

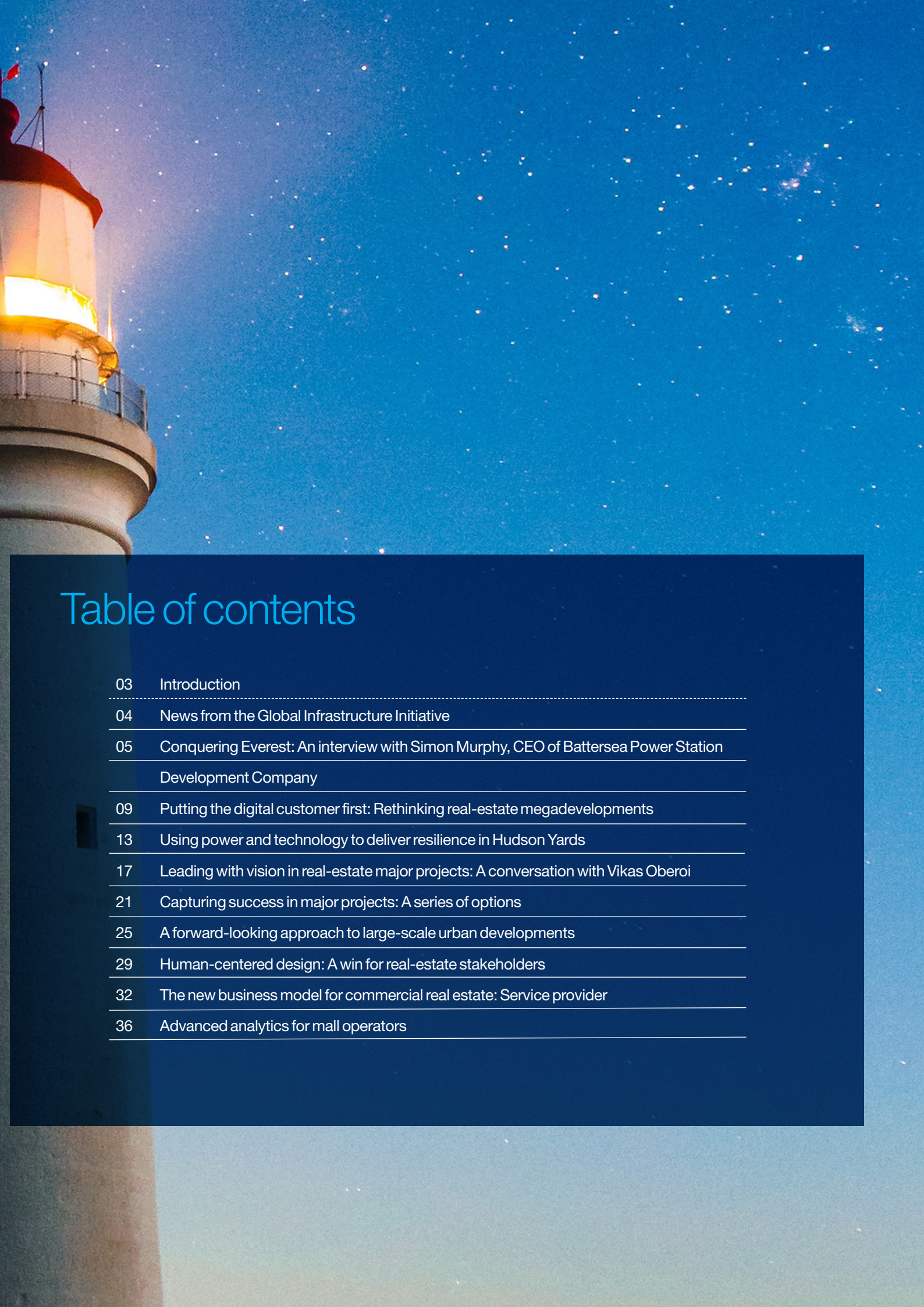


# Voices on Infrastructure

# Achieving excellence in real estate major projects

March 2019





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# Introduction

Welcome to the March 2019 issue of *Voices*, a collection of insights on **achieving excellence in real-estate major projects**. As McKinsey continues to scale its real estate knowledge and capabilities, we are delighted to share some of the lessons and innovative ideas we've acquired along the way.

This is an opportune moment for real estate. Thanks to growing project and technological complexity as well as changing consumer preferences and new business models, traditional rules no longer apply to the way space is acquired, developed, and used.

Across cities, real-estate projects are getting larger and increasingly mixed-use. These projects vary from greenfield cities, to revitalizations of aging districts, to high-value developments in prime urban locations. Leaders of these projects face new questions and decisions at every step: To what extent can my projects achieve the future of livability and urbanism? How do I keep up with technology — and use it to deliver the future? What are my main risks, and how do I mitigate them? How should I approach funding such projects?

This issue of *Voices* tackles these questions and others with articles from ambitious industry leaders and McKinsey experts around the globe. We hope you find them insightful, and we look forward to bringing you more McKinsey insights and events on transforming real estate. 🌐



**Robert Palter**

Senior partner, Toronto  
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**Subbu Narayanswamy**

Senior partner, Mumbai  
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# News from the Global Infrastructure Initiative

Welcome to our March 2019 edition of *Voices*, focusing on the art and science of achieving excellence in real-estate major projects. We hope these insights distill innovative strategies and solutions that can contribute to global real-estate projects of the future.



**Tony Hansen**

Director of the Global Infrastructure Initiative,  
McKinsey & Company

In January, the Global Infrastructure Initiative began another 18-month cycle of roundtables and site visits, which will culminate with our [sixth GII Summit](#) in Montréal in June. We are delighted to announce that Caisse de dépôt et placement du Québec (CDPQ) has signed up as our Strategic Partner, and to confirm our five Pillar Partners: Bentley Systems, Clifford Chance, Spencer Stuart, Trimble, and WSP. Collectively, we look forward to propelling measurable industry change with our partners by creating engaging content at our forthcoming roundtables, site visits, and the 2020 Summit.

The theme of our first roundtable of 2019, taking place in Madrid in April, will be “**Unleashing the potential of advanced analytics in infrastructure.**” Looking ahead, our June issue of *Voices* will focus on “**Reshaping metropolitan mobility,**” and we plan to cover the topic of “**Beyond modular: From projects to products**” in our September issue. Visit our [roundtable page](#) to see past and future roundtables. As always, please reach out to us with suggestions for roundtable topics and [innovation site visit](#) locations.

In case you missed it, our December issue of *Voices* was dedicated to the “[Best Ideas](#)” report from our fifth GII Summit, hosted in London in October 2018. You can expect to see our forthcoming events echoing the themes coming out of that summit—focusing on digital transformation and industry disruption, projects of the future, infrastructure financing and funding, collaborative contracting, and public sector transportation.


We hope you enjoy this edition of *Voices*, and we welcome your thoughts on any of our GII programs. If you have comments or would like to subscribe a colleague to *Voices*, please contact us at [info@giiconnect.com](mailto:info@giiconnect.com). 



Photo courtesy of Battersea Power Station Development Company

## Conquering Everest: An interview with Simon Murphy, CEO of Battersea Power Station Development Company

First constructed in the 1930s and decommissioned some 50 years later, the Battersea Power Station has been the focus of numerous redevelopment projects, none of which were successful. A new, seven-phased approach has helped reverse that trend.



**Simon Murphy**

Chief executive officer  
Battersea Power Station  
Development Company

Battersea Power Station is an icon—its monumental edifice with four famous chimneys instantly recognizable on the London skyline. The latest redevelopment of the station and the surrounding area, led by Battersea Power Station Development Company (BPSDC), is a £9 billion project spanning a 42-acre former industrial brownfield site that had been neglected for 30 years. More than 1,000 residents already call the Battersea Power Station development (BPS) home. The company has also leased more than half of the commercial space within the Power Station building, including 500,000 square feet to Apple for its London campus and 40,000 square feet to International Workplace Group for a new business-members club.

In this interview, Simon Murphy, CEO of BPSDC, explains the challenges he faced and offers solutions that other cities and major projects can adapt to breathe new life into urban spaces.

**McKinsey:** *What is your vision for what BPS will bring to London?*

**Simon Murphy:** We are creating an entirely new town center, opening up to the public a significant stretch of formerly derelict land, and restoring one of the country's most iconic buildings for future generations to use. The aim for BPS was always to create a broad mix of uses, including homes, offices, shops, leisure services, amenities, and open space. In addition to more than 4,000 new homes, BPS will also offer 19 acres of new public space, deliver more than 3 million square feet of new retail, restaurants, and office space, and open up 20,000 new jobs. Our plan for the restored Power Station also includes creating public spaces that foster a sense of community and define a lifestyle.

**McKinsey:** *What are some of the biggest challenges you have faced in delivering this project?*

**Murphy:** The biggest challenges so far have been the physical constraints of the site and the restoration of the Grade II\* listed building itself.<sup>1</sup> Being located in Central London, right next to the River Thames with two busy roads encasing it, has made extensive logistics planning fundamental. The construction program is detailed down to the nth degree, including arranging hourly time slots for truck deliveries weeks in advance and constructing temporary bridges to provide access while piling takes place below. Having other key infrastructure projects—such as the underground rail's Northern Line extension and the Thames Tideway Tunnel super sewer—being built simultaneously underneath the site has also made the task at hand considerable.

Also, the restoration of the building itself is no mean feat. The Power Station is one of the most iconic buildings in the world and is our key brand and differentiator from other schemes.

It is a designated heritage landmark, so we needed approval from numerous stakeholders, including Historic England and Wandsworth Council, to renovate it into a modern-day destination while maintaining as many of the building's original features as possible. For example, all four chimneys had to be carefully dismantled and meticulously rebuilt, as they were beyond repair, using the same methods used when building the originals. We have also incorporated elements of the Power Station's iconic look into other aspects of the development. For instance, the station's historic chimneys inspired the spiral design of the staircases in Circus West Village, a public section of the riverfront within BPS.

In addition to creating value for our shareholders, we are dealing with memories and a strong sense of ownership by Londoners who have grown to love

the building over the years it has lain derelict on London's skyline. We therefore have a responsibility to the past as well as to the future.

**McKinsey:** *What role has technology played in the design and construction of the project?*

**Murphy:** Building Information Modeling plays a vital role in this vast redevelopment, as it involves hundreds of architects and engineers alongside more than 80 trade contractors. At peak times, 4,000 personnel may be onsite. Such a project would require thousands of drawings and plans on paper alongside multiple digital plans and programs. Instead, our contractors, architects, and engineers have built a full digital model of the whole project. This 3-D model informs every stage of construction.

The data we collect isn't just of use as we build out the project; when we finish, it will be processed and used to operate and manage the building more efficiently. For example, mechanical, engineering, and plumbing (MEP) service data were used during the construction and will also be used to tag and track MEP equipment. That equipment's data will be used for commissioning purposes and for producing digital operation and maintenance manuals, which will streamline the handover to operations and maintenance; it will also enable the facility-management team to implement a fully integrated digital building-management system in the future. Indeed, starting with the end in mind is the key to making technology a part of an efficient process and maximizing our overall return on investment.

**McKinsey:** *What are some promising lessons that might be applicable to future major real-estate developments?*

**Murphy:** Connectivity is essential for a project of this scale, so transport infrastructure was a key

consideration from the planning stage. During construction, being located on the banks of the River Thames meant that we could take tonnes of spoil away from the site by barge, leading to hundreds of fewer lorries on the road each year. Another benefit of being on the river: a 20-minute ride to the City of London by river bus, a great convenience for tenants and visitors.

Securing major transport improvements, including the Northern Line extension, was also fundamental to our success. The Northern Line extension is being funded primarily by contributions from developers working on projects in the Nine Elms area, including more than £200 million from BPS. The funding model is a tax increment financing structure which will capture future business rates in the Nine Elms area to repay the loan provided by the government to build the line.

**McKinsey:** *What makes your approach different from the failed attempts by past developers of the area?*

**Murphy:** For many years, when developers were looking to unlock the potential of Battersea Power Station, they sought to do so in isolation from the redevelopment of the surrounding area. Progress with the redevelopment of the much larger Vauxhall Nine Elms area was key to success, including incorporating the Power Station with the new US Embassy that recently opened in the same area. While other developments in the area created residential stock that we might have viewed as competition, those residences have actually created the right mix of uses and enabled Battersea Power Station to become the town center of this increasingly vibrant area. Particularly across a large development like this, a good mix of uses makes a huge difference when it comes to creating a genuine sense of community, which we see thriving in the first completed phase.

Ensuring that each of the seven phases of the masterplan is a community in its own right and is not entirely reliant on the 42-acre project being complete is another key component of our success. This approach has also made us more flexible and able to adapt to meet the ever-shifting needs of society. Our shareholders are fully invested in this phased strategy and have been advocates of the masterplan since day one.

**McKinsey:** *How do you think cultural public spaces are changing in today's cities, and how will they change in cities of the future?*

**Murphy:** Cultural public space is a massive part of what we do at BPS. Circus West Village hosts festivals and pop-up spaces and, once complete, will include 18 acres of public space. The first new cultural and community venue, The Village Hall, is now open and being used by the local community. This is only a snippet of what we have planned for the future.

Today, the inclusion of outstanding cultural public spaces and creation of mixed-use development is not an option but a requirement for any large-scale development to succeed. Major projects like BPS play a huge role in transforming undeveloped areas in cities and injecting billions of pounds into the economy through job creation, transport links, new homes, and leisure facilities. Only projects of this scale can truly make a difference to both their local communities and the cities in which they are located. ■

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<sup>1</sup> The National Heritage List for England defines Grade II\* listed buildings as “particularly important buildings of more than special interest,” [historicengland.org.uk](http://historicengland.org.uk).





# Putting the digital customer first: Rethinking real-estate megadevelopments

Large-scale and integrated real-estate developments are full of risks and often fail to deliver, but they aren't going away. As consumer preferences continue to change and technology evolves, developers must take a new approach.



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The last decade has seen a shift toward developing large-scale, integrated, and mixed-use real-estate projects, ranging from individual districts and precincts to full cities. However, many of these large (and often “smart”) developments have struggled to excite consumers and citizens. One main reason is a failure to guard against changes in consumer preferences and evolution in technology.

Most developers still compartmentalize their organizations’ physical and digital masterplans. Today, the standard approach to development involves a lengthy and elaborate spatial-design process followed by consultations with small focus groups of consumers using standard survey techniques. Developers then hastily incorporate convenient and inexpensive parts of this consumer feedback into the design, which typically involves layering smart technology features on top of the existing design—for instance, adding home-security solutions without integrating with precinct security and without planning robustly for technology shifts (such as the emergence of Amazon’s Echo platform). They finish by publicizing the project with great fanfare.

This scenario plays out every day all over the world and is equally likely for a neighborhood apartment building as it is for a multibillion-dollar major project. Yet given that major projects’ stakes are much higher, ensuring consumer buy-in is even more critical, and incorporating a true digital strategy and crafting a digital masterplan from the onset of a project is much more complex.

There is no replacing a bold vision—creating world-class real estate will always be part-art and part-science. But developers can and should take steps to shape major projects that plan for tomorrow’s digital customer, harness digital technologies from the earliest stages of the process, and leverage data to inform decision-making. By putting customer

experience at the center of their planning approach, developers have much better odds of future-proofing their developments.

### A distinctive new approach

Developers should consider a four-phase iterative process in which customer insights are at the center of both the design and initial stages of development. Crucially, in this process digital technologies are embedded up front into the design and customer experience, not as an afterthought.

### Start with a customer-informed, forward-looking vision

Major-development owners traditionally apply a top-down approach: they establish a vision for a project and then bring in architects and master planners to align the project’s spatial design with this vision. Most developers also conduct initial feasibility assessments by reviewing traditional metrics (such as population- and economic-growth forecasts, rental yields, and construction costs) and by conducting customer surveys and focus groups.

A customer-informed vision, however, starts with developers’ defining both the precise customer segments the development will serve and also what customers’ experience with the development will look and feel like. By conducting ethnographic research, making lifestyle observations (through physical and virtual experience centers), and understanding mobility patterns (through combined geospatial analysis, mapping tools, and cellphone usage patterns), they can understand customers more deeply. This research helps major-project developers not only understand what customers say they need but also anticipate other functional and emotional needs and wants, thus informing critical design decisions. Sources of previously untapped internal data, easily available market data, and unconventional alternative external data can also improve decision making.

McKinsey analysis<sup>1</sup> found that “non-traditional variables,” such as proximity to premium restaurants or grocery stores, can explain property values with a predictive power of 60 percent. These insights can be used at the project design stage to determine target pricing and segment, as well as identify establishments needed within a development to boost value.

Developers can then build flexibility into the design of the current and subsequent phases of the developments so that they stay contemporary as consumer needs change and technologies evolve. For example, US-based start-up Module offers housing for which residents can order extra bedrooms or other add-ons for as their needs change.

#### Curate design input

Typically, projects are designed by certified architecture firms. While this professional expertise is essential, developers can open the opportunities for ideation at the conception stage by organizing immersive design labs, bringing together multi-disciplinary thought leaders to jointly develop new ideas. These experts might include academics, artists, citizens, technology providers, or urbanists. Such labs also integrate existing design teams and architects to enhance their concepts. This methodology must be distinguished from surface-level crowdsourcing, which is often used as a marketing device but with little influence on design. Developers can then conduct “concept sprints” (a method regularly used to design software) and deploy cross-functional teams to quickly develop, flesh out, and evaluate ideas and potential improvements. One major developer in the Middle East leveraged a design lab approach to identify new distinctive anchors for its existing master plan. The lab produced more than 100 new ideas on placemaking, technology integration, and distinctive structures in the complex. Many of these ideas were prioritized and subsequently integrated into their master plan.

#### Build technology-enabled prototypes

A rapid prototyping approach ensures designs and concepts are quickly tested with customers, allowing developers to better understand preferences and optimize features. Developers often use brick-and-mortar experience centers for the prototyping phase. But because building such physical experience centers is expensive, developers may shy away from experimentation, thus limiting the amount and nature of feedback they obtain. Technology can be used to create digital twins of such developments, which can then be tested with different target segments to see how each uses the space and what else they might desire from it.

Sidewalk Labs recently joined up with an experiential design firm to create a plan-your-neighborhood prototype for a new mixed-use development on Toronto’s eastern waterfront. Participants could explore the prototype and toggle through thousands of design options, contributing live feedback. Other developers are using augmented and virtual reality to understand and probe customer reactions to different product features and concepts. They also deploy eye-tracking technology in showroom units to understand the features that interest customers most—a tactic currently being used in the retail industry.

Developers can then follow up with design-to-value exercises that allow informed trade-offs on features. These exercises can help them determine how much customers would be willing to pay for “nice-to-have” amenities, such as bathtubs or balconies in master bedrooms.

#### Develop highly personalized sales engines with both human and machine interfaces

Many sales teams today originate leads from call centers or from visits to sales centers or project websites. They then follow up with interested customers through 20th-century methods, often tracking leads via spreadsheets, following up with

agents and customers via phone calls, and finally trying to close deals through in-person experiences.

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Next-generation sales engines for major projects will follow a different approach. Sales teams will proactively identify potential customers for projects by employing a rigorous analytics-driven approach, harnessing both publicly available and privately purchased data. This approach can help sales forces develop optimized product offerings, cross-sell and upsell to willing customers, and offer dynamic pricing by comparing customer behavior patterns and preferences. Ultimately, the sales team will have a highly personalized sales pitch and product for each customer or set of customers.



Major mixed-use real-estate projects will continue to be critical for the advancement of cities around the globe, playing a central role in urban renewal and regeneration across both developed and developing markets. But ceaseless advancements in technology make it increasingly difficult to create sustainable projects that meet consumer demands as well as virtually impossible for developers to build the necessary capabilities in-house in the short term. Pursuing a range of partnerships will grant developers access to a whole new ecosystem of capabilities. Starting with an iconic project and converting it into a showcase for a new design and development approach has a better chance of future-proofing than the traditional sequence. By investing in these steps to embrace customer-centric development and integrate digital technologies up front, progressive developers can build long-lasting capabilities that competitors may find hard to replicate. ■

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<sup>1</sup> Gabriel Morgan Asaftei, Sudeep Doshi, John Means, and Aditya Sanghvi, "Getting ahead of the market: How big data is transforming real estate," October 2018, McKinsey.com.



Photo courtesy of Related Hudson Yards

## Using power and technology to deliver resilience in Hudson Yards

Hudson Yards is a 28-acre, mixed-use neighborhood on the west side of Manhattan. Outfitting it with sustainable power and technology solutions was no easy feat—but well worth the effort.



**Jay Cross**

President  
Related Hudson Yards

Real-estate developers have a responsibility to create resilient and environmentally sustainable buildings that not only enhance the cities in which they are built but also safeguard their inhabitants from unknown environmental and social futures. Such socially responsible urban development is not simply good practice—it's good business. The validity of that maxim is evident in Hudson Yards, our just-now-opening major project on Manhattan's far west side. This building complex will ultimately include 18 million square feet of development over seven city blocks and is the largest private real-estate development in New York City since Rockefeller Center.

Early in the planning process, our development team considered the enormous task of building a project of this scale: 28 acres of mixed-used development, to be constructed largely above the Long Island Rail Road's active West Side Yard. Almost immediately, we recognized that in addition to the standard zoning, financing, and construction challenges developers face in most projects, we had to deal with two other extraordinary considerations. First, the need to bring half the project online at roughly the same time—an infrastructure test for any city, let alone one as mature as New York. And second, the need to attract commercial tenants, retailers, restaurateurs, and residents to a relatively remote area of Manhattan notably lacking in all four. By resolving the first problem with a focus on resilience and sustainability, we made significant steps toward solving the second.

### Developing a sustainable approach

We were determined that the Hudson Yards platform, buildings, and other structures be resilient, sustainable, and technologically advanced. Moreover, such lofty goals had to be accomplished in commercially and economically sustainable ways. Before we could worry about attracting tenants, we

had to consider not only how to sustainably and reliably power the entire development but also how to bring technology to the space.

### Power

Since the September 11th attacks, Manhattan has experienced several blackouts, and energy experts project that climate change, cyberterrorism, and an aging utility infrastructure will increase the frequency of these occurrences. Accordingly, we had one burning question: What would happen to the many thousands of employees, residents, and visitors of Hudson Yards if New York City's power grid failed?

From the outset, providing large commercial tenants with auxiliary on-site power to support business continuity during an extended power outage was both a priority and a proposed point of differentiation for the development. Natural gas-fired cogeneration—or “cogen,” the simultaneous generation of power and useful heat—is the clear choice for providing that auxiliary power source. Cogen is twice as efficient as utility-scale power generation because it not only generates electricity but also uses the heat byproduct to produce hot and chilled water that buildings can then use. Such on-site generation also avoids the transmission and distribution losses associated with utility-scale generation.

Nearly every Eastern Rail Yard (ERY) building was planned with the intention of installing cogen to help meet high-level LEED requirements. But the plants would have been small because each building's individual demand for hot and chilled water varies greatly over the course of the day or week. So, we consolidated the power and thermal demands of the buildings, establishing a microgrid and connecting the buildings to a thermal loop. We also established one larger plant instead of

four smaller ones, making more than four times as much cogen capacity economically rational. This single-plant solution capitalizes on the mixed-used program of Hudson Yards: commercial buildings peak in the afternoon, residential buildings peak in the morning and evening, and the retail and cultural facilities are busiest over the weekend when the commercial buildings are nearly empty.

Just as crucially, Related did not have to build out a costly electrical distribution network to effectuate the microgrid. Instead, the cogen plant delivers power directly to the Con Edison grid, and Con Edison offsets this power from the ERY buildings' electricity bills. In the event that Con Edison's grid fails, breakers open to isolate Hudson Yards from the rest of the grid, and cogen power will be delivered directly to the buildings.

All told, our 13.3-MW cogen plant, thermal loop, and Con Edison interconnection cost nearly \$200 million. To recoup some of this cost, Hudson Yards sells various forms of power to the ERY buildings and tenants through a subsidiary set up for its power business. This setup allows Hudson Yards to cover ongoing operating costs and the facilities' mortgage payments and comes with a binding commitment that rates will be no higher than they would be if the microgrid did not exist.

### Technology

Our approach to power generation greatly influenced our approach to technology, including security, turnstiles, elevators, building-management systems, access control systems, telephone, and Wi-Fi. We believed it was both socially responsible and commercially viable to wire Hudson Yards with a focus on data and connectivity—despite a \$40 million price tag. First, this move was socially responsible because cities will ultimately need adoption at scale of these kinds of data-producing systems if urban areas are to expand

healthily. And second, it was commercially viable because it will take time before such systems become code, so smart-city investments, at minimum, boost operating efficiencies and ideally generate revenue.

We realized early on that we were uniquely positioned to attempt to solve the always-nettlesome problem of systems integration. Converging disparate systems generally requires a spaghetti-work of software and hardware solutions to cohere in just one building. Because we were creating an entire multistructure neighborhood from whole cloth, real estate included, we were able to create a cohesive conversation on a single-software platform fed by a unified fiber-optic network running up buildings and around the campus.

Over time, we expect the benefits of this converged network to be myriad. Chief among those benefits are ongoing data-based insights about humans and machines; integrated outcomes across campus, including frictionless building entry for tenants and visitors; and sizable cost-savings and revenue opportunities. Furthermore, some of those opportunities include advertising and sponsorship revenue across screens, from residential tenant smart-home apps to dozens of wayfinding and informational kiosks and vitrines that dot our campus.



To be sure, much of these hoped-for outcomes from our technology and power investments are just that: hopes. But this strategy, while ambitious, has not dissuaded tenants from the highest echelons of the city's commercial, legal, and financial businesses. The three commercial office buildings at Hudson Yards that are occupied—or soon will be—are for all intents and purposes fully committed, at rates per square foot among the highest in New York City. A fourth building (50 Hudson Yards) in the early

stages of construction is already 50 percent leased. And we've experienced similar demand in the one residential building open to purchasers, which is 60 percent sold.

Our success in luring tenants strongly suggests that resilient and sustainable development is both good for society and good business. Indeed, we believe that the development community in general must stop thinking about raising one building at a time and start thinking about how to create blocks, neighborhoods, and cities that can withstand the tests of resiliency that are sure to come. ■

*Voices highlights a range of perspectives by infrastructure and capital project leaders from across geographies and value chains. McKinsey & Company does not endorse the organizations who contribute to Voices or their views.*

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# Leading with vision in real-estate major projects: A conversation with Vikas Oberoi

Real-estate major projects are notoriously difficult to manage given their long timelines. Complexity, risk, and new technology compound the struggle. One developer sees a path forward in leading with vision, customer centricity, and open architecture.



**Vikas Oberoi**

Chief executive officer  
Oberoi Realty

Real-estate major projects are fraught with hurdles—from securing financing despite long timelines, to shaping and meeting ever-evolving customer demands. Vikas Oberoi, chairman and managing director of Oberoi Realty, has worked in real estate for more than two decades and is widely known for his megadevelopment, Oberoi Garden City. This city within a city rests on 80 acres in the Goregaon neighborhood north of Mumbai and includes a mall, five-star hotel, international school, commercial towers, and residential homes, among other amenities. In this interview, Oberoi discusses how to meet evolving customer demands and how to design and deliver future-proof major projects.

**McKinsey:** *What's the secret to a successful major project?*

**Vikas Oberoi:** If you are doing a major project, you need to start with a bold vision. This will help you find the right land, get the right tenancy mix, build the appropriate organization, and secure the right financing. I would say that most developers want to minimize risk by putting money-making projects up first and then turning to social and cultural infrastructure. But we did it the other way around for Oberoi Garden City. I believe that social infrastructure—like education, entertainment, culture, and art—has a pull factor that traditional real estate like homes or apartments do not.

**McKinsey:** *What was your vision for Oberoi Garden City?*

**Oberoi:** Our overall concept was to provide 85 percent of everything that our customers need within the development itself. In a large city such as Mumbai, the external environment in most areas is fraught with difficulties. It is tough to travel across the city; public transportation and infrastructure are improving, but challenges such as congestion and pollution cannot be addressed overnight.

I wanted the families that live in my developments to experience a world-class city within a city. So we brought the best of the city into our environment. We have restaurants, schools, a mall, coffee shops, a cinema—we're meeting the majority of their needs. Even today, we try our best to get the most contemporary restaurants and retailers into our development so that our residents don't need to leave Oberoi Garden City to meet their lifestyle needs.

We also maintain an utmost respect for nature. This land parcel had a vast green landscape when we acquired it. The brief I gave my architects was, "This is a beautiful piece of land. I know you cannot add beauty to what exists—what you create will only deplete the natural beauty of this space. So show us how you can minimize this depletion." Everything had to complement what existed and be authentic. In Oberoi Garden City, as with all of our ongoing developments, both residential projects are Gold LEED precertified and our commercial project is Gold LEED certified.

**McKinsey:** *In the initial years of this long-drawn major project, weren't there times you felt like reducing risk by pulling back the project's vision?*

**Oberoi:** Of course, there were many such moments. But fortunately, we didn't budge. A lot of it is also luck; in retrospect, everything looks great. But in the first five years of Oberoi Garden City, things were not easy. Every expert we consulted told us that a five-star hotel in this part of the city could never be viable. Nevertheless, I maintained my position. I told my team that as long as the hotel recovers its ongoing operating costs, we should proceed. Today, our hotel is one of the best-performing hospitality projects in the Mumbai metro area. Studies showed that we wouldn't get more than 3,000 daily visitors to our mall—and

yet today, the mall's annual rent exceeds its capital expenditure. All this was feasible because I was both the owner and CEO and maintained a focus on the long-term vision; being obsessed with short-term returns is the biggest risk in these large projects.

**McKinsey:** *What are some ways you created demand?*

**Oberoi:** We created demand by keeping customers at the center of everything. Because of globalization, customers are aware of all their options and expect everything in their life to be of higher quality than ever before. We're not competing with other real-estate developers anymore. We're competing with the brands that our customers use every day, and developers have to align with this global perspective. Our customers are buying a car and experiencing the touch and feel of a global automobile. Our customers have many smart devices. They travel the world. We have to offer first-class, global products. The mind-set is, "Why should my apartment not be the iPhone of apartments?" I am not doing a favor to any customer by creating a better product; the customer is doing me a favor by buying it.

We're also changing the way we design our spaces to be more customer-centric. When customers buy a car, they pick an exterior color, a wheel, an interior color, a fabric. Why can't real-estate developers provide similar options for basic elements of their living space? We are going to allow customers to choose such elements as wall color, door finish, and tile design.

**McKinsey:** *Given that major projects take decades, how does one ensure organizational continuity?*

**Oberoi:** It's very simple—the vision takes precedence and cannot be compromised at any cost. Those who agree with the vision can be a part of the team. Those who don't can step aside. Having said that, most people like this way of working. They want

to make a difference and be part of developments that make cities better and leave a mark on society.

**McKinsey:** *What role will technology play in the way real-estate major projects are conceived and delivered? What's your vision for developments of the future?*

**Oberoi:** I believe that technology is improving quality of life. Let's take Uber as an example. Uber didn't change the basic fact that a person has to travel from point A to point B. It changed the way you achieve that goal—your overall experience. Developments are undergoing a similar transition. People still need to buy homes or go to work. But digitization will certainly change the experience of living in an apartment or working with colleagues. So, one major decision we have taken is to ensure that our next set of projects are technologically advanced and enabled. We won't integrate technology for technology's sake, but we will include simple things that will truly improve the living experience.

Today we are using technology to plan, design, build, and monitor the progress of our developments. We build our project virtually first as it enables us to improvise before creating the development. Smart devices in each apartment ensure safety, efficiency, and accessibility as it enables the home owner to remotely control and monitor the apartment's features through a smartphone—for example, smart security cameras that can be accessed and controlled from an app. In other words, we want to provide our customers a home where they can use high-quality facilities at a single touch or a click.

I also think an open architecture in technology is the key to success for future developments. If we have air taxis by the year 2025, then I need to make sure that my building is among the first to have landing spaces for them. When drones are delivering pizzas, I need my building to accommodate this facility. In fact, I

am hoping that soon, we will be able to use a garbage disposal system in buildings that can locally convert waste into energy.

Essentially, apartments will need to be like smartphones that can be continuously upgraded and personalized while being pleasant and enjoyable places to live. ■

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# Capturing success in major projects: A series of options

Understanding what makes large-scale real-estate projects different than smaller projects can greatly improve developers' chances of maximizing profitability.



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Real-estate development can be risky business. This is particularly true for major projects—those with a value of more than \$1 billion. Even when conditions seem ripe for success, so many plans for large-scale real-estate developments never come to fruition. In the case of many major projects, the initial measure of success should be simply avoiding bankruptcy during the first few years. Yet most projects do not manage to clear this bar, either due to unrealistic expectations or changing conditions, which are typically related to market dynamics or macroeconomic events and trends.

Indeed, unlike a portfolio of disparate real-estate investments, a major project is more exposed to outside risks. But it also has the distinctly advantageous chance to build on the success of each phase of the development in a way that increases the value of subsequent phases. Accepting a low internal rate of return from an initial investment may, for example, increase the value of adjoining plots of land owned by the developer. In this way, developers can measure the success of all investments holistically and achieve optimal returns. But this approach may clash with cash constraints in the initial phases.

In our experience, suboptimal returns on major projects often result from an underappreciation of the fundamental differences between a major project and a smaller one. For smaller projects, which have shorter timelines and can often be taken on as single investments, developers can focus on key tenant commitments and attempt to ride out market fluctuations. These projects can be thought of as a single investment decision—based on execution—that simply results in either success or failure.

Major projects, however, should be considered a series of options that develop over one or more decades as they respond to shifting demands. While some engineers may balk at the idea of tackling a large project in phases, risk mitigation should

take priority. And developers should seek to “modularize” as many decisions as possible—that is, breaking them down into individual phases—even if it means higher costs down the line. As a result, major projects can be thought of as sequential investment decisions, where the outcome of each decision affects subsequent decisions.

One American real-estate developer in Spain, for instance, managed to increase the asking price of a residential property from €1,000 per square meter to more than €3,000 per square meter through multiple measures, such as having a sound masterplan, creating social infrastructure, and projecting an appealing public image. They anchored the project with a shopping center, completely isolating the center’s financing and construction from other portions of the project. While the shopping center suffered from delays and cost overruns, the other project components were unaffected because their strategy was independent. Had the same contractor been used across projects, or if their bank had issued a single, large loan, they would have suffered worse outcomes.

### Taking a long-term view of the investment life cycle

Investors entering large-scale real-estate development must have the mind-set that they are managing a long investment life cycle. Furthermore, while some of the initial project investments are unavoidable, most investment decisions depend on market factors, including the availability of funding and on the evolution of the project itself. Investors must therefore be able to calculate risk and respond to unforeseen obstacles over the project’s duration.

An initial business case should encompass the full project duration while also breaking down the entire value chain, allowing developers to evaluate each phase of the investment and estimate

potential profit pool. Developers sometimes attempt to use large financial models, which can capture too much information and muddy clarity of thought. It often makes more sense to structure a large investment as a portfolio of LandCo and BuildCo investments, rather than trying to capture the business as a whole.<sup>1</sup>

To illustrate these points, let's compare two hypothetical projects:

Project A is an office building located in the central business district of a large city. The plot is purchased at a premium—with a large cash commitment—and the developer seeks to advance the project over the course of three years. To ensure success, the developer focuses on three key investment commitments: purchasing the land, engaging architects and engineers, and awarding construction. This investment is by no means risk free, but adhering to solid processes in managing the design-construction cycle and securing preleases should help keep the developer on track.

Project B, however, is a mixed-use plot that will be the site of dozens of buildings. The timeline for this development is estimated at ten years. The developer here takes the following actions:

- clearly differentiates LandCo investments from BuildCo investments
- maintains the same investment discipline as Project A for each infrastructure area and each new building
- modularizes investment in assets and infrastructure systems as much as possible
- prepares for unexpected changes to economic cycles throughout the duration of the project

■ develops a clear strategy to build monetary value over time

Developers who do not follow the model of Project B drastically increase their risks. One developer in the Middle East, for example, fully committed to infrastructure investment for a large project where so-called wet networks—such as water supply, sewage disposal, and irrigation—ran along 13 kilometers as a single system. When the financial crisis of 2008 hit, the developer had already sunk hundreds of millions of dollars into infrastructure. Ten years later, that infrastructure has only been partially utilized. Given that demand was going to arrive much slower than planned, this developer would have been better off investing a fraction of that money into launching infrastructure in phases, as opposed to in a single system.

Approaching the investment in phased modules sometimes comes with slightly higher overall infrastructure costs compared with awarding a huge construction contract, but it is well worthwhile. Almost invariably, the “savings” calculated by constructing the whole network in one go do not consider the time value of money. The equation is simple: if the total network can be constructed in two phases for \$500 million each or in one phase for \$900 million, and cost of capital for the developer is 10 percent, then modularization pays off in two years. In the case of Project B, which saw infrastructure grossly underutilized for ten years, phased development is well worth the extra cost.

In addition to disciplining the investment process, we have found that dividing a major project into a series of packages helps better structure exit options. For example, many developers waste time and resources evaluating investments that will take place in a five- to ten-year horizon instead of focusing on the decisions that will yield results (and cash flow) within three years.

Another Middle East developer, for example, bet its transportation strategy on a proprietary driverless-vehicles network powered by renewable energy. When market conditions changed, this strategy was not only economically unfeasible but obsolete, as more-promising transportation alternatives emerged a few years later. A more prudent investment strategy would have limited the initial investment, minimized the amount of capital at risk, and allowed for easier adjustment to the new technological landscape.



Simply stated, developers should remain flexible throughout the life cycle of a major project, taking the time to consider their options, including when to sell, develop, delay, or halt entirely. Doing so simplifies the approach and allows investors and developers to focus attention and equity on achieving optimal returns over a longer period of time. ■

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<sup>1</sup> “LandCo” refers to the transformation of land. For example, developers cannot simply purchase a large plot of land and begin construction right away. First, they will need to obtain basic infrastructure permits, such as road, electric, and water. With those in place, they can begin work on the land before the construction of the vertical building. “BuildCo,” however, refers to the development of buildings on zoned or serviced land. For example, a developer purchases a plot after the LandCo work has been done, secures a building permit, and then hires a construction company to begin development of the building itself.





Photo courtesy of Keppel Urban Solutions

## A forward-looking approach to large-scale urban developments

Large-scale integrated urban developments can be challenging endeavors, especially as customer needs and technologies keep changing. One master urban developer discusses successful approaches to overcoming obstacles in the development process.



**Cindy Lim**

Managing director  
Keppel Urban Solutions

Urban development should focus on meeting the needs of people within a community, but the best way to achieve that goal is always changing. Cindy Lim, managing director of Singapore-based Keppel Urban Solutions (KUS) and director of group corporate development at Keppel Corporation Limited, understands these truths well. In this interview with partner Mukund Sridhar, Lim discusses the state of urban development today and provides some best practices gleaned over the years for creating developments that are not only human-centric but also commercially viable and sustainable.

**McKinsey:** *What key trends do you see in urban development today?*

**Cindy Lim:** I see three major movements in the urban development space. The first is the convergence of urbanization and Industry 4.0. A decade ago, rapid urbanization created problems, such as gridlock and air pollution, in need of solutions. With today's technology ecosystem, however, there are endless solutions to address challenges while creating new value at the same time. To create value, we have to collaborate closely with other players in the urban development ecosystem. We need to move to a place where, instead of merely competing, we are collaborating and co-creating along the value chain.

Second, urban development is transforming to emphasize services and enhanced user experience from the onset of project development, instead of being solely focused on the homes themselves. From day one, designers and developers now have to consider the implications for users—including retail and institutional tenants, as well as those who maintain and operate the infrastructure, such as the municipal government. Increasingly, because of the growing number of consumers demanding new technology-enabled solutions, both the public and private sectors are starting to coordinate to improve

citizens' daily lives. There is huge potential for social capital to be unlocked here.

Finally, users today are more receptive to change and to embracing the marketplace. I am optimistic that the journey ahead can create new value.

**McKinsey:** *What is an effective approach to adopting new technologies in major developments?*

**Lim:** Large-scale integrated urban developments have lengthy time frames, involving multiple phases over years. Forward-thinking developers may struggle with certain technologies becoming obsolete during the development process. Such urban developments are also very location-specific endeavors. Differences in maturity between countries and cities, not to mention cultural differences and budget gaps, mean that developers cannot simply adhere to a one-size-fits-all template when it comes to deploying technology. Instead of having developers prescriptively identify the solutions that they want, technology partners should collaborate with developers to surface leading-edge offerings on a regular basis and ensure that their technological solutions are kept up to date and location-specific.

**McKinsey:** *Is it difficult to find partners who can operate at that level?*

**Lim:** I always tell stakeholders that there is no lack of technology partners. Instead, what we lack are good projects. Given a good township or smart-city project, there will always be forward-looking and progressive partners who are willing to be creative with their technological solutions. These partners will then bring along their own network of providers. And this network effect allows developers to deliver new benefits for their customers.

**McKinsey:** *What is a takeaway from KUS's recent large-scale integrated developments that you and others can apply going forward?*

**Lim:** Large-scale projects are capital-intensive. As such, most developers look at them from a capital-expenditure point of view, where cost optimization is a key focus. While cost is important, this narrow focus can be a pitfall. In our view, to drive a successful smart city, developers have to commit to the total cost of ownership approach and take a long-term view of their investments by considering the appreciation of value and cost of operation over the project life cycle.

Looking at ten, 20, or even 30 years out, it becomes clear that a marginal increase in capital expenditures on reliable infrastructure can bring about significant total life cycle cost savings. For example, materials that are more expensive but highly reliable translate to fewer repair and maintenance costs. Moreover, often an added benefit of higher-quality materials is better performance, which can translate into a better customer experience.

Currently, we are working on Saigon Sports City, a 64-hectare township that we are developing in collaboration with Keppel Land in District 2 of Ho Chi Minh City. Right from the initial planning and design stage, we adopted a biophilic design approach, one that connects occupants to their natural environment. We conducted solar and wind analysis to achieve the best ventilation and thermal comfort in our urban design and building orientation. We also carried out a hydrology study to ensure that the design was in harmony with nature, incorporating water-sensitive urban design features such as rain gardens and bioswales. These help not just to cleanse water and slow surface runoff, but also connect people with nature in a waterfront setting.

Understanding these needs is key to generating long-term value for a large-scale development. The upfront costs of designing and implementing these green features, public spaces, and landscaping, even before launch, may have been capital-intensive to the point of being counterintuitive. But it will be paid back in the long run through cost-savings from reduced energy and water consumption, and even more significantly, from enhanced asset value.

**McKinsey:** *Sustainability is top of mind for many urban developers today. What does this look like in practice?*

**Lim:** At Keppel, we believe there are three areas of sustainability to consider. First, there is the environmental and ecological aspect. For instance, when we talk about energy, instead of using an individual compressor chiller for air conditioning, we use centralized chilled water for cooling at a district level for greater efficiency. In waste management, we look for opportunities to achieve closed-loop, zero-waste systems. In this way, we are also pushing cities to adopt longer-term solutions.

Second, we look at sustainability from the people aspect. We are passionate about placemaking—designing space with the objective of encouraging interaction—to achieve synergy between physical assets as well as to blur the line between residential and commercial use. A community needs to be vibrant and livable to be successful. People should feel safe and secure in their residences, look forward to engaging their neighbors, and be comfortable traveling between home and work. In addition, organizing micro events at the neighborhood or precinct level can also help to encourage social cohesion.

Last is economic sustainability. People must have a reason to reside in a township, which could be the

presence of good jobs, convenience of commute, or comprehensive services and amenities (such as education and healthcare) within the township.

Keppel seeks to deliver solutions for sustainable urbanization profitably, safely and responsibly. Learning how to prioritize this triangle of sustainability and making it happen in practice has been, and will continue to be, a journey for all of us. ■

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## Human-centered design: A win for real-estate stakeholders

Developers can optimize success rates for major projects by focusing on inhabitants' health, community, and quality of life.



**Guy Perry**

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In recent years, real-estate developers have turned to smart technologies, advanced analytics, and creative design to improve some aspects of city-dwellers' experiences and their return on investment in projects. Increasingly, many are talking about specific quality of life issues such as safety, walkability, and health, recognizing that citizens are frequently willing to pay more for secure, vibrant communities.

Yet while many of today's large real-estate developments aspire to be human-centered communities, they often ultimately fail. Few developers have prioritized human outcomes in a meaningful way. However, those that have succeeded in undertaking major projects with a focus on resident welfare have created enriching communities that yield a cycle of benefits for residents, investors, and society.

### What is human-centered design, and why does it matter?

Ample road networks and constant virtual connectivity have become the status quo in city design. For decades, road design was solely based on moving as many vehicles as possible—meaning that road networks represented up to 40 percent of some city footprints. While this, in isolation, has benefits for traffic engineering and efficiency, it has also made many cities largely unwalkable, damaging health and environmental outcomes. Virtual connectivity has had tremendous benefits for productivity and quality of life, but online communities are increasingly replacing face-to-face interaction resulting in fewer opportunities for people to interact with their neighbors.

Human-centered design mitigates these and other negative outcomes. In the context of urban planning, human-centered design is informed by human values—namely, a desire for health and happiness—

and adheres to the principle that large-scale real-estate developments create a framework for life. Developers following the tenets of human-centered design, for instance, ensure that basic amenities are within walking distance of where people live. They create areas where neighbors are likely to cross paths and interact—and they do so in a way that encourages these neighbors to look out for and support each other. Such neighborhoods also offer a range of activities that keep people's minds fresh and sharp, providing them with an inherently healthier, safer, and more stimulating stage upon which to play out their lives.

### Human-centered options in real-estate projects

People spend huge portions of their time living, working, and shopping in large-scale real-estate projects. As such, each decision developers make in the initial stages of a project has significant consequences.

Developers that are succeeding in human-centered design have categorized performance metrics in three areas:

- **Physical activity:** Necessities should be within walking distance—encouraging people to get 10,000 steps a day for pleasure and without treadmills. Developers constructing a high-rise should also consider that many high-rise dwellers who rely solely on elevators have increased chances of diabetes and obesity. People who live within constrained spaces need accessible options for physical activity, such as recreational areas.
- **Safety and community:** Developments should offer shared spaces where people and their neighbors can create a safe, inclusive, and supportive community.

- **Quality of life:** Developers can measure this metric by the quality of the time people spend with their families, friends, and even strangers within the development and the types of activities they engage in.

Today, many real-estate projects inadvertently create feelings of isolation or a lack of support by emphasizing districts or divisions—effected with gates or walls within or around neighborhoods, for instance. Human-centered design, however, encourages interactivity and diversity. In the United States, for example, many university campuses and towns are conceived with such principles in mind. The vibrancy of life in these communities, created when all citizens experience a sense of relevance and belonging, results in their frequently outperforming the richest zip codes in terms of health, safety, and similar measures.

A recently planned city in South Asia provides a more detailed example. From the outset, city planners took a people-first approach, working with developers to answer a series of key questions: What are the amenities that citizens will need? How many schools? How many shops? What government services must be provided within proximity? In addition, developers dedicated a percentage of the real estate to green spaces and bodies of water, and they directly addressed the concept of districts. While housing, office, or university complexes are generally walled off and self-contained, the planners and developers of this project chose to open them up to the public, integrating them with transportation and walkways. This integration reduced divisions between elements in the community, making it easier for people to connect meaningfully.

Human-centered design can also be witnessed in a city developers are planning in the Middle East. Developers are considering how surrounding cities have evolved and changed over time to create the concept for this city. Therefore, they are considering

fundamental challenges, such as an abundance of cars, high temperatures, and significant levels of direct sunlight. Encouraging the use of public transportation has been a fundamental part of the planning process. Instead of designing the street to be as wide as possible, planners are sizing roadways to sufficiently carry vehicles but leaving room for pedestrian walking paths and landscaping. Further, they are designing building placement and landscaping to provide maximum amounts of shade to facilitate walking. The goal is threefold: to encourage walking in daily life, lessen traffic congestion, and create new opportunities for people in the community to connect.



Alongside cutting-edge technology and high-tech installations, next-generation cities are putting livability at the heart of their planning principles. In some ways, this focus on livability aligns with age-old urbanist principles that are simply no longer implemented in most major projects today. New developments must provide spaces where people can live healthy, communal, and fulfilling lives. Unless they do so, they will fail to become real communities where people lay down roots. ■

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# The new business model for commercial real estate: Service provider

Whether it is a boutique hotel or a multibuilding, multiuse major development, the brick-and-mortar aspects of real estate may soon be meaningfully influenced by the value of services provided.



**Ed Walter**

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Real estate is rightly considered a long-term investment, with commitments pegged to decades rather than years. However, the sector is poised for a potentially revolutionary transformation from an economic model based on brick-and-mortar assets and long-term leases to one more akin to a service industry. In this new model, building occupants become subscribers instead of tenants, and commercial real-estate (CRE) companies create value by continually providing new amenities and rapidly anticipating clients' changing tastes and needs.

This transformation has been influenced, in part, by the rapid rate of digital disruption and the rise of shared and on-demand business models. Millennial and Generation Z consumers have decidedly different attitudes, needs, life paths, and expectations than previous generations: notably, ownership is less important, and experiences take a higher priority. Furthermore, a new generation of CRE companies have spotted new economic opportunities and now provide services such as coworking spaces, cohousing with hotel-like amenities, on-demand storage, and pop-up space for retailers. As a result, some real-estate companies may not see a need to adhere to CRE staples such as the triple-net lease, in which a lessee covers all costs, including real-estate taxes, building insurance, and maintenance.

The service-provider business model offers CRE practitioners the flexibility to take advantage of these new opportunities, adjust more quickly to such market shifts, and diversify their revenue streams. And while boutique-style properties appear most prepared to be service providers, the service-based model certainly applies to major projects; it helps differentiate the component properties, provide an affordable point of entry for smaller tenants, and allow for boutique-style experiences within a larger project.

### Commercial real estate is evolving

Marty Burger, CEO of Silverstein Properties, the New York City firm that developed the new World Trade Center, has predicted that real estate will evolve much as the software industry did, moving from releasing programs on compact discs to signing up users for cloud-based apps such as Google docs or Evernote.<sup>1</sup> Burger has also said that the leaders of his firm feel as if they are in the hospitality business, treating office and residential tenants as if they were guests and offering not only fitness centers and similar amenities but also events and experiences.

Aside from coworking provider WeWork—the highest-profile example of the service model—the US-based cohousing company Common offers amenities ranging from cookware to movie nights. And Clutter, a service-oriented spin on the storage business, picks up subscribers' surplus possessions and transports them to underutilized industrial storage space on urban outskirts.

Some large developments already are looking to the service model. For example, in Boston's South End, coliving provider Ollie will operate a 14-story tower in National Development's seven-building Ink Block and provide amenities—ranging from juice bars and communal lounges to curated day trips—so that tenants aren't so much renting living space as subscribing to a lifestyle service.

### Challenges for financiers and investors

The shift to real estate as a service has a historical precedent in the hospitality industry, which provides a template for how property owners and operators can sell services and experiences. And the new model is rapidly taking hold in some parts of the world. Additionally, blockchain-based investment platforms may foster creativity by making it easier for small investors to participate

in innovative real-estate projects that embrace the service-based model.

Service models, however, may prove difficult for existing valuation methods. Long-horizon investors, such as sovereign wealth funds that have been attracted by the prolonged and predictable return on real estate, may find their investment models challenged. For example, it's currently unclear who will ultimately bear the burden of the new risks and opportunities presented by the service model—the building owner, or a tenant. If the tenant does not achieve the desired economic result from their business, what becomes of their obligation to pay rent? Burger has noted that he expects few property owners will go to a shorter-term lease environment until tenant improvement allowances become more aligned with that model.

#### Ways to capitalize on a service-based approach

New players in real estate as a service are pioneering different revenue boosters. Some rely on arbitrage to increase utilization rates—whether geographic (using discounted space in low-demand locations) or rental arbitrage (leasing space and then subleasing it at a higher price). Others take relatively affordable occupied spaces in desirable areas (such as self-storage facilities in or near city centers) and convert them for a more profitable use. Still others take advantage of space in desirable locations not currently being used, similar to Airbnb.

CRE companies that want to effectively monetize their service offerings should consider taking the following actions:

- Regularly solicit the opinions of building occupiers to discern which services they value most. While brick-and-mortar investments take time and money to reposition, services can be adapted quickly.
- Use services as a point of market differentiation, reinforcing the house brand. Hotel properties have long followed this model, differentiating themselves with premium bedding, restaurants, and even toiletries.
- Monetize club-like amenities for residential rentals as a method of diversifying the revenue stream, or use them to support higher rents.
- Carefully evaluate risks and returns associated with adapting to a time horizon that is shorter than usual for traditional commercial leases. As technologies and consumer habits evolve rapidly, property owners may be rewarded for the ability to evolve with the market, free from the constraints of some long-term tenants that may be slow to adapt their business models.
- Frequently evaluate how technology-based solutions and partnerships with other business providers can enhance or broaden the scope of services. These partnerships can dissipate risk and allow occupants to tailor their environment to their budgets.

As the real-estate-as-a-service model becomes more prevalent, the CRE sector will need to innovate more rapidly than in the past. Just as in other industries, viability and success will depend on making better use of data, understanding customers, and moving quickly to take advantage of changing conditions. Ultimately, that evolution could help make the CRE sector more resilient and more profitable. ■

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<sup>1</sup> Marty Burger says, "Similar to how the software industry moved from shrink-wrapped software to new models such as SaaS (software as a service), your industry will look at real estate as a service;" for the full interview, see Christian Brazil Bautista, "Silverstein Properties CEO expects real estate to evolve like the software industry," *Real Estate Weekly*, October 19, 2017, [rew-online.com](http://rew-online.com)

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## Advanced analytics for mall operators

When a mall operator uses advanced analytics to select tenants, optimize mall layout, and determine rents, its revenues can rise by 20 percent.



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*This article is adapted from “Boosting mall revenues through advanced analytics,” first published in January 2019 on McKinsey.com.*

With consumers shifting more of their spending from physical stores to e-commerce and increasingly looking for experiences rather than products, mega-mall operators worldwide are seeking ways to reinvent their business. Today’s most successful megacomplexes aren’t just sprawling collections of stores but rather carefully planned “retail-tainment” centers—destinations for shopping, dining, entertainment, and a wide range of other leisure activities.

Smart choices about tenant mix and placement, space allocation, and rental values are critical to the success of such large-scale retail developments. In this article, we home in on how retail developers and megacomplex owners are leveraging advanced analytics to make crucial business decisions. Specifically, they’re using advanced analytics to plan store adjacencies that yield higher consumer spending and longer mall visits, and to engage in more-informed rent negotiations with tenants. It’s paying off: large-scale retail developments that use these tools have increased their revenues by double-digit percentages.

### Matching tenants to locations

When a leasing team reviews leases set to expire in the next quarter or year, it should study the universe of potential tenants to fill the pipeline: current tenants that might be better off occupying a different unit within the mall, tenants that are in the company’s other malls but not in this one, and any potential new tenants that have expressed interest in leasing a unit.

Mall owners sometimes remodel select “precincts,” or sections of a mall devoted exclusively to certain

product categories. These remodeling projects provide an opportunity to move tenants to different units within the mall. Assessing all the possible combinations and permutations is a complex exercise that requires the power of advanced analytics.

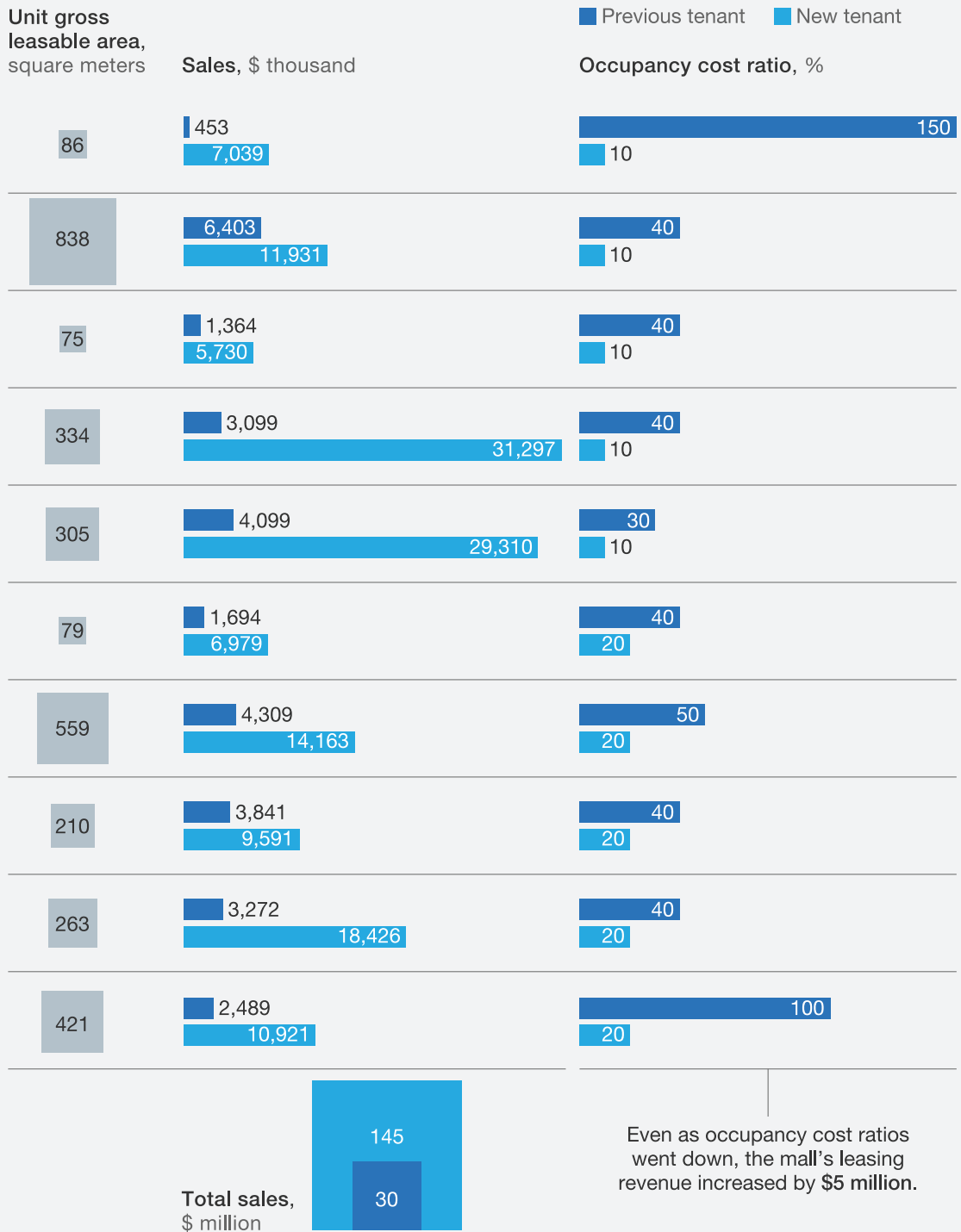
New tools—let’s call them “right tenant, right location” (RTRL) tools—can estimate each tenant’s omnichannel sales and the rent it should pay, in every potential combination of tenants and units. (Note that in determining tenants’ rent, a mall operator’s primary goal shouldn’t be to maximize its own leasing revenue but rather to maximize the combined sales of the mall’s tenants. That may seem counterintuitive, since tenants’ sales don’t directly translate into bottom-line impact for the mall operator. But as each tenant’s occupancy cost ratio<sup>1</sup> goes down, the mall’s tenancies become healthier and more sustainable, helping the mall remain viable.)

The aforementioned company used an RTRL tool to figure out which ten of its prospective tenants should replace the ten current tenants whose leases were expiring, and which specific units in the mall the new tenants should occupy. The tool showed that, with the new set of ten tenants, the mall could generate an additional \$115 million in sales compared with the prior year, plus an additional \$5 million in leasing revenue (see exhibit).

Sales and productivity data make up the backbone of an RTRL tool; its predictions will be only as good as the information it has on both current and prospective tenants. The mall owner should gather enough reliable data—ideally, not just on omnichannel sales but also on occupancy costs—to enable the tool to differentiate a tenant’s potential performance in unit A compared with unit B. If the mall owner has no data on a prospective tenant,

Exhibit

**By using a 'right tenant, right location' tool, a mall owner was able to increase mall sales while reducing tenants' occupancy cost ratios.**



it should carefully select benchmarks from its current portfolio of stores.

An RTRL tool must also be able to take business constraints into account. For instance, if a mall has precincts, the tool shouldn't assign a toy retailer to an available unit in the apparel precinct or the food court. In addition, the mall owner should specify a minimum or maximum category share—for example, high-end apparel at 10 percent of a mall's total square footage, low-priced electronics at 3 percent, and so on.<sup>2</sup> Without sensible business constraints, the tool will inevitably recommend placing high-productivity categories (such as luxury accessories or consumer electronics) in unreasonably large stores.

#### Setting a price range for every lease

One major challenge for mall owners around the world is determining rent for each tenant. A typical mall doesn't have clear processes or a shared understanding within the organization on how to set rental targets for each tenant; the asset-management and leasing teams, for example, often arrive at different targets. Publicly available industry benchmarks, by country or category, don't exist. Our own research suggests that a mall's leasing revenue expressed as a percentage of total tenant sales varies widely—from 5 percent for a mall in Brazil to 25 percent for one in Australia.

In theory, the rent for a unit in a mall depends on four variables: the type and location of the mall, the quantity and quality of foot traffic, the characteristics (including size and configuration) of the unit, and the sales productivity of the brand or category that will occupy the unit. In practice, however, it's a different story. We've found that leasing managers base a unit's rent on personal knowledge of the tenant ("I know him, he won't pay more than \$x"), past practices ("Let's increase

the rent by 2 percent this year, like we've done every year"), or a combination of gut feeling and business acumen.

A clear view of the overall and unit-level economics of the tenants, combined with an advanced-analytics pricing tool, helps a mall owner in Asia to set better rental targets. The company conducts a thorough analysis of the economics of each of its tenants, studying not just sales per unit but also occupancy costs and profits. It then uses a pricing tool that breaks down the four variables previously listed into approximately 25 subvariables, such as the unit's proximity to a mall entrance and the brand's price positioning. Using multivariable regression, the tool sets a price range (or a "zone of possible agreement") for every current or prospective tenant. Calculating value creation at the unit level—and coming up with a unit's estimated rental value (ERV) for each tenant—thus becomes a much more rigorous process. Use of the ERV tool has put the mall operator on track to capture a 20 percent increase in leasing revenue over five years.

Advanced analytics equips a company to manage and improve not just its short-term performance but also its long-term health. One company's ERV tool made clear that the mall's low-performing tenants were paying rents that were disproportionately higher than the mall average—effectively subsidizing other tenants. This was an unsustainable situation: sooner or later, the overpaying tenants would present a considerable vacancy risk, particularly if they were concentrated within a single leasing cycle or mall precinct. The tool also showed that the mall owner could negotiate more assertively with its higher-performing tenants. In such situations, implementing the tool and acting upon

these types of insights can yield up to 5 percent of earnings before interest, taxes, depreciation, and amortization per year.

For a case example of how advanced analytics can help a mall quantify each tenant's sales impact on other tenants, read the full article, "Boosting mall revenues through advanced analytics," on [McKinsey.com](https://www.mckinsey.com). ■

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<sup>1</sup> A tenant's occupancy cost ratio is its annual occupancy cost (rent plus service charges) divided by its annual sales.

<sup>2</sup> A mall operator should set minimum and maximum category share based on a range of factors, including the mall's location, size, and positioning and the demographic profile of the catchment area. It would also do well to conduct primary research to uncover spending and footfall patterns in the trade area.

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