



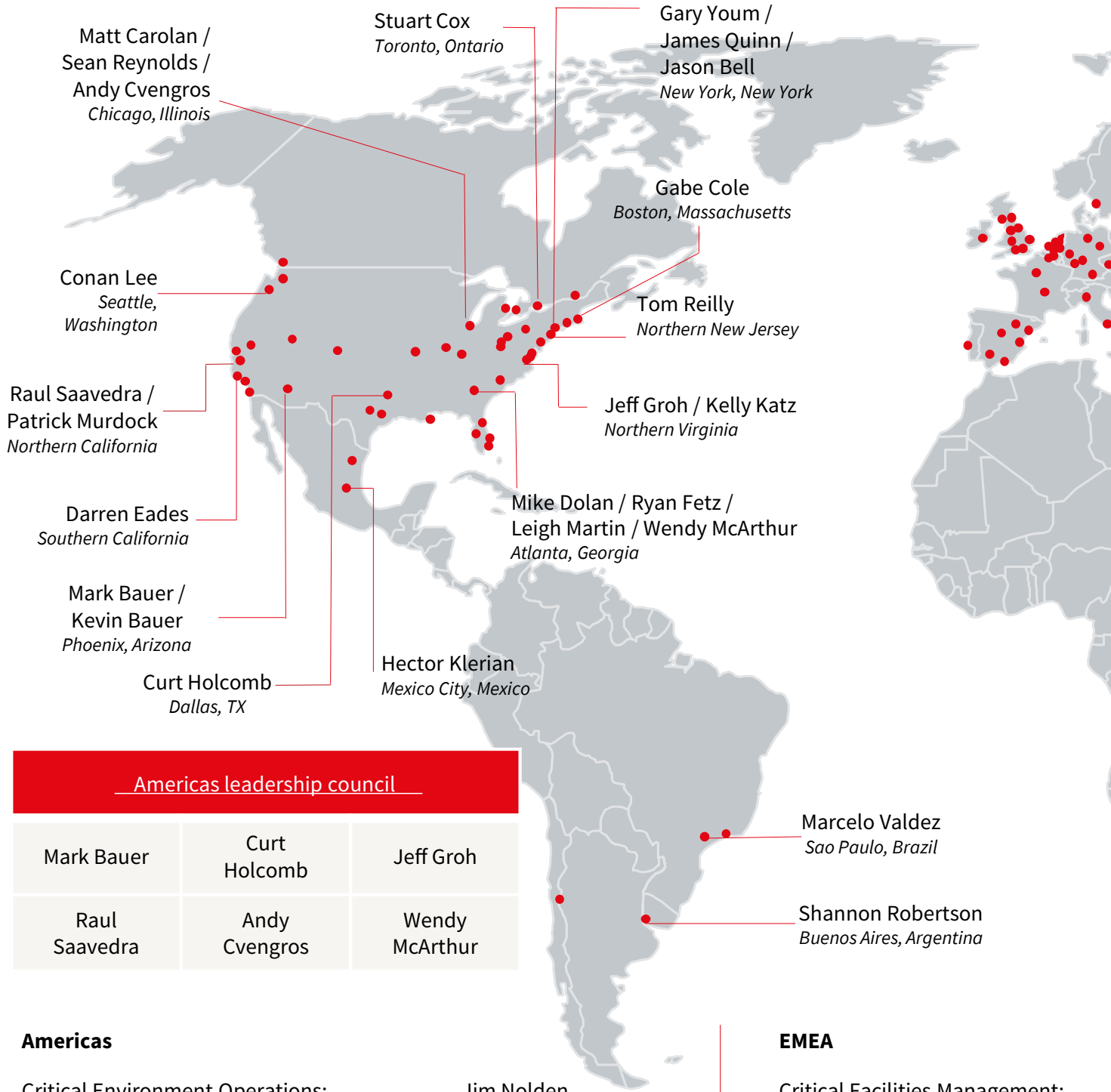
United States | H2 2020

Research

2020 Year-End Data Center Trends

A brief look into the industry's latest trends and what to expect in 2021

Data Center Global Team



Matt Carolan / Sean Reynolds / Andy Cvengros
Chicago, Illinois

Stuart Cox
Toronto, Ontario

Gary Youm / James Quinn / Jason Bell
New York, New York

Gabe Cole
Boston, Massachusetts

Conan Lee
Seattle, Washington

Tom Reilly
Northern New Jersey

Raul Saavedra / Patrick Murdock
Northern California

Jeff Groh / Kelly Katz
Northern Virginia

Darren Eades
Southern California

Mike Dolan / Ryan Fetz / Leigh Martin / Wendy McArthur
Atlanta, Georgia

Mark Bauer / Kevin Bauer
Phoenix, Arizona

Curt Holcomb
Dallas, TX

Hector Klerian
Mexico City, Mexico

Marcelo Valdez
Sao Paulo, Brazil

Shannon Robertson
Buenos Aires, Argentina

Americas

EMEA

Critical Environment Operations:

Jim Nolden

Project & Development Services:

Spencer Jurman

Capital Markets

Tim Jordan, Dan Bryson

Global Product Owner, Critical Environments

Brian Kortendick

Global Product Manager, Data Centers

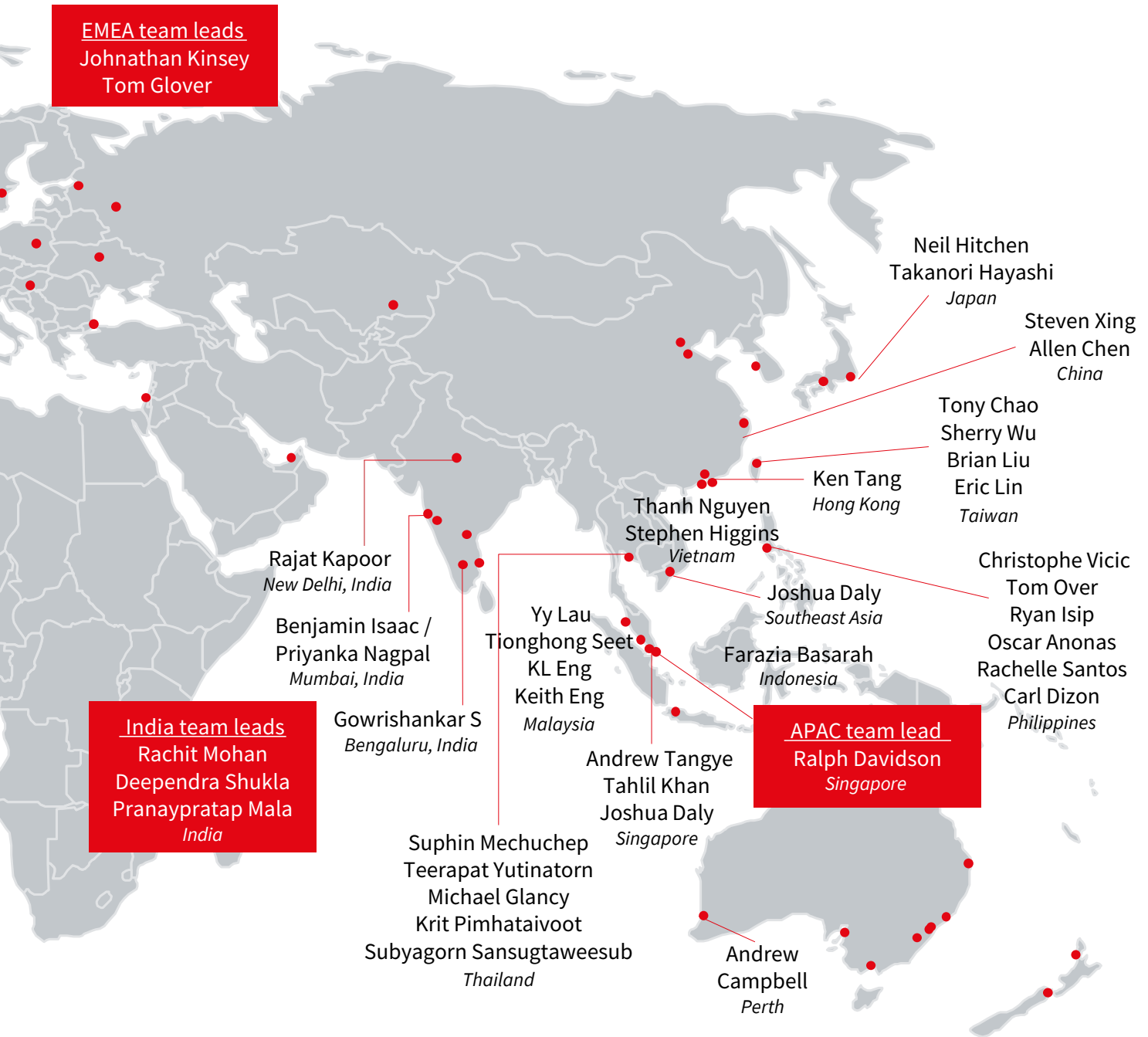
Peter Richardson

Critical Facilities Management:

DC Solutions:

DC Advisory:

Capital Markets:



Mike Harrington
 Simon Browne
 Colm Shorten
 Luke Jackson

APAC

Critical Environment Management:
 Project & Development Services
 Corporate Capital

Greg Wallace APAC Chair (Australia),
 Robert Timmermans (Singapore),
 Rajat Malhorta (India)
 Ralph Davidson (Singapore)
 Rohit Hamnani (Hong Kong)

Welcome

We hope everyone reading our 2020 Year-End Data Center Trends report is staying safe. This content is a snapshot of insights from 2020 and the first part of our full report which will be available in Q1 2021. It's an unprecedented time in our history, but we are confident we will persevere. At the time of publishing this report we have spent ten months enduring the pandemic. It is our hope that this time next year we are stronger than ever and back to work.

The pandemic revealed the data center industry's resiliency and importance to the global economy. As of November 30th, data center REITs yielded 17.2 percent in returns. With millions of people working from home, attending online schooling, shopping online, and gaming, there was immediate demand for data center capacity. The Internet and Television Association found that peak downstream internet usage increased by a cumulative 30 percent since March of 2020, while peak upstream internet usage increased by 51.2 percent.

JLL's Data Center Solutions Team is hard at work to bring our market leading data center service across all service lines across the world. You can look forward to hearing from us about exciting new initiatives in 2021.



David Barnett,
Director, Americas Research

¹ Nareit, FTSE

² The Internet and Television Association, "COVID-19: How Cable's Internet Networks Are Performing"

1.

Insatiable cloud demand across the globe

In **North America**, cloud dominated demand in 2020 and will continue to expand in primary markets in 2021. Atlanta, Phoenix, and Chicago recorded large land purchases where new facilities will meet cloud demand. Cloud comprises 80 percent of all data center demand in Northern California. One cloud player is active with two build-to-suits in Santa Clara and Hayward. On the east coast, expansions show little sign of slowing for cloud players in Northern Virginia, particularly south of Dulles Airport. Here, one provider is planning to add a potential 2.5 million square feet of data center space to its portfolio.

Cloud demand is also burgeoning in **South America** and fueling data center growth. The industry is projected to grow 7 percent by 2025 in Brazil, which now has over 120 data centers across the country.³ A major hyperscaler announced plans to invest \$236 million into its Sao Paulo presence in February of 2020.

2.

Despite initial slowing and leasing backlogs amid the pandemic, enterprise colocation demand picked up in the second half of 2020

While cloud demand thrived in 2020, enterprise level demand slowed as overall IT spend declined globally. According to Gartner, overall IT spend declined by 5.4 percent due to the pandemic's impact on organizations' budgets.⁴ However, re-entry and vaccination rollouts could lead to a strong rebound in 2021 as cloud migration keeps momentum. For example, in **North America**, enterprise-driven absorption increased in the second half of 2020 in major markets, including Dallas and Northern Virginia.

Emerging markets pick up with slack in **Asia Pacific**. China, India, and Indonesia with large domestic markets, are seeing the highest level of interest. Big technology companies, cloud providers, and social media providers are driving demand in every location. Chinese groups are actively working to expand out of China. DRT and Equinix moved into India via Adani and GPX India, respectively. PDG's investment into XL will give it a good starting point in Indonesia. Following behind Keppel DC's new facility, Space DC recently launched its new 1.45 MW facility in Jakarta.

Robust expansion by global cloud players in established markets of Mumbai and Chennai continues as required infrastructure is in place. Hyderabad is attracting players with state support for infrastructure and incentives.

Like other regions, data center demand in **Europe, Middle East & Africa** is largely driven by hyperscalers and technology players. One example is the recent purchase of 33 acres of land from a hyperscaler in London. Additionally, TikTok will build a US\$500 million facility in Ireland.

Colocation demand in **Europe** had a record year with a substantial 22 percent increase in take-up from 2019. London and Frankfurt drove much of the demand, with London recording a 72 percent increase year-over-year. Increased appetite for colocation demand is projected for 2021.

Mature markets are taking a pause in **Asia Pacific**. Singapore's moratorium on new data center approvals will likely be in place in early 2021. Efforts to explore renewable energy and reduction in carbon footprint are underway. Success of such efforts will drive clarity on the moratorium. Hong Kong is experiencing uncertainties with the introduction of security laws. The supply pipeline across Australia is putting downward pressure on rates. Strong interest is growing in Tokyo and increasingly Osaka, given the size of the market, but stakeholders are grappling with power supply lags.

³ ReportLinker, "Brazil Data Center Market - Growth, Trends, and Forecasts (2020 - 2025)"

⁴ Gartner, "Gartner Says Worldwide IT Spending to Grow 4% in 2021"

3.

M&A activity and operator investment remain robust

Investment activity has grown on several fronts. It has increased on a speculative basis where cloud demand has been strongest, secondary markets where cloud demand has increased, and new international markets.

Global M&A activity in the data center sector surpassed \$30 billion as of November 2020, according to Synergy Research. This year recorded massive multi-billion-dollar deals, including Digital Realty's acquisition of Interxion at \$8.4 billion. The top data center REITs continued to outperform other sectors throughout 2020 amid the pandemic.

In **North America**, Vantage Data Centers expanded into Montreal with its acquisition of Hypertec's two facilities and a planned third site. DataBank invested \$30 million into EdgePresence and its modular data centers to enhance connectivity across United States markets.

On the capital markets front, enterprise-owned data centers continue to sell as users accelerated their migration to the cloud in favor of the flexible and scalable consumption model. Institutional equity interest is at a peak as existing players continue to rollout funds as new entrants seek an entry to the space.

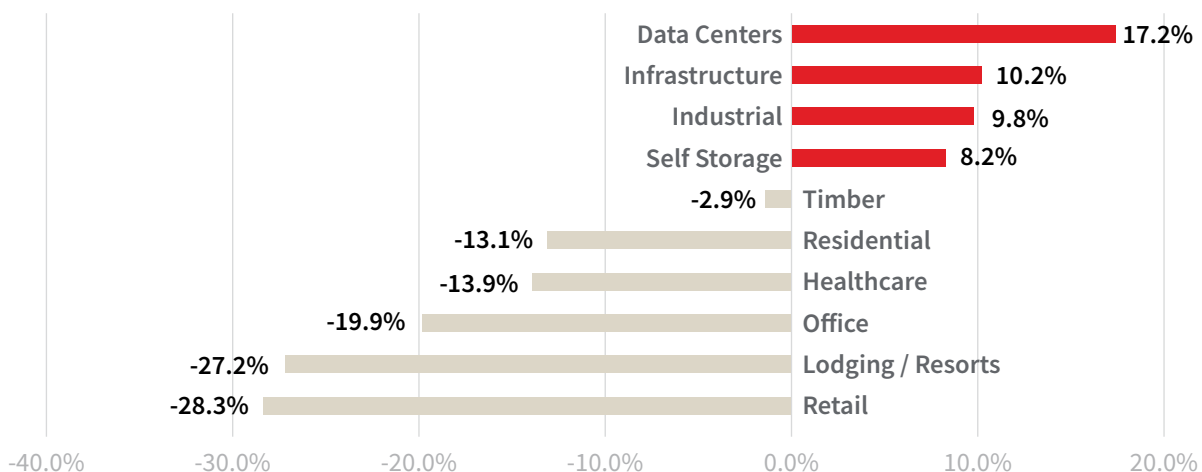
In **South America**, Ascenty continues with its expansion plans. It delivered a 70 MW location in Vinhedo in Sao Paulo and has five data locations under construction throughout South America.

Investor interest is strong in **Asia Pacific**. Following the success of Airtrunk's transaction with MacQuarie Infrastructure and Real Asset, Chindata and PDG have both completed their private placements and IPO activities. Other operators such as Equinix and xScale continue to enjoy a high degree of investor interest in their capital raising exercises. Listed entities, such as NextDC, have also enjoyed strong support from its investors. Equinix entered the India market with its US\$161 million acquisition of GPX India, due to close in Q1 2021. The deal will add two data centers in Mumbai to its portfolio.

Operators are increasing their footprint in **Europe** through M&A activity. Digital Realty's \$8.4B acquisition of Interxion exemplifies the M&A strategy in EMEA. The operator also acquired Altus IT in the third quarter of 2020. The Croatia-based provider will help Digital Realty enhance its connectivity in South-eastern Europe. Secondary markets are also gaining traction. Digital Realty just purchased land in Madrid for a 34 MW data enter, as well as a parcel near its Vienna campus.

In 2021, we expect to see traditionally non-data center investors and developers actively explore opportunities in the sector, either to back startups with good management teams, or in some form of M&As and partnerships. Most investors tend to focus more on the hyperscale segment, given its scalability.

Total YTD Returns by Sector, as of November 30, 2020



Source: JLL Research, Nareit, FTSE

*Nareit defines returns as a "stock's dividend income plus capital appreciation, before taxes and commissions."

4.

5G demand expected to burgeon in 2021

Communications service providers are prioritizing spend on 5G capabilities. While Gartner projected that overall infrastructure spending would decline by over four percent in 2020, 5G was projected to nearly double.

5G expansion will lead to edge locations near cell towers, data campuses, and more. In **North America**, DataBank's recent \$30 million investment in EdgePresence illustrates the demand for these modular sites amid a shift in infrastructure spend.

Various markets are in different stages of rolling out the new 5G infrastructure in **Asia Pacific**. China is leading the pack and will provide in the future clues on how data centers may evolve to support 5G in future. This may require a network of smaller edge facilities to be built either by telecommunications players, or a new class of specialist providers.

In India, retail and edge colocation players are differentiating with city-centric colocations (5-20 MW IT load), network-driven business strategies, 5G-backed deep country expansions, cable landing collaborations, and adoption of hybrid colocation in hyperscale campuses.

5.

Sustainability not slowing down

Customers continue to demand green solutions from operators to help achieve their goals of 100 percent renewable energy. Equinix has used a variety of approaches to progress on its green initiatives and meet growing demand, including green roof tops, fuel cell adoption, and innovative cooling systems. In **North America** for example, the operator uses Smartt Chillers at its Toronto location for maximum cooling efficiency and energy reduction.

Substantial sustainability projects are underway in **Europe**. In Galway, Ireland, one hyperscaler will complete a third wind farm of over 100 MW to power its data centers. That same user is primarily using external air for cooling rather than the more conventional use of water.

In Amsterdam, CyrusOne partnered with the Municipality of Haarlem and PolanenPark to research reuse of residual heat, which could potentially "heat 15,000 homes in the municipality," according to Data Centre Dynamics.

\$44.9 billion

The global green data center market is expected to grow by nearly \$45 billion from 2020 to 2024.

Source: Technavio





Americas Data Center Leadership Council

Andy Cvengros

Andy.Cvengros@am.jll.com

Jeff Groh

Jeff.Groh@am.jll.com

Wendy McArthur

Wendy.McArthur@am.jll.com

Raul Saavedra

Raul.Saavedra@am.jll.com

Curt Holcomb

Curt.Holcomb@am.jll.com

Mark Bauer

Mark.Bauer@am.jll.com

Regional Data Center Solutions Leads

Europe, Middle East & Africa

Jonathan Kinsey

Jonathan.Kinsey@eu.jll.com

India

Rachit Mohan

Rachit.Mohan@ap.jll.com

Research

David Barnett

David.Barnett@am.jll.com

Asia Pacific

Ralph Davidson

Ralph.Davidson@ap.jll.com

South America

Zach Cheney

Zach.Cheney@am.jll.com

About JLL

JLL (NYSE: JLL) is a leading professional services firm that specializes in real estate and investment management. JLL shapes the future of real estate for a better world by using the most advanced technology to create rewarding opportunities, amazing spaces and sustainable real estate solutions for our clients, our people and our communities. JLL is a Fortune 500 company with annual revenue of \$18.0 billion, operations in over 80 countries and a global workforce of over 92,000 as of September 30, 2020. JLL is the brand name, and a registered trademark, of Jones Lang LaSalle Incorporated. For further information, visit jll.com.

About JLL Research

JLL's research team delivers intelligence, analysis and insight through market-leading reports and services that illuminate today's commercial real estate dynamics and identify tomorrow's challenges and opportunities. Our more than 400 global research professionals track and analyze economic and property trends and forecast future conditions in over 60 countries, producing unrivalled local and global perspectives. Our research and expertise, fueled by real-time information and innovative thinking around the world, creates a competitive advantage for our clients and drives successful strategies and optimal real estate decisions.

jll.com

Scan here to see the future of work in action



Jones Lang LaSalle © 2021 Jones Lang LaSalle IP, Inc. All rights reserved. The information contained in this document is proprietary to Jones Lang LaSalle and shall be used solely for the purposes of evaluating this proposal. All such documentation and information remains the property of Jones Lang LaSalle and shall be kept confidential. Reproduction of any part of this document is authorized only to the extent necessary for its evaluation. It is not to be shown to any third party without the prior written authorization of Jones Lang LaSalle. All information contained herein is from sources deemed reliable; however, no representation or warranty is made as to the accuracy thereof.