



NEW YORK
BUILDING
CONGRESS



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ASCEND 2019

NYC'S BUILDING INNOVATION CONFERENCE

ASCEND TO ACTION

On Friday, June 14, *ASCEND 2019: NYC's Building Innovation Conference* explored ways to reach new heights and build smarter, faster and bolder in today's construction environment.

LETTER FROM THE LEADERSHIP



When the New York Building Congress' Council on Innovation & Best Practices was formed in 2014, its charge was to identify, evaluate and offer recommendations and best practices throughout the building industry with the goal of improving how New York City's built environment is designed and constructed. The Council's subsequent report in 2016, *Building Innovation*, offered practical deliverables related to building technology and project delivery, government procurement and procedures, workforce development, product and process innovations, site management and stakeholder communications.

Building upon these recommendations, the Council began working in 2018 to plan an annual thought leadership event designed to further position the Building Congress as a leading convener in New York City's innovation ecosystem. Differentiating the event among other conferences, the two-fold objective aimed to: (1) prioritize best-in-class content focused on the future of building innovation and, (2) develop tangible actions and applications that could drive New York Building Congress' advocacy efforts in the building innovation space for the future.

Following a series of focus groups held by the Council and the New York Building Congress Young Professionals Committee, key themes began to emerge as priority topics, ranging from how to overcome regulatory and procurement issues to the need to further develop and diversify the industry workforce. With these themes identified, the agenda and overall objective quickly took shape – to explore ways to build smarter, bolder and faster in today's construction environment.

The product resulted in our first ever innovation and technology conference – ASCEND 2019. ASCEND provided an opportunity to convene frank and honest discussions about ways to drive real change for the future. In addition to highlighting the regulatory roadblocks that are faced by those in the industry, speakers and attendees took a critical look inward. The slow and costly nature of construction has as much to do with burdensome government regulations as it does with the unwillingness to change long established habits.

While other industries see innovation as a fact of doing business, the building industry has been slow to adopt new technologies and practices on a

broad scale – that changes now. ASCEND 2019 and the ASCEND to ACTION report offer a springboard to shift the culture of this industry and set a course for the next 50 years of innovation.

Though it has already begun, this culture shift will not be driven by the current generation of industry leaders – it is up to the next generation and the newest wave of young professionals. Our call to these young professionals is simple: challenge the status quo, embrace best practices from around the world and be daring enough to implement new ideas and technologies. For everyone else, take every opportunity to support and encourage their growth, professional development and leadership as we push the industry forward.

Thank you to the inspiring speakers, attendees and dedicated industry professionals who made ASCEND 2019 a success. Their leadership and commitment to our industry are, in and of themselves, a model we can all strive to emulate.

Very truly yours,



Carlo A. Scissura, Esq.

*President & CEO
New York Building Congress*



Milo E. Rivero, Ph.D., P.E., CCM

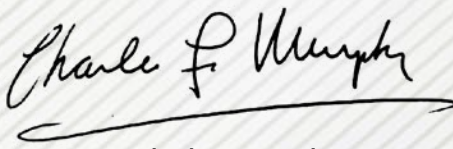
*Chairman, New York Building Congress
President & CEO, STV Group, Inc.*

Council on Innovation & Best Practices Co-Chairs:



Carl Galioto, FAIA

*President
HOK*



Charles F. Murphy

*Senior Vice President
Turner Construction Company*



Thomas Z. Scarangello, P.E.

*Chairman and CEO
Thornton Tomasetti*

ABOUT THE CONFERENCE

On June 14, 2019 at The Times Center in Manhattan, the first annual ASCEND conference convened over 300 of the leading names in the building, design, construction and technology industries. The day's agenda was broken up into three sections, each with an opening keynote speaker, followed by a case study and/or panel response that sought to address questions related to:

SMARTER: *Building for the Future*

- What are the technologies with the ability to transform the way we build?
- How to ensure more sustainable and resilient buildings?
- How to further better project tracking and stakeholder communication?

BOLDER: *Changing Industry Culture*

- How to create an ecosystem of innovation in an industry slow to change?
- How to develop and diversify the workforce of the future?

FASTER: *Overcoming Regulatory and Procurement Issues*

- How to update the building code to remove roadblocks to innovation?
- How to facilitate better knowledge sharing between the public and private sectors?
- How to enable a more tech-enabled procurement process?





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The New York Building Congress, a broad-based membership association celebrating its 98th year, is committed to promoting the growth and success of building industry in the New York region.



The New York Building Foundation, the charitable arm of the New York Building Congress, was formed in 1998 to promote the long-term growth and well-being of the New York City building industry and the wider community through an active program of research, education and philanthropy.

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PROGRAM: SMARTER

REGISTRATION & NETWORKING BREAKFAST 8:00 AM DOORS OPEN

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BUILDING FOR THE FUTURE 8:30 AM KEYNOTE



ROHIT AGGARWALA

HEAD OF URBAN SYSTEMS
SIDEWALK LABS

BEYOND MODULAR 10:00 AM CASE STUDY

THE BLURRED LINE BETWEEN CONSTRUCTION AND MANUFACTURING EXTENDS TODAY BEYOND MODULAR BUILDING TECHNOLOGIES TO 3D PRINTING, ROBOTICS, SMART BUILDING TECHNOLOGIES AND MORE.



MODERATOR

**JENNIFER
DOWNEY**

NATIONAL INNOVATION
AND VDC MANAGER
TURNER CONSTRUCTION COMPANY



PANELIST

**NIKITA
CHEN-IUN-TAI**

FOUNDER
APIS COR



PANELIST

**DIANA
MARINA COOPER**

SENIOR VICE PRESIDENT
OF POLICY & STRATEGY
PRECISIONHAWK



PANELIST

**ROGER
KRULAK**

CEO
FULL STACK MODULAR

THE SMARTER BUILDING 10:45 AM PANEL RESPONSE

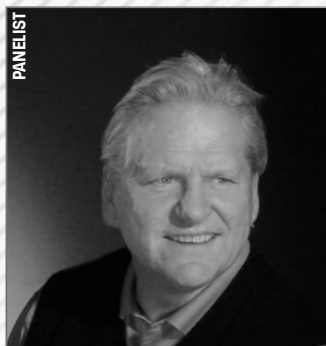
A LOOK AT THE MODERN BUILDING OF THE FUTURE – FROM SENSORS AND NEW TECHNOLOGY THAT ARE BEING TESTED TO HOW COMPANIES LIKE WEWORK ARE CHANGING THE WAY USERS OCCUPY AND OPERATE OFFICE SPACE.



MODERATOR

**K.P.
REDDY**

FOUNDER
SHADOW VENTURES



PANELIST

**JOHN J.
GILBERT III**

COO/EVP
RUDIN MANAGEMENT COMPANY



PANELIST

**NIGEL
MARCUSSEN**

VP, GLOBAL HEAD OF BUILDING
AUTOMATION
WEWORK



PANELIST

**PAT
SAPINSLEY**

MANAGING DIRECTOR CLEANTECH
INITIATIVES, ACRE/ URBAN FUTURE LAB/
POWERBRIDGE, NYU TANDON SCHOOL OF
ENGINEERING

PROGRAM: BOLDER

INNOVATING FOR CHANGE 11:15 AM KEYNOTE



PHILLIP G. BERNSTEIN, FAIA RIBA LEED AP
ASSOCIATE DEAN & SENIOR LECTURER
YALE UNIVERSITY

CHANGE IN THE C-SUITE 11:45 AM PANEL RESPONSE

WHAT ARE THE DRIVERS AND LEVERS THAT WILL HELP MOVE DECISION MAKERS TO IMPLEMENT CHANGE IN THE BUILDING INDUSTRY?
WHAT ARE THE BEST PRACTICES AROUND INNOVATION THAT SHOULD BE EXPLORED TO HELP THE INDUSTRY PROGRESS?



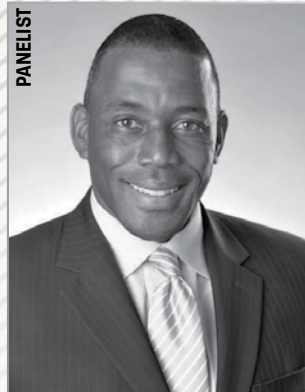
MODERATOR

**DENISE
TURNER ROTH**
CHIEF DEVELOPMENT OFFICER
WSP USA



PANELIST

**MARYANNE
GILMARTIN**
CEO
L&L MAG



PANELIST

**HENRY
KUYKENDALL**
SENIOR VP, AIRPORT
OPERATIONS – NORTHEAST
DELTA AIR LINES



PANELIST

**HEN
LOTAN**
PRINCIPAL
BCG AMBASSADOR AT THE BCG
HENDERSON INSTITUTE

NETWORKING LUNCH 12:15 PM

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PROGRAM: FASTER

OVERCOMING HURDLES TO BUILDING 1:00 PM KEYNOTE



VISHAAN CHAKRABARTI, FAIA
FOUNDER
PAU

DATA DUMP 1:45 PM PANEL RESPONSE

ALL THIS ACCESS TO DATA, BUT HOW ARE WE USING IT TO FACILITATE KNOWLEDGE SHARING AND MAKE BUILDING MORE EFFICIENT?



MODERATOR

**JIT
KEE CHIN**
EXECUTIVE VICE PRESIDENT
AND CHIEF DATA OFFICER
SUFFOLK



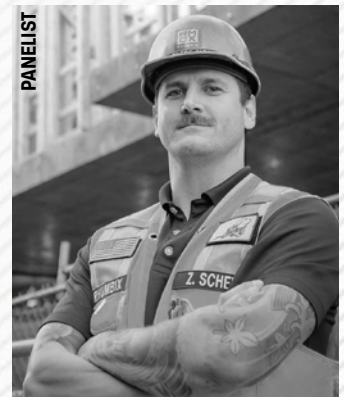
PANELIST

**CHRIS
FOREMAN**
FOUNDER & CEO
MARKETPLACE.CITY



PANELIST

**ARCHANA
JAYARAM**
DEPUTY COMMISSIONER, STRATEGIC
PLANNING AND POLICY NYC DEPARTMENT
OF BUILDINGS



PANELIST

**ZACH
SCHEEL, P.E.**
CEO
RHUMBIX





HUDSON YARDS 2:30 PM CASE STUDY



MODERATOR

**JILL
N. LERNER, FAIA**
PRINCIPAL
KOHN PEDERSEN FOX
ASSOCIATES, P.C.



PANELIST

**MICHAEL
PAQUETTE, P.E.**
SENIOR PROJECT MANAGER,
LANGAN



PANELIST

**ROBERT
SCYMANSKI, AIA,
LEED AP**
DIRECTOR
KOHN PEDERSEN FOX
ASSOCIATES, P.C.



PANELIST

**MICHAEL
J. SQUARZINI, P.E.,
LEED AP**
MANAGING PRINCIPAL
THORNTON TOMASETTI



PANELIST

**RYAN
T. STECHER, P.E.,
LEED AP**
ASSOCIATE PARTNER
JAROS BAUM & BOLLES

CLOSING REMARKS 3:00 PM



**WILLIAM
FLOYD**
DIRECTOR OF PUBLIC POLICY
AND PUBLIC AFFAIRS
GOOGLE



**MICHELLE
KAUFMANN**
ARCHITECT-IN-RESIDENCE
GOOGLE

SMARTER: BUILDING FOR THE FUTURE



To open the day, Carlo A. Scissura, Esq., President & CEO of the New York Building Congress and Milo E. Rivero, Ph.D., P.E., CCM, Chairman of the New York Building Congress Board of Directors and President & CEO of STV Group, Inc., applauded the historic use of innovation in New York's building industry and called for the sustained collaboration among its leaders in order to remain at the cutting edge. Continuing this theme, the Smarter session explored the potential of new technology and the need to implement it properly. According to Sidewalk Lab's Rohit Aggarwala, we are on the cusp of a fourth urban revolution. Preceded by the steam engine, electricity and the automotive, today is a confluence of varying technological advances from machine learning to global connectivity. It is the digital age and it will inherently alter how we plan, design and construct the urban environment.

Furthermore, for the past century, the construction process in the United States has largely remained untouched and is prime for innovation. To take that leap into the future of building, there must be cooperation between the private and public sectors in order to overcome a fear of change and to adopt new technologies that can enhance urban life. New York's Department of Housing Preservation and

“Our members are building some of the most unique and innovative projects in the world”

Carlo A. Scissura, Esq.
President & CEO, New York Building Congress

Development is working with the modular construction company FullStack Modular to develop affordable housing in Brooklyn. Saving both time and money, modular projects are designed with digital precision, manufactured offsite with standard materials and quickly assembled onsite to meet custom needs. Companies like FullStack Modular are even developing prototypes that can be assembled,

deployed and disassembled during emergency evacuations. Cities like Singapore and London are also exploring modular construction as a remedy for the housing shortage, while companies like Marriott are using it to speed up hotel construction. Similarly, 3D

printing can be used to accurately produce a house within a day and without material waste. In California, the 3D printer manufacturer Apis Cor has even helped rebuild after the wildfires by printing structures that can withstand 1,000 degrees of heat.

To facilitate the implementation of tech, there must also be communication between the building industry and policymakers. After the federal legalization of drone usage in 2016, the drone maker Precision Hawk has been able to survey construction work, access utilities and inspect building foundations across the country. More recently, the company had to advocate for the use of drones in disaster recovery. Federal laws previously restricted companies from accessing air space during Temporary Flight Restrictions (TFR) unless they received permission, which could take anywhere from 60 to 90 days. By working with the public sector and insurance companies, Precision

Hawk helped shorten this approval period to a matter of days and can now document damages for insurance claims more quickly and safely than by foot. Through cross sector collaboration, the smarter way to build is to accept burgeoning technologies and implement them to the industry's advantage.

In the same vein, sometimes the only risk in new technologies is trying something different, which companies are often hesitant to do. For example, modular construction has comparable, if not fewer, permitting restrictions in most major cities. However, it requires moving much of the construction process offsite and into a manufacturing environment where traditional work roles change. Machine learning can also be harnessed to spaces for their most efficient use. To assess the use of integrated data, WeWork

collected statistics from its facilities and asked both a team of designers and an AI algorithm to predict how frequently tenants would need a meeting room and how much AV would be required. It turns out the algorithm was 40 percent more accurate. The implication of the study is that before construction, WeWork can appropriately allocate space and technology. By taking risks and proactively integrating new building tools, the design and construction process can increase

our ability to adapt to the changing environment and predict problems before they arise.

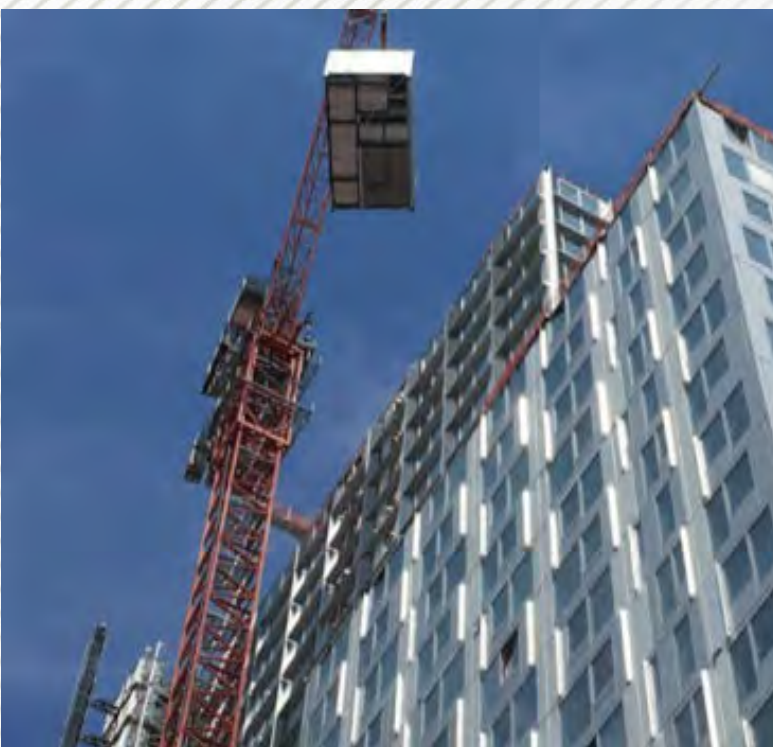
In fact, if smarter tools are not soon implemented into how architects, engineers, owners, general contractors and developers work, this fear of change may prove too costly. To counteract that reluctance, the Urban Future Lab in Brooklyn incubates cleantech startups and helps bring sustainable innovation to market. Some current

tenants include Zero Energy Solutions, that senses and automates climate control in multiroom structures, and Watchtower Robotics, that detects water leaks five times faster than other technology. Moreover, real estate management companies are already using programs like Nantum

that calculate a building's carbon production in real time and allow for building operators to adjust the following day. According to Rudin Management Company's John Gilbert, "If you are willing to pay for 10 cents a foot to save 55 cents a foot, it's a pretty good value proposition." Furthermore, potential legislation such as the Green New Deal that pushes for mandated renewable, zero energy emissions could lead to sweeping changes in how building is done. Depending on the sector, change is here or quickly coming and it is best to adopt emerging technologies with an open mind. The smarter policy is to work collaboratively and incorporate technologies that produce higher efficiencies, increase profit margins and emit a smaller environmental footprint.

The worst thing you can do is design a building that should last for a hundred years with a use that is inflexible and only suited for what is likely to be the next 10."

Rohit Aggarwala
Head of Urban Systems, Sidewalk Lab

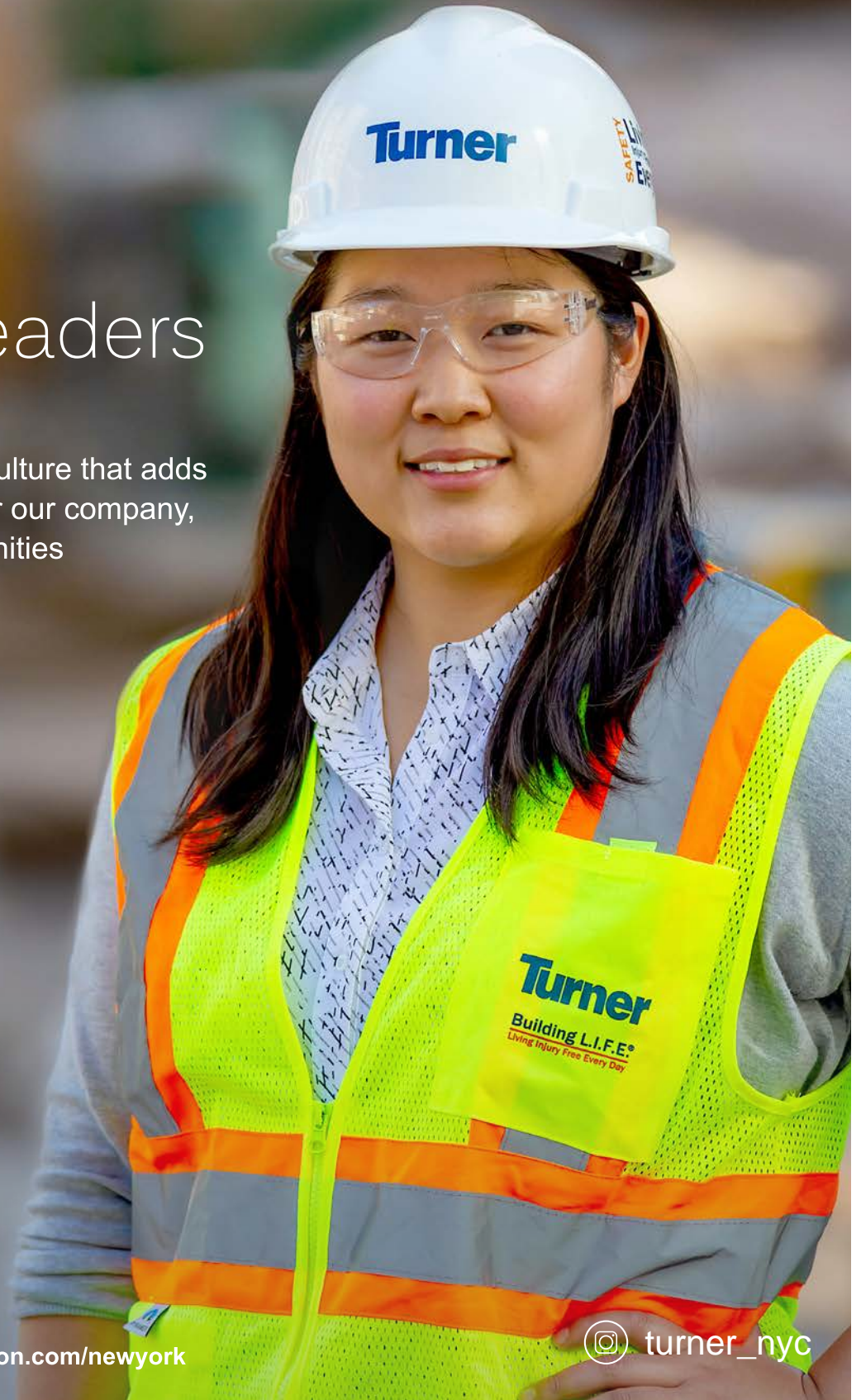


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SMARTER: IN PRACTICE

New York City's Drone Restriction

Pursuant to the NYC Administrative Code, drone usage is prohibited within city boundaries. When the law was written nearly 70 years ago, it was to protect against the operation of large manned aircrafts, but today, the antiquated legislation is slowing the building industry's progress. Without the ability to use drones for progress tracking, site planning, quality control and risk mitigation, among other functions, New York jeopardizes its global standing.

NYC Administrative Code § 10-126c Take Offs and Landings:

It shall be unlawful for any person [n]avigating an aircraft to take off or land, except in an emergency, at any place within the limits of the city other than places of landing designated by the department of transportation or the port of New York authority.



SMARTER: MODEL

Toronto Tomorrow: A New Approach for Inclusive Growth

With a firm belief in the realization of a smart city appropriate for today and tomorrow, Sidewalk Labs redesigned Toronto's eastern waterfront using the following urban innovations:

Buildings

- Radical mixed-use capable for around-the clock activity
- Flexible typologies with an adaptable mix of buildings and uses
- Regulatory frameworks with simplified, highly responsive rules
- Construction technologies in digital modeling and robotics
- Material innovation focusing on locally sourced mass timber

Mobility

- New light rail network running through the district
- Roads designated for walking and cycling
- Underground automated freight tunnels to help keep trucks off local streets
- Mobility as a service through which one can access all modes of transit for one price
- Dynamic management of streets that keeps traffic moving



Public Realm

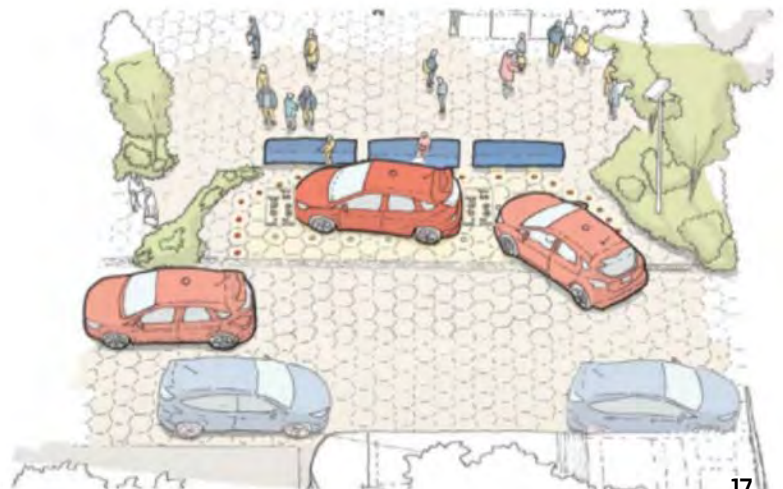
- New streets designed for the pick-ups and drop-offs of autonomous vehicles
- Integration of streets and ground-floor retail that enables more public activity
- Weather mitigation strategies to allow for year-round use of outdoor spaces

Sustainability

- Passive-house buildings that are energy efficient
- Digital management tools to eliminate energy waste in buildings
- District-wide heat recovery and exchange to reduce the need for natural gas
- Customer-integrated power grid design with real-time pricing
- Customer feedback on waste generation to help divert from landfills
- Actively managed water systems to protect water quality

Open Digital Infrastructure

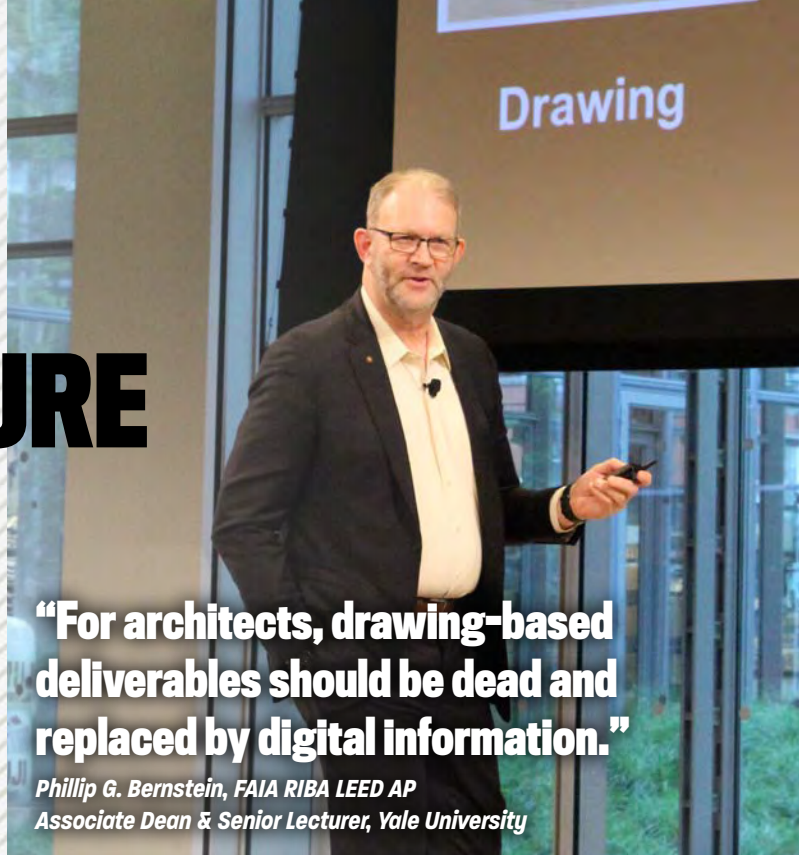
- Ubiquitous internet connectivity to bridge the digital divide
- Data use guidelines and process to make data accessible and protect privacy
- Digital services to improve the quality of life for residents and workers



BOLDER: CHANGING INDUSTRY CULTURE

In an industry slow to change, risk and diversity are tantamount to success. Beginning with Phillip Bernstein, an architect and professor at Yale University, the BOLDER session concentrated on redeveloping the building industry's business model and workforce in order to advance productivity and the value of design and construction. Traditionally, architects and contractors have made drawings on paper (often with CAD) and sold their services to clients based on estimated cost and hypothetical results. Modern technologies—from Building Information Modeling (BIM) to artificial intelligence (AI)—make it possible for today's deliverables to be predictive, predicated by dynamic, outcome-based models.

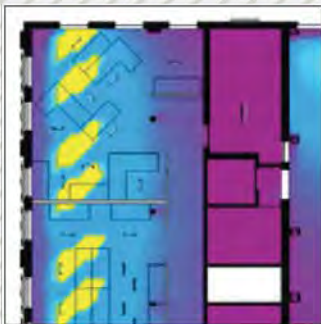
By feeding data into these digital systems, innovative design and construction methods can be systematically tested before ever breaking ground. Today, building energy usage, occupancy patterns, structural behavior and other performance characteristics can be modeled and these



“For architects, drawing-based deliverables should be dead and replaced by digital information.”

*Phillip G. Bernstein, FAIA RIBA LEED AP
Associate Dean & Senior Lecturer, Yale University*

capabilities will increase to other building characteristics in the future. While technology should not replace human efforts, it will enhance the designer's ability to project outcomes. Moreover, the power of prediction will allow good design to deliver on the fundamental aspirations of building – social values like economic performance, tenant satisfaction and occupant health. These approaches comprise a new value proposition for the building industry.



1. Daylight



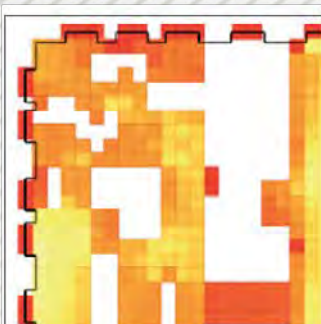
2. Low Visual Distraction



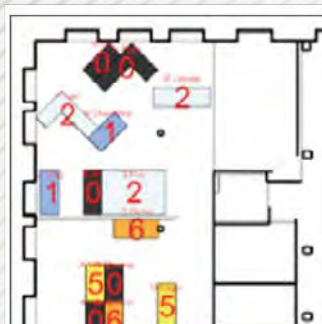
3. Views to Outside



4. Adjacency Preference



5. Circulation



6. Work Styles



7. Low Acoustic Distraction



8. Low Density

However, change does not begin with technology, but rather with people who question industry assumptions. Coming from a range of social and cultural backgrounds, people with a diversity of ideas encourage innovation by avoiding a groupthink mentality and by more critically examining decisions. For that reason, after experiencing a lack of diversity in real estate, MaryAnne Gilmartin cofounded the development firm L&L MAG to ensure the people building cities are reflective of those who live there. For Henry Kuykendall, Senior Vice President – Airport Operations, Northeast at Delta Air Lines, the development of a diverse workforce begins by hiring from a wide net of candidates with the same vigor as the tech industry.

An aware and energetic approach to employee engagement helps companies attract and retain the new generation of young professionals that craves a sense of belonging and changes jobs

more than ever before. Additionally, to engage both millennials and older generations, mentorship is necessary as it allows for reflection on the past and empowers others to join the conversation. On a larger scale,

employee surveys can be used to foster a culture of trust and respect. Delta even boasts a consistent 80 percent participation rate among its tens of thousands of employees when conducting internal surveys.

When companies create lines of communication between leadership and employees, they facilitate an inclusive environment supportive of proactive change and bold actions. The answer to change is not always a physical building or a new technology, but an intangible culture around how building is being done.

“As a CEO, my job is to build great people that will build great things”

MaryAnne Gilmartin
CEO, L&L MAG



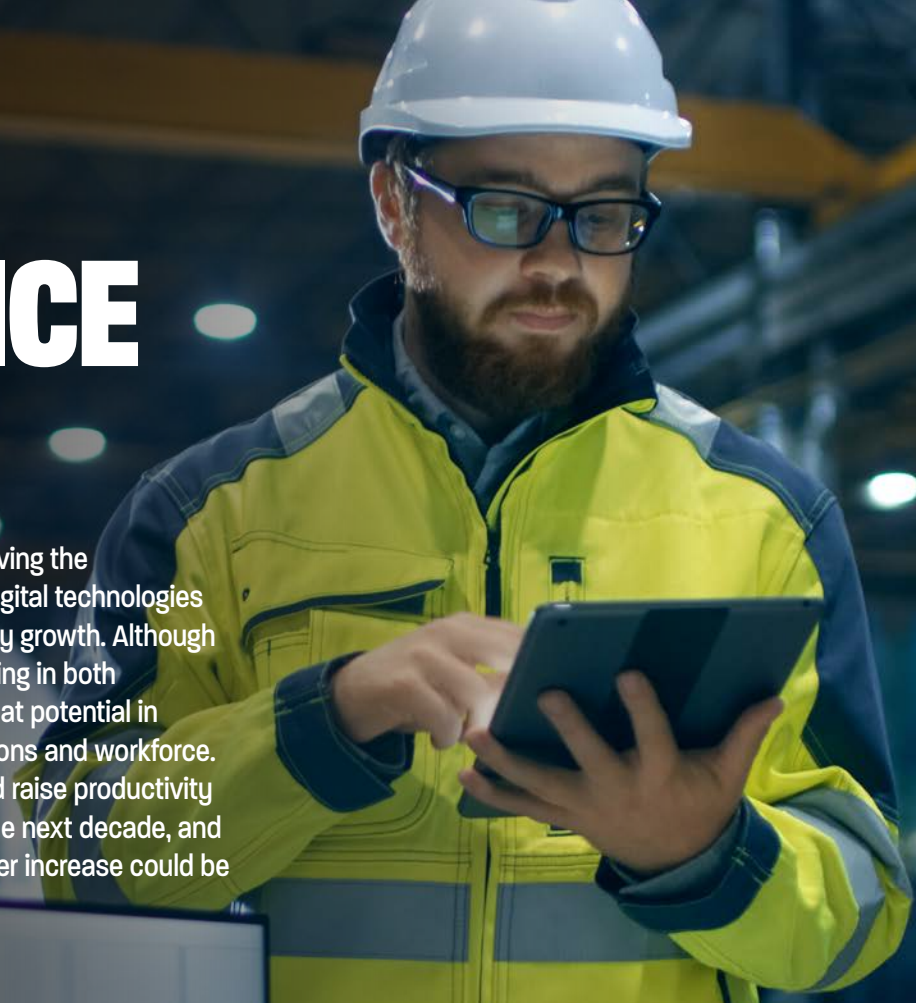
“Diversity isn’t just race or skin color ... it’s diverse ideas”

Henry Kuykendall
SVP – Airport Operations, Northeast, Delta Air Lines

BOLDER: IN PRACTICE

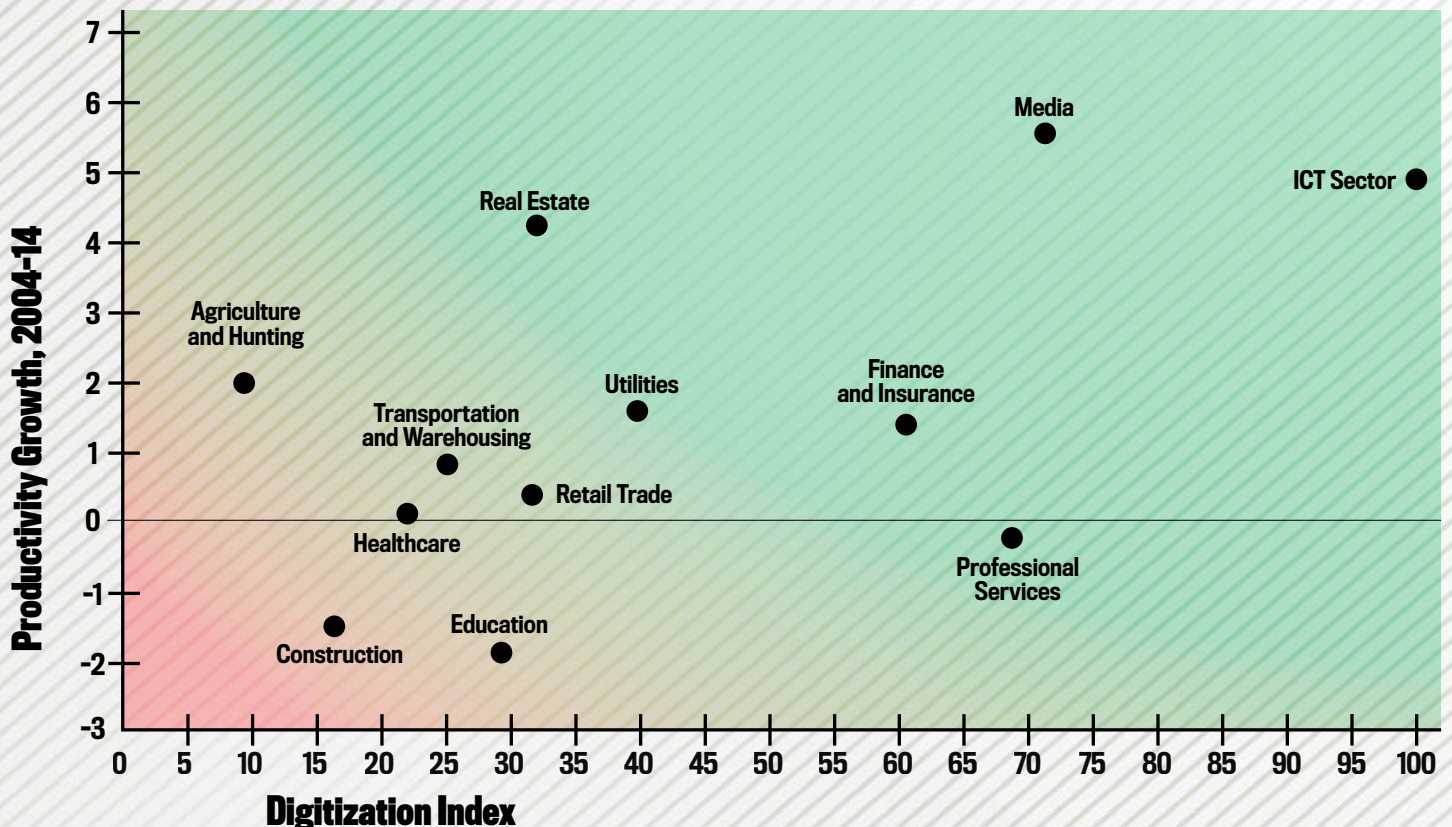
Lagging Potential in the Construction Industry

According to a study by McKinsey, Solving the Productivity Puzzle, adoption of new digital technologies is positively correlated with productivity growth. Although the construction sector is notably lagging in both categories, this also means there is great potential in digitizing the industry's assets, operations and workforce. Moreover, it is estimated the shift could raise productivity in construction by 14 to 15 percent in the next decade, and as business models change, the broader increase could be as much as 50 to 60 percent.



Digitization is Happening Unevenly Across Industries and is Linked with Productivity Growth.

Solving the productivity puzzle, McKinsey Global Institute, McKinsey & Company 2018





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BOLDER: MODEL

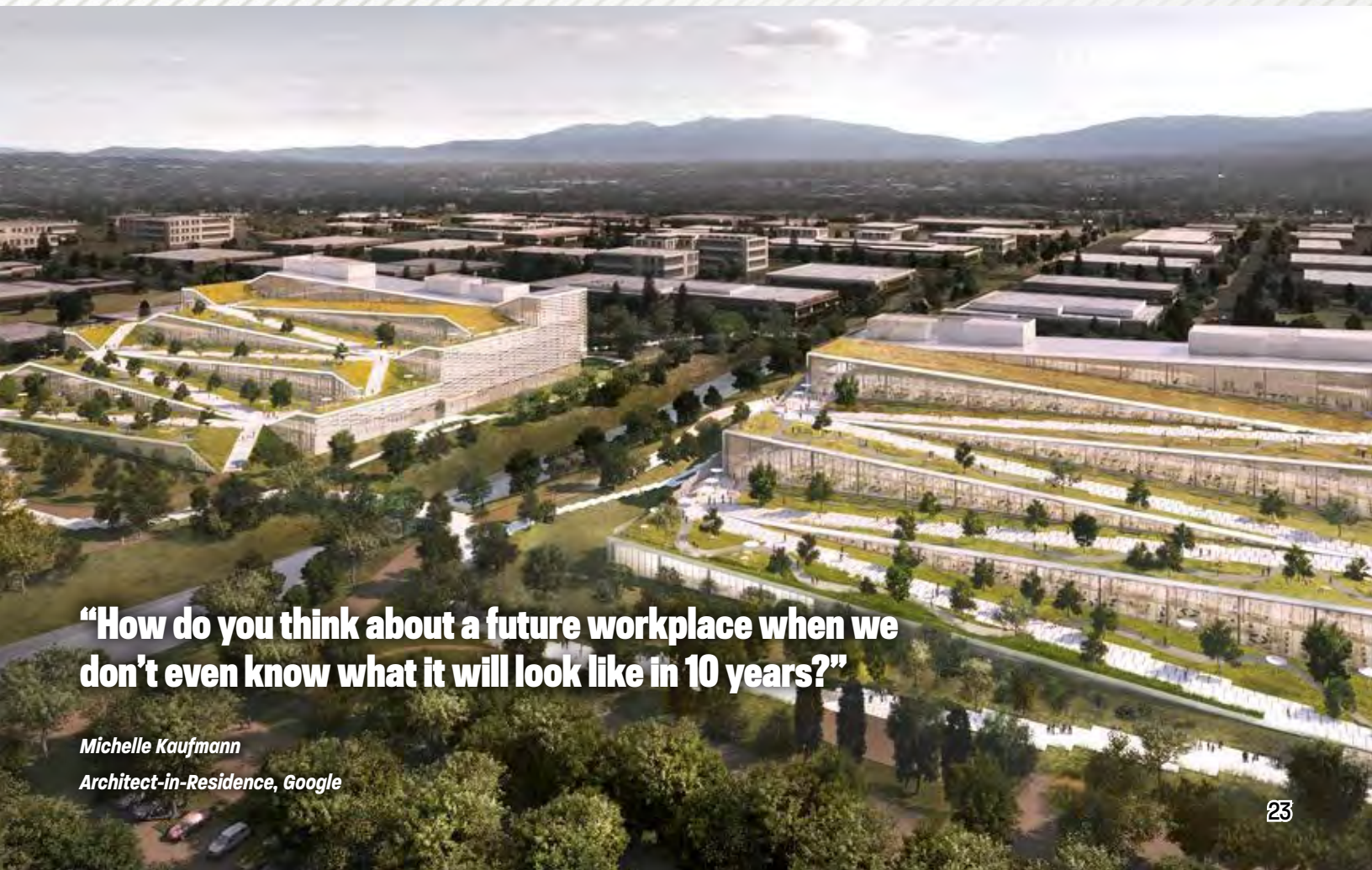
Google's Charleston East and Sunnyvale Campuses

Reflective of its innovative culture, Google's new Mountain View campus, Charleston East, is designed by Bjarke Ingles Group (BIG) and Heatherwick Studio and champions bold architecture. Its hangar-like canopy, covered in custom photovoltaic panels, regulates internal climate and still lets in light for every workstation. Moreover, with few interior supports, Charleston East's workstations and offices can be reconfigured over a weekend, a task which traditional drywall would not allow. Particularly in tech, as the size and needs of teams change, spaces must evolve just as quickly from an open testing ground to a pod of desks. Google must also manage how a campus with thousands of employees can still feel intimate and foster collaboration. Therefore, there are custom courtyards where each team can display its own identity while being connected to the broader community.

To ensure these flexible spaces perform through a range of uses and layouts, Google went through an iterative R&D process before finalizing the design. Designers and

architects in a sound lab used virtual reality to move through the space testing potential floor plans and mapping acoustics. They also measured circulation patterns, daylight and window views.

Using these same principles, Google and BIG are working on another campus in Sunnyvale with massive sloping roofs that form ramps for employees to walk, bike or even skateboard between levels. The landscaped roofs also include meeting spaces and cafes so that occupants can always be connected to the outside. Additionally, the buildings will have all levels accessible from the exterior, allowing future adaptability to other potential uses. Like Charleston East, the stepped terrace pattern has been tested in virtual reality for its user experience — from its soundscape to its circulation patterns. Through new ways of spatial modeling, Google has proven that bold designs can deliver on their promises and that a building's structure does not limit its use.



“How do you think about a future workplace when we don't even know what it will look like in 10 years?”

Michelle Kaufmann

Architect-in-Residence, Google

FASTER: OVERCOMING REGULATORY AND PROCUREMENT ISSUES

At the intersection of technology and culture is quality. During the last session of the conference, the conversation around building faster evolved into one of building better. Vishaan Chakrabarti, founder of the Practice for Architecture and Urbanism (PAU), challenged that speed inhibits creativity and leads to processed cities, mass produced urban environments lacking human-scale and place-based design. As a result, while the iconic architecture of old cities like Paris and Rome are celebrated and visited en masse, the cities of today are sterile. From New York to New Delhi, there are now generic glass towers that unimaginatively conform to building codes, which were implemented to protect against prior actions that disregarded the human aspect of the built environment.

Instead of lamenting the slow nature of construction and focusing on overregulation, Chakrabarti argues the building industry should design solutions. Rather than perpetuate current ADA requirements, the industry could expand R&D efforts to support the production of wheelchairs able to climb stairs. In lieu of seas of asphalt built for the turn radius of a firetruck, the industry could promote more efficient use of space and the adoption of drones to fight fires. Moreover, design innovation in New York is increasingly needed to counteract the city's zoning limits. As the effects of the Bloomberg era rezonings begin



“If you want to understand why there's a regulatory overreach of our industry, you have to look in the mirror”

Vishaan Chakrabarti, FAIA, Founder, PAU

to subside, the building industry will see more rigid building envelopes that slow production.

Given these regulatory roadblocks, it is most important that buildings should be unique, responding to a locale's cultural climate and incorporating community input. PAU

is using this approach in its adaptive reuse of the Domino Sugar Refinery and in its local outreach for the Sunnyside Yard masterplan. For Chakrabarti, the building industry's end goal should be a “global village,” where one can satisfy basic needs by walking and be connected to a distributed network of neighborhoods. In other words, cities and

those building them should be informed by the actions and needs of those living there.

To facilitate this type of development, knowledge sharing is necessary to reveal urban patterns and prevent misinformation that may skew good development and policy. Increasingly available, urban data can communicate how space is used, what technologies are most effective and how to plan accordingly. Yet in an age of big data, the

“As a regulatory industry, we have massive amounts of data and it's not our data ... it's your data”

*Archana Jayaram
Deputy Commissioner, Strategic Planning and Policy NYC
Department of Buildings*

copious amounts of information must be made accessible and user-friendly. In the case of New York City, the Department of Buildings (DOB) collects information on more than one million buildings in the city, but that data is trapped in a 30-year-old mainframe system. While much of it has been made public, the agency is still developing a platform with an easy-to-search interface and customizable notifications when new datasets are uploaded. The future of open data will mean improved government accountability and increased collaboration within government and with other sectors.

When private or sensitive information is present, data sharing between relevant parties is still possible through forums like Marketplace.city, which was developed in New York to break down procurement barriers. Now from Austin to Tel Aviv, when city leaders want to adopt a new technology or product, they can access vendor reviews from previous customers and potentially bypass the RFP process altogether. This decreases redundancy in data collection and makes it easier to evaluate past decisions. In complicated cities, building faster requires information and building better requires learning from that information.



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FASTER: IN PRACTICE

Responsible Data

Although the large-scale collection and accessibility of data promises a future of collaboration, speed and innovation, it carries ethical implications surrounding data privacy and protection. As such, data use must be cautiously approached with consideration of questions such as:

- Who sets the standards for data management? Who regulates its use?
- Who owns data? How should it be priced?
- How should data be collected? For what should it be used?
- What interests are represented? Who is excluded from the decision-making process?

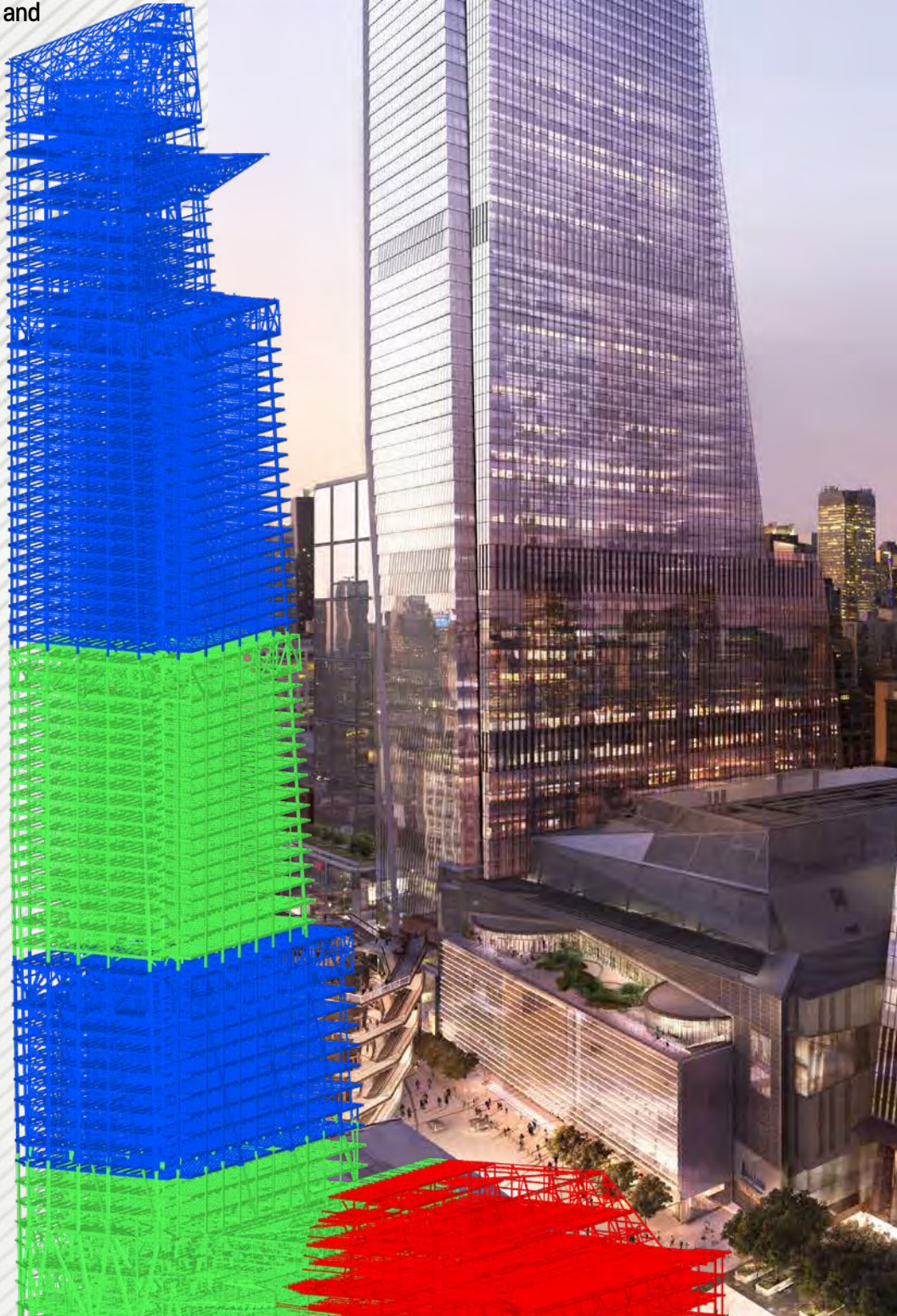
FASTER: MODEL

Hudson Yards Case Study

Comparable to Battery Park City, which took 45 years to complete, Hudson Yards is set to be finished by 2026 — a mere 20 years from groundbreaking — and is the largest private real estate development in U.S. history. Overseen by Related Companies with Oxford Properties Group, the process of developing a new neighborhood over rail tracks required coordination between a diverse set of architects, engineers, city agencies and transit providers. To achieve this level of speed and collaboration, Hudson Yards has been defined by a can-do attitude and willingness to take risks.

Starting at the platform, Langan used an advanced load testing program to demonstrate that the site's foundation could support weights beyond what the building code typically allows. By pushing on regulation, the company saved the project six months of construction time and decreased the amount of rock drilling by 30 percent. It also developed the platform in a checkerboard-like pattern that permitted continued use of the Amtrak and Long Island Rail Road tracks. Meanwhile, Jaros, Baum & Bolles had weekly meetings with varying city agencies to incorporate Hudson Yards into the electrical grid and to keep the project moving.

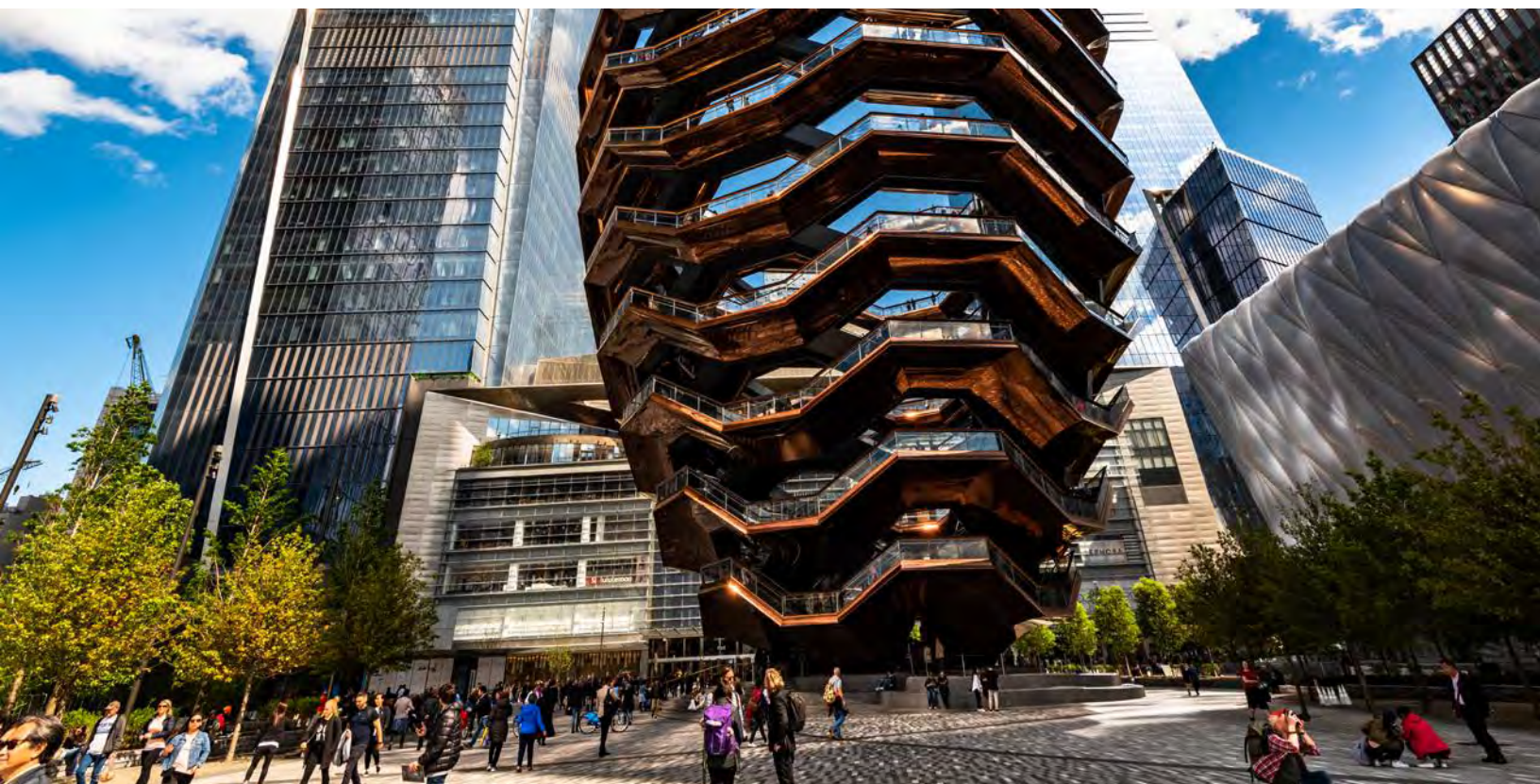
With the foundation handled, others explored how emerging technologies could inform the site's skyline. For Kohn Pedersen Fox Associates's Bob Scymanski, this meant moving past his initial hesitation and using BIM to integrate Hudson Yard's architectural and MEP systems into one model. BIM allowed the team to analyze real-time 3D visualizations and more quickly solve problems.





“I was hesitant to take BIM on in 2011. In retrospect, we never could have done Hudson Yards within the time period we did without it.”

Robert Scymanski, AIA, LEED AP, Director, Kohn Pedersen Fox Associates, P.C.



At the same time, Thornton Tomasetti contracted with four different steel fabricators for the structural design of 30 Hudson Yards. The firm ensured one director oversaw the design and construction process so that the custom steel parts coming from across the world could be seamlessly assembled together. Similarly, the Vessel's pieces were constructed and twice assembled in Italy before arriving in New York to address potential issues in advance and reduce onsite work. Now a concrete example of what thoughtful risks and persistent collaboration can accomplish, Hudson Yards is just one opportunity for New York to be the leader for the global building industry.

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OUR ACTION AGENDA

The Action Agenda offers a springboard for the New York Building Congress, our members and the building industry to adopt new ideas and methods on a broad scale. The wide-ranging initiatives will promote construction innovation and substantially change the way New York City builds.

Modern Construction Materials and Methods

- Legalize drone use for construction in New York City to increase efficiency and safety of dangerous and time-consuming inspection work.
- Permit mass timber buildings and other sustainable materials that are currently restricted by New York City's building code.
- Explore incentive programs that make it financially feasible for developers to implement new building technologies, like ubiquitous internet connectivity, that ultimately save money.
- Increase use of modular and pre-fabrication technologies and eliminate barriers to implementation.
- Pilot new 3D printing technology and robotics for on-site construction.



320 Wythe Avenue in Williamsburg — an example of mass timber design.

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OUR ACTION AGENDA

Sustainability and the Environment

- Fund research into cleantech, smart grid and sustainable smart cities technologies that advance a low-carbon future, while also creating jobs.
- Encourage Passive-House standards for energy-efficiency in new construction.
- Expand the use of micro-grid technology to help develop alternative power sources such as solar, wind and geothermal to lower energy consumption. Customer-integrated power grid design will also enable real-time pricing.
- Increase use of digital management tools to track energy use, manage water, eliminate waste in buildings and promote stakeholder communication.

Designs for Today and Tomorrow

- Support place-based solutions that contribute to unique urban environments that respect the history and culture of each site and incorporate design at the human-scale.
- Create dynamic spaces that accommodate evolving user needs from increasing deliveries and rideshares to traffic based on the time of day.
- Build flexible building typologies with adaptable uses over a building's lifetime.



A d-shape 3D printer, currently the largest one functioning in New York being used to build houses.

OUR ACTION AGENDA

Data for Good

- Create a civic data trust that, as an independent entity holds and distributes data beneficial to the public and protects privacy.
- Implement open data standards that can be a model for the rest of the world in the ownership, storage, management and distribution of public data.
- Advance responsible use of big data to improve predictive analytics and to reduce risk associated with design and construction.

Change from Within

- Ensure a diversity of people and ideas at every level of an organization. Working alongside people of different backgrounds, experiences and working styles can spur innovation through a mixing of ideas and partnerships.
- Collaborate early and often by bringing all project stakeholders together and giving everyone a voice at the table. There is no innovation without collaboration and mutual respect.
- Be more entrepreneurial and less risk averse by doing the upfront work to understand, manage and mitigate project risks, rather than taking the easy path and assuming the risk is too high.
- Look beyond what was done before and what was done next door when considering how to proceed on a project. The best inspiration can be found in other cities and countries as well as in other industries that can be adapted for use in New York City's building industry.



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