



‘Supercharged our ability’: How AI is being used to inform office design

Worklife
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It can take an architect multiple days to draft up three or four different design concepts. Now it can take mere seconds, thanks to digital developments. And AI is expediting that ability even further.

Architects and real estate firms are now experimenting with how AI can inform office design. With the return-to-office movement underway (again), the race is on to ensure that office spaces are designed in a way that reflect modern work needs. The theory goes that if offices are compelling enough spaces to encourage collaboration and therefore performance, employees will be more willing to return.

But designing different test models can be a lengthy process. That’s why those in the real estate and architecture fields are turning to AI to expedite plans and inform design.

For the majority that involves using AI to create dozens of design concepts for clients to pick from, within minutes – saving days of work. For others, AI is being used as a test bed to trial new concepts, like employee-led design.

Jaymie Gelino, COO of project and development services at commercial real estate company JLL, and Arjun Kaicker and Uli Blum, co-founders of architecture firm Zaha Hadid’s Analytics + Insights unit, believe AI potentially could tell you what employees want.

“We can use algorithms to really understand people’s needs in buildings much better than we ever could’ve before,” said Kaicker. “If you do a survey of 2,000 people in a building, and they all have different opinions, different ideas and preferences, it takes a long time to do that analysis. The computer can do it quickly and accurately.”

JLL has been using AI to create typologies of different kinds of workers according to what type of work they’re doing, how they’ll use the space for their work, the overall company culture, and so on.

“We think about all the different various departments at work – HR, finance, legal – and the way they work and what they need is a little different,” said Gelino. “If you were thinking about a landscaping firm versus a law firm, they need different levels of size and space to do their work.”

JLL is also using AI-powered predictive modeling to create designs for clients that identify as either progressive or traditional when it comes to office design. “If you’re more progressive, we have all those benchmarks on data and it can then immediately lay out that space,” said Gelino. “But if you’re more moderate or really traditional, here’s what the space could look like. That can be done really quickly.”

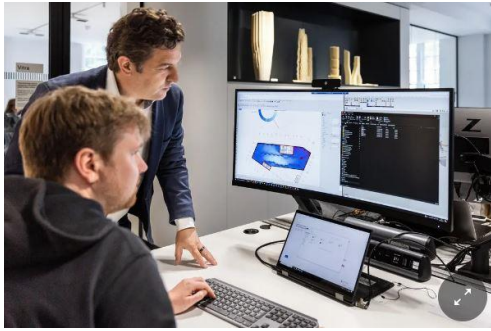
For example, a more progressive company that has a hybrid model would need fewer desks compared to a traditional one. From there, JLL employees can use an in-house AI tool that creates virtual 3D walkthroughs within 48 hours. That tool launched in the first quarter of this year and is largely used for bigger projects where at least a whole floor is being renovated. JLL usually provides at least two options per space and can easily switch out finishes like aesthetics.

Algorithms that identify how spaces are used

Kaicker and Blum are also using AI to explore ways buildings can self-evolve. “AI has supercharged our ability to do that,” said Kaicker. By using sensors to collect behavioral data, they can understand where people are in a building and can start to use algorithms to identify how spaces are being used. It might lead to conclusions like one area is too cold and no one is there, or everyone is having meetings in the rooms closest



JLL GPT: Human-led, AI-powered, purpose-built CRE technology.



Zaha Hadid Analytics + Insights unit had a computer tool that, in 27 hours, could come up with 100,000 designs for a building interior.

to the elevators. The algorithm can then provide suggestions on how to alter the design of existing building layouts.

“With a building, often the architect will walk away when the building is finished and it remains static and it’s difficult to change,” said Kaicker. “The way we look at buildings is that day one is when they move in. We’re looking at how can the building change and adapt over time so it’s just as good on day 1,000.”

But the human oversight element remains critical. To build offices that attract workers, all hands – both human and machine – are on deck.

Architecture and interior design firm Spectorgroup is yet to fully embrace AI in its processes – not for lack of vendors trying. Over the last six months the firm has been inundated by a sea of different AI vendors offering different programming to assist teams in office design, according to its principal Scott Spector. Other architecture giants, like Gensler, are still in the AI experimental phase and haven’t yet incorporated it into the design of any projects yet, a company spokesperson said in an email.

A cautious approach

Just like in other industries, some designers are fearful that AI could take over the work. Spector is prioritizing software options that complement design teams rather than replicate their efforts. “We can enhance what we already do and do it a little quicker,” said Spector.

AI is most helpful in the first phase of design: concepts. Spector said he can show tenants what the space might look like 20 different ways with AI. Take a 25,000-square-foot interior for example. That would typically take a week to get preliminary designs and then four days to produce a test fit worthy of sharing, he said. Loading it into an AI program, he can have it in minutes.

However, Spector isn’t exactly diving in head first. Those AI-generated designs can’t go directly to the client. They still need time to review.

“If we almost got too fast, our clients may not necessarily appreciate the finer pieces that go into the design of a given space,” said Spector. “If AI spits out 100 test fits for me, well what’s that worth? It’s not worth anything until there is thought behind it. You still want to be thoughtful about the design. You still have to go visit the site. We want to remain thoughtful so it’s not just a regurgitation of what’s coming out and what we’re seeing from others already.”

Designers also want to remain the experts. When you give a client a design that you created, it’s easy to answer questions about it. But when the computer does it, those answers don’t come as naturally. “We have to go backwards and prove it out after it’s been done,” said Spector. “We want to do our job and get it done the right way, versus the instantaneous way.”

One AI vendor that stuck out to Spector is layout. The company, founded two years ago, is made up largely of developers and can generate options in mere seconds. The platform is well versed in the constraints that designers have to be mindful of like density, where emergency exits are, how many desks per floor, and so on. The architects they spoke to told them it saved them 50% of their time.

“It helps architects think faster,” said Cristiano Coretti, co-founder of Layout, a software that creates automated floor plans in seconds. “You can change everything. You can move or remove completely the breakout spaces, for example. If you want only offices, you can simply do it. If it’s



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not suggested by the algorithm, we can do it manually.” He added that 80% of the floor plan is done within the first five seconds.

“My mom’s generation, for example, was still drawing my hand. My generation grew up using software and not as much hand skills. Then today, it’s totally digital. Your design starts from there,” added Coretti, who comes from a family line of architects and designers.

Younger generations heading the AI office design movement

Kaicker and Blum also say that the younger generations of workers are creating change.

“In our firm, there are a lot of young architects that push the boundary of design with the latest technology,” said Blum. “If you go through our office, you see a lot of people programming or coding. But it also requires expertise to bring designs into reality by using technology.”

Andrew Witt, co-founder of design consultancy Certain Measures and associate professor in practice in architecture at Harvard University Graduate School of Design, said that while teaching classes, he can see that his students are looking for new ways to tackle existing problems, with the use of technology being one of the ways.

“The way students think about media is becoming more a part of the design process than it has been in the past,” said Witt. “It’s opened up a lot of possibilities around producing amazing designed imaging content. That’s something that students are really excited about. Just like professional architects, they are coming up with ways to create alternatives to design in a way that is more possible than before.”

For example, one common challenge currently is material selection. Witt says that it takes hours of research to make a good selection, making it an intense process. Using AI can be a solution to that, where it provides an answer on what material to use, along with other possible options.

While those questions could be asked on ChatGPT, it probably won’t give you the most articulate, design-centered response. That’s why JLL created JLL GPT. It’s the first generative AI model purpose-built for commercial real estate. The model will leverage the massive amounts of data generated by the built environment, using both in-house data and external. As of Aug. 3., JLL’s over 100,000 employees around the world will have access to the feature.

From visual to text generative AI, it’s clear that it’s having an impact on office design.

“The visualization tools are moving so quickly that it’s really neat to see how easy and agile they are, that it’s creating a lot of efficiencies in the design project process,” said Gelino. “It’s going to be really fun to see where the industry goes in the next 10 years.”