)** is a subsidiary of state-owned China National Petroleum Corporation. BGP provides a wide range of geophysical services to the oil and gas industry, including seismic data acquisition, seismic data processing and imaging, geophysical and geological interpretation, multi-client and non-seismic methods. No revenue data is available.

Privately held **Shearwater GeoServices**, the largest seismic acquisition company, is also expanding into the seismic processing market. Its Software, Processing and Imaging and Multi-client businesses accounted for 7.4% of the company's \$620m FY24 revenues. We cannot find any evidence of the company offering MP-FWI solutions.

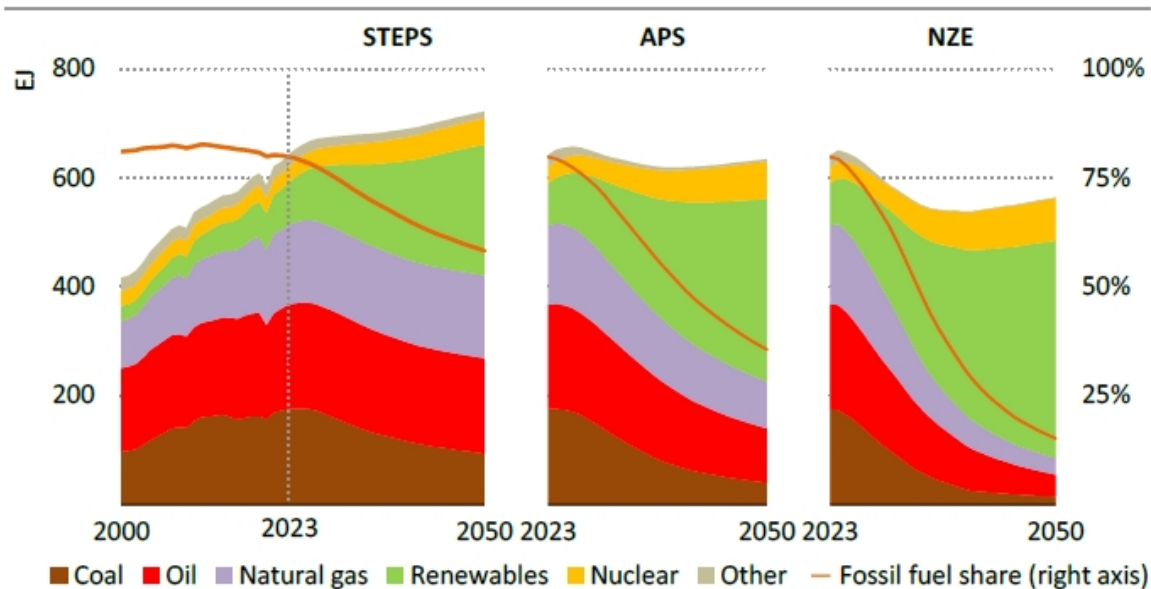
## Market backdrop: Increased demand for digital solutions in oil and gas

With the majority of Services revenue generated from the oil and gas sector, demand for DUG's services will be influenced by trends in the oil and gas market, in particular upstream. We discuss the factors that are likely to influence demand for DUG's technology.

### Headwinds: Zero carbon, tariffs, OPEC+ output increases

The longer-term trend in the industry is the drive to decarbonise. On the face of it, this represents a challenge to the oil and gas market as renewables make up an increasing proportion of the energy supply (Exhibit 6). However, the pace at which new technologies are being commercialised is perhaps slower than originally anticipated, leaving a gap for oil and gas to fill.

**Exhibit 6: Global total energy supply by source and fossil fuel share by scenario, 2000–2050**



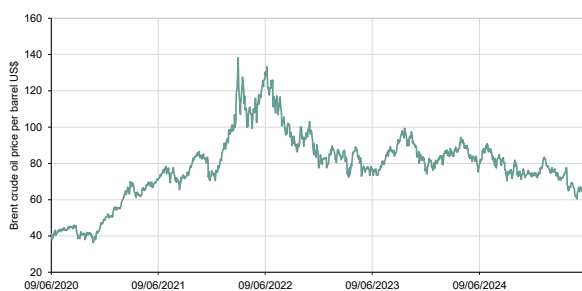
IEA. CC BY 4.0.

*Each fossil fuel peaks by 2030 in all scenarios and then declines over time as renewables and other low-emissions sources of energy increase strongly*

Notes: EJ = exajoules; STEPS = Stated Policies Scenario; APS = Announced Pledges Scenario; NZE = Net Zero Emissions by 2050 Scenario. Renewables includes modern bioenergy. Other includes the traditional use of biomass and non-renewable waste.

Source: IEA 2024: World Energy Outlook 2024, [www.iea.org/reports/world-energy-outlook-2024](http://www.iea.org/reports/world-energy-outlook-2024), License: CC BY 4.0

**Exhibit 7: Brent crude oil spot price**



Source: LSEG Data & Analytics

After volatility driven by COVID and then Russia's invasion of Ukraine, the oil price had trended in the range \$70–90/bbl over the last couple of years until the US announced tariffs in April (Exhibit 7). The oil price has since declined to a low of \$60/bbl on fears that the tariffs will prompt a recession, recovering slightly to \$66 on news of reduced tariffs between the US and China. There are also concerns that OPEC+ may increase production supply, as Saudi Arabia has made it clear it can weather lower prices for longer.

If the oil price stays at this lower level, it is likely to call into question the viability of some exploration projects. Tariffs could also make it more expensive to drill as they increase the cost of equipment.

Looking at the risk from lower exploration budgets, oil and gas companies typically have three ways to reduce spend:

- choose not to drill a well or stop drilling work on an existing project that has become unviable (it can cost up to \$500m to drill a well);
- choose not to undertake a new seismic survey (these can cost up to \$50m); and
- stop seismic data processing.

The third option is the least likely, as it makes up a much smaller proportion of a project's cost, and if the data has already been acquired, it makes sense to process it. Companies will also often re-process existing data to take advantage of advances in technology and this may still be undertaken even if larger projects are cancelled.

## **Tailwinds: Energy security, GDP growth, complex exploration**

The disruption caused by conflicts in Ukraine and the Middle East also highlights the need for secure access to energy. Clean energy can play a part in diversifying sources of energy, but the intermittent nature of some renewable energy (solar, wind power) means that oil and gas continue to play a part in providing a reliable, constant source of energy.

While the mix of fossil fuels in energy supply is declining as sources of renewable energy are brought online, there will still be a need for fossil fuels, not just for energy production but also for products that rely on hydrocarbons such as plastics and chemicals. Oil and gas will be required to support GDP growth, particularly for emerging and developing countries. Market analysts estimate that oil and gas reserves are not currently being replenished at a sufficient rate to meet future expected demand.

Oil and gas exploration spend is expected to remain relatively flat in the medium term. However, the areas that are being assessed for drilling are becoming more difficult to access, with a growing percentage of sites in ultra deep water. In order to improve the accuracy of drilling, seismic data analysis, imaging and interpretation becomes increasingly important.

We note that DUG and its competitors have all ventured into providing services to companies active in the renewables space. This includes seismic surveying and data analysis for wind farms, carbon capture and sequestration, lithium extraction and natural hydrogen.

## **Software: DUG Insight**

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DUG Insight software was originally developed for internal use to load, process, image, visualise, invert and interpret seismic data on client projects. The software can be reconfigured for industries other than oil and gas, for example, meteorological data, radio astronomy, carbon capture and sequestration (CCS) and wind farms.

Its functionality includes interpretation, visualisation, 2D/3D/pre-stack/time-lapse amplitude analysis and rock-property inversion, advanced seismic-data time-processing and depth-imaging, and FWI, including MP-FWI. Additional modules are available for interpretation (Explorationist, Gather Attributes, Pore Pressure Prediction, Rock, Lithofluids) and data can be fed in from third-party software (Petrel and Kingdom).

Use cases for DUG Insight include oil companies analysing their data in-house, a sustainable energy consultancy using it to assess appropriate locations for off-shore wind turbines, and even competitors undertaking projects that are too small for DUG to pursue. Customers include Amplitude Energy, CalEnergy, EnQuest, Equinor, INPEX, MultiGeo, Murphy Oil, Neptune Energy, Petrobras (which signed a five-year contract in January 2023), Petronas, PXGEO, Santos and TGS.

Competitors in the market for interpretation software include Halliburton (Landmark), SLB (Petrel), S&P Global (Kingdom) and Emerson (Paradigm).

This division also provides support to HPCaaS customers to help them onboard their software, and to help them develop their own software and algorithms. In some cases, customers run their DUG Insight software using DUG's HPCaaS.

## **HPCaaS: Optimising the use of computing assets**

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To support its seismic data analytical services, DUG has invested in HPC assets. HPC uses supercomputers and parallel processing techniques to solve complex computational problems that are too large or time-consuming for standard computers. Multiple processors work on different parts of a problem simultaneously, reducing the time needed to calculate results. Supercomputers contain thousands, if not millions, of cores designed for maximum performance, memory bandwidth and input/output (I/O) throughput.

### Exhibit 8: HPC estate

HPC sites	Compute (PF)	Storage (PB)
Bubba – Houston	36	37
Bodhi – Kuala Lumpur	3	6
Bruce – Perth	6	9
<b>Total</b>	<b>45</b>	<b>52</b>

Source: DUG

While the company predominantly uses its HPC estate for its own services business, it also rents out excess capacity to third parties, offering HPCaaS. This is available on a committed or on demand basis, with most customers opting for the latter. In terms of customer numbers, there is a heavy weighting towards academic institutions, which often undertake compute-heavy research but do not have adequate resources to build their own HPC clusters. Oil and gas customers are largest by volume usage. HPCaaS is also useful for companies that from time-to-time have higher compute requirements (burst capacity) but cannot justify in-house investment. Current HPCaaS customers include Austal, Equinor, LatConnect 60, Pendoley Environmental, Petronas, Square Robot and several Australian universities and research institutes. Any excess capacity not taken up by third-party customers is used to mine cryptocurrency (Monero), which is sold on a regular basis, with proceeds reported within the HPCaaS revenue line.

Data on the HPC market is available from Top500, an organisation that has tracked the top 500 supercomputers globally since 1993. While DUG's supercomputers do not feature, we understand this is because it has not undertaken LINPACK benchmarking, which is the measure used to rank the assets. This is partly due to it being a time-consuming process, but also because the LINPACK benchmark only measures one aspect of calculation it is not fully representative of the demands of seismic data processing. Putting DUG's HPC estate in context, there are no supercomputers recorded in Malaysia, and four in Australia, ranging from maximum performance of 27PF down to 4PF. There are 173 listed in the US, ranging from 1,742PF down to 2PF. Of the 500 globally, 189 are classified as being for industry use, including Microsoft Azure and a number of oil and gas companies (BP, Eni, ExxonMobil, Saudi Aramco, Petrobras and Total).

## Demand for AI computing drives need for more efficient cooling

A major use of power in data centres is to cool chips and servers that heat up as they process data. With the growing processing requirements for AI, the amount of heat being generated has become a significant problem, adding to the already significant power requirements and influencing the design of data centres. There are three main methods to cool servers:

1. **Air cooling.** This is the traditional method of cooling servers. Fans are used to move heat away from IT equipment.
2. **Immersion cooling.** Servers are immersed in a thermally conductive but electrically insulating fluid.
3. **Direct to chip cooling.** Coolant is passed directly over processors; this needs specially designed servers.

## DUG Cool: Immersion cooling technology

DUG has developed a patented immersion cooling technology for use with data centre IT equipment.

### How DUG Cool works

The technology uses a tank filled with dielectric fluid in which the servers are immersed. The heat produced by the servers warms the fluid, which is pumped around the tank. At one end of the tank is a heat exchanger, basically like a radiator, through which cold water is piped. Once it has been warmed by the fluid, it is pumped out of the heat exchanger. The customer then chooses what to do with the warm water that exits the heat exchanger. It is possible in some cases to use the heat for other purposes, such as district heating, but this is for the customer to design into their own facilities. DUG has patented the design of the tank, which it estimates makes DUG's immersion cooling technology substantially cheaper than competing methods. The main benefit of using immersion cooling is to reduce the amount of electricity consumed. Other benefits include no corrosion of parts, no hot spots, no temperature gradients and no dust, all of which help the equipment to last for longer.

DUG has three networked supercomputers (Exhibit 8). HPC compute capacity is measured in petaflops per second (PF:  $10^{15}$  floating point operations per second) and storage in petabytes (PB). DUG's compute capacity is measured on a double-precision basis (ie each floating point number is represented using 64 bits rather than 32 bits).

Data centres measure their energy efficiency in terms of power usage effectiveness (PUE). This divides total facility power by IT equipment power. Total facility power includes power used for lighting, cooling, uninterruptible power supply (UPS) and power delivery. IT equipment power measures only the power used by servers, storage and networking. The closer to 1.0 the better.

#### Exhibit 9: Power usage effectiveness (PUE)

PUE value	Efficiency level
1.0	Perfect efficiency
1.2-1.4	Very efficient
1.5-2.0	Moderately efficient
>2.0	Poor efficiency

Source: Edison Investment Research

DUG estimates that data centres using its immersion technology can reduce their power consumption by up to 51% compared to air-cooled data centres and reduce water usage by up to 25%. DUG's own HPC data centre using DUG Cool has a PUE of 1.05. DUG and other immersion cooling technology providers estimate that upfront capital costs are c 50% of traditional cooling methods.

### Licensing agreement to yield royalties

The company has licensed its cooling technology on an exclusive basis to US cooling specialist Baltimore Aircoil (BAC). The agreement specifies that royalties are payable for:

- Use of patented technology: 2.5% of sale price until patent expires at the end of 2036.
- Provision of know-how: 2.5% of sale price, up to two years after patent expires.

To maintain exclusivity, minimum revenues are payable by BAC. DUG retains the right to use DUG Cool technology internally and in DUG Nomad. BAC has a strong position in the air cooling market and has sold cooling equipment to more than 1,000 data centres globally, equating to more than 12,500MW of capacity. This agreement will help BAC enter the immersion cooling market, giving it the opportunity to sell immersion cooling tanks for both retrofit of existing data centres and for green field sites.

### Competition from specialists in immersion cooling technology

There are two types of immersion cooling: single-phase or two-phase. In single-phase cooling, the fluid does not change state (it remains as a liquid) as it absorbs heat. Dielectric fluids are used, which have a thermal capacity a thousand times higher than air. In a two-phase system, the coolant boils when heated by the IT equipment and the liquid evaporates into a gas. The vapour rises and condenses on a cold condenser, turning back into liquid and dripping back down. The coolant used is typically a fluorocarbon. To ensure the servers will work when immersed in the dielectric fluid, it is possible to buy specialised servers or conventional servers can be retrofitted.

DUG's cooling technology is based on single-phase immersion cooling. Aside from BAC's recent entry into the market, the main producers of single-phase immersion cooling technology are Green Revolution Cooling (GRC) and Submer. LiquidStack offers solutions for single-phase, two-phase and direct-to-chip cooling and is the leader in two-phase cooling. GRC, a US private company, was founded in 2009 and is the market leader in single-phase immersion cooling. Its most recent funding round was in March 2022, when a series C round raised \$28m (no valuation data available). Submer is a Spanish private company founded in 2015. In a series C funding round in October 2024, Submer raised \$55.5m at a valuation of \$500m. LiquidStack is a US-based private company, spun off from BitFury (a crypto miner) in 2021. Its most recent series B funding round in September 2024 raised \$20m (no valuation data available).

### DUG Nomad: AI and HPC anywhere

DUG has developed a mobile HPC unit called DUG Nomad. This consists of HPC equipment built into a mobile unit (essentially a metal container), which uses DUG Cool immersion technology. It is available in three sizes: 10ft, 20ft or 40ft. The unit plugs into mains electricity with the customer managing back-up power. DUG Nomad is robust enough to be transported underneath a helicopter and is small enough that it can be used on an aircraft (eg Hercules transport plane) or on a ship. DUG Nomad is designed to be able to operate in any environment, including deserts and polar regions. Potential applications for DUG Nomad include battlefield decision support, on-site seismic data processing, scientific research in remote locations, disaster response and as a temporary data centre for events such as film production in remote areas.

The company has two prototypes, one in Perth and one in Houston. In terms of commercialisation, the company's preference is to rent out the units, but it would also consider sale of the units. The company has been granted Defence Industry Security Program (DISP) membership; accreditation is necessary to do business directly with the Australian

defence forces.

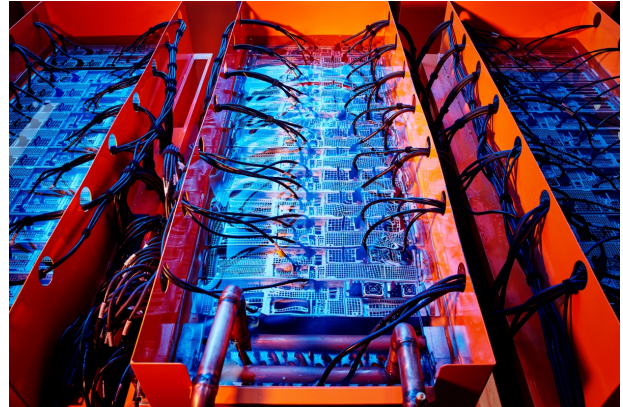
In June, the company announced its first DUG Nomad contract, for a DUG Nomad 10 unit. This comprises an initial three-year lease with a total contract value of \$355k. The customer is BRB International (BRB), a subsidiary of Petronas. BRB is a global manufacturer of silicones, lube oil additives and specialty chemicals and plans to use the unit in the Petronas Research Centre in Malaysia to develop, validate and market its range of single-phase immersion cooling fluids.

**Exhibit 10: DUG Nomad 10 unit**



Source: DUG

**Exhibit 11: Immersion cooling inside unit**



Source: DUG

## Mobile data centre market for niche applications

While many data centre equipment suppliers offer modular data centres, these are typically used to add capacity to existing data centres or to provide data centre capabilities within other buildings. The mobile data centre market makes up a smaller subset of this market, typically providing containerised data centres that can be used for edge computing. This means that a data centre is placed closer to where the data needs to be processed, reducing latency as data does not need to be transmitted to and from a centralised data centre many miles away. Applications include mining sites, cryptocurrency mining and battlefields. A number of companies have emerged that provide mobile data centres for cryptocurrency mining and AI, including BitFury (BlockBox), Datacubes and 1MWBOX. Headquartered in Australia, Zella DC provides mobile data centres for mining companies. In the military sector, Armada provides ruggedised mobile data centres (Galleon) suitable for battlefield use. The immersion cooling companies described above also provide small modular containers containing liquid cooling for edge applications.

DUG Nomad believes it is differentiated from these players by its plug-and-play technology with immersion cooling. The unit can be delivered to site, plugged into power and be up-and-running immediately.

## Sensitivities

In addition to the usual factors such as cybersecurity, data privacy, geopolitical risk and IP protection, we believe that the company's financials and share price are sensitive to the following factors:

- **Oil and gas exploration rates:** the rate at which oil and gas companies undertake exploration work will influence the demand for seismic data analysis services. This in turn will be influenced by expectations for the oil price and government regulation around fossil fuels.
- **Uptake of elastic MP-FWI:** the pace at which customers adopt elastic MP-FWI, which has much higher compute requirements than traditional processing and acoustic MP-FWI, will influence the demand for HPC.
- **Availability of HPC equipment:** the company buys computers for HPC on a just-in-time basis. This relies on reasonable lead times and pricing for equipment.
- **Adoption of BAC's immersion cooling technology:** royalties are based on the value of immersion cooling equipment sold by BAC, which in turn will depend on the pace at which data centre customers adopt BAC's immersion cooling technology over traditional cooling techniques.
- **Uptake of DUG Nomad and business model:** while the preference is to lease the DUG Nomad unit to customers, if sales are structured as one-off equipment/software sales, this will generate lumpier revenue, profit and cash flow than if structured as a rental contract.

- **Customer concentration:** one customer generated 17.3% of revenue in FY24 and 22.9% in FY23, all from services.

## Financials

### Income statement

DUG reports across three revenue lines:

- **Services (83% of H125 revenue):** this consists of project-based work. The business is currently working on c 90 projects with c 80 customers. The costs to deliver each project include labour and HPC use with the mix of costs dependent on the type of work undertaken. Traditional P&I projects take 9–12 months while MP-FWI projects are shorter, typically four months. These use more compute power and less labour: acoustic MP-FWI uses 10–20% of the labour of traditional processing and 10–15x more compute. Elastic MP-FWI uses 3–4x more compute than acoustic and roughly the same amount of labour. The company reports the services order book each quarter.
- **Software (14%):** this is mostly sold on an annual licensing basis with a small amount charged for on a consumption basis. Sometimes a software customer also uses HPCaaS; the revenue for that would be disclosed in the HPCaaS line. Due to the timing of renewals, H2 software revenue is usually higher than H1.
- **HPCaaS (3%):** customers contract on a committed or on-demand basis. The majority of customers are currently using HPCaaS on an on-demand basis and are charged a fixed sum per PF and PB used. We believe that revenue from DUG Cool and DUG Nomad will be reported here (no revenue has been generated from either yet).

The table below shows divisional revenue and group financial performance since FY21 and our forecasts for FY25–27.

**Exhibit 12: Divisional and summary financials and forecasts**

\$m	FY21	FY22	FY23	FY24	FY25e	FY26e	FY27e
Revenue							
Services	30.6	23.7	40.3	54.7	52.6	61.3	68.0
Software	5.2	6.2	6.6	7.4	8.9	10.2	11.2
HPCaaS	2.7	3.9	4.0	3.4	2.2	2.3	2.4
Total revenue	38.5	33.8	50.9	65.5	63.6	73.8	81.6
EBITDA	(1.7)	2.8	15.1	16.6	14.3	21.1	24.5
EBIT	(9.1)	(4.9)	8.6	9.3	1.6	8.4	11.8
PBT	(12.9)	(6.5)	7.5	8.0	(2.4)	4.9	9.0
PAT	(15.9)	(9.3)	4.9	3.3	(1.7)	3.4	6.3
Net income	(16.0)	(9.2)	5.0	2.8	(1.8)	3.4	6.3
Basic EPS (\$)	(0.166)	(0.081)	0.042	0.023	(0.015)	0.026	0.047
Diluted EPS (\$)	(0.166)	(0.081)	0.041	0.023	(0.015)	0.025	0.046
Net debt/(cash)	25.7	14.2	7.5	25.7	11.0	5.5	(4.5)
Net debt/(cash) excluding leases	7.7	1.8	(5.2)	(8.2)	(14.9)	(10.9)	(11.4)
Revenue growth							
Services	-19.5%	-22.7%	70.3%	35.9%	-4.0%	16.7%	11.0%
Software	-17.7%	19.2%	7.9%	11.2%	20.0%	15.0%	10.0%
HPCaaS	152.3%	46.5%	1.9%	-15.9%	-36.0%	5.0%	5.0%
Total revenue	-15.2%	-12.2%	50.9%	28.6%	-2.9%	16.0%	10.7%
EBITDA margin	-4.5%	8.3%	29.6%	25.4%	22.5%	28.6%	30.0%
EBIT margin	-23.8%	-14.5%	17.0%	14.2%	2.5%	11.4%	14.4%

Source: DUG, Edison Investment Research

### Services: MP-FWI the main driver of growth

The Services business saw a revenue decline in FY21 as COVID led to oil price volatility and subdued activity in the oil and gas industry. The oil price started to recover in H222, driving a pick-up in the oil and gas exploration market. DUG won a steady stream of new projects from March 2022 onwards, however it had difficulty converting its backlog in H222 due to the slow delivery of data from customers and the difficulty for vessels to start seismic surveys, resulting in a further revenue decline in FY22. In FY22, the company undertook a restructuring, reducing headcount by 22%. Services revenue rebounded in FY23 (+70%) with revenue up year-on-year in both H123 and H223, and included \$2.5m earned from a multi-client data sale. By the end of FY23, the business was winning so much work that it put up prices and from the start of H224 this resulted in weaker order intake, although FY24 revenue increased 36% (H124 +28% y-o-y, H224 +44%). The company noted that acoustic MP-FWI generated a third of FY24 services revenue.

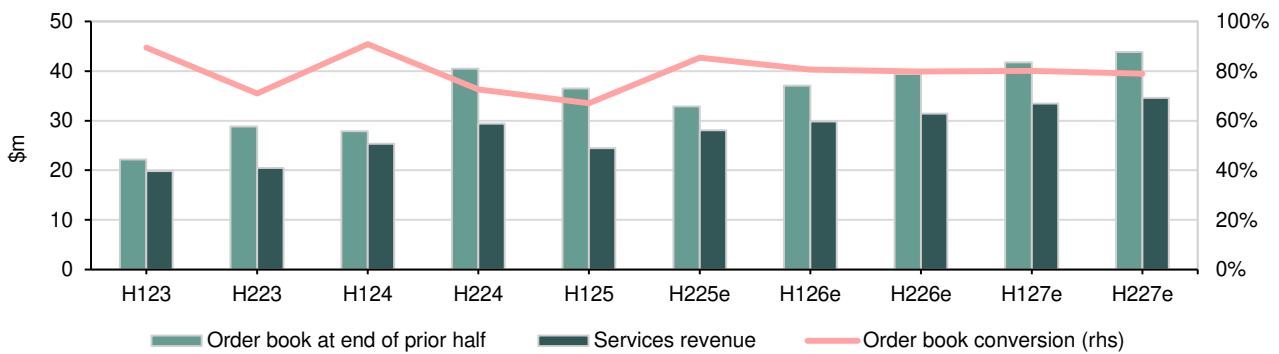
Revenue for H125 declined 3.5% y-o-y, order intake nearly halved from peak order intake in H124 and the backlog declined 10% h-o-h to \$32.9m. The company put some of this decline down to the focus on running the eight elastic MP-

FWI pilots. In its Q325 update, the company reported a revenue decline of 9% y-o-y (9M25 -5.5% y-o-y). Encouragingly, it received services orders worth \$22.7m, up 67% y-o-y and 229% q-o-q, with the backlog rising to \$42.7m at the end of Q325. This included the first production orders for elastic MP-FWI arising from successful pilots.

For our forecasts, we assume that FY25 services revenue declines 4.0% (which implies Q425 revenue growth of 2.6% y-o-y) before growing 16.7% in FY26 and 11.0%.

The table below shows the division's half-yearly revenue versus order backlog at the end of the prior half with the percentage conversion of the backlog in each half year. We have assumed order intake growth of 63% h-o-h in H225, flat h-o-h in H126, and then 5% h-o-h for H226, H127 and H227. This assumes there is growing demand for elastic MP-FWI even if overall oil exploration and production budgets are flat to down.

**Exhibit 13: Backlog conversion to revenue**



Source: DUG, Edison Investment Research

### Software: Forecasting double-digit revenue growth

Since FY22, the Software business has grown steadily, with a high level of renewals and an expanding customer base. Revenue increased 22% y-o-y in H125 and 23% y-o-y in Q325; we forecast revenue growth of 20% for FY25, moderating to 15% in FY26 and 10% in FY27.

### HPCaaS: Moderate growth plus optionality from DUG Cool and DUG Nomad

The company saw strong revenue growth from this business in FY21 and FY22, which moderated in FY23. One large customer signed a committed contract for HPCaaS in 2020; when it renewed this contract in 2024 it changed to an on-demand basis. Since then, most divisional revenue has been generated from on-demand compute. We forecast a decline of 36% for FY25 (revenue for 9M25 was down 44% y-o-y) followed by mid-single-digit revenue growth for FY26–27. We expect DUG Cool and DUG Nomad to be reported in this line, but we do not currently forecast any revenue for either.

For DUG Cool, we have estimated the royalty revenue that could be earned depending on the volume of immersion cooling technology sold by BAC. In Exhibit 14, we assume one tank provides 50kW capacity so 1MW requires 20 tanks. At a selling price of \$30k per tank, DUG would be entitled to royalties of \$30k (5% x \$600k). BAC currently has an installed base of more than 12,500MW so the maximum revenue DUG could earn from retrofitting would be \$375m. This would be earned at a gross margin close to 100%.

**Exhibit 14: Potential royalty income from BAC**

Per annum MW sales	DUG royalty revenue (\$m)
10	0.3
20	0.6
50	1.5
100	3.0
150	4.5
200	6.0
250	7.5
500	15.0

Source: Edison Investment Research

### EBITDA: Recovery from FY26

Due to the expected small decline in revenue in FY25, we are forecasting a reduction in EBITDA in FY25 before growth resumes in FY26 and FY27. The main cost lines for the business are staff costs, which made up 46% of FY24 revenue, and other expenses, which made up 33% of FY24 revenue. These are partially offset by Other income.

- **Employee benefits expense:** the company had a headcount of 270 at the end of FY24. We forecast a minimal increase in FY25 and 10 heads added each year thereafter. We forecast costs to increase 7.6% in FY25, 5.5% in FY26 and 6.7% in FY27.
- **Other expenses:** this includes the costs to run data centres (electricity is a high proportion of this cost), sales and marketing, travel, HR and office-related costs. In FY24, it included third-party data processing costs incurred while DUG ordered and installed new HPC assets. We forecast a decline of 9.1% in FY25 (as third-party processing costs drop away), an increase of 8.4% in FY26 and 10.4% in FY27.
- **Other income:** the Australian R&D grant is recorded here. It is a non-cash item, which offsets tax payable. We maintain it at the same level as FY24 for FY25–27 (\$2.8m).

## Operating profit and PBT reflect costs of the HPC estate

After DUG acquired \$28m-worth of HPC assets in FY24, depreciation has increased significantly: from \$3.0m in H124 to \$6.3m in H125. Computer assets are depreciated over five years. While most computers are still functioning well after five years, helped by immersion cooling, new computers will have better performance, typically having lower electricity consumption per unit of compute. Data centre infrastructure is depreciated over 20 years and Nomad units over 10 years.

Net finance costs comprise the interest charges related to the financing of the HPC assets (repayment terms from 24 to 36 months) and leases for property and network connections. Again, this increased significantly in H125 to \$2.1m from \$0.6m in H124.

## Tax losses still to be recognised

The company has tax losses in the US and the UK that have not yet been recognised as the company is still loss-making in both countries. Australia is profitable and has used up any tax losses. We understand that the company is working to optimise its tax position. The standard corporation tax rates in the countries of operation are 30% in Australia, 25% in the UK, 21% in the US and 24% in Malaysia (although the company has a 0% rate for the next 18 months). We have used the Australian rate of 30% in our forecasts.

## Balance sheet and cash flow

### Capex: Balancing investment with contract wins

The company estimates that compared to traditional processing, acoustic MP-FWI requires 10–15x the compute capacity and elastic MP-FWI requires 3–4x the compute capacity of acoustic. To cope with this higher compute requirement, the company recently upgraded its compute capacity in Houston.

When building out a data centre, the company estimates that the three stages are as follows:

1. Construct building/room, including all necessary pipework: a 10–12 month process.
2. Add infrastructure including transformers, cooling towers and tanks: a four to six-month process.
3. Add computers: DUG aims to buy these on a just-in-time basis, with lead times for supercomputer components running currently at around eight weeks. Dielectric fluid for the tanks can be obtained in less than a week.

In Houston, which is the main HPC site, stage one is complete. Stage two has been completed for around half the building. Within that, computers and immersion cooling tanks have been added taking up around 50% of capacity. The company is currently working on stage two fit-out for the rest of the building and has placed orders for the longest lead time products (which currently stand at 40 weeks). All other infrastructure orders will be placed to match customer demand. With the current infrastructure in place, the company can add additional computers to meet customer demand with relatively short lead times. Bearing in mind that it often takes customers at least a month to provide seismic data to DUG for processing once a contract has been signed, the company should have decent visibility of demand in order to manage compute capacity and utilisation.

## Working capital

Services projects are mostly (c 85%) based on monthly progress billing. The remainder are based on milestones that are typically invoiced every 1.5 to two months. Annual software licences are usually billed in advance. HPCaaS is billed on a monthly basis.

## Net debt position includes financing for HPC assets

The company raised gross proceeds of A\$31.4m/\$20.9m from the issue of 16.5m shares at A\$1.90 in October 2024. At the time of the raise, the company expected to use the proceeds as follows:

- A\$19m for data centre upgrades. Orders have been placed for the stage two fit-out of the Houston data centre.
- A\$6.5m for Middle East expansion. An office fit out is underway in Abu Dhabi and a team has been hired and trained.
- A\$3m for DUG Nomad. Sales and engineering teams have been hired and a Malaysian supply chain has been established.

At the end of H125, the company had a net debt position of \$19.8m made up of cash of \$17.3m, borrowings of \$0.3m and lease liabilities of \$36.8m (\$24.0m in asset financing for the HPC assets acquired in 2024 and \$12.8m for property and global network links). We forecast net debt including leases to reduce to a net cash position by FY27. Excluding all leases and asset financing, DUG is currently in a net cash position.

## Valuation

### DCF suggests current share price factoring in modest growth and lower margins

We have undertaken a reverse DCF analysis using our forecasts to FY27, a WACC of 9.1% and long-term growth of 2%. The current share price implies average revenue growth of 3% for FY28–34 and an average EBITDA margin of 26.9%, which is a drop from the 30% we are forecasting for FY27 and which was achieved as recently as FY23. Factoring in modest revenue growth of 5% per annum and average EBITDA margins of 30% from FY28–34 (flat versus FY27) would value the company at A\$1.71 per share. This does not include any upside from DUG Cool licensing or DUG Nomad sales.

A DCF of royalty income over FY26–36 (when the BAC agreement ends), assuming a gross margin of 95%, calculates that a flat revenue of \$1.5m per annum (equivalent to 50MW capacity sold) would have a present value of \$9.7m or A \$0.11 per share. If this technology is successfully adopted by BAC customers, we would expect revenue to increase over the period to multiples of 50MW.

### Peer comparisons less useful

From a peer valuation perspective, we are not aware of a company with an identical business mix to DUG. In the table below, we have included several groups of peers for reference:

- **Oil services.** These companies are larger than DUG and are active in business areas that DUG does not participate in. Revenue growth is mid-single digit while operating margins are in the high-teens. We believe that Viridien's valuation reflects its high level of debt, which although it was refinanced in Q125, is still at a relatively high level (Q125 net debt/FY25e EBITDA 1.9x).
- **Australasian software and IT service providers.** This group is growing revenue at a low-teens rate in all three years with mid-teens operating margins. We estimate that high levels of recurring revenue support the higher valuations.
- **HPC service providers.** This makes up a very small proportion of DUG's business, so we do not believe it should have a material effect on valuation. Most companies in this group are growing fast but investing heavily in hardware to achieve this.

**Exhibit 15: Peer financial metrics**

Company	Year-end	Market cap (m)		EV Reporting currency	Revenue growth (%)			EBITDA margin (%)			EBIT margin (%)		
		Exchange	Quoted currency		FY1	FY2	FY3	FY1	FY2	FY3	FY1	FY2	FY3
DUG Technologies	30-Jun	ASX	184	145	(2.9)	16.0	10.7	22.5	28.6	30.0	2.5	11.4	14.4
<b>Oil services</b>													
Schlumberger NV	31-Dec	NYSE	46,069	57,407	(2.9)	3.6	4.0	24.5	24.9	25.2	17.4	17.9	18.7
TGS ASA	31-Dec	Oslo	16,340	2,275	30.9	1.8	4.8	57.0	58.1	58.7	15.6	19.0	21.7
Viridien SA	31-Dec	Euronext Paris	394	1,460	(4.6)	4.8	8.8	42.5	42.5	41.7	17.8	19.0	19.6
<b>Average</b>					<b>7.8</b>	<b>3.4</b>	<b>5.9</b>	<b>41.4</b>	<b>41.8</b>	<b>41.9</b>	<b>16.9</b>	<b>18.7</b>	<b>20.0</b>
<b>ANZ software &amp; services</b>													
Atturra Ltd	30-Jun	ASX	319	258	26.8	21.0	9.1	9.8	10.2	10.3	6.6	7.2	7.7
Bravura Solutions Ltd	30-Jun	ASX	1,094	959	0.8	2.7	5.1	19.2	20.6	21.5	14.8	16.3	17.5
Energy One Ltd	30-Jun	ASX	466	482	16.3	14.8	15.7	27.9	30.0	32.1	16.4	20.0	22.2
Gentrack Group Ltd	30-Sep	NZX	1,330	1,276	9.3	16.6	15.4	13.1	15.6	17.6	9.6	12.8	15.5
Infomedia Ltd	30-Jun	ASX	465	395	2.9	6.1	7.4	38.7	38.9	39.6	17.4	20.9	23.2
Nuix Ltd	30-Jun	ASX	761	736	8.3	13.1	13.9	25.3	28.7	32.3	2.4	9.1	14.1
Objective Corporation Ltd	30-Jun	ASX	1,791	1,720	5.9	11.0	10.8	38.3	39.3	40.7	31.9	31.9	32.8
Readytech Holdings Ltd	30-Jun	ASX	281	316	8.4	12.7	12.4	32.6	33.8	34.3	11.3	16.9	18.8
Vista Group International Ltd	31-Dec	NZX	855	864	14.5	13.6	12.3	17.5	21.7	24.7	6.4	11.4	15.8
<b>Average</b>					<b>10.4</b>	<b>12.4</b>	<b>11.3</b>	<b>24.7</b>	<b>26.5</b>	<b>28.1</b>	<b>13.0</b>	<b>16.3</b>	<b>18.6</b>
<b>HPCaaS</b>													
Applied Digital Corp	31-May	Nasdaq	3,119	3,955	32.2	(3.1)	120.1	26.6	42.9	49.8	(21.8)	(27.6)	9.8
CoreWeave Inc	31-Dec	Nasdaq	67,274	74,787			127.1	42.4	66.6	74.2	16.3	22.3	26.3
HIVE Digital Technologies Ltd	31-Mar	TSX	511	97	0.9	164.4	55.4	36.5	36.8	40.1	(54.0)	(10.7)	
NEXTDC Ltd	30-Jun	ASX	8,441	8,925	6.2	16.2	23.3	49.6	47.0	48.4	3.7	(2.0)	1.3
Northern Data AG	31-Dec	Frankfurt	1,732	2,325	42.7	68.7	16.1	79.3	60.8	51.8	5.1	7.5	4.8
Sify Technologies Ltd	31-Mar	Nasdaq	152	43,706	52.8	14.0		21.9	23.0		7.9	9.4	
<b>Average</b>					<b>27.0</b>	<b>64.5</b>	<b>51.5</b>	<b>46.8</b>	<b>47.4</b>	<b>53.2</b>	<b>(7.1)</b>	<b>(0.2)</b>	<b>10.5</b>

Source: LSEG Data &amp; Analytics (9 June)

**Exhibit 16: Peer valuation metrics**

Company	EV/Sales		EV/EBITDA			P/E			
	FY1	FY2	FY3	FY1	FY2	FY3	FY1	FY2	FY3
DUG Technologies	2.3	2.0	1.8	10.1	6.9	5.9	N/A	35.4	19.3
<b>Oil services</b>									
Schlumberger NV	1.6	1.6	1.5	6.6	6.3	6.0	10.7	10.0	8.9
TGS ASA	1.3	1.3	1.2	2.3	2.2	2.1	10.2	8.0	6.9
Viridien SA	1.3	1.2	1.1	3.0	2.8	2.7	6.0	4.6	3.6
<b>Average</b>	<b>1.4</b>	<b>1.4</b>	<b>1.3</b>	<b>4.0</b>	<b>3.8</b>	<b>3.6</b>	<b>9.0</b>	<b>7.5</b>	<b>6.5</b>
<b>ANZ software &amp; services</b>									
Atturra Ltd	0.8	0.7	0.6	8.6	6.8	6.1	20.0	16.6	14.1
Bravura Solutions Ltd	3.8	3.7	3.5	19.9	18.1	16.4	37.4	34.2	28.6
Energy One Ltd	7.9	6.9	5.9	28.3	22.9	18.5	72.2	48.0	34.5
Gentrack Group Ltd	5.5	4.7	4.1	41.7	30.2	23.1	75.7	52.3	38.0
Infomedia Ltd	2.7	2.6	2.4	7.1	6.6	6.0	21.6	18.0	15.3
Nuix Ltd	3.1	2.7	2.4	12.2	9.5	7.4	98.6	76.7	19.7
Objective Corporation Ltd	13.8	12.4	11.2	36.0	31.7	27.6	52.7	48.8	42.9
Readytech Holdings Ltd	2.6	2.3	2.0	7.9	6.7	5.9	25.6	17.1	12.4
Vista Group International Ltd	5.0	4.4	3.9	28.8	20.4	16.0	94.2	46.2	31.5
<b>Average</b>	<b>5.0</b>	<b>4.5</b>	<b>4.0</b>	<b>21.2</b>	<b>17.0</b>	<b>14.1</b>	<b>55.3</b>	<b>39.8</b>	<b>26.3</b>
<b>HPCaaS</b>									
Applied Digital Corp	18.1	18.7	8.5	68.0	43.5	17.0	N/A	N/A	N/A
CoreWeave Inc	14.8	6.5	4.6	22.2	8.8	6.0	N/A	N/A	61.6
HIVE Digital Technologies Ltd	0.8	0.3	0.2	2.3	0.9	0.5	N/A	N/A	N/A
NEXTDC Ltd	20.8	17.9	14.5	41.9	38.1	30.0	N/A	N/A	N/A
Northern Data AG	8.1	4.8	4.2	10.3	7.9	8.0	50.6	42.6	16.7
Sify Technologies Ltd	60.6	53.2		277.3	230.9		492.0	123.0	
<b>Average</b>	<b>20.5</b>	<b>16.9</b>	<b>6.4</b>	<b>70.3</b>	<b>55.0</b>	<b>12.3</b>	<b>271.3</b>	<b>82.8</b>	<b>39.1</b>

Source: LSEG Data & Analytics (9 June)

**Exhibit 17: Financial summary**

	\$m	2020	2021	2022	2023	2024	2025e	2026e	2027e
Year end 30 June		IFRS	IFRS	IFRS	IFRS	IFRS	IFRS	IFRS	IFRS
<b>INCOME STATEMENT</b>									
Revenue		45.3	38.5	33.8	50.9	65.5	63.6	73.8	81.6
EBITDA		9.6	(1.7)	2.8	15.1	16.6	14.3	21.1	24.5
Normalised operating profit		0.6	(9.1)	(4.9)	8.6	9.3	1.6	8.4	11.8
Amortisation of acquired intangibles		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Exceptionals		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Share-based payments		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Reported operating profit</b>		<b>0.6</b>	<b>(9.1)</b>	<b>(4.9)</b>	<b>8.6</b>	<b>9.3</b>	<b>1.6</b>	<b>8.4</b>	<b>11.8</b>
Net Interest		(7.1)	(3.8)	(1.6)	(1.2)	(1.3)	(4.1)	(3.5)	(2.8)
Joint ventures & associates (post tax)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Exceptionals		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Profit Before Tax (norm)</b>		<b>(6.5)</b>	<b>(12.9)</b>	<b>(6.5)</b>	<b>7.5</b>	<b>8.0</b>	<b>(2.4)</b>	<b>4.9</b>	<b>9.0</b>
<b>Profit Before Tax (reported)</b>		<b>(6.5)</b>	<b>(12.9)</b>	<b>(6.5)</b>	<b>7.5</b>	<b>8.0</b>	<b>(2.4)</b>	<b>4.9</b>	<b>9.0</b>
Reported tax		(5.1)	(3.0)	(2.8)	(2.5)	(4.7)	0.7	(1.5)	(2.7)
<b>Profit After Tax (norm)</b>		<b>(11.7)</b>	<b>(15.9)</b>	<b>(9.3)</b>	<b>4.9</b>	<b>3.3</b>	<b>(1.7)</b>	<b>3.4</b>	<b>6.3</b>
<b>Profit After Tax (reported)</b>		<b>(11.7)</b>	<b>(15.9)</b>	<b>(9.3)</b>	<b>4.9</b>	<b>3.3</b>	<b>(1.7)</b>	<b>3.4</b>	<b>6.3</b>
Minority interests		(0.0)	(0.1)	0.1	0.1	(0.6)	(0.1)	0.0	0.0
Discontinued operations		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Net income (normalised)</b>		<b>(11.7)</b>	<b>(16.0)</b>	<b>(9.2)</b>	<b>5.0</b>	<b>2.8</b>	<b>(1.8)</b>	<b>3.4</b>	<b>6.3</b>
<b>Net income (reported)</b>		<b>(11.7)</b>	<b>(16.0)</b>	<b>(9.2)</b>	<b>5.0</b>	<b>2.8</b>	<b>(1.8)</b>	<b>3.4</b>	<b>6.3</b>
Basic average number of shares outstanding (m)		63	96	114	118	118	124	133	133
EPS - basic normalised (\$)		(0.185)	(0.166)	(0.081)	0.042	0.023	(0.015)	0.026	0.047
EPS - normalised fully diluted (\$)		(0.185)	(0.166)	(0.081)	0.041	0.023	(0.015)	0.025	0.046
EPS - basic reported (\$)		(0.185)	(0.166)	(0.081)	0.042	0.023	(0.015)	0.026	0.047
Dividend (\$)		0	0	0	0	0	0	0	0
Revenue growth (%)		(13.0)	(15.2)	(12.2)	50.9	28.6	(2.9)	16.0	10.7
EBITDA Margin (%)		21.1	(4.5)	8.3	29.6	25.4	22.5	28.6	30.0
Normalised Operating Margin (%)		1.3	(23.8)	(14.5)	17.0	14.2	2.5	11.4	14.4
<b>BALANCE SHEET</b>									
Fixed Assets		38.9	38.3	29.5	28.7	56.3	54.7	50.6	46.6
Intangible Assets		0.3	0.5	0.5	0.6	0.6	0.6	0.6	0.6
Tangible Assets		37.9	37.1	28.9	27.9	52.5	50.9	46.8	42.7
Investments & other		0.7	0.7	0.0	0.2	3.2	3.2	3.2	3.2
Current Assets		21.2	17.7	9.5	18.4	23.8	33.5	32.0	33.5
Stocks		0.5	0.8	0.3	2.6	4.3	4.3	4.3	4.3
Debtors		7.2	5.9	4.9	6.6	9.3	9.0	10.4	11.6
Cash & cash equivalents		12.4	10.0	2.7	8.0	9.4	16.1	12.0	12.5
Other		1.1	1.0	1.7	1.2	0.9	4.2	5.3	5.1
Current Liabilities		(26.9)	(26.6)	(9.8)	(15.1)	(25.5)	(23.1)	(23.6)	(19.3)
Creditors		(3.0)	(2.4)	(2.9)	(6.5)	(7.6)	(7.7)	(8.2)	(8.9)
Tax and social security		0.0	0.0	0.0	0.0	(2.4)	0.0	0.0	0.0
Short-term borrowings		(18.5)	(19.9)	(3.6)	(4.6)	(10.6)	(10.6)	(10.6)	(5.6)
Other		(5.4)	(4.3)	(3.3)	(4.0)	(4.8)	(4.8)	(4.8)	(4.8)
Long-Term Liabilities		(40.0)	(15.9)	(13.4)	(11.1)	(24.6)	(16.6)	(7.1)	(2.6)
Long-term borrowings		(39.7)	(15.8)	(13.3)	(10.9)	(24.5)	(16.5)	(7.0)	(2.5)
Other long-term liabilities		(0.2)	(0.2)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)
<b>Net Assets</b>		<b>(6.7)</b>	<b>13.4</b>	<b>15.8</b>	<b>20.9</b>	<b>30.0</b>	<b>48.5</b>	<b>52.0</b>	<b>58.2</b>
Minority interests		(0.0)	0.1	(0.0)	(0.1)	0.5	0.5	0.5	0.5
Shareholders' equity		(6.7)	13.5	15.8	20.8	30.5	49.0	52.4	58.7
<b>CASH FLOW</b>									
Op Cash Flow before WC and tax		9.6	(1.7)	2.8	15.1	16.6	14.3	21.1	24.5
Working capital		0.4	2.0	0.8	0.6	(2.4)	0.3	(0.9)	(0.4)
Exceptional & other		(2.6)	(2.3)	(3.9)	(2.3)	(1.9)	(2.6)	(2.6)	(2.6)
Tax		(1.0)	(0.8)	(0.1)	0.1	(0.2)	(2.4)	0.0	0.0
<b>Net operating cash flow</b>		<b>6.3</b>	<b>(2.8)</b>	<b>(0.4)</b>	<b>13.4</b>	<b>12.1</b>	<b>9.7</b>	<b>17.6</b>	<b>21.5</b>
Capex		(3.2)	(6.2)	(1.5)	(3.1)	(31.3)	(8.2)	(8.2)	(8.2)
Acquisitions/disposals		0.0	0.2	0.0	0.1	0.0	0.0	0.0	0.0
Net interest		(2.1)	(2.1)	(1.3)	(1.2)	(1.4)	(4.1)	(3.5)	(2.8)
Equity financing		0.0	17.4	11.7	0.0	5.0	20.2	0.0	0.0
Dividends		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other		0.0	0.0	0.0	0.0	0.9	0.0	0.0	0.0
<b>Net Cash Flow</b>		<b>1.0</b>	<b>6.5</b>	<b>8.5</b>	<b>9.2</b>	<b>(14.7)</b>	<b>17.7</b>	<b>6.0</b>	<b>10.5</b>
Opening net debt/(cash)		41.5	45.7	25.7	14.2	7.5	25.7	11.0	5.5
FX		0.1	0.0	(0.2)	(0.2)	(0.1)	0.0	0.0	0.0
Other non-cash movements		(5.4)	13.5	3.2	(2.3)	(3.3)	(3.0)	(0.5)	(0.5)
Closing net debt/(cash)		45.7	25.7	14.2	7.5	25.7	11.0	5.5	(4.5)
Closing net debt/(cash) excluding leases		27.2	7.7	1.8	(5.2)	(8.2)	(14.9)	(10.9)	(11.4)

Source: DUG, Edison Investment Research

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### Revenue by geography



### Management team

#### Non-executive chairman: Francesco Sciarrone

Francesco Sciarrone was appointed as independent non-executive chairman of DUG Technology on 1 September 2022. With over 35 years in banking, fund management and investment advisory, he also serves as executive chairman of Vantage Wealth and director of Biovision and Biovision 2020 Holdings.

#### CEO: Matthew Lamont

Dr Lamont is the co-founder and managing director of DUG Technology and was appointed to the board in 2014. He holds a PhD in geophysics from Curtin University, where he serves as an adjunct associate professor. Before establishing DUG, Dr Lamont held senior technical positions at Woodside in Perth and BHP Billiton in Houston.

#### Acting CFO: Daniel Lamont

Daniel joined DUG Technology in 2013 and after serving as commercial manager and chief commercial officer, he was appointed acting CFO in August 2024. Daniel has a BSc in geology and accounting from the University of Western Australia and is a chartered accountant.

### Principal shareholders

	%
Matthew Lamont	18.2%
Regal Funds Management Pty Ltd	15.0%
Perennial Value Management Ltd	10.8%

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