

MODELING WORKPLACE DEMAND

Work styles can help predict office space usage in a post-pandemic world

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The COVID-19 pandemic has forced a profound shift in cultural norms related to flexible hours and remote work. As a result, organizations of all types are trying to determine how these new patterns will affect company culture, how much office space they will need in the future, and where potential real estate cost savings could be realized.

A Workplace Demand Model that relies on Stochastic modeling to consider complex criteria – including workstyle personas – can aid in forecasting on-site demand for office space. Workstyle personas are the degree to which a role requires being on-site to effectively perform a job function, combined with other factors that may be specific to individual employees.

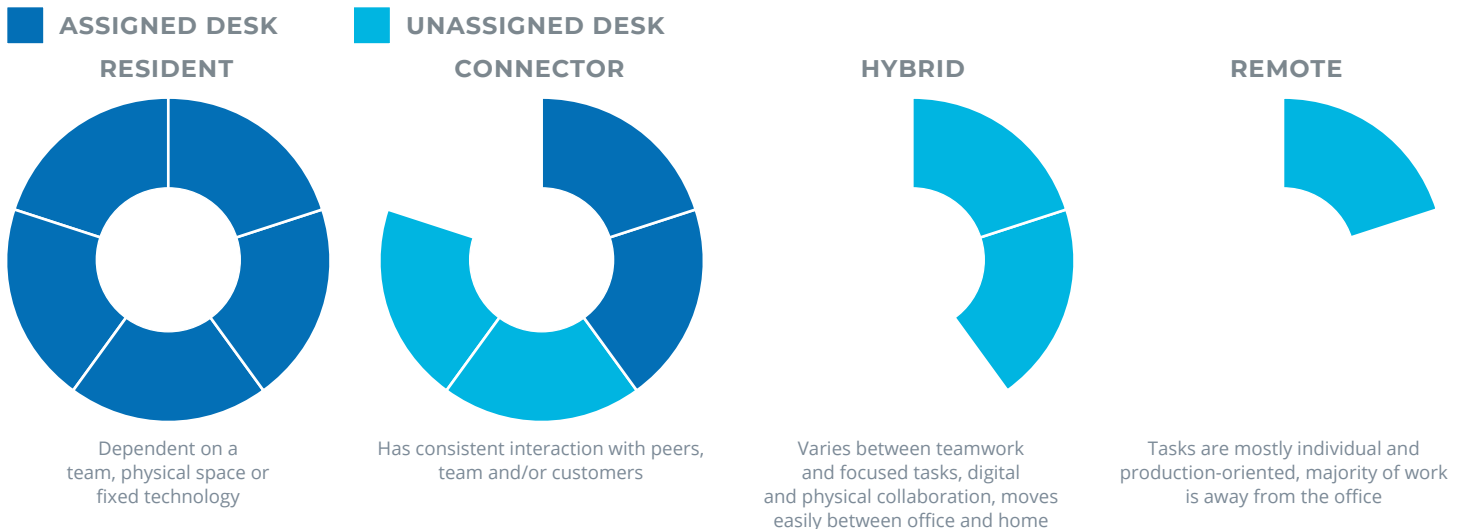
Our analysis demonstrates that adopting increased hybrid workstyle personas within an organization could reduce office space usage from 19% to 35%, resulting in significant real estate savings without compromising productivity.

ESTABLISHING WORKSTYLE PERSONAS

Different personas can perform optimally in various workplace environments. An assigned desk represents a dedicated workstation or office for an employee, whereas an unassigned desk represents a first-come, first-served workstation or office and additional workspaces such as huddle rooms and touchdown spaces.

In our model, we define four workstyle personas based on job requirements:

NUMBER OF DAYS ON-SITE



FORECASTING AMID MANY UNKNOWN

The shift toward increased remote work is still in its early stages, making it difficult to set daily and peak demand patterns for individual office space and collaborative meeting space. We don't know, for example, how individuals and departments will schedule on-site days to avoid peak overloads, whether social dynamics will affect on-site scheduling and reservations, or if increased emphasis on in-person collaboration while at the office will fundamentally alter workplace requirements.

Therefore, for each uncertain variable, we defined a statistical distribution, or range of possible values, to capture the "real" answer with high probability within a range. Using Monte Carlo simulation software, we ran the model through 20,000 iterations. In each instance a random value was selected for each uncertain input between a more certain minimum, most likely, and maximum range. The results allow us to predict the square footage requirements of any organization within a reliably accurate range.

Based on sample data gathered by Transwestern and Gensler, the Workplace Demand Model predicted that by shifting workplace personas, companies can potentially reduce their office space by 19% to 35%, compared to an environment where every employee has an assigned desk. This outcome translates to a cost savings estimate of \$1.2 million to \$2.4 million over a five-year period for a typical office user with 150 employees at \$40 per rentable square foot.

APPLYING THE RESULTS

In this model, real estate savings are derived from shifting employees from assigned seats to unassigned seats. The number of assigned desks required to accommodate Resident and Connector employees relative to unassigned desks is the critical factor in reported results. Companies that lean more heavily toward those workstyle personas may not see a substantial difference from current space usage. However, redefining seat entitlement for Connectors and adjusting how many days an employee must be on-site to warrant an assigned desk will have a significant impact on results.

Density is another influential factor to consider in the analysis. The model uses a metric of Rentable Square Foot (RSF) Per Seat to estimate how many square feet a company needs. RSF Per Seat encompasses seat type, conference and collaboration, support space, and amenity space, as well as circulation and

load factors. The Workplace Demand Model assumes minimum 6-foot spacing between workstations and minimal benching layouts. However, if social distancing concerns suggest increased spacing in both individual and collaborative seating areas, then predicted square footage savings may be offset. We might also expect with a larger Hybrid or Remote workforce that there would be an increased need for collaboration and conferencing space types in the office, which may decrease density further on an RSF Per Seat basis.

While the results of this quantitative analysis may provide a good benchmark, every organization is unique and will land on varying compositions of workstyle personas and space types. While it's important to gain feedback from an architect and design partner, employers and their advisors can use this approach to develop a detailed, integrated real estate strategy.



"If social distancing concerns suggest increased spacing in both individual and collaborative seating areas, then predicted square footage savings may be offset."

METHODOLOGY

SET DISTRIBUTION OF WORKSTYLE PERSONAS

For this analysis, we considered two data sets. The first is a recent tenant (“Example Composition”) where the preferred percentages of the employee population for each workstyle persona was defined. This may represent office-using tenants that are committed to bringing people back to the office while still accommodating flexible work schedules.

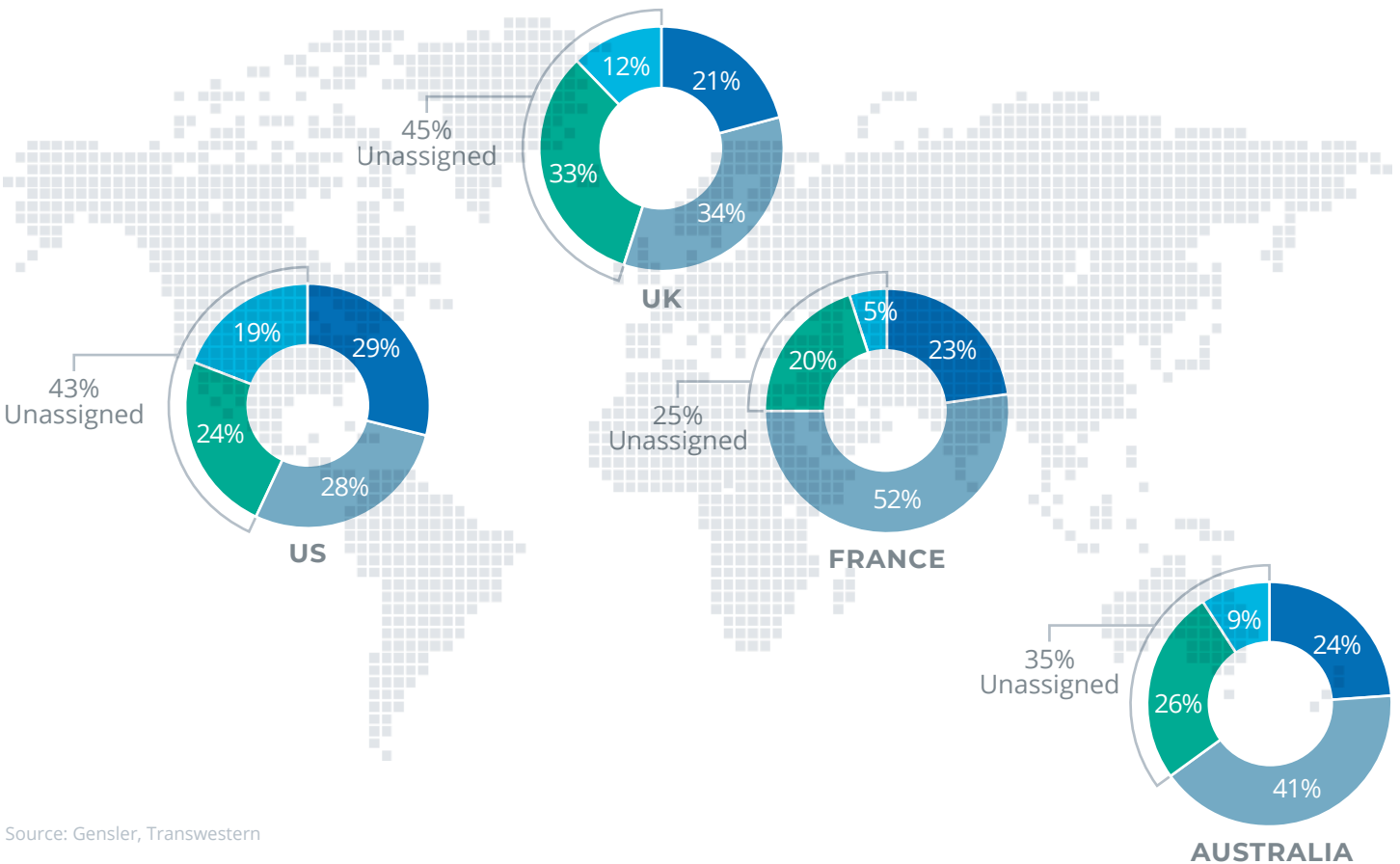
Second, we used the results from Gensler’s 2020 Workplace Surveys (“Gensler”), which included 10,000 office workers in the U.S., United Kingdom, France and Australia.

PERCENTAGE OF EMPLOYEE POPULATION BY WORKSTYLE PERSONA

PERSONA	EXAMPLE COMPOSITION
Resident	12%
Connector	60%
Hybrid	25%
Remote	3%

GENSLER EMPLOYEES’ SELF-CATEGORIZATION BY WORKSTYLE PERSONA

■ RESIDENT
 ■ CONNECTOR
 ■ HYBRID
 ■ REMOTE



Source: Gensler, Transwestern

SET MODEL VARIABLES

In addition to workstyle persona composition percentages, certain variables specific to the organization must be set to forecast office space requirements with the Workplace Demand Model. These variables typically are derived from corporate policy or goals:

- **Headcount:** For this analysis, we assumed 150 employees.
- **Vacancy Rate:** This is the number of vacant assigned desks within an office that can be relied on for internal movement, accommodating spikes in demand, and general office churn. For Resident and Connector workstyle personas, this is commonly between 5% and 15%. These vacant assignable seats in reserve may be available as “slack” for Hybrid and Remote workers.
- **Hybrid/Remote Slack Rate:** To accommodate scheduling spikes, the model allows for additional unassigned seats exceeding predicted demand. Depending on the vacancy rate for assigned seats, the slack rate for unassigned seats is set between 2% and 10%.
- **Average Days On-site:** This input represents the average number of days that an employee will be in the office per week and varies by each workstyle persona. Decimals are acceptable here as we considered a two-week period. For example, 3.5 days would equate to 7 days on-site in a 10-day work period. For Resident, this value is always 5 days per week. For Connector, the range is set between 3 and 4.5 days on-site. For Hybrid, we assumed between 1 and 2.5 days on-site, and for Remote we assumed 0 to 3 days per month.
- **Assigned Desk On-site Threshold:** This value represents the number of days an employee will be on-site to warrant an assigned desk. The model assumes if an employee will be on-site more than 3.5 days per week, or 7 out of 10 days, then they would have an assigned desk. This input is particularly applicable to the Connector workstyle persona.
- **Rentable Square Feet Per Seat (RSF Per Seat):** This is a measure of density and varies by industry. It encompasses seat type, conference and collaboration, support space and amenity space, plus circulation and load factors applied to the total net area.

RENTABLE SQUARE FOOT PER SEAT BY INDUSTRY BENCHMARKS

	200 EMPLOYEES	100 EMPLOYEES
Law Firms	313	347
Professional Services	217	240
Technology	194	222
Sales	168	199
Call Center	142	162
Average	207	234
Average w/o law firms	180	206

Note that as Hybrid and Remote workers comprise a greater percentage of employees, we may see increased demand for collaborative space relative to individual seats, resulting in higher RSF Per Seat than current industry benchmarks.

MODEL VARIABLES

MODEL VARIABLES	MIN	MODE	MAX
Vacancy (Resident-Connector)	5.0%	10.0%	15.0%
Slack Rate (Hybrid-Remote)	2.5%	5.0%	10.0%
Connector Average Days On-site	3.00	3.50	4.50
Hybrid Average Days On-site	1.00	1.75	2.50
Remote Average Days On-site	0.00	0.05	0.15
CLIENT VARIABLES	MIN	MODE	MAX
Headcount	150	150	150
Rentable Square Feet Per Seat	180	207	234
Assigned Desk On-site Threshold	3	3.5	4

RESULTS

The table below shows input data for workstyle persona scenarios: Baseline (100% assigned seating), Example Composition, and Gensler. Model variable ranges are the same for all distribution scenarios.

SURVEY COMPOSITIONS

Scenario	A All Assigned		B Example Composition		C United States		D United Kingdom		E France		F Australia	
	% Total	Seats	% Total	Seats	% Total	Seats	% Total	Seats	% Total	Seats	% Total	Seats
Resident	100%	165	12%	20	29%	48	21%	35	23%	38	24%	40
Connector	0%	0	60%	99	28%	46	34%	56	52%	86	41%	68
Hybrid	0%	0	25%	14	24%	13	33%	18	20%	11	26%	14
Remote	0%	0	3%	0	19%	0	12%	0	5%	0	9%	0
	100%	165	100%	133	100%	107	100%	109	100%	135	100%	122
Square Feet (Expected Value)	34,155		27,531		22,149		22,563		27,945		25,254	
% Reduction in Space			19%		33%		34%		18%		26%	
5-Year Savings at \$40/RSF			\$1,324,800		\$2,401,200		\$2,315,400		\$1,242,000		\$1,780,200	

SCENARIO RESULTS: PREDICTED RANGE OF SPACE REQUIREMENTS

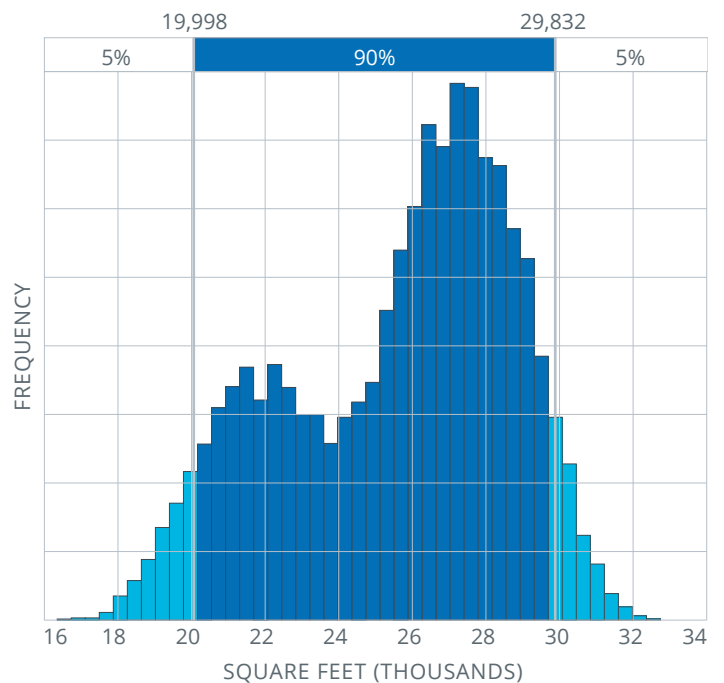


After running the Workspace Demand Model, findings for the Example Composition suggests a 90% likelihood of space required between 19,998 to 29,832 rentable square feet, with an expected value of 27,531 rentable square feet. This represents an average savings of 19% compared to an environment where every employee has an assigned desk. The histogram at right displays a bimodal distribution of outcomes showing two peaks, which is a result of a larger Connector population that hinges on an Assigned Desk On-site Threshold. The larger peak represents more employees with assigned desks, pulling the expected value higher.

CONCLUSION

Workstyle personas combined with Stochastic modeling offers a stable approach for predicting office space requirements for the post-COVID workplace.

EXAMPLE COMPOSITION



ABOUT THE AUTHORS



Chase Bourdelaise is a Managing Director in Transwestern Real Estate Services' Tenant Advisory + Workplace Solutions practice. He leads global consulting services, with a specific focus on embedding labor, location, and workplace strategies into the transaction process. He specializes in portfolio strategy, financial analysis, and delivering client-tailored solutions that align business goals and culture with real estate. Reach him at chase.bourdelaise@transwestern.com or visit transwestern.com.



Marcia Hart is a workplace consultant with over 25 years of experience in space requirements modeling and pre-lease workplace design. She is also a licensed architect and founder of Roomtag, a workplace management software company ultimately acquired by FM: Systems. Marcia earned her Master of Architecture from Harvard Graduate School of Design and a bachelor's degree from Princeton University. See workplace1080.com for more on her innovative consulting practice.



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