June, 2021

Global Research l Responsible Real Estate

Decarbonizing the Built Environment

Ambitions, commitments and actions

Contents

"Repurposing the built environment in sustainable and responsible ways requires a mindset shift. In equal measure, it requires a shift in the criteria for assessing return on invested capital to include environmental and social impact. If organizations do not recognize this, then their other stakeholders will - their investors, their customers & and their employees. Therein lies the risk of not adapting to the climate risk that exists right now.

Guy Grainger,
Global Head of Sustainability Services and ESG, JLL

Executive Summary

As the seriousness of the climate crisis increasingly pervades social consciousness, so too does a new 'age of responsibility' in which organizations face unprecedented and elevated expectations from their employees, tenants and clients, as well as from society at large. In the post-COVID cycle of recovery, there will be an intense focus on how companies tackle the new challenges posed not just by the pandemic but also by more long-standing issues, including well-being, social inequality and, especially, climate change.

JLL has set out to discover how the trend for more responsible and sustainable business will impact real estate portfolios. Our major survey of senior executives representing 647 occupiers and investors, which was commissioned by JLL and conducted in the first quarter of 2021, has given us a clearer, stronger understanding of how organizations across the globe are progressing in their journey toward net zero carbon via their investment in more responsible real estate, and to what level sustainability ambitions are being translated into actions.

The commercial real estate industry has accelerated its focus on responsibility and social purpose. Occupiers, investors and city leaders each have a role to play in meeting demand for greener, more sustainable spaces. This decade is a pivotal time to decarbonize the built environment and build spaces for a resilient future. However, translating good intentions into achievable targets will require partnership and transformative thinking.

The extensive results from our survey validate and substantiate existing perceptions of trends in the real estate industry, yet there are a number of interesting findings:

1

This decade is being seen as the tipping point in decarbonizing real estate.

Investors and occupiers are making bold commitments at a fast pace, with most companies now setting ambitious net zero goals for 2030 or even sooner. More organizations now see this as a critical decade for real progress to be made. The pandemic has acted as a wake-up call for environmental and social responsibility, which will require real estate to make complex changes in what will be a critical shift for the industry.

2

Companies are outpacing policymakers in their ambitions.

Leading occupiers and investors are taking their own initiatives and making changes primarily because they firmly believe it is the 'right thing' to do for their stakeholders – employees, customers, investors, communities, the planet – rather than being regulated to do so. However, as part of greater collective responsibility and action on decarbonization, they want to see national and city governments take bolder steps to support them through appropriate incentives.

3

Climate risk is now accepted as a financial risk.

The considerable no-cost and low-cost options available for decarbonization have game-changing potential for businesses through boosted efficiencies and the enhanced financial performance offered. At the same time, for investors there is value in sustainability-focused strategies that create resilient real estate assets (through green strategies), while for occupiers deepening commitments on sustainability will help drive more operationally efficient portfolios. The downside risks of inaction are now too strong, and few companies believe that inaction is truly a viable option.

4

Retrofitting buildings is critical to meeting carbon reduction targets.

The weight of demand for sustainable real estate risks outstripping projected levels of supply. However, we cannot simply 'build our way out' of the issues we face; beyond the feasibility of the building program required, there are major concerns around the implications of embodied carbon in new construction. If the current supply of net zero buildings is insufficient to meet projected demand, the retrofitting of existing stock is the dominant, critical solution to transitioning to a low-carbon economy.

5

Data is the single biggest catalyst for green progress.

To achieve net zero goals faster, companies now fully realize that enhanced technology and data capabilities, including smart buildings and energy monitoring, will be massive and essential enablers. At the same time, the requirement for stronger, more transparent reporting is considerably, highlighting that the 'digital gap' in organizations' resources will have to be significantly closed through both smarter, persuasive investment and initiatives such as greater collaboration on data sharing.

A primary goal of our survey was to understand the environmental commitments being made by occupiers and investors, including the barriers they face, the drivers of their actions, levels of investment, and specific measures being taken today and in the near future to meet net zero targets. **Although commitment and actions are at varying levels of maturity, the general momentum toward decarbonization is steady and improving.** However, we believe that it will only be through acting together that Corporate Real Estate (CRE) teams, real estate investors and city leaders can build the necessary momentum to affect and impact meaningful, positive change in the world.

The race to net zero needs a shift toward a partnership approach with a blurring of the traditional boundaries between the public and private sectors, between industry and academia and between investors and corporate occupiers. In the transition to a low-carbon economy and the drive to truly decarbonize the built environment, an ecosystem of partnerships will be a key component in accelerating a complex and critical journey.

JLL's Research reveals that 81% of occupiers and investors agree that a strong partnership between cities, occupiers and investors will be instrumental to pushing the net zero carbon agenda. By leaning into an ecosystem, governments, businesses, investors and communities can more easily adopt and scale innovations, bridging the gap between intention and action.

For many companies, individual progress will be unaffordable and unachievable without this strong collective approach, one which will have to heavily involve national and city governments. Notably, cities' levels of commitments on decarbonization might heavily determine organizations' decisions to stay or invest in the future.

The development of an ecosystem of partnerships was already crucial and will be vital in the long run, and for all its principal players, including the real estate industry, it will require sustained investment and action to achieve net zero, to maintain it and to manage its multiple challenges.

Background

JLL Global Research set out to discover how the trend for more purposeful, responsible and sustainable business will impact the way in which organizations (corporate occupiers, investors, city authorities) manage their real estate. We sought to understand how CRE teams can affect and impact meaningful, positive change in the world, what issues they should focus on, and which will be most critical to organizational success now and in the future and through real estate.

Over the last few years, we have heard Larry Fink, Chairman and CEO of Blackrock, emphasize the message that 'climate risk is investment risk', a mantra that has now gone mainstream. **The frequency of extreme weather events has reached a point where this is now impossible to dispute.** Government, finance, insurance, investors and occupiers are all increasingly incorporating this lens into their core resilience strategies.

In 2019, the debate was already about how far and how fast to act – not whether to do so. The climate crisis combined with the COVID-19 crisis and the massive societal challenges it has posed have only added to the trajectory of action versus time. Businesses are now finding themselves on the cusp of a new 'age of responsibility', which looks more transformative and radical than the era which preceded it.

Skeptics warned that corporate commitments would be tested in a downturn. In fact, we have seen expectations for businesses to do the 'right thing' by stakeholders and to live out company missions and values only increase. A global study by Edelman in March 2020 showed expanding expectations of business during the crisis, with 78% of people expecting businesses to act to protect employees and the local community.

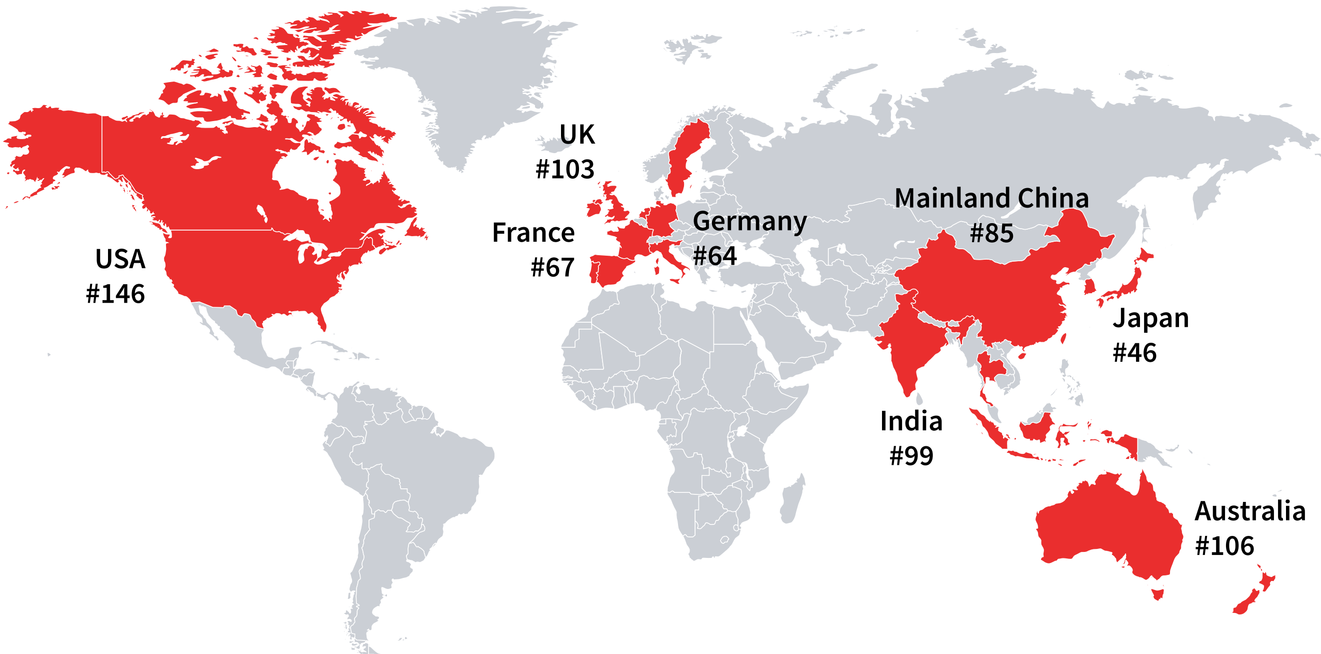
The built environment accounts for about 40% of global carbon emissions, which means that the real estate industry can play a big role in bringing about a sustainable future, especially in cities hardest hit by COVID-19 and by climate risks. In order to adhere to the timeline put forward by the Paris Agreement to cut carbon emissions by 45% by 2030, there is a need for a systemic rethink at every level - from the private sector to governments at the city and country level. According to JLL's Responsible Real Estate framework, this systemic change will be driven by a holistic view of the industry and its approach to developing and managing real estate assets that include operational, financial and social factors at every stage.

It is clear that real estate has a central role to play in the transition to a low-carbon economy and that it can be a force for good, creating healthy and green outcomes for both people and the planet. From our global survey of 647 leaders and decision-makers and the six key insights that have emerged in our report, we aim to uncover the opportunities in real estate for organizations to accelerate in their race to net zero, in particular the criticality of an ecosystem of partnerships needed to make the journey a speedier, lasting and irreversible success.

With demand for greener, more sustainable spaces amplified by the pandemic, occupiers, investors and city authorities are now more willing than ever to commit to tackling climate change.

Methodology

Figure 1: Respondents across the world survey

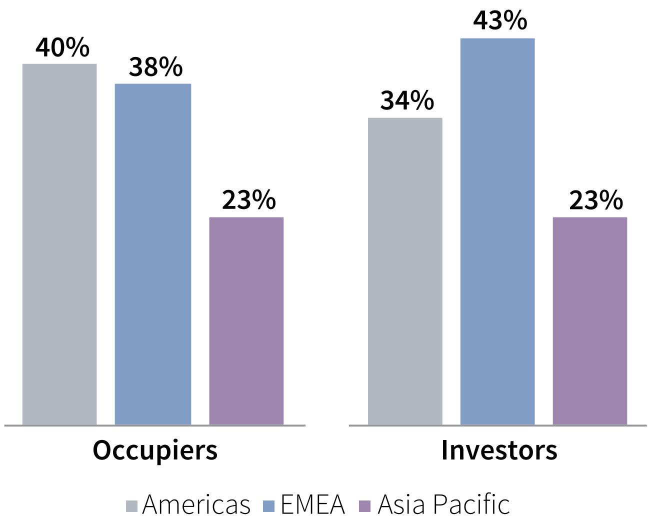


426
corporate occupiers

221
real estate investors

308
Asia Pacific occupiers

Figure 2: Respondents per region – Occupiers and Investors



25%
of respondents are CEOs or other C-level respondents. A further 23% are in other executive management positions.

Almost one-third
of occupiers in the study employ more than 10,000 people globally.

Nearly 1 in 5
investors in the study has more than US$50 billion of real estate assets under management.

Figure 4: Respondents per organization's size – Occupiers

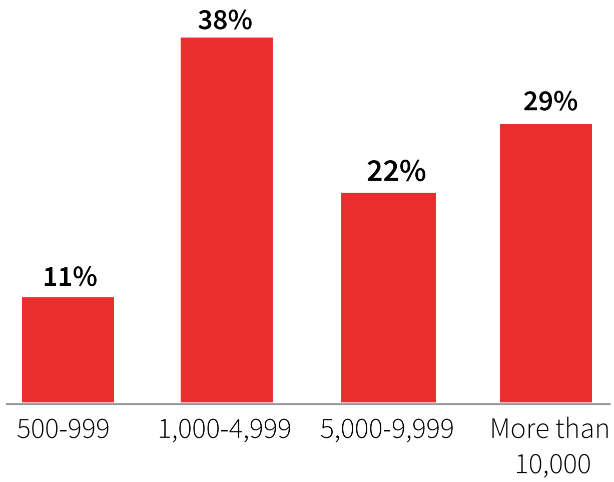


Figure 3: Role and responsibilities

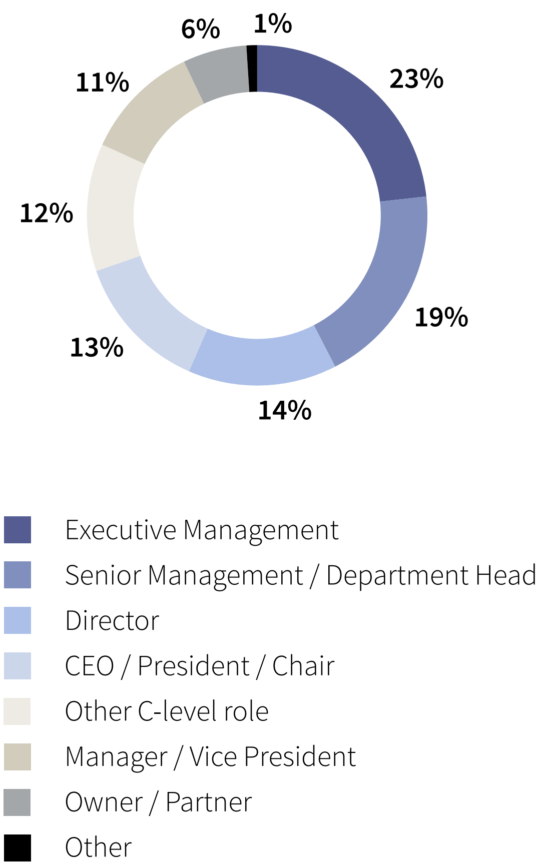
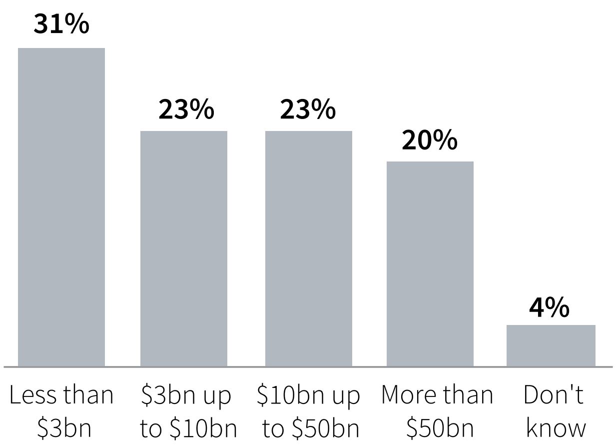


Figure 5: Respondents by assets under management – Investors



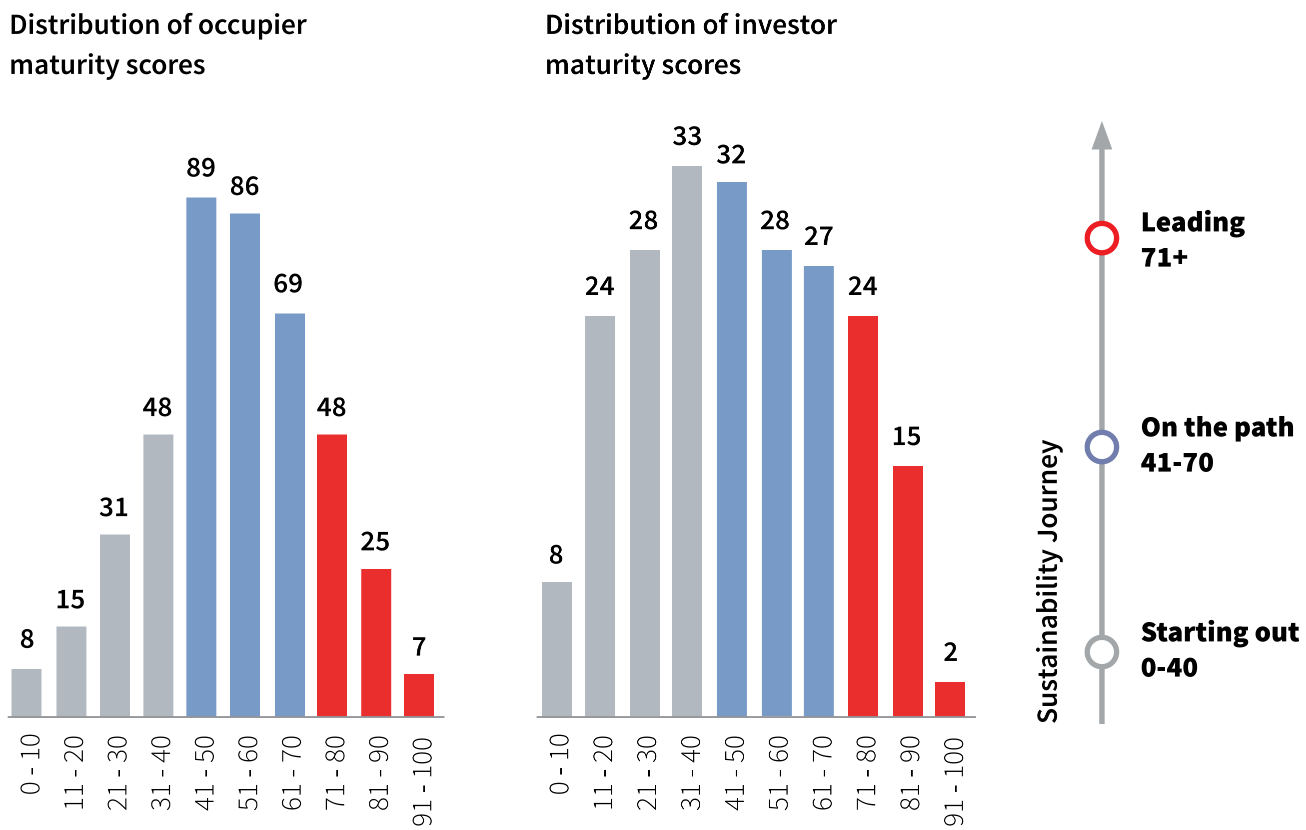
Maturity of the market

Our Maturity model is based on a points system where points are attributed to survey answers across a cross-cutting set of questions. The model assigns a score between 0 and 100 to investors and occupiers which positions each within one of three levels of 'maturity' on the decarbonization journey: 'starting out', 'on the path' and 'leading'. 19% of our respondents are considered as 'leading' organizations, with clear targets, an ambitious strategy in place, and advanced data and technology solutions to support their race to net zero.

Table 1: Distribution of maturity scores

Maturity:	Starting out	On the path	Leading
Investors	42%	39%	19%
Occupiers	24%	57%	19%

Figure 6: Distribution of respondents against the maturity scores

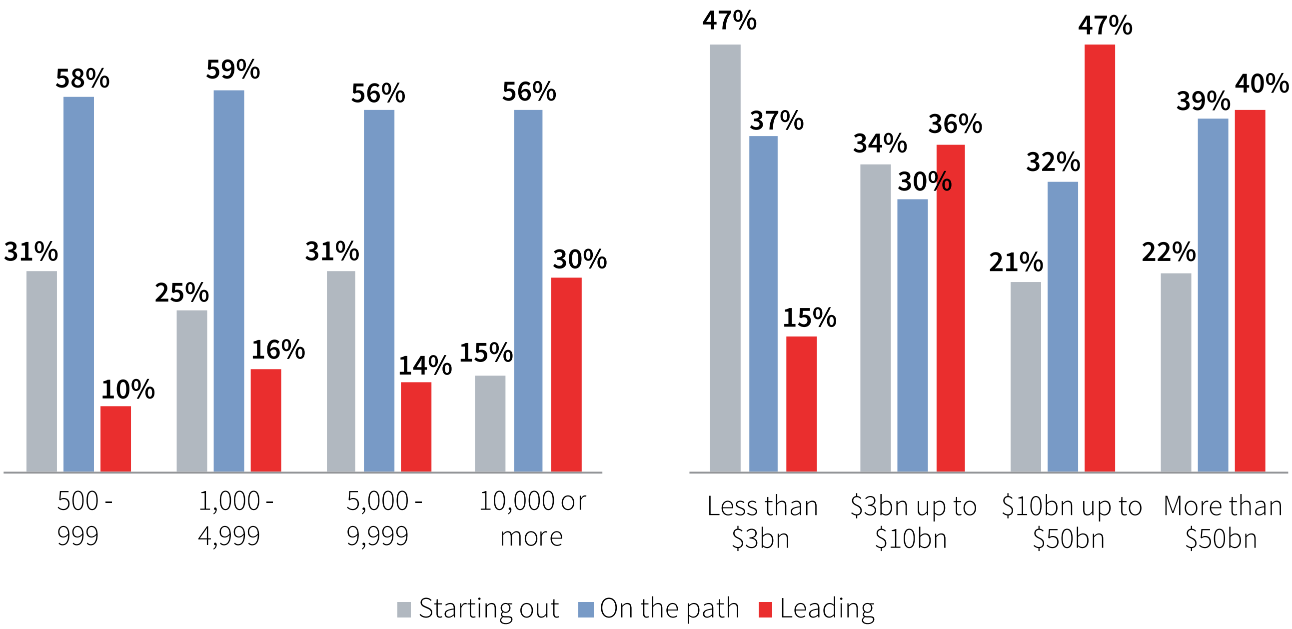


The maturity level explained

Starting out: 0-40	On the path: 41 - 70	Leading: 71+
• Carbon emissions reduction is less likely to be part of corporate sustainability strategy or real estate investment strategy. • Specific carbon emissions reduction targets are yet to be adopted, though the company may be working toward them over the longer term. • Carbon reduction activity is focused on 'quick wins' or low-cost solutions. • Limited technology and data capabilities.	• Progress is being made toward defining specific carbon emissions reduction targets. • Carbon emissions reduction activities are on an ad hoc basis but the company is on the cusp of taking a more strategic approach. • Technology and data capabilities are developing.	• Carbon emissions reduction is integrated into corporate sustainability strategy or real estate investment strategy. • Specific carbon emissions reduction targets have already been adopted. • The company has a clear roadmap for delivering on its ambitions. • Superior technology and data capabilities.

Across business sizes for corporate occupiers, companies above 10,000 employees are clearly leading the drive toward net zero. Investors with the largest real estate holdings tend to have greater maturity.

Figure 7: Distribution of maturity level against company size for occupiers (left) and by assets under management for investors (right)



Lessons from leading occupiers and investors

18 Lessons

Leadership buy-in to the responsibility agenda is essential.

There needs to be clear ownership and oversight of responsibility across the organization.

Ambitions need to be underpinned by sufficient resource allocation.

Climate change is recognized as a financial risk.

Transformative thinking and decisive actions are required over the next decade.

Focusing on decarbonization can deliver a real competitive advantage.

Sustainability is now a key criteria in the way buildings are acquired, fitted-out and managed.

Taking a whole-building life cycle approach to carbon reduction is encouraged.

Ambitions need to be translated into clear action plans that can be delivered.

Adopting a win-win mentality is rewarding for all parties.

Green certifications are growing in popularity as a means to demonstrate green credibility and drive value (rents, occupancy).

Accelerating the retrofitting of legacy real estate assets is a significant opportunity and challenge.

Renewable energy is a significant game-changer.

Monitoring and benchmarking energy performance is the biggest game-changing activity.

Embracing transparency to accelerate action is critical.

Enhanced data capabilities provide opportunities for continuous improvement based on real-time analytics and automated decision-making.

Drawing on external expertise to co-create solutions and co-fund projects is one of the largest areas of investment.

Sharing access to data and resources can enhance the power of partnership.

Regional differences

While the global pandemic has been a major barrier across all regions, standing in the way of progress, it has also been a major wake-up call around the importance of ESG matters. This has been true across the globe, but a few signals have been stronger in some regions.

Occupiers

Insights from our survey have revealed more similarities than differences around sustainability, albeit with some regional nuances. Globally, there is consensus that sustainability is increasingly important to occupiers' corporate strategies. All three regions (Europe, Asia Pacific and North America) advocate that a strong partnership-led approach - including cities, investors and occupiers - will be instrumental in driving the net zero carbon agenda:

- ✓ Organizations in all three regions are equally likely to address **carbon reduction** in their corporate sustainability strategy.
- ✓ In Europe, **supporting employee health and well-being**, reported by 53%, is considered to be the top driver of carbon emissions reductions, along with **enhanced brand reputation** (51%), while occupiers in North America (60%) and Asia Pacific (59%) are driven by the desire to **meet society's expectations**.
- ✓ Globally, occupiers are coordinating **organization-wide action plans**, but half still describe their organization's approach as 'developing'.
- ✓ European occupiers are most likely to aspire to **create places that are green**, with occupiers in Asia Pacific most likely to prioritize location search for buildings that reduce carbon emissions.
- ✓ **Technology is the top investment priority** for occupiers, with North America leading the way in monitoring and benchmarking energy performance.
- ✓ There is agreement across all regions that **top tier cities could be doing more** to tackle climate change.

Investors

The survey has highlighted that real estate investors globally are bringing an ESG mindset to the management of their holding. In fact, a number of consistencies have emerged in the data. Investors in all three regions:

- ✓ Showcase strong level of **commitment** with at least 60% in each region having either made climate commitments or expect to within the next 12 months.
- ✓ Make it **a strategic imperative**, with at least 80% in each region having a dedicated ESG leader or team.
- ✓ Are **aligning financial resources** to the work, with at least 70% having or planning to have (by 2025) a budget allocation to address energy and/or carbon reduction strategies.

Where some differences have materialized is primarily in the drivers for action. North America appears to be more motivated by financial considerations and brand image, while Asia Pacific and Europe tend to bring a more balanced reasoning to the table across financial, stakeholder, brand and regulatory considerations.

Research Insights

Leverage the built environment to fulfill sustainability commitments and ambitions for a better world.

JLL conducted this survey of executive leaders to gain a better understanding of how organizations are translating their sustainability ambitions into actions. Major findings have emerged from the survey as decision-makers and leaders at a global level are reinforcing the need to drive responsible behavior deep into their business and recognizing the central role that real estate can play along on the journey.

We have identified key messages and six key insights, demonstrating the maturity of the market and of occupiers and investors in their race to net zero.

Climate risk is now accepted as a financial risk.
Real estate has a critical role in fulfilling enterprise sustainability commitments

Key insight #1: Responsible Real Estate
We are at the beginning of a new age of responsibility, social purpose and accountability for a resilient future.

Key insight #2: Levers
Buildings are becoming 'agents of change' and can be a 'force for good'.

Key insight #3: Actions
Translating ambitions and sustainability targets into action is the next big challenge.

Key insight #4: Opportunities and Challenges
There is a wide spectrum of opportunities for real estate to flatten the climate curve.

Key insight #5: Digital drive
Technology has a critical role in driving the transition to net zero and enabling greater transparency.

Key insight #6: Supply and demand
Expanding demand for sustainable space is in danger of outstripping supply in many markets.

Enablers
Partnerships (Cities / Owners / Investors / Occupiers / Governments) will be key to achieving real progress in the race to net zero and to sustaining the long journey ahead.

Value creation:
Carbon reduction initiatives are considered value enhancing

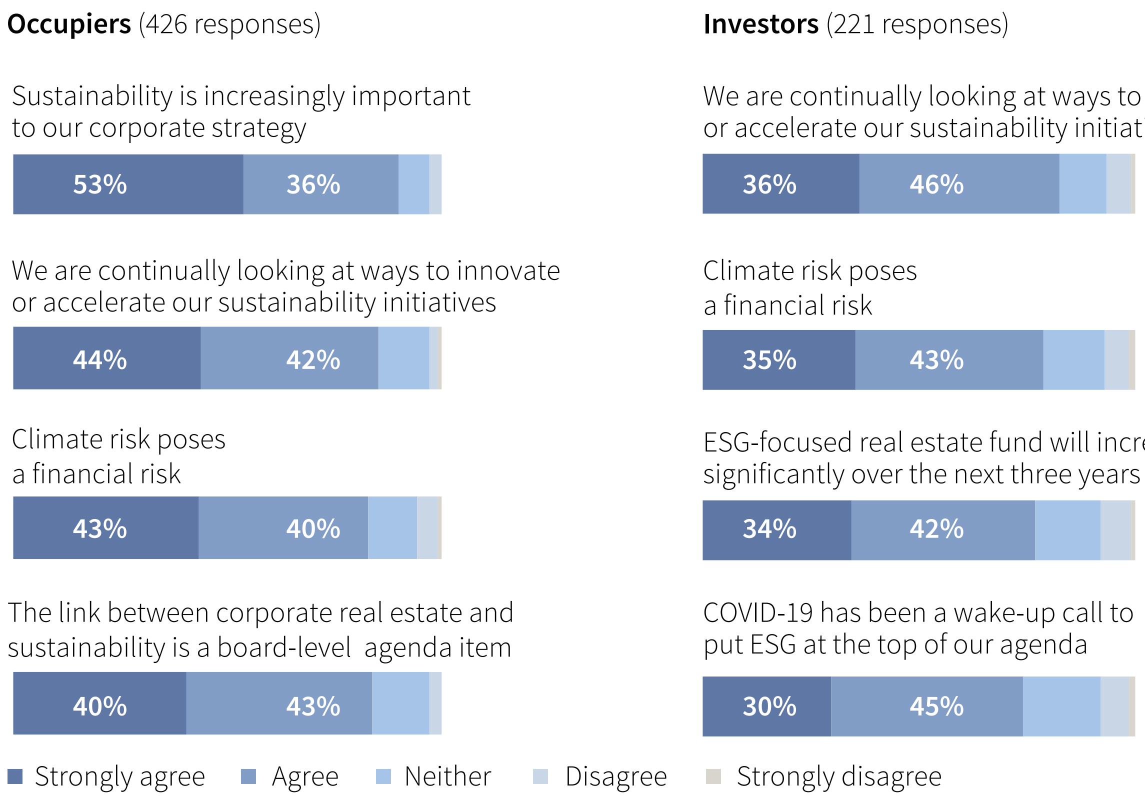
Key Insight #1

We are at the beginning of a new age of responsibility, social purpose and accountability.

As organizations plan for a more resilient post-pandemic future, expectations around social and environmental responsibility have never been higher, and the real estate industry – responsible for an estimated 40% of all carbon emissions globally – is focused on decisively driving the decarbonization of the built environment. While sustainability is having a tangible impact on investor decisions, with ESG commitments widespread, and occupiers' carbon reduction strategies are turning into organization-wide actions, greater impetus is still required.

To what extent do you agree with the following statements about changing attitudes toward real estate and sustainability?

Figure 8: Attitudes toward real estate and sustainability



The mantra that 'climate risk is financial risk' has gone mainstream. 78% of investors agree that climate risk poses a financial risk, of which 35% strongly agree. 83% of occupiers also agree, of which 43% strongly agree.

The real estate industry is close to a tipping point in the need for responsible investors, occupiers and city governments to properly drive the race to net zero. In particular, ESG, as it pertains to the built environment, has been catapulted into prominence.

Occupiers and investors see this decade as a critical phase, an opportunity and a challenge in the decarbonization journey. The majority are setting ambitious net zero goals for 2030 or even sooner - net zero is no longer a mid-century ambition.

This is the decade where action is paramount if we are to achieve real progress. **The pandemic has exposed vulnerabilities and acted as a loud wake-up call to be environmentally conscious and responsible.** For real estate, it will require complex changes to be made in what will be a critical shift for the industry.

As levels of environmental consciousness have risen, it is now evident that investors are paying closer attention to ESG-related issues and we expect that they will emerge as a top priority as markets normalize:

83%
of investors have a dedicated person, team or steering committee for ESG/sustainability strategies for their real estate investment holdings.

82%
of investors are continually looking at ways to innovate or accelerate their sustainability initiatives.

75%
of investors say that COVID-19 has been a wake-up call to put ESG at the top of their agenda.

Occupiers are also putting responsibility at the top of their corporate agenda:

89%
of occupiers state that sustainability is increasingly important to their corporate strategy.

86%
of occupiers are continually looking at ways to innovate or accelerate their sustainability initiatives.

83%
of occupiers say the link between corporate real estate and sustainability is a board-level agenda item.

Lessons from leading occupiers and investors

1 Leadership buy-in to the responsibility agenda is essential.

90%
of 'leading' occupiers say they have clear buy-in to meeting carbon reduction commitments among their executive leadership team. Leadership vision is similarly the lowest barrier to progress for investors.

2 There needs to be clear ownership and oversight of responsibility across the organization.

83%
of investors say they have a dedicated team or person appointed to oversee ESG and sustainability strategies for their real estate holdings. For 'leading' investors, this increases to 93%.

3 Ambitions need to be underpinned by sufficient resource allocation.

74%
of 'leading' occupiers have a dedicated, centralized budget for implementing carbon reduction initiatives.

67%
of 'leading' occupiers say their budget allocation for addressing carbon emissions reduction will increase over the next three years. This is consistent with investors' commitments, where we also expect those with dedicated budgets to more than double by 2025.

Key Insight #2

Buildings are becoming ‘agents of change’ and can be a ‘force for good’.

Demand for greener, more sustainable buildings and healthy working environments have been amplified by the pandemic and are now of paramount concern as markets normalize and people return to the office. As buildings start to reopen, governments, businesses and wider society are undoubtedly more aware of the key role that buildings play in physical, mental and community health. Investors and occupiers recognize the financial and operational benefits from green buildings, but across the built environment there are now also big opportunities, as well as similarly sized challenges, to create regenerative places and environments.

Attitudes toward real estate and sustainability. The global pandemic as well as the climate crisis have accelerated the need for healthy and human centered buildings that are designed and equipped to enhance health, and promote the mental, social and physical well-being of its residents. Places that are human, green and authentic are key priorities according to our respondents:

Q: With regards to the places that your organization aspires to create, which are your most important priorities?

1. **Places that are human:** promote healthy lifestyle, safety and well-being
2. **Places that are green:** respectful of earth’s resources and acting for the climate
3. **Places that are authentic:** promoting a strong sense of company culture and brand identity
4. **Places that are inclusive:** promoting diversity and equity within a strong community
5. **Places that are resilient:** able to innovate and adapt to future crises
6. **Places that are augmented:** digitally connected with tools improving daily life

Two-thirds (68%) of occupiers say that carbon emissions reduction is currently part of their corporate sustainability strategy. 56% of occupiers state that carbon emissions reduction is being specifically addressed as part of their corporate real estate strategy. A further 29% expect to address it by 2025. Investors with sustainability strategies will be better positioned to address the future goals of their tenants.

Investors recognize that pursuing carbon reduction through green strategies and certifications will also support value creation within their portfolio:

73%

of investors say that green strategies drive higher occupancy, higher rents, higher tenant retention and overall higher value (29% strongly agree, 44% agree).

73%

of investors state that green certifications drive higher occupancy, higher rents, higher tenant retention and overall higher value (25% strongly agree, 48% agree).

The priorities of the investor and occupier communities are becoming aligned. Both communities are striving to create places that are green and places that are more human-centered:

42%

of occupiers state that green places are one of their top two priorities, just behind human places (43%).

41%

of investors say creating places that are green is one of their top two priorities, just behind places that are human (45%).

The imperative for real estate to play a critical role in reducing carbon footprints and to help fulfill sustainability commitments and targets has never been stronger. Corporates occupiers are responding to the call to address climate change, and investors are aligning themselves to sustainability commitments. For corporate occupiers, a strategic approach is necessary, with real estate and sustainability priorities aligned with overall corporate objectives.

Investors and occupiers also recognize the brand and reputation-enhancing aspects of green-proofing their real estate:

43%

of investors say enhancing brand visibility, image and reputation is a leading motivator for their carbon reduction strategy. In North America, however, there is a greater emphasis on the financial considerations of green strategies.

For occupiers, there is now a unified belief across the C-suite that sustainable strategies will enhance value creation throughout the organization. Sustainability efforts are now being strongly driven by factors such as enhancing brand reputation (46% agree), improving access to favorable financing and capital investment (37%), boosting financial performance (36%), and attracting and retaining talent (36%).

Figure 9: Top five drivers for carbon emissions reduction

Drivers for carbon emissions reduction – Occupiers #426 respondents - What are the top five drivers for carbon emissions reduction initiatives in your organization?

Lessons from leading occupiers and investors

1 **Transformative thinking is required.**

‘Leading’ occupiers say they are taking a transformative approach to carbon reduction by embedding sustainability into their business models. They know that real estate is a major contributor of carbon emissions and realize that radical thinking on how to address it is required. Investors are similarly looking to address sustainability through the asset life cycle, from capital raising through acquisitions, financing and the management of portfolios.

2 **Focusing on decarbonization can deliver real competitive advantage.**

‘Leading’ investors see a genuine and transparent commitment to ESG as a way to attract capital.

49%
say that improving access to favorable finance and capital investment is a major driver of their sustainability plans.

3 **Sustainability is now a key criteria in building selection for occupiers and in acquisitions for investors.**

54%
of ‘leading’ occupiers are prioritizing building credentials in occupancy decisions

80%
of ‘leading’ investors say they consider climate risk and resilience as part of their due diligence process when acquiring new real estate.

4 Adopt a win-win mentality.

'Leading' occupiers see sustainability as a win-win for themselves, the planet, the health of society and their employees, whereas those in the 'starting out' segment are more likely to be motivated by regulatory pressures.

5 Accreditations are growing in popularity as a means to demonstrate green credibility.

52%
of 'leading' occupiers prioritize building credentials today.

96%
of 'leading' occupiers expect to be prioritizing building credentials in the acquisition and occupation phases of their real estate life cycle by 2025.

Key Insight #3

Translating ambitions and sustainability targets into action is the next big challenge.

A systemic change in the commitment to fight climate change is now evident - occupiers and investors alike see the value in acting responsibly to drive down carbon emissions and accelerate the race to net zero. However, while 'leading' organizations are setting the pace and showing the way forward, most others have much work to do to translate robust ambitions into clear, actionable real estate strategy.

Most occupiers and investors are still at the early stage of their carbon emissions reduction journey and a long path is ahead of them. Even so, the rise in the commitment of organizations to fight climate change is increasing the value of acting responsibly to drive down carbon emissions and accelerate the race to net zero and long-term resilience. Importantly, organizations will need to demonstrate complete integrity by making positive changes to their culture (with their employees and customers) and across their entire operations and life cycle of real estate.

Investors are making commitments to globally-recognized goals, with significant additional adoption of targets anticipated in the next 12 months. These commitments are consistent across North America, Europe and Asia Pacific.

38%

of investors say they have published/measured environmental goals.

43%

of investors state that they have a net zero carbon or race to zero goal. A further 28% expect to have one within the next 12 months.

37%

of investors have adopted science-based targets. A further 30% expect to do so within the next 12 months.

32%

of investors have adopted other Paris Agreement-aligned targets. A further 30% expect to do so within the next 12 months.

Translating commitment to carbon emissions reduction into measurable targets

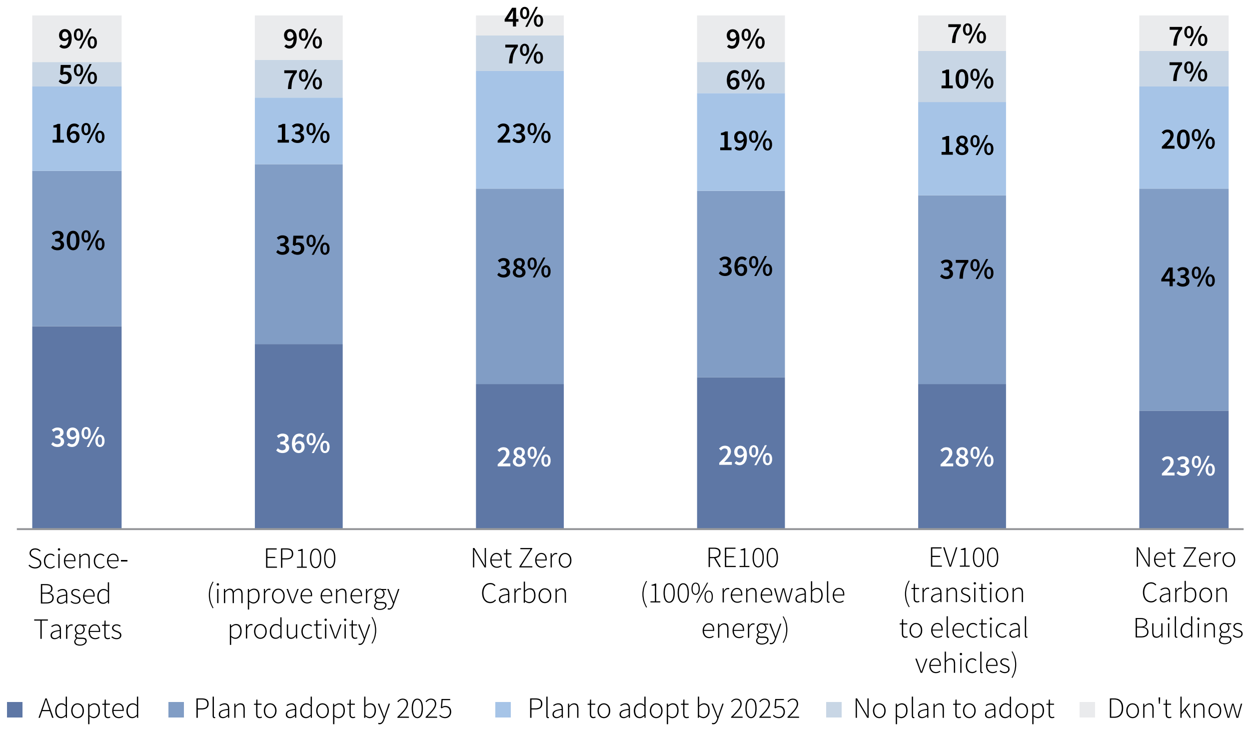


Figure 10: Measurable Targets – Occupiers #405 respondents - Has your organization translated its commitment to carbon emissions reduction into any of the following measurable targets?

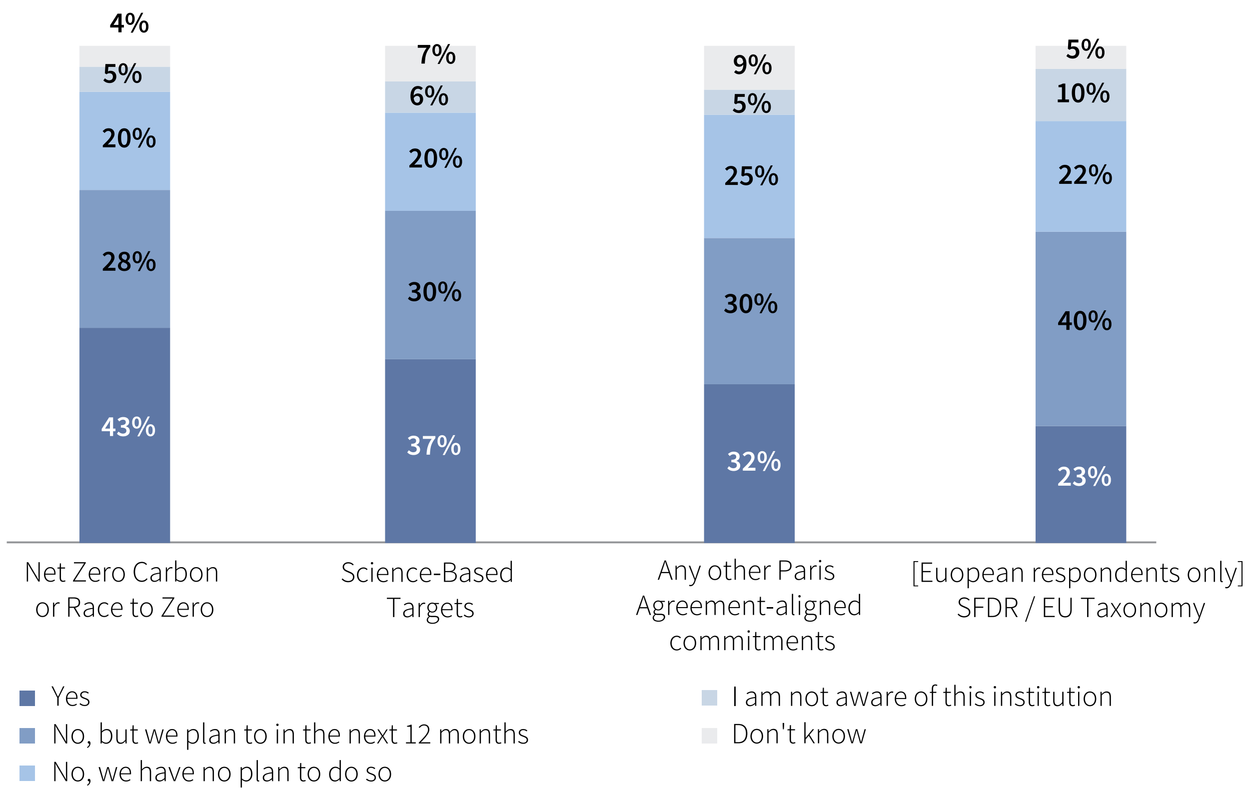


Figure 11: Measurable Targets – Investors #221 respondents - Has your firm made a commitment regarding these targets or is your firm responding to new regulations in your market in relation to your real estate holdings?

Lessons from leading occupiers and investors

1

Decisive action is required over the next decade.

82%
of 'leading' occupiers plan to meet their net zero carbon target by 2030. This compares to just 60% of those who are in the 'starting out' segment.

96%
of 'leading' occupiers expect to be prioritizing building credentials in the acquisition and occupation phases of their real estate life cycle, by 2025.

2

Ambitions need to be translated into clear action plans that can be delivered.

88%
of 'leading' investors say they have a detailed action plan to achieve their environmental goals as opposed to 13% for those that are 'starting out'.

49%
of 'leading' occupiers say they have an action plan that they are already implementing.

Key Insight #4

There is a wide spectrum of opportunities for real estate to flatten the climate curve.

Real estate presents a wide spectrum of carbon reduction opportunities, and equally large challenges, from 'quick wins' that are easily implemented to advanced, high-investment strategies that can help flatten the climate curve.

Occupiers are embracing a range of practical steps to deliver progress, ranging from more mainstream solutions (such as waste and energy usage) to sophisticated solutions (onsite and offsite solar or carbon offsets), by rapidly investing in climate resilient strategies and supporting the transition to net zero carbon. 'Leading' investors are also engaging in the full suite of environmental solutions while those 'on the path' or 'starting out' show strong appetite to adopt such strategies in coming years. To stay firmly on the decarbonization track, however, occupiers and investors need to remain focused on the real game-changing activities, with a clear green roadmap of the changes that will deliver maximum impact. The uptake of advanced approaches is expected to grow significantly between now and 2025, demonstrating that there is the 'will' to drive positive impact.

Both investors and occupiers are embracing a range of practical steps to deliver progress, ranging from quick wins to sophisticated green strategies:

41%
of occupiers are self-generating renewable energy. This is expected to reach 64% by 2025.

38%
of occupiers are buying carbon offsets. This is expected to reach 72% by 2025.

38%
of investors are using technology to optimize building performance and maintenance. This is expected to reach 79% by 2025.

35%
of investors are seeking to reduce embodied carbon in new developments. This is expected to reach 72% by 2025.

'Leading' investors are already engaging in sophisticated solutions, while 'on the path' and 'starting out' investors show strong appetite to adopt said solutions in coming years.

95%
of 'leading' investors already procure renewable energy (offsite). In contrast, 32% of 'on the path' and 'starting out' investors procure renewable energy, and this is projected to increase to 68% by 2025.

80%
of 'leading' investors already reduce embodied carbon on new developments. In contrast, 25% of 'on the path' and 'starting out' investors reduce embodied carbon on new developments, and this is projected to increase to 66% by 2025.

63%
of 'leading' investors already self-generate renewable energy (onsite). In contrast, 20% of 'on the path' and 'starting out' investors self-generate renewable energy, and this is projected to increase to 59% by 2025.

Top initiatives already adopted, or planned to be adopted - by occupiers

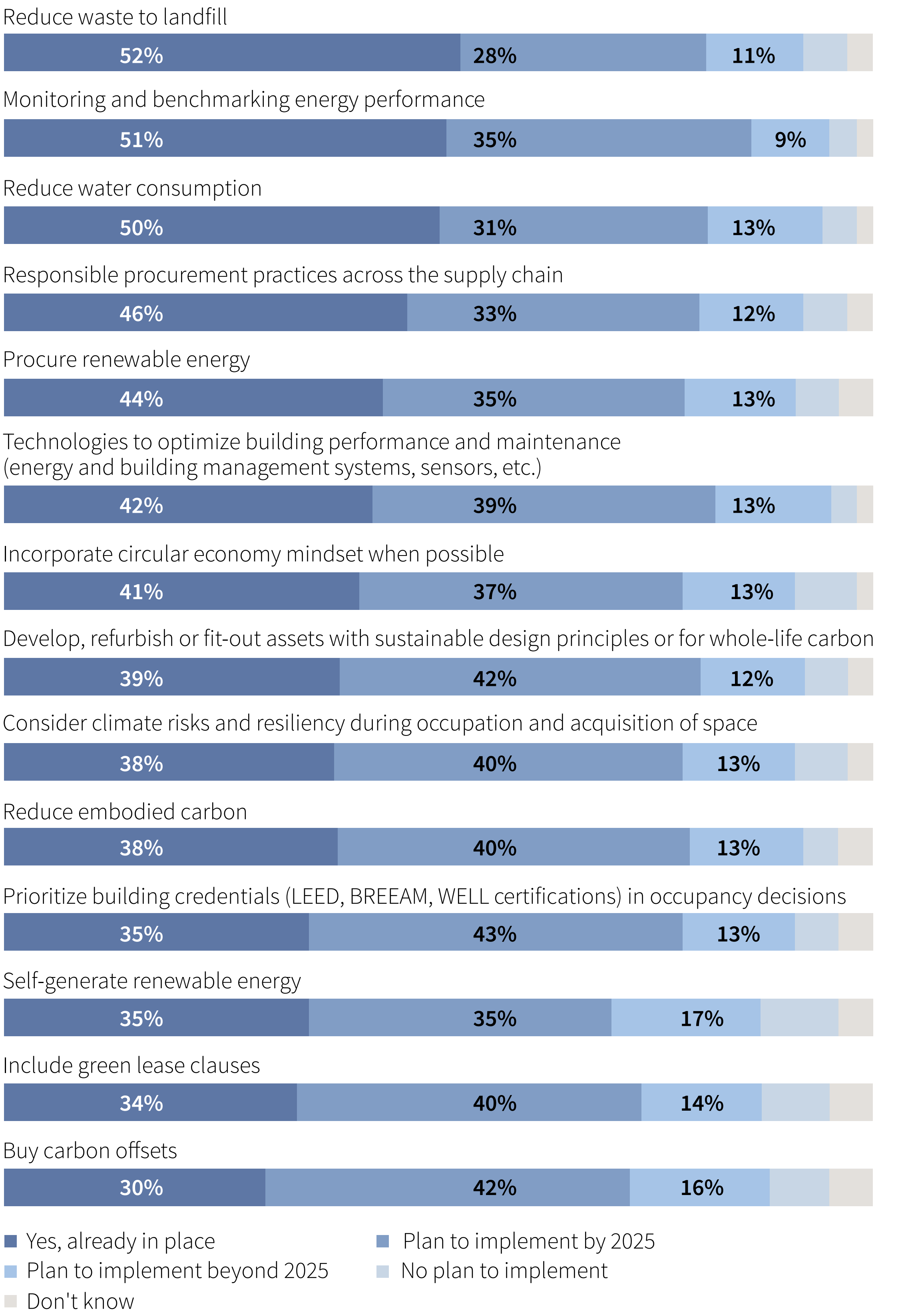


Figure 12: Initiatives – Occupiers #327 respondents - Which of these initiatives have you adopted, or plan to adopt, in your organization?

Top initiatives already adopted, or planned to be adopted - by investors

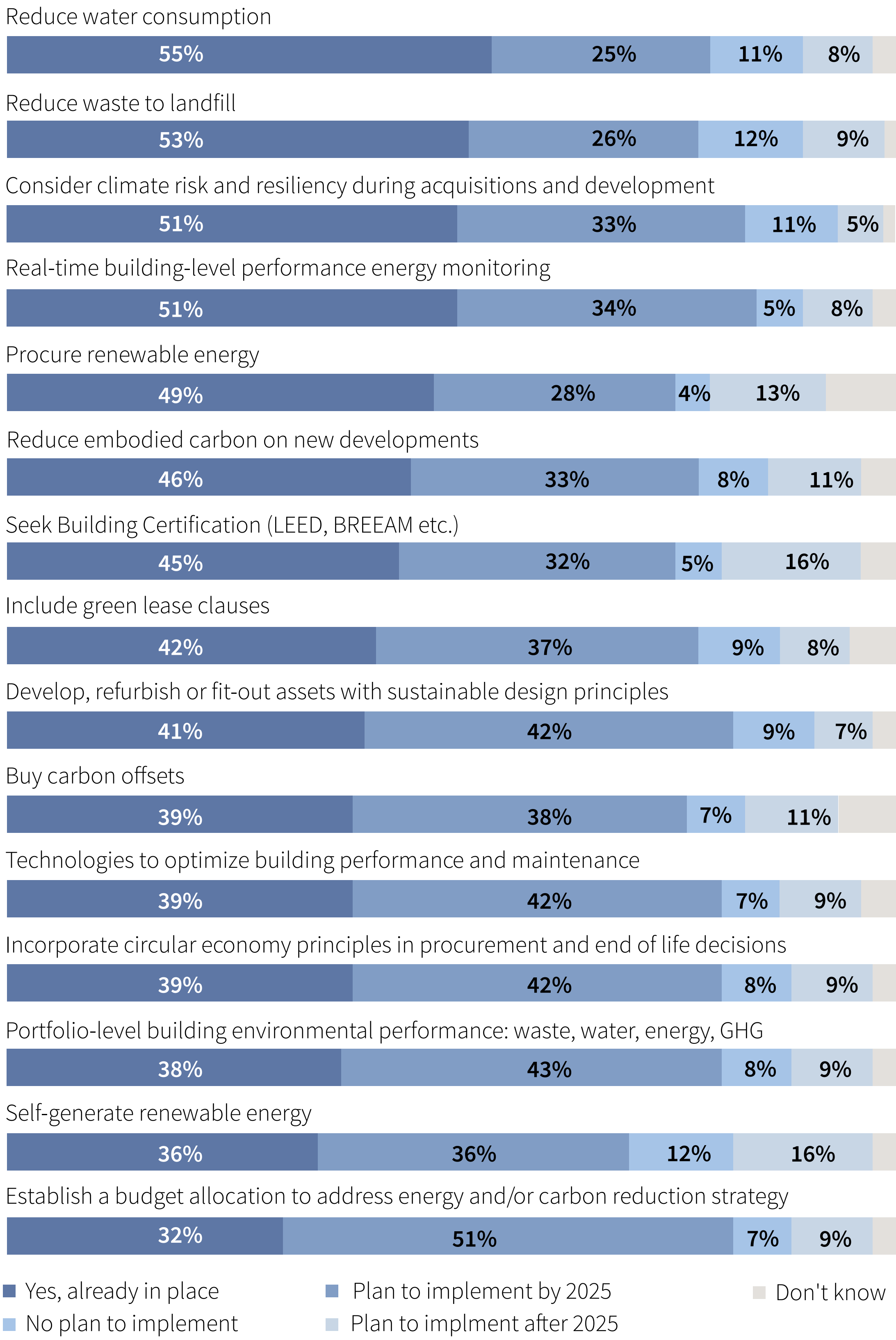


Figure 13: Initiatives – Investors #221 respondents - What sustainable strategies has your firm currently employed?

Lessons from leading occupiers and investors

1 **Getting to net zero will be iterative and continuous, requiring various solutions along the way.**

'Leading' investors are aligning their decarbonization investment decisions to their broader investment strategies, taking an iterative approach and selecting from the full suite of solutions to meet their goals. Not all solutions will be appropriate for every building, but keeping an eye out for possible incremental improvements can amount to significant results over time.

2 **Continually monitor progress.**

20%
of occupiers say that monitoring and benchmarking energy performance is their biggest game-changing activity.

46%
of 'leading' investors state investing in digital technologies as a top three area of investment arena in coming years.

3 **Renewable energy (either onsite or offsite) is a core part of the journey toward net zero.**

51%
of 'leading' investors say investing in renewable energy will be among their top three areas of investment over the next three years.

Key Insight #5

Technology has a critical role in driving the transition to net zero and enabling greater transparency.

A key enabler in driving the transition to net zero is technology. Data is the single biggest catalyst for green progress, as enhanced data capabilities provide opportunities for continuous improvement based on real-time analytics and automated decision-making.

The power and potential of data, underpinned by smart technologies, will be paramount in enabling the journey to net zero through its monitoring and performance measurement capabilities across real estate operations and investment portfolios. The dependency on data will continue to expand, propelled further by the need for stronger, more transparent reporting. However, current technology and data capabilities across many organizations do not match future requirements and targets, meaning that the 'digital gap' will need to be closed by significant investment that is careful to augment technology, automation and human tracking.

Both investors and occupiers recognize the decisive potential of technology to drive measurement and reporting improvements and to accelerate their decarbonization journey. Even so, with reporting processes and requirements continuing to be strengthened alongside demands for greater transparency, further effort will be needed to enhance data capabilities. In addition, as more complex performance measurement capabilities to fight climate change through real estate operations become essential, so the investment in and adoption of advanced technology will assume even greater significance.

Underinvestment in technology is holding back investors from making progress. This will be a priority area for future investment:

74%
of investors see insufficient technology infrastructure as a barrier to reaching environmental goals, with 25% citing it as a major barrier.

39%
of investors say investing in digital solutions will be one of their main areas of investment over the next three years.

For occupiers, technology also represents a significant area of investment:

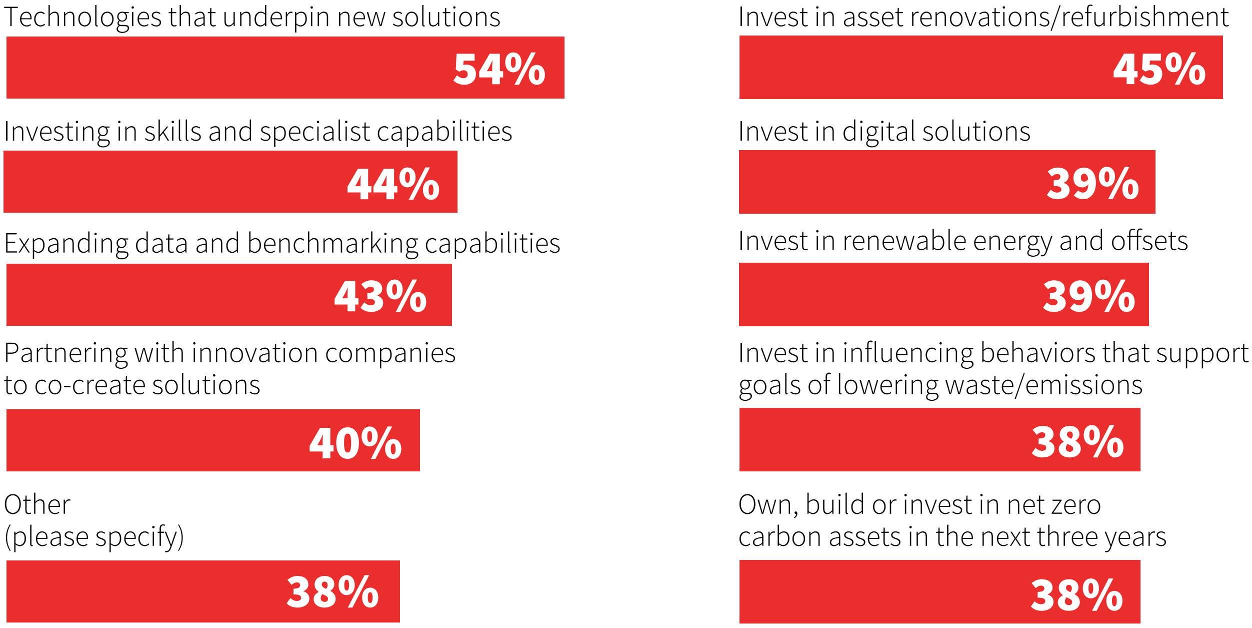
84%
of occupiers agree that digital solutions will be critical in achieving sustainability goals.

In the next three years, over half (54%) of occupiers see investment in technologies that underpin new solutions as one of their three largest areas of investment to help them achieve their carbon reduction targets.

Figure 14: Top five largest areas of investment to address your carbon emissions targets over the next three years

Occupiers (#426)
Which one of these actions will be the biggest game-changer for your organization over the next two years?

Investors (#221)
Which three of the following represent your largest areas of investment to address your environmental targets over the next three years?



Further effort is needed to enhance transparency through greater reporting and measurement capability.

- For investors, lack of consistent and validated data is identified as a barrier by 74%, with 26% citing it as a major barrier.
- Most investors (55%) describe their current data and measurement capabilities as 'developing': they are starting to collect data and are beginning to report their findings to stakeholders on a periodic basis. For occupiers, the equivalent figure is 51%.
- A large majority of occupiers (84%) agree that digital solutions will be critical in achieving sustainability goals. 44% are also prioritizing investment in skills and specialist capabilities and/or expanding data and benchmarking capabilities (43%).

How would you describe your organization's environmental sustainability measurement and reporting maturity today?

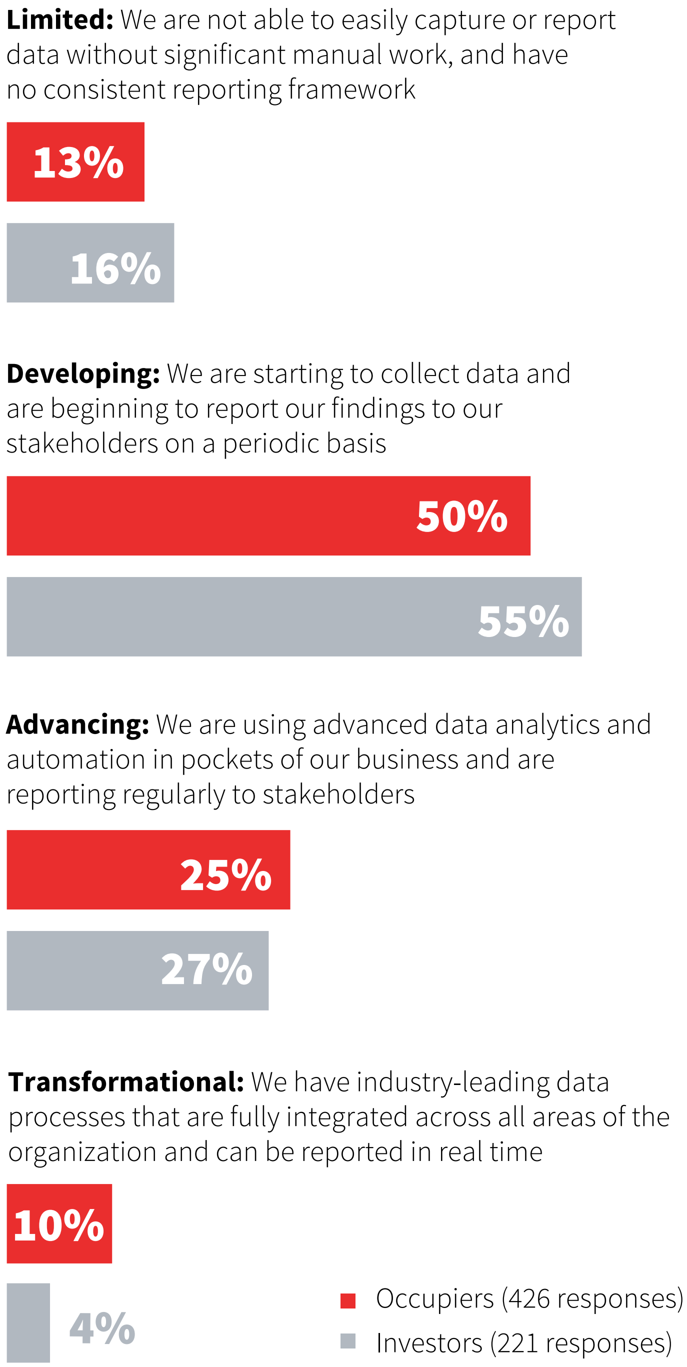


Figure 15: Measurement and reporting capabilities: Occupiers #426 - and Investors #221 - How would you describe your measurement and reporting capabilities for environmental data?

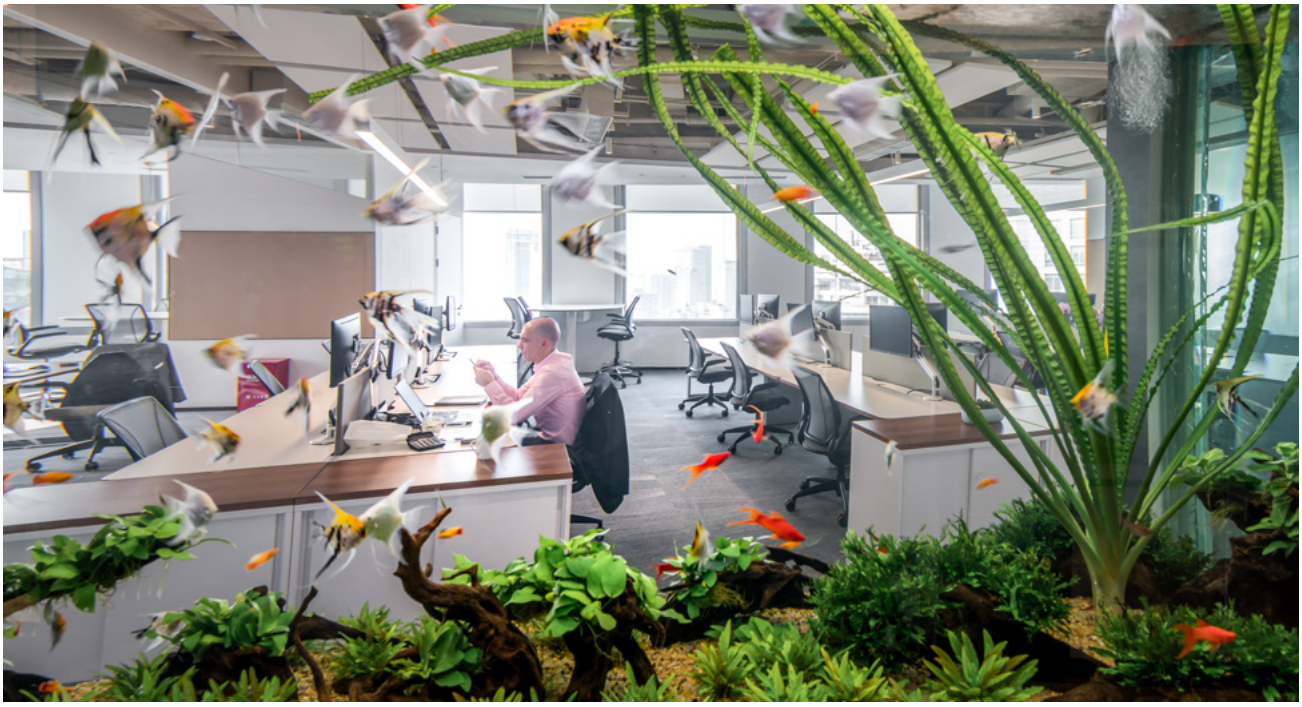
Lessons from leading occupiers and investors

1

Embrace technology and transparency to accelerate action.

89%

of 'leading' occupiers say they have carbon emissions reporting that is communicated externally on a regular basis.



2

Strive for continuous improvement and real-time analytics.

'Leading' investors and occupiers recognize that enhanced data capabilities provide opportunities for continuous improvement based on real-time analytics and automated decision-making.

26%

of 'leading' occupiers say they have fully integrated data processes that can be reported in real time, compared with just 5% of those 'starting out'.

Key Insight #6

Expanding demand for sustainable space is in danger of outstripping supply in many markets.

As the demand for green space increases, the retrofitting and development of buildings represents a significant opportunity in the transition to a low-carbon economy. Occupiers are responding to the increasing expectations of their employees, as companies are now increasingly conscious that the demand from their workers for green and sustainable places is and will remain strong. The demand for buildings with certifications is rapidly accelerating and over one third of occupiers are committing to occupy net zero carbon buildings in the future. In turn, progressive investors are already preparing for the expected increase in demand from occupiers. However, our analysis suggests that the investor community may be underestimating the extent to which demand will grow.

Occupiers

Occupiers are paying greater attention to a building's carbon credentials in the occupancy decision-making process.

79%

of occupiers are prioritizing location searches for buildings that will help reduce their emissions. This figure is 93% for occupiers in the 'leading' segment.

37%

of occupiers say that investment directed toward occupying net zero carbon buildings is one of their top three priorities.

Occupiers who are only 'starting out' on their carbon reduction journey are predicting that they will rapidly increase the focus on building certifications in occupancy decisions, with a 40% rise in prioritizing building certifications anticipated for the 'starting out' segment by 2025.

CRE leaders will also place greater significance on building certifications during occupancy decisions: while 38% consider these during occupancy decisions today, this is expected to increase to 74% by 2025.

Investors

Investors, on average, appear to be underestimating the demand for green space:

61%

of 'leading' investors strongly agree that occupiers will increasingly demand green and sustainable spaces: this compares to 19% for the 'starting out' segment and 32% for the 'on the path' segment. In comparison, 42% of occupiers believe employees will increasingly demand green and sustainable space, as stated above.

63%

of 'leading' investors say they will prioritize investments to own, build or invest in net zero carbon assets, against 24% for the 'starting out' segment and 40% for the 'on the path' segment, indicating again that supply will likely lag demand.

The pursuit of building certifications (LEED, BREEAM, etc.)

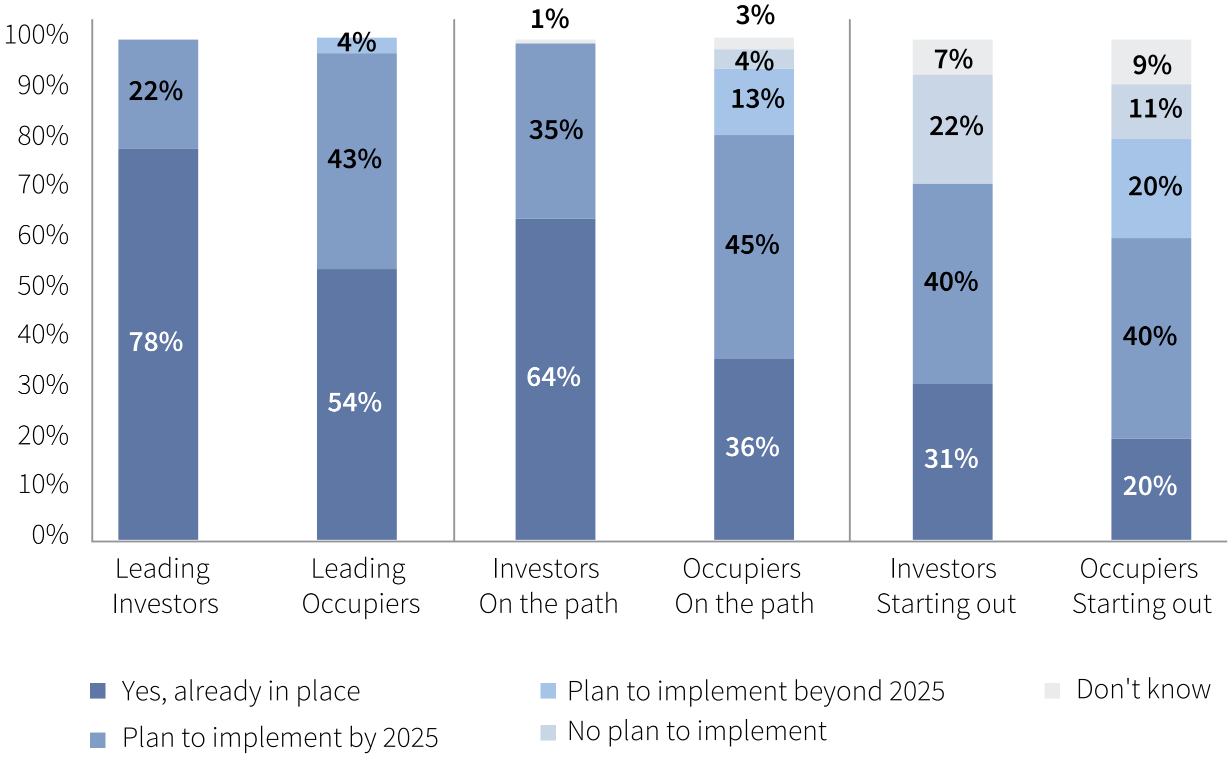


Figure 16: Building Certifications / Credentials:
Occupiers #426 and Investors #221 - Which of these initiatives have you adopted, or plan to adopt, in your organization? - Building credentials/certifications (LEED, BREEAM, WELL, etc.)

Lessons from leading occupiers and investors

1 Demand for green and sustainable space is going to rise in coming years. The 'leading' occupiers are sending a strong demand signal and the 'leading' investors are attuned to it.

2 Leading investors additionally show stronger conviction around the value proposition of green spaces.

3 'Leading' occupiers and investors prioritize, first and foremost, creating places that are human (promoting healthy lifestyles, safety and well-being), and places that are green (respectful of earth's resources).

“The real estate industry is at a tipping point, as many of us recognize the pressing need to build a better future for our communities and our world. The only way to create a significantly decarbonized built environment that will benefit us all is by adopting a collaborative approach in which everyone – from investors and corporate occupiers to governments and community organizations – works together toward common sustainable targets.

Christian Ulbrich,
Chief Executive Officer, JLL

A long journey ahead

An ecosystem of partnerships will be necessary to accelerate the race to net zero.

The magnitude of the climate change challenge and the urgency with which we need to create a significantly decarbonized built environment requires society-wide buy-in and the mobilization of resources across multiple stakeholder groups. No single stakeholder group, whether in the public or private sector, has the resources or capabilities to accomplish decarbonization on its own.

Moreover, there is an increasing recognition among the broader corporate real estate industry, as highlighted in our survey, that companies cannot overcome the barriers and challenges in the race to net zero unless they commit the right level of investment over several business cycles. For many industry players this will require a cultural shift and the adoption of a more collaborative business model.

An ecosystem of partnerships

The race to net zero therefore needs a shift toward a partnership approach and a blurring of the traditional boundaries between the public and private sectors, between industry and academia and between investors and corporate occupiers.

An ecosystem of partnerships is expected to emerge comprising the various stakeholders in the built environment – from property owners, investors, construction firms, corporate occupiers and venture capitalists to national and city governments, academic institutions, employee groups and community organizations – who will work together toward common sustainable targets that:

- ✓ **Create the right balance between regulation, incentivization, coercion and advocacy.**
- ✓ **Bring an iterative approach that leverages latest technology, innovation and green solutions as they become broadly available.**
- ✓ **Embed transparency and the development of new real-time metrics.**
- ✓ **Facilitate long-term planning over multiple business cycles.**
- ✓ **Cover national, city and local neighborhood-level frameworks.**
- ✓ **Embrace large and, crucially, smaller players.**
- ✓ **Are fully integrated with social goals.**

Support for a more collaborative approach is evident from our survey. Most occupiers and investors agree that a strong partnership between cities, occupiers and investors will be instrumental in driving the net zero carbon agenda. Moreover, real estate investors and occupiers say they will proactively prioritize those locations which help them reduce carbon emissions.

At the same time, expectations and hurdles are equally high. There is a sense that administrations in top-tier cities are not doing enough. Investors and corporate occupiers would like to see bolder actions being taken by cities to mitigate climate risks. After all, building owners and occupiers have little direct control over factors such as local energy infrastructure (e.g., renewables versus fossil fuels) and have a lack of visibility over complex supply chains (for construction materials).

Likewise, real estate occupiers should not have to shoulder all the burden for reducing carbon emissions. With good reason, they expect support from landlords and city governments to help them make more significant progress. Both investors and occupiers would like to see clearer and stronger incentives that bring about the right behaviors.

Our survey identifies a minority of players who have no plans to adopt sustainable practices, but we sense that they are representative of a significant long tail of small owners and occupiers that are not incentivized to decarbonize; where the financial burden for retrofitting or achieving green-building certification is proportionally higher, and where there is a knowledge gap that impedes progress. A partnership approach that creates scale and plugs gaps in know-how will be essential to bring about change among smaller players. This will be particularly important to meet the huge challenge of building retrofits.

Lessons from leading occupiers and investors

1

Draw on external expertise to co-create solutions and co-fund projects.

53%
of leading occupiers see partnering with innovation companies to co-create solutions as one of their three biggest areas of investment.

38%
are funding projects directly with service providers and suppliers.

2

Sharing access to data and resources can enhance the power of partnership.

'Leading' investors are working with a broad ecosystem of partners to achieve long-term carbon reduction, including working closely with occupiers to educate and persuade them to adopt carbon reduction initiatives and to share data and analytics.

3

Investors are allocating capital to cities that are the most climate change progressive.

68%
of 'leading' investors strongly agree that they will prioritize investing in cities that are climate change progressive.

What does this mean for city governments and leaders?

1. **City governments should see real estate owners, developers, investors and occupiers as city-shaping partners** that can help to achieve environment goals which would otherwise be difficult. There is strong potential to leverage the intelligence, skills, innovations and financial acumen of business to achieve environmental and social goals.

2. **City leaders should recognize that there is a robust appetite among the real estate industry to prove their environmental credentials and support climate action.** More than half of corporate occupiers in the survey cite meeting society's expectations for good corporate behavior as a top driver for carbon emissions reduction initiatives.

3. **Collaboration between the public and private sector will also help define the right balance between incentives and encouragement versus regulation, penalties and taxes.** Voluntary partnerships can be effective at generating multi-stakeholder buy-in that encourages stakeholders to proactively contribute to sustainability goals. For example, through its 'Energy Leap' initiative, the City of Copenhagen is partnering with the largest building owners, covering 20% of the city's stock, to reduce energy consumption in buildings through implementing active energy management.

4. **City governments must also lead the way and set an example by decarbonizing their public building stock, and in doing so help influence market transformation.** 28 cities globally are signatories to the WorldGBC's Net Zero Carbon Buildings Commitment, which binds them to reach net zero carbon in the operation of all buildings within their portfolio or under their direct control by 2030. The Commitment also includes a pledge to advocate for all buildings to be net zero carbon in operation by 2050.

5. **City governments, in partnership with universities and local green building councils, have an important role to play in educating and disseminating know-how to the private sector**, particularly to SMEs as well as the wider public on net zero building construction and deep energy retrofitting. Leading examples include the New York City Retrofit Accelerator, the City of Vancouver Zero Emissions Building Centre of Excellence (ZEBx), the UAE's Net Zero Centre of Excellence and the Net Zero Building Technology Accelerator in Los Angeles.

What does this mean for investors and corporate occupiers?

1

'Leading' investors and corporate occupiers will increasingly need to become collaborative stewards in the race to zero, leading by example and sitting alongside city governments.

The Better Building Partnership's (BBP) Climate Commitment, for example, is a collaboration of the UK's leading commercial property owners who are working together to improve the sustainability of commercial building stock. At a global level, the Net Zero Asset Managers Initiative is a group of 87 asset managers, with circa US$37 trillion of assets under management, that is committed to supporting the goal of net zero emissions by 2050.

2

Investors and occupiers will need to familiarize themselves with the environmental aspirations, actions and challenges of the cities in which they have existing assets, so that they can contribute both directly and indirectly to making a city's environment goals achievable.

Cities' environmental goals are becoming more ambitious, and the real estate industry should seek to partner with city governments to set achievable targets and define regulatory frameworks relating to the built environment.

3 The close alignment of the environmental priorities of both property owners and occupiers should encourage greater collaboration and partnerships.

Traditionally, the relationship between owners and occupiers has been somewhat distant, with interactions limited to price negotiations and contract renewals. As we emerge from the pandemic, collaboration, transparency and sharing of data between owners and occupiers will become increasingly important, particularly in relation to service charges and the costs of energy efficiency improvements. In France, for example, green lease clauses (annexe environnementale) are mandatory for all large commercial leases, requiring all parties to share data, regular reviews of the environmental performance of a property, and commitment to a program of improvements to the environmental and energy performance of the property.

4 Partnerships with academia can enable the real estate industry to understand the latest research, innovations and technology, which can be incorporated into developments and ask needle-moving questions that can inform strategies.

Most recently, JLL participated in a series led by MIT Center of Real Estate Innovation and Harvard Medical School to explore the impact that the built environment can have on health outcomes. This work demonstrates that through public-private partnerships, healthy returns are indeed possible for people, the planet and investors alike.

5 Partnerships at a neighborhood level – involving city governments, landowners, occupiers, academia and community organizations – have the potential to yield impressive results.

The private sector often lacks the power or capacity to intervene at the city level, so a neighborhood district can be a high-profile platform particularly for those actors trying to establish themselves as innovation leaders in the field of sustainability. Examples include Europe's 'Urban Living Labs' – urban sites (e.g., streets, districts) where public and private actors are testing innovations in buildings, transport and energy systems in real time.

Bridging the gap between intent and action

There is broad recognition that transitioning to a low-carbon economy is both complex and critical. This realization is very encouraging. By leaning into the ecosystem of partnerships, all parties will be better able to bridge the gap between 'intent' and 'action' and make the best of this vital decade of action.

Networks of government, owners, businesses, investors and communities will mean that we can more easily adopt and scale innovations in sharing and circular business models, promote sustainable mobility, regenerate urban infrastructures and, ultimately, reduce environmental footprints.

The way forward

The built environment has a huge role to play in building a healthier, more sustainable world. The real estate industry has realized that it will not overcome the barriers and challenges in the race to net zero operations unless it commits the right level of investment over a long period of time and in collaboration with an ecosystem of partners. The race to net zero needs to shift beyond traditional boundaries and bring together investors, occupiers and cities to work toward common sustainable targets.

Shifts required to thrive in an era of Responsible Real Estate

Image-driven	➡	**Performance-driven**
Specialized solutions	➡	**Embedded solutions**
Profit driven	➡	**Purpose beyond profit**
Shareholder value	➡	**Multi-stakeholder value**
Any growth	➡	**Sustainable growth**
Risk-based	➡	**Reward-based**
Financial indicators	➡	**Financial & non-financial targets**
Short-term thinking	➡	**Long-term thinking**
Marginal results	➡	**Scalable outcomes**

Occupiers and investors surveyed by JLL reported that their top priorities are to create places that are human and green. 'Leading' occupiers are taking a transformative approach to carbon reduction by embedding sustainability into their business models, while 'leading' investors believe focusing on decarbonization can deliver value and a competitive advantage.

Multiple factors are driving the heightened focus on sustainability. For one, 'leading' occupiers and investors are outpacing policymakers in their ambitions, because they believe decarbonizing is the 'right thing' to do for their employees, customers, tenants, communities and the planet. Even if, at times, they are compelled by regulation, they are looking to national and city governments to take a bolder stance through incentives, education and infrastructure investment.

There is significant value in acting responsibly. JLL's research found that 83% of real estate occupiers and 78% of investors think that climate risk poses a financial risk. For occupiers and investors, the myriad of no-cost and low-cost options have game-changing potential to generate increased operational efficiency and better financial performance. For investors, there is the opportunity to create value and resilient portfolios through the creation of premier, green real estate assets. Conversely, the downside risks of inaction are now too strong, and few see inaction as viable.

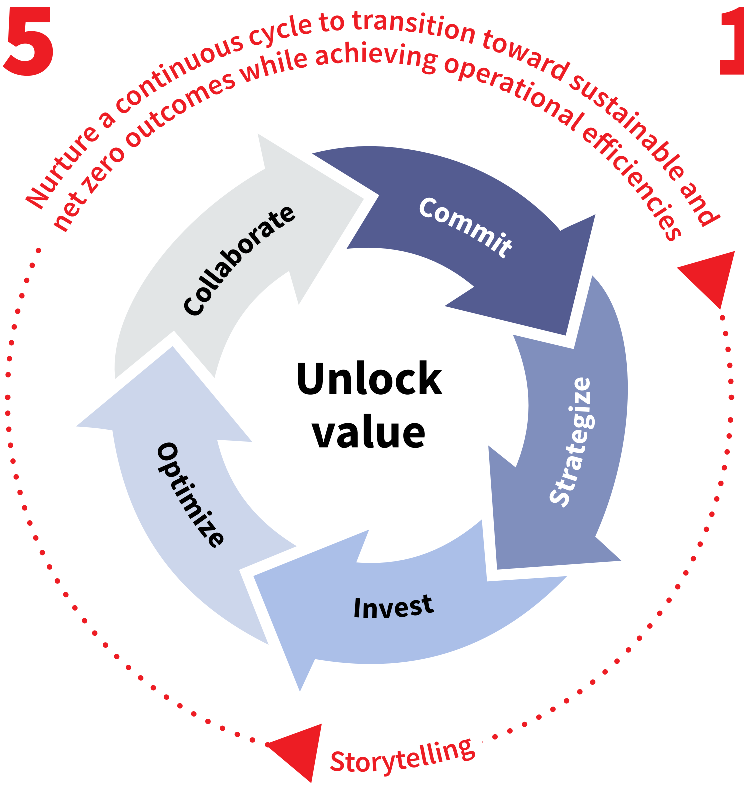
Evolving and adapting the built environment in sustainable and responsible ways requires mindset shifts, while succeeding in the 'age of responsibility' necessitates change at the societal, organizational and individual levels. These practices hold the key to making change happen and enabling the shift:

1. **Purpose:** The crisis is separating those who talk the talk from those who deliver through purpose-driven action.
2. **Scalability:** The time has come for businesses to focus on scalable solutions with immediate impact, clear targets and the right level of investment.
3. **Alignment:** Align organizational purpose and real estate strategy with societal goals and expectations to embed long-term solutions and gains.
4. **Innovation:** Innovate responsibly and for the long term - align efforts to drive and support innovation with sustainability goals.
5. **Partnerships:** Work across functions and collaborate deeply with all parties that influence the built environment (investors, occupiers, cities, governmental organizations, society at large).
6. **Metrics that Matter:** Tracking non-financial metrics (pertaining to ESG) alongside financial metrics will provide a more rounded view of success and progress.
7. **Transparency:** A robust, transparent, data-driven approach is key to drive performance and results.

The path toward net zero

Real estate can play a critical role in helping occupiers and investors reduce their carbon footprint and make progress toward their carbon reduction targets. As investors and occupiers recognize the roles they must play in reducing carbon emissions, green intentions are being translated into ambitious sustainability targets. There is a wide spectrum of opportunities for real estate to flatten the climate curve. However, unlocking the value behind these goals requires a well-planned approach.

There are five essential steps the built environment must take to drive the success of its sustainability strategy and unlock the value of real estate to achieve net zero targets:



1

Commit:
Gain alignment internally, establish your baseline and (re)define commitments and goals

2

Strategize:
Design a strategy to translate your commitments into a detailed action plan

3

Invest:
Execute your detailed action plan including investments in operational and capital improvements

4

Optimize:
Engage expertise and leverage technology to monitor and optimize performance against commitments and goals

5

Collaborate:
Participate in the ecosystem of partnerships to accelerate our collective sustainability impact

To find out how we can support your global real estate market strategy with research insights and strategic advice, please contact one of the members of the global research team.

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About JLL's Sustainability Services
Through our end-to-end suite of Sustainability Services, we support our clients at every stage of their sustainability journeys. We start by helping them to develop sustainability strategies and action plans, then execute on those action plans, and optimize for cost and performance. Our sustainability solutions are configured to help our clients achieve their desired outcomes – whether those outcomes be financial, environmental, social, or governance- or resiliency-related – no matter where they are on their sustainability journey. With our end-to-end suite of energy and sustainability solutions, we can meet our clients exactly where they are, help them achieve their desired outcomes, and to do so more effectively and efficiently over time.