

DATA CENTRE UPDATE

APAC:

Hong Kong, Jakarta,
Singapore, Sydney,
Tokyo



Key Indicators



Under Construction
202 MW



Vacancy
15%

Hong Kong Market Map

SHARE OF TOTAL STOCK (%)

FANLING
3%

TAI PO
5%

TSUEN WAN /
KWAI CHUNG /
TSING YI
23%

SHA TIN
9%

KOWLOON EAST
2%

CHAI WAN
5%

TSEUNG KWAN O
51%

New Territories (91%)

Kowloon (2%)

Hong Kong Island (7%)

HONG KONG SOUTH
2%

Market Overview

Construction continues at a rapid pace throughout Hong Kong, with familiar operators Equinix, Digital Realty, SUNeVision (via their iAdvantage subsidiary) and PCCW/Vantage (more below) joined by new entrants GDS and Mapletree Investments with their initial local builds. The move into Hong Kong for GDS is long-awaited; after building a massive portfolio of data centers across mainland China in primary and secondary locations, the listed real estate investment trust (REIT) has started a first project with several more under consideration. Singapore fund Mapletree has become a global data center investor over the past several years, mainly focused on the United States but choosing to build an initial hyperscale-sized project in Fanling. Industrial powerhouse ESR Cayman will soon be joining the fray, closing on a site earlier this year in Kwai Chung and in planning for an initial 40 MW build as the company begins constructing a pan-Asia data center platform. The nearly 202 MW under construction reflects the current scenario locally; although 15% vacancy is higher than many other primary markets, much of this is spread across the market in small availabilities with few large-capacity options available for the largest cloud services. With Hong Kong a key battleground for all major cloud services from both the United States and mainland China (Amazon Web Services, Microsoft Azure, Google Cloud, Alibaba, Tencent, Huawei Cloud, Kingsoft), each requires ever-growing large capacity to serve the local array of financial services companies, government agencies, and multinationals with their primary or regional deployments. While in several markets many of these cloud services may compete with their national compatriots, Hong Kong is one of the few global primary locations that offers direct competition among all. With the considerable capital flowing into Hong Kong and continued tightness in several other pan-Asia Pacific markets, expect continued strength in development and increases in connectivity options through 2022.

Corporate-Level Investment

Rumors suggested in the last edition of this report of an imminent sale of the PCCW data center portfolio turned out to be correct, with DigitalBridge signing to acquire the operational platform for HK\$5.8 billion with plans to add the assets to their rapidly-growing Vantage Data Centers company. This deal alongside the concurrent acquisition of Agile Data Centers in other markets across the Asia-Pacific region provides a rapid market entry for Vantage, who began in the United States, later expanded to Canada and now throughout Europe. PCCW mainly leases their Hong Kong-focused portfolio, with additional locations in Guangzhou and Kuala Lumpur, and will provide Vantage with an upcoming 40 MW build in Tsuen Wan.

Locally based Gaw Capital recently formed their own new venture named Data Center First, choosing to target the rapidly emerging market of Batam in Indonesia. Chosen due to its proximity to Singapore, this initial project at the new Nongsa Digital Park benefits from its location as a special economic zone with associated tax benefits. Gaw Capital had previously partnered with Centrin Data in the Shanghai area and is now looking for investments across the greater region.

Ecosystem Developments

- Amsterdam Internet Exchange Hong Kong (AMS-IX HK)** has added access to Alibaba Cloud locally, providing public or private peering options for the global cloud service. The exchange offers a variety of options for connecting to major cloud platforms, and recently reached a new traffic peak in springtime.
- Equinix** signed an exciting new client in springtime to their HK4 data center, with Precision Robotics signing on to assist with the continued development of their high-end surgical robots. The robotics firm cited the Nvidia DGX A100 system deployment that assist with analytics and artificial intelligence.
- Tencent** added another location in Hong Kong, expanding their local presence to three locations. The major cloud service continues expansion across the world, with new sites in Bangkok, Frankfurt, and Tokyo also coming online.
- NTT** has added a new option known as Global Data Centre Interconnect, a network fabric providing access to an array of cloud services, exchanges, and much else. Hong Kong joined Singapore and Bangkok as initial markets for this service, with global rollout planned over time.
- Zenlayer** added several new cloud networking routes at mid-year, with new local options linking Hong Kong to both Tokyo and Singapore. The cloud services provider continues to add data centers and connectivity worldwide, now operating out of 180 locations.
- HGC Global Communications** now provides access to Google Cloud Partner Interconnect, offering direct connectivity to the global cloud platform. At launch HGC emphasized the rapid speed and redundancy available across the local network in Hong Kong.

Construction Update

| OPERATOR | LOCATION | PROJECT | TOTAL POWER (MW) | STAGE / EST. DELIVERY |
|--------------|---------------|-----------------------|------------------|------------------------------|
| Equinix | Tsuen Wan | HK1 (Phase 13A) | 4 | Under Construction / Q3 2021 |
| | Tsuen Wan | Sha Tsui Road Project | 40 (est) | Under Construction / Q4 2022 |
| GDS | Kwai Chung | HK1 | 7.9 | Under Construction / Q2 2022 |
| | Kwai Chung | HK2 | 20 (est) | Under Construction / Q4 2023 |
| SUNeVision | Tsuen Wan | TWTL 428 | 10 (est) | Under Construction / Q4 2022 |
| | Tseung Kwan O | TKOTL 131 | 50 | Under Construction / Q4 2022 |
| | Fanling | 11 On Chuen St | 10 | Under Construction / Q4 2022 |
| PCCW | Tsuen Wan | Tsuen Wan | 40 | Under Construction / Q4 2022 |
| | Shatin | Goodman Logistics Ctr | 20 (est) | Under Construction / Q4 2022 |
| Mapletree | Fanling | FSSTL 268 | 50 | In Planning / Q4 2024 |
| ESR | Kwai Chung | ESR Kwai Chung | 40 | In Planning / Q4 2024 |
| China Mobile | Shatin | STTL 613 | 80 (est) | In Planning / Q4 2024 |

Recent Hong Kong Land Sales

| PROPERTY | SALE DATE | LOCATION | PRICE (HKD MILLION) | UNIT PRICE (HKD PSF, GFA) | PURCHASER |
|------------------------|-----------|------------|---------------------|---------------------------|-----------|
| 11 Wing Yip St | May-21 | Kwai Chung | 1,800 | 6,126 | ESR |
| 57-61 Ta Chuen Ping St | Jul-21 | Kwai Chung | 900 | 3,261 | GDS |

MORE INFORMATION

Keith Chan

Head of Research
Hong Kong
+852 2956 7021

keith.chan@cushwake.com

Kevin Imboden

Director of Research
Global Data Center Advisory Group
+1 408 436 3622

kevin.imboden@cushwake.com

GLOBAL DATA CENTER ADVISORY GROUP

Cushman & Wakefield's [Data Center Advisory Group](#) is a global team of elite professionals delivering specialized real estate solutions for mission critical users, owners, and environments. With scalability, reliability, and security as a driving force, our highly knowledgeable and responsive professionals guide clients to make effective financial decisions. Our expertise ranges includes colocation facilities, control centers, greenfields, powered shell, and trading floors. We lend additional value through our understanding of global dynamics and their impact on local markets.

cushmanwakefield.com

©2021 Cushman & Wakefield. All rights reserved. The information contained within this report is gathered from multiple sources believed to be reliable. The information may contain errors or omissions and is presented without any warranty or representations as to its accuracy.

Key Indicators



Under Construction
148 MW

MORE INFORMATION

Wira Agus

Director
Global Data Center Advisory Group
+62 212 550 9542

Wira.agus@cushwake.com

Kevin Imboden

Senior Research Manager
Global Data Center Advisory Group
+1 408 436 3622

Kevin.imboden@cushwake.com

GLOBAL DATA CENTER ADVISORY GROUP

Cushman & Wakefield's [Data Center Advisory Group](#) is a global team of elite professionals delivering specialized real estate solutions for mission critical users, owners, and environments. With scalability, reliability, and security as a driving force, our highly knowledgeable and responsive professionals guide clients to make effective financial decisions. Our expertise ranges includes colocation facilities, control centers, greenfields, powered shell, and trading floors. We lend additional value through our understanding of global dynamics and their impact on local markets.

©2021 Cushman & Wakefield. All rights reserved. The information contained within this report is gathered from multiple sources believed to be reliable. The information may contain errors or omissions and is presented without any warranty or representations as to its accuracy.

Market Overview

Jakarta has rapidly grown from a frontier data centre market to a global secondary location, well on its way to primary status befitting an international megacity. All major cloud services are now present or will soon be, vying for businesses serving the top-five global population throughout Indonesia, along with the potential growth of a further 100 million people getting online for the first time over the next couple of decades. This has allowed Jakarta to leap ahead of the small builds that exist in many similar cities and head straight to hyperscale, with 148 MW currently under construction through 2023 and further operators looking for entry points. New entrants on their initial projects in-market include Pure Data Centres (in partnership with Australian industrial developer LOGOS) and Temasek-backed STT in partnership with Triputra Group. Together all current projects will grow the Jakarta market to beyond 200 MW, with little unattractive legacy infrastructure holding back large-scale deployment. Expect further positive headlines through the end of 2021 and into 2022, with more capital entering and more phased development in a highly competitive market.

Ecosystem Developments

- **Tencent Cloud** is the latest major cloud service to move into Jakarta, launching their first data centre early in the year. The company cited several local clients using their platform, including Bank Neo Commerce, JOOX, Aestron, and WeTV from across the financial and entertainment sectors.
- **Digital Edge** continued an aggressive investment strategy into Indonesia, taking a 47% stake in Indonet for Rp1.99 trillion. Indonet is underway on their EDGE1 data centre and recently acquired additional land in the Kuningan neighborhood for future phases.
- National utility **PLN** is collaborating with Greenland International Industrial Centre to provide 993 MVA of industrial power to the area, planned for hyperscale data centre development. The power allotment will continue to underpin the massive interest in new projects serving Jakarta and the region.
- Local multinational **Salim Group** signed on with Google Cloud early in the year, with artificial intelligence and machine learning as focuses across multiple business lines. Google launched its cloud platform in Jakarta in 2020, the first of the major US cloud services to do so. Salim is also currently investigating developing data centres in industrial parks across Indonesia and has a stake in data centre operator DCI.
- Rumors swirled of late in local news publications that **Indosat** is considering a sale of its local data centre business, which includes locations in Jakarta and Jatiluhur. The company is a partnership between Qatari communications company Ooredoo and Hong Kong multinational CK Hutchison.
- **SpaceDC** now offers direct access to Alibaba Cloud via their Express Connect product, allowing the operator to bypass the local internet service provider.
- The Suryacipta City of Industry announced a new partnership with **XL Axiata**, bringing a new fibre optic network online for data centre options across the park.

Connectivity Equals Growth

Discussion about the growth of Jakarta as a data centre market tends to focus on individual needs around application utilization from companies such as Grab or Gojek, or corporate/government needs on hyperscale platforms such as Google Cloud, Alibaba, or Tencent. Often overlooked in this landscape are the undersea cables connecting the Jakarta area to the rest of the world, spurring further accessibility both regionally throughout Southeast Asia and across continents. Recent headlines have centred around two new cables under construction; Bifrost is currently under construction by a partnership including Telin, Facebook, and Keppel Telecommunications & Transportation, and will connect Jakarta to Singapore, Davao in the Philippines, and the United States when complete in 2024. Echo will go live slightly earlier in 2023, backed by Facebook and Google and linking the nearby landing station of Tanjung Pakis to Singapore, Palau, Guam, and the United States. While these systems will bring faster connectivity and link Jakarta to the regional financial hub and the world's biggest economy, the greater Jakarta area is already directly connected to 29 countries, not to mention many of the surrounding islands throughout Indonesia. The connectivity adds credence to the possibility of Jakarta as a rapidly growing regional hub, not just a stand-alone megacity or even a national powerhouse.

A New Market Coming?

While Jakarta continues to expand, the data centre moratorium in Singapore has led to some creative solutions, including at the nearby recently-designated special economic zone (SEZ) of Batam. Batam Island is located 30 kilometres across the Singapore Strait, and the Nongsa Digital Park has rapidly drawn interest thanks to the business and income tax breaks available. The Gaw Capital-backed Data Centre First has already secured a 2.75-hectare site for data centre development, and a partnership between Telkom Indonesia (Telin) and Etisalat is reportedly making plans in the same area. While data centres are already located in many cities across Indonesia, the convenient placement and tax breaks have the potential to continue sizable growth in Batam.

Recent Site Sales

| PROPERTY | SIZE (SQM) | SALE DATE | SALE PRICE(Rp) | BUYER | SELLER |
|---------------------------------|------------|-----------|-------------------|---------|---------------------|
| Kuningan Center Lot 3 and Lot 5 | 6,000 | Apr-21 | Rp241,700,000,000 | Indonet | Sukanda Mulia Group |

Construction Update

| OPERATOR | LOCATION | SIZE (SQM) | POWER (MW) | STAGE / EST. DELIVERY |
|-------------------|----------|--------------|------------|------------------------------|
| Indonet | EDGE1 | 5,000 (est) | 6 | Under Construction / Q4 2021 |
| DCI | H2 | 12,000 (est) | 15 | Under Construction / Q4 2021 |
| Pure Data Centres | Jakarta | 20,000 | 20 | Under Construction / Q1 2022 |
| Princeton Digital | JC2 | 22,800 | 35 | Under Construction / Q4 2022 |
| STT | Bekasi | 60,000 (est) | 72 | Under Construction / Q1 2023 |

Key Indicators



Under Construction

191 MW



Vacancy

2%

MORE INFORMATION

Xian Yang WongHead of Research
Singapore
Tel: +65 6232 0885Xianyang.wong@cushwake.com**Brenda Ong**Executive Director
Logistics & Industrial
Tel: +65 6232 0878Brenda.ong@cushwake.com**Kevin Imboden**Senior Research Manager
Global Data Center Advisory Group
+1 408 436 3622kevin.imboden@cushwake.com

GLOBAL DATA CENTER ADVISORY GROUP

Cushman & Wakefield's [Data Center Advisory Group](#) is a global team of elite professionals delivering specialized real estate solutions for mission critical users, owners, and environments. With scalability, reliability, and security as a driving force, our highly knowledgeable and responsive professionals guide clients to make effective financial decisions. Our expertise ranges includes colocation facilities, control centers, greenfields, powered shell, and trading floors. We lend additional value through our understanding of global dynamics and their impact on local markets.

©2021 Cushman & Wakefield. All rights reserved. The information contained within this report is gathered from multiple sources believed to be reliable. The information may contain errors or omissions and is presented without any warranty or representations as to its accuracy.

Market Overview

As the unofficial moratorium on new data centre construction continues toward the end of 2021, operators have aimed to add smaller phases of new capacity where possible, albeit at a pace well under market demand. This includes global players Equinix, Digital Realty, and STT, while Facebook stays active on their large project with completion scheduled for next year. Pricing remains high at anywhere from S\$200-S\$400/kWh/month for the few small availabilities left, with total vacancy among the tightest of any large market globally at just 2%. Further regional markets have begun to grow in response beyond the previously noted Jakarta and Kuala Lumpur; Johor Bahru across the Strait has key sites with power and land available, and the free trade zone on the Indonesian island of Batam Is now receiving interest thanks to its proximity to Singapore. The plethora of regional undersea cables currently under construction will at least ensure that the high level of connectivity will continue, with six separate systems due for completion over the next three years. Singapore remains one of the key global hubs for data centre innovation, as several examples noted later in this report indicate; continued increases in efficiency and a reduced overall carbon footprint will likely be required for any large-scale data centre development to begin anew.

Industry rumors abound on capital raises and potential transactions, with Singtel widely reported as considering a divestment of data centre and tower assets in a bid to refocus on the upcoming rollout of 5G mobile technology. Digital Realty also made recent headlines, with the REIT considering a secondary local listing on the SGX of certain assets in the United States. The potential move could serve as a novel way to raise capital and providing a fresh source of development financing. The national government is also planning its own S\$3.8 billion move to improve technical infrastructure, aiming to streamline hundreds of systems in the cloud and utilizing artificial intelligence to assist with the education system. Unlike similar programs in major markets across the globe, small- and mid-size firms will be invited to participate in the bid process, potentially benefiting an array of local companies. Singapore continues to be of primary interest regardless of the moratorium and expect further connectivity and research and development successes in lieu of new builds.

Ecosystem Developments

- An exciting new partnership has launched, with the **Sustainable Tropical Data Centre Testbed** planning to develop and test innovative cooling solutions for data centres located in hot climates. Made up of Keppel Data Centres, Ascenix, CoolestDC, New Media Express, Red Dot Analytics, Facebook, National Research Foundation Singapore, and the brightest minds from the National University of Singapore (NUS) and Nanyang Technical University. NUS will host the research, launching currently and exploring cooling technologies across four avenues.
- **Reliance Jio** announced two new undersea cables late in springtime, with the India-Asia-Xpress (IAX) and India-Europe-Xpress (IEX) cables linking India to an array of destinations. The IAX cable is of local interest, with Mumbai and Chennai in India, Matara in Sri Lanka, Satun in Thailand, Morib in Malaysia, and finally Singapore included as landing stations on the route, scheduled to go live by the middle of 2023.
- **Contabo** has opened an initial data centre in the greater APAC region, choosing Singapore for their virtual private services and other hosting programs. The internet service provider has four other data centres across the United States and Germany, with over 10,000 servers available worldwide.
- **NTT** has added a new option known as Global Data Centre Interconnect, a network fabric providing access to an array of cloud services, exchanges, and much else. Singapore joined Hong Kong and Bangkok as initial markets for this service, with global rollout planned over time.
- **Tencent** added a third local availability zone in Singapore, part of a continued global expansion particularly focused on East and Southeast Asia. The cloud services giant also rolled out an array of new data centres in Bangkok, Hong Kong, Tokyo, and Frankfurt.

SINGAPORE MARKET MAP



The largest cluster of data centres in Singapore can be found in the Loyang and Tai Seng areas, with other locations scattered throughout.

ECOSYSTEM DEVELOPMENTS

- **NetActuate** completed an expansion to their Singapore data centre in springtime, providing further bandwidth and server capacity to keep up with client demand. The company has emphasized its anycast peering platform, providing low latency access worldwide.
- The **STT Tai Seng 1** data centre now offers access to global internet exchange DE-CIX, with an array of new interconnection services available. This is the third DE-CIX-enabled site in Singapore, after the Global Switch and Equinix locations.
- **Google** and Facebook have teamed up on another undersea cable, with Apricot underway and planned for completion in 2024. The new cable will connect Singapore to Japan, Taiwan, Guam, the Philippines, and Indonesia, and is the third recent cable announced by the two companies that reaches Singapore. Additional partners include Chunghwa Telecom, PLDT, and NTT, who will assist with operations in local markets.
- **Zenlayer** added several new cloud networking routes at mid-year, with new local options linking Singapore to both Frankfurt and Hong Kong. The cloud services provider continues to add data centres and connectivity worldwide, now operating out of 180 locations.
- Locally based **Epsilon Telecommunications** was acquired by a partnership of Korea Telecom and Daishin Private Equity for nearly S\$200 million. Epsilon will continue to operate as usual, including their local data centre at New Tech Park.
- **BDx**, NUS, and Sembcorp Marine have agreed to conduct research on offshore data centres, with the potential for seawater cooling and other renewable innovations. Together the partners aim to develop a proof-of-concept, with BDx managing operations, NUS the cooling technology, and Sembcorp the offshore platform.

Recent Property Sales

| PROPERTY | SIZE (SQM) | SALE DATE | SALE PRICE (\$) | BUYER | SELLER |
|-------------------------|------------|-----------|-----------------|---------|----------------------------|
| 26A Ayer Rajah Crescent | 35,749 | Jun-21 | S\$125,000,000 | Equinix | Mapletree Industrial Trust |

Construction Update

| OPERATOR | LOCATION | GFA SIZE (SQM) | TOTAL POWER (MW) | STAGE / EST. DELIVERY |
|----------------|-----------------|----------------|------------------|------------------------------|
| Equinix | SG1 (Phase 15) | 879 | 1.2 | Under Construction / Q3 2021 |
| | SG5 (Phase 2-3) | 4,162 | 6.9 | Under Construction / Q1 2022 |
| Digital Realty | Singapore | 12,174 | 18 | Under Construction / Q3 2021 |
| Facebook | Tanjong Kling | 170,000 | 150 | Under Construction / Q2 2022 |
| STT | Defu 3 | 14,500 | 15 | Under Construction / Q3 2022 |

Key Indicators



Under
Construction
80 MW



Vacancy
7%

MORE INFORMATION

Orlando Maciel
Director, Head of Industrial
New South Wales
Tel + 61 2 9224 8032
Orlando.maciel@cushwake.com

Kevin Imboden
Senior Research Manager
Global Data Center Advisory Group
+1 408 436 3622
kevin.imboden@cushwake.com

GLOBAL DATA CENTER ADVISORY GROUP

Cushman & Wakefield's [Data Center Advisory Group](#) is a global team of elite professionals delivering specialized real estate solutions for mission critical users, owners, and environments. With scalability, reliability, and security as a driving force, our highly knowledgeable and responsive professionals guide clients to make effective financial decisions. Our expertise ranges includes colocation facilities, control centers, greenfields, powered shell, and trading floors. We lend additional value through our understanding of global dynamics and their impact on local markets.

©2021 Cushman & Wakefield. All rights reserved. The information contained within this report is gathered from multiple sources believed to be reliable. The information may contain errors or omissions and is presented without any warranty or representations as to its accuracy.

Market Overview

The local market received some pleasant news shortly after the last edition of this report, with the New South Wales Department of Planning, Industry, and Environment lowering the threshold for data centres to be considered a state significant development from A\$50 million to A\$30 million. This will enable a faster planning and approval process for new construction throughout the state, leading to shorter lead times for data centre development across greater Sydney. Planning of this type will last through May 2023, which may very well spur additional phases or campuses currently under consideration. As is, 80 MW is currently under construction, with familiar names Digital Realty, NextDC, DCI, and even Stockland joining in with projects aimed for completion between the end of the year and 2023. New builds throughout the market remain aimed at hyperscale tenants, with overall vacancy remaining in line with other global primary markets at just 7%, a very tight figure for any data centre area. Land for further builds does remain available, with NextDC recently closing on a portion of the former CSR brickmaking site in Horsley Park for a prospective 300 MW campus at full completion. Operational capacity is spread nearly evenly among Equinix, AirTrunk, NextDC, and Global Switch, with Canberra Data Centres and Digital Realty closing in. This allows for continued pricing and offering competition, unlike other markets globally that are occasionally dominated by a single provider.

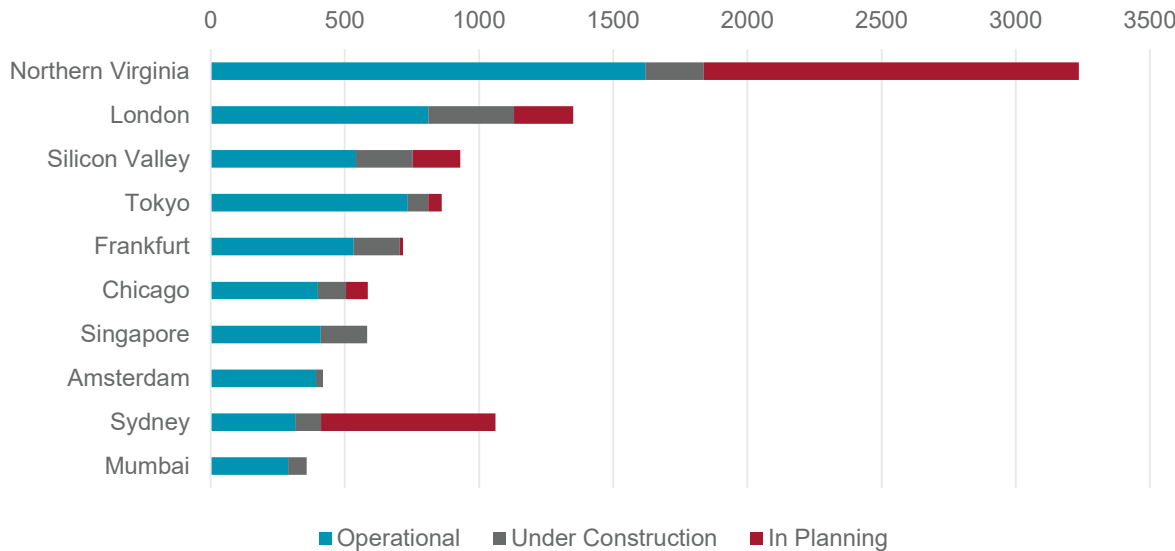
Another recent government decision should pay dividends for those bidding on federal contracts, with the Digital Transformation Agency awarding NextDC, Equinix, and Fujitsu the certified strategic hosting provider designation, joining Canberra Data Centres, Macquarie Telecom, and Australian Data Centres. This is particularly significant for both Equinix and Fujitsu, as these are the first companies based outside Australia to receive this label. As this is the highest level awarded to a data centre provider, the additional designees should further open the competitive arena for digital transformation of federal agencies.

The investment market has quieted again in recent months as investors search in vain for operational assets for sale; with recent cap rates already compressing to the low 4s, funds remain hungry for the long leases and stability offered in Sydney. Expect continued strength in coming months from the local market, with the familiar mix of global and local operators competing for hyperscale, government, and large enterprise business across a variety of new projects.

Ecosystem Developments

- The **New South Wales Government** is adding another A\$500 million to the state's digital restart fund, providing additional funding to organizations as diverse as NSW Health, the Department of Customer Service, and others, all to assist with digital transformation. Cyber security for all agencies will be key on the agenda, along with greater availability of online services for each.
- **Faction** launched its first APAC data centre in Sydney at mid-year, with the multi-cloud services provider expanding on its American and European global footprint. The company has partnerships with Dell and VMware for analytics and private cloud solutions and enables access to all major cloud services.
- British investment fund Amber Infrastructure has acquired a majority interest in **iSeek**, based in Brisbane and with a data centre locally in Sydney. iSeek has five data centres across Australia and expects to use this new capital for further expansion.
- **TPG Telecom** is at work on upgrading the PPC-1 cable that links Sydney to Guam, boosting cable capacity by 50%. Guam has been of increased interest of late as a mid-Pacific cable stop, with new cables linking the greater APAC region to North America utilizing a spur to the island.

Sydney Potential



While many primary global markets have struggled with ever-increasing data centre capacity of late, Sydney has the potential to surpass many others on its way to being a 1 GW city. If all potential phases on all land currently banked by operators is completed over time (reflected in the “in planning” number on this chart for a longer-term outlook than the Construction Update below), Sydney and Tokyo will continue to thrive as destinations for hyperscalers.

Recent Land Sales

| PROPERTY | SIZE (SQM) | SALE DATE | SALE PRICE (A\$) | BUYER | SELLER |
|-------------------------|------------|-----------|------------------|--------|--------|
| Burley Rd, Horsley Park | 124,000 | Jul-21 | A\$124,000,000 | NextDC | CSR |

Construction Update

| OPERATOR | PROJECT | SIZE (SQM) | POWER (MW) | STAGE / EST. DELIVERY |
|----------------|------------------|---------------|------------|------------------------------|
| Digital Realty | Erskine Park III | 6,279 | 7.2 | Under Construction / Q4 2021 |
| NextDC | S3 | 20,000 | 12 | Under Construction / Q2 2022 |
| | S4 | 200,000 (est) | 300 | In Planning |
| DCI | SYD02 | 35,000 | 36 | Under Construction / Q4 2022 |
| Stockland | Athena | 22,515 | 25 (est) | Under Construction / Q1 2023 |
| Macquarie | IC3 Super West | 30,000 (est) | 32 | In Planning / Q4 2023 |
| AirTrunk | SYD1 (Phase 2) | 12,000 (est) | 40 | In Planning |

Key Indicators



Under Construction
130 MW

Investment and hyperscale development continue across greater Tokyo with new operators now entering.

MORE INFORMATION

Kevin Imboden
Senior Research Manager
Global Data Center Advisory Group
+1 408 436 3622
kevin.imboden@cushwake.com

Hideaki Suzuki
Director of Research, Japan
Tel: +81 3 3596 7804
hideaki.suzuki@cushwake.com

Yuko Kamei
Research & Consulting, Japan

GLOBAL DATA CENTER ADVISORY GROUP

Cushman & Wakefield's [Data Center Advisory Group](#) is a global team of elite professionals delivering specialized real estate solutions for mission critical users, owners, and environments. With scalability, reliability, and security as a driving force, our highly knowledgeable and responsive professionals guide clients to make effective financial decisions. Our expertise ranges includes colocation facilities, control centers, greenfields, powered shell, and trading floors. We lend additional value through our understanding of global dynamics and their impact on local markets.

©2021 Cushman & Wakefield. All rights reserved. The information contained within this report is gathered from multiple sources believed to be reliable. The information may contain errors or omissions and is presented without any warranty or representations as to its accuracy.

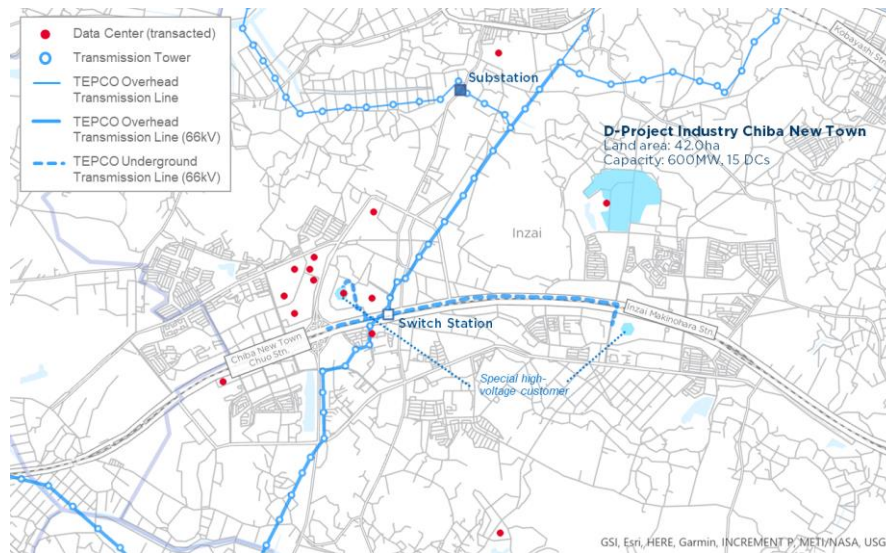
Market Overview

Tokyo continues to attract new investment, beginning with the entry of Princeton Digital Group and Vantage with their initial projects locally, bringing the under-construction total in-market to 130 MW, mainly aimed at hyperscale tenants marketing their platforms to large corporations and government entities. While hardly a low-cost market for land acquisition, land (and associated zoning and permitting) is available for major builds, a considerable advantage in comparison to rapidly constrained markets regionally and globally. As noted in our last report, investment in operational facilities has continued with three buildings trading, two leased to Arteria and acquired by recent entrant Digital Edge, and a third sold by IIF REIT with tenants NTT Docomo and Hitachi. With the continued upgrades in connectivity and further cloud services options, expect impressive performance leading into 2022 and more development and investment coming in Tokyo and regionally.

Ecosystem Developments

- **Amazon** has agreed to purchase 22 MW of solar energy from Mitsubishi subsidiary MC Retail Energy, as the cloud computing giant continues its global push toward fully renewable energy. The deal is the first renewable energy acquisition in Japan for Amazon.
- **Tencent** added another location in Tokyo, bolstering their local Northeast Asia Pacific region. The major cloud service continues expansion across the world, with new sites in Bangkok, Frankfurt, and Hong Kong also coming online.
- The Softbank-owned **BBIX** internet exchange now offers access to IBM Cloud, adding to previous availability with Amazon Web Services, Microsoft Azure, Google Cloud, and several other major platforms. The exchange followed this with further access available at the Softbank Tokyo Number 4 data centre.
- **Zenlayer** added a new bare metal cloud zone in Tokyo at mid-year, joining Atlanta, Istanbul, and Guangzhou as cities gaining additional capacity. Two additional cloud networking links also came online locally, connecting Tokyo to both Seattle and Hong Kong.
- The Pan-Asia acquisition of Agile Data Centers by **Vantage** provides instant access to major markets Tokyo, Osaka, and Melbourne, with a large project currently underway in Sagami-hara. Vantage is now active in fifteen markets globally spanning North America, Europe, and Asia.
- **Tata Consultancy Services** and Google Cloud are partnering to establish TCS Google Garages in three global cities, with Tokyo joining New York and Amsterdam acting as locations for co-innovation and research. Cloud solutions, artificial intelligence (AI), and much else will be on offer for companies to evaluate.
- **@Tokyo** announced further service offerings locally, first collaborating with PCCW on for further connectivity via the Console Connect platform to link to further markets across the greater Asia-Pacific region. This was followed by the addition of Megaport availability within the @Tokyo Cloud Lab for further Network-as-a-Service (NaaS) options.

INZAI MARKET CLUSTER



While other primary data center markets across the world have suffered from a lack of available power, the Inzai cluster located 40 kilometres outside of central Tokyo looks set to thrive thanks to continued support from utility TEPCO and robust transmission lines across the area. The Mitsubishi-Digital Realty joint venture recently completed a new building in Inzai, joining Colt and new construction by the Equinix-GIC xScale joint venture and AirTrunk on their initial foray into Japan. Despite other builds announced in Saitama and Sagami-hara, expect Inzai to continue its prominence as hyperscalers continue to battle for market share locally, thanks to the strong connectivity and power available.

Source: TEPCO, Real Capital Analytics

Recent Site Sales

| PROPERTY | SIZE (Hectares) | SALE DATE | BUYER | SELLER |
|---|-----------------|-----------|-------------------------|---------|
| 2-1917 Nisshin-cho (Kita ward, Saitama) | 3.3 | Jul-21 | Princeton Digital Group | Marelli |

Recent Property Sales

| PROPERTY | SIZE (SQM) | SALE DATE | BUYER | SELLER |
|--|------------|-----------|--------------|---------------|
| 4-31-18 Nishigotanda (Shinagawa ward) | 10,479 | Sep-21 | | IIF REIT |
| 1-5-3 Nihonbashi-Horidomecho (Chuo ward) | 3,641 | Jun-21 | Digital Edge | Marubeni Corp |
| 2-16-9 Kabukicho (Shinjuku ward) | 9,336 | Mar-21 | Digital Edge | Marubeni Corp |

Construction Update

| OPERATOR | SITE | SIZE (SQM) | POWER (MW) | STAGE / EST. DELIVERY |
|-------------------------|------------------|-------------|------------|------------------------------|
| AirTrunk | TOK1 | 56,000 | 60 | Under Construction / Q4 2021 |
| Equinix | TY12x (Phase II) | 8,000 (est) | 10 | Under Construction / Q1 2022 |
| | TY11 (Phase III) | 1,853 | 3 (est) | Under Construction / Q2 2022 |
| Princeton Digital Group | Saitama | 29,430 | 48.5 | Under Construction / Q2 2024 |
| Vantage | HND1 | 28,000 | 8 | Under Construction / Q2 2024 |