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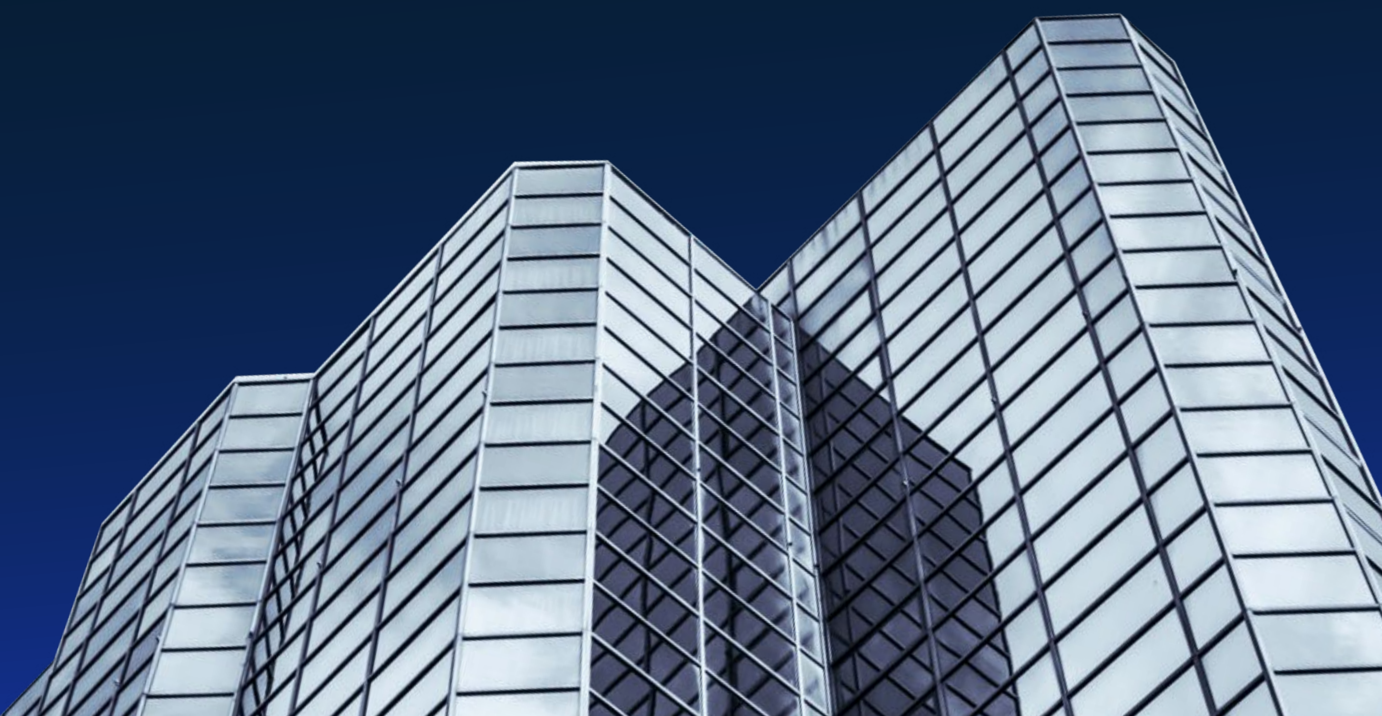
The Next Normal

The future of the high-rise: Creating people-centric spaces



March 2020

As the world becomes more urban, more people will live and work in high-rises. What will that mean for builders, real-estate companies, and tenants? In this edition, *The Next Normal* explores the high-rise of 2030.

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The high-rise in 2030

In this video, McKinsey experts describe how high-rise buildings might change in the coming decade—and how construction and real-estate companies should evolve.

Envisioning the future of the high-rise, Aliza Dzik, Jennifer Kilian, Jan Mischke, Aditya Sanghvi, and Gernot Strube discuss what it will be like to build, manage, or occupy one in 2030. An edited transcript of their remarks follows.

Building a high-rise

Gernot Strube: In a slow-moving industry like construction, 2030 is not really that far away, but we will see some major changes. One will be that people will just not accept anymore the traffic disturbances, for example, that construction sites cause—which will have major implications. We'll need to do much more prefabricated building, bringing complete modules in and bundling deliveries, tools, materials, and so on.

Jan Mischke: If modular construction really picks up this time around, which we are extremely optimistic about, it can have dramatic implications over the next decade or two. Ten years out, we expect a market potential of $130 billion, just in Europe and US new-build real estate.

Gernot Strube: Another thing is that I think we will see restrictions on pollution. I'm specifically talking about light pollution, noise pollution, and also dust pollution. People just won't accept that they're constantly surrounded, day and night, by noise from construction sites around them—which means that we will have to be much more productive. We will have to be much more efficient because the times during which we can construct will be reduced.

Living and working in a high-rise

Jennifer Kilian: The real-estate industry has been traditionally about developing, operating, maintaining, and selling assets. And it really thinks about buildings and places. I think we're seeing this huge shift toward customer centricity. So I think, if we look back ten years from now, the thing we're going to see as the biggest change is that real-estate companies will serve people instead of established buildings.

Aditya Sanghvi: It used to be that every building, whether it's a multifamily building or an office building, would really just stick to the asset class that it was in. But increasingly, the biggest innovators in the space are starting to think about buildings not just as the four walls, but as the community—and the experiences that it creates. So then the high-rise of the future isn't just office for 50 floors. It's office for ten floors; it's multifamily for 15; it's a hotel for ten; a club area at the top of the building. And that, to us, is the real future of the high-rise.

Jennifer Kilian: In 2030, I think our needs will be anticipated, and all the kinds of services and things that take our time up today—errands, laundry, or whatever they might be—we'll have solutions for from a concierge or digital standpoint.

Aliza Dzik: If I'm living in a space, can the building management start to understand what my preferences are, such as when I tend to use a cleaning service and when I want to get my Uber rides? Can there be a kind of proactive meeting of an employee or of a resident in their place of work or in their space, so that [the building management] knows what I want before I even know I want it?

Jennifer Kilian: They'll remind me if I'm running out of something and proactively get it for me. They'll have childcare and eldercare in the building. They'll have pet-grooming and -walking services. Any amenity that you can think of just becomes a natural part of that residential experience.

Aditya Sanghvi: And the beautiful part about technology in all of these solutions is that it will mean that it's not just for the ultraluxury segment that [high-rises] will be able to do this—but actually for everyone.

Managing a high-rise

Aditya Sanghvi: Many people are very protective, as they should be, about the information that a real-estate owner can get. The trick is to be able to provide the right level of service so that people are surprised and delighted but not scared at the access that you have.

Jennifer Kilian: I think another big mindset change for people who are running real-estate companies will be around the timing of delivering new things. Right now, it's a multiyear cycle, usually three to five. And when we get to more of an agile mindset and digital labs, we're looking at two-week cycles. And we're looking at three to four months to put new services or digital products into market. And that's a really big difference.

Aditya Sanghvi: Most real-estate firms have to completely change the capabilities they have and how they view their role. They need to curate the experience of being in the building. They need not to view their job as "the customers and the tenants are foes across the negotiation table, where I have to push them down on price as much as I possibly can"—but instead view them as clients and try to make their lives and their experiences better, so that they're more likely to stay. And they will be with you forever.

Aliza Dzik is an expert in McKinsey's New York office, where **Jennifer Kilian** is a partner and **Aditya Sanghvi** is a senior partner; **Jan Mischke** is a partner in the Zurich office; and **Gernot Strube** is a senior partner in the Munich office.

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October 2019 | Interview

Changing the game: A conversation with Katerra's Michael Marks

As Katerra strives to digitally disrupt the construction industry and "productize" the way we build, CEO Michael Marks discusses lessons learned and aspirations.

Katerra has made the news with its unorthodox approach to construction and backing from investment firms. Believing that the construction industry was long overdue for disruption, co-founder and CEO Michael Marks set about integrating tech, design, manufacturing, and construction to make building projects faster and less expensive. With a focus on selling products as well as end-to-end services, the company is challenging convention while also finding its way in a historically under-digitized industry.

McKinsey: As the former CEO and then chairman of Flextronics, you are bridging Silicon Valley and the construction industry. Until quite recently, that was an unlikely pairing. What has surprised you as you've gained ground in construction?

Michael Marks: I've been surprised by how long things take. It's a two-year cycle from an initial bid on a project to completion. Coming from an electronics background, where the cycle is measured in hours, the construction-project duration is something that's hard to get used to. And there are several influencing factors when it comes to the length of projects, including the fact that there are many unknowns in construction—weather, for one, and land use. Forecasting in this business is much more difficult than what I've experienced in the past, so the uncertainties also contribute to how long things take.

Coming from outside the industry has its own challenges. In the beginning, we didn't have enough people who knew how to build—and those who did thought differently than we did. We each needed to navigate a fundamentally new way of doing things. So we acquired some general contractors, which gave us local knowledge of pre-established processes and expertise. We then bridged the gaps between traditional construction and our mindset and approach, focusing on highly efficient mass production using our own supply chain and manufacturing.

The future of construction and our approach to it require a bifurcated skill set. We still need carpenters, electricians, plumbers, and the traditional skills and roles, but because we're also approaching construction as a product, we have to train those people specifically for that approach. That whole process alone takes two to three years.

Of course, as an experienced entrepreneur, I know that no business ends up looking the way you thought it would when you started, and we're going through that now. The good news is we have all the tools we need in place, and we're now concentrating on execution and bringing Katerra to a strong competitive position.

McKinsey: You mentioned a few acquisitions; can you expand on how M&A has informed Katerra's strategy?

Michael Marks: I think of acquisition as acquiring talent. We have a significant pipeline, so clearly we need people to do this work. We can't do that one person at a time, so we're building our talent through acquisitions and truly integrating these companies into Katerra. We now have more than 7,500 employees globally, up from 2,800 a year ago. One of the challenges in acquisitions—in any company or industry—is that they can be disruptive as you attempt to meld the cultures of a handful of companies. Our approach is to make sure senior people at these companies are on board with our approach and vision before we make any acquisitions. We want crews and team members to be energized by the integration. We've found some top talent gems that way—moves that we wish we'd made a year earlier.

Once we've made the acquisition, additional moves support our strategy, operations, and business model. Given the low levels of digitalization and IT spending in construction, most companies' IT, finance, and HR systems are lagging behind. We're addressing that in two ways. First, there are the basics of getting people on Katerra's email system and having robust servers and security systems. Second, is launching our software platform, which links every stage of a project and the building supply chain. That's a bigger project and something really new in the industry, and it's one of the things I'm most excited about.

McKinsey: In addition to addressing those legacy systems, what else is top of mind when it comes to priorities?

Michael Marks: One is the widening trade-skills gap. There's already a huge shortage, something like 200,000 people—it's a real problem.[1] And with low numbers of young people coming into the industry, that gap will widen. That's true across the whole country and globally. Union workers are aging out and construction is experiencing a union shrinkage. This creates a larger industry void, because workers traditionally acquired skills through union apprenticeship programs. We have to do our part to keep attracting people to the industry and training them, or there will be no people to do this work. We have recently created our own apprenticeship program that responds directly to our process and business model,[2] including the integration of new tools and technologies.

McKinsey: As you implement these initiatives, how do you see Katerra's business model—as both a company executing projects in the field and a product company—taking shape?

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[1] Procore Technologies, "Making up for the construction labor shortage with technology," *Construction Dive*, June 5, 2019, constructiondive.com.
[2] "Katerra launches apprenticeship program," *Professional Builder*, June 25, 2019, probuilder.com.

Michael Marks: Katerra is going to have two different ways of going to market. One is the more standard side of the general contracting business, but the difference is that we have our own manufacturing and supply chain. We will get walls, windows, kitchens, bathrooms, and cabinets from our own factory. We will use those prefabricated pieces in the standard business, which will increase margins and create more value, but it will still look like a traditional build on the outside. And in that go-to-market approach we may perform some of the work ourselves and just use regular subcontractors, which the industry is used to.

The other part of the business is the product side, for which we're managing the products all the way from design to manufacturing. Instead of using subcontractors in this area, we're training people to do that. As I mentioned before, we have very complex, completed walls and floors that come from the factory—with built-in mechanical, electrical, and plumbing engineering. So, much of the high value-add is getting everything done in the factory and through an assembly process in the field.

Those are the two different paths, and they complement each other. Interestingly enough, we are rapidly increasing our sales of materials to other general contractors.

McKinsey: Overall, the interest in "productizing" construction is growing. What's your take on the conversation?

Michael Marks: People are definitely reacting—and not just to us. Prefab building is getting more and more attention, primarily from hospitality and healthcare because those buildings are very reproducible. More companies are turning their attention to disrupting this industry and there's more discussion about our approach—and that's a good thing.

People are asking about competition. I come from electronics—a highly competitive industry and a $1.3 trillion market—and construction is six times the market size. Competition is good for the industry: suppliers will begin to change the way they design things, and there will be more support for the workforce. The more people who are engaged, the more the industry will change. And that's good for everybody. In an $8 trillion market, there's plenty of room for innovation.

This is a never-ending process, and the industry is poised to evolve. Soon enough we'll be putting up buildings in a month, or a week, and at way lower cost because we're going to just keep engineering these processes. The factory will get more efficient and we'll automate certain factory tasks. Just think about cell phones—the iPhone is ten years old, and it does all kinds of things that nobody ever imagined when the first one came out. Innovation is relentless, and there are new capabilities every year—and that's exactly what's going to happen with buildings.

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November 2019 | Interview

Pivoting to modular construction: An interview with Mark Skender

Achieving a fully integrated modular construction offering relies on pragmatic leadership and a people-first culture.

Chicago-based building company Skender was already long established when CEO Mark Skender presented a new vision for the organization: integrating design, manufacturing, and construction to move modular projects from concept to completion. Only two short years later, Skender offers factory-produced and steel-structured three-flats that can be erected in just 90 days. In addition, these buildings are constructed in Skender's 105,000-square-foot factory located on Chicago's predominantly underserved southwest side,[1] with the goal of promoting progress in both housing and the local workforce.

In this interview, Mark Skender talks about his company's vision for modular construction, the importance of assembling the right team, and how vertical integration can help reinvent the structure of the industry.

McKinsey: The construction industry is grappling with a number of disruptive factors, such as innovations in technology. Do you think incumbents are too entrenched for change to happen?

Mark Skender: I think a lot of the investment in construction technology is good, but it's still a Band-Aid on some of the industry's fundamental flaws. There are signs that we're heading toward this type of technological disruption, but companies that have gained recognition and made headlines are still in the very early stages. There's still a lot of "wait and see" happening as to whether integrating tech solutions into modular construction will be successful.

It's difficult to say what construction will look like ten years from now—the industry is so large and fragmented. Each project is treated as singular and bespoke, which creates inefficiencies and limits the scalability of research and development. There will certainly be significant movements in some vertical markets, probably by newer, more agile players that will have the courage to ignore convention and find opportunities for growth. What our company has done is look beyond the single project and ask ourselves, "Well, how could we improve the whole model if we were to look at it from a longer-term perspective?" In many ways, that led us to where we are.

McKinsey: When did you start to think about delving into modular construction? How did you initially go about it?

Mark Skender: We first embraced lean construction principles—namely eliminating waste and striving for continuous improvement—14 years ago. Not many people talked about lean construction then, and it took us years of commitment to adapt. That period gave us the confidence to tackle something we knew was important, even if our customers weren't asking for it. It also gave our leadership team the space to shift focus to the future without needing to fight fires in the present.

Then, probably five years ago, I started researching modular construction. There was no boilerplate or blueprint for how to do something like this, so we did the research on our own. We realized that the key elements to make a venture like this successful are leadership and culture.

McKinsey: How did you decide to pivot the organization to a vertically integrated model, and how did you manage to do so in just two years?

Mark Skender: As we were aligning on a vision, I had actually just read McKinsey's 2017 report identifying seven levers for improving construction productivity.[2] We scheduled an off-site meeting, where I told the leadership team, "Look, let's go into this off-site. Let's address each of the seven areas and come up with both a reasonable and a more ambitious idea for each." As a result, in November of 2017, we had a bold and compelling vision for the future. And that vision immediately empowered us to move forward and make deliberate decisions.

The ability to move quickly was grounded by a culture that put people first, followed by lean principles triggered by a compelling vision of the future. A lot of things are exciting, in particular, about having a significant and positive impact on both affordable housing and the workforce. To that end, we put our factory on the southwest side of Chicago, and we're recruiting a workforce from underserved areas of the city. Not only is the business strategy behind this decision compelling, but the social aspect of it is also very energizing. It taps into the deeper meaning of what we're doing.

McKinsey: Getting everyone aligned around a vision is sometimes easier said than done. How did you approach that?

Mark Skender: When I was drafting this vision document, I built a case with a series of "whereas" statements that essentially characterized our industry and our position in it. The goal was laying out some fundamental reasons for moving in this direction. One of those reasons was, "Whereas the industry has not improved productivity in decades." The next was, "Whereas our position in the industry is a fee-based general contractor, we are facing tightening of fees without a corresponding decrease in risk." The third was, "Whereas our culture of innovation and employee engagement allows us to be agile." Laying out the rationale was important.

That approach helped us think differently, evolve, and align everyone. First, we brought in design—so we could design the building. And then it became, "If we see a building as a product, we can totally flip our paradigm of how we think about ourselves and the industry." There have been several iterations and improvements of that vision statement in the past two years that were informed by the new talent and leadership we've brought on.

One thing I've learned is that the two- to three-year strategic plan is dead. The industry is moving and changing much more rapidly than that. Our vision allowed us to have a long-term destination, but now we segment our strategies into six-to-nine-month periods because our ideas can change. We're heading down a path that has no blueprint, so we're creating as we go.

McKinsey: Were there moments of doubt or days when you felt stuck? How did you handle those?

Mark Skender: We envisioned that engineering, design, construction, and manufacturing would all come from the same company. Tim Swanson came on as chief design officer, we bought a design firm, and we started a manufacturing company from scratch. We thought, "OK, then we'll be able to solve all these industry problems." But the reality is that the early stages weren't easy. We got stuck a lot. Even when you're committed to changing things, adjusting industry-ingrained behaviors and processes takes time.

So we said, "All right, if we're thinking about a product, let's reach outside our industry and look at how a company like Ford Motor Company would get its design, engineering, manufacturing, and sales and marketing teams together when they design their new products." Reaching outside the industry to look at a process can help solve challenges in how these teams work together in this new business model. It's still a work in progress, but we're taking advantage of opportunities to learn.

McKinsey: What do you think the construction industry will look like five years down the road if modular construction has the impact you think it will have?

Mark Skender: I would expect construction to reduce its fragmentation, maybe through strategic alliances with some existing players or through acquisitions. When we first studied the modular industry, fragmentation had already been in the conversation for a long time. The topic ebbs and flows, and highly fragmented companies would go out of business, which didn't make me very optimistic. So what's the difference between them and us? They were trying to place an unsophisticated modular manufacturer into a commercial, fragmented endeavor, so they encountered the same industry constraints.

If the modular industry is expected to take hold and be the growth opportunity it could be, then the players will need to take a holistic and vertically integrated approach. Otherwise you're applying a modular solution to a still dysfunctional structure.

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