



The future of the industrial real estate market

Preparing for slower demand growth

Deloitte's Real Estate practice consists of approximately 1,400 professionals with 230 partners, principals, and managing directors who lead our teams serving real estate clients in more than 50 cities. As a real estate service provider, Deloitte must continually evolve and adapt to new client expectations and changes in the overall market. Our team of seasoned professionals can support you with deep knowledge and insight into the real estate capital markets. We offer a broad range of services, including: financial statements and internal control audits; accounting and reporting advisory; international, national, state, and local taxation; real estate transformation and location strategy; and many others.

Contents

Will this golden age of industrial real estate last?		2
E-commerce sales expected to drive warehouse demand		4
Our model indicates slower growth in incremental demand		6
Owners should consider focusing on more accessible, smart, and efficient properties		8
Study methodology		10
Endnotes		11

Will this golden age of industrial real estate last?

OVER THE PAST five years, the industrial real estate sector—warehouses, distribution centers, flex spaces, and other industrial buildings with storage facilities—has experienced healthy growth while some other real estate sectors have struggled to sustain demand. Since 2012, year-over-year (YOY) rent growth has been positive and the availability rate has continued to decline.¹ From

Macroeconomic factors, tenant needs, last-mile delivery, and rapid technology evolution are likely to reshape demand and warehouse space design.

2014 to 2018, the industrial real estate market experienced a net absorption of nearly 1.4 billion square feet.² The strong growth can be seen in the Financial Times Stock Exchange (FTSE) Nareit Industrial REITs Index, which had a compound annual total return of 16.2 percent in the five years through April 15, 2019.³ Compared to this, FTSE Nareit's indices for All Equity REITs, Office REITs, and Retail REITs had returns of 9.9 percent, 7 percent, and 4.6 percent, respectively, during the same period (figure 1).⁴

However, potential shifts in the marketplace may make sustaining this momentum more challenging going forward. Over the next few years,

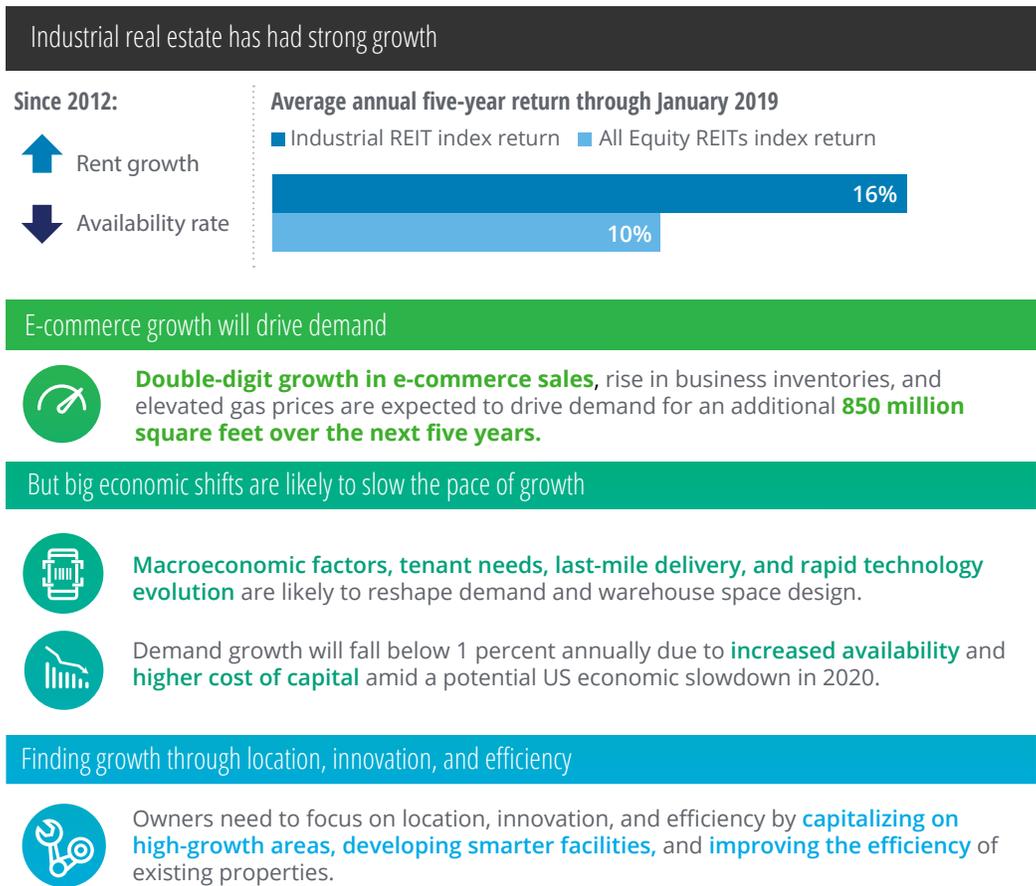
macroeconomic factors, tenant needs, last-mile delivery, and rapid technology evolution are likely to reshape demand and warehouse space design. To gain a better understanding of how various macroeconomic factors may affect the industrial real estate sector, we developed an **industrial real estate demand forecast model**. Built in collaboration with Deloitte's US Economics team, the Deloitte Center for Financial Services' model estimates future demand for industrial real estate (see the "Study methodology" section for more details). Here are the key forecasts, based on the model:

1. Industrial real estate demand is expected to increase by 850 million square feet, to 14.8 billion square feet, by 2023.
2. Double-digit growth in e-commerce sales will drive demand for industrial real estate.
3. Rising availability rates and higher cost of capital will lower demand growth, as US economic growth is expected to slow down in 2020.

In this report, we will delve deeper into what could drive demand in the industrial real estate market over the next few years. We will also offer recommendations for how owners can adapt to the potentially slower pace of growth.

FIGURE 1

Future of industrial real estate



Source: CBRE Econometric Advisors, Nareit, and DCFS analysis.

E-commerce sales expected to drive warehouse demand

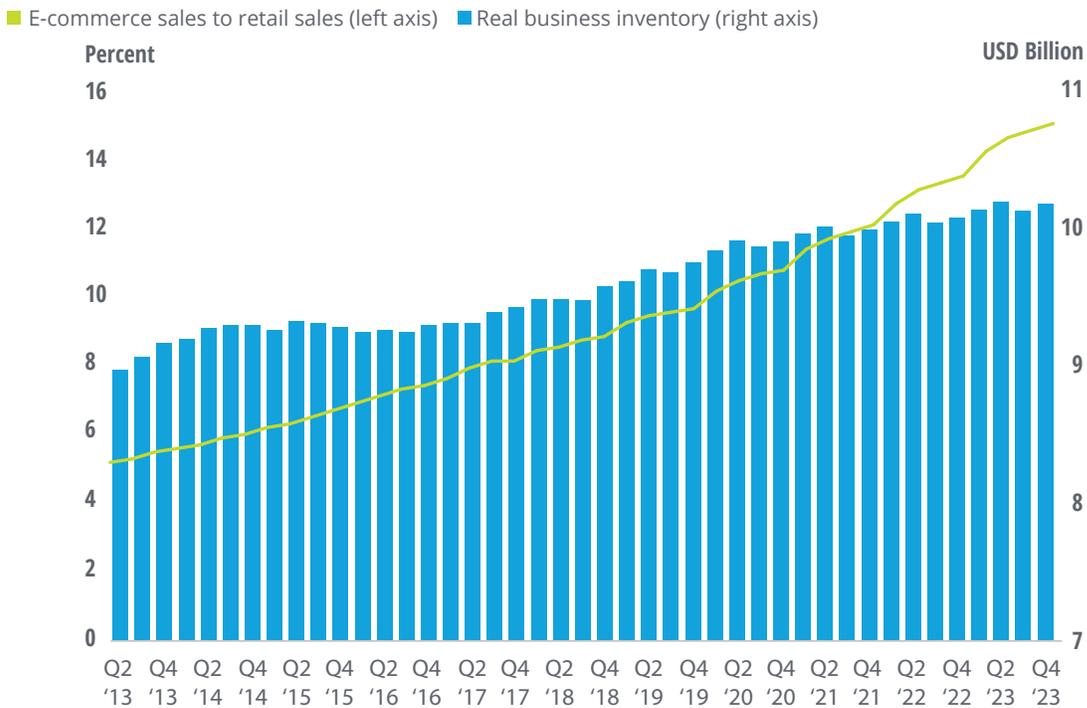
HISTORICALLY, THE MANUFACTURING and retail sectors have driven demand for industrial real estate. More recently, however, e-commerce companies experiencing double-digit sales growth have been taking up space for more warehouses to fulfill online customer deliveries. US Census Bureau data shows from 2012 to 2017, e-commerce sales grew 14.4 percent annually, up from 11 percent during 2007–2012.⁵ Furthermore,

e-commerce deliveries tripled between 2013 and 2018, prompting companies to seek more urban infill warehouse locations so they can provide faster deliveries to consumers.⁶ Industrial space mirrored this trend, as demand growth rose from 0.7 percent annually in the five-year period from 2007 to 2012, to 1.1 percent annually from 2012 to 2017.

Ironically, sales are not the only reason e-commerce companies typically need more space.

FIGURE 2

Rise in business inventories and exponential growth in ratio of e-commerce to retail sales



Sources: Historical data: U.S. Census Bureau, Bureau of Economic Analysis, sourced from Haver Analytics. Forecasts: Deloitte, using the Oxford Global Economic Model, and Deloitte Center for Financial Services Analysis.

Product returns fill shelves, too. Customers are three times more likely to return products they bought online versus those they bought at a retail store.⁷ And, e-commerce companies need 20 percent more space to manage reverse logistics compared to normal sales.⁸ In addition, with e-commerce sales expected to grow at 15 percent annually, reaching 14.8 percent of retail sales by 2023, the number of product returns will increase too, requiring more industrial space.

Along with e-commerce, the rise in real business inventories and elevated gas prices is also expected to contribute to increased warehouse demand. Real business inventories are projected to rise 1.3 percent annually between 2018 and 2023 due to continued increases in consumer spending and improved business confidence, which would require

more warehouse space. Gas prices are expected to average US\$2.89 per gallon from 2019 to 2023 versus US\$2.77 per gallon in the previous five-year

From 2019 to 2023, we expect the demand for an additional 850 million square feet of industrial real estate in the United States, led by e-commerce.

period,⁹ prompting tenants to seek more warehouse space at locations closer to consumers, to reduce transportation costs.

Based on these trends, from 2019 to 2023, our model estimates the demand for an additional 850 million square feet of industrial real estate in the United States—or, in practical terms, roughly the amount of industrial real estate space available in Atlanta and Salt Lake City put together.¹⁰

Our model indicates slower growth in incremental demand

DESPITE THE INCREASE in warehouse demand, slower growth is anticipated. In the next five years, the annual demand growth rate will likely decline to a little below 0.9 percent—nearly one-half of 2018 levels. This is likely due to an influx of space becoming available in the market and the higher cost of capital.

Availability rate could rise as more space will likely become available

Our model shows demand growth tapering as the availability rate will likely rise from 7.0 percent in 2018 to 10.3 percent by 2023.¹¹ This is largely because new industrial space will likely become available. For instance, from 2019 to 2020, an additional 510 million square feet of new industrial real estate space is expected to enter the market, outpacing the 421 million square feet of expected additional demand.¹²

Apart from new developments coming into the market, many on-demand warehousing startups, such as Flexe and FlowSpace, are aggregating underutilized industrial real estate spaces to fulfill seasonal warehousing needs.¹³ In addition, some owners are repurposing vacant or near-vacant nonindustrial real estate spaces to provide more options for

renters seeking warehouses in closer proximity to consumers. While retailers are converting stores into smaller showrooms and using the additional space as small warehouses for faster fulfillment, owners of some older office buildings are also converting vacant spaces into industrial real estate.¹⁴ The adaptive reuse extends to underutilized parking lots and garages and even erstwhile churches.¹⁵ The increased availability will likely put downward pressure on industrial real estate rents and prices, though it is outside the purview of our model.

Higher interest rates would increase the cost of capital

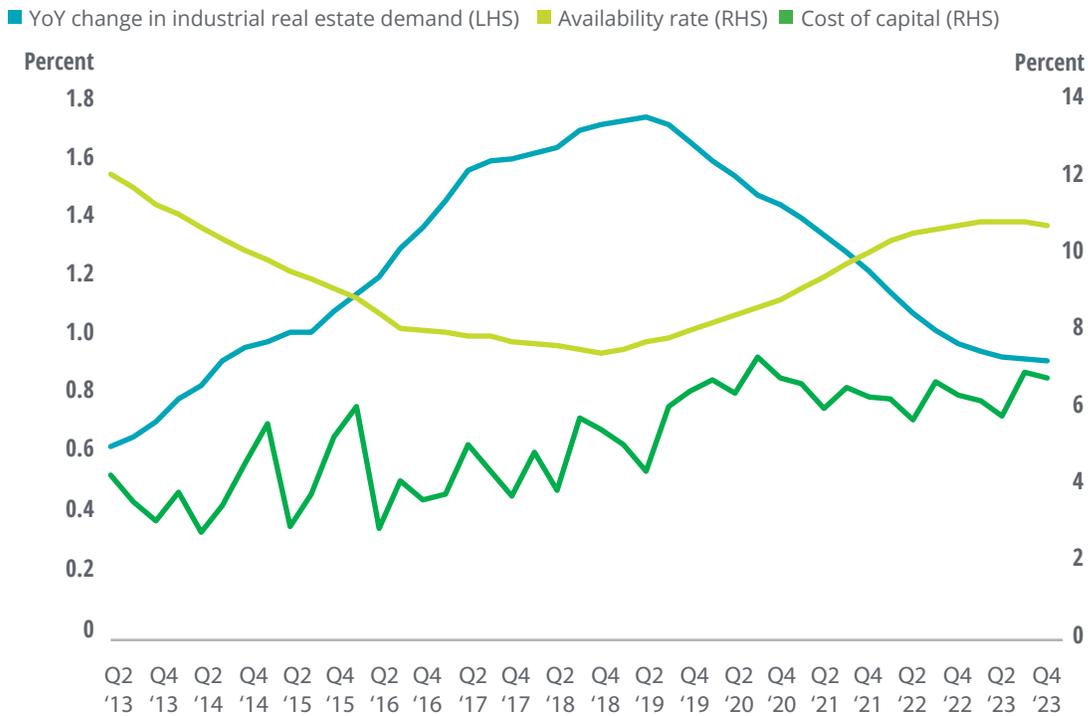
Although the Fed has indicated it may no longer raise short-term rates, Deloitte's US Economic Forecast expects some increase in long-term rates

Apart from slower growth, we believe other risks and uncertainties around trade policy, tax stimulus, and potential recession could also affect the demand growth of warehouses.

as financial markets return to “normal” conditions. That will likely raise the cost of capital. Our model confirms that a higher cost of capital would also lower demand for warehouses, as both tenants and owners might then focus on increasing efficiencies

FIGURE 3

Higher availability rates and cost of capital are expected to reduce incremental demand for industrial real estate



Sources: Historical data from Bureau of Economic Analysis, sourced from Haver Analytics and CBRE Econometric Advisors. Forecasts from CBRE Econometric Advisors, Deloitte, using the Oxford Global Economic Model, and Deloitte Center for Financial Services Analysis.

of existing spaces. The cost of capital is expected to increase from 5.1 percent at the end of 2018 to 6.4 percent by 2023.

Apart from these factors, there are other risks and uncertainties that could affect the demand

growth of warehouses that are outside the purview of our model. Some include delayed business investments due to uncertain trade policy, including tariffs; the waning impact of the recent US tax stimulus; and a US recession in 2020.¹⁶

Owners should consider focusing on more accessible, smart, and efficient properties

INDUSTRIAL REAL ESTATE owners face a scenario of slower demand growth, rising competition, and higher cost of capital. How should they respond? They could focus on innovation to capitalize on high-growth areas, such as e-commerce, and cater to tenants' demand for more technologically advanced warehouse facilities at strategic locations. They could also prioritize improving the efficiency of their properties and the supply chain to help mitigate rising costs.

Capitalize on high-growth areas

Owners should consider focusing on having a strong portfolio of properties, prioritizing locations closer to population hubs. This can help tenants accelerate last-mile deliveries, as customers are increasingly calling for shorter delivery cycle times. Tenants could also be attracted to locations closer to consumers to reduce transportation costs, as gas prices remain elevated. To have more properties at the right locations, owners should reassess their portfolio and make informed decisions on which properties to retain, sell, and acquire. In the past, owners chose warehouse sites based on historical information about traditional factors such as land costs, labor availability, connectivity to major transportation systems, and tax rates.

However, owners can now leverage newer data sources and analytics techniques to make smarter location decisions. They could combine information about traditional factors with geocoded data points

on regional online sales, consumer lifestyle and behavior, and traffic movement.¹⁷ Then, they could use analytics to understand the impact on the warehouse market and build algorithms to predict alternative future scenarios. Owners need not do this alone and can enlist the help of specialist vendors who offer data and analytics capabilities. For instance, firms like eSite Analytics and Esri use spatial analytics capabilities to provide diverse location-based data sets and predictive analytics capabilities to help with sales forecasting, customer profiling, and ensemble modeling.¹⁸

Develop smarter facilities to align with evolving tenant needs

While industrial real estate has lagged other commercial real estate sectors in technology adoption, that could change. Many tenants, especially e-commerce companies such as Amazon, are looking for more technologically advanced facilities. These tenants are often investing heavily in robotics and automation to lower labor costs.¹⁹ Today, robots are shifting racks, but it may not be long before robotic hands could pick up exact units, and companies such as Amazon Robotics are working to make that happen.²⁰ Tenants are increasingly using automation to assist in both outgoing deliveries and product returns. Further, many tenants are looking to have smaller spaces spread across key customer markets, instead of having few large spaces serving many markets.

Warehouse owners can help tenants by providing seamless connectivity within and outside their facilities and making spaces conducive to robot movement. This may not require significant structural changes to properties. Owners can also provide more multitenant spaces, answering the call for smaller spaces in more locations. While smarter facilities could stand out favorably in the marketplace, tenants would likely pay a premium for these facilities, even during times of increased supply and competition.

Improve efficiency in warehouses to manage rising costs

Industrial real estate owners can focus on improving efficiency as cost of capital continues to rise. Consider this: More than 30 percent of US warehouse buildings are over 50 years old and the average age of all warehouse properties is 34.²¹ As most of these properties were built to accommodate

different types of tenants and offered different capabilities, they may not be very convenient and efficient to operate today. But to improve efficiency, owners cannot only rely on newer developments; they will likely need to upgrade and retrofit older properties as well.

Owners could improve designs and structures to enable more efficient storage, even as business inventories continue to rise. For instance, they can add state-of-the-art features, such as higher ceilings or multilevel facilities for dense and more efficient storage, and more cross-docks and doors to facilitate faster deliveries. Finally, as tenants are increasing their use of technology, owners will likely need to improve connectivity with energy grids to provide more reliable power and could invest in renewable energy sources, such as rooftop solar power. Focusing on these aspects may not only enhance the efficiency of individual properties but the entire supply chain as well. Ultimately, owners' success in this market could be determined not only by about having *more* warehouses, but by also creating more *efficient and sustainable* ones.

Study methodology

DEVELOPED IN COLLABORATION with the Deloitte Economics team, our study is based on an econometric forecasting model that projects demand for industrial real estate space and assesses the impact of e-commerce and other factors on warehouse demand.

Key factors that influence warehouse demand: A variety of factors around production, inventory, retail demand, fuel and transportation costs, capital costs, and industrial real estate fundamentals could affect warehouse demand. We compared each variable based on fit with our model and importance, selecting these as the top five: the ratio of e-commerce sales to retail sales, real business inventories, gasoline prices, the cost of capital, and the availability rate of existing properties.

Relationship between identified factors and warehouse demand: We then tested different lag lengths to determine the best fit. We found that e-commerce, business inventories, and gas prices have a positive relationship to warehouse demand with lags of two to six quarters. Conversely, the availability rate and the cost of capital are negatively correlated with warehouse demand, the latter having a lag of one quarter.

Data sources and forecasts: We have used multiple sources for historical data and the forecasts for some of the independent variables.

- Historical data on e-commerce sales is from the US Census Bureau and forecasts are from the Deloitte Center for Financial Services.
- Historical data on retail sales and real business inventory is from the Bureau of Economic Analysis, sourced from Haver Analytics, and forecasts are from Deloitte, using the Oxford Global Economic Model.
- Historical gas prices are from the US Energy Information Administration (EIA), sourced from Haver Analytics, and forecasts are from Deloitte, using the Oxford Global Economic Model.
- Historical data and forecasts for the availability rate are from CBRE Econometric Advisors.
- The Deloitte Center for Financial Services calculated the cost of capital, using historical data from the Bureau of Economic Analysis (BEA), Federal Reserve Bank of St. Louis (FRB), and forecasts from Deloitte, using the Oxford Global Economic Model.

Endnotes

1. Subscribed data from CBRE Econometric Advisors.
2. Ibid.
3. Nareit, "FTSE Nareit U.S. real estate index series daily returns," April 15, 2019.
4. Ibid.
5. US Census Bureau, accessed March 14, 2019.
6. Patricia Kirk, "Former urban big-boxes, class-B office buildings are being converted to last mile industrial space," *National Real Estate Investor*, November 28, 2018.
7. Patricia Kirk, "E-commerce returns provide growth opportunities for industrial real estate developers," *National Real Estate Investor*, January 15, 2019.
8. Ibid.
9. Deloitte US economic forecast.
10. Subscribed data from CBRE Econometric Advisors.
11. Ibid.
12. Ibid.
13. Emma Hurt, "Warehousing adapts to the e-commerce boom," *Trucks.com*, March 13, 2018; Chris Cunnane, "The on-demand supply chain market," *Logistics Viewpoints*, September 5, 2018.
14. Kirk, "E-commerce returns provide growth opportunities for industrial real estate developers."
15. Ibid.
16. Ibid.
17. Forum Analytics website, accessed March 15, 2019.
18. eSite Analytics, "The eSite Platform: Predictive analytics to enable better targeting," October 26, 2018; eSite Analytics website, accessed March 7, 2018; Ersi.com, "ArcGIS business analyst," accessed April 18, 2019.
19. Bob Adelman, "Amazon Robotics is automating everything," *New American*, October 18, 2018.
20. Ibid.
21. CBRE Research, "U.S. MarketFlash | Old storage: Warehouse modernization in early stages," March 29, 2018.

About the author

SAURABH MAHAJAN is a manager at the Deloitte Center for Financial Services. He researches and writes on a broad range of themes in real estate, including technology, digital transformation, and market performance. Mahajan has nearly 13 years of experience in research and financial analysis in real estate. His last piece for Deloitte Insights was *Smart buildings: How IoT technology aims to add value for real estate companies*. Connect with him on LinkedIn at www.linkedin.com/in/saurabhmahajanthoughtleader and on Twitter at [@mahasaurabh](https://twitter.com/mahasaurabh).

Acknowledgments

The author would like to extend special thanks to **Rumki Majumdar**, executive manager, Deloitte Support Services India Pvt. Ltd., and **Daniel Bachman**, senior manager, Deloitte Services LP, for their contributions toward developing the econometric model.

The center wishes to thank the following Deloitte client service professionals for their insights to the report: **Steven D. Bandolik**, managing director, Deloitte Services LP; **Kasey Lobaugh**, principal, Deloitte Consulting LLP; **Rod Sides**, principal, Deloitte Consulting LLP; **Jim Brock**, partner, Deloitte Tax LLP; **Gillian Crossan**, managing director, Deloitte Services LP; **Scott Rosenberger**, principal, Deloitte Consulting LLP; **Darin Buelow**, principal, Deloitte Consulting LLP; **Piyush Sampat**, principal, Deloitte Consulting LLP; **Curt Bimschleger**, managing director, Deloitte Consulting LLP; **Scott Sopher**, principal, Deloitte Consulting LLP; **Michael Nayden**, managing director, Deloitte Consulting LLP; **Thomas Boykin**, specialist leader, Deloitte Consulting LLP; **Alan Taliaferro**, partner, Deloitte Canada.

The center would like to thank the following Deloitte professionals for their support and contribution to the report: **Val Srinivas**, senior manager, Deloitte Services LP; **Michelle Chodosh**, senior manager, Deloitte Services LP; **Patricia Danielecki**, senior manager, Deloitte Services LP; **Erin Loucks**, manager, Deloitte Services LP; **Rima Pai**, analyst, Deloitte Support Services India Pvt. Ltd.

About the Deloitte Center for Financial Services

The Deloitte Center for Financial Services, which supports the organization's US Financial Services practice, provides insights and research to assist senior-level decision-makers within banks, capital markets firms, investment managers, insurance carriers, and real estate organizations. The center is staffed by a group of professionals with a wide array of in-depth industry experiences, as well as cutting-edge research and analytical skills. Through our research, roundtables, and other forms of engagement, we seek to be a trusted source for relevant, timely, and reliable insights. Read recent publications and learn more about the center on [Deloitte.com](https://www.deloitte.com).

Contacts

INDUSTRY LEADERSHIP

Jim Berry

Vice chairman and partner
Deloitte US Real Estate leader
Deloitte & Touche LLP
+1 214 840 7360
jiberry@deloitte.com

EXECUTIVE SPONSOR

Matt Kimmel

Principal
Deloitte Transactions and Business Analytics LLP
+1 312 486 3327
mkimmel@deloitte.com

DELOITTE CENTER FOR FINANCIAL SERVICES

Jim Eckenrode

Managing director
Deloitte Center for Financial Services
Deloitte Services LP
+1 617 585 4877
jeckenrode@deloitte.com

Surabhi Kejriwal

Research leader, Real Estate
Deloitte Center for Financial Services
Deloitte Support Services India Pvt. Ltd.
+1 678 299 9087
sukejriwal@deloitte.com

Deloitte.

Insights

Sign up for Deloitte Insights updates at www.deloitte.com/insights.



Follow @DeloitteInsight

Deloitte Insights contributors

Editorial: Karen Edelman, Blythe Hurley, Abrar Khan, and Nairita Gangopadhyia

Creative: Emily Moreano

Promotion: Hannah Rapp

Cover artwork: Emily Moreano

About Deloitte Insights

Deloitte Insights publishes original articles, reports and periodicals that provide insights for businesses, the public sector and NGOs. Our goal is to draw upon research and experience from throughout our professional services organization, and that of coauthors in academia and business, to advance the conversation on a broad spectrum of topics of interest to executives and government leaders.

Deloitte Insights is an imprint of Deloitte Development LLC.

About this publication

This publication contains general information only, and none of Deloitte Touche Tohmatsu Limited, its member firms, or its and their affiliates are, by means of this publication, rendering accounting, business, financial, investment, legal, tax, or other professional advice or services. This publication is not a substitute for such professional advice or services, nor should it be used as a basis for any decision or action that may affect your finances or your business. Before making any decision or taking any action that may affect your finances or your business, you should consult a qualified professional adviser.

None of Deloitte Touche Tohmatsu Limited, its member firms, or its and their respective affiliates shall be responsible for any loss whatsoever sustained by any person who relies on this publication.

About Deloitte

Deloitte refers to one or more of Deloitte Touche Tohmatsu Limited, a UK private company limited by guarantee ("DTTL"), its network of member firms, and their related entities. DTTL and each of its member firms are legally separate and independent entities. DTTL (also referred to as "Deloitte Global") does not provide services to clients. In the United States, Deloitte refers to one or more of the US member firms of DTTL, their related entities that operate using the "Deloitte" name in the United States and their respective affiliates. Certain services may not be available to attest clients under the rules and regulations of public accounting. Please see www.deloitte.com/about to learn more about our global network of member firms.