Canaccord Genuity Capital Markets

Initiation of Coverage

DUG Technology Limited

Services

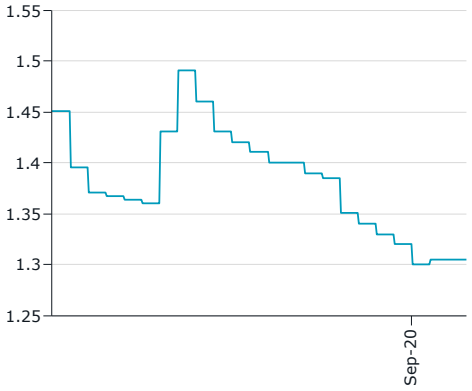
4 September 2020

Rating	Price Target
BUY	**A$2.37**
DUG-ASX	Price **A$1.30**

Market Data

52-Week Range (A$) :	1.30 - 1.49
Avg Daily Vol (M) :	0.5
Market Cap (A$M) :	129.8
Shares Out. (M) :	99.5
Dividend /Shr (A$) :	0.00
Dividend Yield (%) :	0.0
Enterprise Value (A$M) :	138

FYE Jun	2020A	2021E	2022E	2023E
Sales (US$M)	49.4	54.7	63.1	72.7
EBITDA (US$M)	9.2	11.6	15.1	19.9
EBIT (US$M)	(0.0)	2.7	4.1	9.1
EV/EBITDA (x)	0.0	8.8	6.6	5.2
EV/EBIT (x)	0.0	0.0	24.6	11.3
Net Debt (Cash) (US$M)	28	8	6	10



Source: FactSet

Priced as of close of business 3 September 2020

Canaccord Genuity (Australia) Limited has received a fee as Lead Manager to the DUG Technology Limited Initial Public Offering announced on 6 July 2020.

Canaccord Genuity (Australia) Limited has received a fee as Lead Manager to the DUG Technology Limited convertible note in February 2020.

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A peta what? Let me explain...

Investment Recommendation

DUG is a technology company with in-depth expertise in high performance computing (HPC), incorporating hardware and software solutions for the technology and resources sectors globally. The business has a highly skilled workforce and employs applied physics and close to two decades of in-market experience as the foundation for its offerings. Through the operation of HPC systems and application of its proprietary scientific data services and software solutions, the company analyses large datasets enabling clients to process and visualise scientific data.

The business has generated meaningful profit over time, which has been reinvested into its people, R&D and systems. An inflection point in demand has brought about a need for accelerated HPC capacity additions. This has now been funded through the IPO process.

We believe the company is well placed to benefit from HPC market growth and expansion of HPC use-cases driven by Artificial Intelligence and Machine Learning. In our view, DUG's offering is differentiated from its competitors, solves for existing pain points and has a market leading price offering. We initiate on DUG with a BUY rating and a A$2.37/share price target.

Investment highlights

Unique and patented IP drives cost-efficient compute. DUG currently operates one of the largest HPC systems in the Southern Hemisphere (PESA, 2019), as measured by processing speed using a metric called petaflops (PF). On an aggregate basis of 30 PF, DUG's HPC systems would be considered in the top 25 globally (top500.org). The company operates highly energy efficient systems, achieving power savings of 46% relative to a traditional air-cooled data centre (Uptime Institute, 2019). This hardware offering is complemented by proprietary software and a highly skilled workforce.

An inflection point in demand has brought about a need for accelerated HPC capacity additions. This follows years of reinvestment into people and R&D, which DUG believes has driven meaningful market share in the Oil & Gas market since FY16, and with high inquiry levels from potential clients in many other industries, the decision to accelerate HPC capacity additions was made. A material level of new compute and storage capacity has been ordered and will be installed in FY21E, supporting our view of accelerating revenue growth in FY22E and FY23E.

Key risks: We see the key risks as being: (i) slower-than-expected uptake of HPCaaS services and DUG McCloud platform; (ii) commodity price movements impacting end-market demand; (iii) increasing competition or technology advancements; (iv) brand damage from technology-related issues; (v) foreign exchange movements; (vi) reliance on key personnel; and (vii) IP protection and patent rights.

Potential catalysts: (i) HPCaaS capacity and demand growth; (ii) HF-FWI (proprietary Oil & Gas data fitting procedure) demand growth; (iii) DUG McCloud contract wins; (iv) resumption of normal demand and growth trends in Services; and (v) trials and an opportunity pipeline which build in of use cases outside the resources sector.

Valuation and recommendation

Our 12-month price target for DUG is A$2.37/share. This is based on a DCF valuation which assumes a WACC of 10.4% (12.0% cost of equity, 20.0% debt to equity and terminal growth of 2.5%).

DUG is trading at a substantial discount to technology and data centre peers, a 38% discount to what we consider its broad peer group and a 14% discount to the ASX All Ordinaries on an EV/EBITDA basis (FY21E). We believe there is meaningful earnings potential and on strong execution, and we expect the discount will start to unwind.

Figure 1: DUG Technology (DUG-ASX); Canaccord Genuity forecasts

DUG Technology (DUG)			Share Price (A$)	$1.31	Share Price (US$)	$0.94		Year end 30 June	
Profit & Loss (US$m)	**2020A**	**2021E**	**2022E**	**2023E**	**Valuation Ratios**	**2020A**	**2021E**	**2022E**	**2023E**
Sales revenue	49.4	54.7	63.1	72.7	EV/EBITDA (x)	nmf	8.8	6.6	5.2
Total revenue	**49.4**	**54.7**	**63.1**	**72.7**	EV/EBIT (x)	nmf	nmf	24.6	11.3
Gross profit	49.4	54.7	63.1	72.7	EPS (US$) (NPAT)	-0.13	0.00	0.01	0.05
EBITDA	**9.2**	**11.6**	**15.1**	**19.9**	P/E (x) (NPAT)	-7.1	198.2	65.2	17.9
Depreciation	-9.1	-8.6	-10.9	-10.6	EV/EBITDA Rel - XAO		0.8	0.7	
EBITA	**0.1**	**2.9**	**4.3**	**9.3**	EV/EBITDA Rel - XSO		0.8	0.7	
Amortisation	-0.1	-0.2	-0.2	-0.2	DPS (US$)	0.00	0.00	0.00	0.00
EBIT	**0.0**	**2.7**	**4.1**	**9.1**	Dividend yield (%)	0.0%	0.0%	0.0%	0.0%
Net interest	-6.8	-2.1	-2.1	-2.1	CFPS (US$)	0.07	0.11	0.13	0.16
Other	0.0	0.0	0.0	0.0	Price / CFPS (x)	13.7	8.9	7.2	5.7
Pre-tax profit	**-6.8**	**0.6**	**1.9**	**7.0**	**Profitability Ratios**	**2020A**	**2021E**	**2022E**	**2023E**
Tax expense	-1.4	-0.2	-0.5	-1.7	EBITDA margin (%)	18.6%	21.1%	24.0%	27.4%
NPAT (reported)	**-8.2**	**0.5**	**1.4**	**5.2**	EBIT margin (%)	0.0%	5.0%	6.4%	12.5%
NPAT (attributable)	**-8.2**	**0.5**	**1.4**	**5.2**	ROE (%)	-103.0%	2.6%	4.3%	14.1%
Cash Flow (US$m)	**2020A**	**2021E**	**2022E**	**2023E**	ROA (%)	0.0%	3.8%	5.0%	10.6%
Operating EBITDA	**9.2**	**11.6**	**15.1**	**19.9**	ROIC (%)	-20.5%	0.9%	2.5%	8.5%
Interest and tax	-3.1	-2.3	-2.6	-3.9	**Capital Structure**	**2020A**	**2021E**	**2022E**	**2023E**
Working capital/other	-1.8	1.2	0.5	0.3	Enterprise value (US$m)	88.7	101.4	99.7	103.1
Operating cashflow	**4.3**	**10.5**	**13.0**	**16.3**	Net Debt (cash) (US$m)	28.0	8.0	6.2	9.6
Capex	-3.2	-17.8	-9.8	-18.2	Net debt / equity (%)	742.9%	24.1%	18.1%	24.3%
Free cashflow	**1.1**	**-7.3**	**3.2**	**-1.9**	Net debt / EBITDA (x)	3.0	0.7	0.4	0.5
Acquisitions	0.0	0.0	0.0	0.0	NTA / share (US$)	0.06	0.33	0.34	0.40
Equity issued	0.0	28.7	0.0	0.0	Price / NTA (x)	17.5	2.9	2.7	2.4
Borrowings	10.4	-15.4	0.0	0.0	Shares on issue (m)	62.6	99.5	99.5	99.5
Other	0.0	0.0	0.0	0.0	**Growth Ratios**	**2020A**	**2021E**	**2022E**	**2023E**
Net cashflow	**11.5**	**6.1**	**3.2**	**-1.9**	Sales revenue (%)	-5.2%	10.8%	15.3%	15.1%
Opening cash	2.0	12.0	16.6	18.4	Gross profit (%)	-5.3%	10.7%	15.3%	15.1%
Closing cash	**12.0**	**16.6**	**18.4**	**14.9**	EBITDA (%)	-6.4%	25.6%	30.9%	31.4%
Balance Sheet (US$m)	**2020A**	**2021E**	**2022E**	**2023E**	EBIT (%)	nmf	nmf	47.4%	124.6%
Cash	12.0	16.6	18.4	14.9	NPATA (%)	nmf	nmf	204.1%	264.0%
Receivables	7.8	10.1	11.6	13.4	EPS (NPATA) (%)	nmf	nmf	204.1%	264.0%
Inventories	0.0	0.0	0.0	0.0	DPS (%)	0.0%	0.0%	0.0%	0.0%
PPE	22.8	31.8	30.5	37.9	**Interim P&L (US$m)**	**1H19A**	**2H19A**	**1H20A**	**2H20A**
Intangibles	0.3	0.3	0.3	0.3	Sales revenue	26.4	25.7	26.8	22.6
Other assets	21.8	21.8	21.8	21.8	Gross profit	26.4	25.8	26.8	22.6
Total assets	**64.7**	**80.6**	**82.6**	**88.4**	**EBITDA**	**5.5**	**4.4**	**5.1**	**4.1**
Borrowings	40.1	24.6	24.6	24.6	EBIT	5.5	-2.9	0.8	-0.8
Payables	3.0	5.1	5.7	6.2	Pre-tax profit	5.5	-3.8	-0.3	-6.5
Other liabilities	17.9	17.9	17.9	17.9	**NPAT (reported)**	**5.5**	**-8.1**	**-2.0**	**-6.3**
Total liabilities	**61.0**	**47.5**	**48.1**	**48.7**	EPS (US$) (NPAT)	0.09	-0.13	-0.03	-0.10
Net assets	**3.8**	**33.0**	**34.5**	**39.7**	DPS (US$)	0.00	0.00	0.00	0.00
Board of Directors					**Valuation**				
Wayne Martin				Chairman	**DCF**				
Matt Lamont				Founder & Managing Director	Cost of equity	12.0%	Beta		1.5
Louise Bower				CFO & Executive Director	Cost of debt	5.5%	WACC post tax		10.4%
Phil Schwan				CTO & Executive Director	Terminal growth rate	2.5%	**DCF (A$/share)**		**$2.37**
Frank Sciarone				Independent NED					
Charles Ramsden				Independent NED	**Capitalisation of future earnings**			**2021E**	**2022E**
Michael Malone				Independent NED	EBITDA (US$m)			11.6	15.1
Mark Puzey				Independent NED	EV/ EBITDA multiple			10.0	10.0
Shareholders		**Shares**		**%**	**Enterprise value (US$m)**			**115.6**	**151.3**
Matt Lamont		23.8		23.9%	Net cash/ (debt) (US$m)			-8.0	-6.2
Perennial Value		10.2		10.2%	Equity value (US$m)			107.6	145.1
Phil Schwan		7.2		7.3%	**Equity value (A$/share)**			**$1.50**	**$2.03**
Regal Funds		5.9		5.9%					
Top 20 shareholders		**70.6**		**71.0%**					

Source: Company reports, Canaccord Genuity estimates

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Executive summary

A proven operator of large and efficient HPC systems.

DUG Technology Limited (DUG) is a technology company with in-depth expertise in high performance computing (HPC), incorporating hardware and software solutions for the technology and resources sectors globally. The business has a highly skilled workforce and employs applied physics and close to two decades of in-market experience as the foundation for its offerings.

Through the operation of HPC systems and application of its proprietary scientific data services and software solutions, the company analyses large datasets, enabling clients to process and visualise scientific data.

A strong presence in the Oil & Gas industry with extensions into a broad range of scientific use cases.

DUG provides a range of hardware and software processing and interpretation services to the Oil & Gas industry. This is typically project based and requires a significant amount of 'compute' capacity. HPC systems and in-house developed sophisticated algorithms (DUG's IP) form the basis to process clients' seismic data in a timely manner, and this is where, in our view, DUG has developed a real value proposition and become one of the top three proprietary seismic processing and imaging (P&I) players globally.

HPC has historically been predominantly used by advanced scientific research centres. However, more industries and organisations are finding use cases for HPC. This offers extensions of DUG's capability into an array of opportunities across radio-astronomy, meteorology, genealogy and other scientific use cases, in our view. Evidence of relationships between DUG and companies and institutions in these areas has been building in recent periods and we expect this to be a key area of focus for the company going forward.

An inflection point in demand has brought about a need for accelerated HPC capacity additions. This follows years of reinvestment into people and R&D.

Over the FY16-20 period, DUG has reinvested 100% of its earnings into its people and facilities. In what has been a challenging Oil & Gas services market, DUG has grown revenue from US$43.7m in FY16 to US$49.4m in FY20 (FY19 US$52.1m), whilst operating costs have grown from US$29.0m to US$40.2m. Roughly US$4.0m of the incremental cost has been invested into the scale-up of the DUG McCloud platform over FY19 and FY20 and is yet to be meaningfully capitalised on through additional revenue. Margin growth had started to come through in FY19 and DUG expected this to continue into FY20 with a c200bps expansion (pre COVID-19 impact).

DUG believes meaningful market share in the Oil & Gas market has been garnered over this period and with high inquiry levels from potential clients in multiple other industries, the decision to accelerate HPC capacity additions was made. This pre-empted the decision to look for new equity through an IPO. A material level of new compute and storage capacity has been ordered and is currently being installed, supporting our view of accelerating revenue growth in FY22E and FY23E.

COVID-19 impacted in FY20, but we see room for an earnings recovery in FY21E and a strengthening growth rate into FY22E.

Three quarters of the way through FY20, DUG was tracking towards its target for c10% revenue growth and in excess of 20% EBITDA growth. However, a weaker 4Q20 impacted FY20, resulting in a 5.2% revenue decline and 6.4% EBITDA decline.

With an uncertain short-term operating environment emanating from COVID-19 and no quantitative guidance in place, we refer to the company's incentive scheme for a reference point to consider our FY21E forecasts.

Having regard for the STI targets, recent contract wins and the past five-year trading history, we have aligned our FY21E forecasts towards the Base STI criteria. That is, we expect the company to grow revenue by 10.8% in FY21E (versus base 10% growth target) with a 21.1% EBITDA margin (versus a 21% EBITDA margin target). We then expect revenue growth to accelerate to a c15% CAGR over the next four years through to FY25E, also allowing for meaningful operating leverage.

The DUG McCloud platform is a potential game changer, in our view. However, ramp-up timing is hard to gauge.

We view HPCaaS as the predominant value driver into the medium term. Tying this in with the flexibility of the DUG McCloud platform, is a strong market differentiator, in our view, and is a potential game changer for the company on a medium-term view. Offering scalable HPC compute, proprietary software and in-depth algorithm and services support meaningfully differentiates DUG McCloud from the majority of in-market offerings we considered.

Through the application of the capital raised through IPO process, the compute on offer to new and existing clients is positioned to treble in the coming five years under our base case scenario.

Client interest has been building, however the time to contract award and revenue ramp-up both from a burst (opportunistic usage of available machines) and contracted HPCaaS perspective, is hard for us to gauge at this stage, and herein lies the execution risk. We have stepped out three scenarios to provide context of the potential outcomes (see Scenario analysis).

Unique and patented IP drives cost efficient compute.

DUG currently operates one of the largest HPC systems in the Southern Hemisphere (PESA, 2019), as measured by processing speed using a metric called petaflops (PF). On an aggregate basis, DUG's HPC systems would be situated within the top 25 globally (top500.org). We note management's ambition extends well beyond today's level of scale and that of the scenarios detailed in this report.

Importantly, DUG has unique and patented IP, developed to cool its compute capacity. This results in a highly energy efficient 'data centre'. With a Power Usage Effectiveness (PUE) of 1.05x, the company achieves power cost savings of 46% relative to a traditional air-cooled data centre (Uptime Institute, 2019).

Valuation A$2.37/share, scenarios provide context for alternative outcomes.

Our 12-month price target for DUG is $A2.37/share. This is based on a DCF valuation. Our DCF assumes a WACC of 10.4% (12.0% cost of equity, 20.0% debt to equity and terminal growth of 2.5%).

We have set out three scenarios, exploring the valuation impact from differing revenue and earnings growth rates over the coming five-year period. A base case being our current forecasts, a bear case that suggests a A$1.59/share valuation and a bull case that suggests a A$3.72/share valuation.

Potential catalysts and risks

Upcoming potential catalysts include HPCaaS capacity and demand growth, HF-FWI (proprietary Oil & Gas data fitting procedure) demand growth, DUG McCloud contract wins, resumption of normal demand and growth trends in services, and trials and an opportunity pipeline which build in use cases outside the resources sector.

Risks to our view include slower-than-expected uptake of HPCaaS services and DUG McCloud platform, commodity price movements, increasing competition or technology advancements, brand damage from technology-related issues, foreign exchange movements, reliance on key personnel, and IP protection and patent rights.

Overview: A proven operator of large and efficient HPC systems

DUG provides high performance computing as a service (HPCaaS), scientific data analysis services and software solutions for the technology and resource sectors globally.

The company was founded in 2003 and is headquartered in Perth. HPC systems and offices in Houston, Kuala Lumpur, London and Perth support a global offering. DUG's employee base totals nearly 320 people, many of whom are highly skilled in their trade (39% have a PhD or master's degree in physics, mathematics, engineering or computer programming).

An internal research and development function has built the IP underlying DUG's service offering, and supports future innovation in new target areas and use cases. Underlying this is a strong foundation in applied physics the technical experience required to enable clients to leverage large data and complex datasets.

Figure 2: DUG service offering overview

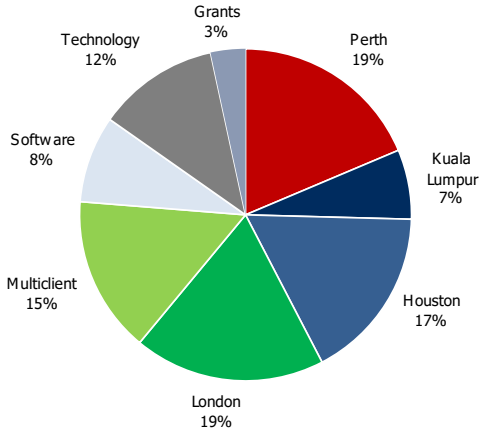
HPCaaS	Services	Software
DUG HPCaaS, DUG Cool (compute and storage)	DUG (data and geoscience services)	DUG Insight (software and algorithm support)
Global compute and storage offering across four installations. 'A complete HPC environment'.	Data loading, QC and management with job management tools	Scientific data analysis suite with built in modules and API for clients to add own programs
Do-it-for-me	Do-it-for-me	Do-it-yourself
FY20PF revenue US$16.7m	FY20PF revenue US$37.6m	FY20PF revenue US$9.3m
Example clients: AGS, Beach, Biotome, ICRAR, Polarcus, Santos	Example clients: Apache, Chevron, Inpex, Petronas, Shell, Woodside	Example clients: Apache, Beach, Cooper Energy, Inpex, TGS, Santos
Note: DUG McCloud is a platform that allows clients to mix and match HPCaaS, Services and Software capabilities		

Source: Company reports, Canaccord Genuity

A history of strong execution in Oil & Gas…

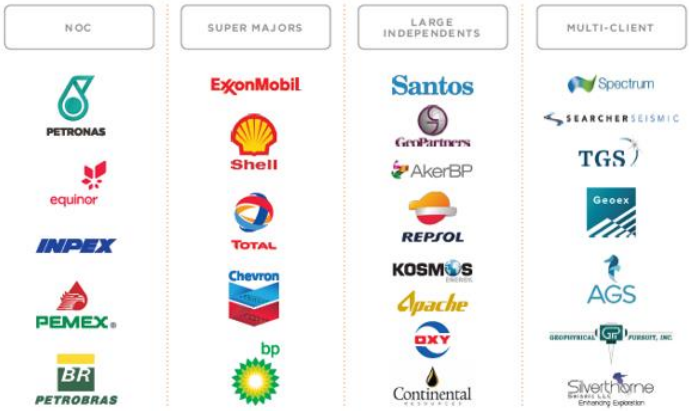
DUG undertakes proprietary imaging and processing services for Oil & Gas companies and believes it has grown to become the third-largest company in this field, globally. The regional diversification of revenue, breadth of client base and revenue outperformance relative to seismic data processing peers is captured in the figures overpage.

Figure 3: FY19 revenue breakdown provides context for breadth of demand for DUG services



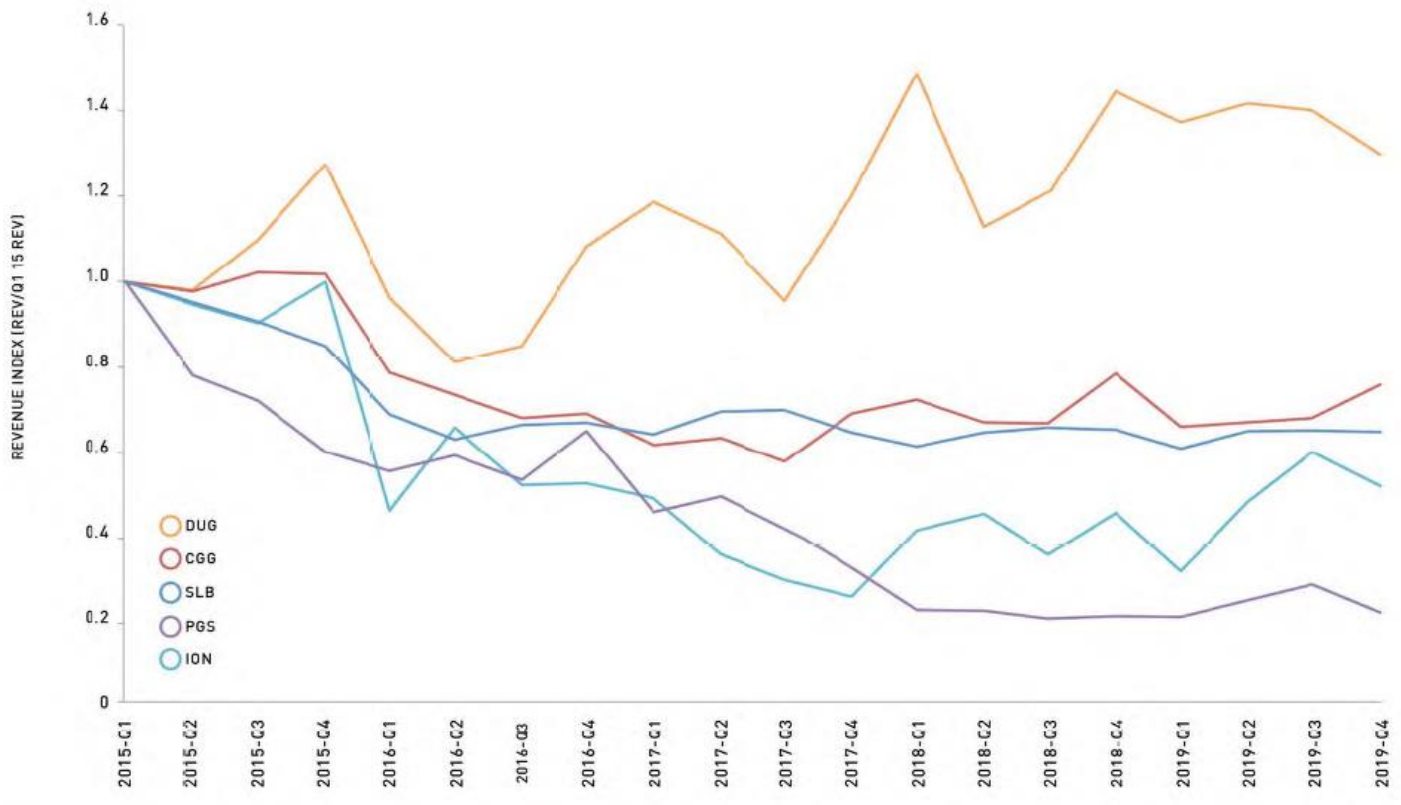
Source: Company reports, Canaccord Genuity

Figure 4: A selection of Oil & Gas services clients covering national oil companies, super majors, independents and multi-client



Source: Company reports

Figure 5: Seismic data processing performance since CY15; note the oil price downturn in CY16 was followed by market share gains by DUG in subsequent years



Source: Company reports

As can be seen in above, with a challenging backdrop in Oil & Gas markets commencing in CY15, DUG's top four competitors in seismic data processing experienced meaningful contractions in revenue. More stable conditions were experienced over CY18 and CY19. DUG capitalised on this five-year period to meaningfully grow its market share.

...with investment in people and capability, which allows extensions into new markets.

Proactive reinvestment into the business during the downturn was a key factor to the outperformance over the past five years. This included taking the headcount from around 200 people in FY15 to a peak of nearly 340 people in FY19 (currently c.320).

Investment into facilities and compute capacity was also meaningful over this period. Capital expenditure has totalled cUS$42m since FY16, with an additional cUS$36m spent on Research and Development (c15% of revenue).

The investment into a new HPC facility in Houston has built the physical footprint to meaningfully scale up HPC capacity. The facility connects to DUG's other HPC facilities and therefore can be used for any existing or prospective client.

DUG has been experiencing increasing interest from potential clients outside of Oil & Gas and is now actively exploring new avenues for growth. Work has been undertaken for clients in radio-astronomy, meteorology, genealogy and other scientific use cases.

A profitable business with a track record of capital management and a stable founder-led management team

DUG has self-funded growth through the reinvestment of profits. The magnitude of new opportunities presenting themselves brought the company initially to debt markets (for the Houston infrastructure) in 2018, through a relationship with the Commonwealth Bank of Australia, and in late CY19 to equity markets. Prior to the pre-IPO capital raising, the company had raised equity capital of A$5.5m.

The business remains founder led, with Matt Lamont (Managing Director) starting the business in 2003 with Troy Thompson (Head of Research). Matt has over 25 years' experience in the industry with prior roles at Woodside and BHP Billiton.

Listing in July 2020, the Board and senior executives currently own c.37% of the shares on issue (Matt Lamont c.24%, Phil Schwan c.7%, Troy Thompson c.4% and others c.2%).

Recent developments

Notable recent updates include:

- DUG raised A$44.2m in new capital (pre-costs) through the pre-IPO and IPO capital raisings. Funds will be put towards computers, storage and network expansion, as part of the company's growth strategy.
- In early August 2020, DUG announced it had signed a multi-national energy company on a one-year contract with renewal options. The committed value of the contract, excluding burst utilisation, is US$2.7m per annum.
- Commencing on 7 August 2020, an initiative called The Bushfire Data Quest 2020, will use DUG's HPC as part of a seven-day challenge to find new ways to detect fires and predict their behaviour. The Data Quest is supported by universities and agencies including the Australian Space Agency, the NSW Government and the Minderoo Foundation.
- In July 2020, DUG announced new contracts valued at US$6.3m.
  - The deals involve Houston-based Fairfield Geotechnologies, geoscience exploration and production services company Geoprocesados and marine acquisition services provider Polarcus
  - The Fairfield Geotechnologies agreement includes the reprocessing and imaging of more than 5,000 square miles of multi-client seismic data in the Permian Basin (United States). Fairfield will also use DUG's infrastructure to archive its extensive library of data.

- The Geoprocesados agreement is an expansion of an existing relationship. The company has been using the DUG McCloud platform since early 2019 and will expand its use to incorporate a new seismic processing and imaging centre in Rio de Janeiro (Brazil).
- The Polarcus agreement is also an existing relationship. The company will use DUG's hardware and software for data processing and seismic acquisition quality control onboard its fleet of seismic vessels. Polarcus has also signed a three-year agreement to use DUG McCloud to significantly enhance its priority processing and imaging business.

Regular updates on business activities, company news, HPC event and training are posted on DUG's blog. We consider this to be a useful source of information for investors to learn about DUG, its offerings and HPC more broadly.

Investment considerations

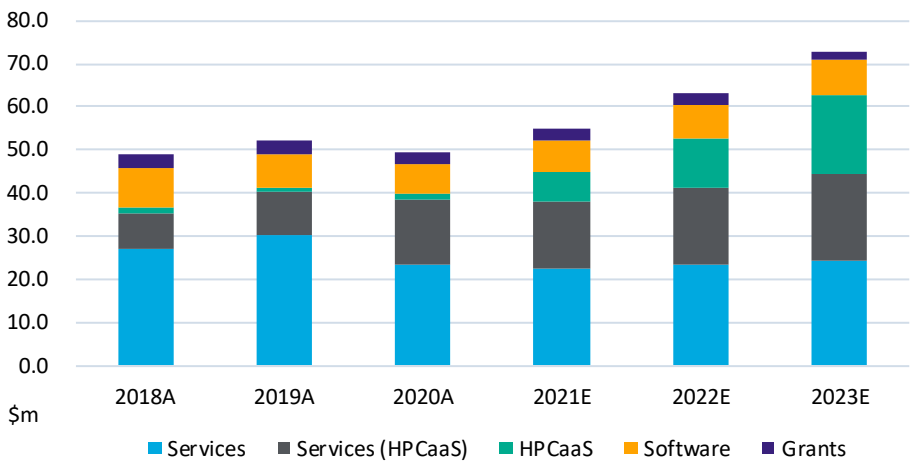
A profitable and differentiated business

DUG believes it is one of the largest proprietary seismic processing and imaging (graphically evaluating subsurface conditions through the use of sound and reflection) services providers globally. With a strong presence in Oil & Gas, DUG is expanding its offerings into new markets, utilising its highly skilled workforce, global infrastructure and R&D capability.

- Over the past six years, DUG has generated cUS$68m of EBITDA.
- DUG generated FY20 revenue of US$49.4m (down 5.2% from FY19) EBITDA of US$9.2m (down 6.4% from FY19), impacted by COVID-19 related weakness in the final quarter.
- The client base is broad-reaching in nature, totalling 239 software and service clients in FY19.
- In recent years, DUG's growth has been crimped by difficult operating conditions in the Oil & Gas industry. We believe the company has executed well through this period, as demonstrated in Figure 5, and prior to COVID-19 was on track to deliver close to double-digit revenue growth for FY20.

With a foundation in applied physics and a highly skilled workforce, DUG is working to complement this with compute- and storage-based offerings. We expect the mix will change meaningfully over time, driving margin growth and improved earnings quality.

Figure 6: Revenue mix; the business mix is shifting towards compute and storage (HPCaaS)



Source: Company reports, Canaccord Genuity estimates

DUG McCloud, a platform that allows clients to mix and match its use of HPC, services and software, has the hallmarks of a differentiated and disruptive offering, in our view

We believe management has taken a considered approach to developing its own IP and is now in a position to capitalise on what it considers to be promising indications of demand across many use cases.

The company has a deep understanding of HPC, covering compute, computer room design, operating systems, monitoring systems, network and storage requirements. Combining this with its highly skilled workforce (c.125 physicists, mathematicians, engineers and computer programmers) and software tools allows for meaningful differentiation to competitors.

End-market positioning: Diversification agenda underway

Interest in HPC has grown markedly in recent years, in our view, as has the extent of use cases in the market outside of the Oil & Gas industry. DUG has experienced significant interest from counterparties in the radio-astronomy industry and early success has been achieved with a key project in this field. DUG is also seeing interest within the biomedical, genome, COVID, DNA sequencing and weather forecasting use cases.

Some context on the use cases of HPC is detailed below:

- Biosciences and medical research
- Business use cases (e.g. fraud detection, smart energy grids and manufacturing simulation analysis)
- Genealogy
- Geographical data
- Meteorology (climate modelling)
- Oil & Gas exploration
- Radio-astronomy

DUG has achieved early success in Radio-Astronomy through its work with the Square Kilometre Array (SKA) project and the International Centre for Radio Astronomy (ICRAR).

- The SKA project is an international effort to build the world's largest radio telescope, with sites in Western Australia and South Africa. The project has a multi-billion-dollar budget and will require computing requirements in excess of 100 petaflops (skatelescope.org).
- SKA has been capturing data using the Murchison Widefield Array (MWA) telescope for two years, amassing a backlog of data. This data has been sent to the Pawsey Supercomputing Centre (PSC) in Perth.
- DUG was asked to review and process this data. Having worked on academic code used to process the MWA data for two weeks, DUG achieved run-times that were 125x faster than those at PSC.
- It also allowed a team from the International Centre for Radio Astronomy (ICRAR) to process its data backlog in a day, using one-fifth of DUG's Perth HPC system. The ICRAR team had previously managed to process a sixth of its total backlog over a two-year period.
- DUG is confident that this collaboration is set to deliver transformational changes to the industry.

We view end-market diversification as an important factor of success for the company. Proving out multiple end-market use cases and limiting exposure to the volatility of the Oil & Gas industry is important for investor sentiment and valuation considerations, in our view.

DUG has been in discussions with, and has completed work for, the following companies and institutions.

- Biotome: A medical diagnostics company
- CSIRO: Australia's national science agency
- Curtin University: A leading Australian university
- ICRAR: An astronomical science company linked to the SKA program
- Lommers Engineering: A Perth based engineering consulting business
- Murdoch University: A leading Australian university
- Harry Perkins Institute: A medical research centre
- UNSW: A leading Australian university

What is DUG looking to achieve with HPCaaS and DUG McCloud?

DUG has an innovative hardware, software and services solution that is able to manipulate large and complex data sets into usable outcomes. Having reinvested profits into the business historically, new funding was required to step up the scale of the computing infrastructure to fully capture the opportunities management believes is at hand.

The build of a large and fit-for-purpose facility in Houston was the first stage in this process, and this commenced roughly two years ago. The facility is live with installed capacity of 11.0 PF. Another 9.9 PF of capacity has been purchased and is currently being installed. This can be scaled up further to 150.0 PF of compute capacity (expected to draw 15 MW of power), and ultimately could become an exascale (1,000 PF) facility, according to management.

Key points to note:

- The Houston facility opened in May 2019, which precipitated further substantial client interactions and in management's view validated the market interest and opportunity ahead.
- It also provided learnings around the sales cycle of this unique offering. We perceive the sales cycle to be more complex than the company had initially thought but nonetheless see this as a timing related concern.
- **Through our scenario analysis, we aim to demonstrate the potential scale and earnings leverage on offer. It is worth mentioning that even under our bull case scenario, we do not reach the 150.0 PF level referenced above before FY30E (our last year of modelling).**

The capital raised through the pre-IPO Convertible Notes (A$18.2m), IPO Equity Raise (A$26.0m) and the company's Loan Funded Share Plan (A$10.5m, funds to be received on the earlier of divestment of the shares or loan maturity) provides significant financial flexibility into the medium term. We believe this capital is comfortably enough to see the company through our scenarios, with operating cash flows aiding as well.

- Funding will allow DUG to more than double its compute and storage capacity, not considering operating cash flows.
- We expect the largest spend to be on compute, followed by storage and network expansion.
- Over time, we see the company potentially adding more capacity in other locations, for example in Perth, as demand allows and depending upon client location mix.

We expect DUG will ramp up HPCaaS capacity in a measured manner to ensure a level of capacity is always available for sale. Albeit, in the immediate term the company has ordered a large amount of compute and storage (as referenced in the prospectus) that has now been delivered, is currently being installed and will be paid for in FY21E.

We believe it is important for DUG to have funding available for large opportunities as they present themselves. We posture that any investment greater than our forecasts will likely be funded through a combination of debt and equity.

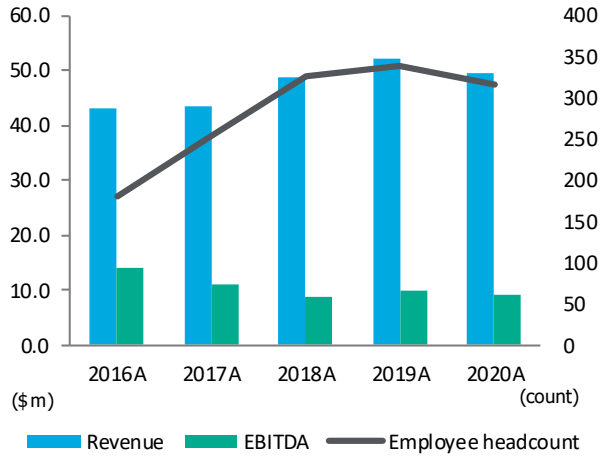
Brief financial overview

Through the oil price downturn commencing in FY16, DUG elected to grow its headcount from around 200 FTEs to a peak of nearly 340 by FY19. This coincided with meaningful capital expenditure on its data rooms and compute capacity. In FY19 and FY20, the company ramped up operating expenditure on the HPCaaS offering, which was a cUS$4m headwind to FY20 EBITDA.

As a result of this reinvestment, DUG believes it has become the largest proprietary seismic data processor in Australia, the largest land processor in the US and the third-largest seismic data processor globally. With HPCaaS in its early stages of commercial execution, we believe the company is well placed to capitalise on a broad spectrum of opportunities across multiple end-market sectors.

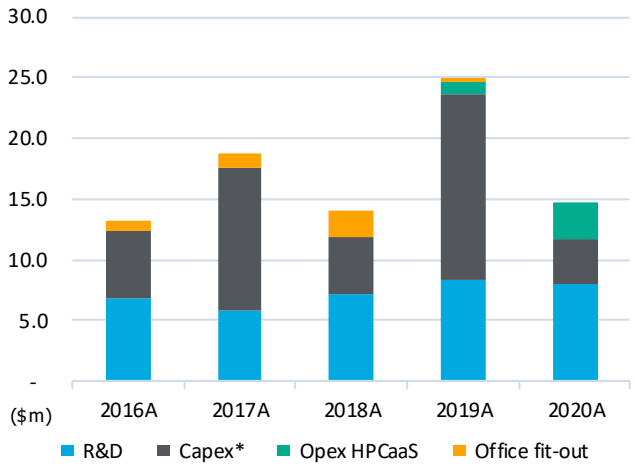
During the March-June 2020 period, DUG experienced a disruption in its growth momentum. With impacts emanating from COVID-19 and the oil price downturn, computer utilisation fell to 76% utilisation in May 2020. This recovered to in excess of 90% by the end of June 2020.

Figure 7: Revenue, EBITDA and employee count over time



Source: Company reports

Figure 8: Investment into R&D and HPC capex over time



Source: Company reports

Short term incentives provide a guide to expectations, in our view

With an uncertain short-term operating environment emanating from COVID-19 and no quantitative guidance in place, we refer to the company's incentive scheme for a reference point.

An Employee Incentive Scheme has been implemented whereby 20 key employees have been invited to participate in the program for FY21.

- Executive remuneration will be split 60% fixed, 20% Short Term Incentive (STI) and 20% Long Term Incentive (LTI).
- STI comprises three annual and independently assessed hurdles:
  - Revenue growth 20% weighting
  - EBITDA margin 45% weighting
  - Personal target 35% weighting
- LTI comprises two key performance hurdles that vest over three years.
  - Increase in total shareholder return (50%)
  - Earnings per share (50%)
- The LTI hurdles will be assessed on 30 June 2023, with the incentives providing for no more than 168,510 shares under the FY21 plan.

The tables overpage summarise the base, median and stretch targets for these incentives.

Figure 9: STI targets for FY21

	Base	Median	Stretch
Revenue growth	10%	20%	30%
EBITDA Margin %	21%	23%	25%
% earned	**50%**	**100%**	**150%**

Source: Company reports

Figure 10: LTI targets covering a three-year vesting period

	Base	Median
Total shareholder return	150%	325%
Earnings per share	125%	250%
% earned	**50%**	**100%**

Source: Company reports

Having regard for the STI targets, recent contract wins and the past five-year trading history, we have aligned our FY21E forecasts towards the base criteria. That is, we expect the company to grow revenue by 10.8% in FY21E with a 21.1% EBITDA margin. We then expect revenue growth to accelerate to a c.15% CAGR over the next four years through to FY25E, also allowing for meaningful operating leverage.

Under our bull case, we assume DUG achieved the median criteria in FY21E and then grows revenue at a c20% CAGR over the next four years.

Under our bear case, we assume DUG delivers a broadly flat FY21E and then grows revenue at a c10% CAGR over the next four years.

More information is contained in the Scenario analysis section.

HPCaaS is the predominant growth driver

HPCaaS is the use of supercomputers and parallel processing techniques with the aim of solving complex computational problems. Providing this 'as a service' across four distinct regions is the premise for DUG's HPCaaS offering.

DUG provides a 'ready to use' HPC environment with support available for clients seeking substantial compute and storage capability. Selling reliable HPC cycles at competitive prices is the crux of the offer. An example of the workflow behind the HPCaaS solution is detailed below.

- Compute machines
- High-performance big data file system
- Job scheduling
- Custom DUG monitoring system
- Security
- High-performance network
- Data archive

For background context, software over recent decades has typically been written to operate on a processor (central processing unit or CPU) with the intention to compute single tasks at a time. This allowed the end user (e.g. a scientist) to understand and control their own algorithm. The advent of HPC uses a very different architecture, whereby parallel devices (KNL- or GPU-based machines) handle large computations that require complex programs and specialised coding skills to operate.

DUG has purposefully built teams of employees with this skill set that help clients run successful applications on DUG's HPC instances. There is also a numerical algorithm research team comprised of physicists, mathematicians and an engineer that provide support to clients. DUG believes this is a strong differentiator for it in the HPC market.

HPC market growing as use cases expand

Advancements in research, the adoption of cloud computing and expanding use cases in government, industrial and enterprise applications are driving interest and demand for computing and storage. More commonly discussed verticals of Artificial Intelligence and Machine Learning are at the forefront of this dynamic.

The HPC market and accompanying demand can be characterised in different ways, depending on definition and the point of measurement.

- Intersect360 Research, an HPC market intelligence firm, posture that global HPC market revenue reached US$39.0bn in 2019, growing by 8.2% over pcp. It expects a 3.7% contraction in 2020 due to COVID-19 and a rebound beyond this, with a five-year CAGR of 7.1% to 2024 (HPC market to reach US$55.0bn).
- CSO, a technology research firm, expects the HPC market to earn cUS$719bn by 2026, growing at a c25% CAGR from 2019 to 2026. This implies a starting point of cUS$151bn. They segment the market into technical and business computing, which separates applications and end users. For example, a University undertaking research versus a business conducting fraud detection.
- Demand may also be categorised by compute and storage. The latter has a much wider use case and definition. Mordor Intelligence, a business management consultancy, expects the global cloud storage market to reach US$170bn by 2025, growing at a c.25% CAGR.

The key players in Intersect360 Research's definition of the compute market are HPE and Dell EMC. These operators have a combined c.60% market share. HPE and Dell EMC also topped the storage segmentation by revenue.

Market verticals within HPC includes national agencies and research labs, biosciences, energy, financial services and product manufacturing, amongst others.

DUG's offering solves for pain points…

DUG has positioned HPCaaS and its DUG McCloud platform, which also incorporates its services and software solutions, at the forefront of their growth strategy. The proposition is supported, in the company's view, by highly reliable HPC cycles being offered at affordable prices.

By offering both hardware and software components, the company believes it is empowering 'scientists to focus on their science'. DUG will enable the HPC knowledge, skills, machine capacity and software stacks. Having the support component on offer is a differentiator vis-à-vis the hyperscale cloud providers.

Typical pain points for HPC users, according to IDC (a market intelligence firm) and X-ISS (an HPC solutions provider), are:

- Software: system management software may not be aligned to HPC computing needs.
- Storage access time: varies and is inconsistent between areal and access density.
- Support: There is a lack of support staff as well as support for heterogeneous environments, i.e. hardware and system software from different vendors.
- Efficient scheduler configurations: systems are cost effective provided they are managed and utilised to extract the maximum value.

Being able to leverage its software engineering capabilities (R&D, support and performance optimisation) is important, in our view.

Another pertinent point is that DUG's HPC systems are offered in a private and secure environment, an 'integrated cloud'.

…with a market leading price.

Services are typically offered under three tiers of deals:

- Committed nodes: available to the client as baseline compute all the time.
- Committed node hours per month: a client's jobs can be placed on machines as they become available, with preference over burst usage.
- Burst usage: opportunistic usage of available machines when required and when machines are available. The price point of burst usage is greater than that of committed nodes.

Garnering a clear view on pricing relative to competitors is difficult given consistency of product offering and information completeness. DUG believes its pricing is ~50% lower than that offered by the hyperscale cloud providers. Some example cases are:

- Monthly cloud storage pricing: does not include other fees.
  - Amazon Elastic File System (standard) price of US$0.30/GB-month (US$300,000/PB-month). Amazon believes this compares to US$0.77/GB-month for a self-managed cloud solution. A typical mix with Standard (20%) and Infrequent Access (80%) charges would result in a price of US$80,000/PB-month.
  - Google Cloud Filestore (standard) price of US$0.20/GB-month (US$200,000/PB-month).
  - Azure Files (standard HDD) price of US$0.069/GB-month (US$69,000/PB-month). Steps up to US$0.165/GB-month for Premium.
  - DUG McCloud HPC storage price of US$21,000/PB-month.
- Cloud compute pricing comparison: unlikely to be truly comparable given different hardware, virtualisation usage and other variables.
  - AWS (US East, GPU instance, NVIDIA Tesla v100) price of US$3.06 per node hour (on-demand) and US$1.13 per node hour (three-year committed).
  - Google (US Central, GPU instance, NVIDIA Tesla v100) price of US$3.02 per node hour (on-demand) and US$1.35 per node hour (three-year committed).

- Azure (US West, GPU instance, NVIDIA Tesla v100) price of US$3.06 per node hour (on-demand) and US$1.16 per node hour (three-year committed).
- DUG McCloud (Houston, KNL node) price of US$0.75 per node hour (on-demand) and US$0.50 per node hour (three-year committed).

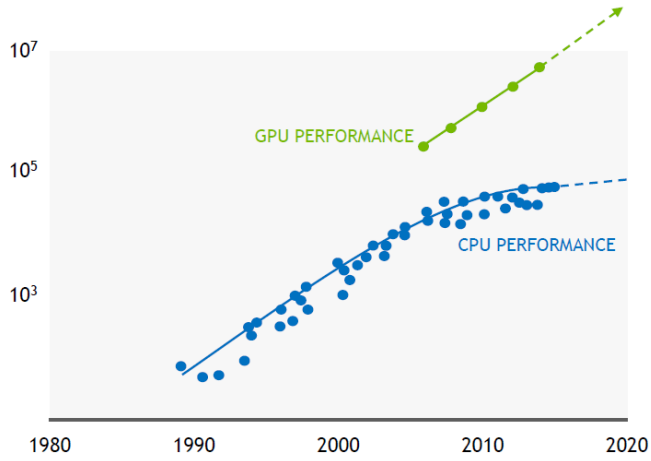
Case study: NVIDIA

NVIDIA Corporation (NVDA- NASDAQ: US$573.86 | Not Rated), a pioneer of graphics processing units (GPUs), is a leading hardware and technology player in the HPC market.

- The company generated US$10.9bn revenue in FY20 (January YE). After stepping into the data centre market in 2016, the company generated US$3.0bn in sales in FY20, delivering a 53% three-year CAGR.
- Within its Data Centre division, the company discusses multiple secular growth drivers including adoption of AI in every major industry and rising compute needs being unmet by conventional approaches. **2Q20 data centre revenue grew 167% yoy (14% benefit from acquisition), showing acceleration over recent periods.**
- The company is a leading supplier to major cloud computing players and thousands of enterprises and its equipment is used in five of the top 10 and 136 of the top 500 fastest HPC installations globally.
- In a March 2019 presentation, NVIDIA canvassed what they consider to be the HPC market for hardware servers.
  - US$37bn market in 2018, with NVIDIA having addressable access to a portion of this market. Whilst not specifying where they expect the HPC market itself to grow to, NVIDIA expects to have a US$50bn addressable market by FY23.
  - End markets are deemed to be roughly split evenly between Enterprise, Hyperscale and Scientific Computing end market.
  - Common workloads currently include scientific computing, data analytics and artificial intelligence. The adoption of data science and machine learning are the key opportunity sets ahead, in NVIDIA's view.
- NVIDIA HPC technology has seen a three-fold increase in performance (time to solution) over the period 2017-19. Benchmark applications tested include climate, genomics, molecular dynamics and materials science amongst others.

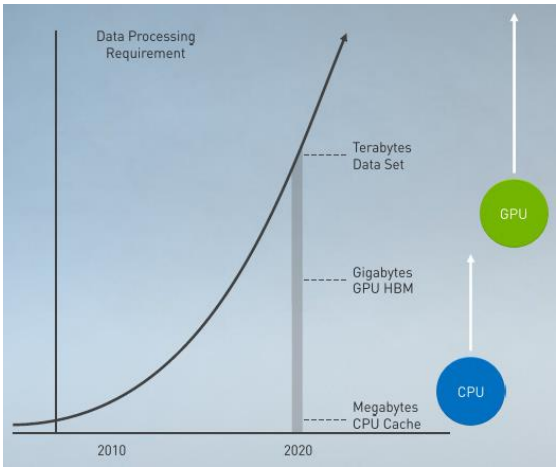
The graphics below emphasise the importance of GPU computing to data processing.

Figure 11: GPU performance is leading computing advancements in the post-Moore's Law era



Source: NVIDIA

Figure 12: Machine Learning is driving exponential growth in data processing requirements, supported by GPU-based computing



Source: NVIDIA

What makes DUG HPC different?

HPC 101

HPC systems are typically a cluster of computers working together, at the same time and built for purpose to process data and perform complex calculations at high speeds.

One of the most common HPC solutions is the 'supercomputer', a system containing thousands of compute nodes (a physical device) that work together to complete one or more tasks.

- The measure of 'what is an HPC system' historically started with one teraflop or 10^12 floating-operations per second, i.e. 10,000,000,000,000 calculations per second.
- In more recent times, a petaflop (PF) has become commonplace (10^15). For reference, the largest supercomputer in the world has, for the last two years been c.200 PF (Summit supercomputer in the US) but has been overtaken by a Japanese system posturing peak speed of 514 PF.
- To put this into perspective, a laptop with a 3GHz processor can perform around three billion calculations per second. HPC solutions can perform quadrillions of calculations per second (10^15).
- Large systems are typically custom built and operated in-house by the end user at a significant cost. For example, the 2018 upgrade to the Summit supercomputer (sponsored by the US Department of Energy) cost c.US$200m.

HPC solutions have three main components: compute; network; and storage.

Figure 13: Typical HPC system setup

Source: netapp.com

A distinction needs to be made from data centres, which are typically landlords with co-located clients who are operating their own server infrastructure for day-to-day operations and simple compute outcomes.

HPC systems can be deployed on premise, at the edge or in the cloud and are used for a variety of purposes across multiple industries. There are also outsourced HPC offerings from the likes of Amazon Web Services and Microsoft Azure.

HPC systems are typically used by governments, academic institutions and scientific researchers for special projects, looking to solve the world's most complex computational problems. This includes engineering simulation, genomic mapping, insurance risk management portfolio optimisation and weather modelling.

DUG has a differentiated and proprietary system build as well as having full control over the data room, infrastructure and user experience. Vendors such as Cray, a subsidiary of Hewlett Packard Enterprise, typically manufacture systems for sale to third parties.

Figure 14: DUG Bruce system (Perth)

Source: Company reports

Figure 15: Cray XC50 system

Source: Cray

Notable public use systems according to www.top500.org include:

- Summit: Developed by IBM and based in the United States at Oak Ridge National Laboratory, sponsored by the US Department of Energy. The system is capable of c.200 PF compute and was the world's fastest supercomputer between November 2018 and June 2020 (top500.org).
- Sunway TaihuLight: Based in China at the National Super Computer Centre in Wuxi. The system is capable of c.125 PF compute and was installed in June 2016.
- Piz Daint: Developed by Cray Inc. and based in Switzerland at the Swiss National Supercomputing Centre. The system is capable of c.27 PF of compute.

Australia has two notable supercomputers:

- NCI Australia placed at 25 on the TOP500 list of supercomputers and is funded by ANU, CSIRO, Bureau of Meteorology, Geoscience Australia and ARC. The system is capable of c.15 PF and has been funded with c$210m since 2006.
- Pawsey Supercomputing Centre is a government supported HPC facility located in Perth. In 2018 a further c$70m in funding was made available to refresh its infrastructure.

Oil & Gas majors tend to have some internal HPC capability, the extent to which is hard to gauge given limited public information. Example cases of more progressive operators, BP and Total are briefly summarised below.

- BP internally operates the largest Oil & Gas supercomputer. The system was ungraded in December 2017 and is based in Houston. At the time, it had compute power of roughly 9 PF and 30 PB of storage.
- Total internally operates a large Oil & Gas supercomputer called Pangea. The system was upgraded in January 2016 and is based in Pau (France). At the time, it had compute power of roughly 7 PF and 29 PB of storage.

DUG HPC's are 'green' – PUE is a key competitive advantage

DUG operates its HPC facilities and has ultimate control over the computer room facilities. Importantly, these have been built by DUG with its own IP and have some differentiated and market-leading traits.

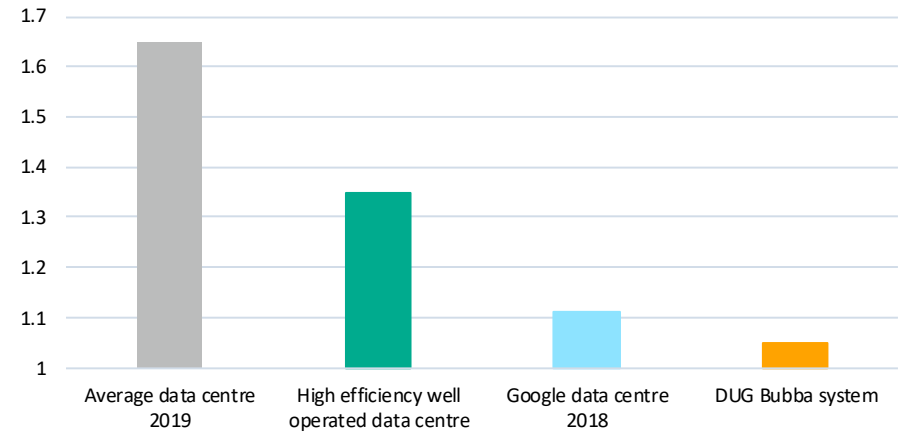
- Hardware and related components (such as network links) can be deployed at a very large scale. This should become more evident as Houston builds out capacity and steps towards its Data Hall 2 capacity of 150 PF.
- The level of storage offered has been tailored for seismic and its metadata (typically requires more storage than normal workloads). Data can be placed on multiple sites with archives available.

- DUG applies a novel approach to cooling its HPC systems. This includes utilising heat exchangers and placing the computing equipment in tanks. The systems are then immersed in a dielectric fluid that has very significant advantages over the thermal effectiveness of air (>1,000x) and this in turn reduces the failure rate of equipment and extends their life.
- The result of this, and the other elements of DUG's system builds, it achieves a remarkably low Power Usage Effectiveness (PUE) rating. Monitoring of DUG's Bruce system has averaged 1.052 since November 2019. This suggests 46% power cost savings relative to an average data centre (Uptime Institute, 2019).

The point about PUE is particularly interesting and is a key competitive advantage, in our view, especially given increasing environmental consciousness.

PUE is a ratio that describes how efficiently a data centre uses energy. More specifically, how much energy is used by the computing equipment relative to the total amount of energy used by the whole facility. For example, if a PUE is 1.5x, then the facility is using 1.5x the amount of energy required to run the standalone computing equipment. Thus, the lower the ratio, the more efficient the facility.

Figure 16: PUE comparison; DUG stands out, even relative to Google data centres



Source: Company reports, Canaccord Genuity

Traditional data centres use air cooling (air conditioning) to keep the computer rooms at a given temperature (e.g. 16 degrees Celsius). A normal range for PUE in such data centres would be 1.3x – 2.0x. By utilising its DUG Cool patented technology, DUG operates its facilities at substantially more efficiency than the broader market and in effect has a much lower cost to operate, when considering electricity costs as a standalone factor.

Compute: the horsepower behind the scenes

DUG has four HPC systems connected via a global network. Compute capacity totals 19.0 double-precision petaflops (PF) with an additional 10.1 PF that has been ordered and is currently being installed.

- Bruce (Perth) is DUG's original installation and is one of the biggest supercomputers in the Southern Hemisphere (PESA, 2019).
  - 4.8 double precision petaflops compute, with another 0.2 PF being installed
  - 5.8 petabytes of storage, with another 2.0 PB being installed
  - Bruce contains 1,700 processors, eight GPU machines and eight CPU machines and draws 1MW of power.

- Bubba (Houston) is DUG's largest installation, with a large building footprint capable of 150 PF (Data Hall 2) and potential for an exascale (1,000 PF) facility on adjoining land.
  - 11.0 PF compute, with another 9.9 PF being installed
  - 13.2 PB of storage, with another 5.0 PB being installed
- Bodhi (Kuala Lumpur)
  - 3.0 PF compute
  - 4.1 PB of storage
- Bazza (London)
  - 0.2 PF compute
  - 1.7 PB of storage

Revenue has historically been broadly shared across the four regions, with workloads and employees able to be scaled depending on the level of work being undertaken in any given region. In FY19, for example, Perth accounted for 34% of revenue, London accounted for 27% whilst Houston and Kuala Lumpur equally shared the balance (19% and 21% respectively). We believe this mix is likely to meaningfully shift towards Houston over time.

Houston facility in more detail

The Houston facility has been earmarked as the primary location for capacity expansion. DUG commenced planning and build out of the facility in CY18. It is a purpose-built facility and has notable advantages over other jurisdictions.

- The current 20.9 PF of compute capacity (including capacity currently being installed) can be built out to 150 PF within the existing building footprint.
- Infrastructure funding was provided by CBA via a term debt facility. The capital raised through the IPO will fund our expectations for capacity growth over the next decade. We anticipate future funding requirements in excess of our expectations will come from a mixture of debt and equity sources.
- The facility is connected to a 400 MW power substation with dual feeds from the site. For context, the wholesale electricity market in Western Australia has an average demand of 2,000 MW and peaks at 4,000 MW during summer.
- The Houston facility is expected by management to use 15 MW of power under a 150 PF scenario.
- Additional land (10 acres) is available on site if required. A design is in place to build an exascale facility (1,000 PF) utilising the acreage on site.

The Houston (Bubba) facility won the 2019 Data Centre Dynamics (a data centre industry news and analysis resource) Enterprise Data Centre Design Award, recognising innovation in data centre design within the enterprise space.

A large Australian facility is an expansion option

As DUG expands its client base in Australia, there may be a need for a large HPC facility in-country. This would allow compute and storage to remain in-country, a requirement for some prospective clients.

A site in the Perth/Geraldton region of Western Australia is being considered but is yet to be decided upon. The construct would be very similar to DUG's Houston facility but would also incorporate green power to complement the efficient PUE. The centre is likely to have an initial room for 150 PF with exascale expansion potential.

Competitor analysis

Within the Oil & Gas sector, and with respect to DUG's Services business, its main competitors are CGG, ION Geophysical, PGS ASA and Schlumberger NV. CGG and Schlumberger NV are the largest players by an order of magnitude.

Outside of the Oil & Gas sector, and more specifically to HPCaaS for the use cases referenced above, the competitive dynamics become less obvious, and more subjective. DUG has conducted its own competitor analysis across the six variables it believes are the most important when considering the HPCaaS market. These are:

- **Security:** Takes into consideration infrastructure security, the use of a public IP address and the level of administrative responsibility for the virtual machines. If security is left in the hands of the user, DUG considers this to be an issue, as is the use of shared hardware.
- **AU HPC:** Considers data sovereignty where many organisations in Australia prefer or require their data to remain in-country. This is a reference for the Australian market only.
- **Native HPCaaS:** Reflects if the user is responsible for all or some of the environment themselves or whether a fully-founded HPC environment is provided.
- **HPCaaS onboarding support:** Seeks to understand the level of support for HPC services and applications that is specifically provided. All vendors provide basic support for the use of their infrastructure in a generic way.
- **Algorithm development:** Explores scientific or engineering-based algorithm and software development capability. As far as DUG is aware, none provide this capability.

The cloud computing market is serviced by dozens of operators, the larger, more recognised being Amazon, Google, Microsoft and Oracle.

Figure 17: Competitive analysis according to DUG, with support and algorithm development key differentiators

	Security	AU HPC	Native HPCaaS	HPCaaS onboarding support	Algorithm development
DUG McCloud	✓	✓	✓	✓	✓
Penguin	✓	✗	✓	✓	✗
Azure	✓ (✗)	✓	✗	✗	✗
AWS	✓ (✗)	✓	✗	✗	✗
Google	✓ (✗)	✓	✗	✗	✗
Oracle	✓ (✗)	✗	✗	✗	✗

Note: Under Security column, if the infrastructure security, the use of a public IP address and a virtual machine is left in the hands of the user, DUG considers this to be poor, hence both a tick and a cross.
Source: Company reports

The hyperscale cloud providers (e.g. Amazon and Microsoft) have extensive investments in hardware to suit most use cases in the market, from consumer offerings through to HPC instances. These offerings are no doubt successful and competitive in the marketplace. What they lack is support in what we consider to be a more 'do-it-yourself' approach. This is one area DUG observes differentiation: support and the scope for algorithm development.

Price is another area worth considering and is discussed in more detail in the previous section.

Whilst we consider their offerings to be non-standard relative to DUG, other HPC competitors, for reference are:

- Northern Data (NB2-DE): builds HPC infrastructure solutions.
- R Systems Inc: provides HPC resources utilising third party infrastructure.
- S-Cube: provides HPC resources to the O&G industry utilising third party infrastructure.

Oil & Gas: A substantial user of HPC

Application of HPC systems to use cases in Oil & Gas has been prevalent since the early 2000s. The industry was an early adopter of HPC given the high-risk nature of new asset discovery. The financial payoff from discoveries and the need to efficiently utilise reserves makes HPC a front of mind decision, in our view.

NetApp, a cloud data services company, categorises the benefits of HPC systems in Oil & Gas across increased success when drilling new wells; reduced time to analyse exploratory data; better-informed decisions; and cost-effective scaling of systems.

Oil & Gas operators have the choice to build systems and capability internally or to use services companies such as DUG. The extent to which they use internal and external capabilities for seismic data analysis varies markedly, with limited public disclosure typical.

Somewhat separated from HPC usage for seismic data analysis, but nonetheless a worthy discussion point, a Kimberlite survey in 2020 showed that 22% of operators in the Oil & Gas industry are using cloud computing and 54% are expecting to use it in the next two years.

The global exploration and evaluation services market is dominated by Schlumberger and CGG, both with what we consider to be at least 25% market share. Other providers are ION and PGS. We understand the top four providers account for around 75% of global market share.

We see the growth in HPC usage supported by cloud compute and storage adoption by Oil & Gas operators as a key driver to DUG's medium-term growth profile. This may fall within HPCaaS or DUG McCloud depending upon the client's requirements.

A full service offering

The probability of hydrocarbons is typically explored through capturing and analysing seismic data. DUG provides a range of services to the Oil & Gas industry, each of which has a particular use case. These cater for small-scale processing (e.g. quantitative interpretation models) to highly intensive processing (e.g. high-frequency full waveform inversion).

Examples of services offered include:

- Basin wide velocity model building: For example, 2D and 3D seismic surveys that tie-in all operating wells.
- Depth imaging: For example, fault constrained, high resolution reflection tomography, full waveform inversion, amplitude preserving Kirchhoff migrations, and least squares reverse time migration.
- High frequency full waveform inversion (HF-FWI): Utilises the entire seismic wavefield to generate refined, high-resolution velocity models for images and characterisation. This is a cutting-edge technology that requires substantial HPC compute.
- Seismic data processing: For example, streamer, land and ocean botto nodes with 2D, 3D and 4D images and characterisation.
- Petrophysical processing and interpretation: Includes remedial and interpretive work for small scale operational through to regional studies.
- Quantitative interpretation services: For example, rock physics, AVA inversion, stochastic inversion, probabilistic lithology and fluid prediction.

Services are typically provided on a project basis which span in duration from a couple of months to 12+ months depending on the nature and volume of data to process and interpret.

In FY19, DUG had 239 Services and Software clients.

Figure 18: Selected Oil & Gas clients

National oil companies	Equinor; Inpex; Pemex; Petrobras; Petronas
Super majors	BP; Chevron; ExxonMobil; Shell; Total
Large independents	Apache Corporation; Continental; GeoPartners; Repsol; Santos
Multi-client	AGS; Geoex; Silverthorne Seismic; Spectrum; TGS
Australian operators	Beach Energy; Carnarvon Petroleum; Cooper Energy, FAR Limited; Woodside

Source: Company reports

In conjunction with the above, and many other analysis services, DUG offers its proprietary software (DUG Insight) to users that want to interpret their own seismic data.

DUG Insight

DUG Insight is an interpretation and visualisation system that streamlines the user's workflow and experience when analysing scientific data.

The software suite was initially developed by DUG for its internal use to load, process, image, visualise, invert and interpret seismic data on client projects. In 2009, the company began licensing the interpretation modules to interested clients. DUG Insight is now being used by 159 clients in 30 countries.

Following the launch of the DUG McCloud platform, all modules have been made available for client use, including the core processing and imaging functionality.

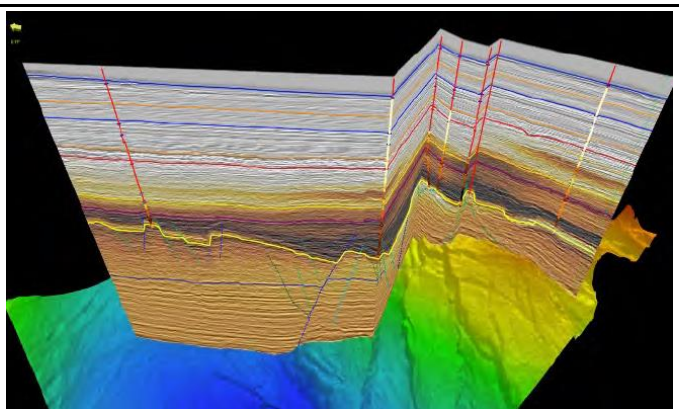
DUG Insight is an integral part of the DUG McCloud platform, forming the important software component that, in our understanding, is not offered by some HPC competitors and can't be matched by others. Ultimately, having a fully functioning signal processing and visualisation system is an important component for any Oil & Gas project workflow.

The Software business unit is a small but meaningful contributor to the Group, generating pro-forma revenue of US$6.8m in FY20 with an additional US$2.5m of other income earnt in grant funding.

The contraction in revenue in recent years is the result of volume reductions from a key customer. This headwind has largely played out with revenue now predominantly comprising per user charges.

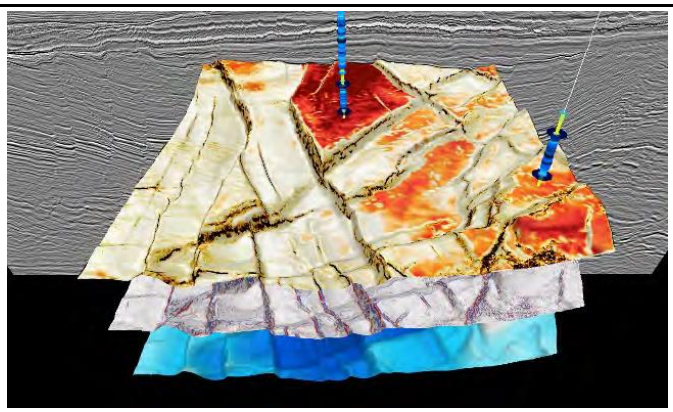
Examples of output form work undertaken in DUG Insight is provided below.

Figure 19: DUG Insight example analysis



Source: Company reports

Figure 20: DUG Insight example analysis



Source: Company reports

Use case example: High frequency full waveform inversion

Computational ability and underlying algorithms are used to process data, the scalability and accuracy of which affects the project timeframe and ultimate image quality.

High frequency full waveform inversion (HF-FWI) is a challenging data-fitting procedure based on full-wavefield modelling to extract quantitative information from seismograms.

DUG believes correct application of this technology can produce superior images in shorter timeframes and has spent around four years developing a new software stack (which includes the HF-FWI capability) in a joint project with Intel to bring its version of the technology to market. Between 12 and 15 R&D specialists worked on this initiative at any one time, with Intel funding three-quarters of the development cost.

The company believes there is a potential 'leapfrog' event stemming from opportunities driven by this research and product design tool set.

HF-FWI in more detail:

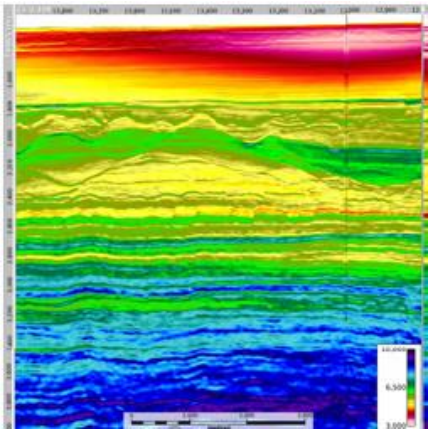
- HF-FWI is a high-resolution seismic imaging technique that uses the entire content of seismic traces that extracts the physical parameters of the medium sampled by seismic waves.
- Highly detailed models provided by HF-FWI can be used to resolve complex geological features. The models also aid in identifying potential geo-hazards.
- With more accurate subsurface images, a much higher degree of confidence can be built around reservoir delineation and well planning.
- This technology is not novel but is typically out of reach to the broad market from both a software and hardware perspective.

Examples of public statements on HF-FWI include:

- In 2019, ExxonMobil attributed its Guyana and Nigeria successes to HF-FWI.
- In 2019, BP found an extra billion barrels of oil in the Gulf of Mexico using HF-FWI (Reuters).
- In 2018, DUG helped Quadrant Energy and Carnarvon Petroleum discover Dorado using HF-FWI.

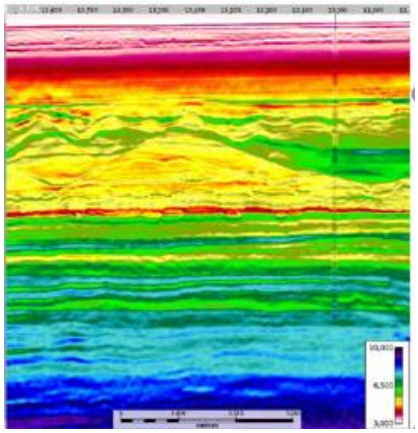
The following images depict two versions of the same input dataset, with the right image providing a much more granular output. According to DUG, this output can be achieved with an order of magnitude less wall-clock time and human-time but requires two orders of magnitude more compute cycles.

Figure 21: Image produced using a traditional seismic processing and imaging workflow



Source: Company reports

Figure 22: Image produced using a high frequency full waveform inversion workflow



Source: Company reports

Given the significant step-up in HPC requirement and the readiness of the accompanying software toolset, we see HF-FWI as one of DUG's key growth drivers. With the funding certainty afforded by the recent capital raising and the clear intention to build HPC compute in line with client demand, we expect DUG will market this product in a more meaningful manner going forward.

Detail on ExxonMobil's public commentary on HF-FWI whilst limited, potentially due to market sensitivity, is insightful.

- "In most published FWI studies, only the lowest frequency portion of the data (less than 10 Hz) is inverted, resulting in low-resolution models. At ExxonMobil, we have run FWI on 3D seismic surveys using much higher frequencies, generating high resolution models of the subsurface. The improved imaging and reservoir characterization provided by FWI has quickly translated to improved results in the field." (ExxonMobil, 2020)
- "ExxonMobil continues to leverage and enhance its next-generation subsurface imaging technology, Full Wavefield Inversion (FWI), to significantly improve subsurface imaging, prediction, and resource characterization." "Over the past two years, ExxonMobil's FWI workflow has become three times faster through increased workflow efficiency and integration of key imaging technologies." "ExxonMobil's investment in state-of-the-art seismic acquisition and imaging technologies continues to extend our competitive advantage and enable the delivery of attractive resources." (ExxonMobil, 2016).

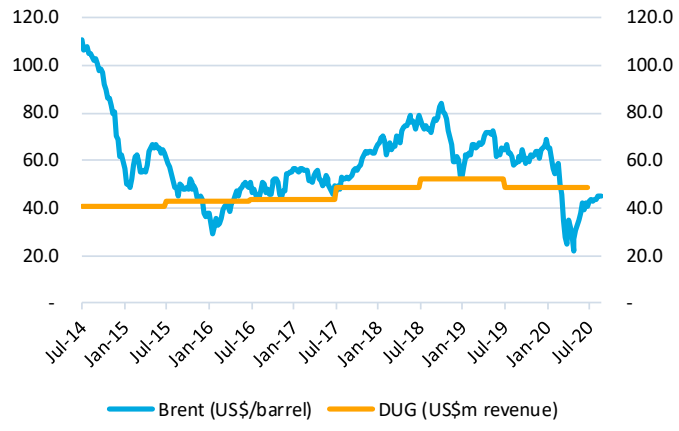
Oil price considerations

DUG is exposed to movements in oil usage and pricing. The business has shown defensive characteristics during periods of volatility. This was the case across the FY14-16 period, following the sharp oil price downturn commencing in CY14. One reason is that operators can turn to reprocessing of legacy data using new technology to improve the image quality and insights of existing assets.

In more recent times, DUG noted a softening in 4Q20 demand, which it considered to be a delay in commencement of new services projects as a result of both the oil price downturn and COVID-19. In the four months to April 2020, US$12.8m of projects were awarded, leaving a backlog of orders of US$21.0m.

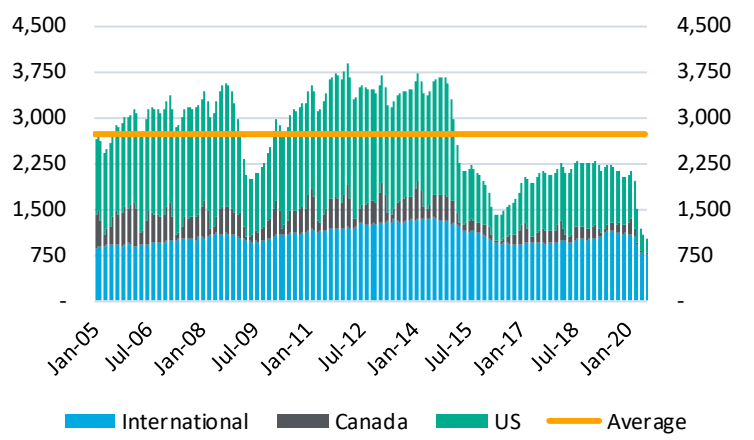
The following charts convey discussion points around: historic oil prices and rig counts as well as current demand and futures pricing.

Figure 23: Brent price versus DUG FY revenue over time; resilient characteristics through volatile periods, especially that of CY14-16 downturn



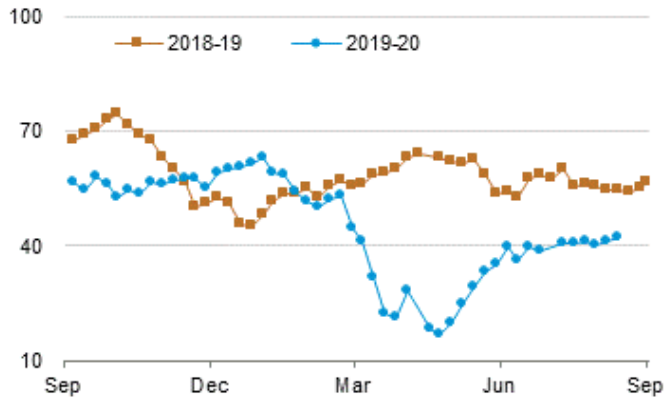
Source: IRESS, Canaccord Genuity

Figure 24: Global rig count is at levels below recent downturns, with the US market down c70% yoy and International markets down c35%. US market in downturn pre-COVID-19, contracting by c25% in 2HCY19



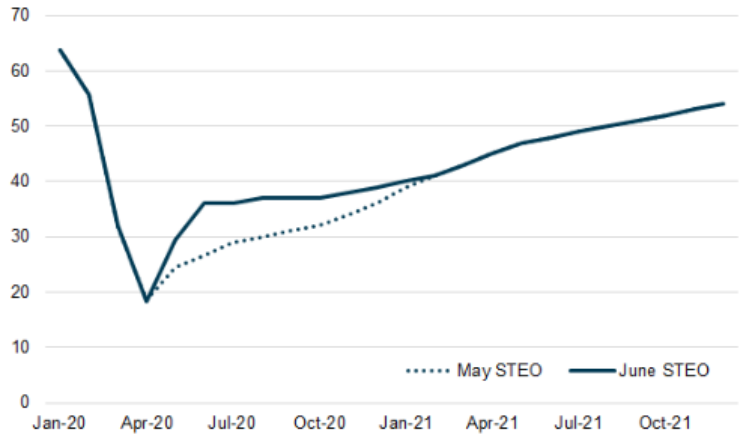
Source: Baker Hughes, Canaccord Genuity

Figure 25: Crude oil futures price contract (dollars per barrel); has recovered but still languishing near US$40/barrel



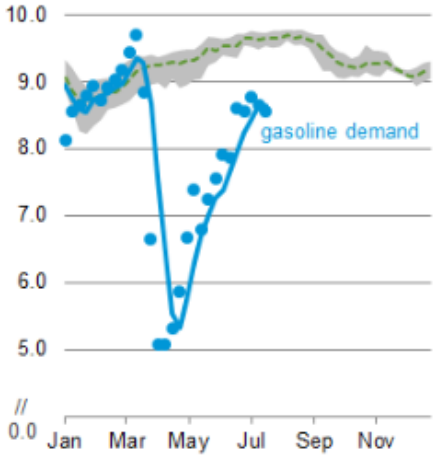
Source: US Energy Information Administration, New York Mercantile Exchange

Figure 26: Brent crude oil price (dollars per barrel); EIA forecasts an average US$37/barrel over 2HCY20 followed by an average US$48/barrel over CY21



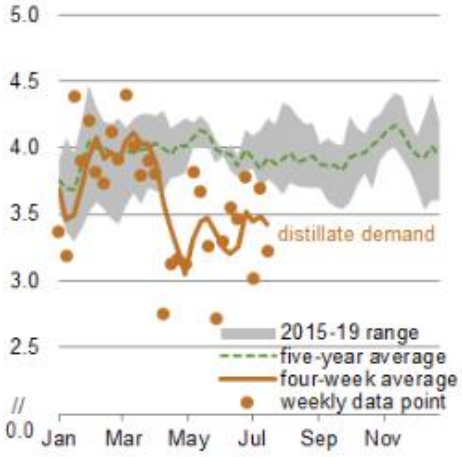
Source: US Energy Information Administration, Short-Term Energy Outlook, June 2020

Figure 27: U.S. gasoline demand (million barrels per day)



Source: US Energy Information Administration *as measured by product supplied

Figure 28: U.S. distillate demand (million barrels per day)



Source: US Energy Information Administration…*as measured by product supplied

Financial commentary

The trajectory of the business was impacted by COVID-19 over 2H20. Budgeted revenue for FY20 as of February 2020 was US$56.7m ended up being US$49.4m, or 13% below budget and 5% below pcp. The business had been positioning itself for close to double digit revenue growth in FY20.

Through FY19 and FY20, DUG invested cUS$4m in operating costs related to the scale-up and operation of the DUG McCloud platform. This was a meaningful weigh on FY20 EBITDA and operating margins, in our opinion.

The results presented in Figure 29 have been restated to incorporate the impact of AASB 16 Leases and applied from 1 July 2017. For clarity, and using FY19 as an example, the impact lifted EBITDA by $2.2m and EBIT by $0.6m. There was no impact on NPAT.

DUG reports its financials into three business units.

- HPCaaS: A 'ready to use' HPC environment with substantial compute, storage, support and proprietary software available.
- Services: Clients are provided with
  - Data loading, quality control and management services
  - Scientific data analysis services
- Software: Clients are offered
  - DUG Insight – a proprietary software package for scientific signal processing and visualisation
  - Software and algorithm support – necessary support for a client to successfully run an algorithm on DUG's HPC
- DUG's solutions can be delivered direct-to-client or via the DUG McCloud platform which allows clients to mix and match services and software to suit their needs.

Each business unit has markedly different EBITDA margin profiles, with some cross-unit charges that are eliminated on consolidation. Notably, the Services business uses compute to deliver processing and imaging to its clients which is charged as revenue by the HPCaaS business and charged as a cost of sale to Services.

We have tabled historical and forecast segment data below.

Figure 29: Segmental revenue and EBITDA

(June YE)		2017A	2018A	2019A	2020A	2021E	2022E	2023E
Revenue by Segment								
HPCaaS	US$m	0.0	1.6	1.1	1.4	6.9	11.7	18.3
Services *	US$m	34.4	35.1	40.2	37.6	38.0	41.0	44.4
Software	US$m	6.9	9.3	7.6	6.8	7.1	7.7	8.3
Other	US$m	2.4	2.9	3.1	3.6	2.7	2.7	1.7
Total revenue	**US$m**	**43.7**	**48.9**	**52.1**	**49.4**	**54.7**	**63.1**	**72.7**
Growth		1%	12%	7%	-5%	11%	15%	15%
* Includes HPCaaS charges	US$m	n.a.	8.0	9.9	15.0	15.8	17.7	20.3
EBITDA by Segment								
HPCaaS	US$m		4.7	5.1	7.5	10.4	13.7	19.3
Services	US$m		1.2	4.9	1.5	0.4	0.6	0.7
Software	US$m		3.1	1.9	0.8	0.7	0.9	0.1
Other	US$m		0.0	0.0	-0.6	0.0	0.0	-0.2
Total EBITDA	**US$m**	**11.1**	**9.0**	**11.9**	**9.2**	**11.6**	**15.1**	**19.9**
Growth		-21%	-19%	32%	-22%	25%	31%	31%
Margin		25%	18%	23%	19%	21%	24%	27%

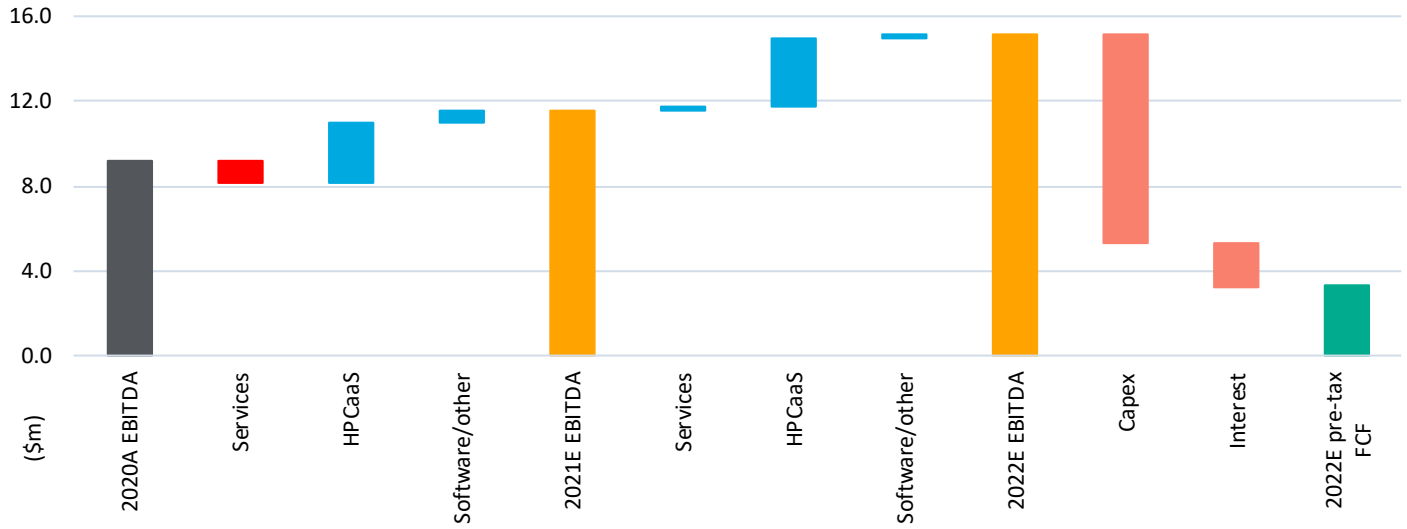
Note: FY20 uses pro-forma financials that were not updated with the preliminary Final Report released to the ASX on 27 August 2020 with minor adjustments made through 'Other' line items
Source: Company reports, Canaccord Genuity estimates

At a high level, our forecasts assume:

- DUG achieves the base criteria of its STI target. This can be simplified to c.10% revenue growth and delivery on a c.21% EBITDA margin.
- Stronger growth is achieved in FY22E, with revenue growth of c15% and allow for c300bps of EBITDA margin leverage.
- There is a substantial capex investment in FY21E (accounting for the already ordered compute and storage capacity), followed by lower capex in FY22E.

We provide a summary of the key movements through to FY22E and a financial summary in the figures below.

Figure 30: EBITDA bridge; we expect growth to be driven by HPCaaS



Source: Company reports, Canaccord Genuity estimates

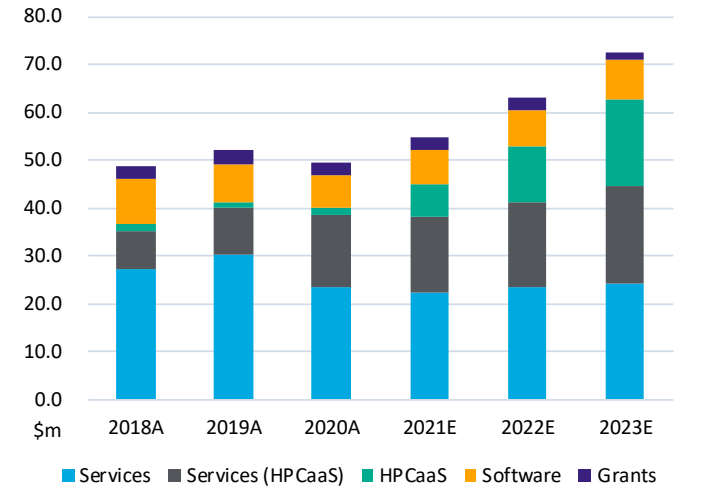
Figure 31: Financial summary; trajectory was promising pre COVID-19, we expect this to resume in FY21E and strengthen thereafter

(June YE)		2017A	2018A	2019A	2020A	2021E	2022E	2023E
Total Revenue	**US$m**	**43.7**	**48.9**	**52.1**	**49.4**	**54.7**	**63.1**	**72.7**
% Growth		1%	12%	7%	-5%	11%	15%	15%
Employee	US$m		-29.1	-29.6	-30.4	-32.5	-35.4	-38.0
IT facilities	US$m		-4.1	-3.8	-2.5	-3.8	-4.6	-5.3
S&M	US$m		-2.0	-2.0	-1.5	-2.4	-3.0	-3.8
Other opex	US$m		-4.6	-4.8	-5.7	-4.5	-5.0	-5.7
EBITDA	**US$m**	**11.1**	**9.0**	**11.9**	**9.2**	**11.6**	**15.1**	**19.9**
% Growth		-21%	-19%	32%	-22%	25%	31%	31%
% Margin		**25%**	**18%**	**23%**	**19%**	**21%**	**24%**	**27%**
D&A	US$m	-6.5	-8.3	-7.3	-9.2	-8.8	-11.1	-10.8
Net interest	US$m	-0.5	-1.5	-0.9	-6.8	-2.1	-2.1	-2.1
Tax	US$m	-2.8	-0.5	-4.3	-1.4	-0.2	-0.5	-1.7
NPAT (reported)	**US$m**	**1.4**	**-1.4**	**-0.6**	**-8.2**	**0.5**	**1.4**	**5.2**
NOCF	**US$m**	**11.2**	**2.0**	**8.6**	**4.3**	**10.5**	**13.0**	**16.3**
Capex	US$m	-13.0	-7.5	-15.9	-3.2	-17.8	-9.8	-18.2
FCF	**US$m**	**-1.8**	**-5.5**	**-7.3**	**1.1**	**-7.3**	**3.2**	**-1.9**
Share price (end of period)	A$					1.31	1.31	1.31
Shares on issue	m					99.5	99.5	99.5
Market capitalisation	**A$m**					**129.8**	**129.8**	**129.8**
Net debt (cash)	A$m					11.1	8.6	13.4
Enterprise value	**A$m**					**140.9**	**138.4**	**143.2**
EV/EBITDA	**times**					**8.8**	**6.6**	**5.2**
EV/EBIT	**times**					**36.9**	**24.6**	**11.3**

Source: Company reports, Canaccord Genuity estimates

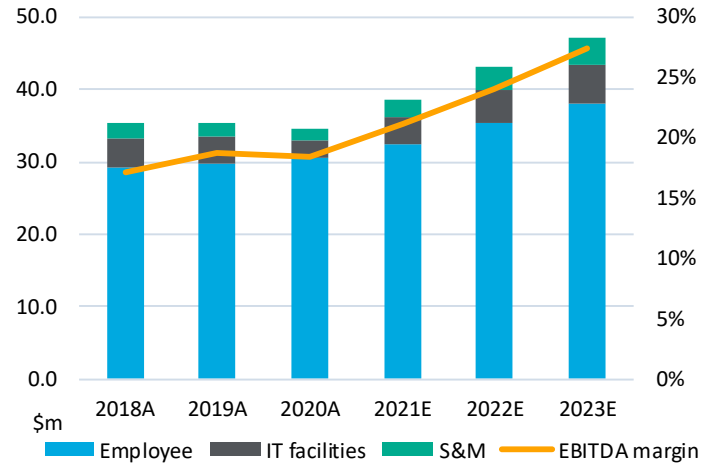
A summary of the key revenue and cost items is provided below.

Figure 32: Revenue breakdown; HPCaaS becomes a stronger contributor over time



Source: Company reports, Canaccord Genuity estimates

Figure 33: Cost breakdown; Employee cost expected to remain the largest item, however, significant margin leverage anticipated



Source: Company reports, Canaccord Genuity estimates

Following the IPO process, the balance sheet is in a sound position.

- Fixed assets of $22.8m comprises the net book value of compute, network and related assets. Intangible assets are negligible (R&D has been expensed as incurred).
- The US$24.2m of debt relates to the cost of the Houston facility construction and initial compute capacity and is predominantly CBA facilities, with a bullet payment of US$17.8m due in November 2021.
- Pro-forma (April balance sheet) cash was $29.4m. We expect net debt will be US$8.0m as at 30 June 2021.

With regards to tax, DUG has accumulated tax losses of c.US$37m that are largely the result of investment in infrastructure and compute with accelerated capital write-downs in its US subsidiary. These are held off balance sheet.

The company's corporate structure has inherent tax benefits as well.

- Income tax will comprise corporate tax rate applications across Australia (30%), Malaysia (24%), the UK (19%) and the US (21%).
- Through its Malaysian subsidiary, DUG has a temporary tax-free status in that jurisdiction for the period from 26 October 2016 through to 25 October 2026.

Valuation and scenario analysis

Valuation

Our 12-month price target for DUG is A$2.37/share. This is based on a DCF valuation which assumes a WACC of 10.4% (12.0% cost of equity, 20.0% debt to equity and terminal growth of 2.5%).

A valuation sensitivity for our DCF is tabled below.

Figure 34: DCF valuation sensitivity

		WACC				
$	2.37	11.4%	10.9%	10.4%	9.9%	9.4%
Terminal Growth	1.5%	1.83	1.99	2.16	2.35	2.57
	2.0%	1.91	2.07	2.26	2.47	2.71
	2.5%	1.99	2.17	**2.37**	2.60	2.87
	3.0%	2.08	2.28	2.50	2.75	3.05
	3.5%	2.18	2.40	2.64	2.93	3.26

Source: Canaccord Genuity estimates

For reference, at our target price, DUG would trade on a FY22E EV/EBITDA of 11.6x.

Scenario analysis

We have set out three scenarios, exploring the valuation impact from differing revenue and earnings growth rates over the coming five-year period.

Base case ($2.57/share): The current assumptions underpinning our forecasts and 12-month price target.

- We assume DUG adds 40 PF of compute capacity over the five-year period to FY25E. The implication is a 15% revenue CAGR. We assume in the order of 50% incremental EBITDA margins over the period, resulting in a 35% EBITDA margin in FY25E.

Bear case ($1.59/share): Is premised on a 9% revenue CAGR through to FY25E and allows for margin leverage, resulting in a 29% EBITDA margin in FY25E.

- We assume DUG adds 31 PF of compute capacity or c.6 PF per year and includes the 10 PF ordered in 2H20 and currently being installed.
- DUG has achieved EBITDA margins in excess of 30% historically (FY15 and FY16). We use this as a medium-term assumption under this scenario.
- We assume negligible free cash flow through to FY25E, which weighs on the DCF valuation.

Bull case ($3.72/share): Is premised on a 21% revenue CAGR through to FY25E and allows for meaningful margin leverage, resulting in a 40% EBITDA margin FY25E.

- We assume DUG adds 49 PF of compute capacity (to 68 PF in FY25E), more than tripling its FY20 base.
- EBITDA margins reach 40% by FY25E with incremental EBITDA drop through in the order of 54% over the period.

Figure 35: Scenario analysis; outcomes range from $1.59/share to $3.72/share

(June YE)		2019A	2020A	2021E	2022E	2023E	2024E	2025E
Base Case (5-year revenue CAGR 15%)								
Total revenue	US$m	52.1	49.4	54.7	63.1	72.7	85.6	97.6
EBITDA	US$m	11.9	9.2	11.6	15.1	19.9	28.2	34.3
Margin			19%	21%	24%	27%	33%	35%
EV / EBITDA	x			8.8	6.6	5.2	3.7	2.9
DCF Valuation	**A$**		**$2.37**					
Upside vs current price			82%					
Bear Case (5-year revenue CAGR 9%)								
Total revenue	US$m	52.1	49.4	50.7	56.6	61.9	69.4	76.2
EBITDA	US$m	11.9	9.2	9.3	11.8	14.1	18.9	22.1
Margin			19%	18%	21%	23%	27%	29%
EV / EBITDA	x			10.5	8.1	6.8	5.0	4.1
DCF Valuation	**A$**		**$1.59**					
Upside vs current price			22%					
Bull Case (5-year revenue CAGR 21%)								
Total revenue	US$m	52.1	49.4	60.2	71.7	87.1	107.7	127.0
EBITDA	US$m	11.9	9.2	14.5	19.5	27.7	41.0	51.2
Margin			19%	24%	27%	32%	38%	40%
EV / EBITDA	x			7.2	5.3	4.0	2.7	2.0
DCF Valuation	**A$**		**$3.72**					
Upside vs current price			185%					

Source: Company reports, Canaccord Genuity estimates

Peer group comparison

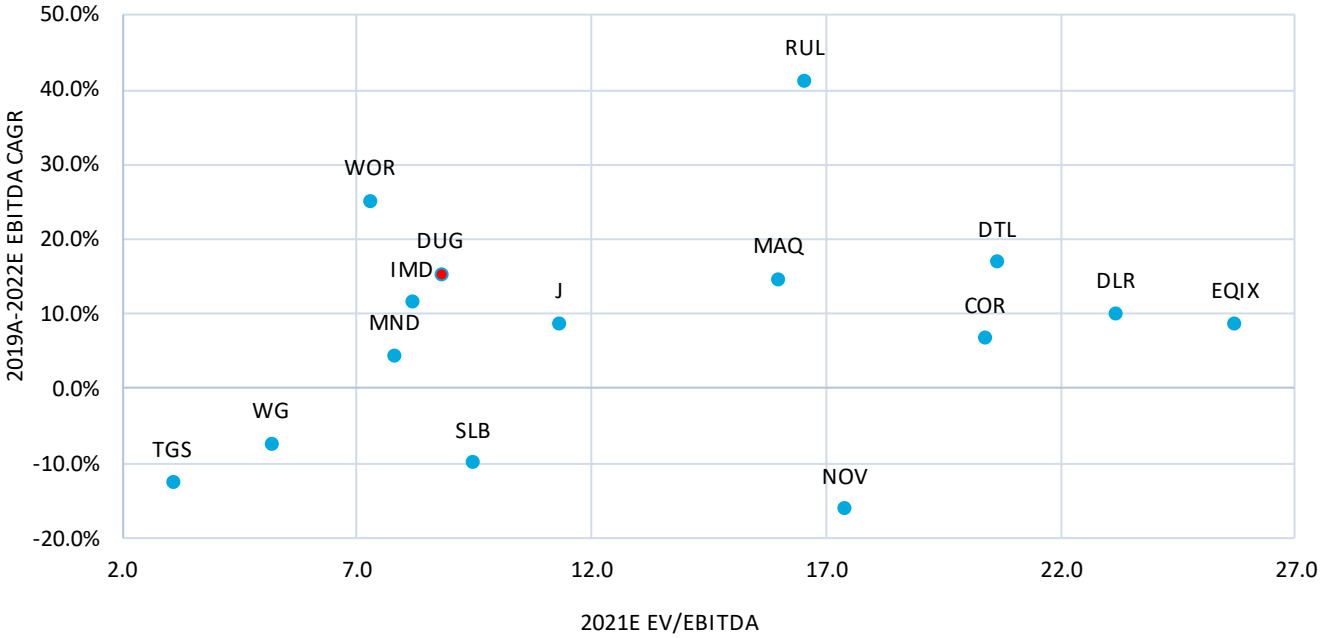
DUG's evolving business model and product offering lends itself to a range of comparisons to peers across a range of sectors. We have positioned DUG against c.30 listed companies to consider its market positioning and valuation optionality: (1) Australian businesses that offer services to the resources sector; (2) Australian- and US-listed technology and data centre businesses (selected names with hardware, software or SaaS characteristics); and (3) Global Oil & Gas and geophysical mapping businesses.

Figure 36: Peer group summary; DUG is currently trading on 8.8x FY21E EV/EBITDA, broadly in line with services peers and at a significant discount to technology and data centre peers

Company Name	Ticker	Price	Market Cap	EV/EBITDA		PE Ratio		EBITDA Mgn	EBITDA CAGR	EPS CAGR
			($m)	2020	2021	2020	2021	2021	2019-2022	2019-2022
Australian Services										
Worley Limited	WOR	9.40	5,075	7.0x	7.3x	13.9x	14.8x	9%	25%	15%
Monadelphous Group Limited	MND	11.01	1,037	9.1x	7.8x	28.6x	19.5x	6%	5%	3%
Imdex Ltd	IMD	1.26	518	8.8x	8.2x	22.6x	26.8x	25%	12%	(1%)
RPMGlobal Holdings Ltd	RUL	1.13	264	19.0x	16.5x	52.4x	40.8x	16%	41%	nmf
Mean				**11.0x**	**9.9x**	**29.4x**	**25.5x**	**14%**	**21%**	**6%**
Median				**9.0x**	**8.0x**	**25.6x**	**23.2x**	**12%**	**18%**	**3%**
Australian Technology & Data Centres										
Nextdc Limited	NXT	11.88	5,535	52.4x	44.9x	nmf	nmf	52%	25%	nmf
Vocus Group Limited	VOC	3.30	2,054	8.4x	7.5x	20.3x	19.5x	22%	4%	3%
Macquarie Telecom Group Limite	MAQ	44.54	992	15.8x	16.0x	70.2x	89.1x	24%	15%	(12%)
Data#3 Limited.	DTL	6.38	992	21.2x	20.6x	41.6x	37.4x	2%	17%	17%
MNF Group Limited	MNF	5.10	423	10.7x	9.6x	25.9x	21.8x	17%	21%	28%
Superloop Ltd.	SLC	1.16	415	33.3x	21.5x	nmf	nmf	18%	48%	15%
Damstra Holdings Ltd.	DTC	1.78	255	36.4x	35.1x	nmf	nmf	22%	nmf	nmf
Mean				**25.4x**	**22.2x**	**39.5x**	**41.9x**	**22%**	**22%**	**10%**
Median				**21.2x**	**20.6x**	**33.7x**	**29.6x**	**22%**	**19%**	**15%**
United States Technology & Data Centres										
Microsoft Corporation	MSFT	227.27	1,719,901	25.0x	22.5x	38.8x	35.0x	47%	15%	15%
Amazon.com, Inc.	AMZN	3,499.12	1,752,673	32.0x	24.9x	112.2x	76.1x	16%	25%	42%
Alphabet Inc. Class C	GOOG	1,660.71	1,127,604	17.1x	13.5x	36.6x	29.1x	35%	13%	10%
Equinix, Inc.	EQIX	789.80	69,942	28.2x	25.7x	125.7x	95.0x	48%	9%	20%
Digital Realty Trust, Inc.	DLR	153.56	41,307	25.5x	23.2x	119.5x	114.1x	56%	10%	(2%)
Dynatrace, Inc.	DT	47.09	13,235	72.7x	59.3x	94.8x	77.8x	27%	30%	39%
CyrusOne, Inc.	CONE	82.43	9,634	23.7x	21.8x	nmf	nmf	53%	9%	21%
Dropbox, Inc. Class A	DBX	21.32	8,813	15.4x	12.2x	27.2x	22.9x	29%	23%	31%
CoreSite Realty Corporation	COR	121.72	5,177	21.3x	20.4x	71.2x	67.0x	53%	7%	6%
Mean				**29.0x**	**24.8x**	**78.3x**	**64.6x**	**40%**	**16%**	**20%**
Median				**25.0x**	**22.5x**	**83.0x**	**71.5x**	**47%**	**13%**	**20%**
Global O&G Services / Geophysical Mapping										
Schlumberger NV	SLB	18.63	25,860	9.8x	9.5x	34.2x	28.5x	19%	(10%)	(8%)
TGS NOPEC Geophysical ASA	TGS	112.50	13,091	3.5x	3.1x	nmf	nmf	81%	(12%)	(23%)
Jacobs Engineering Group Inc.	J	91.44	11,906	12.3x	11.3x	17.1x	16.3x	8%	9%	4%
National Oilwell Varco, Inc.	NOV	11.94	4,636	13.7x	17.4x	nmf	nmf	5%	(16%)	(11%)
PGS ASA	PGS	3.15	1,195	4.4x	3.8x	nmf	nmf	55%	(7%)	(34%)
John Wood Group PLC	WG	2.37	1,631	5.4x	5.2x	13.3x	11.9x	8%	(7%)	(9%)
CGG	CGG	0.73	514	3.7x	3.3x	nmf	nmf	44%	(10%)	(21%)
Mean				**7.5x**	**7.7x**	**21.5x**	**18.9x**	**32%**	**(8%)**	**(15%)**
Median				**5.4x**	**5.2x**	**17.1x**	**16.3x**	**19%**	**(10%)**	**(11%)**

Source: FactSet, IRESS

Figure 37: Valuation versus growth comparison; DUG is well positioned to 'move to the right' on strong execution and market comfort in the growth optionality and trajectory



Source: FACTSET, IRESS, Canaccord Genuity

Risks

The risks to our investment thesis include:

Brand damage from technology-related issues: With technology operating services across multiple end-user touch points, service levels and uptime performance are critically important. Similarly, data security breaches as a result of cyberattacks, data theft or human error could impact brand reputation and client demand.

Commodity price volatility: The business has been impacted in recent months by oil price volatility, and continuing uncertainty may lead to long-term changes in end-market demand for services.

Foreign exchange movements: DUG's functional currency is US dollars. Shares are listed in Australian dollars and with no hedging in place against movements in exchange rates, translation risk is present.

Increasing competition or technology advancements: The business operates in competitive and fast changing markets. The relevance of products and services, product pricing, customer relationships and brand reputation should be monitored.

IP protection and patent rights: Patent applications may be challenged or not granted, and with this, DUG may not be able to adequately protect its IP from competing products.

The company is currently a co-respondent in litigation alleging patent infringement. The outcome of this litigation may require damages to be paid and/or alteration of operations.

Reliance on key personnel: DUG is a founder-led business with a track record of long tenures and a consistent strategy. Changes to this dynamic, especially relating to Matt Lamont, Phil Schwan and Troy Thompson would warrant caution. Failure to attract, train and/or retain adequately skilled employees could have an adverse impact on the business going forward.

Slower-than-expected uptake of HPCaaS services and DUG McCloud platform, especially in FY21: Adoption of these offerings and expansion to use cases outside the resources sector may take longer than expected, impacting operating performance and investor sentiment.

Board and key management

Board of Directors

Wayne Martin AC QC – Independent Chairman

Wayne was appointed as the Independent Chairperson of DUG in February 2020. He was formerly Chief Justice of Western Australia (2006-18) and prior to this was a Barrister from 1988. Current directorships include the WA Football Commission, the Harry Perkins Institute of Medical Research and Parkerville Children and Youth Care. Wayne has a Bachelor of Law with first class honours from the University of Western Australia, and a Master of Laws from King's College London.

Matt Lamont PhD – Founder & Managing Director

Matt is founder and Managing Director of DUG. He sets the company's strategic direction and is closely involved in the company's R&D and DUG McCloud. Matt holds a PhD in Geophysics from Curtin University of Technology and is an adjunct Associate Professor at Curtin. Matt's working career spans 25 years, commencing in Woodside's geophysics group. Later he was the technical lead for the seismic processing and imaging team for BHP Billiton, based in Houston. At stages during his pre-DUG career he was also involved in inversion and rock physics research and application.

Louise Bower – Chief Financial Officer and Executive Director

Louise has been with DUG since 2009 and is responsible for financial leadership and global commercial operations including financial planning, management of financial risks, financial reporting and governance. Having completed her Honours Degree in Accounting Science and Chartered Accountant qualifications, Louise has held various financial roles in different industry sectors and jurisdictions, including South Africa, London and Australia.

Phil Schwan – Chief Technical Officer

Phil has been with DUG since 2008 and leads the DUG McCloud software development and IT teams. He is responsible for all aspects of its development and implementation, including the installation of the supercomputer and the design and management of the cloud system. During his tenure at DUG, Phil has led the design and development of the DUG Insight range of geophysical software. Prior to DUG, he served as CEO of Cluster File Systems, Inc. He was responsible for both the design and in charge of the technical team who wrote the Lustre data storage system. Cluster File Systems was acquired by Sun Microsystems in 2007.

Frank Sciarrone – Independent Non-Executive Director

Frank was appointed Non-Executive Director of DUG in July 2015. He has 35 years of experience across the banking industry, funds management and corporate/private client financial advisory services. Frank is the current Managing Director of Vantage Wealth Management, Chair of the Fire and Emergency Services Super Fund, Director of the Government Employees Superannuation Board and Biovision Pty Ltd and Chair of 12 Buckets.

Charles Ramsden –Non-Executive Director

Charles was appointed as Non-Executive Director of DUG in July 2015. He has more than 35 years' global experience in Oil & Gas exploration. Charles is a co-founder of Impact Oil & Gas (UK, unlisted) and is the current Managing Director and founder of Rouge Rock Pty Ltd (of which DUG owns 49%). He is the author of numerous technical papers on the application of geophysics in Oil & Gas exploration.

Michael Malone – Independent Non-Executive Director

Michael was appointed as Non-Executive Director of DUG in April 2020. He is well known to listed markets having founded iiNet Limited, an ASX listed telecommunications company in 1993 and continued as CEO until his retirement in 2014 (now owned by ASX:TPG). Current Directorships include Independent Non-Executive Director of the National Broadband Network (nbnco), Axicom Group and SpeedCast Ltd and the Australian representative director of the Asia Pacific Network Information Centre Foundation.

Mark Puzey – Independent Non-Executive Director

Mark was appointed as Non-Executive Director of DUG in June 2020 and is Chair of the Audit and Risk Committee. He spent 33 years with KPMG where his roles extended across internal and external audit, IT advisory, risk management, governance, strategy and business transformation; focussed on ASX listed companies. Mark is the current Audit and Risk Committee Chairman and Non-Executive Director of ASX listed M8 Sustainable Ltd; and Non-Executive Director and One-Future Committee Chairman of Gold Corporation

Other key management

Troy Thompson Ph.D. – Founder & Research Principal (Head of Research)

Troy is a founding partner and Research Principal at DUG. Troy has published papers on a variety of subjects which span seismic processing, anisotropy and quantitative interpretation. Troy holds a PhD in Geophysics from Curtin University and was the inaugural Curtin University recipient of the Royal Society of Western Australia Universities Science Medal. He completed his PhD in 2004, shortly after joining Matt Lamont to start DUG. He is responsible for developing DUG's industry-leading processing and imaging toolkits.

Mick Lambert – Manager, McCloud Solutions

Mick is responsible for building the DUG McCloud business, as well as managing the sales activities and the software licensing business. He has 40+ years' experience in the seismic industry and is best known for his 16-year tenure at GX Technology, nine of which were spent as President and CEO. GX Technology was a pioneer in developing basin-scale regional seismic programs and is now owned by ION Geophysical. Mick resides in Houston.

Stuart Midgley Ph. D. – System Architect

Stuart is DUG's System Architect and has been instrumental in the construction of DUG's facility in Houston. He has helped develop DUG's four HPC systems and designed and developed the DUG Cool system of immersive cooling technology (Patent Publication WA 2017/091862 A1).

Mark Lommers – Chief Engineer

Mark is DUG's Chief Engineer. He joined DUG following years developing and managing infrastructure and support systems for DUG's immersion cooled HPC systems, as a consultant. Mark was pivotal in the development of DUG Cool.

Gunaseelan Cumaran – Chief Operating Officer

Gunaseelan joined DUG in 2013. He is an accomplished geophysicist with experience in seismic data processing at both Shell and Exxon.

Simon Davey – General Counsel & Company Secretary

Simon has more than 20 years' legal expertise having worked in legal, technology, and Oil & Gas firms in the UK and Australia.

Appendices

Figure 38: DUG history and key milestones

2003	DUG founded by Matt Lamont and Troy Thompson; Initial development of HPC system.
2006	First major commercial oil discovery at Julimar using DUG's proprietary software for probabilistic lithology and fluid prediction.
2007	DUG opens Kuala Lumpur office.
2008	First large numerical processing project delivered using DUG's HPC and proprietary software.
2009	DUG opens Houston office. DUG Insight interpretation software licensed to clients in the Oil & Gas industry.
2011	Software deal with PGS (US$3.5m).
2013	DUG opens London office.
2015	DUG provides hardware and software on Polarcus' seismic acquisition vessels to facilitate real-time onboard quality control and fast-track processing and imaging.
2016	Work commenced on a new software stack for HF-FWI; DUG Cool developed (a now patented technology for HPC installations).
2017	Office expansions in Both Kuala Lumpur and London.
2018	Launch of DUG McCloud; Utilisation of DUG's HPC and proprietary HF-FWI software instrumental in the Dorado oil discovery.
2019	Houston HPC room commissioned; DUG begins working for clients outside of the resource sector.
2020	IPO capital raising process accelerates compute and storage build out.

Source: Company reports, Canaccord Genuity

Figure 39: DUG patent portfolio

Patent Family	For	Country(ies)	Filing Date
DGL-15-01	Method for removing the interference caused by time overlapping seismic recordings and seismic survey acquisition method associated therewith.	USA, WIPO AUS	2015 2016 2018
DGL-16-01	Method for determining free surface reflectivity for seismic data processing.	USA, WIPO AUS, UK, MYS, USA	2016 2017 2018
DGL-16-02	Method for determining sensor depths and quality control of sensor depths for seismic data processing.	USA, WIPO AUS, UK, MYS, USA	2016 2017 2019
DGL-16-03	Method for determining notional seismic source signatures and their ghosts from near field measurements and its application to determining far field signatures.	USA, WIPO AUS, UK, MYS, USA	2016 2017 2019
DGL-16-04	Method for the attenuation of multiple reflections in shallow water settings.	USA, WIPO, AUS, UK, MYS, MEX, USA	2016 2017 2019
DGL-17-01	Method for improved processing of data with time overlapping recordings of energy sources.	USA, WIPO AUS, MYS, USA, UK	2017 2018 2019 2020
DGL-19-01	Seismic data processing method for resolving the near-surface in the presence of velocity inversions.	USA	2020
DGL-19-02	Deconvolution of downgoing seismic wavefields.	USA	2019
DGL-20-01	Seismic wavefield modelling honouring AVO/AVA with applications to full waveform inversion and least squares imaging.	USA	2020
DUG-17-02	Fluid cooling system and method for electronics equipment	WIPO AUS, BRA, CAN, CHN, HKG, EPO, IND, JPN, MYS, RUS, SGP, USA	2015 2018

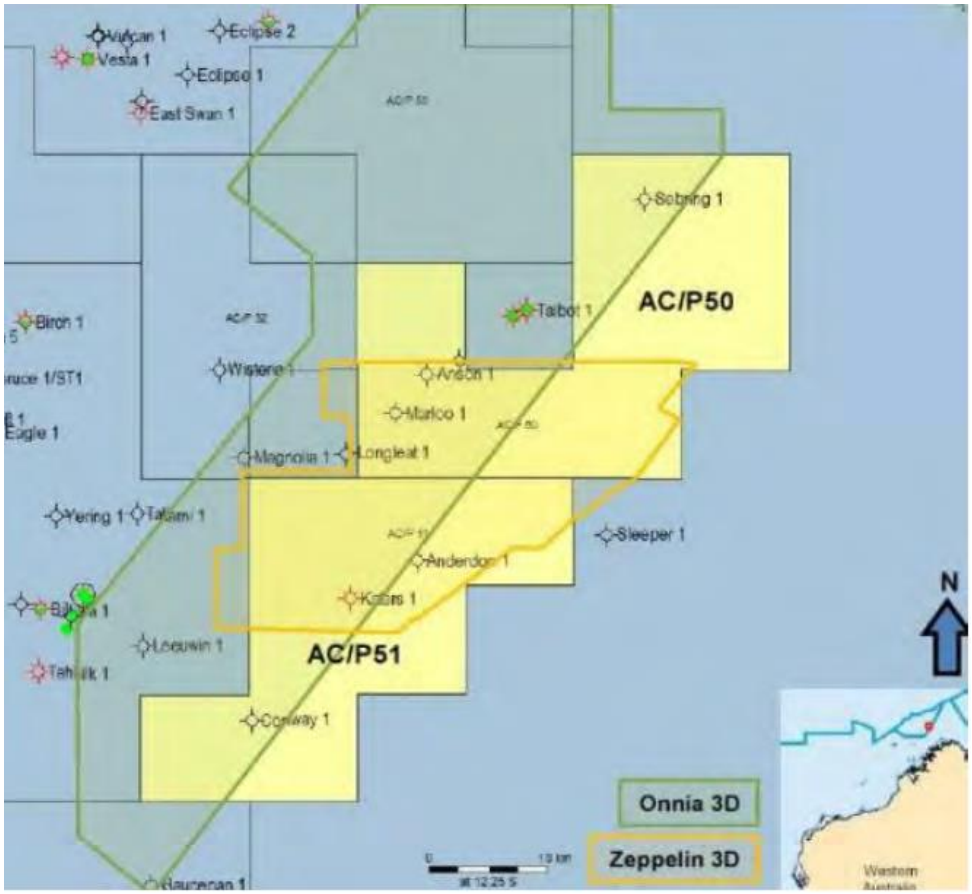
Source: Company reports

DUG's Oil & Gas interests

DUG also has financial interests in multi-client resources and a company called Rouge Rock.

- DUG has a revenue share in several multi-client assets that have been developed through partner companies. Revenue is generated from these assets when the data is requested by third parties.
- DUG owns 49% of Rouge Rock, an Oil & Gas exploration company. The other 51% is owned by Non-Executive Director Charles Ramsden. The investment was made through its service business with the assets being highly prospective in nature. Negotiations are ongoing with several players regarding the divestment of this non-core asset.

Figure 40: Rouge Rock assets; ACP50 and ACP51 blocks in the Vulcan sub-basin, Western Australia



Source: Company reports

Appendix: Important Disclosures

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Individuals identified as "Sector Coverage" cover a subject company's industry in the identified jurisdiction, but are not authoring analysts of the report.

Investment Recommendation

Date and time of first dissemination: September 03, 2020, 16:30 ET

Date and time of production: September 03, 2020, 16:10 ET

Target Price / Valuation Methodology:

DUG Technology Limited - DUG

Our 12-month price target for DUG is A$2.37/share. This is based on a DCF valuation which assumes a WACC of 10.4% (12.0% cost of equity, 20.0% debt to equity and terminal growth of 2.5%).

Risks to achieving Target Price / Valuation:

DUG Technology Limited - DUG

Brand damage from technology-related issues: With technology operating services across multiple end-user touch points, service levels and uptime performance are critically important. Similarly, data security breaches as a result of cyberattacks, data theft or human error could impact brand reputation and client demand.

Commodity price volatility: The business has been impacted in recent months by oil price volatility, and continuing uncertainty may lead to long-term changes in end-market demand for services.

Foreign exchange movements: DUG's functional currency is US dollars. Shares are listed in Australian dollars and with no hedging in place against movements in exchange rates, translation risk is present.

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Slower-than-expected uptake of HPCaaS services and DUG McCloud platform, especially in FY21: Adoption of these offerings and expansion to use cases outside the resources sector may take longer than expected, impacting operating performance and investor sentiment.

Distribution of Ratings:

Global Stock Ratings (as of 09/03/20)

Rating	Coverage Universe		IB Clients
	#	%	%
Buy	519	62.99%	55.11%
Hold	175	21.24%	41.71%
Sell	14	1.70%	35.71%
Speculative Buy	116	14.08%	76.72%
	824*	100.0%	

*Total includes stocks that are Under Review

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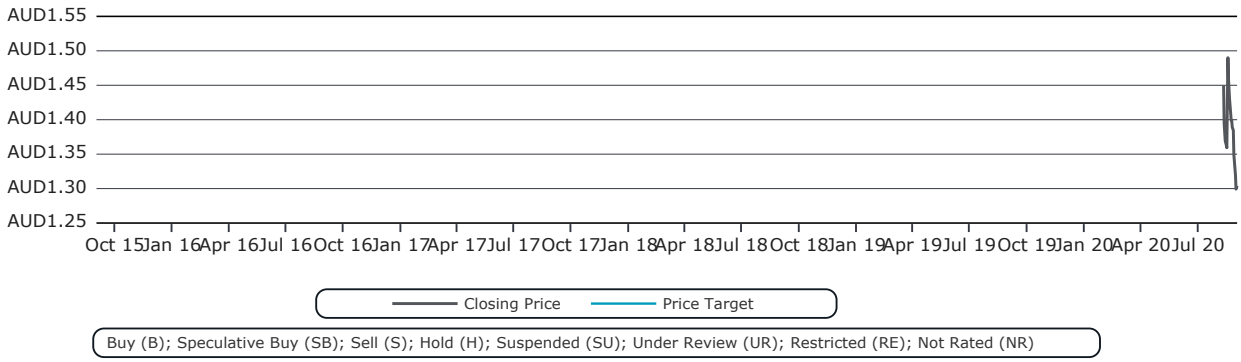
DUG Technology Limited Rating History as of 09/02/2020



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