DIGITAL INFRA AT A CROSSROADS IN ASIA

There is a lot, and we mean a lot, talked and written about the future of digital infrastructure in Asia. With good reason, the fundamentals driving growth are staggering. By **DON STOKES**, *partner Singapore office, and* **KIERAN DONOVAN**, *partner Hong Kong office,* **LATHAM & WATKINS**.

Asia will have three billion mobile subscribers within a couple of years[1], and demand for data in China alone climbed by 500% between 2015 and 2020 to 181m terabytes[2]. Tech firms and telcos are rushing to provide related support services to meet this boom – the hyperscale cloud market, for example, is projected to quadruple over the next five years[3].

Demand expansion is projected to be supported by an equally robust rise in the supply of digital infrastructure in the region. The total supply of traditional towers and small cells is forecast to rise by more than 30% between 2022 and 2031[4], and the supply of data centres and related infrastructure will increase at multiples of that. Real estate consulting firms expect the size of this asset class to double by 2025[5] compared with 2020, with markets such as India experiencing growth of close to 100% in a span of six months[6].

For some investors, the digital infrastructure (DI) space represents a very attractive landscape. However, the barriers to entry are high, both in terms of capital commitments and required specialised sector knowledge.

In this article, we look at three primary trends that will shape the sector (but not exclusively!) in the coming years.

CUSTOMERS DEMANDING NET ZERO SOLUTIONS

Money talks. And the ultimate bulk revenue-generating customers of DI capability – big tech, hyperscalers and telcos – have made it clear that they expect DI service providers to facilitate their carbon-neutral business imperatives.

In practice, this primarily means providing or sourcing primary and back-up power that is truly renewable. However, it also extends to the rest of the supply chain, such as eco-friendly design and building techniques, the use of fossil free steel (in towers for example), implementation of safeguarding in land procurement, and other energy efficiency innovations (liquid cooling, battery and fuel cell storage for secondary supply, etc).

In the US, significant strides have already been taken to achieve carbon-neutral business imperatives – the average DC power unit efficiency measure climbed from 2.5 in 2007 to 1.59 in 2020[7] – but Asia remains a long way behind. There are two main reasons for this lag. First, until recently, renewable energy was more expensive than power from, say, gas-fired sources and under pressure procurement teams tend to prioritise cost control over their boards of directors' ESG aspirations.

Second, the regulatory environment of most Asian countries does not facilitate or encourage direct power purchase agreements (DPPAs), which is a necessary structural feature for DI operations to source renewable energy.

However, there are signs that this lack of facilitation and encouragement is being addressed. For example, Taiwan now has a burgeoning renewable DPPA market, due to the mega offshore wind projects coming into operation.

Elsewhere, Vietnam recently initiated a DPPA pilot programme[8] that, while not flawless – the generated electricity must be sold to EVN then to customers, and the programme is capped at 1,000MW – is certainly a step in the right direction.

In addition, the Philippines has significant baseload renewable energy through its geothermal capacity that can be "captive" to DI operators, but few other countries in South and South-East Asia allow for DPPAs.

Some DCs and towercos take power from the grid and buy carbon offsets or obtain a confirmation from the utility that "their power" comes from renewable sources. In more developed regions, hyperscalers will not accept this approach and require true carbon-neutral solutions. We're not at that point in Asia yet, but it will come – demand from customers and telcos will mean it's inevitable. The DI operators that can deliver will have a significant competitive advantage.

One platform looking to deliver on this demand is Evolution DC. Its co-founder Ed Martin-Sperry remarks "By our estimates, the total carbon emissions resulting from operating a typical 40MW DC in Southeast Asia are a massive 500kt of CO2 per annum. This can be reduced by around 30% using sustainable design and processes, while eliminating the remaining 70% would rely on renewable power. In this region, the impact of renewables is amplified given many of the national grids are predominately fossil-fuel based, and the challenge of accessing renewable power is predominately a regulatory one. Our ambition at Evolution is to use renewable power in markets where it's available today and to plot a path towards using renewables in markets where it's not."

A RISE IN DATA LOCALISATION REQUIREMENTS

It's official, apparently, the age of globalisation is over. Any regulatory specialist will tell you that there is a palpable trend towards countries putting in place protectionist regulation, often driven by national security.

How does this trend impact the DI sector? Certain jurisdictions have introduced or are considering imposing a legal obligation on companies to store some or all of their data in infrastructure that is located onshore, ostensibly driven by privacy (and national security).

Typically, these laws fall into two categories: direct – ie, the law specifically requires that particular data be stored in a local server –- or indirect, ie, the law doesn't specifically require localisation, but the effect of other legal restrictions means that in practice a company probably needs to store data locally. A popular rationale for these rules is that they enable a regulatory authority to more easily audit compliance and, therefore, better protect the underlying data.

China's recently revamped data storage regulatory suite is a sign of the times. The Cybersecurity Law[9], Data Security Law[10] and Personal Information Protection Law[11] together impose localisation and restrictions on certain transfers of data. "Important data"[12] must be stored in mainland China[13], and companies that process data in excess of certain thresholds[14] or of certain types[15] are required to undergo a cybersecurity assessment prior to transferring that data outside of mainland China. The effect of the latter is that it requires, at the very least, temporary storage in infrastructure located onshore.

Since April 2018, India has required that data related to payment systems[16] be stored only in India[17], and is considering a draft personal data protection bill (PDP Bill) that would extend the same requirement to critical personal data, while requiring that a copy of sensitive personal data be stored locally. India has more recently proposed regulation to restrict the transfer of non-personal data[18], which would extend the localisation rules in the PDP Bill to any data derived from that personal data, even if anonymised or aggregated.

Vietnam's Cybersecurity Law[19] requires foreign enterprises providing certain telecommunications, internet or other value-added services processing personal data, to store that data in Vietnam and set up a branch or representative office in-country. Vietnam has taken a similar approach to India, introducing a proposal to extend the localisation requirement to all processors of personal data and establishing a regulatory framework for enforcement[20].

Other markets that have already introduced or are considering similar localisation rules include Indonesia[21], Kazakhstan[22], Saudi Arabia[23], Russia[24], Uzbekistan[25] and the United Arab Emirates[26].

DC operators are not responsible for compliance with these regulations – it would be unreasonable for them to be expected to track and monitor where data is stored. However, these regulations will lead to significant data users, in particular in the e-commerce and TMT space, needing more on-shore capacity in order to comply, presenting opportunities for the "braver" DI market participants. Specifically, participants willing to develop greenfield DCs in some of Asia's higher growth/risk markets, and to do so while grappling with, to name just a few issues, arcane property systems and restrictions on foreign ownership, currency exchange and remittances restrictions. No one said it would be easy!

THE POTENTIAL FOR LEVERAGING KEY OPPORTUNITIES

With all of this opportunity, who will foot the bill for this massive growth? To-date, private capital in established markets such as Singapore, Hong Kong, Japan and South Korea has provided funding for most of Asia DI capacity.

However, this funding is costly and is unlikely to be cheaper when expanding into lower income countries, even those with massive digital economy potential. In any event, the growth potential means that private capital alone is likely not sufficient to meet the expected expansion demand, which may present a new opportunity for lenders.

The traditional financiers of core infrastructure in Asia – multilateral development banks and export credit agencies – tend not to be as active in DI. There are many reasons for this, including less scale and less scope for supporting "home team" participants. Moreover, DI tends to be much more exposed to market risk, lacking the long-term "offtake" that, say, a thermal power plant would have. Projecting the cashflows of even relatively conservative investments such as towers is challenging because their value can drastically change over time, as technologies modify the amount and scope of services these assets can offer[27]. Particular investments in digital infrastructure can also be more easily replaced by alternatives. For example, companies are rushing to replace legacy copper networks with fibre – a massive investment that nevertheless provides an attractive NPV – as much as 25% savings in operating expenses, including maintenance and additional capex savings[28].

Moreover, governments heavily regulate digital infrastructure but rarely invest in it. Contrast this with traditional infrastructure, in which governments or government-linked entities provide the bulk of capital and are strongly incentivised to establish rules that promote the success of their investment.

Until recently, there has not been a common approach among lenders to DI as a sector opportunity. This is unsurprising to an extent, since the risk and return profile of these alternative investments, and therefore the borrowers interested in these assets, vary widely[29]. Some lenders have viewed DI as a branch of real estate, with an expected equity debt ratio of as much as 50%–60%, and tenors limited to five to seven years with bullet repayment and a certain dependency on location of facility.

That is, however, changing and international lenders are increasingly responding to clients' requests for alternative structures, including non-recourse project finance to fund construction of DCs and tower portfolios.

Seth Tan, managing director and head of infrastructure and development finance at SMBC, indicated that "...the need for digital infrastructure remains very huge, but we're seeing more competition hence more aggressive terms. Quality sponsors with projects in high digital demand locations and with strong anchor tenants and contracts may take advantage of limited or non-recourse financing to use a de-risked approach to maximise gearing and tenor and thereby improve on their IRR..."

In the case of project finance, lenders will expect to see a creditworthy anchor tenant for the facility signed up on

a committed, long-term basis – a purported "build it and they will come" approach will not wash for lenders if a developer wants construction period financing.

Other important elements include scale and completion of all permitting and licensing processes before the lenders will consider a project. Even then, some markets (including those with the data localisation requirements mentioned above) will struggle to attract non-recourse financing in the near-term and the build-out of additional capacity in those countries is perhaps more likely to be funded with equity that will be taken out later by debt. ■

FOOTNOTES

1 - Ericsson, 2021. Ericsson Mobility Report [online] p8. Available at: <https://www.ericsson.com/4ad7e9/assets/local/reports-papers/mobility-report/documents/2021/ericsson-mobility-report-november-2021.pdf>.
2 - JLL, Asia Pacific outlook 2022: Build back bigger, December 2021. Available at https://www.jll.com.sg/content/dam/jll-com/documents/pdf/research/jll-apac-asia-pacific-outlook-2022-build-back-bigger.pdf.
3 - Id.
4 - Asia-Pacific Tower and small cell projections through 2031. Asia-Pacific tower and small cell projections through 2031 | S&P Global Market Intelligence. (March 31 2021). Retrieved June 16 2022 from https://www.spglobal.com/marketintelligence/en/news-insights/research/asia-pacific-tower-and-small-cell-projections-through-2031.
5 - Knight Frank. APAC data centre demand expected to double in the next 3–5 years. Knight Frank. Retrieved June 16 2022, from https://www.knightfrank.com.hk/news/apac-data-centre-demand-expected-to--double-in-the-next-3-5-years-013818.aspx.
6 - Data Center development rises to feed online boom. JLL Singapore. (December 23 2021). Retrieved June 16 2022, from https://www.jll.com.sg/en/trends-and-insights/investor/data-center-development-rises-to-feed-online-boom. Others project robust, but relatively more modest increases. See, eg, State of the market – data centres in Asia - RLB: Asia. RLB. (May 13 2022). Retrieved June 16 2022, from https://www.rlb.com/asia/insight/state-of-the-market-data-centres-asia/.
7 - 'How DCs impact the Environment', Dgtl Infra February 1 2021, Mary Zhang.
8 - Vietnam's MOIT on 9 May 2022 published the second draft of the Decision of Prime Minister Draft Decision on a pilot program for DPPAs between 'renewable energy generators' and so-called large customers. The program is based on the Synthetic DPPA model recommended by USAID Vietnam Low Emission Energy Program (V LEEP).
9 - Introduced in 2017.
10 - September 1 2021.
11 - November 1 2021.
12 - Under the draft recommended national standard 'Guidelines for Cross-Border Data Transfer Security Assessments' (the Draft Guidelines), "important data" refers to data collected or derived in mainland China that closely relates to national security, economic development, and public interests. Appendix A of the Draft Guidelines sets out a detailed list of "important data" in various industries.
13 - Data Security Law, Article 31.
14 - 10,000 data subjects in the case of sensitive personal data; 100,000 data subjects in the case of other personal data.
15 - Sensitive personal data, or data of persons under 14 years old.
16 - Comprising all end-to-end transaction details, information collected, carried or processed as part of a message/payment instruction.
17 - Reserve Bank of India (RBI) Circular: Storage of Payment System Data. April 6 2018.
18 - Draft Non-Personal Data Governance Framework 2020.
19 - January 1 2019.
20 - Draft Decree on Personal Data Protection announced February 9 2021.
21 - Government Regulation No. 71 of 2019 on the Implementation of Electronic Systems and Transactions, which requires public electronic system operators to store their electronic systems data in Indonesia.
22 - Law of the Republic of Kazakhstan on Personal Data and its Protection.
23 - National Data Governance Interim Regulations (issued on June 1 2020).
24 - Federal Law No.152-FZ "On Personal Data" dated July 27 2006.
25 - State Center for Personalisation under the Cabinet of Ministers, directive dated February 25 2021.
26 - UAE Federal Health Data Law.
27 - For a comprehensive overview of how technology is changing the value of towers and other digital infrastructure see McKinsey & Company, The Next Telco battleground: Network Experience and Competitiveness., 2022.
28 - Boston Consulting Group, Say Goodbye to Copper Telecom Networks, 2021.
29 - DI assets have a broad range of risk/return profiles. Passive assets such as towers traditionally carry the lowest risk, since the agreements under which they are utilised provide for long-term steady cashflows. Active assets are the technology that works on top of passive assets and that allows telcos to provide services. A classic example of an active asset is a Random Access Network (RAN) device, which connects consumer devices such as phones with the network core. These assets are riskier because they are exposed to commercial risk (fluctuations in usage); however, they are also expected to generate higher returns. According to a study by BCG and Microsoft, active assets will represent 28% of the growth in the telecommunications industry in the years to come (passive assets will represent less than 10% of growth). Boston Consulting Group, In Telecom, "Tower Companies Soared While Operators Struggled", 2022. Active Assets have traditionally been owned by telcos, but they are steadily divesting them to towercos in an effort to raise cash to support the expansion of 5G networks and other capex commitments. See Boston Consulting Group, Tower Companies Explore New Avenues for Growth, 2002. Towercos' ownership of these assets can change their risk profile because they can be rented out under agreements that provide for similar cashflow structures as passive asset agreements. Logically, however, this will only be economically feasible if towercos can derive a larger value from the assets than telcos because as neutral parties they are in a better position to push for a standardisation of the technology (reducing maintenance and investment costs), as well as to more fully utilise them (by renting them out to several parties). See Boston Consulting Group, Tower Companies Explore New Avenues for Growth, 2002.