

Reconsidering How to Assess Office Space Due to the COVID-19 Pandemic

Assessing from Coming-to-office Ratio and "Office Space per Desk"

December 14, 2021

The rapid spread of telework due to the COVID-19 pandemic and the resulting decrease in the number of people going to the office have likely generated redundant office space and desks at many companies. While companies have traditionally assessed their necessary office space based on the number of office occupants (employees who belong to the office and are eligible to use the office), going forward they will have to reconsider the office space and improve workplace efficiency in view of a hybrid work style that combines in-office work and telework.

With this hypothesis as a starting point, Xymax Real Estate Institute ("Xymax REI") analyzed the relationship between the current coming-to-office ratio (percentage of employees coming to the office) and the office space of companies located in the 23 wards of Tokyo (hereinafter, the "Tokyo 23 Wards"), based on the results of *Metropolitan Areas Office Demand Survey Spring 2021* conducted in April 2021.^{*1} The optimal solution to post-pandemic office space will be complex, derived not only by the number of office occupants but also by the coming-to-office ratio as well as new factors according to this ratio. In this report, we provide recommendations on how companies should formulate such complex and sophisticated office strategies and overall workplace strategies according to the work styles they adopt.

*1 *Metropolitan Areas Office Demand Survey Spring 2021*, released on June 9, 2021
<https://www.xymax.co.jp/english/research/images/pdf/20210609.pdf>

1 tsubo = Approx. 3.3 sqm

Summary

1. As companies reduced their coming-to-office ratio due to the pandemic, conventional offices that were developed based on the number of office occupants are seeing a rise in redundant space and a decline in area efficiency.
2. As the number of people using the office fluctuates, we are reassessing the office space through "office space per desk" instead of the previous "office space per person" based on a new, desk-related indicator of "desks per coming-to-office person" (number of desks per coming-to-office worker), in addition to personnel-related indicators of "number of office occupants" and "coming-to-office ratio" (**Figure 1**).

Figure 1: Reconsidering How to Assess Office Space

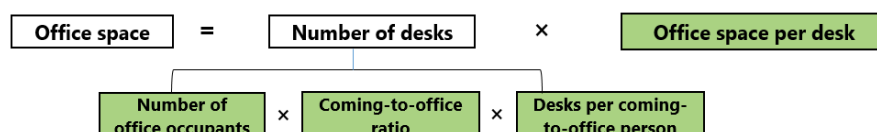
Conventional formula for office space:

$$\text{Office space} = \text{Number of office users} \times \text{Office space per person}$$

⇓

New formula for office space:

$$\text{Office space} = \text{Number of office occupants} \times \text{Coming-to-office ratio} \times \text{Desks per coming-to-office person} \times \text{Office space per desk}$$



As a basis for companies to consider their office space, we calculated the “desks per coming-to-office person” and “office space per desk” of companies located in the Tokyo 23 Wards based on the survey data.

- The office space per desk as of April 2021 was 2.86 tsubo (median value).
 - The desks per coming-to-office person as of April 2021 was 185% (median value). This means that 1.85 desks are currently provided for each coming-to-office worker. This is a relatively high level of surplus. Companies’ intended post-pandemic desks per coming-to-office person was 120% (median value).
3. Going forward, we assume that companies’ workplace strategies will become more diverse in accordance with the characteristics, work styles and management policies of each company. There will likely be two major directions in companies’ workplace measures and accompanying office space.
- Reduce space: An increasing number of companies are likely to reduce their numbers of desks in accordance with the drop in their coming-to-office ratio and reduce the space of their main office where employees congregate. However, this will not necessarily lead to a net decrease in workplaces, since many companies will try to decentralize their workplaces by providing places to work in the suburbs (e.g., satellite offices, working from home) in return for downsizing their main office.
 - Do not reduce space but expand in some cases: It is preferable for companies embracing a hybrid work style that combines in-office work and telework to increase or enhance space that has the functions of the main office and aim to create higher-value-added offices. These companies will not downsize their main office but may even expand it in some cases.

1. Assessing the necessary office space from the number of office occupants is no longer viable

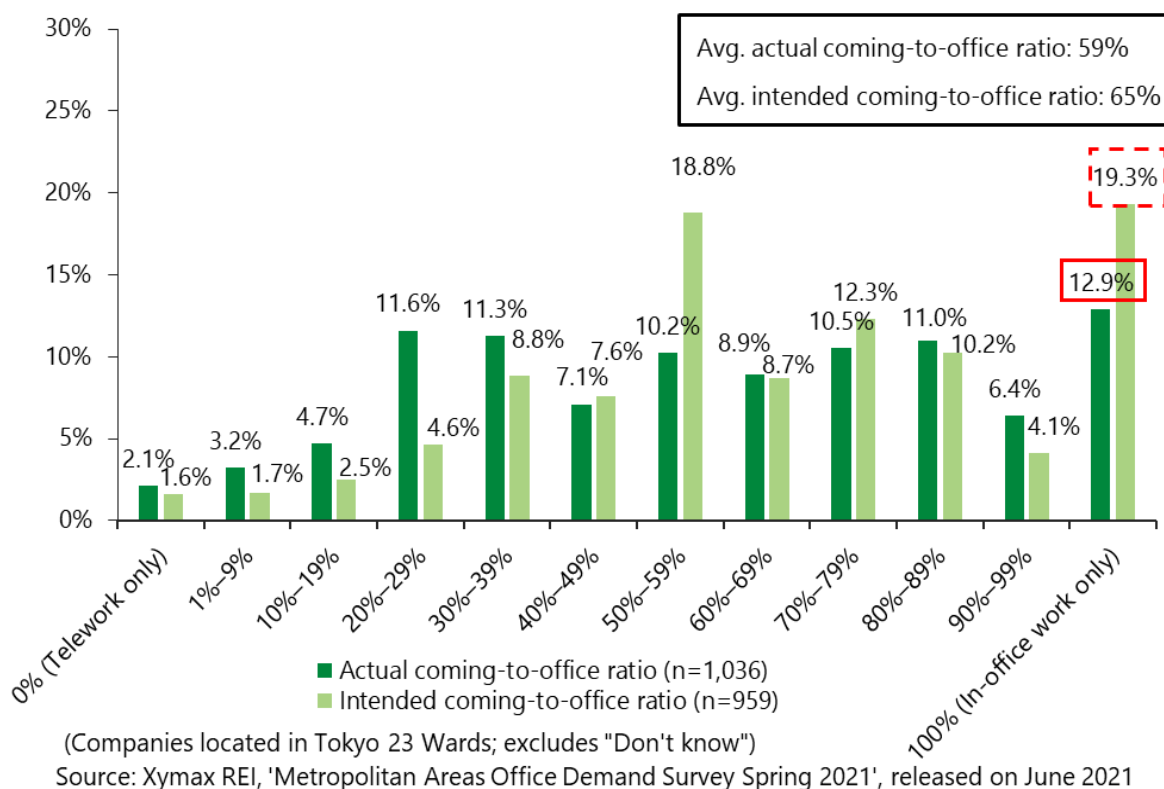
Each year between 2013 and 2019, Xymax REI has analyzed and released information on the leased space per user of typical offices through the *Office Space per Person* survey.^{*2}

^{*2} Reference: *Office Space per Person 2019*, released on October 2, 2019
<https://www.xymax.co.jp/english/research/images/pdf/20191002.pdf>

In a pre-pandemic world where it was assumed that all employees came to the office, the number of office users roughly equaled the number of office occupants. Therefore, it was easy to calculate the necessary office space using the following formula: number of office users × office space per person.

Due to the pandemic, however, the Japanese government requested companies to reduce the number of workers coming to the office by 70%, forcing companies to control their number of coming-to-office employees. **Figure 2** shows the coming-to-office ratio at the time of the April 2021 company survey and companies' post-pandemic intentions toward the ratio. As you can see from the distribution, the ratio during the pandemic significantly varies between companies, suggesting that companies' approaches to the coming-to-office ratio are highly individualized. At the same time, we also found that the ratio was generally reduced to around 60% on average both in the actual ratio and future intention, with "100% (all employees coming to office)" accounting for only 12.9% in the actual ratio and 19.3% in intention. In other words, the number of office users and the number of office occupants are likely to differ even after the pandemic. In that case, it will be more appropriate to use the number of workers coming to office—derived by multiplying the number of office occupants by the coming-to-office ratio—as the number of office users instead of the number of office occupants.

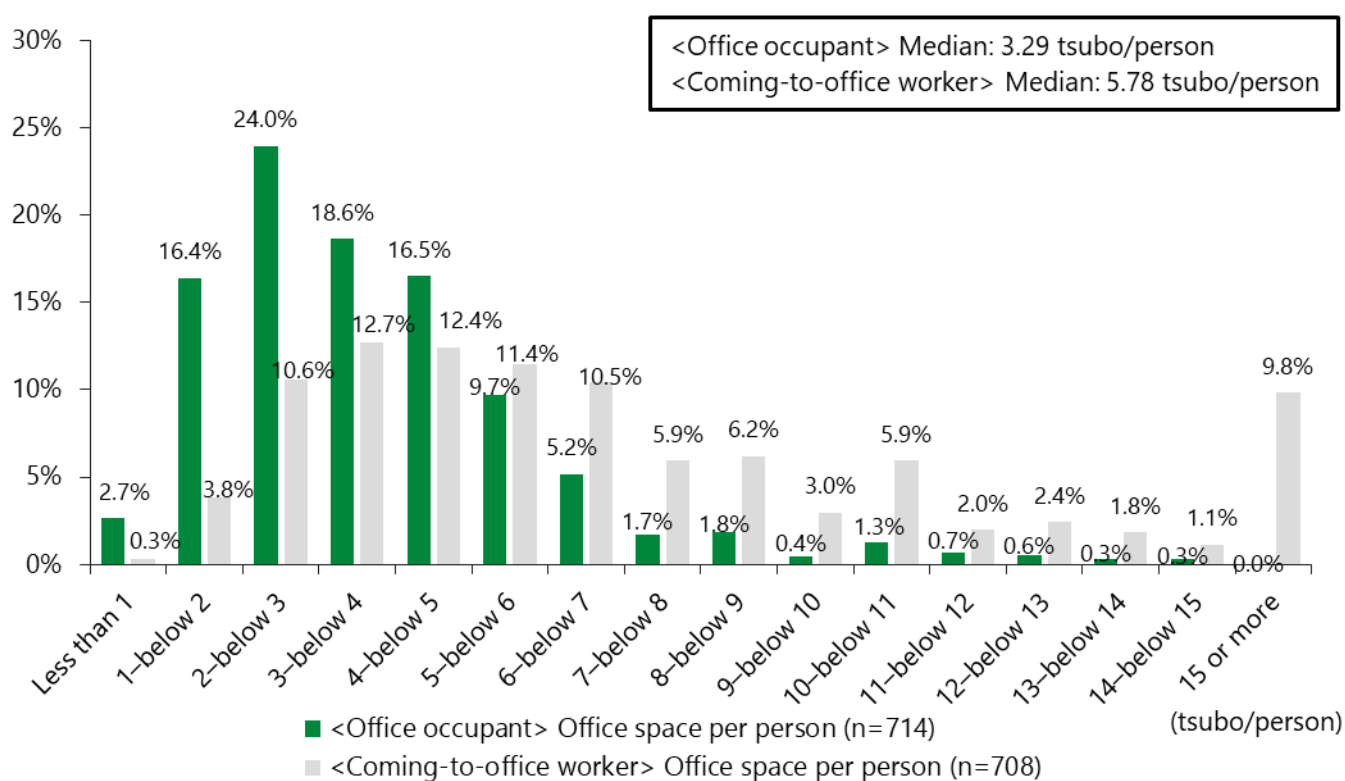
Figure 2: Coming-to-office ratio (Actual Figure as of April 2021 and Post-pandemic Intention)



In order to see how the difference between the number of office occupants and that of coming-to-office workers affects office space per person, we first calculated the office space per person for both groups of workers. To exclude outliers in the analysis, only tenants with an office space per office occupant of at least 0.5 tsubo but less than 15 tsubo were subject to the analysis.

Figure 3 shows the distribution of office space per office occupant and per coming-to-office worker of the respondent companies located in the Tokyo 23 Wards. The median office space per coming-to-office worker was 5.78 tsubo, differing significantly from the median office space per office occupant (3.29 tsubo). Amid continued restrictions on coming-to-office, the conventional offices that were developed based on the number of office occupants are seeing a rise in redundant space and a decline in area efficiency.

Figure 3: Office Space per Person (Office occupant and Coming-to-office worker) (As of April 2021)



(Companies located in Tokyo 23 Wards; excludes "coming-to-office worker=0")

Thus, in order to estimate the necessary office space in a situation where there is a difference between the number of office occupants and the number of workers coming to office, it would be appropriate to consider the coming-to-office ratio in addition to the conventional number of office users, i.e., the number of office occupants.

2. How to assess office space that is becoming complex due to the emergence of “coming-to-office ratio”

2.1. Considering the optimal office space based on coming-to-office ratio and the number of desks

As described in Chapter 1, it is becoming difficult to calculate the necessary office space by simply multiplying the number of office users by the office space per person, since the number of people actually using the office is fluctuating due to the emergence of the new concept of “coming-to-office ratio.”

Therefore, the objective of this report is to present a basis for considering the appropriate office space and layout that suit companies’ post-pandemic coming-to-office measures. We do so through a reassessment of office space by focusing on the number of desks [1] (for details, refer to <Reference> at the end of the report), which is more relevant to office space, instead of the number of people, which is now fluctuating.

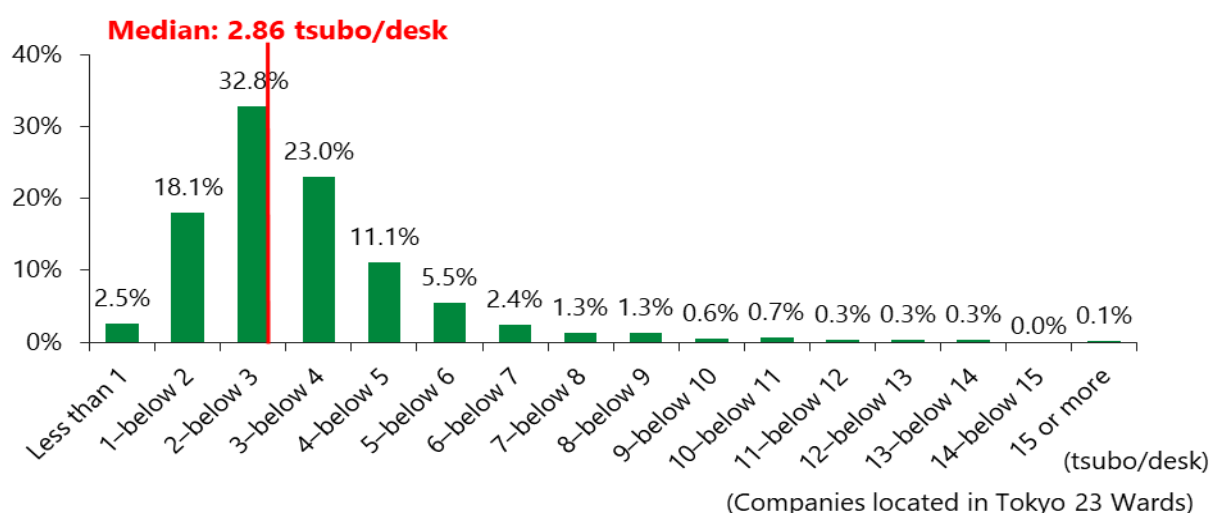
$$\text{Office space} = \text{Number of office occupants} \times \text{Coming-to-office ratio} \times \text{Desks per coming-to-office person} \times \text{Office space per desk} \quad [1]$$

In the above formula, “desks per coming-to-office person” means the percentage of desks per coming-to-office worker. This ratio and “office space per desk” are indicators that companies must set the appropriate value for, as for “coming-to-office ratio”. To provide a basis for doing so, in sections 2 and 3 we calculate the desks per coming-to-office person and office space per desk of companies located in the Tokyo 23 Wards based on the survey data and present them as the present reference values.

2.2. Actual state of office space per desk

Figure 4 is the distribution of office space per desk calculated from companies’ leased space and number of desks in their offices, which they replied in the April 2021 survey. The median value was 2.86 tsubo per desk, with a majority of the companies falling between 2 and 4 tsubo. At the same time, companies with more than 6 tsubo per desk also accounted for a little less than 10%.

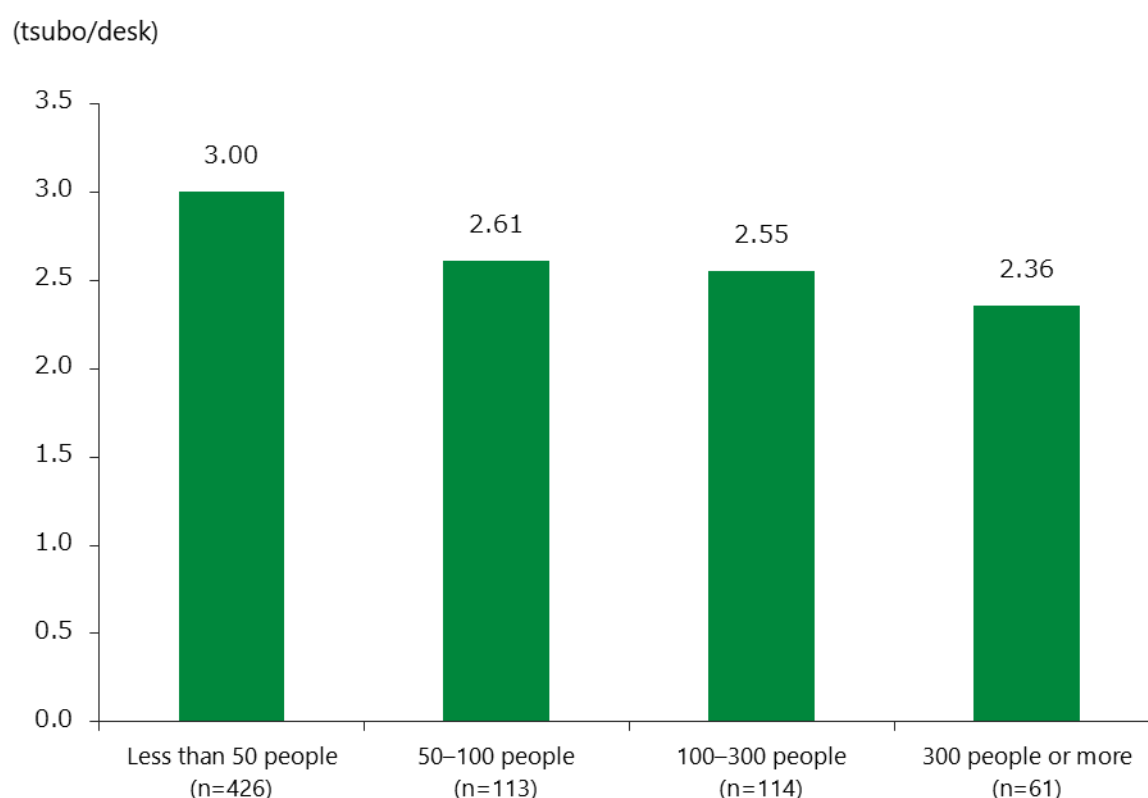
Figure 4: Office Space per Desk (As of April 2021; n=714)



<PICK UP> Office space per desk by number of office occupants

An examination of the office space per desk by the number of office occupants revealed that offices with smaller numbers of office occupants tended to have larger office space per desk (**Figure 5**). We assume this is because small offices with smaller numbers of office occupants still need to provide the minimum office functions as in larger offices, resulting in relatively large percentages of space for other than work desks.

Figure 5: Office Space per Desk – By Number of Office occupants (As of April 2021)



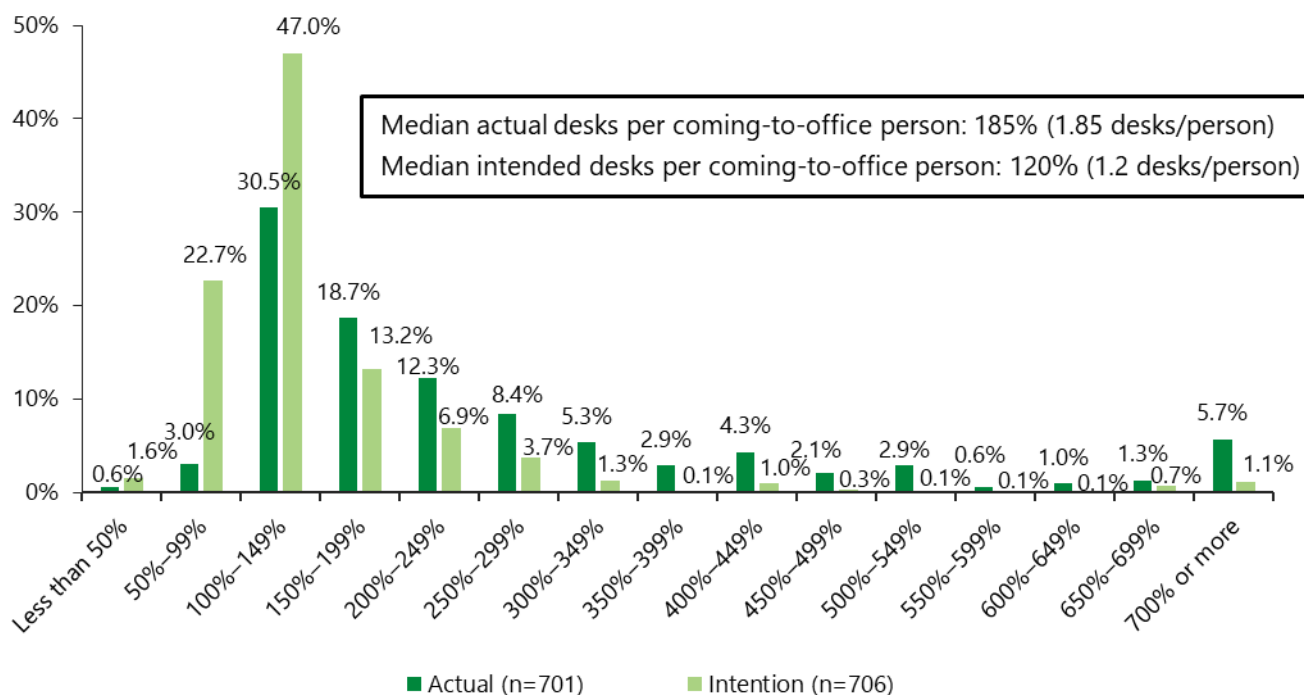
(Companies located in Tokyo 23 Wards)

2.3. Current state and future intention of desks per coming-to-office person

Figure 6 is the distribution of companies' current (April 2021) desks per coming-to-office person and their post-pandemic intended ratio. The median current (April 2021) ratio was 185%. This means that 1.85 desks are currently provided for each coming-to-office worker. This is a relatively high level of surplus.

On the other hand, the median post-pandemic ratio was 120%, which indicates that companies intend to reduce the number of desks going forward.

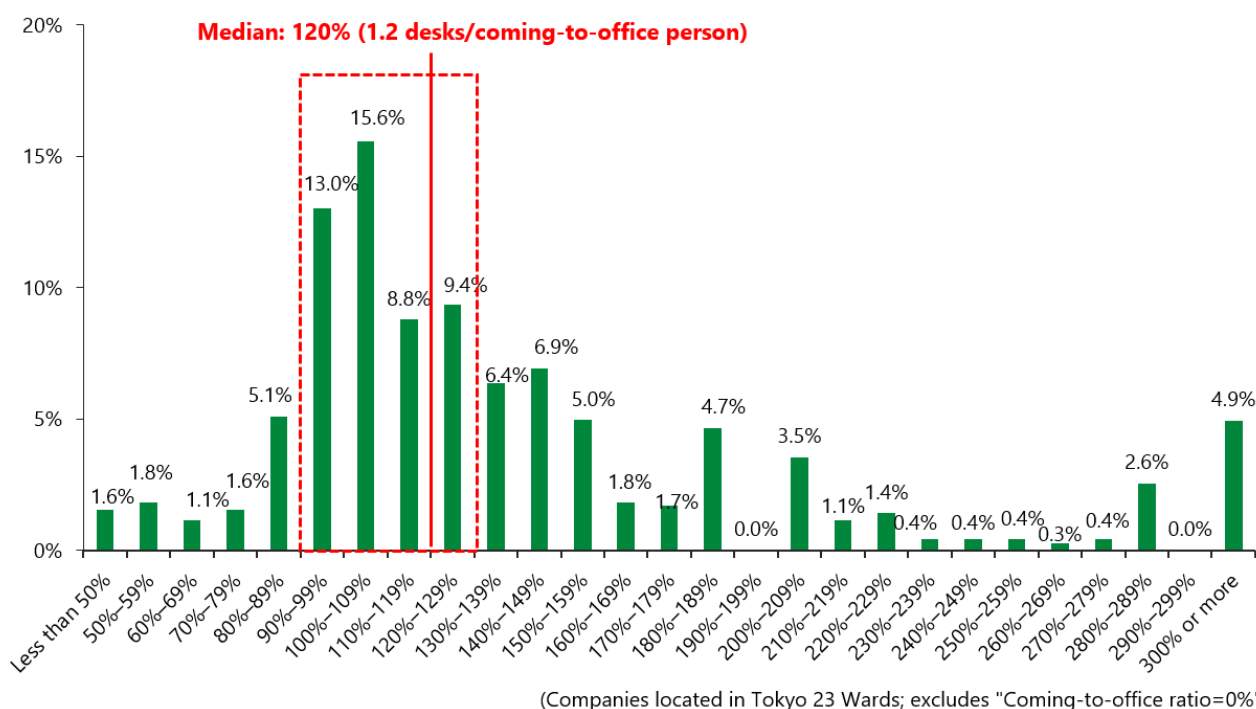
Figure 6: Desks per coming-to-office person (As of April 2021 Ratio; Intended Post-pandemic Ratio)



(Companies located in Tokyo 23 Wards; excludes "Coming-to-office ratio=0%")

Figure 7 shows companies' intended post-pandemic desks per coming-to-office person in detail, in increments of 10%. Around 50% of the companies fall between 90% and 129%, which implies that companies intend to reduce their numbers of desks more systematically in accordance with their future coming-to-office strategies.

Figure 7: Intended Post-pandemic Desks per coming-to-office person (n=706)



(Companies located in Tokyo 23 Wards; excludes "Coming-to-office ratio=0%")

3. Patterns of workplace strategies going forward and the resulting directions of office space

Many companies are still in search of or exploring the direction of post-pandemic workplace strategies. Therefore, the aforementioned indicators will inevitably continue to change in accordance with the adjustments in companies' workplace strategies, which accelerated due to the pandemic.

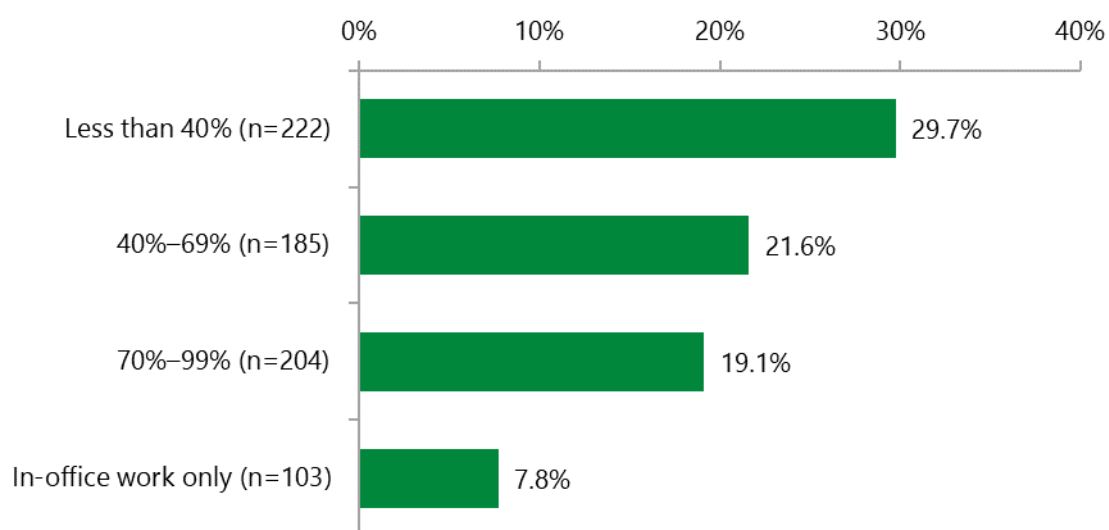
While our analysis has implied that the number of desks in offices will generally be reduced to more practical numbers and office space be streamlined going forward, we also found that a certain number of companies intend to have their coming-to-office ratio return to nearly 100%. We assume that workplace strategies will become more diverse after the pandemic in accordance with the characteristics, work styles and management policies of each company.^{*3} There will likely be the following two major directions in companies' workplace measures and the accompanying assessment of office space.

^{*3} Reference: *Companies' Workplace Strategies Identified Following the COVID-19 Pandemic*, released on December 1, 2021
<https://www.xymax.co.jp/english/research/images/pdf/20211201.pdf>

3.1. Streamline main office space by decentralizing workplaces

One of the directions is to reduce office space. Reducing the numbers of desks in accordance with the drop in the coming-to-office ratio to streamline the space of the main office began immediately after the outbreak of the COVID-19 pandemic. In our survey, a comparison of companies' intentions to reduce their office space by their coming-to-office ratios in April 2021 revealed that companies with a lower coming-to-office ratio tended to have stronger intentions to reduce their office space after the pandemic (**Figure 8**).

Figure 8: Intention to Reduce Office Space – By Coming-to-office Ratio as of April 2021

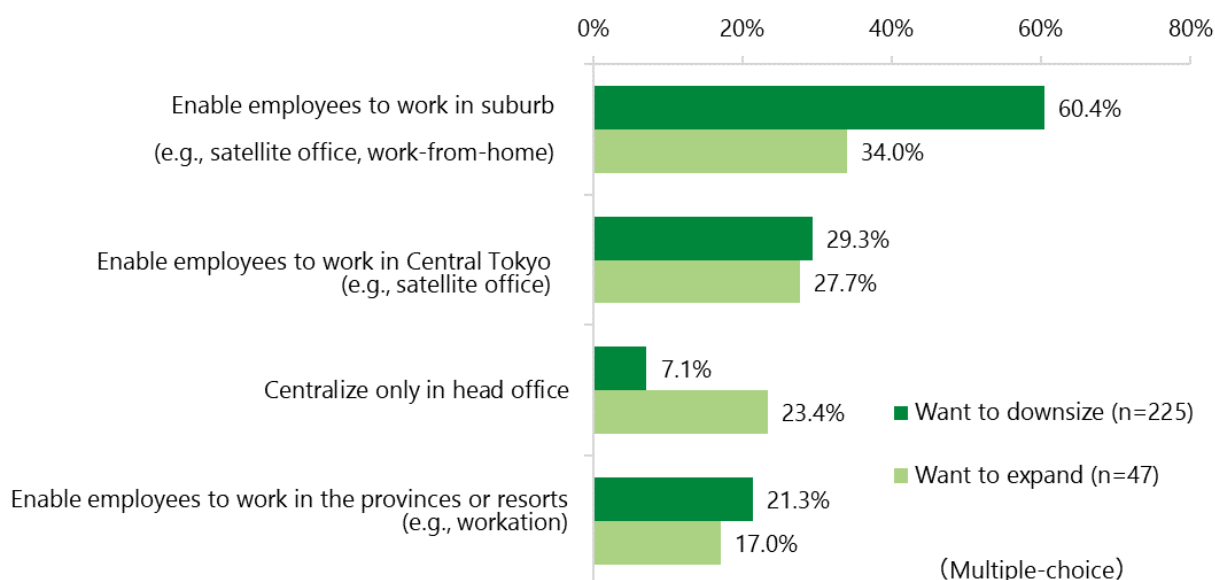


(Companies located in Tokyo 23 Wards)

However, these “downsizers” are not just simply thinking to reduce their workplaces. When we asked companies about post-pandemic workplaces other than for head office functions in our *Greater Tokyo Company Survey on Work Styles and the Workplace | July 2021*,^{*4} we found that the “downsizers” had stronger intentions to “enable employees to work in suburb (e.g., satellite office, work-from-home)” (60.4%) than office “expanders” and weaker intentions to “centralize only in head office” (7.1%) (**Figure 9**). In other words, many companies plan to decentralize their workplaces by providing a satellite office in the suburbs or introducing a work-from-home policy in return for downsizing the conventional main office that had been intended for employees to congregate.

^{*4} *Greater Tokyo Company Survey on Work Styles and the Workplace | July 2021*, released on August 13, 2021 (in Japanese only)
https://soken.xymax.co.jp/2021/08/13/2108-greatertokyo_workstyle_survey_2107/

**Figure 9: Post-pandemic Location of Workplace Other Than for Head Office Functions
 – By Intention toward Office Space**



Source: Xymax REI, 'Greater Tokyo Company Survey on Work Styles and the Workplace', released on July 2021

As you can see, a hybrid workplace strategy of reducing the main office space and actively decentralizing places to work is likely to take root as one of the mainstream strategy patterns after the pandemic. In this case, the desks per coming-to-office person and office space per desk of the main office are expected to be reduced and the conventional assessment of office demand to change significantly.

3.2. Redesign the main office by introducing a wide variety of spaces

The other direction is to introduce a wide variety of layouts other than the conventional work desk and not reduce the total space of the main office even with fewer desks, and expand the space in some cases.

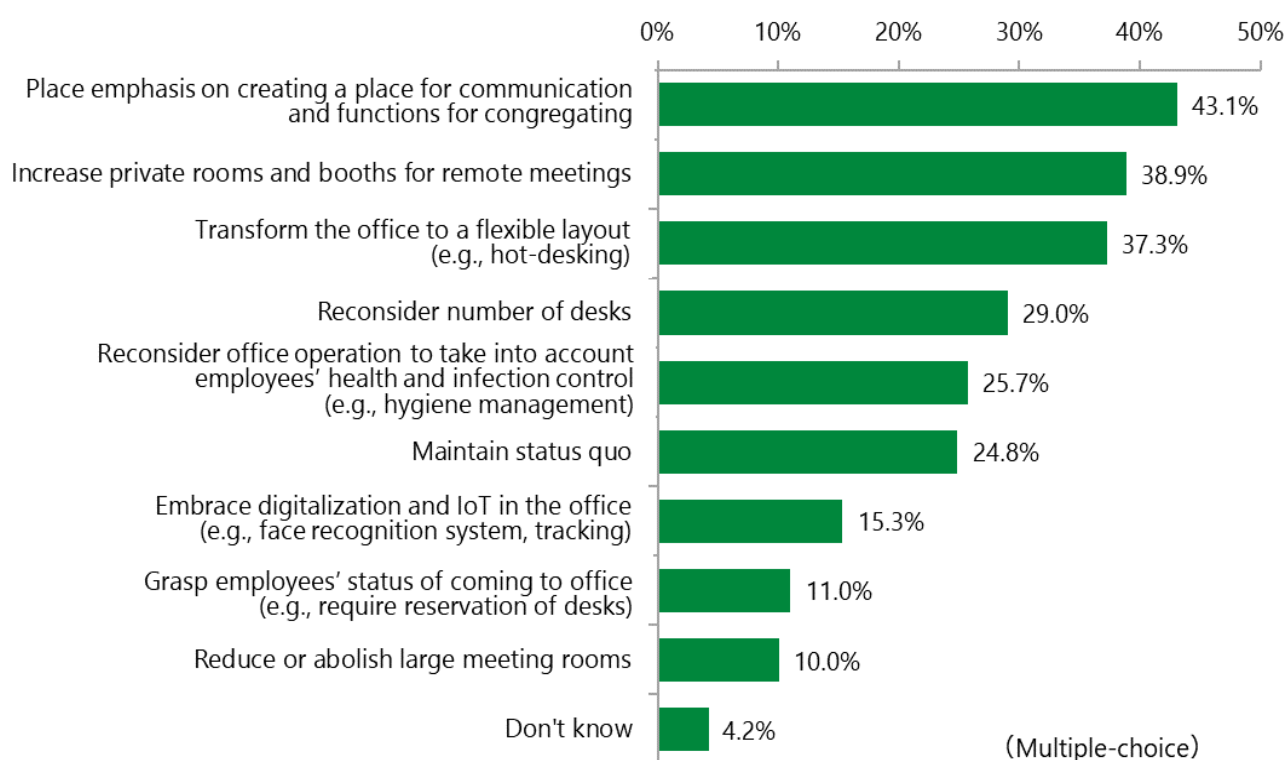
In the survey used in this analysis,^{*1} we found that many companies intended to not return an coming-to-office ratio to 100% after the pandemic but to continue adopting a hybrid work style. In order to embrace a hybrid workstyle that combines in-office work and telework, it is preferable for companies to increase or enhance space for strengthening the functions of the main office and aim to create a better defined, higher-value-added main office.

^{*1} Metropolitan Areas Office Demand Survey Spring 2021, released on June 9, 2021
<https://www.xymax.co.jp/english/research/images/pdf/20210609.pdf>

In the *Greater Tokyo Company Survey on Work Styles and the Workplace | July 2021*,^{*4} the post-pandemic main office strategies that companies were most interested in included "Place emphasis on communication and functions for congregating" (43.1%), "Increase private rooms and booths for remote meetings" (38.9%) and "Transform the office to a flexible layout (e.g., hot-desking)" (37.3%) (**Figure 10**). Going forward, we might see a greater presence of function-specific spaces in the office in the place of desks, such as spaces for encouraging collaboration among employees and for linking in-office work and telework to accommodate a hybrid work style.

^{*4} Greater Tokyo Company Survey on Work Styles and the Workplace | July 2021, released on August 13, 2021 (in Japanese only)
https://soken.xymax.co.jp/2021/08/13/2108-greatertokyo_workstyle_survey_2107/

Figure 10: Strategy for Main Office Companies Are Interested in Post-pandemic (n=926)



Source: Xymax REI, 'Greater Tokyo Company Survey on Work Styles and the Workplace', released on July 2021

4. Conclusion

The pandemic has brought about drastic changes to the styles and places of work, triggering significant modifications in the use of the workplace. Under such circumstances, companies are forced to reconsider and optimize their workplaces in view of the post-pandemic world.

However, this does not simply involve adjusting the office space according to the number of office users, which is now fluctuating due to the emergence of the “coming-to-office ratio.” What kind of workplaces companies will develop going forward will become a crucial element that will also affect management strategies and personnel strategies. It will be essential for companies to link in-office work and telework, as well as setting out strategies with clear intentions. For companies to define their optimal workplace space, it will no longer suffice to consider elements within the main office, such as office space per desk, coming-to-office ratio and desks per coming-to-office person, but it will be necessary to consider more comprehensively by including elements of third-place facilities provided outside the main office.

As companies’ work styles and workplace strategies undergo dramatic structural changes amid the lingering pandemic, Xymax REI will continue to consider how to assess office space and macro-economic office demand going forward.

<Reference> New calculation method for office space

The new formula for assessing office space by focusing not on the number of people, which is now fluctuating, but on the number of desks, which is more closely related to office space, is as [2] below.

$$\text{Office space} = \text{Number of desks} \times \text{Office space per desk} \quad [2]$$

The number of desks above was previously calculated as [3] below.

$$\text{Number of desks} = \text{Number of office occupants} \times \text{Desk provision ratio} \quad [3]$$

The “desk provision ratio” in [3] is an indicator of the number of desks per office occupant. Companies only had to consider this ratio when the coming-to-office ratio was 100%. Going forward, however, the number of desks will be calculated as [4] below, since companies will have to consider the desks per coming-to-office person, which is the number of desks provided for the number of workers coming to office, which is calculated by multiplying the number of office occupants by the coming-to-office ratio.

$$\text{Number of desks} = \text{Number of office occupants} \times \text{Coming-to-office ratio} \times \text{Desks per coming-to-office person} \quad [4]$$

The “desks per coming-to-office person” in [4] is an indicator of the number of desks per coming-to-office worker. The previous desk provision ratio will be replaced by “coming-to-office ratio”×“desks per coming-to-office person”.

Based on [2] and [4] above, the office space for a hybrid work style that combines in-office work and telework can be estimated by using formula [1] below.

$$\text{Office space} = \text{Number of office occupants} \times \text{Coming-to-office ratio} \times \text{Desks per coming-to-office person} \times \text{Office space per desk} \quad [1]$$

Survey Overview

Original data	Metropolitan Areas Office Demand Survey Spring 2021 (Survey period: April 2021)
Target respondents	Of general office tenants occupying office buildings in the Tokyo 23 Wards, those with an office space per user of at least 0.5 tsubo but less than 15 tsubo
Number of valid answers	714
Remarks	<ul style="list-style-type: none"> • “Space” refers to the contractual leased space. It includes offices, entrances (reception areas), meeting rooms, break rooms, libraries, storage rooms and dedicated, enclosed hallways. • “Number of office occupants” is the number of employees who are eligible to use the office though may not be using it every day. • “Coming-to-office ratio” is the companies’ current average coming-to-office employee ratio and their post-pandemic ratio, with 100% meaning all employees come to the office. • “Number of workers coming to office” is the average number of employees coming to the office at the time of the survey. • “Desks” refer to desks in the main office where respondents replied that general work can be done. They include fixed desks (e.g., islands of opposing desks, cubicles), hot-desking, group hot-desking, desks in open meeting space, focus booths and private rooms (e.g., for phone and online meetings), canteens and café space, space for refreshing, space for external collaboration. They do not include desks in meeting rooms (for small to large numbers of people), president/executive rooms, reception areas, libraries and storage rooms, changing/locker rooms, server rooms, smoking rooms, day care space, show rooms and event space. • “Desk provision ratio” is an indicator of the number of desks per office occupant. • “Desks per coming-to-office person” is an indicator of the number of desks per coming-to-office worker.

The percentage mix in the charts contained in this report are rounded to the first decimal place and therefore may not add up to 100%.

For further inquiries please contact below:

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