



9 November 2022

Technology



Source: Refinitiv

Market data

EPIC/TKR	CYAN.L
Price (p)	13.5
12m high (p)	29.9
12m low (p)	1.55
Shares (m)	236.3
Mkt. cap (£m)	31.9
EV (£m)	29.5
Free float*	100%
Currency/Listing	GBP/UK
Market	AIM

*As defined by AIM Rule 26

Description

CyanConnode is a leading global vendor of intelligent communications solutions, bringing together narrowband RF mesh and cellular technologies, and the Internet of Things (IoT), to create a highly scalable platform for transmission, collection and analysis of data. The company is headquartered in Cambridge, UK, with offices in India and Sweden. To date, it has spent in excess of \$50m on developing its technology platform, on which more than 2.7m endpoints have been delivered globally. At the end of March 2022, total headcount stood at 60 employees, of which 11, or 18%, were women.

Company information

Executive Chairman John Cronin
CFO Heather Peacock

+44 (0)1223 865 750

www.cyanconnode.com

Analyst

Milan Radia +44 (0)20 3693 7075

mr@hardmanandco.com

CYANCONNODE

Indian smart meter programme update

On 14 and 15 October 2022, the Indian Ministry of Power held a "Brainstorming Session" at the Power Ministers' Conference. The presentation for the session contains a detailed update on the smart meter rollout in terms of rationale, targets and current progress. The Indian Government's commitment to achieving the replacement of 250m meters remains emphatic, likely reinforced by the positive benefits delivered so far in terms of key metrics, such as billing and collection efficiency. Deployments of some 179m meters have been sanctioned, of which c.35% are at various stages of the tendering/award process. CyanConnode remains a proven vendor and supplier to many prime contractors, boding well for the company.

- **Process is reaching the critical phases:** After a lengthy gestation period and a couple of partial reboots, the Indian programme is gaining significant momentum, which is impressive given the unprecedented scale of the rollout of 250m smart meters across one of the most populous countries in the world.
- **CyanConnode is emerging as a key technology provider:** Around 5m modules have been deployed so far, in total, in India, of which CyanConnode has delivered approximately 25%. It is, to date, the sole provider and/or primary vendor of smart meter connectivity technologies in several states across the country.
- **The total Indian programme value is immense:** The total budgeted outlay for the smart meter element of the Indian programme is INR1.5 lakh crores, i.e. INR1.5tr, or around £15.8bn. A similar amount has been allocated to enabling activities such as expansion of distribution capacity and training.
- **Forecasts are conservative:** Investors may perceive a disconnect between the growing momentum in the Indian programme and revenue growth forecasts, which anticipate 26% revenue growth in FY23. This is a function of the greater element of deferred revenue recognition, plus a highly conservative management approach.
- **Investment summary:** The bias towards proven technology suppliers in the Indian programme is evident, especially for newer service provider participants looking to establish track records for successful deployments and positive reference sites. CyanConnode is benefiting from, and often working with, multiple partners in single tenders. Our DCF-implied fair equity value for CyanConnode is £63.7m (£0.27 per share), vs. the current market cap. of £31.9m.

Financial summary and valuation

Year-end Mar (£m)	Mar20*	2021	2022	2023E
Revenue	2.45	6.44	9.56	12.51
Reported EBITDA	-5.46	-2.18	-0.04	-0.17
EBITDA margin	-223%	-34%	0%	-1%
Adjusted EBIT	-5.69	-2.81	-0.29	-0.42
Adjusted pre-tax profit	-5.70	-2.73	-0.45	-0.60
Net income	-5.13	-2.06	-0.87	-0.32
EPS (p)	-2.96	-1.18	-0.42	-0.13
EV/revenue (x)	12.0	4.6	3.1	2.4
EV/EBITDA (x)	-5.4	-13.5	-776.4	-173.8

*15 months to Mar20 (due to year-end change); Source: Hardman & Co Research

Investment highlights

The smart meter update from the Indian Ministry of Power is, in our view, highly positive from a CyanConnode perspective. This update was presented at the Conference of Power and Renewable Energy Ministers of State/Union Territories, and confirms that this immense smart meter replacement programme is gaining traction, benefiting from the determined efforts by the Indian Government to ensure full participation from the Indian electricity distribution utilities (Discoms) across the country's states. These measures comprise a combination of financial penalties and incentives, including payments for early completion of deployments. There is now significant clarity with respect to phases of deployment, priority regions and sub-groupings of the Discoms' customer base, funding structures, eligibility criteria (as captured in the fairly rigorous empanelment process) and target timescales.

Our key takeaways from the update are the following:

- 1) **Under the Revamped Distribution Sector Scheme (RDSS), the target is contracts for deployment of 100% of targeted 250m consumer smart meters by March 2025. The rollout is divided into two phases:**
 - a. Phase 1 addresses 100m smart meters associated with priority areas across 500 cities, where power losses are particularly high (i.e. AT&C losses in excess of 15%), or where consumers are high-value accounts. Phase 1 is scheduled to be completed by end-December 2023.
 - b. Phase 2 addresses the remaining zones, and here the end-March 2025 completion dates shall apply.
- 2) **The surface has barely been scratched in terms of installed meters**, with a total of 5m meters installed to date, of which around 70% are postpaid. Of 178.5m consumer and system meters sanctioned, c.62m meters are in the process of being tendered or awarded. Assuming that the majority of these relate to Phase 1, as defined above, then one would expect the awards to be made within the next few months, if the December 2023 timeline is to be met.
- 3) **All new consumer smart meters must have prepayment functionality and be implemented in prepayment mode.** To date, only the state of Bihar has achieved a large-scale rollout of prepaid meters, at 92% of the total. The aim of the prepayment requirement is to avoid the need for manual disconnection and reconnection when customers fail to pay their bills.
- 4) **The Ministry of Power and associated authorities are paying close attention to the data on efficiency improvements** stemming directly from the smart meter rollouts. This is to be expected given the enormous investments that are under way under the smart meter programme.
- 5) **The data on outcomes so far is positive.** Two divisions within the state of Bihar are included in the presentation. Around 36,000 smart meters have been deployed in one and c.18,000 in the other. In each case, collection efficiency improved to over 100%, arrears collection improved to 100% recovery of arrears and average monthly collection per consumer improved by between 34% and 65%. These are relatively compelling metrics for a two-year period, early in the programme. Bihar is emerging as one of CyanConnode's largest regions, following an order for 1m smart meter endpoints announced in August 2022.

Update on rollout progress

The modest progress made so far is indicative of the complexity and challenges associated with deploying smart meters, and associated gateways and AMI platforms, on such a large scale. The map below sets out the progress on smart meter rollouts in India by region under the RDSS as at 4 October 2022. Uttar Pradesh, the largest state, and Bihar are the clear leaders, with a total of 2.27m meters between them, almost half of the total deployed to date.

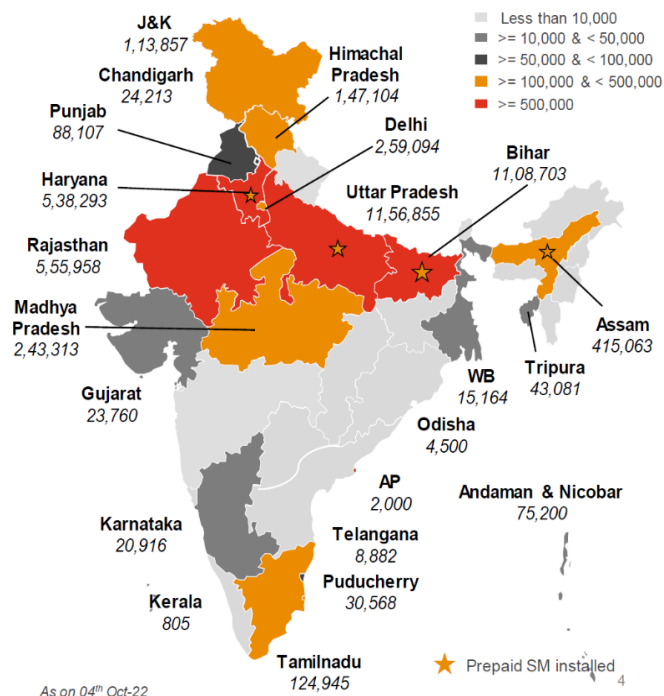
CyanConnode's breadth of presence across India is demonstrable by reference to the regional implementation metrics. For example, the company has delivered all of the meters installed to date in the following states:

- ▶ Himachal Pradesh: 147,104
- ▶ Tamilnadu: 124,945
- ▶ Karnataka: 20,916
- ▶ Gujarat: 23,760
- ▶ Madhya Pradesh: 243,313
- ▶ Rajasthan: 555,958

In addition, CyanConnode has received an order for 300,000 meter endpoints in Assam, which are yet to be fully deployed. This order is via Intellismart, and represents the latter's first win under the RDSS for a total of 620,000 meters to be deployed for the Assam Power Distribution Company Limited.

These figures are consistent with the total figure of 1.3m meters deployed cited by management. The order book comprises a further 1.3m.

Current status of smart meters in India



Source: Indian Ministry of Power

RDSS metrics

The first table below lists the states where smart meters have been sanctioned and where RFPs have been issued, with the process at various stages across the states concerned. As can be seen from the table, this category represents a total of 85.9m consumers, for which 61.2m meters have had RFPs issued.

Noteworthy is the significant overlap between the states in which CyanConnode's technologies have been deployed and the states where consumer meters have been sanctioned. Of the nine states in the table, CyanConnode is the only provider deployed in three states (Gujarat, Himachal Pradesh, Madhya Pradesh), is the largest deployed provider in Assam, and has orders that will make it the largest provider in Bihar. The total number of sanctioned meters in states where CyanConnode is an existing supplier is 40.4m, which, in our view, can credibly be described as forming a key part of the company's addressable market under the Indian programme.

Indian smart meter progress under RDSS – RFPs issued

17.85 Cr consumer and system meters sanctioned – **35%** at various stages of tendering/ award

States Sanctioned and RFPs issued							
S. No.	State/ DISCOM	Sanction Details			Tendering status – RFPs issued		
		Consumer Meters	DT Meters	Feeder Meters	No. of packages	Consumer Meters	DT Meters
1	Assam	5,744,698	77,547	2,782	8	4,957,239	77,547
2	Bihar	2,350,000	250,726	6,427	4	5,950,000	195,683
3	Chhattisgarh	5,962,115	210,644	6,720	2	5,962,115	210,644
4	Gujarat	16,487,100	300,487	0	-	6,825,471	109,021
5	Himachal Pradesh	2,800,945	39,012	1,951	3	2,800,477	39,012
6	Madhya Pradesh	12,980,102	406,503	8,411	3	2,285,064	35,928
7	Maharashtra	22,488,866	407,507	27,826	3	5,004,810	407,507
8	Puducherry	403,767	3,105	180	1	403,767	3,105
9	Uttar Pradesh	26,979,055	1,526,801	20,874	1	5,977,850	194,625
	Total	85,910,019	3,024,151	74,478		61,166,779	2,605,248
	Overall Progress	173,445,097	4,902,755	162,856		61,166,779	2,605,248
						35%	53%
							42%

Source: Indian Ministry of Power

Not all contracts to date have been awarded under the RDSS, given that the revamped scheme came into force earlier this year. This explains CyanConnode's successes in Rajasthan, Tamilnadu and Karnataka.

Indian smart meter progress under RDSS – tenders not yet issued

17.85 Cr consumer and system meters sanctioned – **35%** at various stages of tendering/ award

States Sanctioned but tenders yet to be issued				
S. No.	State/ DISCOM	Sanction Details		
		Consumer Meters	DT Meters	Feeder Meters
1	Andhra Pradesh	5,608,846	293,140	17,358
2	Goa	741,160	8,369	827
3	Haryana	7,405,618	195,319	13,204
4	Jammu and Kashmir	1,407,045	88,037	0
5	Jharkhand	1,341,306	19,512	1,226
6	Kerala	13,289,361	87,615	6,025
7	Manipur	154,400	11,451	0
8	Meghalaya	460,000	11,419	1,324
9	Mizoram	289,383	2,300	0
10	Rajasthan	14,274,956	434,608	27,128
11	Sikkim	144,680	3,229	633
12	Tamil Nadu	30,000,000	472,500	18,274
13	Tripura	547,489	14,908	0
14	Uttarakhand	1,584,205	38,016	1,686
	Total	93,735,549	1,980,910	87,685

Source: Indian Ministry of Power

The table above sets out the states where tenders have yet to be issued at all, representing a total of 93.7m consumer smart meters. These tenders are expected

to commence over the next six to nine months, in anticipation of the deadlines that we discussed earlier.

The overall message from these updates is clear – there is still a very long way to go in this national programme, with only a fraction of the total target actually deployed. The programme is gaining traction. Currently, 178.5m consumer and system meters have been sanctioned, i.e. their replacement has been approved by the relevant authorities. This leaves a further 71.5m meters that have yet to be sanctioned. Of the sanctioned grouping, 35%, or 62.5m meters, are in process, i.e. tenders are under way or in the process of being awarded. By way of comparison, an April 2022 webinar, hosted by the British High Commission in New Delhi, noted the total number of sanctioned smart meters to be c.11.3m, with 4m installed.

All deployments on a DBFOOT basis

A major driver of the improved rate of progress, in our view, has been the wholesale shift towards the Design, Build, Finance, Own, Operate, Transfer (DBFOOT) model, under which the Discoms are not required to fund capex upfront, but rather pay for the smart meters that are installed on a recurring periodic basis. After all, a large number of Discoms, not just in India but in many parts of the world, are suffering under the weight of inadequate systems and infrastructure, resulting in poor rates of billing for consumer power and a failure to collect on arrears. This leakage, perhaps unsurprisingly, has created substantial pressures on the finances of the Discoms. Asking these entities to fund the capex for smart meter rollouts was always unlikely to yield much progress. The Ministry of Power update confirms that the entirety of the programme will be on a DBBOOT basis, with the prime contractors (“implementing agencies”) taking full responsibility for development and O&M for their allocated regions.

CyanConnode's products and partnerships

Omnimesh has proven resilience

The importance of platform resilience and delivering on stringent service level agreements (SLAs) is critical in India. The terrain in semi-urban and rural areas can be difficult for connectivity, due to mountainous and dense terrain. The Omnimesh RF technology is highly resilient, due to its use of mesh networks. If a single endpoint goes down, the remainder of the network can continue to function as normal. The company is currently integrating with nine new meter types, a process that is required as new suppliers enter the Indian market. This will further help to expand the company's coverage of the market.

Traditional cellular options, such as 4G and LTE networks, consume too much power. They are also less suited to applications where only a small amount of data is transmitted infrequently; for example, meters for reading gas, electricity or water consumption. That said, although CyanConnode is best-known for its RF Mesh products, its portfolio of cellular products is gaining traction. For example, in August 2022, CyanConnode announced a new order for cellular gateways for an AMI project in the MENA region. This project involves retrofitting CyanConnode's new generation of cellular products into existing smart meters.

Omnimesh is a safe choice for the AMISPs

CyanConnode has a long track record of successful deployments against the programme's targets, and is viewed as a safe choice by the multiple new prime contractors bidding for the role of AMI Service Providers (AMISPs). This is borne out by the strong takeup of the company's Omnimesh platform by new service providers such as Adani and Monte Carlo. This is in addition to the established partnerships in the market, of which Genus Power Infrastructures is a key example. As recently as August 2022, CyanConnode announced its largest-ever order via Genus in Bihar, comprising a broad platform deployment, with 1m Omnimesh smart meter modules, AMI, hardware, Omnimesh head-end software licences, and support and maintenance contracts. Prior to this order, Genus had worked with CyanConnode on four projects, summing to a total of over 600,000 meters.

In the case of larger tenders, CyanConnode is often part of multiple bidding consortia, significantly raising its prospects of success.

Empanelled service providers

The Ministry of Power's Rural Electric Corporation (REC) introduced the empanelment process for AMI Service Providers in March 202, which required several criteria to be fulfilled:

- ▶ Demonstration of AMI prepaid systems through a pre-qualification demonstration test prior to participation in smart metering projects.
- ▶ AMI Service Providers (AMISPs) to demonstrate their proposed solution in a controlled test environment, before implementing their solution in live environments. Rigorous testing is undertaken at the Central Power Research Institute (CPRI) labs.

It had been decided, due to a series of issues being raised by the Discoms, that only empanelled service and solution providers would be eligible for participation in smart meter tendering under the RDSS.

Current list of empanelled providers

Empanelment Certificates - Summary			
Sl. No.	Applicant	Type of Communication Technology	
1	Intellisart Infrastructure Pvt. Ltd.	Cellular	RF
2	GMR Generation Assets Ltd.	Cellular	RF
3	Monte Carlo Ltd.	Cellular	RF
4	Adani Enterprises Ltd.	Cellular	-
5	Adani Transmission Ltd.	-	RF
6	Shirdi Sai Electricals Pvt. Ltd.	Cellular	-
7	EDF India Pvt. Ltd.	Cellular	-
8	Larsen & Toubro Ltd.	-	RF
9	Gram Power India Pvt. Ltd.	Cellular	-
10	Energywiz Pvt. Ltd.	-	RF
11	Secure Meters Limited	Cellular	-
12	HPL Electric & Power Ltd.	-	RF
13	BCITS Pvt. Ltd.	Cellular	RF
14	India Power Corporation Ltd.	Cellular	-
15	Fluentgrid Ltd.	Cellular	-
16	Anvil Cables Pvt. Ltd.	-	RF
17	Aurobindo Realty & Infrastructure Pvt. Ltd.	Cellular	-
18	Genus Power Infrastructure Ltd.	Cellular	RF
19	NSURE Reliable Power Solutions Pvt. Ltd.	Cellular	-
20	HPPL Energy Services Pvt. Ltd.	Cellular	-
21	TATA Power Company Ltd.	-	RF
22	Genus Power Solutions Pvt. Ltd.	Cellular	-
23	Iskraemeco India Pvt Ltd	Cellular	-
24	Aprava Energy Pvt Ltd	-	RF
25	Radius Synergies International Pvt. Ltd.	Cellular	-
26	Telecommunications Consultants India Ltd.	Cellular	-
27	Subhasree Projects Pvt. Ltd.	Cellular	-
28	Ashoka Buldcon Ltd.	-	RF
29	NCC Ltd.	-	RF

Source: Indian Ministry of Power

Profit and loss

CyanConnode: Hardman & Co profit and loss

Year-end March (£000)	12M Dec 2017	12M Dec 2018	15M Mar 2020	2021	2022	2023E
Revenue	1,171	4,465	2,451	6,437	9,562	12,514
Cost of sales	-674	-1,724	-1,081	-3,334	-4,554	-7,133
Gross profit	497	2,741	1,370	3,103	5,008	5,381
<i>Gross margin</i>	<i>42%</i>	<i>61%</i>	<i>56%</i>	<i>49%</i>	<i>45%</i>	<i>43%</i>
Operating expenses	-11,161	-8,589	-6,827	-5,284	-5,046	-5,551
EBITDA	-10,664	-5,848	-5,457	-2,181	-38	-170
Share-based payments	-689	-445	-267	-80	-363	-320
Stock impairment	-55	-578	-4	-108	0	0
Foreign exchange losses	-52	-16	-267	15	0	0
Adj. EBITDA	-9,868	-4,809	-4,919	-2,008	325	150
<i>EBITDA margin (%)</i>	<i>-911%</i>	<i>-131%</i>	<i>-223%</i>	<i>-34%</i>	<i>0%</i>	<i>-1%</i>
Depreciation & amortisation	-489	-472	-772	-627	-616	-570
Adj. EBIT	-10,357	-5,281	-5,691	-2,808	-291	-420
EBIT	-11,153	-6,320	-6,229	-2,685	-1,017	-1,060
<i>Adj. EBIT margin (%)</i>	<i>-884%</i>	<i>-118%</i>	<i>-232%</i>	<i>-42%</i>	<i>-3%</i>	<i>-3%</i>
Investment income	16	13	17	1	0	2
Net finance income	-6	-2	-30	-50	-161	-177
PBT	-10,347	-5,270	-5,704	-2,734	-452	-595
Taxation / tax credit	1,402	927	576	677	307	280
<i>Effective tax rate (%)</i>	<i>-14%</i>	<i>-18%</i>	<i>-10%</i>	<i>-25%</i>	<i>-68%</i>	<i>-47%</i>
Net income	-8,945	-4,343	-5,128	-2,058	-871	-315
EPS (basic, p)	-10.18	-3.71	-2.96	-1.18	-0.42	-0.13
EPS (diluted, p)	-10.18	-3.71	-2.96	-1.18	-0.42	-0.13
Average shares in issue basic (m)	95.740	116.976	173.048	174.755	205.173	236.309
Average shares in issue dil. (m)	95.740	116.976	173.048	174.755	205.173	236.309

Source: Company data, Hardman & Co Research estimates

Valuation

Our approach to understanding the potential valuation of CyanConnode centres on a DCF analysis. Our assumptions are set out in their entirety in the table below, including a WACC of 10% and the medium-term revenue profile, which reflects the international pipeline of opportunities.

The analysis produces an implied fair enterprise value of £61.3m and an implied fair equity value of £63.7m (equating to £0.27per share). These valuation outcomes are materially higher than the current enterprise value of £29.5m and market capitalisation of £31.9m.

CyanConnode: Hardman & Co DCF analysis

Key inputs

Terminal FCF growth rate	3.0%
Long-term sustainable EBIT margin	25.0%
Long-term tax rate on EBIT	18.0%
WACC	10.0%

Y/end March, £m	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	Terminal value
Revenue	12.5	15.8	18.9	22.5	26.4	30.6	34.9	38.3	41.4	
yoy growth	30.9%	26.1%	20.0%	19.0%	17.0%	16.0%	14.0%	10.0%	8.0%	
EBIT margin	-3.4%	2.0%	10.0%	15.0%	20.0%	22.0%	24.0%	25.0%	25.0%	
EBIT	-0.4	0.3	1.9	3.4	5.3	6.7	8.4	9.6	10.4	
Depreciation & amortisation	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.7	
Adj. EBITDA	0.2	0.9	2.5	4.0	5.9	7.3	9.0	10.2	11.0	
Tax rate	0.0%	0.0%	5.0%	10.0%	12.0%	14.0%	16.0%	18.0%	18.0%	
Tax on EBIT	0.0	0.0	-0.1	-0.3	-0.6	-0.9	-1.3	-1.7	-1.9	
Change in net working capital	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.3	-0.4	-0.4	
Cashflow from operations	0.1	0.8	2.2	3.5	5.0	6.2	7.4	8.2	8.7	
Capex	-0.3	-0.3	-0.4	-0.4	-0.4	-0.5	-0.5	-0.6	-0.7	
Unlevered free cashflow	-0.2	0.4	1.9	3.1	4.6	5.7	6.8	7.6	8.1	97.6
Year	1	2	3	4	5	6	7	8	9	10
Discount factor	1.10	1.21	1.33	1.46	1.61	1.77	1.95	2.14	2.36	2.36
Present value	-0.2	0.3	1.4	2.1	2.9	3.2	3.5	3.5	3.2	41.4

Note: based on medium-term assumptions from 2025E

Implied valuation metrics	£m
Sum of nine-year cashflow	19.9
Terminal value	41.4
Value of the firm	61.3
Net funds	2.4
Total equity value	63.7
No. of shares in issue (m)	236.3
Fair value share price (£)	0.27

Source: Hardman & Co Research estimates

Disclaimer

Hardman & Co provides professional independent research services and all information used in the publication of this report has been compiled from publicly available sources that are believed to be reliable. However, no guarantee, warranty or representation, express or implied, can be given by Hardman & Co as to the accuracy, adequacy or completeness of the information contained in this research and they are not responsible for any errors or omissions or results obtained from use of such information. Neither Hardman & Co, nor any affiliates, officers, directors or employees accept any liability or responsibility in respect of the information which is subject to change without notice and may only be correct at the stated date of their issue, except in the case of gross negligence, fraud or wilful misconduct. In no event will Hardman & Co, its affiliates or any such parties be liable to you for any direct, special, indirect, consequential, incidental damages or any other damages of any kind even if Hardman & Co has been advised of the possibility thereof.

This research has been prepared purely for information purposes, and nothing in this report should be construed as an offer, or the solicitation of an offer, to buy or sell any security, product, service or investment. The research reflects the objective views of the analyst(s) named on the front page and does not constitute investment advice. However, the companies or legal entities covered in this research may pay us a fixed fee in order for this research to be made available. A full list of companies or legal entities that have paid us for coverage within the past 12 months can be viewed at <http://www.hardmanandco.com/legals/research-disclosures>. Hardman may provide other investment banking services to the companies or legal entities mentioned in this report.

Hardman & Co has a personal dealing policy which restricts staff and consultants' dealing in shares, bonds or other related instruments of companies or legal entities which pay Hardman & Co for any services, including research. No Hardman & Co staff, consultants or officers are employed or engaged by the companies or legal entities covered by this document in any capacity other than through Hardman & Co.

Hardman & Co does not buy or sell shares, either for their own account or for other parties and neither do they undertake investment business. We may provide investment banking services to corporate clients. Hardman & Co does not make recommendations. Accordingly, they do not publish records of their past recommendations. Where a Fair Value price is given in a research note, such as a DCF or peer comparison, this is the theoretical result of a study of a range of possible outcomes, and not a forecast of a likely share price. Hardman & Co may publish further notes on these securities, companies and legal entities but has no scheduled commitment and may cease to follow these securities, companies and legal entities without notice.

The information provided in this document is not intended for distribution to, or use by, any person or entity in any jurisdiction or country where such distribution or use would be contrary to law or regulation or which would subject Hardman & Co or its affiliates to any registration requirement within such jurisdiction or country.

Some or all alternative investments may not be suitable for certain investors. Investments in small and mid-cap corporations and foreign entities are speculative and involve a high degree of risk. An investor could lose all or a substantial amount of his or her investment. Investments may be leveraged and performance may be volatile; they may have high fees and expenses that reduce returns. Securities or legal entities mentioned in this document may not be suitable or appropriate for all investors. Where this document refers to a particular tax treatment, the tax treatment will depend on each investor's particular circumstances and may be subject to future change. Each investor's particular needs, investment objectives and financial situation were not taken into account in the preparation of this document and the material contained herein. Each investor must make his or her own independent decisions and obtain their own independent advice regarding any information, projects, securities, tax treatment or financial instruments mentioned herein. The fact that Hardman & Co has made available through this document various information constitutes neither a recommendation to enter into a particular transaction nor a representation that any financial instrument is suitable or appropriate for you. Each investor should consider whether an investment strategy of the purchase or sale of any product or security is appropriate for them in the light of their investment needs, objectives and financial circumstances.

This document constitutes a 'financial promotion' for the purposes of section 21 Financial Services and Markets Act 2000 (United Kingdom) ('FSMA') and accordingly has been approved by Capital Markets Strategy Ltd which is authorised and regulated by the Financial Conduct Authority (FCA).

No part of this document may be reproduced, stored in a retrieval system or transmitted in any form or by any means, mechanical, photocopying, recording or otherwise, without prior permission from Hardman & Co. By accepting this document, the recipient agrees to be bound by the limitations set out in this notice. This notice shall be governed and construed in accordance with English law. Hardman Research Ltd, trading as Hardman & Co, is an appointed representative of Capital Markets Strategy Ltd and is authorised and regulated by the FCA under registration number 600843. Hardman Research Ltd is registered at Companies House with number 8256259.

(Disclaimer Version 8 – Effective from August 2018)

Status of Hardman & Co's research under MiFID II

Some professional investors, who are subject to the new MiFID II rules from 3rd January 2018, may be unclear about the status of Hardman & Co research and, specifically, whether it can be accepted without a commercial arrangement. Hardman & Co's research is paid for by the companies, legal entities and issuers about which we write and, as such, falls within the scope of 'minor non-monetary benefits', as defined in the Markets in Financial Instruments Directive II.

In particular, Article 12(3) of the Directive states: 'The following benefits shall qualify as acceptable minor non-monetary benefits only if they are: (b) 'written material from a third party that is commissioned and paid for by a corporate issuer or potential issuer to promote a new issuance by the company, or where the third party firm is contractually engaged and paid by the issuer to produce such material on an ongoing basis, provided that the relationship is clearly disclosed in the material and that the material is made available at the same time to any investment firms wishing to receive it or to the general public...'

The fact that Hardman & Co is commissioned to write the research is disclosed in the disclaimer, and the research is widely available.

The full detail is on page 26 of the full directive, which can be accessed here: <https://ec.europa.eu/transparency/regdoc/rep/3/2016/EN/3-2016-2031-EN-F1-1.PDF>.

In addition, it should be noted that MiFID II's main aim is to ensure transparency in the relationship between fund managers and brokers/suppliers, and eliminate what is termed 'inducement', whereby free research is provided to fund managers to encourage them to deal with the broker. Hardman & Co is not inducing the reader of our research to trade through us, since we do not deal in any security or legal entity.

