

Artificial Intelligence: A Game-Changer for Corporate Space

Thanks to vast amounts of available data and an evolved computational infrastructure, AI is fundamentally changing the way organizations plan and manage their real estate and facilities.

Pranav Tyagi, Founder, President & CEO, Tango (Q3 2019)

The competition for Amazon's second headquarters was fierce. While the exact reasons for the tech giant's decision to select Queens, N.Y. — a decision that was ultimately reversed — and Arlington, Va., were never officially disclosed, access to a large pool of qualified talent; a superior infrastructure that could accommodate 50,000 employees; the incentives each city was providing; and regulatory considerations were all definitely top of mind.

The ability for an organization to select the right locations — and then create the right space to both maximize usage and engage employees — continues to grow more challenging as the cultural paradigm shifts away from the traditional modes of working. Due to the increasing number of employees working from home and the desire by younger generations for streamlined space, corporations' approach to how they select and curate the workplaces and workspaces for their employees is not as simple as it once was.

What's more, finding and planning space has been compounded by the myriad sources of data that go into these decisions — from economic, labor force, education, incentive, crime, and cultural data that point to what city is the best fit for an organization's needs, to the utilization, facilities inventory, sensor, and beacon data that drive decisions about how to optimally plan and use each space.

Applying AI to real estate helps companies quickly incorporate new and broader sets of data to uncover non-linear relationships and understand rapidly changing interactions between people and places — or, in the case of office space, employees and their workspaces. In no small way, AI is fundamentally changing the way organizations plan and manage their real estate and facilities.

While talk of commercial uses of AI goes back several decades, we are just now finally equipped to harness its power, thanks to the near limitless amounts of data and evolved computational infrastructure — and companies are flocking to it. The rise of AI as a commercial tool continues to grow exponentially, and the numbers don't lie: the estimated impact of AI totals \$3.5 trillion to \$5.8 trillion across all industries. In the case of commercial real estate, the growth in varieties and types of data across the real estate and facilities lifecycle — whether it's demographic, geospatial, employee, customer, lease, or asset — has enabled bolder algorithms to tackle more ambitious problems and garner new insights.

What does AI bring to corporate real estate that's such a game-changer? The near real-time flow of available data allows for a continuous recalibration of models and ensures organizations are able to make the best decisions about both where to locate and how to optimize new spaces based on the latest information, rather than information that is six months old. As things change, and as new data becomes available, AI-fueled models deliver better performance and interpretability.

As for precision, it goes without saying that these types of models are highly accurate because they're able to discern

relationships in these mountains of data that were previously impossible to see through traditional techniques or human observation. Now, all these decisions can be made faster — which appeals greatly to corporations reassessing their physical footprint to reduce occupancy costs and improve worker productivity and employee satisfaction. In the past, analytical solutions for optimizing workspace would take weeks, sometimes months to implement. Now, designing the layout of the workspace of the future can be achieved in a few days — or less. This is particularly exciting when you think about the quantum of problems that we are trying to solve from a real estate perspective.

As things change, and as new data becomes available, AI-fueled models deliver better performance and interpretability. Another driving factor behind AI's immense popularity as a commercial tool is computational infrastructure speed, availability, and sheer scale. The computational framework that can unlock AI's full potentiation has a few key characteristics. First, it must be scalable. AI can enable more questions to be asked in a shorter amount of time, so something that takes weeks can be reduced to hours or minutes. Then, the infrastructure must be highly adaptable. Every time there is a new business question about an organization's workspace needs, there is no need to go back to the drawing board and redo everything that has been done in the past. Instead, the techniques should be adaptable and reusable across multiple business-use cases.

What Does This Mean for Site Selection?

While not all organizations are the world's largest online retailer searching for new headquarters, the determination of where to put a new office, or relocate an existing one, involves a complex set of decisions and includes a hierarchy of criteria. Those criteria likely include the labor pool, transportation, crime statistics, the presence of specific educational institutions, incentives offered by a particular city or state, and regulatory issues, among others. If an organization plans to relocate to a new city and hopes its employees will consider the transfer, the cost of living for them must also be considered, including real estate prices.

The ranking of the criteria also depends on what type of location is being sought. Determining what is most important will depend on the utility of the new facility — be it a new headquarters, data center, or warehouse or distribution center. It's a multi-dimensional problem and thus requires advanced technologies and techniques. So, how is a company supposed to look at these criteria — each with its own unique set of data behind it — and make the best decision? By leveraging traditional knowhow and techniques along with the advanced capabilities of artificial intelligence, models can be combined on an individual criterion based on rank order to help decide whether a new location — or new city — would best meet an organization's requirements. Starting with macro models to assess individual markets or cities and then honing into individual locations within the specified geography, AI-fueled approaches help organizations make faster, more informed decisions.

Once an organization has identified a location, how can it make sure the new space is configured in a way that balances employee requirements and protects the bottom line by ensuring optimal space utilization? Weaving employee satisfaction into the plans is essential as the nature of work and the corporate workplace are undergoing revolutionary changes. Employees are demanding better experiences, which directly affects an organization's physical footprint. Working remotely, co-working, collaborative workspaces, and hoteling are all contributing to a new perspective on how organizations utilize space.

The New Way of Doing Things

Recently, CB Richard Ellis completed their 2019 Occupier Survey, and it provides illuminating stats about today's corporate real estate strategy. According to the CBRE survey, one of the top priorities for organizations is the alignment of corporate real estate with overall corporate goals. Tellingly, the CBRE study reports that 68 percent of the survey respondents see employee engagement as a key part of their real estate strategy. Now, compare these statistics with other findings that show Gen Z and millennial workers overwhelmingly gravitate toward companies that offer them the flexibility to work on their terms, whether that's working remotely or in an office designed for collaboration and communication, and the necessity for informed workspace design becomes apparent.

To create an office space that will attract the best of this new generation of workers, organizations need to understand the space they have — which inevitably brings them to the time-consuming and costly challenge of polylining their existing space. Whether complying to the BOMA, IFMA, or the more rigorous OSCRE standards, polylining can be a monumental task. The technical requirements make polylining very labor-intensive, becoming

more complicated with each new style of building.

Typically, a CAD operator can manually polyline 25,000 square feet of space per day. That may seem efficient, but if the new corporate office is one million square feet and requires re-polylining, it will require a significant amount of time and energy to complete this task. Performed manually, it will likely take a month to complete this job, even with a highly trained resource.

In no small way, AI is fundamentally changing the way organizations plan and manage their real estate and facilities. Currently, there are tools that can recognize spaces and polyline them to 90 percent accuracy — and, because they leverage AI and machine learning, they learn and improve in accuracy over time. This type of AI-fueled software recognizes more than just the boundaries of offices and cubicles; it can discern columns, windows, shapes, specific types of walls, and so on. As the algorithms are fed more and more data, their polylining capabilities evolve and improve. Instead of starting with a blank slate and drawing an entire office building's polyline by hand, these next-generation systems can dramatically improve speed, accuracy, and productivity.

But wait — some organizations aren't looking to get bigger. As more employees opt to work remotely and companies are left with a landscape of unused cubicles and offices, a space reduction may be in order. For example, if an organization has nine floors in a building and wishes to reduce this to eight floors, AI-based systems can reassess the office's physical footprint by optimally redistributing employees from floor nine into the lower floors' space. To achieve this, AI informed analyses may find that a particular department might be best split between floors. Conversely — and this is where the human element comes into play — if achieving maximum productivity and having people co-located as much as possible is the goal, leadership may decide to keep the department on one floor and reconfigure the algorithm for an alternate solution.

The application of AI also helps overhaul traditional wayfinding methods and puts the power of office navigation in the push of a button. Traditional wayfinding has always been based upon a significant level of manual effort and has been difficult to implement. These traditional methods typically required either people walking an organization's hallways or utilizing a constellation of expensive sensors. Now, thanks to AI, algorithms can quickly and easily decipher the optimal path between two points. Utilizing AI-empowered wayfinding can give a corporation substantial cost reduction and usability enhancement benefiting both their budget and employees. Imagine the savings and benefits to a global organization deploying this algorithm across all their international locations.

The concept of space optimization has been around for as long as office space has existed. It is essential for an organization to ask, "What's the optimal way of distributing my workforce in my available space?" When AI is applied to space optimization, balancing space for current departmental and individual needs is synthesized into one high-powered algorithm. This is becoming even more important as the types of space available continue to diversify. These new modes of working make this problem an even more interesting one, particularly as organizations evolve, grow, and move from one space to another. Leadership must keep answering these questions.

And the answers are easier than expected, because the data is already there through the normal work of tracking information in a space planning solution — including information collected through surveying departments about their long-term needs, or other inputs. By leveraging the power of AI, space planning tools can create a variety of scenarios, each optimized for an organization's critical requirements.

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