

DATA CENTER SOLUTIONS

2018

SENTIMENT SURVEY

BUILDING ADVANTAGE IN NEW TERRITORY

CBRE

CBRE's 2018 Data Center Sentiment Survey identifies industry trends and projections from the perspective of investors, providers and occupiers. This report is the first to focus on the sentiment of these stakeholders, and covers a range of topics that are relevant to the industry today. The findings are representative of the senior professionals in the data center industry based in the United States.

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THE BIG PICTURE

DATA CENTER INVESTMENT



68%

of investors & providers are reporting higher year-over-year occupancy in 2018.

68% of investors & providers noted having over \$100 million dedicated to data center investments/transactions this year.



53%

of respondents anticipate more than an 8% increase in data center spending in 2018.

Driven by strong returns, increasing levels of capital coming into the industry, and diverse data centers coming to market, the appetite for investment continues to grow.

INDUSTRY TRENDS

75%

of occupier executives ranked lack of knowledge/experience in space as their biggest obstacle when forecasting data center needs.



58%

Of responses indicated that the data center industry is currently ready for edge computing.

55%

of data center occupiers selected **changing business requirements** as their largest forecasting obstacle for their future IT needs.



57%

of end users and occupiers report that their biggest data center industry concern is the **total cost of ownership**.

The data center sector is considered to be in the early stages of maturity compared to traditional commercial real estate property types. Its stakeholders are seeking strategies to best align with current trends in the industry.

THE CLOUD



65%

of respondents predict that their company will transition to the cloud within five years.

47%

of investors and providers note that security pertaining to the cloud has not met their initial expectations. This was in sharp contrast to occupiers and end users, only 9% of whom noted that security in the cloud was below their expectations.



78%

of respondents predict that they will move some or all of their IT to the cloud **over the next 5 years**.

83%

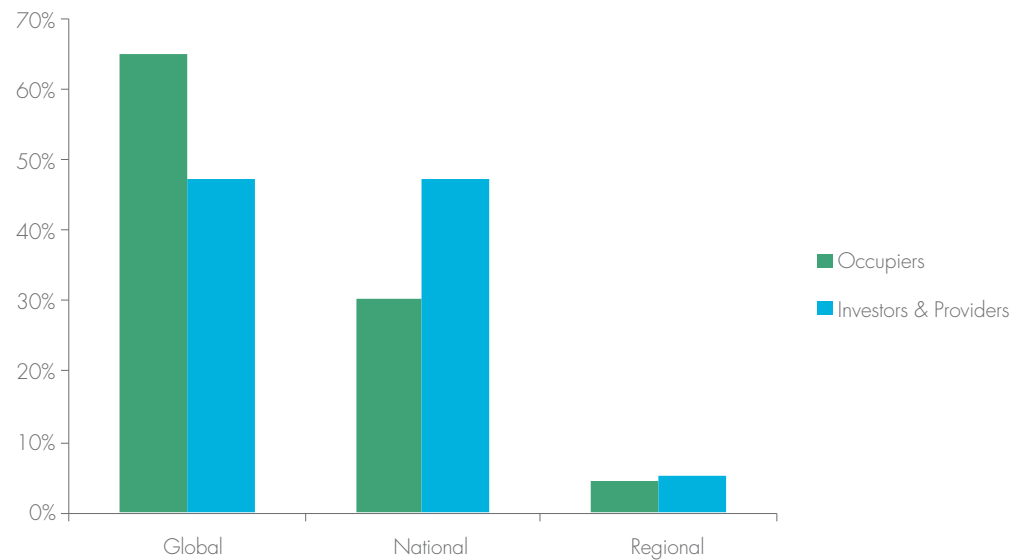
of investors and providers predict high client demand for the public cloud this year, and 84% believe that cloud services will have a positive impact on business demand **over the next five years**.

The evolution of technologies and positioning for the future through implementation of hybrid IT is essential to business success.

RESPONDENT PROFILES

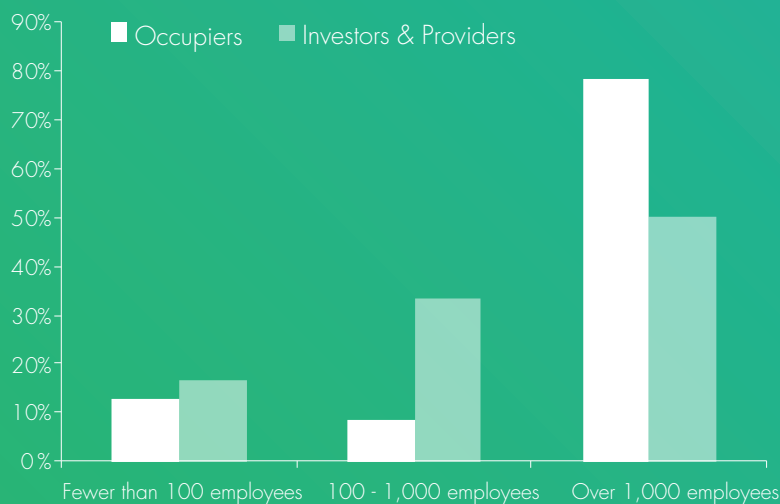
The 2018 CBRE Data Center Sentiment Survey polled senior professionals in 42 companies across the U.S. 57% of these companies operate worldwide, 38% are focused nationally and fewer than 5% are focused regionally.

GEOGRAPHIC FOCUS

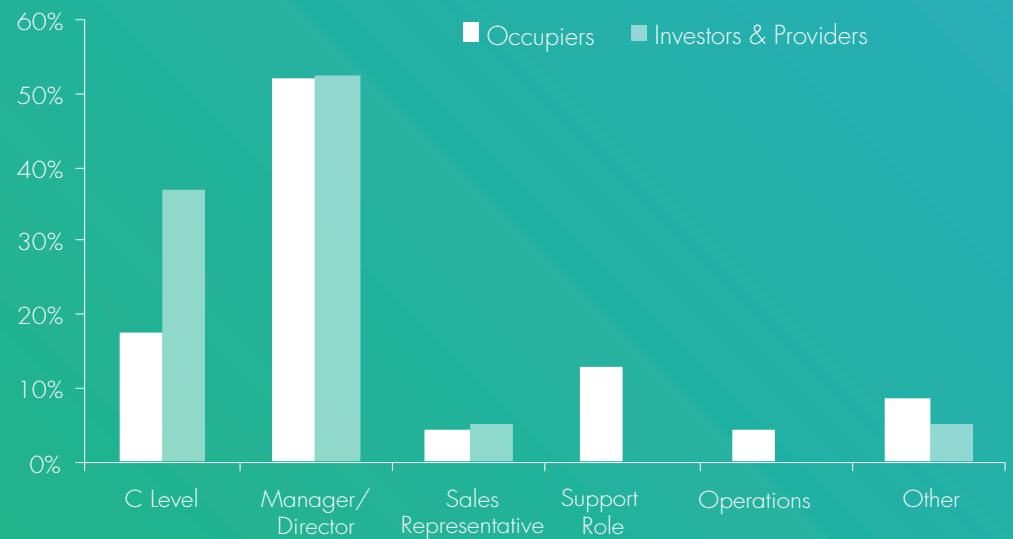


66% of respondents work for companies with more than 1,000 employees, and 79% were C-suite executives, managers and directors.

WHAT IS THE SIZE OF YOUR COMPANY?



WHAT IS YOUR CURRENT ROLE WITHIN YOUR COMPANY?





DATA CENTER INVESTMENT

2018 DATA CENTER SPEND

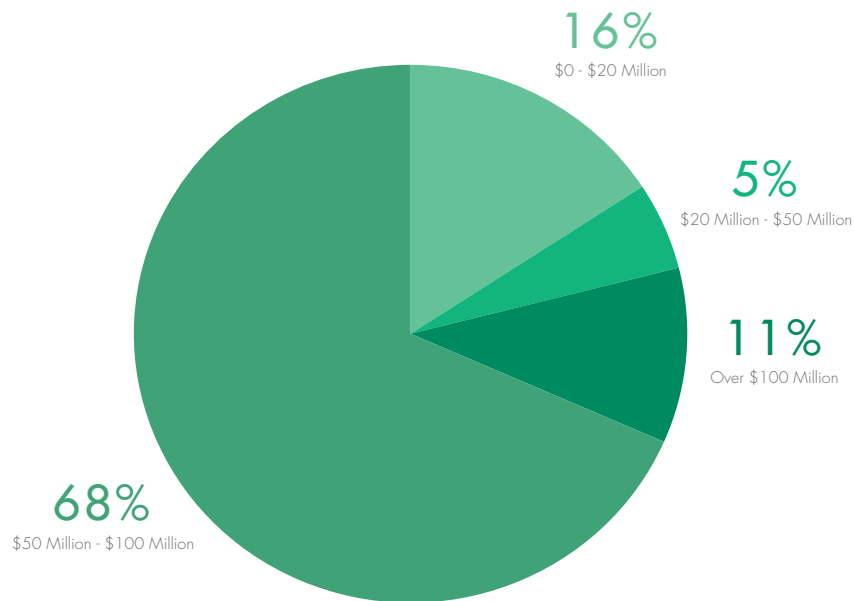
According to CBRE Research, the average data center investment in North America during 2017 was over \$541 million, including entity level transactions. Specific to asset sales, the average 2017 transaction was nearly \$180 million. The capital in the space continues to remain diversified amongst portfolios, consolidations and strategically positioned assets.

When asked how much capital companies allocated for data center transactions in 2018, 68% of investors and providers reported over \$100 million dedicated for data center spend.

68% of these respondents reported that their portfolio occupancy is higher than in 2017, whereas 27% reported the same occupancy levels.

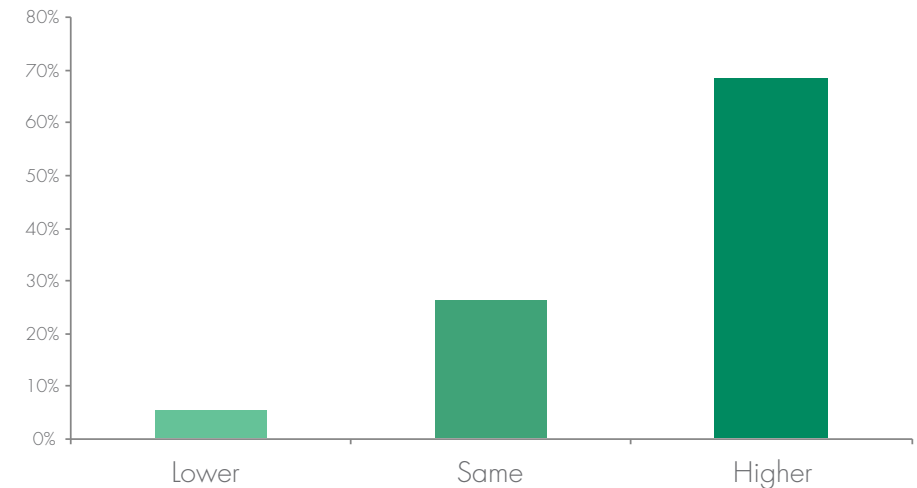
INVESTORS & PROVIDERS

HOW MUCH EQUITY HAS YOUR FIRM ALLOCATED TO DATA CENTER INVESTMENTS/TRANSACTIONS FOR 2018?



INVESTORS & PROVIDERS

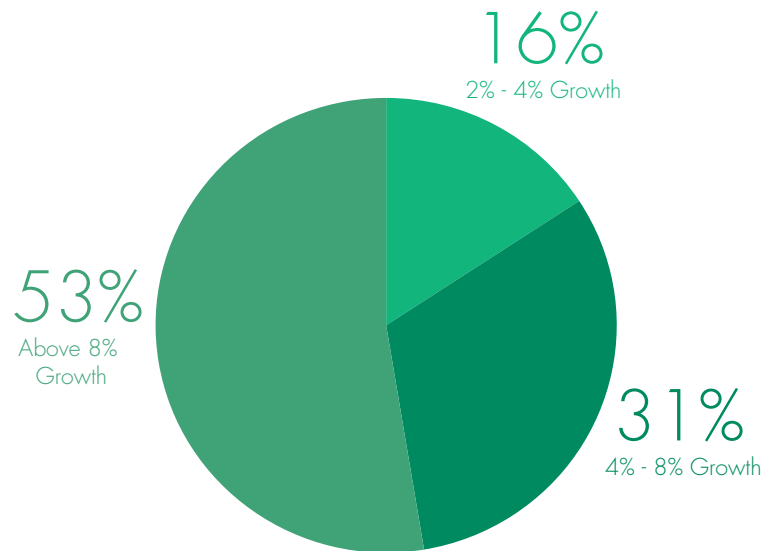
WHERE IS THE OCCUPANCY OF YOUR DATA CENTER PORTFOLIO COMPARED TO A YEAR AGO?



2018 DATA CENTER SPEND

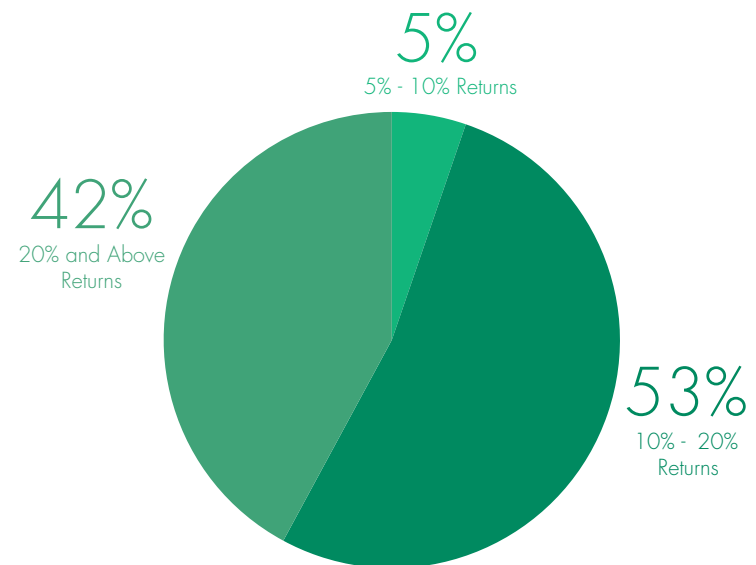
Data center investors and providers have high expectations for investment returns and data center spending this year. 53% of these respondents predicted more than an 8% increase in data center spend. 31% predicted a 4% to 8% increase in spend. No respondents predicted negative spending for this year.

WHERE WOULD YOU PROJECT ANNUAL GROWTH FOR DATA CENTER SPEND IN 2018?



CBRE Research tracked more than \$20 billion in data center investment in 2017 in North America through an array of notable asset and entity-level transactions. This annual record level of investment was 14.3% more than the previous three years combined. Unlike previous years where entity-level investment composed almost all of the investment activity, 2017 had an annual record of nearly \$6 billion in asset-level sales. Based on anticipated return and spending predictions, overall capital market investment should continue growing in 2018.

WHAT ARE YOUR RETURN EXPECTATIONS?

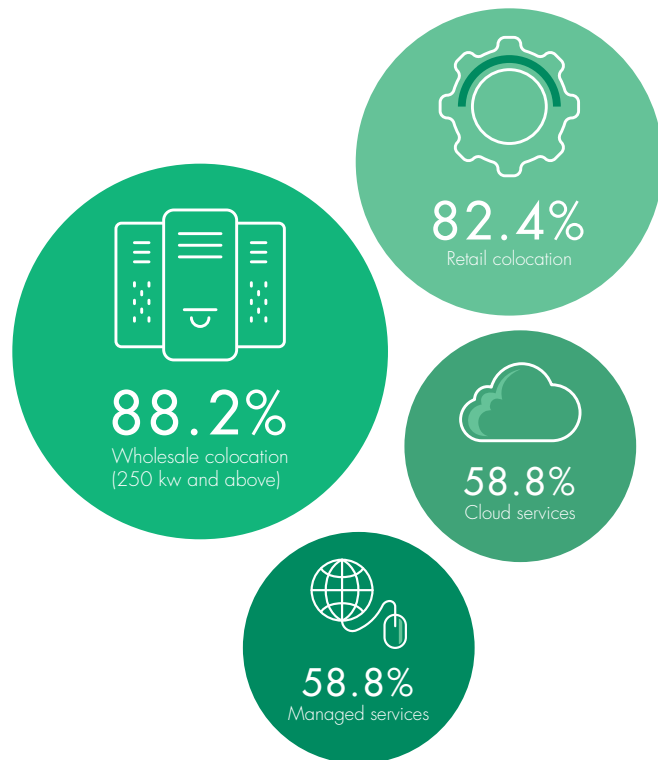


PROVIDER SERVICES

Cloud services continue to be a major market driver for the data center industry. Strategic migration and hybrid IT infrastructures are expected to grow as the data center industry strengthens. Providers continue to create hybrid IT offerings for occupiers, this remains consistent with the survey results.

INVESTORS & PROVIDERS

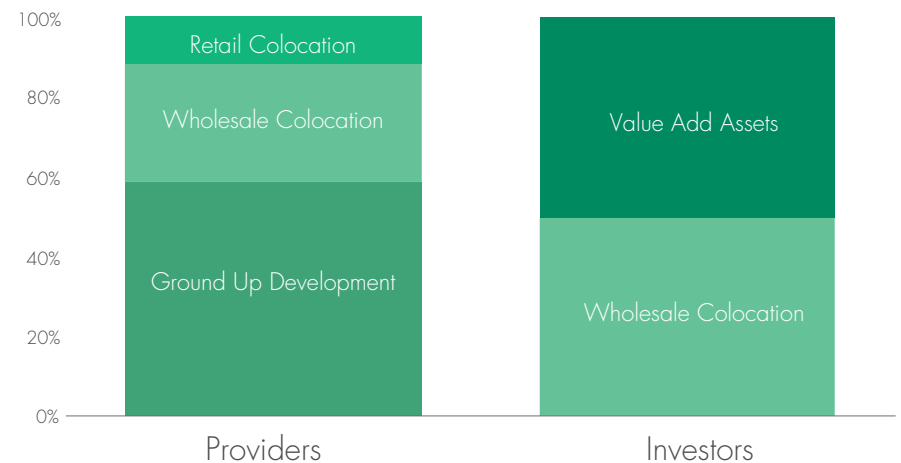
WHAT SERVICES DOES YOUR COMPANY OFFER?



Many providers reported to be investing in ground-up development, whereas investors are seeking opportunities in wholesale colocation and value-add assets.

Providers' focus on ground-up development continues to be a relevant trend in the market. In 2017, CBRE Research tracked more than 220 MW of development within seven primary markets. This level of development did not keep pace with demand, as more than 267 MW were absorbed in those primary markets in 2017.

PLEASE SELECT THE PRIMARY PRODUCT TYPE THAT YOUR COMPANY IS INVESTING IN:



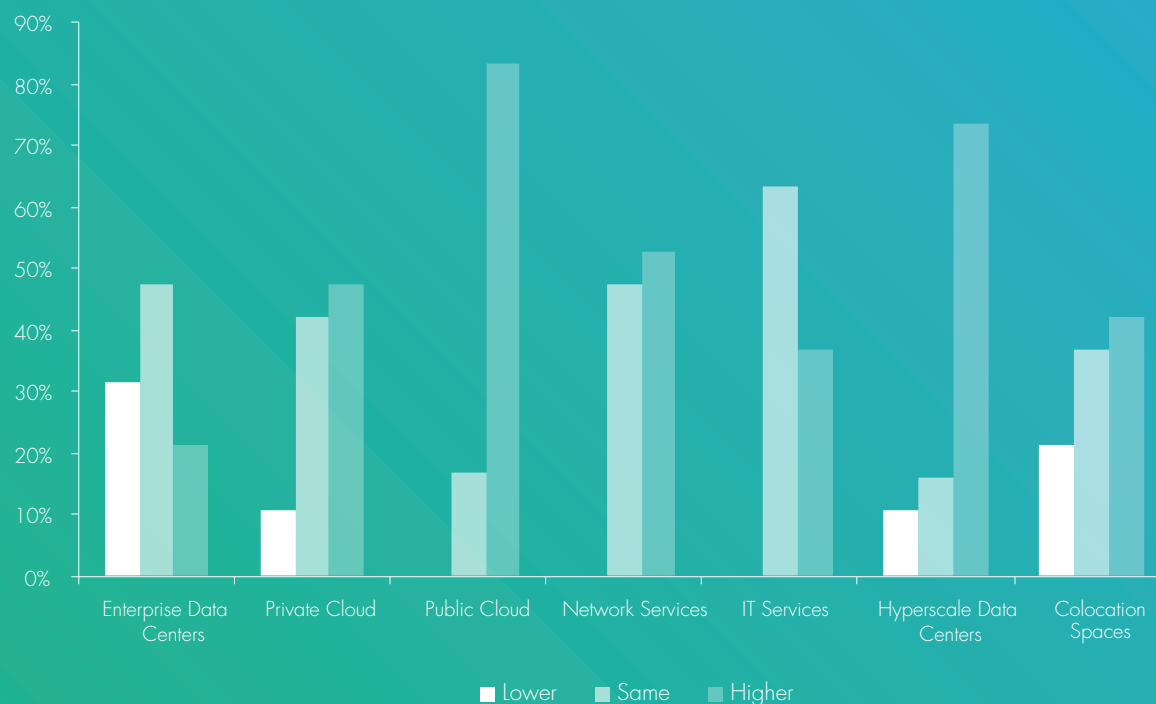
PRODUCT DEMAND

83% of investors and providers predicted an increase in public cloud demand in 2018. Additionally, 63% of respondents feel that demand for IT services will remain steady throughout the year.

74% of respondents expect a significant increase in hyperscale data center demand. Hyperscale providers maintain a large presence in the market and heavily impact the equilibrium between supply and demand.

Moreover, 32% of respondents predict that enterprise data center demand will decrease, while 47% predict demand will remain the same.

WHERE DO YOU SEE CLIENT DEMAND FOR THE FOLLOWING PRODUCT TYPES IN 2018 COMPARED 2017?





INDUSTRY TRENDS

IMPORTANT CONSIDERATIONS

When asked about their data center strategy and contributing factors to their IT decisions, end user and occupier respondents selected security as a top priority. Operating expenses were the second highest consideration. Flexibility, network diversity, and tier rating were considered equally important.

When evaluating data center strategy, C-suite respondents chose convenience and network diversity as key contributors. Managers and directors selected security as a primary consideration.

OCCUPIERS

RATE THE FOLLOWING BY THEIR IMPORTANCE TO YOUR DATA CENTER STRATEGY



Note: Ranked on a scale of 7 (highest importance) to 1 (lowest importance)

SHIFTING INFRASTRUCTURE

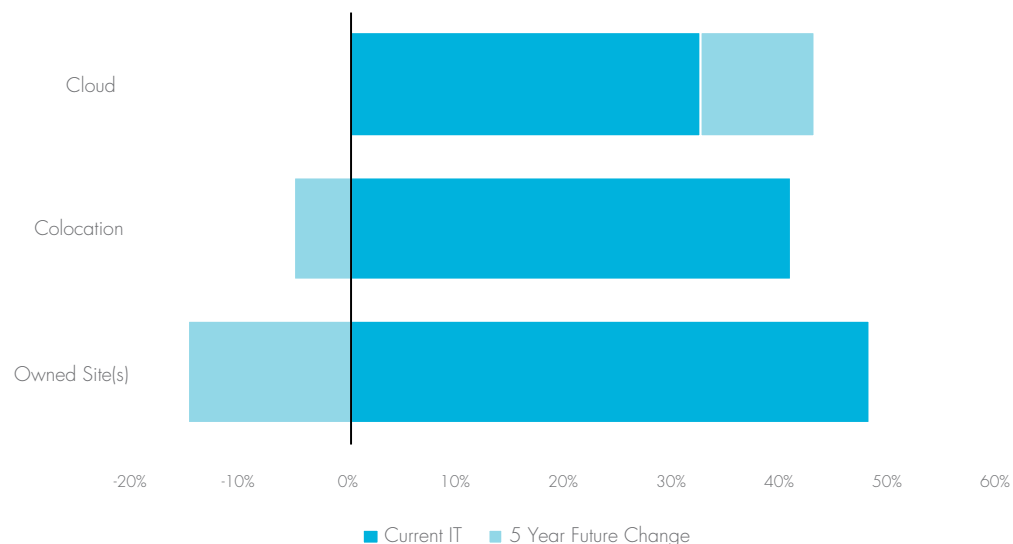
When asked where they anticipate their IT will reside in five years, 65% of respondents predicted that their company will migrate additional IT loads to the cloud.

Respondents predicted that within five years they will transition an additional 11% of their IT, on average, to the cloud. It is also predicted that 15% of their IT will be migrated out of their legacy and enterprise data centers and 5% of IT will migrate out of current colocation sites.

Although the industry is shifting more to hybrid environments, we are finding that our clients are seeking owned colocation and multi-cloud environments. Per the survey results, expectations are for increased demand, and understanding the applicable alternative solutions can lead to significant cost savings when deploying the right strategy.

OCCUPIERS

WHERE IT RESIDES TODAY VS IN 5 YEARS

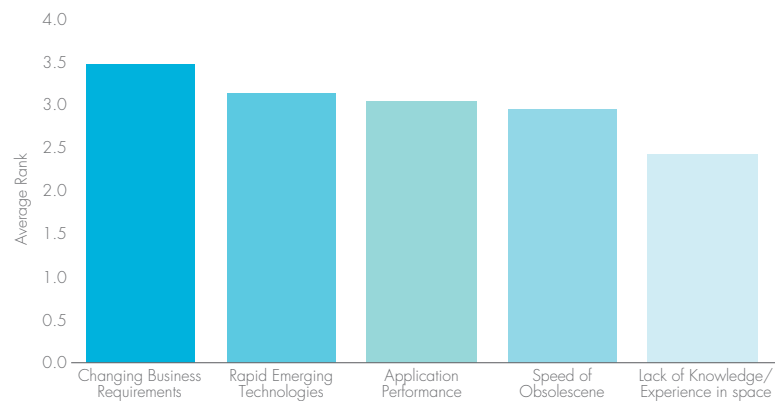


CHANGING LANDSCAPE

On average, changing business requirements and market demand were the largest concerns when forecasting business needs.

OCCUPIERS

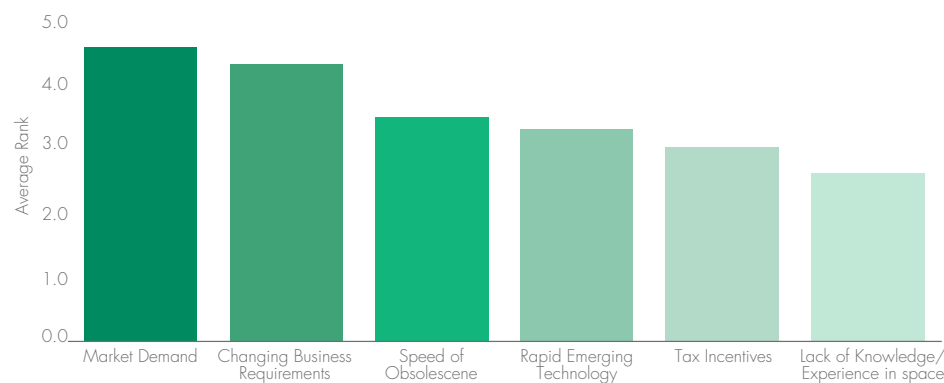
WHAT ARE SOME OF THE BIGGEST OBSTACLES IMPEDING YOU FROM FORECASTING YOUR DATA CENTER NEEDS?



The data center market remains vast as emerging technologies are adopted at a rapid pace. The “unknown” of these technologies creates new and unforeseen challenges.

INVESTORS & PROVIDERS

WHAT ARE SOME OF THE BIGGEST OBSTACLES IMPEDING YOU FROM FORECASTING YOUR DATA CENTER NEEDS?



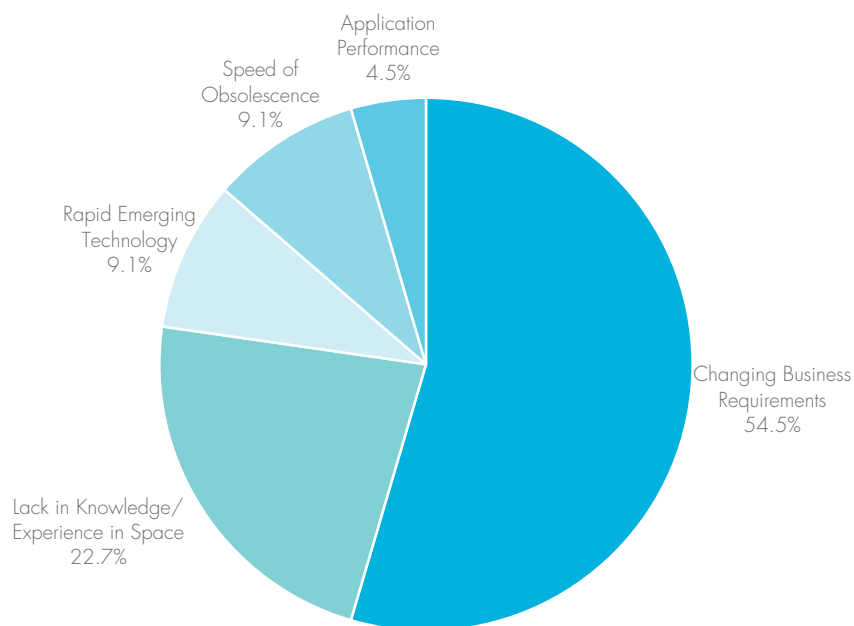
Market demand continues to be a challenge when forecasting business needs. Companies will need to remain flexible and adaptable in order to overcome these obstacles and be successful. Seeking answers into how these factors impact business strategies is crucial.

INDUSTRY TRENDS AND OBSTACLES

Understanding the impact of new technologies and infrastructures, including cloud and network services, will better position companies to plan for future IT needs.

OCCUPIERS

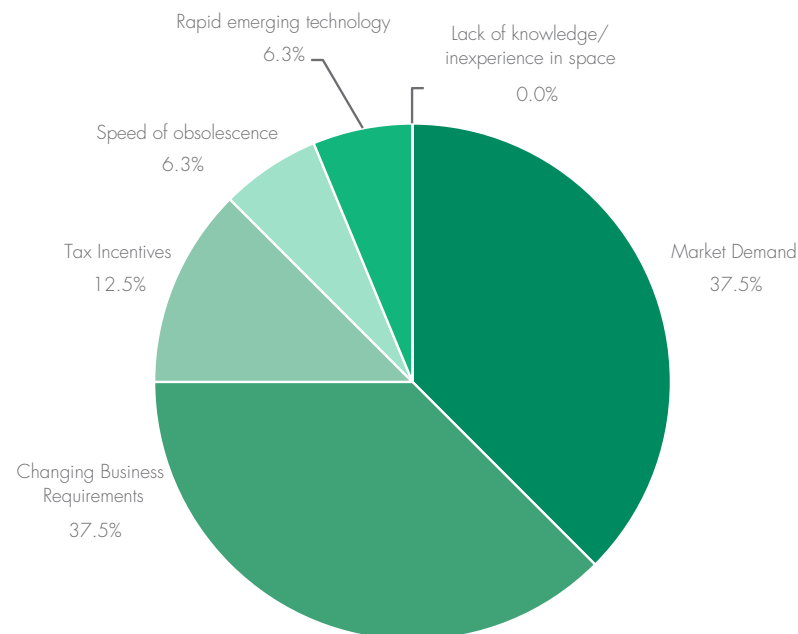
LARGEST FORECASTING OBSTACLE BY PERCENTAGE



- 54.5% of data center occupiers selected changing business requirements as their largest obstacle.
- 75% of C-suite executives selected lack of knowledge experience as their largest obstacle.
- 50% of managers and directors ranked lack of knowledge/ experience as their least concern.

INVESTORS & PROVIDERS

LARGEST FORECASTING OBSTACLE BY PERCENTAGE



- 37.5% of data center investors/providers selected changing business requirements and market demand as their largest obstacles.
- 29% of C-suite executives selected changing business requirements as their largest obstacle.

INDUSTRY CONCERNS

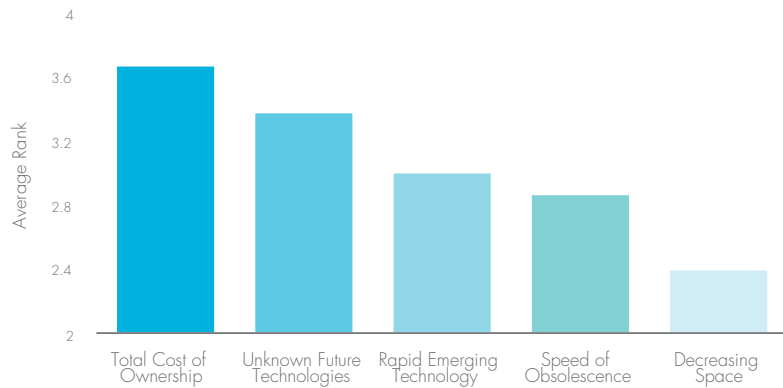
55% of end user and occupier respondents reported total cost of ownership as their biggest concern. 23% of respondents selected unknown future technologies as their primary concern.

On average, investors and providers appear most concerned with pricing factors; 44% of respondents claimed this as their primary concern.

A rise in end user demand for hybrid IT solutions presents growth opportunities for users and providers to optimize their own data center portfolios.

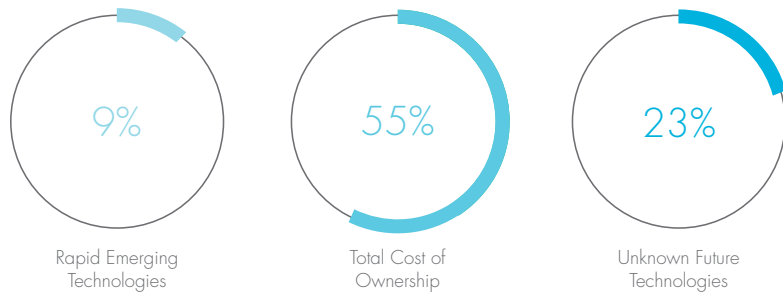
OCCUPIERS

WHAT ARE SOME MAJOR CONCERNS YOU HAVE REGARDING THE DATA CENTER INDUSTRY?



Note: Ranked on a scale of 5 (highest concern) to 1 (lowest concern).

HIGHEST CONCERN



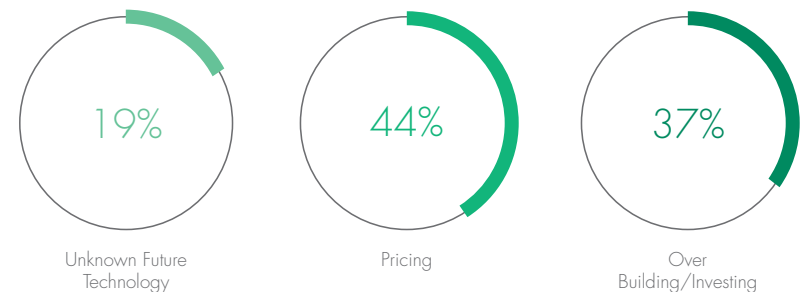
INVESTORS & PROVIDERS

WHAT ARE SOME MAJOR CONCERNS YOU HAVE REGARDING THE DATA CENTER INDUSTRY?



Note: Average ranks based on a scale of 6 (most concerned) to 1 (least concerned).

HIGHEST CONCERN

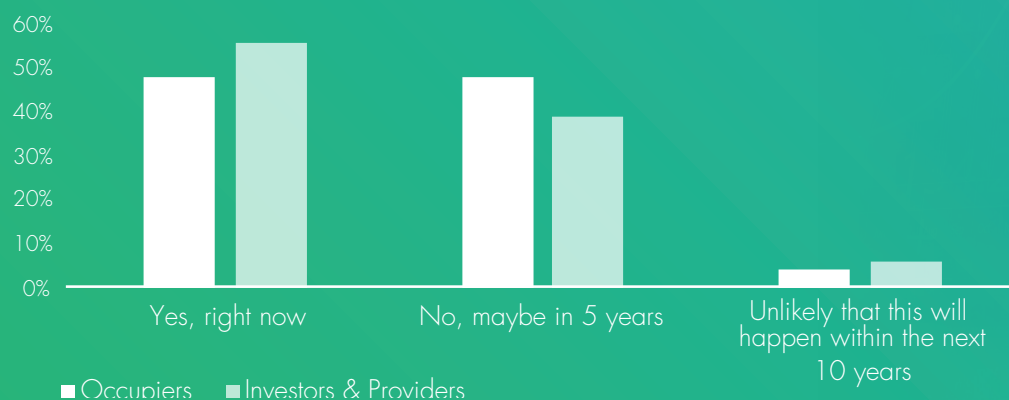


IOT AND THE EDGE

Survey respondents appear unsure of exactly when the industry will be ready for Internet of Things (IoT) technologies. The majority of respondents believe that the industry will be ready for IoT expansions within the next five years. Fewer than 1% of respondents predict that the industry will not be ready IoT technologies within the next 10 years. The rapid evolution of technology will require data center companies to provide new and adaptive solutions. Providers have already begun to roll out new services to capture current demand.

INVESTORS & PROVIDERS

DO YOU FEEL THAT THE DATA CENTER INDUSTRY IS READY FOR IOT TECHNOLOGIES?



A conceptual image featuring a human hand reaching up to hold a large, glowing blue sphere. The sphere is composed of a dense network of white lines connecting numerous small white circular nodes, resembling a complex web or a data cloud. The background is a solid teal color with a subtle diagonal gradient.

THE CLOUD

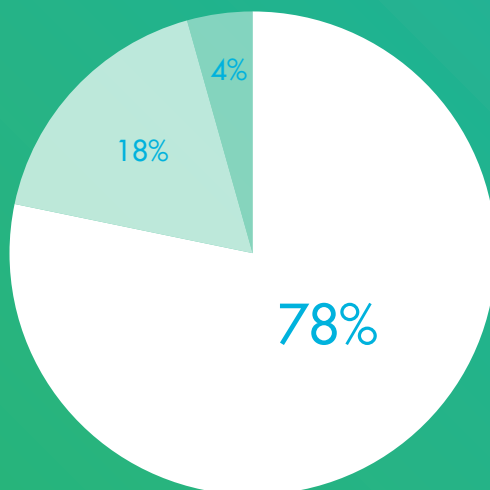
THE CLOUD TAKEOVER

Cloud migration remains top-of-mind for the C-suite. 78% of respondents predict that they will move some or all their IT to the public cloud in the next five years. Only 4% of respondents anticipate data migration out of the cloud.

The public cloud continues to be a success. Companies that have already migrated are taking advantage of additional capabilities and services within the cloud. The industry has also seen a major shift to the private cloud in recent years. Although respondents noted a higher demand in the

OCCUPIERS

WHAT ARE YOUR PLANS FOR PUBLIC CLOUD USAGE OVER THE NEXT 5 YEARS?



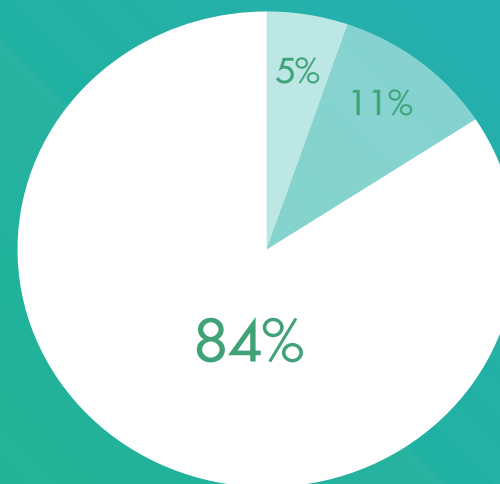
- Migration out of the cloud
- Migrating more/all IT to the cloud
- Decreasing Footprint
- Steady state/no change

public cloud for 2018, the private cloud remains to be a viable option for companies that are deploying hybrid IT environments. Both product types are predicted to increase for 2018 as organizations seek ways to automate and orchestrate their IT architecture.

Both investors and providers are hopeful that increased demand for cloud space will positively impact their businesses. 84% of respondents anticipate that increased cloud usage will positively impact data center demand over the next five years, whereas 5% predict a negative impact.

INVESTORS & PROVIDERS

HOW DO YOU THINK CLOUD SERVICES WILL IMPACT YOUR BUSINESS OVER THE NEXT 5 YEARS?



- Will negatively impact demand
- Will positively impact demand
- No change / steady state

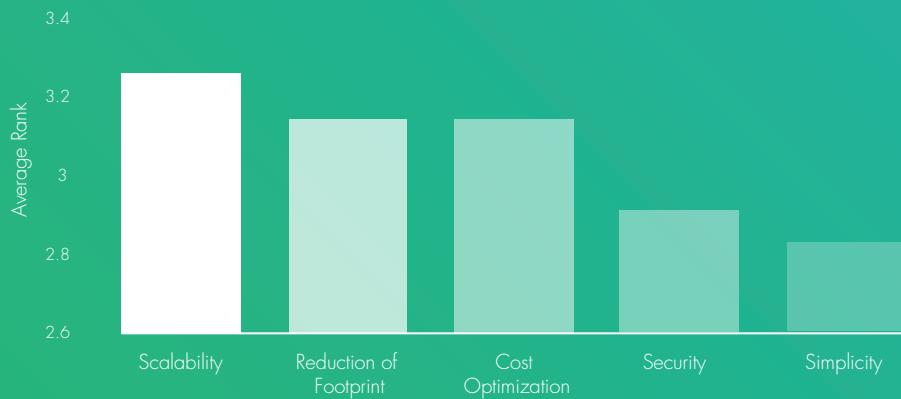
EXPECTATIONS OF THE CLOUD

The cloud provides unique offerings and benefits for companies. Throughout the industry, occupiers are considering IT consolidation and weighing the options for their portfolios in hopes to maximize efficiencies.

When considering cloud deployments occupiers reported scalability as a primary expectation. This is a consistent trend throughout the industry due to increasing data needs. Many companies that are transitioning to the cloud today have on-prem or enterprise data centers with large footprints. Many of these facilities have under-utilized space. Therefore occupiers are

OCCUPIERS

WHAT ARE YOUR EXPECTATIONS OF THE CLOUD?



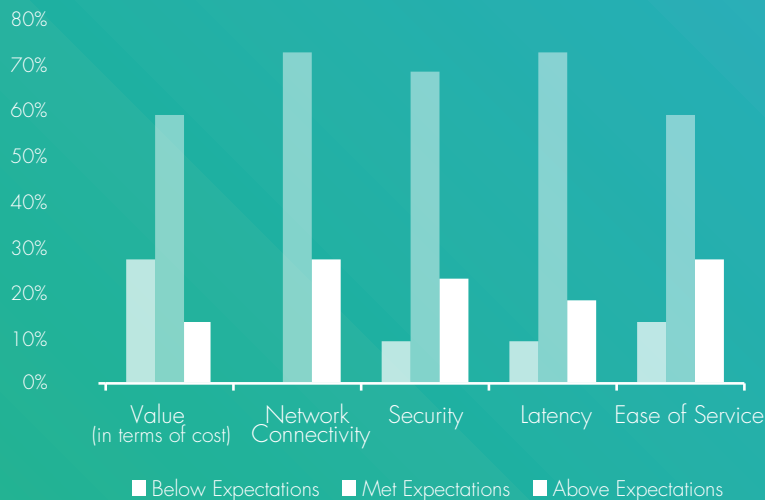
Note: Ranked on a scale of 5 (highest expectation) to 1 (lowest expectation)

expecting a reduction of their footprint when migrating to the cloud.

Occupiers' initial perceptions of the cloud remain positive, although a large number of respondents noted that value in terms of cost did not meet their initial expectations. The most satisfaction was seen in network connectivity where all expectations were met or exceeded.

OCCUPIERS

WHAT IS YOUR INITIAL PERCEPTION OF THE CLOUD?



Overall, occupiers' and end users' experience within the cloud have met or exceeded expectations. 27% of respondents note that their initial perception of cloud value (in terms of cost) was below expectations.

CBRE Data Centers Solutions specializes in providing data center real estate investors, providers and occupiers strategic planning and execution initiatives.

The CBRE Data Center Solutions team is global in scope and completed more than 330 MW of transactions in 2017. Our consultants and advisors are available to discuss strategies and outcomes that best position clients for current and future success.

DATA CENTER
SOLUTIONS

2018 SENTIMENT SURVEY RESULTS
BUILDING ADVANTAGE IN NEW TERRITORY

DEFINITIONS

Asset-Level Transactions:

The buyer of the investment purchases individual assets/facilities of the seller.

Cloud Services:

Professional services that support the selection, deployment and ongoing management of various cloud-based resources.

Data Center Investor:

Professionals who deploy capital through various mergers and acquisitions of data centers.

Data Center Occupier:

End users within a data centers; also referred to as tenants.

Data Center Power:

Measured in kilowatts (kW) and megawatts (MW).

Data Center Provider:

An entity/company who builds out/owns data centers and services to supply end users.

Enterprise Data Centers:

Hardened data centers; houses “mission critical” operations of individual companies.

Entity-Level Transactions:

The buyer of the investment completely acquires the company and all assets from the seller.

Group Up Development:

Building a project from an undeveloped land parcel all the way through its life cycle, ending with a completed building.

Managed Services:

A combination of cloud services, third-party colocation and owned, on-premise infrastructures.

Primary Markets:

CBRE the tracks primary markets of Atlanta, Chicago, Dallas, New York, Northern Virginia, Phoenix and Silicon Valley.

Retail Colocation:

Building shell and infrastructure in shared environment where space generally divided by racks or cages; may include IT hardware as well as a menu of services.

Value Add:

Properties that investors seek out to renovate, re-purpose or reposition to capture returns.

Wholesale Colocation:

Building shell and infrastructure to Power Distribution Units (PDU's) providing space, power and cooling; generally, suites above 250 kW.

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