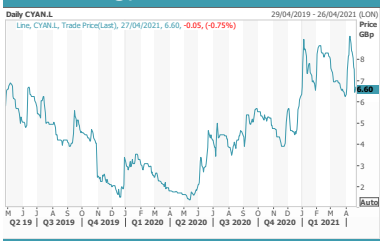
Technology



Source: Eikon Thomson Reuters

Market data

EPIC/TKR	**CYAN.L**
Price (p)	**6.30**
12m High (p)	9.40
12m Low (p)	1.25
Shares (m)	186.7
Mkt Cap (£m)	11.8
EV (£m)	13.3
Free Float*	70%
Country of listing	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, the company has spent in excess of $50m on developing its technology platform, on which more than 1.5m endpoint nodes have been implemented globally. At the end of March 2020, total headcount stood at 48 employees, of which 10, or 21%, were women.

Company information

Executive Chairman	John Cronin
CFO	Heather Peacock

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CYANCONNODE

The "smart" in smart cities

Amid growing interest from governments around the world in smart technologies, CyanConnode is establishing its presence as a leading global vendor of intelligent communications and metering technologies that capture information and facilitate the flow of data for analysis. Its Omnimesh platform, developed at a total cost of over $50m, has proven scalability and is being widely deployed in large-scale utility smart meter rollouts in countries such as India and Thailand, but can be applied to streetlights, heating and EV charging systems. Given positive secular trends, the long-term growth outlook would appear to be highly favourable.

- **Smart meter rollouts a global priority:** Governments globally are sponsoring smart meter deployments. In many countries, utilities are struggling, due partly to the loss of as much as 20% of their revenue from theft of power and unpaid power bills. Reducing this leakage allows essential investment in infrastructure.

- **CyanConnode well placed in India:** India's Smart Meter National Programme (SMNP) is gaining momentum, with an objective to replace over 250 million conventional meters by 2022-23. CyanConnode has won, and successfully deployed, several contracts and is well placed to capture significant share.

- **Strong revenue confirmed in FY'21 update:** The 7 April update confirmed strong revenue growth of c.250% to c.£6.4m during the 15-month period to end-March 2020. Management is guiding to further strong growth in FY'22, highlighting the consensus revenue estimate of c.£8.8m.

- **Strong pipeline:** Our forecasts for FY'21 and FY'22 include primarily only existing contracts where meter rollouts have commenced. However, the pipeline is substantial, not only in India, but also in Thailand, the UAE, Africa and Egypt – these opportunities are not material to our estimates until FY'23.

- **Investment summary:** Rollouts of smart meters for major programmes are firmly under way, and the company is ramping up production to meet demand. The smart meter opportunity is just one aspect of the medium-term addressable market, which also includes smart cities. Our DCF-implied equity fair value is £71.8m (equating to £0.38 per share), versus the current market capitalisation of £11.8m.

Financial summary and valuation

Year-end Mar (£m)	Dec'18	Mar'20*	2021E	2022E	2023E
Revenue	4.47	2.45	6.20	8.83	18.84
EBITDA	-5.85	-5.46	-1.92	-0.86	3.08
EBITDA margin	-1.31	-2.23	-0.31	-0.10	0.16
Adjusted EBIT	-5.28	-5.69	-2.28	-1.13	2.83
Adjusted pre-tax profit	-5.27	-5.70	-2.49	-1.32	2.66
Net income	-4.34	-5.13	-1.89	-0.70	3.30
EPS (p)	-3.71	-2.96	-1.09	-0.40	1.90
EV/Revenue (x)	3.0	5.4	2.1	1.5	0.7
EV/EBITDA (x)	-2.3	-2.4	-6.9	-15.5	4.3
P/E (x)	-1.7	-2.1	-5.8	-15.7	3.3

**15 months to Mar'20 (due to year-end change)* *Source: Hardman & Co Research*

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Investment highlights

A leading global vendor of "smart" technologies

Highly scalable platform for transmission, collection and analysis of IoT data

Founded in 2002 as a fabless semiconductor business, today, CyanConnode is rather different as 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. Although the company is best-known for its intelligent modules for smart meters, for which it continues to win major contracts for global deployments, its core Omnimesh platform can be applied to a range of smart city applications, including electricity, gas, water, street lighting and EV chargers. In a smart city context, where there are a myriad of connected devices all generating data, the proven scalability and network resilience of the platform are ideal.

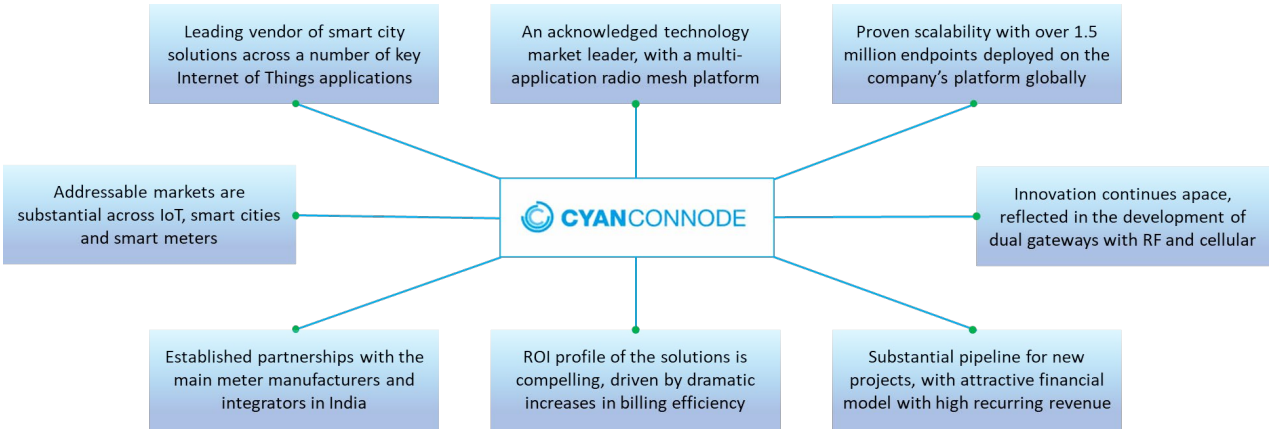
One of the world's leading providers of smart metering technology

Today, the key revenue streams for CyanConnode stem from its position as one of the world's leading providers of smart metering technology, including the modules that are inserted into meters, and related data collection and networking technologies. CyanConnode has won contracts for multiple, large-scale programmes in large countries where meter rollouts are under way. India is a key market for the company, where a programme to roll out some 250 million smart meters is under way and where CyanConnode has a leading position. Other markets in Asia and the Middle East are also commencing deployments, and we expect further contract win announcements in due course.

Very substantial pipeline of opportunities

Our base-case forecasts for CyanConnode include only contracts that have been won and where meter rollouts have begun. This conservative approach seeks to avoid the impact from timing uncertainties and political disruption, but it should be noted that the company's pipeline of opportunities is very substantial, in India and beyond, including sizeable new and follow-on opportunities in Thailand, Africa, Egypt and the United Arab Emirates (UAE).

Introducing CyanConnode



Source: Hardman & Co Research

The company's core areas of focus encompass end-to-end planning of network environments and integration at both ends, including provision of software to connect to data aggregation systems.

Multiple addressable segments

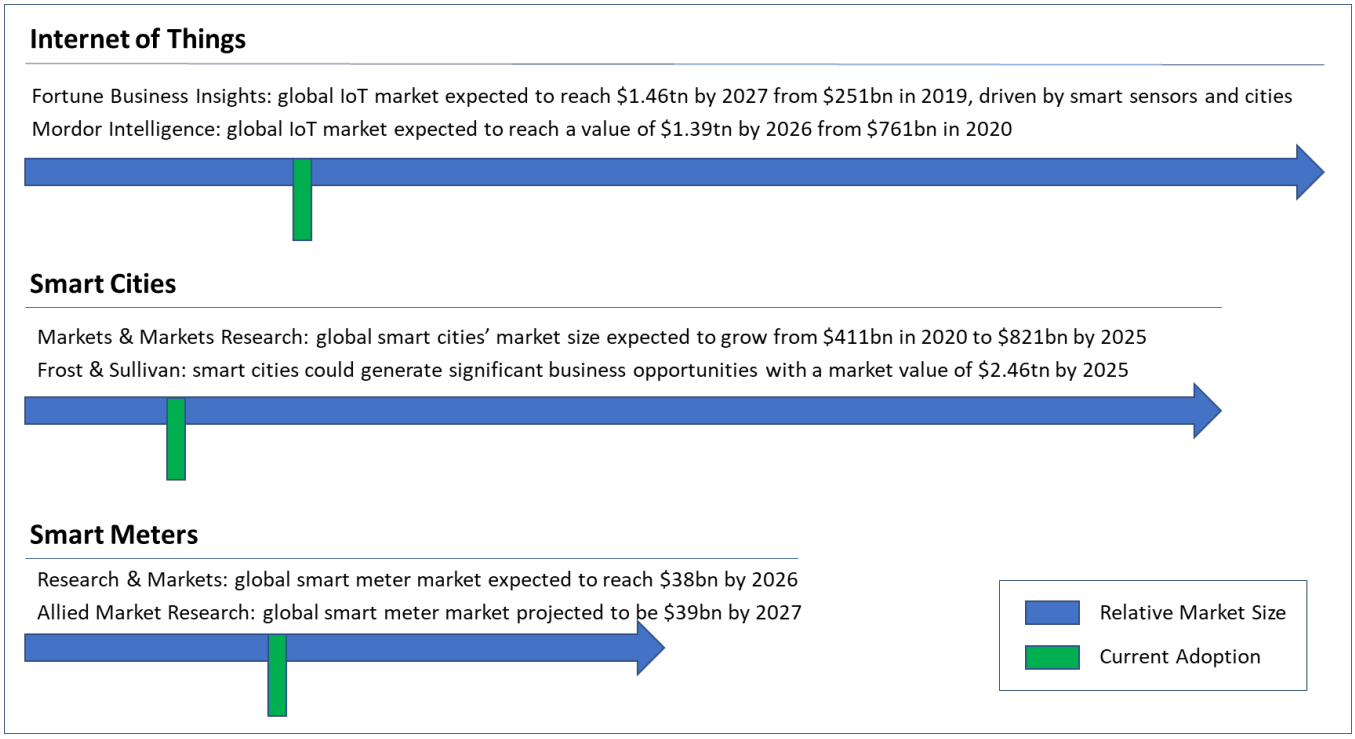
Longer-term opportunities include Smart Cities

There are multiple layers to the growth opportunity for CyanConnode. While the company is today benefiting from strong growth for its smart metering communications technologies, which span a number of different capabilities, the longer-term opportunity encompasses a far broader scope. In this section, we consider market growth estimates and the addressable market for CyanConnode in three layers:

- The Internet of Things (IoT)
- Smart cities
- Smart metering

These are all inter-related and overlapping areas, but they all represent substantial end-markets in their own right. The chart below provides our take, together with a selection of third-party market forecasts produced by leading commentators on these segments. The overall message is that CyanConnode's end-markets remain in their relative infancy when it comes to adoption today.

CyanConnode: relative addressable market sizing



Source: Hardman & Co Research

Smart meters the current major revenue driver

Gaining momentum in contract wins in India, other parts of Asia, with ongoing discussions in Africa and Middle East

CyanConnode is established as a leading global vendor of smart meter communication systems, and is gaining momentum in winning contracts, in conjunction with leading meter manufacturers in major meter upgrade programmes in India, Asia, Africa and the Middle East. In these and many other regions of the world, smart meter penetration remains in its infancy, but smart meters are a critical component of power infrastructure in order to maintain efficient billing systems and avoid financial losses. An additional key social benefit is the reduced energy wastage

that is created by inefficient energy production at the grid level due to inaccurate end-user consumption estimates.

Unsurprisingly, perhaps, governments around the world are placing emphasis on deployment of smart meters in order to improve the efficiency and financial performance of their electricity and gas supply chains, noting the adverse impact being exerted by energy losses and theft. India has one of the most ambitious smart meter rollout programmes in the world, seeking to roll out some 250 million smart meters over the next few years.

Partnerships with major meter manufacturers

As a relatively small vendor of innovative technologies, CyanConnode sensibly opts to partner with larger organisations, such as the smart meter manufacturers; this is one of the company's primary routes to market in this segment. The latter will be prime contractors for the government or utility contracts, in turn sub-contracting the supply of the communications modules, gateways and IoT networks to CyanConnode. The main meter manufacturer partners in India are currently Schneider Electric, Genus Power Infrastructures and HPL. CyanConnode's technology is fully integrated with each of these meter suppliers, and they are bidding for several contracts in conjunction with CyanConnode. The company also partners with other companies, such as system integrators and Energy Procurement Contractors (EPCs), which act as the prime contractor for the consortium.

Working with multiple bidders significantly strengthens CyanConnode's prospects of success

The contract award processes for large-scale smart meter rollouts can be lengthy. In the first instance, the successful consortium will receive a letter of intent from the contracting entity. Once the contract is awarded to the prime contractor, CyanConnode (and other sub-contractors) will typically receive letters of intent. The period between this and the final contract award will vary but, on average, is around two to three months. Following this, a period of contract negotiation will take place, before final contracts are signed. CyanConnode has found itself working with multiple bidders for each of the major Indian contracts, significantly strengthening its prospects of success.

Acceleration in key contracts

CyanConnode must deliver module production in sufficient quantities to meet programme requirements

Given the sheer scale of the smart meter programme in India, combined with the company's focus on India and a series of contract wins, it is inevitable that CyanConnode's future financial performance will be materially dependent on the pace of progress with the Indian Smart Meter National Programme (SMNP). While the last couple of years have seen some delays in this regard, the pace of shipments has accelerated in recent months, and management remains confident of further strong revenue growth. The implementation phases of the Indian programme, together with similar initiatives in other countries, are now well under way, and the onus is on CyanConnode to initially deliver module production in sufficient quantities to meet the requirements of the programmes, not only in India, but also in Thailand and other incremental markets, as contracts are signed.

A longstanding presence in India

Present in India for 10 years…

CyanConnode has been present in India for over a decade. It was in May 2012 that the company announced an order with a value in excess of $1m from a major smart metering company in India. The current Executive Chairman and CEO, John Cronin, was appointed into his role in March 2012, and he has steered the business to a strong position in the Indian market.

The requirements of the Indian market have significantly influenced the evolution of the CyanConnode product portfolio. In fact, the standards-based 865MHz solution was designed specifically to cope with demanding specifications, such as a communication range of more than 60 metres and to be able to be read through

concrete walls in order to address dense urban conditions in India. This has been achieved while keeping product costs low. In March 2020, CyanConnode launched a dual-mode gateway compatible with RF mesh and cellular (GSM) technologies to respond to evolving requirements in India, although RF mesh remains the core product offering.

New management team in India

…with a management team determined to maximise progress in the country's smart meter programme

More recently, the company announced a change of leadership in its Indian subsidiary. The new CEO/MD in India is Ajoy Rajani, who joined from Reliance Communications and Reliance Energy, having spent 16 years there in senior roles. The new COO in India is Ratna Garapati, who joined CyanConnode as Chief Operating Officer India from Trilliant India, where he was responsible for business development, strategy and operations. At Trilliant, he was involved in the implementation of over 5 million smart meters. These extensive changes confirm that the CyanConnode management team is not holding back its determination to maximise its progress in the Indian smart meter programme.

Opex "as-a-service" models

Metering-as-a-service is a significant opportunity for CyanConnode, as utilities pay on a monthly basis per meter. Infrastructure funds like these "opex" models, due to the high-margin recurring revenue streams that are created, but these are typically highly complex arrangements that need to reconcile many potentially conflicting objectives and timescales. Discussions are ongoing with several potential partners for such projects.

Opex models will play critical role in unlocking revenue opportunities from smart cities and smart meters

Recognising that the upfront capex requirements of rollouts of smart devices and other elements of smart city models are prohibitively expensive, there is a growing focus on opex models more generally. In essence, these models seek to provide the infrastructure and administration of assets for a predictable monthly fee over a specific timeframe. However, these are highly complex arrangements, which seek to bring together public funding and private financing, strike an appropriate balance between socioeconomic impact and returns on investment and reconcile differing time horizons – for example, between the long-term contractual preferences of infrastructure funds and technology lifespans. Nonetheless, these models will play a critical role in unlocking the revenue opportunities from smart cities and smart meters.

A potentially highly significant development in the Indian smart meter opportunity is the growing emphasis being placed by the government on "as-a-service" models. The Indian government is driving towards the creation of special purpose vehicles (SPVs), which will provide funding for rollouts under these models. Several business models are being evaluated in this regard, certain of which will continue to allow CyanConnode to receive revenue for hardware modules and gateways upfront.

Recent trading updates show strong performance

FY'21E revenue of c.£6.2m, expected to grow to c.£8.8m in FY'22E…

While it is fair to say that CyanConnode has had to wait a long time for the acceleration in smart meter rollouts to happen, especially in the Indian market, it is clear that these rollouts are now in full swing. The company is well placed to benefit, having cultivated strong relationships across the marketplace. These efforts are shining through in the company's financial performance, with the most recent trading update for FY'21 featuring revenue for the year at 2.5x the level of revenue in the prior year, which was for a 15-month period (due to a year-end change). This implies revenue in FY'21 of c.£6.2m, which, at this stage, is expected to grow by almost 50% in FY'22 to revenue of c.£8.8m.

Potential valuation disconnect

…and stock could experience marked rerating

There appears to be a valuation disconnect between the progress being made in India (and the leading position that has been created there and in other markets in Asia) and the current market value. This is likely to be a function of the delays that have been experienced in the commencement of contracts won in the last two to three years, which have, in turn, impacted the company's ability to deliver against market estimates. However, against a backdrop of the ongoing acceleration in shipments and corresponding strong revenue growth, the stock could experience a marked rerating, as investor confidence in the sustainability of these trends grows.

Selected risk factors

Pandemic and political interruptions

Rollouts in key market could be affected by political interruptions and COVID-19

One significant risk factor for CyanConnode remains the scope for interruptions to smart meter programmes in key markets. This was experienced in India in the last couple of years, when the main Indian elections themselves created a hiatus, but changes in regional ruling parties also delayed certain contracts from being progressed. In India, these issues have been overcome, and the implementations are now back on track. There is inevitably a risk that these types of issues or the COVID-19 pandemic, which is intensifying in certain countries such as India, impacts progress and causes some delay.

Delays to contracts

Extent to which new contracts will result in revenue in FY'22 and FY'23 unpredictable

Against the backdrop of growing interest from governments and regional authorities in many emerging economies in the deployment of smart meters, contractual discussions can remain lengthy. CyanConnode is engaged in discussions regarding new contracts in several countries at the present time, but the extent to which these will result in revenue in FY'22 and FY'23 is unpredictable. In some cases, the introduction of opex models adds a layer of complexity, albeit eventually resulting in a larger and more accelerated rollout programme overall. Given these factors, there is scope for some volatility in financial performance, although, for the current financial year (FY'22), the risks are mitigated by the inclusion of only won contracts in the company's guidance and consensus estimates.

Supply chain management

Availability of silicon a meaningful risk factor currently

CyanConnode subcontracts its hardware manufacturing to an Indian CEM, which, in turn, procures silicon on behalf of CyanConnode. The current production capacity, based on a single production line, is 100,000 modules per month. The shortages in silicon have started to impact certain industries – for example, auto manufacturing and consumer electronics. However, CyanConnode has mitigated against these shortages and has nurtured an increasingly strategic relationship with its suppliers. Availability of silicon remains a meaningful risk at the current time. From a production capacity perspective, in the shorter term, there is scope for production increases through additional shifts on the existing production line.

Reliance on indirect routes to market

In practical terms, the smart meter contracts are awarded to the prime contractors, such as meter manufacturers, which, in turn, subcontract the provision of smart meter communications systems to CyanConnode. The latter is, therefore, in theory, not involved in the frontline negotiations. However, what can be seen from the recent Energy Efficiency Services Limited (EESL) announcement, regarding collaboration in the Middle East, is that CyanConnode is viewed as a strategic partner, given the core value delivered by its platform, intelligent smart modules and software, and being involved at all stages.

Internet of Things (IoT)

Understanding IoT

IoT has implications for almost every industry sector on planet

The term IoT essentially refers to a network of inter-related, internet-connected objects that are able to collect and transfer data in real time over wireless or wireline networks. Today, there are billions of connected devices in the world, most of them able to collect data and/or generate data. These are usually referred to as "smart" devices – for example, smart meters.

IoT is a concept that has implications for almost every industry sector on the planet. Ericsson describes IoT as an expansion of the internet and "a way of fusing the real and cyber worlds". In practice, this represents potentially tens of billions of interconnected devices/sensors, which are continually generating, collecting and/or responding to data.

The analysis of this data is critical in order to derive intelligent insights from the data. Large-scale investment is currently going into data lakes in open-source databases, to allow more data than ever to be collected, and into real-time systems that allow relevant data to be identified, captured, aggregated and analysed.

Omnimesh is an IoT platform

However, it should be recognised that CyanConnode's Omnimesh is an inherently multi-application platform, which can be applied to other applications, such as management of streetlamps, traffic lights, and other distributed manageable objects. Over time, we expect to see Omnimesh being deployed for additional applications beyond meters.

CyanConnode's technology portfolio falls squarely into the definition of IoT-centric technologies. The capabilities of the Omnimesh platform are inherently about connecting devices to each other and to centralised platforms, and facilitating the flow of data between them in an efficient manner.

Layers in the IoT technology stack

Substantial total addressable market for CyanConnode

McKinsey's chart below disaggregates the IoT technology "stack" into layers, distinguishing between application, enabling platforms, connectivity and devices. While eventual addressable market sizes vary, most are in their relative infancy, and are expected to deliver strong growth in the coming years. This is helpful to our analysis of CyanConnode, as it is clear that the company's product offerings straddle multiple categories among these layers, confirming a substantial total addressable market for the company:

- Omnimesh is an enabling platform that can be cloud-based or, more commonly, is deployed in the data centre of the utility provider.
- It provides the intelligent modules that are inserted into end-devices, typically smart meters, to enable them to communicate with the centralised platform.
- Omnimesh includes head-end software, which provides the integration, where required, into the device management platform.
- At the heart of the CyanConnode proposition is highly resilient networking between the devices at a local level and the gateway into the backhaul network. It is network agnostic, and is able to offer hybrid systems that use RF mesh and cellular connectivity.

McKinsey: IoT technology layers

Focus · Low · High · Very high growth · High growth

IoT technology stack	Description	Market size	Market growth outlook	Technology maturity
Business applications	Customer- or device-facing functionality that uses insights for added value (eg, dynamic dashboard, mobile app and embedded software)	High	Very high growth	Low
Enablement platforms and cloud computing	**Enablement platforms** Device-enablement platforms (including endpoint protection and access management) for obtaining, importing, and processing data Analytics and visualization applications (including artificial intelligence) for insight generation, reporting, and complex event handling	Low	Very high growth	High
	Cloud computing Data processing (usually in real time) within a central cloud server farm or with edge computing Data storage and integration using standard protocols	Low	High growth	High
Connectivity	Data transmission and basic device connectivity features with cellular networks, low-power wide-area networks, local wireless networks	Low	High growth	Low
Devices	Connected devices (eg, cars, buildings, equipment, wearables) Sensors providing environmental information (eg, temperature, pressure, motion, filling level, pollution) and actuators	High	High growth	High

Source: McKinsey (2019)

High scalability is key

Scalability requirements of smart cities are potentially immense

The end-to-end, integrated capabilities of the Omnimesh platform are attractive for large-scale rollouts, where proven scalability and resilience are vital attributes. This is one of the reasons for the popularity of the company's smart metering systems, with the smart meter manufacturers vying for contracts in the Indian programme, which we discuss in considerable detail later in this report.

Perhaps, more importantly, from a longer-term perspective, the scalability requirements of the smart cities that are starting to emerge are potentially immense. We discuss these opportunities in the next section.

Smart cities

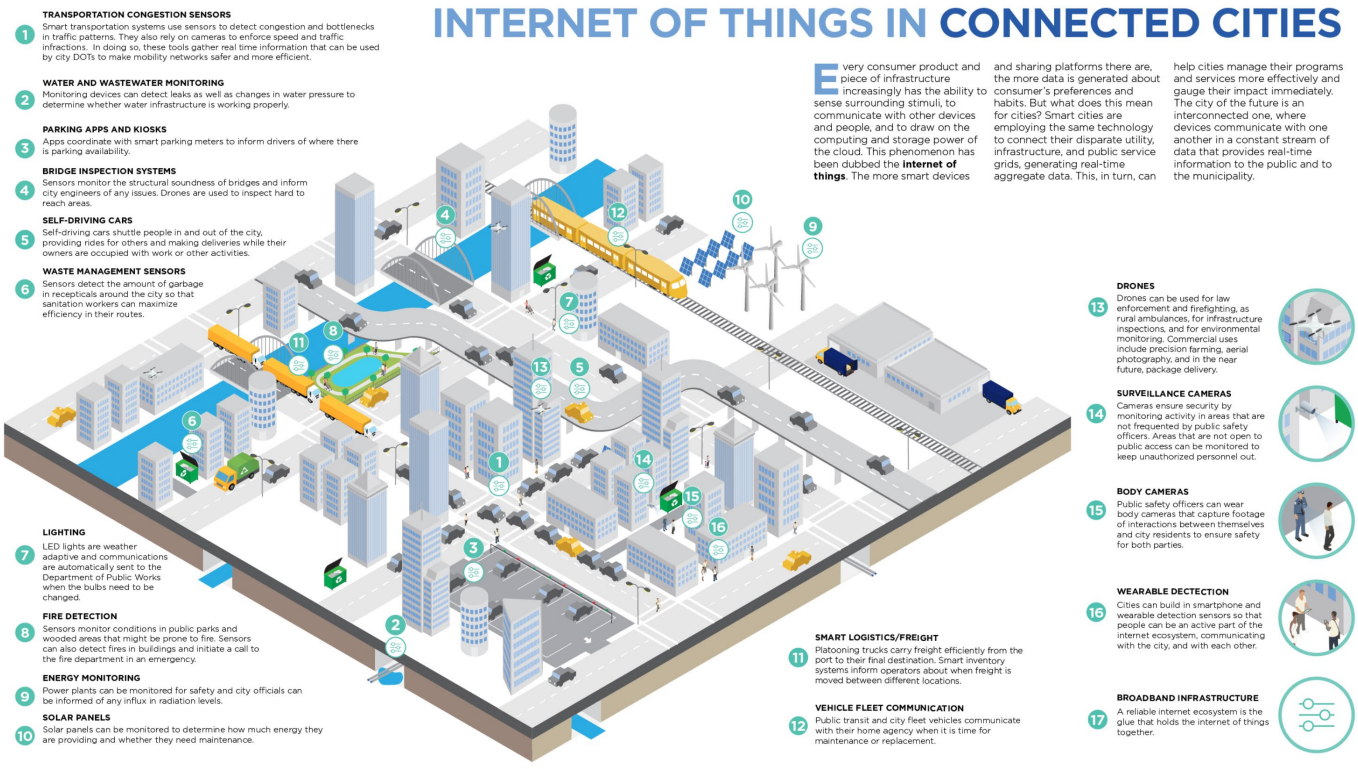
Smart cities utilise and analyse data used in advanced technologies to create more efficient and enhanced lives for their citizens

What is a smart city?

Definitions of smart cities and the understanding of what they comprise and seek to achieve vary considerably. At their heart, smart cities utilise and analyse data used in advanced technologies to create more efficient and enhanced lives for their citizens. A key part of all smart city models is an intelligent network of connected objects and machines that transmit data using wireless technology and the cloud. Cloud-based IoT applications receive, analyse and manage data, often in real time, to help regional authorities make better decisions and meet the challenges of running complex city environments.

The chart below provides a comprehensive summary of the types of applications and technology workloads that may exist in a smart city. It is evident that even a modest-sized city environment might include millions of sensor and other IoT endpoints. There can be no doubt that the networks deployed to connect devices for IoT applications on this scale need to be highly resilient and self-healing, while consuming low power. These are attributes that CyanConnode has developed in its platform and on its focus on RF mesh technologies from the outset.

Smart Cities: the role of IoT



Source: NLC Center For City Solutions and Applied Research

Market growth forecasts

Huge market opportunity for relatively small vendor like CyanConnode

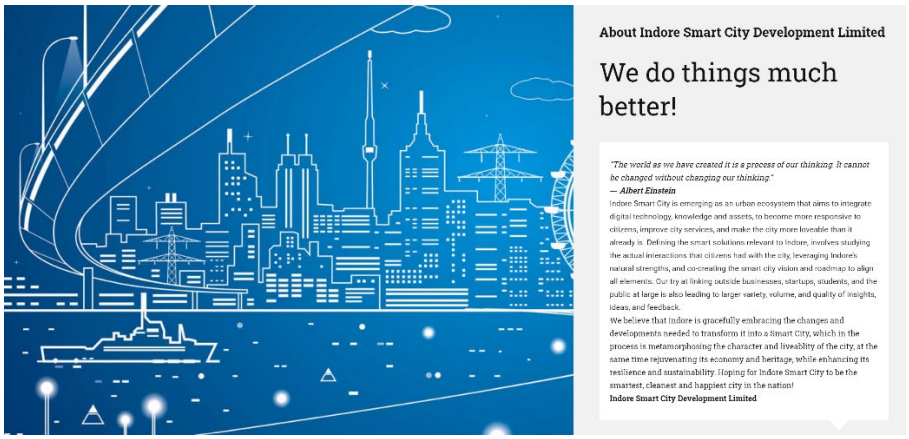
The difficulty in narrowing down the scope of smart cities in order to derive market forecasts is reflected in the wide disparities between the forecasts that have been published by leading commentators. In our earlier chart on addressable markets, we summarised a couple of these. One suggested a total market by 2025 of $821bn, while another anticipated business opportunities relating to smart cities of some $2.46tr. Most of this difference is about the definition of what should be included and excluded. The higher forecast will likely include services revenue and many of the ancillary product supply opportunities beyond those specifically related to smart city applications and technologies. The takeaway from all of these forecasts is that the market opportunity for a relatively small vendor such as CyanConnode is simply immense. We would expect the company to address these opportunities via larger partners, equivalent to the approach the company has adopted in the smart meter market. One related point is that the upfront capex costs associated with smart city projects are substantial and potentially unaffordable. Later in this report, we dwell on the emerging opex models funded by third-party infrastructure funds and similar entities, which we believe will play a critical role in allowing the smart city revenue opportunities to be unlocked.

Smart meter projects a precursor for smart cities

CyanConnode should be well positioned to capture additional contracts

Smart cities are next on the agenda after the growing number of smart metering projects that are under way. In fact, some of the Indian cities that have successfully implemented smart meters using CyanConnode's technology have since published ambitious and far-reaching smart city plans. Indore is one good example of this. This city was one of the first major smart meter contract wins for CyanConnode in India, and the rollout continues. Indore has subsequently published detailed plans for its transformation into a digitally-led environment. CyanConnode should be well positioned to capture additional contracts as developments unfold.

Indore's smart city messaging



Source: Indore Municipal Corporation

Smart meter government programmes

Power availability a determinant of economic development

Power availability has to consistently step up to meet requirements

Energy is playing an increasingly critical role in the development of emerging economies, particularly where power generation infrastructure is lacking and under-invested. Not only is power availability for traditional industries a key requirement, but digitisation comes with its own demands for electricity. The accelerating pace of digital adoption across the globe is reflected in emerging countries, many of which have very high rates of mobile penetration. Whether to satisfy growing demand for on-demand content and video messaging, or to deliver online educational content, power availability has to consistently step up to meet these requirements. Governments around the world understand the need to maintain a healthy energy supply chain and are strong proponents of smart meter deployments to create a step change in the financial performance of utilities.

Distribution losses creating financial malaise

Smart meters primary means of reducing losses through theft, inaccuracies and inefficient collections

The power distribution companies (Discoms) are part of a power value chain that sees them purchase power from the generators and supply end-user businesses and consumers, from which the distribution companies collect payments. However, if there is energy leakage from poor infrastructure and theft of power, or if customers do not pay in a timely fashion, pay the incorrect amounts or do not pay at all, there is a direct impact on the cashflow of the distribution company. The Discom will have to meet its payment obligations to the power generation company, and will have to plug the cashflow gap with debt (the interest on which is ultimately passed through to customers), government subsidies or curbs on opex and capex.

One might assume that additional generation capacity is the primary answer, but actually, to a large extent, the solution lies in the distribution part of the value chain, which provides the interface between utility companies and end-users. In many of these countries, the extent of energy leakage and theft is staggering. It is clear that reducing losses through theft, inaccuracies and inefficient collections is a priority for the Discoms, and smart meters are the primary means of achieving this. It is unsurprising, therefore, that governments have continued to priorities rollouts of smart meters.

Major government-sponsored smart meter rollouts

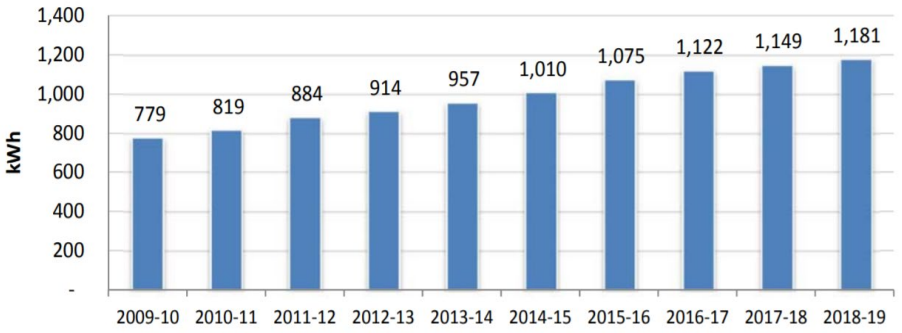
In this report, we do tend to focus on India, given both the prominence of this smart meter rollout on the global stage and, of course, given CyanConnode's strong position in the Indian market. However, programmes are under way around the world with North America and Europe already at relatively high levels of smart meter penetration (see later section entitled *Market growth and forecasts*). Other countries in Asia (Thailand, for example), major countries in the Middle East and some of the larger African countries have embarked on major initiatives. Often, the smart meter and smart grid deployments form part of the broader, ambitious smart city visions.

Smart meters in India

India has one of most ambitious smart meter rollouts in world…

The chart below shows the annual growth in electricity consumption in India through to 2018-19. In common with most major countries, the consumption trend in energy is consistently upwards, and this can be considered to be a long-term secular trend.

Indian total annual power consumption of electricity



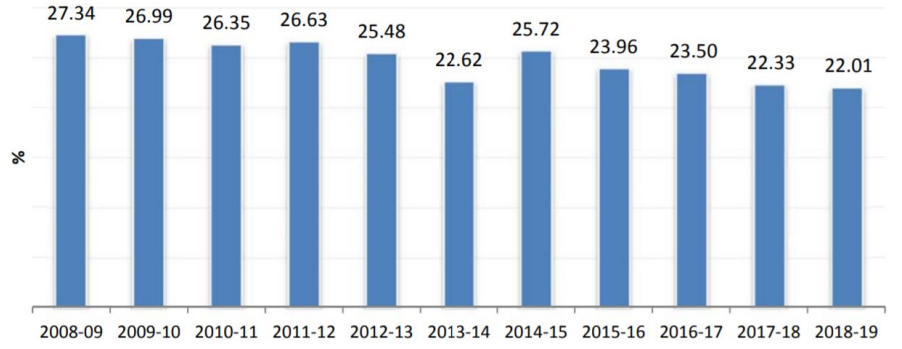
Source: PFC (2020)

At the present time, India has one of the most ambitious smart meter rollout programmes in the world. It is not difficult to see why. The Indian distribution utilities have been struggling for many years, weighed down by inefficiencies across their operations. A 2020 report on the state power utilities by the Indian Power Finance Corporation (PFC) noted that aggregate losses for distribution utilities increased by almost 70%, from Rs 29,452 crore in 2017-18 to Rs49,623 crore in 2018-19. This was against a backdrop of higher achieved average pricing, which increased from Rs 4.91 per kWh in 2017-18 to Rs 5.09 per kWh in 2018-19.

…given significant strategic value of power

The Indian government plainly understands that this loss represents a drain on the economic development of the country, at a time when the strategic value of power is becoming significant.

India electricity distribution AT&C losses, 2008-19



Source: PFC (2020)

One critical factor in this financial profile of the distribution utilities is the scale of the AT&C losses (this is a concept that we discuss in more detail in the section on ROI). There has been a significant improvement over the past decade, but it remains the case that one-fifth of electricity that goes through the Indian transmission network is ultimately lost, i.e. it does not convert into revenue. As we discussed, a small element of this is typically due to system loss, but the majority of the loss

represents electricity that is stolen or simply not billed for, or for which payments are not collected.

The pressures on the power distribution companies (or Discoms) as they are known, have been exacerbated by the lockdowns in response to the COVID-19 pandemic. In India, for example, estimates suggest a 25%-28% reduction in power demand during the lockdown period, accompanied by severe restrictions on traditional meter reading and payment collections. One of the key advantages of smart meters is that they can be remotely switched to prepaid mode, which creates a potentially immense cashflow benefit for the Discoms, especially during the pandemic, when collections cannot be readily made.

Against this type of backdrop, the ROI on deployments of smart meters, particularly in emerging economies, is highly compelling. The Indian Discoms have seen a 15%-20% improvement in monthly revenue per customer moved on to smart meters, which represents a huge saving, given the scale of these distribution businesses.

Growing focus on cybersecurity standards

Emphasis in India on sourcing meters and equipment from Indian manufacturers, not from other countries

It is inevitable, given the scale of the opportunity, that the Chinese utility meter manufacturers have been aggressively targeting the Indian market with low pricing. They are typically relying on their own smart meter technology, which tends to be based around cellular. However, the government's appetite to source smart meters from China appears to be low. Ultimately, these devices provide a gateway into highly critical infrastructures that lie at the heart of entire regions and countries. Unsurprisingly, therefore, the last two years have seen a growing emphasis in India on sourcing smart meters and related equipment from Indian manufacturers. As part of these developments, the Indian government has sought to ensure greater adherence to specific standards, including for cyber security. These initiatives also bring a related benefit of driving investment into domestic capabilities to manufacture smart meters and related infrastructure.

EESL and IntelliSmart are key entities

These entities could play important role in Indian smart meter programme

EESL (Energy Efficiency Services Limited) was established in 2009 as a joint venture comprising four of the largest power companies in India, namely NTPC Limited, Power Finance Corporation Limited, REC Limited and POWERGRID Corporation of India Limited.

A subsequent JV, named IntelliSmart Infrastructure, was formed by EESL and the National Investment and Infrastructure Fund to support Discoms with the financing, procurement, deployment and operation of smart metering infrastructure.

These entities could play an important role in the Indian smart meter programme, with EESL leading the procurement of platforms and devices for a number of utilities. However, it is unclear whether the existing contracts awarded by EESL will meet the requisite standards in terms of service level agreements and the growing requirement from the Indian government for sourcing of meters from domestic manufacturers. In this context, the developing relationship between EESL and CyanConnode is noteworthy.

In April 2021, EESL's Dubai entity announced that it had selected CyanConnode as a technology partner for smart metering and smart lighting projects in the Middle East and Africa. It appears to us likely that this announcement is a precursor to a closer working relationship in India, as EESL strives to deliver an acceleration in the rollout there. Were the latter to happen, this would represent a highly positive development for CyanConnode.

New joint ventures to deliver shared service models

In September 2020, the Indian government announced the creation of a new JV company, comprising four public-sector entities, namely the Power Finance Corporation (PFC), Power Grid Corporation, REC Limited and NTPC Limited. Each partner in the JV will contribute Rs150 crore ($20m). A debt component of Rs1,400 crore will bring the total available capital to Rs2,000 crore ($270m).

The JV will implement and operate back-end platforms, which will be available to the Discoms in order to facilitate reduced costs and a faster pace of smart meter rollouts. Access to the shared back-end infrastructure will be offered on a per transaction software-as-a-service basis.

Progress so far

Contract value of $10m from two contracts

The states in India that have been an early focus for the programme are Uttar Pradesh and Haryana. An update provided in December 2020 indicated that the Uttar Pradesh Power Corporation had rolled out 1.1 million smart meters by that point, versus a total target of 4 million meters by the end of 2021.

Genus has captured significant share in the early deployments. In 2020, EESL purchased 1.5 million smart meter units from Genus, making it the first company to achieve this scale of participation in the main Indian programme.

Currently, CyanConnode is deploying four contracts in India. Two were won in 2018, both with the same utility company, in conjunction with Genus. The total numbers of meters covered by the two contracts is 430,000, representing a contract value of $10m. The rollout of these smart meters is now underway, following a two-year delay. The other two contracts being rolled out are for 492,000 meters.

CyanConnode's technologies

Communications for IoT

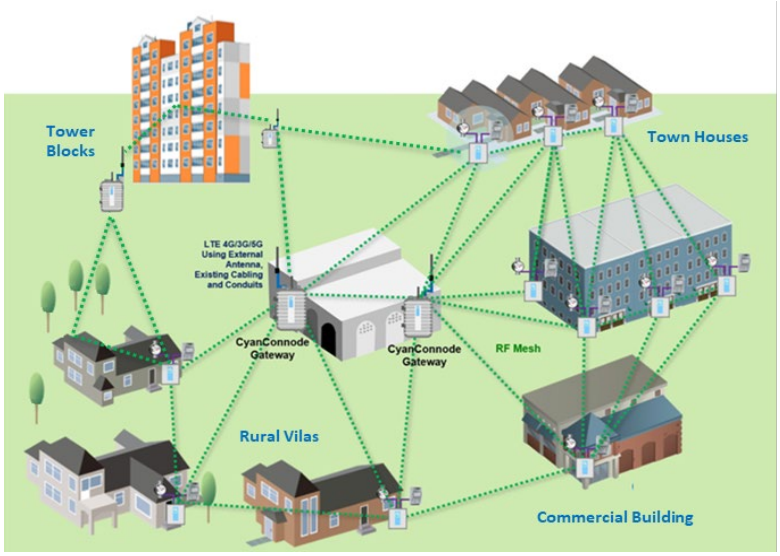
CyanConnode offers comprehensive IoT communications platform

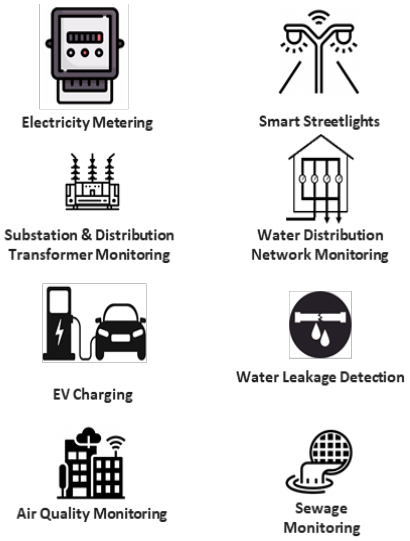
Intelligent devices enable two-way communication between the endpoint device and the central systems of the provider. These are generally deployed as part of a broader platform, which includes the intelligent modules that are embedded in the devices, communications networks and protocols, and data management systems. These are essential components for an Internet of Things (IoT) implementation.

Ideal for rural locations or where dwellings widely geographically dispersed

CyanConnode is a specialist provider of communication technologies for IoT networks. The company delivers secure, robust IoT communication networks for multiple enterprise applications, in a wide range of urban and rural environments. A private network is created between the endpoint devices (e.g. smart meters), with gateways aggregating data from a group of local devices. There are multiple approaches available for networking between smart devices and central data-gathering hubs. The appropriate technology will vary by country, topology, population density, mobile network capacity, backhaul network availability and other such factors.

CyanConnode's IoT Communications





Source: Company data

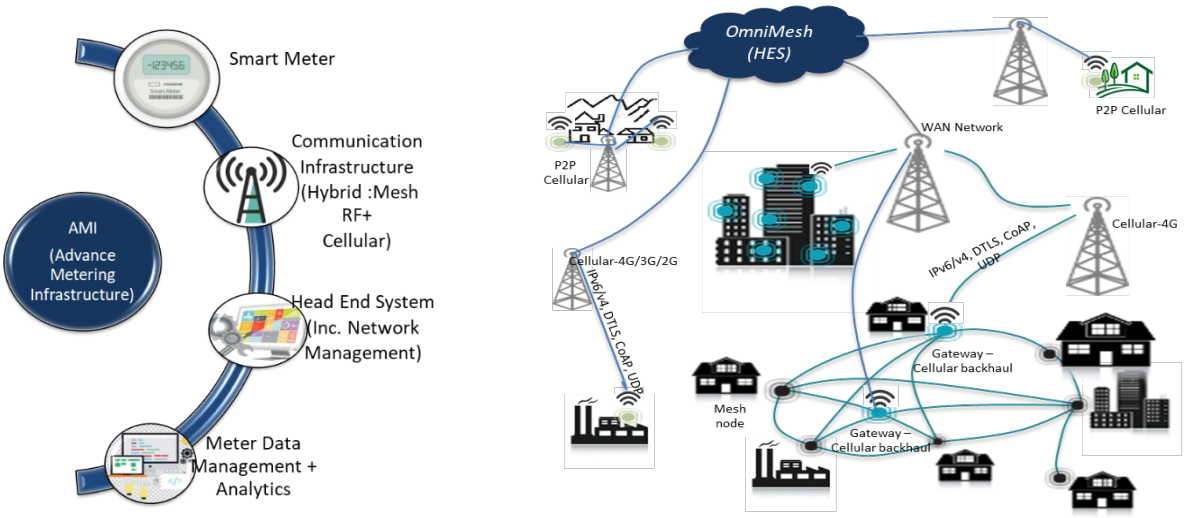
Multi-technology approach

CyanConnode has historically been a strong proponent of RF mesh technology, and this remains its core product offering, but the company has, within its portfolio, full capabilities for cellular 2G to 5G, including narrowband IoT, and powerline communications. All of these communications technologies can be connected to the same head-end server (HES), which is also provided by CyanConnode. The HES is where the data is collected and then sent on to a data management system, which will be managed by a utility in the example of smart meters.

The network is a mesh where each endpoint connects to multiple other points, so there is no single point of failure in the network. If a particular node malfunctions, the mesh network offers redundancy, such that the other nodes can still continue to connect via other routes in the network. Specifically for RF mesh networks, a key attribute is that every device on the network does not need to be within range of

the gateway, making this approach ideal for rural locations or where dwellings are widely geographically dispersed.

CyanConnode's Advance Meter Infrastructure (AMI) and Omnimesh IoT networks



Source: Company data

RF mesh networks explained

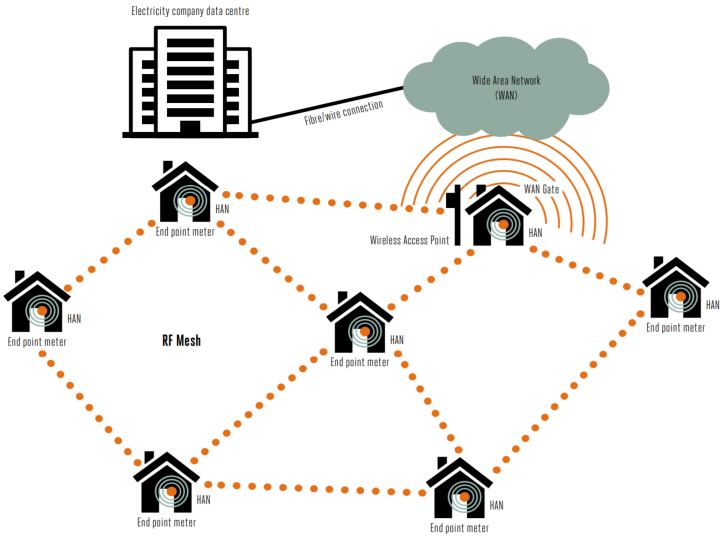
A proven, cost-effective technology for delivering excellent service levels

Narrowband RF mesh technology uses lower bandwidth radio frequencies (sub-GHz). These frequencies give better range and coverage than higher frequencies. The Omnimesh RF platform is an open standards-based (IPv6, 6LoWPAN) network solution that provides long-range and reliable communication between devices – for example, between smart meters. RF mesh is a proven, cost-effective technology for delivering excellent service levels.

The diagram below shows an RF mesh network for a smart meter network with the multiple paths from each node or endpoint meter to the gateway, which is connected via a long-haul network to the central platform. As we noted earlier, the central system in a country such as India may increasingly be a shared platform operated by a JV entity.

The current architecture typically allows around 250 meters to be connected to one gateway (although ratios up to 1000:1 have been deployed) – this ratio is being improved consistently, and the company expects 400-1,000 meters to be supported by one gateway in future versions of the platform over the next 18 months.

CyanConnode's RF mesh configuration



Source: Company data

Cellular

A technology flexibility that allows customers to maximise service levels while minimising costs

CyanConnode is a strong advocate of RF mesh technology. However, no single technology meets the requirements of every customer in every deployment environment. For example, cellular technologies may provide good service levels in areas where there are too few devices to justify the deployment of a mesh. To cover a wider market, in March 2020, CyanConnode announced its new Omnimesh cellular products, which use mobile network technologies as an alternative to RF to connect meters, where required. The products are available in all cellular regions and bands, and support all the 2G, 3G, 4G and emerging 5G standards, including NB-IoT and Cat-M1-IoT cellular technologies.

The Omnimesh cellular products have dual SIM capabilities, and the best available cellular network is automatically selected for point-to-point connectivity. To allow a mix of RF and cellular connectivity to be used across a single region, the updated Omnimesh HES can simultaneously manage both RF mesh and cellular connected smart meters. This technology flexibility allows customers to maximise service levels while minimising costs.

In-meter gateways

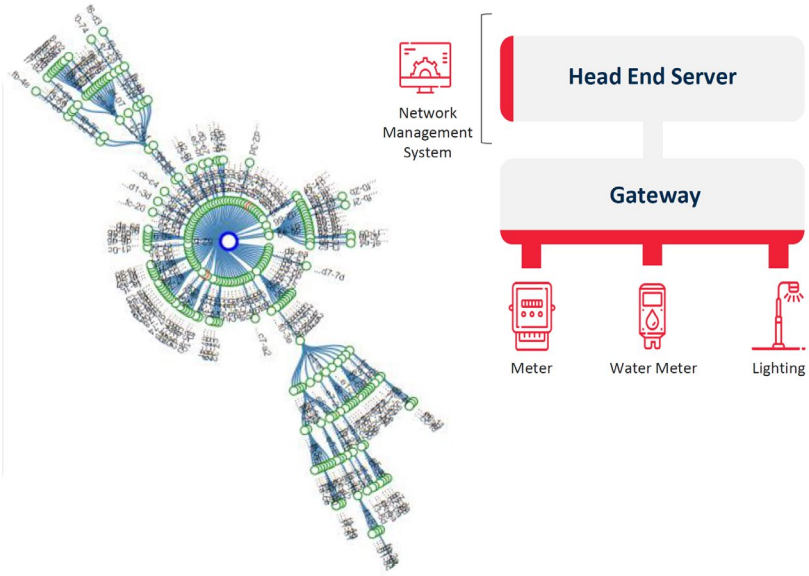
Meters in individual dwellings more secure than externally

CyanConnode's development of in-meter gateways has been well received by utility customers. These allow the aggregation gateways to be installed in the same units as endpoint smart meters in individual dwellings, which represent more secure locations than externally, where additional costs of secure metal boxes are incurred.

Network management system

The network management component is focused on managing the overall mesh network environment (including device configurations, device status, etc). The platform scales to millions of nodes. The system offers a unified interface to view multiple network types across RF and cellular.

CyanConnode's network management system



Source: Company data

Advanced Metering Infrastructure (AMI)

AMI is an integrated system of smart meters, communications networks, and data management systems that enables two-way communication between utilities and customers. AMI enables two-way communication so that not only can meters be read automatically, but instructions can be sent to the meter from a central point, which might be to disconnect (for example, if a bill has not been paid, or to update time-based pricing data to manage consumptions). The information collected from smart meters can be processed in real time, and signals can be sent to manage demand. These systems are widely acknowledged to offer substantial potential benefits, many of which are central to the highly positive returns on investment associated with smart meter implementations.

AMI: potential benefits

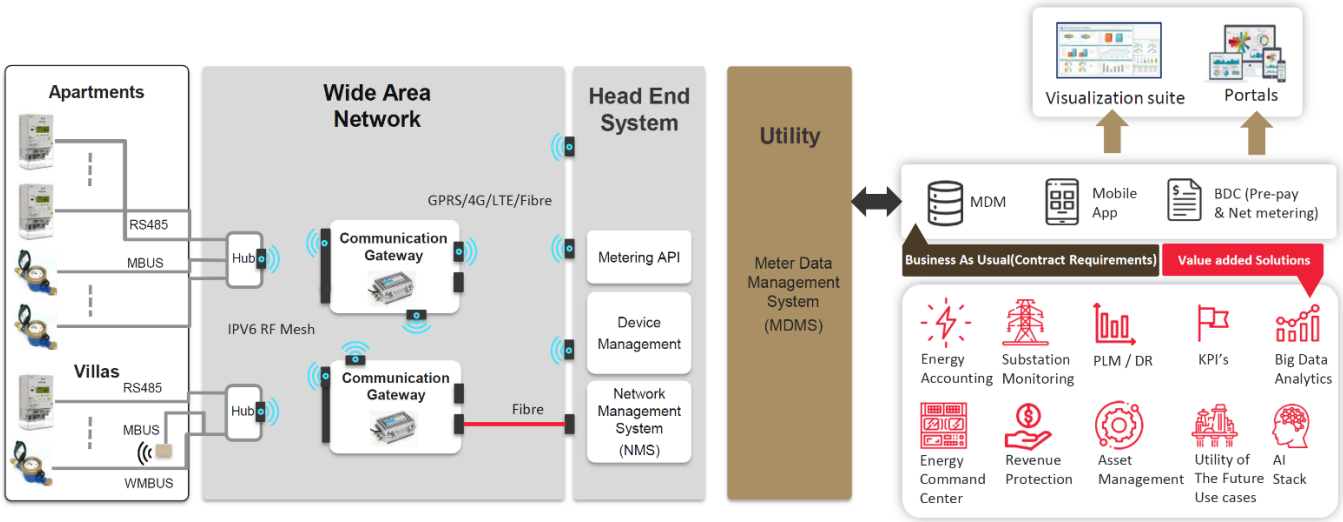
Advanced Metering Infrastructure Benefits	• Remote meter reading results in more timely and accurate billing data • Costly manual meter reading and home visits are eliminated (particularly beneficial where homes are geographically widely dispersed) • Remote analysis of meter issues can be performed • Utilities can readily connect and disconnect services • Unusual usage patterns can be identified and investigated in case these are due to electricity theft and/or notified to customers • Meters can be instantly converted to prepaid billing to reduce collections issues • Based on analysis of granular information, utilities can offer optimised pricing and incentives to existing and prospective customers

Source: Hardman & Co Research

The analytical processes to understand load patterns and optimise use of these platforms can be complex and data-intensive – in fact, there are ongoing programmes at large utilities around the world to take greater advantage of the capabilities of AMI platforms that have been implemented.

CyanConnode offers a comprehensive platform that covers the AMI from the meter endpoint through to the Meter Data Management System (MDMS), which stores the huge quantities of data generated by the smart meter network and will typically be provided by major Enterprise Resource Planning (ERP) vendors, such as Oracle and SAP.

CyanConnode's AMI – key modules



Source: Company data

Smart meter market forecasts

Three categories of smart meters: smart gas meters, smart water meters, smart electricity meters…

…smart electricity meters expected to deliver highest growth rates

The smart meter market can be broken down into three subcategories: smart gas meters, smart water meters and smart electricity meters. Of the three, smart electricity meters are expected to deliver the highest growth rates, as the global industry seeks to modernise infrastructure and systems to drive much-needed improvements to financial performance, efficiency and resilience of energy grids.

The global market is characterised by quite marked differentials by region in current smart meter penetration and, hence, in expected growth rates in smart meter shipments over the next five to ten years.

One aspect that is worth bearing in mind is the potential uplift in smart meter deployment rates that is likely as smart meter-as-a-service/rental models become more pervasive. We discuss these in more detail in a later section – the implication is that upfront costs of meter rollouts are substantially reduced under these opex models.

Regional trends

North America

North America has achieved relatively high levels of penetration, estimated at 40%-45%, and market growth rates from here are expected to be modest, with the opportunity largely accruing to the established US incumbents. $3.4bn allocated from American Recovery and Reinvestment Act funding was deployed on the installation of c.15 million smart meters by the end of 2013, in addition to 35 million meters already deployed by the utilities.

Europe

EU member states committed to rolling out c.200 million smart meters for electricity and 45 million for gas by 2020, at a total estimated rollout cost of €45bn. By end-2020, consumer smart meter penetration was c.70% for electricity and 40% for gas.

Asia-Pacific

Asia (more specifically China and India) is expected to see the highest growth in smart meters. In 2019, China shipped 210.6 million smart meters, which was 6.4% higher than the previous year, and the Chinese smart meter market was worth c.RMB34.28bn (£3.8bn) in 2019, which is expected to grow to RMB58.43bn in 2026 (£6.4bn).

Middle East and Africa

There is considerable activity across these regions, albeit not on the same scale as being seen in India. In the Middle East, Saudi Arabia is leading the way, with its announcement in December 2019 that 10 million smart meters would be installed across the country at an estimated cost of $2.55bn. The initial timetable expected the rollout to be complete by 1Q'23, but the pandemic has likely affected this timetable. The Indian meter manufacturers are actively participating in tenders in the Middle East, providing a market entry point for CyanConnode.

In Africa, many of the state-owned utilities are in dire straits and are embracing medium-term initiatives to implement smart grids and smart meters in an effort to transform their financial performance. South Africa is a case in point.

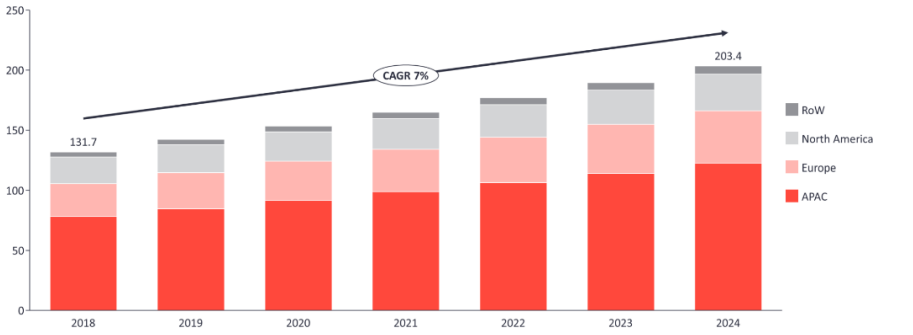
Largest market ahead will be Asia-Pacific

Market forecasts

Forecasts, in general, suggest significant uplifts in the volume of smart meter shipments globally, but, consistent with our observations above on regional trends, the largest geographical market will be Asia-Pacific for several years to come.

IoT Analytics: in a report published in 2019, IoT Analytics estimated that over 14% of all meters globally (across electricity, gas and water) were smart meters, i.e. intelligent and network-enabled. It expects a 7% CAGR 2018-24 in terms of meter shipments.

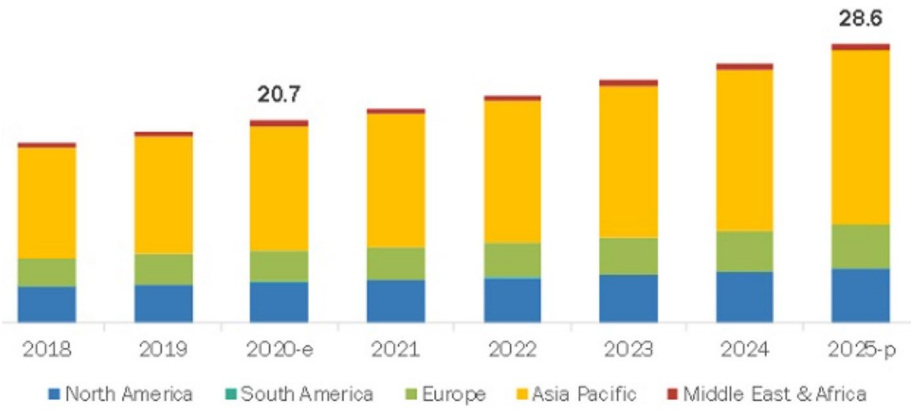
Global smart meter shipment volume (millions of units)



Source: IOT Analytics (2019)

MarketsandMarkets anticipates a similar growth rate, with Asia-Pacific expected to lead the way, driven particularly by China.

Smart meter market ($bn) by region



Source: MarketsandMarkets (March 2020)

Smart Meter ROI

AT&C losses can be substantial

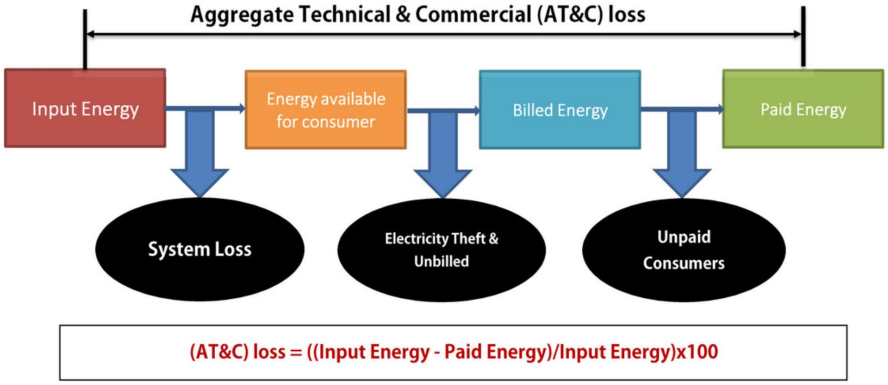
Aggregate AT&C loss for Indian distribution utilities in 2018-19 was 22.0%

This metric comprises a combination of Energy Loss (Technical Loss + Theft + Billing Errors & Inefficiency) and Commercial Loss (Payment Defaults + Collections Ineffectiveness).

AT&C Losses = {1 - (Billing Efficiency X Collection Efficiency)} x 100

Applying these categories and methodology, the aggregate AT&C loss for the Indian distribution utilities in 2018-19 was 22.0%.

AT&C loss components



Source: Bijli Babu

Value drivers beyond AT&C

The focus of smart meter deployments is, understandably, typically on the revenue improvements that implementation delivers. This is sometimes referred to as the meter-to-cash process. This core aspect is measured using the AT&C metric.

Sources of ROI will evolve beyond AT&C aspect to encompass range of value-added applications

However, as the backend systems that receive data from the smart meters become more advanced, the sources of ROI will evolve beyond the AT&C aspect to encompass a range of value-added applications. Examples include event reporting, data monitoring, customer usage patterns and load forecasting. What this means is that, with the enhanced data sets, utilities will be able to deliver operational and financial improvements through, for example, being able to price at a more granular level, by managing outages better and forecasting loads to optimise their expansionary investments. Even in North America, where smart meters have been in place for many years, utilities are still relatively early in their processes to benefit from these additional data analytics, which, in key respects, represent the essence of IoT, which we discussed earlier in this report.

ROI metrics from live deployments are compelling

Indore successes have created valuable reference site, attracting considerable attention

We discussed India in more detail in an earlier section, but it is worth dwelling on the return on investment metrics that emerged from the early deployments in India. One of the first smart meter installations in India using CyanConnode's technology was in the city of Indore, where the rollout of smart meters for the Madhya Pradesh Power Distribution Company commenced in September 2018.

The table below sets out the early results in terms of billing efficiency, which improved from the base-line figure of 62.0% to 88.5% within three months.

Reduction of power theft was a primary driver of this improvement. By the end of 2019, the city had installed 100,000 smart meters across commercial and residential properties, making it the first city in India to achieve this milestone. CyanConnode calculates a payback period of one year and three months.

These are enormous improvements in losses on any basis, and undoubtedly served to convince decision-makers in India to push forward with the larger planned smart meter rollouts. For CyanConnode, the Indore successes have created a valuable reference site, which has attracted considerable attention.

Analysis of billing efficiency of Rajwada feeders

Month	Zone	11KV Feeder Name	Total Consumer	Input	Total unit sold	Billing Efficiency	Corresponding Increase in sold unit w.r.t to base line data/ Amount @ 6.5 Rs/ unit
Base Line Data (Data Freeze from SE city)	GPH	RAJWADA	4354	1138000	705589	62.00%	
Sep-18	GPH	RAJWADA	4394	1120548	705589	62.97%	
Oct-18	GPH	RAJWADA	4410	1134806	891725	78.58%	188145 unit/ Rs 12.22 Lac
Nov 18	GPH	RAJWADA	4410	850000	751978	88.46 %	224978 Unit/ Rs 14.62 Lac
Note- First Billing with Smart Meter in- Oct 18							

Source: Rajwada Feeders

Capex versus opex models

"Meter-as-a-service" types of models potentially highly attractive for utility companies

The way in which CyanConnode's smart meter modules have been deployed in the past is under a "capex" model, meaning that the utility pays upfront for the modules (embedded within smart meters). However, there is substantial interest internationally in "opex" models, whereby a utility pays per meter per month over, say, 10 to 12 years, and the capex is funded by a third party, typically an infrastructure fund. These "meter-as-a-service" types of models are potentially highly attractive for utility companies, which are otherwise unable to afford the substantial costs of these infrastructure rollouts. Equally, these models are attractive to all vendors in the AMI supply chain, to the extent that deployment timescales are accelerated through removal of the upfront funding requirement burden on utilities and governments.

Opex models in more detail

Various structures remain under discussion, but a typical model might comprise the following terms:

- The distribution utility would invest c.20% of the total capex sum for a specific number of smart meters. Any grants received would be put towards this sum, reducing the utility's payment.
- The remaining c.80% of capex, plus operating costs and finance expenses for the lifetime of the agreement, would be recovered through a monthly rental payment per installed meter.

In principle, the payment terms for capex models would ordinarily be far better for smaller technology vendors, as there is no requirement to defer payments for their products. Under an opex model, it may sometimes be the case that the technology vendor has to seek out financing to be able to participate in the programme.

In the current phase of discussions that CyanConnode is having in an Indian context, this financing issue has been recognised, and smaller vendors will typically receive payments for modules upfront. Accordingly, CyanConnode would receive the purchase cost of the modules upon shipment, in line with the traditional capex model. Any additional maintenance and support revenue streams will, however, be deferred.

Hybrid revenue models

Various revenue models that can be applied to opex financing arrangements

A critical but tricky aspect of opex arrangements is the calculation of the appropriate price or value for the service being provided. Our observation would be that the integration requirements may be challenging, given the myriad of legacy systems that may be present in some of the larger utilities. As we discuss below, the Indian proposed DBFOOT opex models require integration services to be included in the regular fee paid by the utilities. The additional requirement to hand over the platform to the utility at the end of the contract period makes it essential for the prime contract to achieve an appropriate pricing level. These are broader observations that do not directly impact CyanConnode, as it will be a sub-contractor and insulated from these overall pricing risks.

The table below from Deloitte is an extract from a document entitled *The challenge of paying for smart cities projects*. Set out are various revenue models that might be applied to an opex financing arrangement, including public and end-user contributions, depending on the service that is being provided.

Deloitte: revenue models for opex arrangements

Type	Source	Description
Financing model payments	Public sector	Payments received that match agreed cost (including finance) amounts, allowing full coverage of expenditure and agreed returns.
Availability payments	Public sector	Payments received that are linked with the performance of the private sector operator and availability of the service/asset in line with agreed performance standards.
Savings sharing	Public sector	Certain services will generate savings for the public sector. If quantifiable and accountable, those savings can generate a budget to help fund the associated assets/service.
Shadow tolls	Public sector	Public sector makes payments to private sector based on usage of the service/asset. In some cases, recurring payments may apply so as to reduce risk.
User fees/ charges	Third parties	Users pay directly for services (e.g., road tolls). This tends to be riskier than public sector payments as it is more difficult to quantify in advance with any certainty.
Rate type payments	Third parties	The public sector collects revenues from the public and utilizes these to pay the private sector for specific services/assets (e.g., power generation/water utilities).
"Pay-as-you-go"	Third parties/ public sector	User is charged for each use of the service. Can be collected using billing system of mobile operator.
Subscription ("all-you-can-eat")	Third parties/ public sector	User pays fixed amount for service irrespective of level of usage.
Advertising-based	Third-party advertising	Revenue streams are generated by selling advertising on asset space, rather than collecting from individual users. This allows service providers to provide service free (or inexpensively) to users. An example is Wi-Fi kiosks in New York that provide a free service underwritten by advertising income.

Source: Deloitte

Indian DBFOOT model

Stated objective: to allow "energy accounting with zero manual intervention"

In January 2021, the Indian Ministry of Power published the bidding document for the "Appointment of Advanced Metering Infrastructure (AMI) Service Provider for Smart Prepaid Metering in India on DBFOOT basis". The acronym DBFOOT stands for Design-Build-Finance-Own-Operate-Transfer, a service to be provided by the Advance Metering Infrastructure Service Provider (AMISP), which will be responsible for financing and implementation of the entire project. For a defined period, the utility companies will pay the AMISP a predetermined fee for usage of the AMI. At the end of the period, the entire AMI system is to be transferred back to the utility.

The scope of work of the AMISP encompasses end-to-end metering (from Feeders and Distribution Transformers to all end-user consumers). The stated objective is to allow "energy accounting with zero manual intervention". At the end of the defined period, the AMI platform is to be transferred to the utility provider in each region at no additional cost.

The AMI project includes the following elements:

- Deployment of smart meters, communication systems, the Head End System (HES) and the Meter Data Management System (MDMS).
- Integration with billing systems and existing legacy systems (details of which have been provided in the tender document.
- Development of standard interfaces to enable integration of future applications with the AMI system (again, details of potential application requirements have been provided).

As we have noted already, these are complex projects, particularly when the legacy integration and straight-through processing aspects are considered. However, these are the responsibilities of the prime contracting entity, which may be ring-fenced, with SPVs established to address each project.

EESL opex model

No upfront capital investment required from Discom

EESL was established as an aggregator of purchasing requirements on behalf of its utilities, and as a financing entity. In 2019, it announced plans to establish SPVs that would operate on a BOOT basis, i.e. Build-Own-Operate-Transfer, which would require no upfront capital investment from the Discom. Instead, the Discom would repay EESL through the monetisation of savings resulting from enhanced billing accuracy.

It is unclear whether there has been any take-up of the EESL opex approach. Certainly, involvement from infrastructure funds is likely to be based on more straightforward rental-type models.

CyanConnode well positioned for opex models

Proven technology and scalability

CyanConnode has proven technology and scalability, and its offerings span most of the key components, i.e. the intelligent modules that are installed in the smart meters, the communications systems (predominantly gateways) and the head-end system software. Given an upfront payment profile for the hardware modules, the company should be able to strike an attractive balance between upfront revenue and ongoing recurring revenue streams.

Financials

Revenue trends

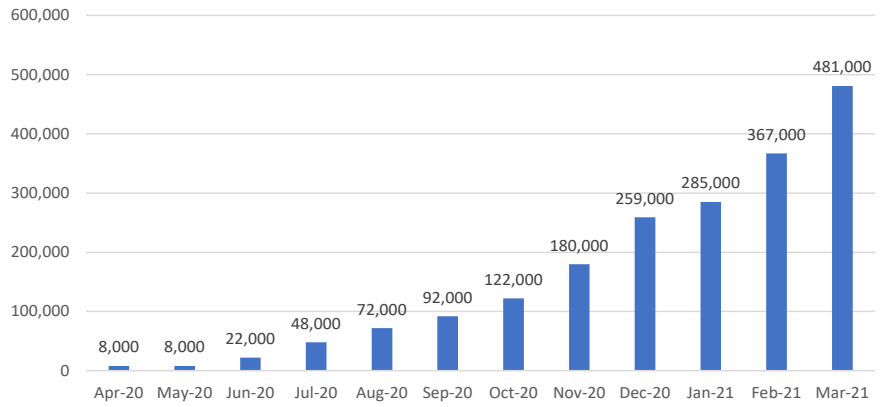
Political factors in last few years have affected financial performance…

In terms of the company's historical financial performance, the last few years have seen a degree of impact from political factors, which have impacted the commencement and extent of smart meter rollouts. These factors, in turn, served to reduce CyanConnode's revenue growth in the last two years. The Indian general election in 2019, in particular, created a transitional hiatus across the country.

…but more favourable pattern in recent quarters

However, a more favourable pattern has been established in recent quarters, and it appears that some of the roadblocks to a faster rollout of meters have been removed. The most recent trading update, announced on 7 April 2021, confirmed that the marked revenue uplift seen in 3Q'21 was followed by a further acceleration in 4Q'21. The company's commentary suggests further strong growth in FY'22 (to end-March 2022). As noted earlier, we have largely confined our base-case estimates for FY'22 to contracts that have been won, with a modest contribution assumed from prospective contract wins, even where the company's partners are in late-stage discussions. It is only in our FY'23 estimates where we start to materially factor into our estimates the pipeline of opportunities incremental to existing contracts.

Cumulative smart meter modules shipped to end-March 2021



Source: Company data

Strong order book

Company will need to keep delivering contract wins to maintain momentum…

In the first six months of FY'21, c.92,000 modules were shipped, followed by c.167,000 in 3Q'21 and around 222,000 in 4Q'21. This related, primarily, to the Indian contracts.

The table below has been updated to take into account the latest update, and shows orders to date in India, together with the number of modules that are yet to be shipped for each contract. Using a revenue estimate of $28 per meter endpoint (a figure that includes software and services), the implied total revenue per endpoint to come relating to the modules still to be shipped is c.$14.4m, of which the hardware modules represent c.$6.7m. This sum is expected to be recognised during the current financial year. These figures will continue to be updated as additional contracts are secured.

…but management confidence on this front is high

It is important to note that the company will need to keep delivering contract wins to maintain momentum, especially if a significant proportion of the c.514,000 modules yet to be shipped from existing contracts is delivered in calendar 1H'21. However, for reasons already discussed, management confidence on this front is high, reflecting continued strong progress in India more generally and the growing strength of the relationship between CyanConnode and EESL.

CyanConnode order book breakdown (to end-March 2021)

Project	Ordered	Delivered by 3Q'21	Delivered by 4Q'21	Yet to Ship
JVVNL(1)	281,782	81,202	136,302	145,480
JVVNL(2)	149,089	65,057	113,357	35,732
Tangedco	142,069	39,000	108,800	33,269
MPWZ	350,000	16,050	50,850	299,150
Total	**922,940**	**201,309**	**409,309**	**513,631**

Source: Company data

Revenue model

We estimate revenue to more than double in FY'23

The table below sets out our revenue estimates for FY'22 and FY'23. Based on a sharp uptick in the number of modules shipped, we expect revenue to more than double in FY'23 to £18.84m, from £8.83m in FY'22.

CyanConnode: revenue model

Year-end Mar (£000)	1H'2021	1H'2021	2021E	1H'2022E	2H'2022E	2022E	1H'023E	2H'2023E	2023E
Modules shipped	**92,000**	**389,000**	**481,000**	**260,000**	**427,000**	**687,000**	**540,000**	**925,000**	**1,465,000**
Contract val. per endpoint ($)	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0
£/$ exchange rate	1.38	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40
Contract val. per endpoint (£)	20.3	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Total contract value of shipped modules	**1,866.7**	**7,780.0**	**9,646.7**	**5,200.0**	**8,540.0**	**13,740.0**	**10,800.0**	**18,500.0**	**29,300.0**
Hardware proportion	50%	50%	46%	50%	50%	50%	50%	50%	50%
Hardware revenue recognised	**933.3**	**3,890.0**	**4,823.3**	**2,600.0**	**4,270.0**	**6,870.0**	**5,400.0**	**9,250.0**	**14,650.0**
Software proportion	11%	11%	11%	11%	11%	11%	11%	11%	11%
Total software revenue	**205**	**855.8**	**1,061.1**	**572.0**	**939.4**	**1,511.4**	**1,188.0**	**2,035.0**	**3,223.0**
Services revenue proportion	9%	9%	9%	9%	9%	9%	9%	9%	9%
Recognised in the period	30%	30%	30%	30%	30%	30%	30%	30%	30%
Services revenue recognised	**61.6**	**256.7**	**318.3**	**171.6**	**281.8**	**453.4**	**356.4**	**610.5**	**966.9**
Total revenue for the period	**1,200.3**	**5,002.5**	**6,202.8**	**3,343.6**	**5,491.2**	**8,834.8**	**6,944.4**	**11,895.5**	**18,839.9**

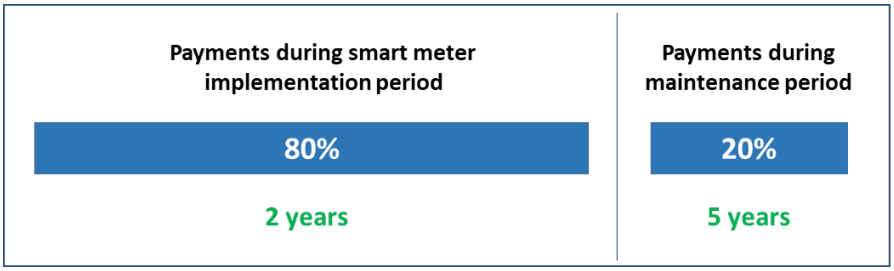
Source: Hardman & Co Research

Pricing

CyanConnode's typical pricing for larger programmes is around $28 per endpoint, which covers hardware (meters and gateways), commissioning and other rollout-related costs and services, head-end software, and support and maintenance. 80% of the revenue from a typical contract flows to the company in the first two years, which is the average installation period.

By way of example, the chart below sets out the payment profile associated with the Jaipur Vidyut Vitran Nigam (JVVNL) procurement. As can be seen, until the rollout restarted in mid-2020, CyanConnode had received only around 10% of the total contract value of $13m.

CyanConnode – typical larger contract payment profile



Source: Company data, Hardman & Co Research

Major Indian contract wins

JVVNL

JVVNL orders refer to projects for the Indian utility, Jaipur Vidyut Vitran Nigam, which placed an order in September 2018 for 430,000 modules with an overall contract value of c.$13m. Included in the contract were the following components:

- Omnimesh smart meter communications modules;
- gateways;
- perpetual software licences;
- installation services; and
- support and maintenance for a five-year period.

After the announcement of the contract, unexpected delays were encountered by the delay with respect to requisite approvals, resulting in an almost two-year delay to the project. It was not until early June 2020 that the rollout was given the green light to recommence.

MPWZ

In September 2020, CyanConnode announced a new order from Madhya Pradesh Paschim Kshetra Vidyut Vitaran Company Ltd (MPWZ), the state-owned Indian utility, for 350,000 Omnimesh modules. This was the third order from this utility, which had previously ordered a total of 120,000 modules across two orders, taking the total number ordered to date to 470,000 of the total end-user base for MPWZ of 3 million consumers.

CyanConnode is supplying Omnimesh RF mesh and cellular communications modules, gateways, head-end software, and associated services, plus an annual maintenance contract for an initial period of five years. Thereafter, the maintenance contract can be extended on an annual basis.

The order was placed by M.P. Smart Grid Private Limited, the SPV formed by India Power Corporation Ltd (IPCL) for deployments in the towns of Ujjain, Dewas, Ratlam, Mhow and Khargone. Most of the order will be paid for under a capex model, with a relatively small proportion being paid for under an opex model. The smart meters, which are being supplied by existing partners, are expected to be deployed over 30 months, with initial deliveries commencing in 3Q'20.

This shipment-dependant revenue profile has been a characteristic of most Indian smart meter agreements to date, but this is likely to change now that the Indian government is encouraging the involvement of special-purpose vehicles to facilitate rental smart meter agreements for the Indian utilities. Critically, the discussions to date regarding these models suggest that suppliers like CyanConnode would be paid upfront for the hardware element of these contracts.

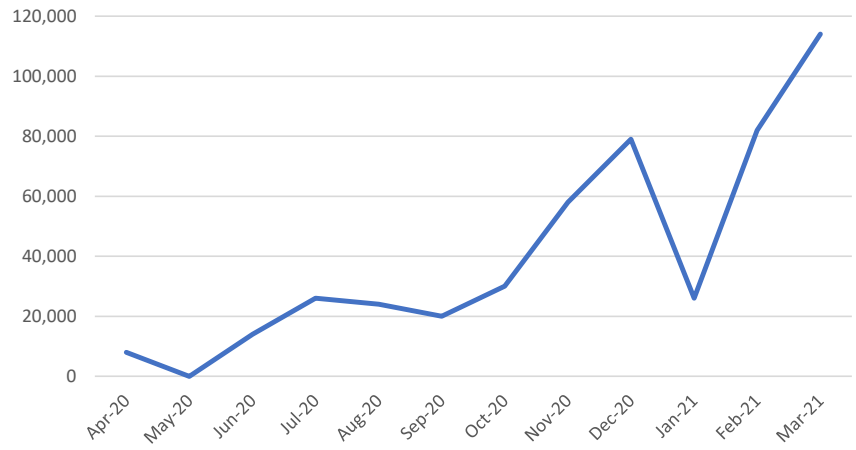
Short-term revenue drivers

Upward trend in monthly shipments of modules in last 12 months…

…and expected to accelerate

CyanConnode's financial performance over the next two to three years will primarily be a function of smart meter module shipments. The marked acceleration in the number of meters shipped during FY'21 is noteworthy and consistent with the order book summary presented in the table above. The chart below looks at monthly shipments of modules over the last 12 months and shows a clear upward trend, which is expected to accelerate. Additional support and maintenance revenue streams will gradually build up over the next two to three years.

Module shipment estimates



Source: Company data, Hardman & Co Research

Revenue recognition

CyanConnode adopts a standard approach to revenue recognition as per the following (some of these items may vary slightly depending on the specific contractual terms agreed):

- Revenue from hardware, i.e. smart meter modules, is recognised upon shipment to the meter manufacturer.
- Revenue from gateways is recognised as shipped.
- Revenue from services is recognised as delivered.
- Revenue from head-end software is recognised once the software is available to the end-customer and the end-user licence has been signed.
- Maintenance and support revenue streams typically commence on a pro-rata basis once batches of, for example, 10,000 smart meters have been installed.

Medium-term revenue outlook

Our current revenue estimates may be very conservative

As a starting point, it is perhaps worth considering CyanConnode's revenue opportunity from the smart meter programmes for which it has already won contracts. These contracts form the basis of our estimates, which we believe are highly conservative, as they take no account of prospective additional contract wins. This is despite the growing momentum of the Indian programme, where successful rollouts of CyanConnode modules have taken place and where the company has ongoing participation in tenders with three of the largest Indian smart meter manufacturers. Based on the progress set out below, it should be apparent that our current revenue estimates may, indeed, prove to be highly conservative.

India

Overall programme aims to replace 250 million conventional meters with smart meters

In India, the overall programme aims to replace 250 million conventional meters with smart meters. Even if CyanConnode wins additional contracts to supply 10 million smart modules (i.e. less than 5% of the total programme), this would imply revenue in excess of $250m over the next five years. This is solely the Indian opportunity. We do not dwell further on India here, given the detailed analysis of this market earlier in the report.

Thailand

Thailand a key target market over next few years

The orders to date in Thailand have come from two different entities, JST Group (a distributor partner) and Forth Corporation (an implementation services provider). Our understanding is that both these relate to the same end-customer and project, which is the Metropolitan Electricity Authority (MEA). This is a state-owned utility with around 4 million energy customers across three major provinces, namely Bangkok, Nonthaburi and Samut Prakan. The initial order for the MEA was for 33,265 smart meter modules, plus associated gateways, services and the head-end software licence for these modules. The second order was software-centric, and hence directly from Forth Corporation, taking the head-end software licence capacity up to 240,000 devices, plus the associated annual maintenance contract relating to the software licence. The total contract value across the two orders is currently over $3m.

The next step is expected to be an order for at least the remaining modules and gateways within the 240,000-unit software licence order, i.e. a further 207,000 smart meter modules and associated gateways. That said, much of the initial phase was about confirming the effectiveness of the Omnimesh platform in this region – so there may be larger orders in prospect over the next six to twelve months.

Alongside the MEA, the other main utility in Thailand is the Provincial Electricity Authority (PEA), which has a much a larger customer base across 74 provinces in Thailand, representing around 15 million households This is evidently a key target customer for CyanConnode over the next few years.

UK

UK programme has been rather "stop-start" to date

The UK smart meter rollout opportunity for CyanConnode is often forgotten, as progress with the programme has been rather "stop-start". Initial preparations commenced in 2008, and the implementation of 53 million smart meters was due to commence in 2011, ending in 2019. In May 2013, the latter date was amended to a rollout completion target of end-2020. Subsequently, there has been confusion between first- and second-generation meters, with older SMETS 1 meters apparently still being rolled out. CyanConnode's role in this rollout is clearly defined – it incorporated its RF software into Toshiba SKU2 RF Communication Hubs, which are being rolled out under the Telefónica contract in the UK (Telefónica is responsible for two of the three UK regions) for deployments in rural areas with no or inadequate cellular coverage.

CyanConnode estimates that there will be around 2 million Toshiba RF Hubs, which we assume will be rolled out over four to five years. The price is £3.60 per software licence, plus an additional ongoing support fee of £0.62 per meter p.a. for 15 years. This equates to a total contract value of c.£24m, representing a healthy contribution to the company's order book.

Europe

Europe likely to diminish further as proportion of group revenue over next few years

CyanConnode's European presence was gained through the acquisition of Connode in June 2016. Headquartered in Stockholm, Connode was a leading supplier of wireless communications products for IoT applications. As a consequence, CyanConnode continues to receive an occasional flow of orders from European utilities companies, primarily in the Nordics, for follow-on smart meter deployments. Examples of customers include HM Power in Sweden, which has been rolling out long-range RF modules, and another undisclosed Nordic utility customer. In FY'20, against a backdrop of slow implementation progress in India, Europe and the Nordics (Finland and Sweden) represented just over 50% of CyanConnode's annual revenue. Noting the sharp upturn in revenue from India in FY'21, this proportion is expected to have reduced to under 20%, and is likely to diminish further as a proportion of group revenue over the next few years.

Africa

CyanConnode estimates value of initial contract in Africa at c.$16m

Earlier in the report, we noted the recently announced technology partnership between EESL, the JV formed by four Indian utilities, and CyanConnode focusing on the Middle East and Africa. One of the current key opportunities on which these companies are collaborating is in Africa, where a potentially major smart meter deployment is under discussion. The initial order is expected to be for around 100,000 meter modules, which would be on a capex basis. As the deployment scales thereafter, it may be one on an opex basis – we would assume that EESL may act as a funding partner in this context. CyanConnode estimates that the value of its initial contract in Africa should be in the region of $16m.

Middle East

Multiple opportunities in Middle East

In the Middle East, there are multiple opportunities encompassing full smart city pilots and retro-fit of smart communications modules into existing meters. The total potential rollout of two projects under discussion is in excess of 1,500,000 million meters. CyanConnode's technology is well suited to these types of projects, as it readily integrates with third-party smart meters and has open interfaces in its software platform. Notably, in the Middle East, there is significant appetite from infrastructure funds to facilitate an opex model for these programmes. Pricing would likely be higher for retro-fit engagements.

Licensing opportunities

Licensing to third-party equipment manufacturers, earning royalties on units sold

A key additional opportunity for the company is to license its technology to third-party equipment manufacturers, earning a royalty on each unit sold. In December 2018, CyanConnode announced a licensing agreement with Beijing Jingybeifang Instrument Co. Ltd (otherwise known as Beijing Instruments), giving it the right to use CyanConnode's reference designs to manufacture Omnimesh RF modules and gateways on a licensed basis. While CyanConnode continues to work with Beijing Instruments on tenders, no contracts have yet been secured under this arrangement. Nonetheless, this is an attractive and potentially highly scalable model to expand CyanConnode's presence into markets and regions that it does not intend to address directly.

Noting that Larsen & Toubro's Electrical and Automation business, one of CyanConnode's primary smart meter manufacturing partners in India, was acquired by Schneider Electric in August 2020, Schneider strikes us a potentially compelling licensee for CyanConnode's smart metering technologies.

Balance sheet

The company ended FY'21 with a cash balance of £1.5m. During FY'21, c.£5.3m was received in customer payments, compared with £4.1m in the prior year. Connode AB, the business in Sweden, acquired by CyanConnode in late 2016, has

an overdraft facility for SEK 2m (c.£170,000). The balance on this facility was zero at the end of March 2021.

Profit and loss

CyanConnode P&L								
Year-end Mar (£000)	12M Dec 2017	12M Dec 2018	6M Jun 2019	15M Mar 2020	1H'2021	2021E	2022E	2023E
Revenue	**1,171**	**4,465**	**1,014**	**2,451**	**1,499**	**6,203**	**8,835**	**18,840**
Cost of sales	-674	-1,724	-537	-1,081	-668	-3,194	-4,859	-10,739
Gross profit	**497**	**2,741**	**477**	**1,370**	**831**	**3,008**	**3,976**	**8,101**
Gross margin	42%	61%	47%	56%	55%	49%	45%	43%
Operating expenses	-11,161	-8,589	-3,386	-6,827	-2,148	-4,930	-4,831	-5,025
EBITDA	**-10,664**	**-5,848**	**-2,909**	**-5,457**	**-1,317**	**-1,922**	**-856**	**3,077**
Share-based payments	-689	-445	-107	-267	-130	-200	-300	-320
Stock impairment	-55	-578	0	-4	0	0	0	0
Foreign exchange losses	-52	-16	-115	-267	-71	-71	0	0
Adj. EBITDA	**-9,868**	**-4,809**	**-2,687**	**-4,919**	**-1,116**	**-1,651**	**-556**	**3,397**
EBITDA margin	-911%	-131%	-287%	-223%	-88%	-31%	-10%	16%
Depreciation & amortisation	-489	-472	-235	-772	-305	-630	-576	-570
EBIT	-11,153	-6,320	-3,144	-6,229	-1,622	-2,552	-1,432	2,506
Adj. EBIT	**-10,357**	**-5,281**	**-2,922**	**-5,691**	**-1,421**	**-2,281**	**-1,132**	**2,826**
Adj. EBIT margin	-884%	-118%	-288%	-232%	-95%	-37%	-13%	15%
Investment income	16	13	10	17	1	2	2	2
Net finance income	-6	-2	-2	-30	-102	-210	-189	-170
Adj. PBT	**-10,347**	**-5,270**	**-2,914**	**-5,704**	**-1,522**	**-2,489**	**-1,319**	**2,658**
Taxation/tax credit	1,402	927	300	576	377	603	621	640
Effective tax rate	-14%	-18%	-10%	-10%	-25%	-24%	-47%	24%
Net income	**-8,945**	**-4,343**	**-2,614**	**-5,128**	**-1,145**	**-1,885**	**-697**	**3,298**
EPS (basic, p)	-10.18	-3.71	-1.51	-2.96	-0.66	-1.09	-0.40	1.90
EPS (diliuted, p)	-10.18	-3.71	-1.51	-2.96	-0.66	-1.09	-0.40	1.90
Average shares in issue basic (m)	95.740	116.976	172.931	173.048	173.548	173.548	173.548	173.548
Average shares in issue dil. (m)	95.740	116.976	172.931	173.048	173.548	173.548	173.548	173.548

Source: Hardman & Co Research

Balance sheet

CyanConnode balance sheet						
@31 Mar (£000)	12M Dec 2018	15M Mar 2020	1H'2021	2021E	2022E	2023E
Non-current assets						
Intangible assets	5,048	4,558	4,365	4,170	3,736	3,255
Goodwill	1,930	1,930	1,930	1,930	1,930	1,930
Fixed asset investments	44	93	91	91	91	91
Property, plant and equipment	73	43	41	30	21	15
Right of use asset	0	274	196	94	0	0
Total non-current assets	**7,095**	**6,898**	**6,623**	**6,315**	**5,778**	**5,290**
Current assets						
Inventories	319	308	304	930	1,149	1,884
Trade and other receivables	4,827	3,676	3,863	1,799	1,767	2,826
Cash and cash equivalents	4,563	1,172	952	1,508	1,286	3,234
Total current assets	**9,710**	**5,156**	**5,119**	**4,237**	**4,201**	**7,944**
Total assets	**16,805**	**12,054**	**11,742**	**10,552**	**9,979**	**13,235**
Current liabilities						
Short-term borrowing	-1,994	-560	-785	-785	-785	-785
Trade and other payables	0	-1,491	-2,157	-1,489	-1,767	-1,884
Lease liability	0	-121	-131	-90	-50	-14
Total current liabilities	**-1,994**	**-2,172**	**-3,073**	**-2,364**	**-2,602**	**-2,683**
Net current assets	**7,716**	**2,984**	**2,046**	**1,874**	**1,599**	**5,261**
Non-current liabilities						
Lease liability	0	-153	-65	-65	-25	-1
Deferred tax liability	-690	-912	-853	-853	-853	-853
Total non-current liabilities	**-690**	**-1,065**	**-918**	**-918**	**-878**	**-854**
Total liabilities	**-2,684**	**-3,237**	**-3,991**	**-3,282**	**-3,480**	**-3,537**
Net assets	**14,121**	**8,817**	**7,751**	**7,271**	**6,499**	**9,698**
Equity						
Share capital	3,648	3,656	3,666	3,666	3,666	3,666
Share premium account	69,515	69,547	69,556	69,556	69,556	69,556
Own shares held	-3,253	-3,253	-3,253	-3,253	-3,253	-3,253
Share option reserve	1,761	2,028	2,158	2,158	2,158	2,158
Translation reserve	-76	-20	111	111	111	111
Retained losses	-57,474	-63,141	-64,487	-65,026	-65,724	-62,540
Total equity attributable to owners	**14,121**	**8,817**	**7,751**	**7,271**	**6,499**	**9,698**

Source: Hardman & Co Research

Cashflow

CyanConnode cashflow						
Year-end Mar (£000)	12M Dec 2018	15M Mar 2020	H1 2021	2021E	2022E	2023E
Operating loss for the period	**-6,320**	**-6,229**	**-1,622**	**-2,552**	**-1,432**	**2,506**
Depreciation of property, plant and equipment	51	247	95	200	103	50
Amortisation of Intangible assets	421	526	210	430	473	520
Foreign exchange	55	59	71	71	0	0
Share-option payment expense	445	267	130	275	91	64
Op. cashflows pre-movements in work. cap.	**-5,348**	**-5,131**	**-1,116**	**-1,576**	**-765**	**3,140**
Decrease/(increase) in inventories	809	11	4	-622	-218	-735
Decrease/(increase) in receivables	-2,377	1,124	-79	1,877	32	-1,059
Increase/(decrease) in payables	-253	-503	666	-2	278	117
Cash reduction from operating activities	**-7,169**	**-4,499**	**-525**	**-323**	**-673**	**1,463**
Income taxes or tax credit received	1,326	822	150	603	621	640
Net cash outflow from op. activities	**-5,843**	**-3,677**	**-375**	**280**	**-51**	**2,103**
Investing activities						
Interest received	13	17	1	2	2	2
Purchases of property, plant and equipment	-41	-20	-11	-24	-49	-56
Capitalisation of software development	0	-36	-20	-42	-40	-39
(Purchase)/disposal of investments	4	-49	0	0	0	0
Net cash used in investing activities	**-24**	**-88**	**-30**	**-64**	**-87**	**-93**
Financing activities						
Interest paid	-2	-4	-24	-210	-189	-170
Capital repayments of lease liabilities	0	560	-33	-119	-80	-60
Cash inflow from borrowings	0	-197	225	225	0	0
Interest paid on lease liabilities	0	-26	-3	-6	-4	-1
Proceed on issue of shares	5,467	40	20	20	0	0
Share issue costs	-428	0	0	0	0	0
Net cash from financing activities	**5,037**	**373**	**185**	**120**	**-84**	**-61**
Net change in cash and cash equivalents	**-830**	**-3,392**	**-220**	**336**	**-222**	**1,949**
Cash and cash equivalents at beg. of period	**5,394**	**4,564**	**1,172**	**1,172**	**1,508**	**1,286**
Cash and cash equivalents at end of period	**4,564**	**1,172**	**952**	**1,508**	**1,286**	**3,234**

Source: Hardman & Co Research

Valuation

DCF analysis produces implied fair enterprise value of £73.3m and implied fair equity value of £71.8m

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 and are relatively conservative, particularly the weighted average cost of capital (WACC) of 11.5% and the medium-term revenue profile, given the pipeline of opportunities that we have highlighted in this report.

Nonetheless, the analysis produces an implied fair enterprise value of £73.3m and an implied fair equity value of £71.8m (equating to £0.38 per share). These valuation outcomes are materially higher than the current enterprise value of £13.3m and the market capitalisation of £11.8m.

CyanConnode – Hardman & Co DCF analysis

Key inputs	
Terminal FCF growth rate	3.0%
Long-term sustainable EBIT margin	28.0%
Long-term tax rate on EBIT	20.0%
WACC	**11.5%**

Y/end March, £m	**2021E**	**2022E**	**2023E**	**2024E**	**2025E**	**2026E**	**2027E**	**2028E**	**2029E**	**Terminal value**
Revenues	**6.2**	**8.8**	**18.8**	**24.5**	**31.1**	**38.9**	**46.7**	**52.3**	**54.9**	
yoy growth	*2.7%*	*42.4%*	*113.2%*	*30.0%*	*27.0%*	*25.0%*	*20.0%*	*12.0%*	*5.0%*	
EBIT margin	-36.8%	-12.8%	15.0%	22.0%	23.5%	25.0%	26.0%	27.0%	28.0%	
EBIT	**-2.3**	**-1.1**	**2.8**	**5.4**	**7.3**	**9.7**	**12.1**	**14.1**	**15.4**	
Depreciation & amortisation	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.7	
Adj. EBITDA	**-1.7**	**-0.6**	**3.4**	**6.0**	**7.9**	**10.3**	**12.8**	**14.8**	**16.0**	
Tax rate	0.0%	0.0%	5.0%	10.0%	15.0%	20.0%	20.0%	20.0%	20.0%	
Tax on EBIT	0.0	0.0	-0.1	-0.5	-1.1	-1.9	-2.4	-2.8	-3.1	
Change in net working capital	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	
Cashflow from operations	**-2.2**	**-1.1**	**2.8**	**4.9**	**6.3**	**7.9**	**9.8**	**11.4**	**12.5**	
Capex	-0.2	-0.2	-0.3	-0.3	-0.4	-0.5	-0.6	-0.7	-0.9	
Unlevered free cash flow	**-2.4**	**-1.3**	**2.5**	**4.6**	**5.9**	**7.4**	**9.2**	**10.7**	**11.6**	**136.6**
Year	1	2	3	4	5	6	7	8	9	10
Discount factor	1.12	1.24	1.39	1.55	1.72	1.92	2.14	2.39	2.66	2.66
Present value	**-2.1**	**-1.0**	**1.8**	**3.0**	**3.4**	**3.9**	**4.3**	**4.5**	**4.4**	**51.3**

Note: based on medium-term assumptions from 2024E

Implied valuation metrics	**£m**
Sum of 9-year cash flow	22.0
Terminal value	51.3
Value of the firm	73.3
Net funds	-1.5
Total equity value	**71.8**
No.of shares in issue (m)	186.7
Fair value share price (£)	**0.38**

Source: Hardman & Co Research estimates

Management bios

John Cronin – Executive Chairman

John joined the board of Cyan in March 2012, initially as a Non-Executive Director, and he is now Executive Chairman of CyanConnode. He has created significant value for shareholders, with five company exits in Picochip, Azure Solutions, Antenova, i2 and Netsource Europe, totalling $600m. He has been instrumental in mergers and acquisitions worldwide, including Cyan's acquisition of Connode. John's contribution to high-tech industries includes being Chairman, CEO, NED or adviser to Antenova, GCI Com, Aria networks, Picochip, Arqiva, i2, Cambridge Networks, Kast, Azure, Next2Friends, Bailey Fisher, Netsource, Mercury (C&W) and BT. He has also provided independent consultancy to private equity and venture capital firms.

Heather Peacock – CFO

Heather joined the company in November 2008 as Financial Controller. Having a background and qualification in finance, and more than 20 years' global financial experience at a senior level, Heather has worked across diverse industry verticals in both the UK and South Africa. Her key areas of expertise are treasury, mergers and acquisitions, financial and cash planning and analysis, legal and compliance, and subsidiaries governance and management. She is also an Associate Member of the Governance Institute, and is the group's Head of HR. In 2013, Heather was appointed as Company Secretary for CyanConnode, and was responsible for the set-up of the company's subsidiary and operations in India, and the acquisition and integration of Connode in 2016. She was appointed as Chief Finance Officer and board director in July 2018, to ensure that robust financial systems were in place to support the company's growth.

Chris Jones – Non-Executive Director

Chris joined CyanConnode in March 2019 from global technology giant Arm Limited, where his most recent role was Vice President of Commercial Operations for its IoT Service Group, where he oversaw product licensing and SaaS business models, at its Cambridge, UK, headquarters. Prior to this, he held the position of Chief Operating Officer for mobile, device and IoT security leaders, Trustonic Ltd, a company founded in 2012 by Arm, Gemalto and G&D. Chris holds the role of Chairman of the Remuneration Committee and is a member of the Audit committee.

David Johns-Powell – Non-Executive Director

David, who joined the board in July 2018, has over 30 years' experience in small and medium-sized enterprises (SMEs), over a diverse range of industries, including Ceramics, Farming, Insurance, Leisure and Property. As well as running his own businesses, David is also a member of the Society of Lloyd's, where he is one of the few remaining members that underwrite insurance on an unlimited liability basis.

Peter Tyler – Non-Executive Director

Peter is a fellow of the Chartered Institute of Certified Accountants. He has held a number of roles in finance, mainly in the pharmaceutical sector, and is well versed in growing businesses and creating shareholder value. Peter has also been involved in a number of charities, where his role has been building them up, and putting in place structures, processes, teams and funding to satisfy the demands of the programmes. Peter holds the role of Chairman of the Audit Committee and is a member of the Remuneration Committee.

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