Global Real Estate Transparency Index, 2020

Transparency, Digitization, Decarbonization

The imperative for transparent, sustainable and resilient real estate

Welcome

Through eleven editions of the Global Real Estate Transparency Index spanning over two decades, JLL and LaSalle have created what is today the industry's most widely used and, we trust, highly valued benchmark for assessing real estate transparency.

The 2020 Index is launched at a time of massive economic and societal disruption. As governments, businesses and communities grapple with the impacts of COVID-19, the pandemic has brought the issues of transparency and trust into even sharper focus. During times of such uncertainty, the need for transparent processes and accurate, timely data becomes more important than ever.

Our latest survey of 99 countries and territories reveals that improvements to real estate transparency are being made across the globe, but overall progress is still not fast enough for a society demanding higher ethical standards and businesses being held to account to invest and operate transparently and sustainably.

Yet there are reasons to be optimistic and the current disruption may well force the pace of change. We fully expect the mass adoption of technology, together with advancement in data availability and sensor technology, to accelerate the integration of proptech, helping to boost real estate transparency. The real estate industry is now harnessing huge amounts of data, but we will need to ensure that privacy and security are protected by ethical behavior.

Additionally, the imperative to tackle climate change and build a significantly decarbonized economy will lead to new transparency pressures. We are likely to see the rise of new frameworks, regulations and metrics to support the rollout of net zero carbon, resilient and healthy buildings – these will become the new marker of 'gold-standard' transparency.

Added to the mix, hastily enacted regulations intended to address a fast-unfolding COVID-19 pandemic are introducing a new layer of complexity. As we go to press, sorting out these challenges still lies ahead in the second half of 2020 and in 2021.

With all these forces at play, a robust global benchmark has become an essential tool for the real estate industry. We trust that our 2020 edition meets this challenge, providing an objective assessment of real estate transparency across the world and continuing to make an important contribution to the global real estate sector.

Christian Ulbrich
Chief Executive Officer, JLL

Contents

Global Real Estate Transparency Index, 2020

Highly Transparent

Key Characteristics
The world's leading investment destinations. These 10 markets are pushing the boundaries of transparency through technology, a focus on sustainability, anti-money laundering regulations and enhanced tracking of alternatives sectors.

2020 Highlights
The UK, the United States and Australia are the most transparent markets. Ireland is one of the top improvers in 2020, while France, Sweden and Germany also advance.

1	United Kingdom	2	United States
3	Australia	4	France
5	Canada	6	New Zealand
7	Netherlands	8	Ireland
9	Sweden	10	Germany

Transparent

Key Characteristics
European and, increasingly, Asian markets which have strong regulatory frameworks, governance structures and transaction processes. Market fundamentals data and performance measurement are areas for improvement.

2020 Highlights
Switzerland, Finland and Belgium sit on the cusp of 'Highly Transparent', while Singapore, Hong Kong SAR and Japan lead in Asia. Mainland China and Thailand improve and enter the group of 'Transparent' markets.

11	Switzerland	12	Finland	13	Belgium
14	Singapore	15	Hong Kong SAR	16	Japan
17	Italy	18	Denmark	19	Spain
20	Poland	21	Austria	22	Norway
23	Chinese Taipei	24	South Africa	25	Czech Republic
26	Portugal	27	Hungary	28	Slovakia
29	Malaysia	30	South Korea	31	Luxembourg
32	China – SH/BJ	33	Thailand		

Semi-Transparent

Key Characteristics
Dominated by large emerging markets. These countries have made steady improvements in recent years, but need to address issues around corporate governance and regulatory enforcement if they are to progress into the 'Transparent' tier.

2020 Highlights
India, Indonesia, the Philippines and Vietnam are among the Index's top improvers due to regulatory reforms, enhanced market data and sustainability initiatives. Vietnam advances into the 'Semi-Transparent' tier.

34	India	35	Romania	36	UAE – Dubai
37	Israel	38	Russia	39	Mexico
40	Indonesia	41	Greece	42	Bulgaria
43	Turkey	44	Philippines	45	Brazil
46	Croatia	47	Chile	48	UAE – Abu Dhabi
49	Peru	50	Slovenia	51	Mauritius
52	Kenya	53	Botswana	54	Serbia
55	Puerto Rico	56	Vietnam	57	Saudi Arabia
58	Macao SAR	59	Argentina		

Low Transparency

Key Characteristics
Emerging destinations in Africa, the Middle East and Latin America, where market tracking and real estate regulation are still nascent.

2020 Highlights
Costa Rica is among the global top improvers, while Morocco registers progress as it formalises its new REIT framework.

60	Egypt	61	Morocco	62	Colombia
63	Costa Rica	64	Zambia	65	Sri Lanka
66	Jordan	67	Cayman Islands	68	Nigeria
69	Ukraine	70	Bahrain	71	Bahamas
72	Myanmar	73	Pakistan	74	Kuwait
75	Qatar	76	Iran	77	Uruguay
78	Rwanda	79	Kazakhstan	80	Ghana

Opaque

Key Characteristics
African, Middle Eastern and Latin American markets, often hampered by geopolitical and economic challenges. With limited regulatory frameworks in place, these markets are vulnerable to regression.

2020 Highlights
Libya, Lebanon, Tunisia and Tanzania show regression, though some improvement evident in Honduras and Ivory Coast.

81	Oman	82	Ecuador	83	Panama
84	Belarus	85	Angola	86	Tunisia
87	Lebanon	88	Honduras	89	Mozambique
90	Uganda	91	Algeria	92	Ivory Coast
93	Guatemala	94	Senegal	95	Tanzania
96	Dominican Rep.	97	Iraq	98	Ethiopia
99	Libya				

Note: China - SH/BJ = Shanghai and Beijing
Source: JLL, LaSalle

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Transparency is critical to the operation of efficient markets

Real estate has always been the world's largest asset class by value, but it is now becoming an increasingly prominent part of global investment strategies. As a result, more private individuals are being exposed to real estate through their pension funds and insurance policies or holdings in REITs, listed property companies or both closed and open-ended funds. This spotlight on the industry has broadened the definition of transparency with more demand for understanding the impact of investment decisions on the environment and communities. Better transparency is crucial to creating healthy real estate markets which work for all participants, not just the few, and we expect new technologies will accelerate improvements and enable some countries to leapfrog up the ranking in coming years.

Richard Bloxam
Member of the Global Executive Board
Global CEO, Capital Markets
JLL

Executive Briefing
The Global Real Estate Transparency Index, 2020

11th edition of the Global Real Estate Transparency Index

- JLL and LaSalle have been tracking real estate transparency and championing higher standards since 1999. This 11th edition of the Global Real Estate Transparency Index (GRETI) covers 99 countries and territories, and 163 city regions.

- This latest survey has been extended to quantify 210 separate elements of transparency, with additional coverage on sustainability and resilience, health and wellness, proptech and alternatives sectors.

Overall progress is muted, while expectations are high

- The 2020 Index reveals that transparency is progressing across most countries and territories, but overall improvement is the weakest since the period directly following the Global Financial Crisis. While 70% of territories have registered an improvement in score, many jurisdictions are struggling to maintain progress.

- With growing pressure from investors, businesses and consumers, real estate transparency will need to improve further and faster to compete with other asset classes and meet heightened expectations about the industry's role in providing a sustainable and resilient built environment.

- Innovative new technologies are changing how real estate data is gathered and analyzed, and as these technologies become more widespread and the regulatory landscape rapidly evolves, improvements in transparency will depend even more on working closely and collaboratively with governments and civil society to achieve greater transparency.

Dissecting the Global Ranking

The top-performing 'Highly Transparent' markets are driving higher standards

- The top ranks continue to be held by Anglophone countries, with the **UK**, the **U.S.** and **Australia** in the top three positions, while **France** (4th) and **Ireland** (8th) have registered notable gains. Transparency has been boosted in these 'Highly Transparent' markets by a combination of proptech and new data, sustainability initiatives, anti-money laundering regulations and enhanced tracking of alternatives sectors.

Top improvers are concentrated in South and Southeast Asia

- South and Southeast Asia have led advances globally. **India** has registered one of the largest improvements globally, with progress in the country's REIT framework attracting greater interest from institutional investors. India has also edged into the top 20 for Sustainability Transparency through the active role of organizations like the Indian Green Building Council (IGBC) and Green Rating for Integrated Habitat Assessment (GRIHA).

- In Southeast Asia, **Thailand**, **Vietnam**, the **Philippines** and **Indonesia** are all among the global top 10 improvers. Progress in Thailand and Vietnam's main cities, Bangkok and Ho Chi Minh City, has pushed each into a higher tier – 'Transparent' and 'Semi-Transparent' respectively.

Mainland China's leading cities edge into 'Transparent' tier

- **Mainland China** has also continued to advance, with improved market fundamentals data, an active proptech sector and more coordinated land-use planning contributing to its place among the top global improvers. This has helped to push its leading cities, **Shanghai** and **Beijing**, into the 'Transparent' tier for the first time.

Sustainability drives progress among top 10 improvers

- **Abu Dhabi** has emerged as the top global improver in 2020, with its score boosted by government initiatives to improve corporate and real estate sustainability. **Costa Rica**, also among the top 10 global improvers, has seen gains underpinned by continued enhancements to its sustainability standards. Meanwhile, new requirements for large companies to implement climate action plans have helped **Belgium** join the top improvers.

Sub-Saharan Africa, MENA and Latin America struggle to keep pace

- Large swathes of the Middle East, Sub-Saharan Africa and Latin America have seen progress stall due to political and/or economic headwinds. Several large middle-income markets – like **South Africa**, **Mexico**, **Brazil** and **Turkey** – have slipped several places in the global ranking as regulatory enforcement and corporate governance standards have struggled to advance.

A familiar roll call of names dominates the City-level Transparency Index

- Recognizing the material differences in transparency within some national territories, we have extended coverage to 163 city metropolitan areas. **London** once again takes top spot as the world's most transparent real estate market. **Los Angeles**, **San Francisco**, **Sydney** and **Washington DC** round off the global top 5. **Paris** takes the top global position on sustainability transparency.

The Drivers of Real Estate Transparency Improvement

Steady improvement in sustainability transparency

- The most significant progress since 2018 has been made in the Sustainability components of the survey, where an increased focus on corporate social responsibility and acknowledgement of the need to create a sustainable built environment bring ESG considerations into the mainstream. Green building certification systems and energy efficiency standards are widespread in the higher-performing countries.

- **France** and **Australia** have taken the global lead on sustainability transparency and been among the first adopters of new sustainability initiatives, such as water efficiency standards or net zero carbon frameworks.

A new focus on zero carbon buildings

- There is a rising expectation that the real estate industry will deliver zero carbon buildings and, in response, the GRETI Survey now covers initiatives relating to net zero carbon building frameworks. Leading the charge are a number of Green Building Councils, such as UKGBC in the **UK** and GBCA in **Australia**, that have developed national frameworks for net zero carbon buildings.

Health and wellness take center stage

- The COVID-19 pandemic has brought the health agenda to the fore, and health and wellness building certification has been included in the Transparency Survey for the first time, although adoption is not currently widespread. WELL Building Standard and Fitwel, both originating from the **U.S.**, remain the foremost certification systems internationally. Nationally-developed systems are beginning to emerge such as **Australia**'s NABERS Indoor Environment and **Singapore**'s BCA-HPB Green Mark for Healthier Workplaces. **India** is also taking steps with its IGBC Health and Well-being Rating.

Building resilience rises up the agenda

- The impact of climate risks on physical assets is of increasing concern and has been outlined by the Task Force on Climate-related Financial Disclosures (TCFD). In response to these growing risks, the real estate industry is starting to develop its approach to resilience, and the Transparency Survey has put a stake in the ground by including building resilience codes in this year's edition, with industry groups in **Australia** and the **U.S.** taking the lead in creating resilience frameworks.

Technology, proptech and transparency

- We continue to see the rise of proptech across all parts of the real estate industry. The growing adoption of proptech platforms, digital tools and 'big data' techniques are rapidly increasing the volume of real estate market data available. Online marketplaces, shared economy platforms and asset management tools through to digital twins, smart cities and smart buildings are all serving to improve transparency.

- Our survey reveals that the highest level of proptech adoption is unsurprisingly in the 'Highly Transparent' markets – such as **France**, the **Netherlands**, **Australia**, the **UK**, **Canada** and the **U.S.**, as well as the high-income Asia Pacific markets like **South Korea**, **Singapore** and **Hong Kong SAR**. Significantly, several less transparent, larger emerging markets also stand out on proptech adoption – including **India**, **South Africa**, **Brazil** and **China**.

Enhanced tracking of alternatives sectors

- Institutional investors are active in alternatives sectors in over half of markets tracked by GRETI. A positive feedback loop between rising niche property-type institutional investment and greater market data availability has propelled sectors like self-storage, data centers and life sciences to the leading edge of real estate transparency improvement.

- Transparency in these niche sectors still has significant room for improvement, and we expect alternatives to be a primary driver of progress in the Transparency Index in coming years.

What's Next for Real Estate Transparency?

COVID-19 creates a fast-changing legal and regulatory environment

- The Transparency Survey was completed in February and March 2020, just as the lockdown of economic activity was underway in the Americas and Europe, having already occurred in East Asia. As a result, the scoring of the fairness, effectiveness and clarity of the regulatory environment took place before many of the hastily enacted regulations intended to address a fast-moving pandemic had started to unfold.

- The COVID-19 crisis is shining a bright light on the transparency of real estate's legal and regulatory systems. New rules to establish how social distancing, virus testing and contact tracing all intersect with existing property and privacy laws are being created in a compressed time frame. As we go to press, sorting out these challenges still lies ahead in the second half of 2020 and in 2021.

Disruption leading to innovation and driving transparency

- Technology can contribute to higher transparency, but real estate markets have had trouble implementing new tech fast enough. The COVID-19 pandemic could help to fast-track digitization and stimulate innovation in the use of technology due to the need for accurate and just-in-time data to keep track of activity – especially relating to health, mobility and space usage.

- The pandemic is leading to an acceleration in new types of non-standard and high-frequency data being collected and disseminated, which is taking transparency to new levels due to its near-real-time nature. In the U.S. for example, organizations like the National Multifamily Housing Council (NMHC) and NAREIT pooled data on rent payments from software firms and property owners within a few weeks of the crisis escalating and have maintained this collaboration with subsequent updates. This has provided visibility into a previously opaque indicator and informed both policymakers and business through the crisis.

Increasing government engagement with proptech

- A few governments are now actively engaging and consulting with the proptech sector on how to improve services and make government data more available. Relatively few are doing so in a structured way however, but there are signs of change. The **UK**'s Digital Street program is one of the best examples, running research programs and funding local authorities to trial digital property solutions.

- Despite the hype, governments are still at a relatively early stage in trialing the use of blockchain technology in transactions. Pilots in **Dubai** and **Sweden** are among the most advanced, while another 30 national governments are engaging with the technology.

- The use of technology will become more important in the record-keeping and forensic work used by governments to combat money laundering and insider trading. Cyber-security regulators in many countries have enhanced their ability to impose penalties and provide enforcement to reduce outbreaks of ransomware or phishing attacks.

A real estate industry under pressure to transform to a net zero carbon and resilient future

- Sustainability transparency has improved, but there is considerable room for further progress. With sustainability increasingly influencing investor and corporate decision-making, and with broader awareness of the fragility of our environment, pressures on the real estate industry to step up on climate change are mounting.

- Mandatory sustainability standards are still the exception; however, they are likely to take on much greater prominence in coming years, particularly in net zero carbon building frameworks and building resilience standards. These will become an essential ingredient of a 'Highly Transparent' real estate market.

Health and wellness come to the fore

- The pandemic is leading to elevated awareness of personal and environmental hygiene, health, work-life balance and social relations. Building owners and operators will need to adjust to keep workers and building users safe and healthy. Transparency of 'building health' will become far more important – in terms of access to metrics that track not only light and noise, but also building ventilation, air filtration, and cleaning. We could see the confluence of proptech and medtech in the next generation of smart buildings.

- The COVID-19 crisis has also increased awareness of unsafe conditions at building construction sites and in worker dormitories which could lead to safer worker conditions in buildings.

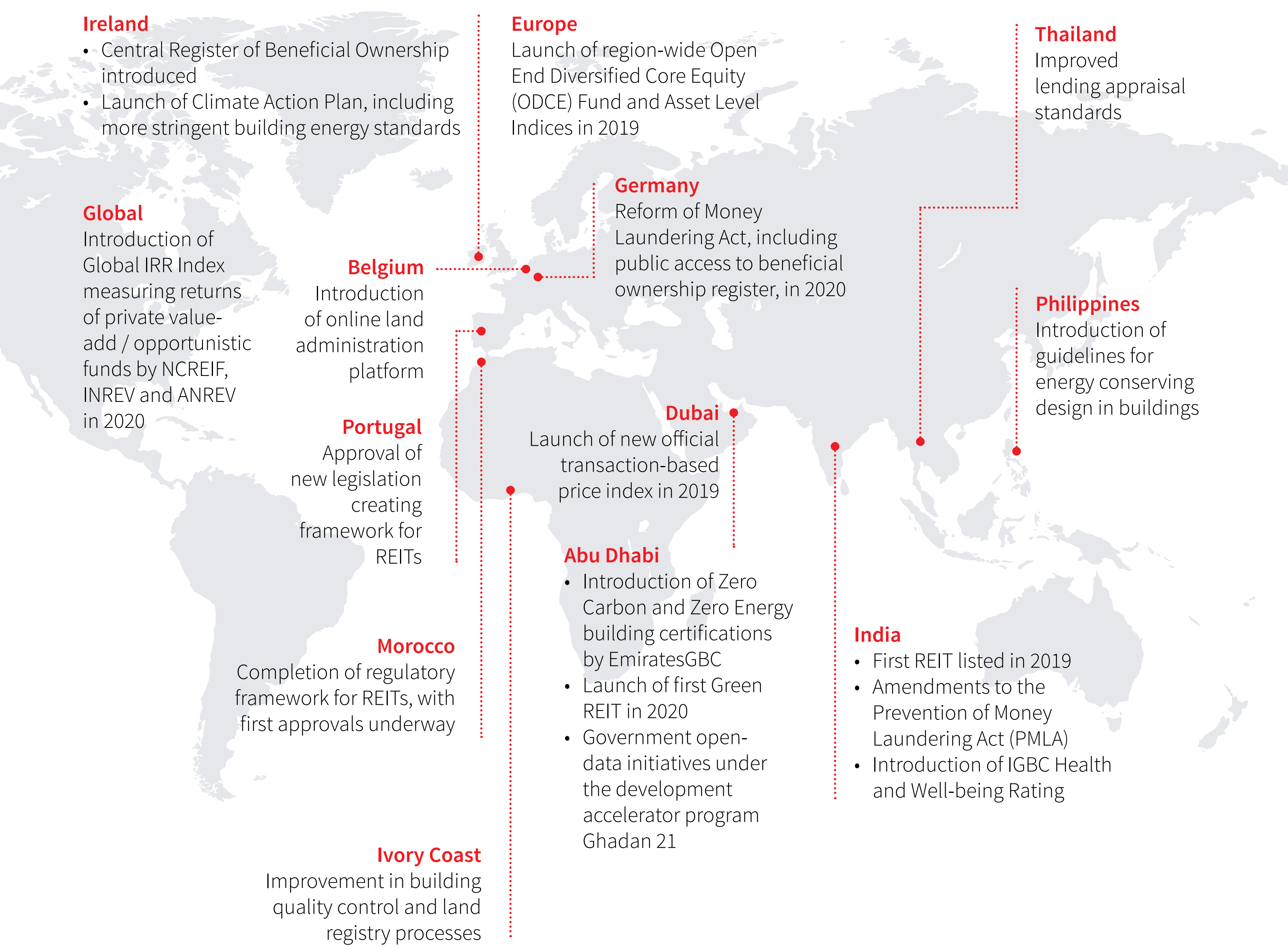
Transparency and city governance

- Real estate transparency is now front and center of the debate on city competitiveness and governance. Governments are recognizing the role that real estate transparency plays in boosting investment and business activity, supporting infrastructure investment, facilitating long-term planning and improving the quality of life of its citizens.

Cross-border investors demand higher transparency

- While investment into commercial real estate is slowing during the pandemic, the overarching trend is toward rising allocations to real estate. Improving transparency will become even more important to attract capital in this environment, with investors gravitating to 'Highly Transparent' markets with robust regulations. There will be a race to move from simply making policies to enforcing policies.

Selected Highlights
New Developments in Real Estate Transparency Over the Last Two Years



Introduction

Introducing the 11th Edition of the Global Real Estate Transparency Index

The Global Real Estate Transparency Index (GRETI), produced jointly by JLL and LaSalle Investment Management, has been charting the evolution of real estate transparency across the globe since 1999. Updated every two years, this 11th edition of GRETI is based on a comprehensive survey of the availability and quality of performance benchmarks and market data, governance structures, regulatory and legal environments, transaction processes and sustainability metrics covering 163 cities in 99 countries and territories.

GRETI is an essential guide for cross-border investors, developers and occupiers of real estate – as well as government and industry bodies looking for international benchmarks.

What's new with the 2020 Index?

In recognition of the mounting pressures on the real estate industry to move to a healthy, resilient and low-carbon future, the 2020 Index has been further expanded to cover several sustainability metrics and frameworks, including health and wellness certifications, building resilience codes, net zero carbon frameworks and water efficiency standards.

We have also continued to add new elements to our index to better capture fine-grained differences in transparency. For example, we have included elements in 2020 measuring the availability of data on new alternatives sectors such as life sciences and co-living, as well as on aggregate data series for net effective rents – including the impact of concessions – across the core property types.

Acknowledging the growing impact of technology platforms and digital tools in enhancing data availability and market processes, we have also added questions relating to the adoption of different types of proptech platforms (for example, smart buildings and sensors, 'big data', and property management tools); government engagement with the proptech sector; government use of blockchain within land registries; and the wider proptech ecosystem in each market.

Combined, these new elements have increased the number of individual factors covered by 13%, to 210 factors. Greater scrutiny and the explicit inclusion of more factors underpin some of the score changes between 2018 and 2020.

We have continued to deepen coverage of the full survey to measure transparency in 163 metropolitan areas across the globe in 2020, recognising that investors and corporate occupiers must be able to understand the nuances of operating in different cities.

Our approach

As in previous surveys, teams of researchers and business leaders from JLL and LaSalle have worked together to assess the transparency in each of the 163 city markets, with the best-performing city in each territory counted as the national score. Our Alliance Partners have also helped to provide additional on-the-ground information. JLL's accounting, finance, legal and sustainability experts have been consulted too, especially in emerging markets, in order to supplement our collective real estate knowledge.

Since we launched the Index 22 years ago, its components have evolved and been refined to reflect the changing requirements of cross-border investors and corporate occupiers. Therefore, to enable comparisons to be made across time, we have recreated an historic Transparency Index based on current weights and questions. We should like to emphasize that the recalibrated historic Indices differ from those published at the time of each survey.

Access our website

In addition to this report, the results of the 2020 Transparency Index are also presented in an interactive website:

www.jll.com/Transparency

The website allows users to explore the different components of real estate transparency at a global, regional and national level. Datasets for all 99 countries and territories covering composite and sub-index scores can also be downloaded, while a series of interactive visualizations facilitate a comparison of transparency between locations.

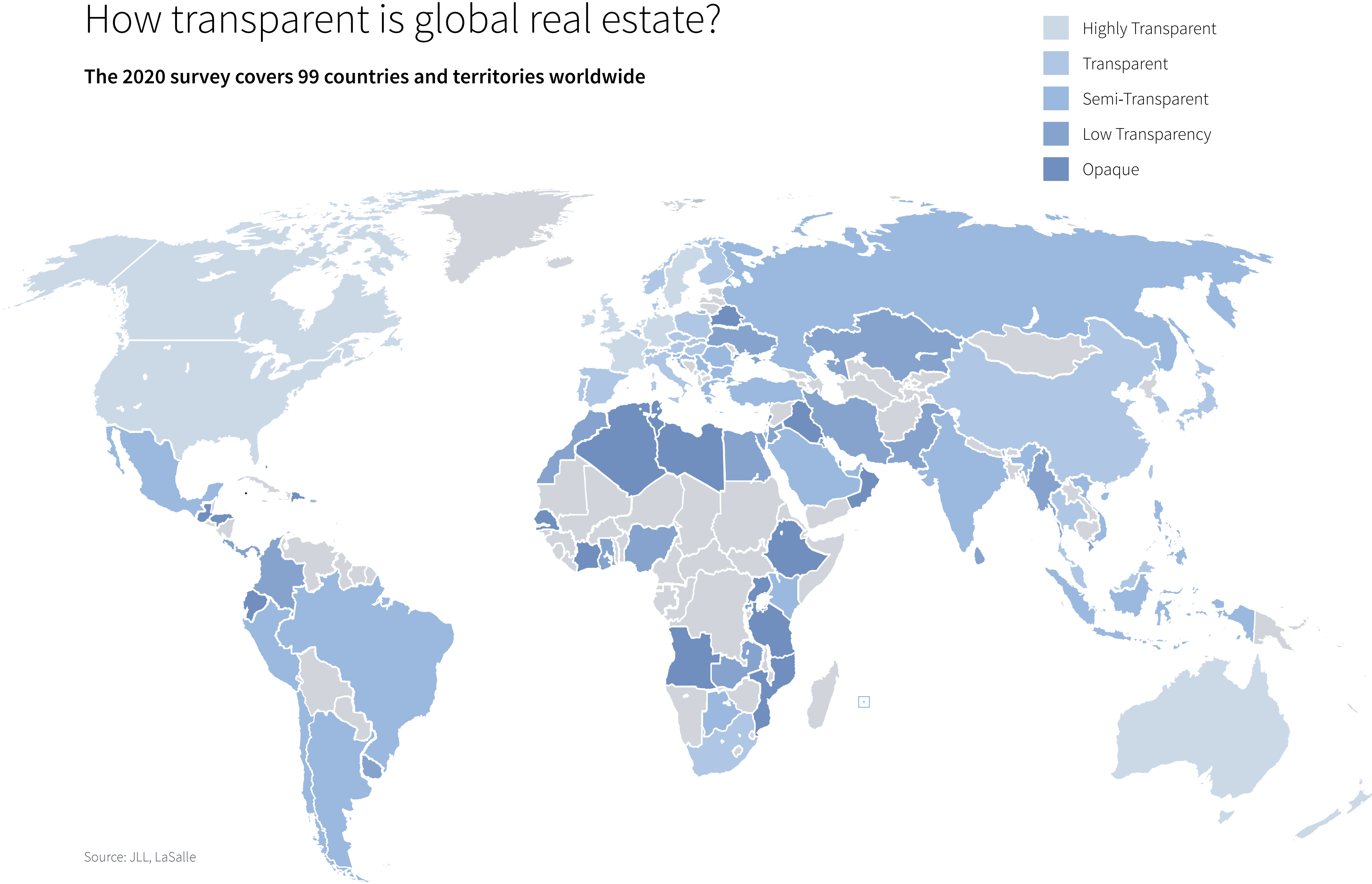
We trust that GRETI 2020 will provide valuable insights into the changes in real estate transparency across the globe. A complete description of the methodology used to create this Index is set out in the Technical Note.

Get in touch with the team

For more information about the Index and how we can help with your real estate decisions, please connect with one of the Global Real Estate Transparency Team.

How transparent is global real estate?

The 2020 survey covers 99 countries and territories worldwide



Source: JLL, LaSalle

Transparency Index Components

Incorporates 210 different factors, a 13% increase on 2018

Composite Score

6 Sub-Indices

1 Performance Measurement	2 Market Fundamentals	3 Governance of Listed Vehicles	4 Regulatory and Legal	5 Transaction Process	6 Sustainability

14 Transparency Topics

1 Performance Measurement	2 Market Fundamentals	3 Governance of Listed Vehicles	4 Regulatory and Legal	5 Transaction Process	6 Sustainability
• Direct Property Indices • Listed Real Estate Securities Indices • Private Real Estate Fund Indices • Valuations	• Market Fundamentals Data - Office - Retail - Industrial - Hotels - Residential - Alternatives	• Financial Disclosure • Corporate Governance	• Real Estate Tax, Land-Use Planning, Building Controls, Enforceability of Contracts • Property Registration • Compulsory Purchase • Debt Regulation	• Pre-Sale Information, Bidding Processes, Professional Standards of Agents, Anti-Money Laundering Regulations • Occupier Services	• Green Building Regulations, Energy Benchmarking, Energy Efficiency Standards, Carbon Reporting, Green Leases, Financial Performance of Green Buildings, Net Zero Carbon Frameworks, Health and Wellness Certifications, Resilient Building Standards, Water Efficiency Standards

210 individual questions and datapoints

Source: JLL, LaSalle

Global Real Estate Transparency Index, 2020

Transparency Tier	2020 Composite Rank	Market	2020 Composite Score
High	1	United Kingdom	1.31
High	2	United States	1.35
High	3	Australia	1.39
High	4	France	1.44
High	5	Canada	1.51
High	6	New Zealand	1.67
High	7	Netherlands	1.67
High	8	Ireland	1.83
High	9	Sweden	1.89
High	10	Germany	1.93
Transparent	11	Switzerland	1.96
Transparent	12	Finland	1.98
Transparent	13	Belgium	1.99
Transparent	14	Singapore	2.00
Transparent	15	Hong Kong SAR	2.03
Transparent	16	Japan	2.03
Transparent	17	Italy	2.08
Transparent	18	Denmark	2.10
Transparent	19	Spain	2.16
Transparent	20	Poland	2.24
Transparent	21	Austria	2.32
Transparent	22	Norway	2.33
Transparent	23	Chinese Taipei	2.34
Transparent	24	South Africa	2.37
Transparent	25	Czech Republic	2.41
Transparent	26	Portugal	2.42
Transparent	27	Hungary	2.44
Transparent	28	Slovakia	2.44
Transparent	29	Malaysia	2.56
Transparent	30	South Korea	2.57
Transparent	31	Luxembourg	2.59
Transparent	32	China – SH/BJ	2.59
Transparent	33	Thailand	2.64
Semi	34	India	2.69
Semi	35	Romania	2.71
Semi	36	UAE – Dubai	2.75
Semi	37	Israel	2.80
Semi	38	Russia	2.81
Semi	39	Mexico	2.83
Semi	40	Indonesia	2.86
Semi	41	Greece	2.86
Semi	42	Bulgaria	2.87
Semi	43	Turkey	2.91
Semi	44	Philippines	2.91
Semi	45	Brazil	2.93
Semi	46	Croatia	3.00
Semi	47	Chile	3.05
Semi	48	UAE – Abu Dhabi	3.10
Semi	49	Peru	3.21
Semi	50	Slovenia	3.32
Semi	51	Mauritius	3.33
Semi	52	Kenya	3.34
Semi	53	Botswana	3.35
Semi	54	Serbia	3.35
Semi	55	Puerto Rico	3.37
Semi	56	Vietnam	3.38
Semi	57	Saudi Arabia	3.40
Semi	58	Macao SAR	3.49
Semi	59	Argentina	3.49
Low	60	Egypt	3.52
Low	61	Morocco	3.60
Low	62	Colombia	3.60
Low	63	Costa Rica	3.64
Low	64	Zambia	3.65
Low	65	Sri Lanka	3.65
Low	66	Jordan	3.69
Low	67	Cayman Islands	3.74
Low	68	Nigeria	3.74
Low	69	Ukraine	3.80
Low	70	Bahrain	3.83
Low	71	Bahamas	3.84
Low	72	Myanmar	3.85
Low	73	Pakistan	3.88
Low	74	Kuwait	3.98
Low	75	Qatar	4.03
Low	76	Iran	4.07
Low	77	Uruguay	4.10
Low	78	Rwanda	4.11
Low	79	Kazakhstan	4.13
Low	80	Ghana	4.15
Opaque	81	Oman	4.16
Opaque	82	Ecuador	4.18
Opaque	83	Panama	4.26
Opaque	84	Belarus	4.30
Opaque	85	Angola	4.32
Opaque	86	Tunisia	4.36
Opaque	87	Lebanon	4.38
Opaque	88	Honduras	4.41
Opaque	89	Mozambique	4.44
Opaque	90	Uganda	4.44
Opaque	91	Algeria	4.44
Opaque	92	Ivory Coast	4.48
Opaque	93	Guatemala	4.50
Opaque	94	Senegal	4.52
Opaque	95	Tanzania	4.54
Opaque	96	Dominican Republic	4.54
Opaque	97	Iraq	4.60
Opaque	98	Ethiopia	4.64
Opaque	99	Libya	4.73

Note: China - SH/BJ = Shanghai and Beijing
Source: JLL, LaSalle

Key Findings from the 2020 Survey

Progress slows despite increasing demand for greater transparency

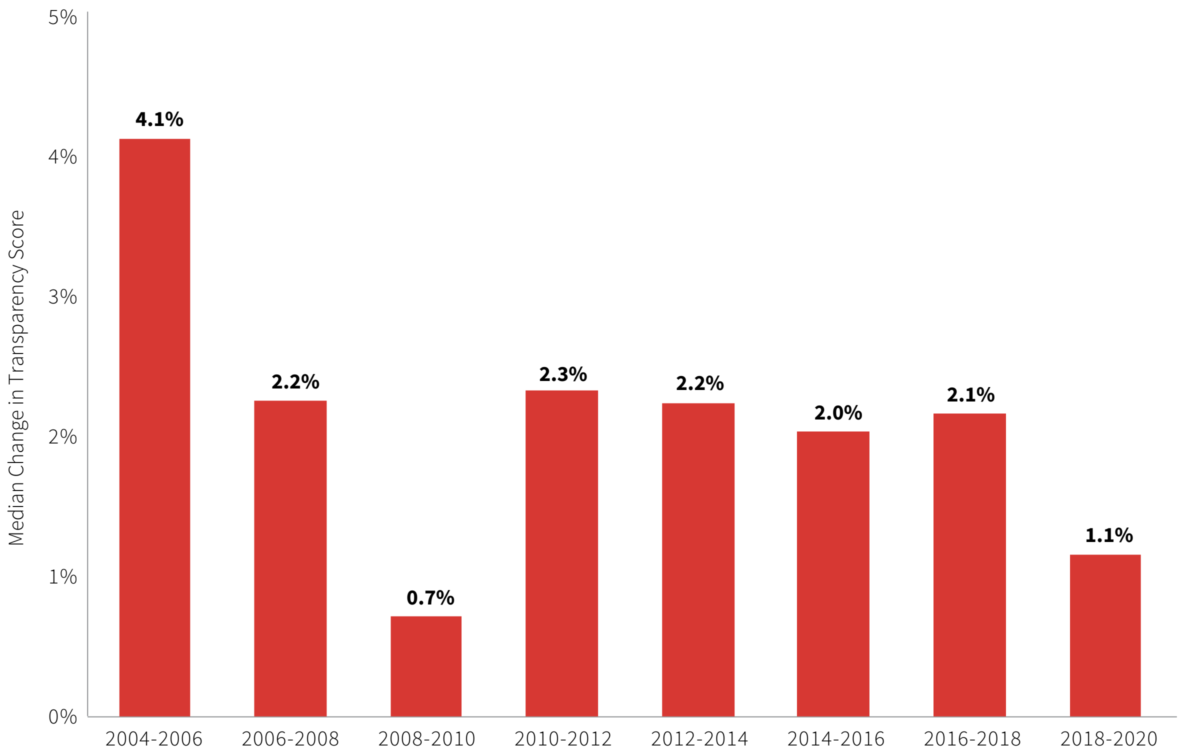
JLL's 2020 Global Real Estate Transparency Index reveals that transparency is continuing to progress across most countries and territories. However, an average transparency score improvement of 1.1% since 2018 marks the slowest rate of change since the period directly following the Global Financial Crisis. While 70% of countries have registered an improvement in score, this is the lowest level in 10 years, highlighting that many jurisdictions are struggling to maintain progress.

With growing pressure from investors, businesses and consumers, real estate transparency will need to improve further and faster to compete with other asset classes and to meet heightened expectations about the industry's role in providing a sustainable and resilient built environment.

With innovation in the use of new technologies now becoming more widespread and a rapidly evolving regulatory landscape, working more closely and collaboratively with governments and civil society will be crucial to achieve greater transparency.

Real Estate Transparency Improvements since 2004

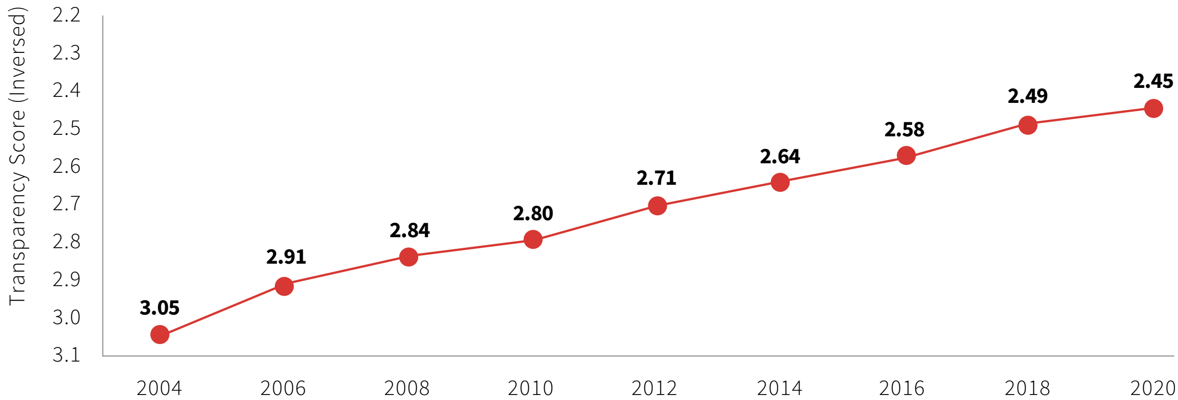
Progress slows from previous levels as several markets regress



Median change for all markets included in each two-year period

Source: JLL, LaSalle

The Path to Greater Real Estate Transparency
Average Transparency Score, 50 Markets



Based on 50 markets with data history extending back to 2004
Source: JLL, LaSalle

Anglophone countries dominate top ranks; Europe drives improvements

The top ranks of GRETI 2020 continue to be led by Anglophone countries, with the **UK**, the **U.S.** and **Australia** in the top three positions. A number of European markets are continuing to make progress within the top tier, with **Ireland** among the top global improvers and **France** also registering notable gains. **Sweden** and **Germany** have also seen advances; sustainability initiatives and robust proptech ecosystems have contributed to their improved standings.

World's Most Transparent Countries, 2020

Category	Global Rank	Market	Score
Highly Transparent	1	**United Kingdom**	1.31
	2	**United States**	1.35
	3	**Australia**	1.39
	4	**France**	1.44
	5	**Canada**	1.51
	6	**New Zealand**	1.67
	7	**Netherlands**	1.67
	8	**Ireland**	1.83
	9	**Sweden**	1.89
	10	**Germany**	1.93

France continues to advance and leads on Sustainability measures

Sweden and **Germany** register gains, with **Ireland** among global top improvers

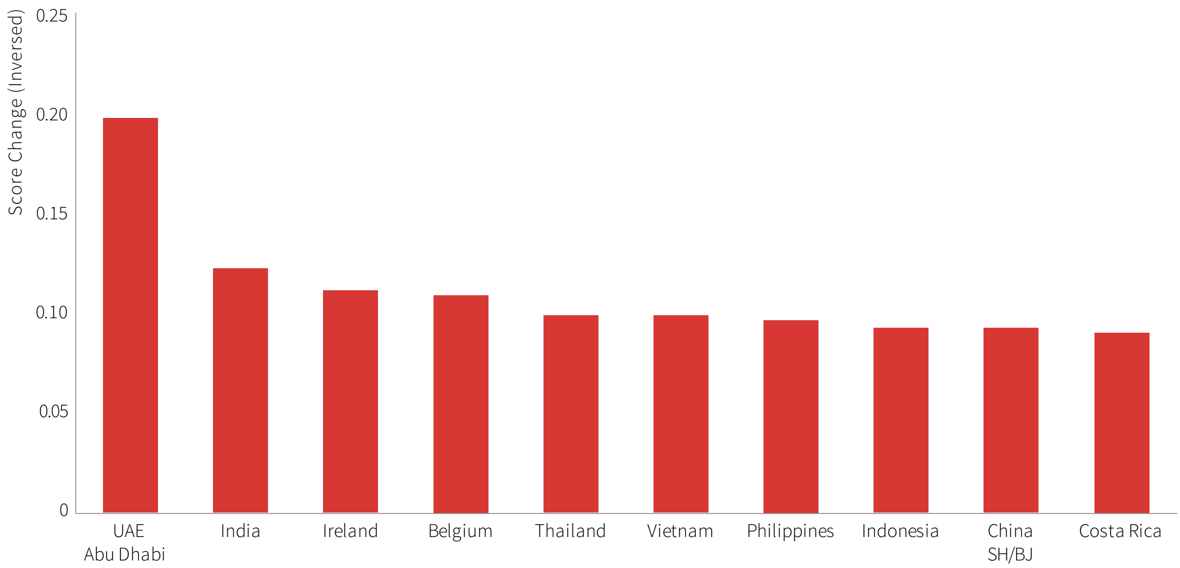
Source: JLL, LaSalle

The 'Highly Transparent' markets set higher standards

The 10 'Highly Transparent' countries are setting new standards and have posted the largest transparency improvement, on average, of any tier since 2018. Transparency has been boosted in these markets by a combination of proptech and new data sources, sustainability initiatives, anti-money laundering regulations and enhanced tracking of alternatives sectors.

Top Transparency Improvers, 2018-2020

Largest improvers in South and Southeast Asia, Western Europe and MENA



Note: China - SH/BJ = Shanghai and Beijing
Source: JLL, LaSalle

Asia Pacific markets see strongest transparency improvement

Asia Pacific's countries have registered the strongest average transparency improvements since 2018, albeit at a more moderate pace than in previous years.

Singapore, **Hong Kong SAR** and **Japan** all sit near the cusp of the 'Highly Transparent' tier as they jockey for the title of 'Asia's most transparent market'. While improvements have generally been muted in these countries, Singapore has made the most progress over the past two years due to its strengths as a regional hub for proptech companies and government leadership on sustainability issues.

Mainland China, the region's largest market, has continued to advance, with improved market fundamentals data, an active proptech sector and more coordinated land-use planning contributing to its place among the top global improvers. While there remains a large disparity in transparency levels within the country, these improvements have helped to push Mainland China's leading cities, Shanghai and Beijing, into the 'Transparent' tier for the first time.

South and Southeast Asian markets register largest gains

South and Southeast Asia have led advances in the Asia Pacific region. **India** has registered the largest regional improvement, with progress in the country's REIT framework – including the launch of its first REIT in 2019 – attracting greater interest from institutional investors. Increased activity from foreign investors and corporates has helped propel demands for enhanced market intelligence, while also boosting elements of the transaction process.

In Southeast Asia, **Thailand**, **Vietnam**, the **Philippines** and **Indonesia** are all among the top global improvers. Thailand's progress pushes it into the 'Transparent' tier, with greater regulatory enforcement of lending standards and requirements for more frequent valuations, improved accounting standards and significant public consultation around Bangkok's new land-use plan, which is set to be implemented in 2020. Following on from steady advances over the last two surveys, Vietnam's largest city, Ho Chi Minh

City, has made further progress on regulatory enforcement and also entered the 'Transparent' tier, while digitization of the land registry and an increased focus on green building certification have contributed to the Philippines' improvement. Enhancements to the availability of zoning information and greater enforcement of land-use plans, as well as improved dispute resolution mechanisms, have boosted Indonesia's score.

Mature markets lead in Europe, while CEE struggles to maintain momentum

Within Europe, several Western European markets have registered gains. A sharp improvement in residential data availability, digitization of planning data and new requirements for large companies to implement climate action plans have helped **Belgium** join Ireland among the top global improvers. **Switzerland** and **Finland** have also advanced, with all three countries now on the cusp of the 'Highly Transparent' tier. Meanwhile, several CEE markets which had recorded improvements in recent years, including **Romania**, the **Czech Republic** and **Slovakia**, have seen their global rankings slip, with Romania dropping into the 'Semi-Transparent' tier.

Sub-Saharan Africa – Uneven progress as some markets slip back

The Sub-Saharan Africa region has continued to see progress stall following limited improvement in the 2018 survey. Regulatory reforms have been evident in some of the region's least transparent markets such as **Ivory Coast**, **Senegal** and **Mozambique**; for example, improved building controls in Ivory Coast and simplified land registry procedures in Senegal. **Nigeria** has also registered modest improvements, with streamlined construction permit procedures and the introduction of a GIS-based land administration system. A number of countries have seen a marginal decline in their scores including **South Africa**, the region's largest market, where issues have been raised around corporate governance and the security of property rights.

MENA – UAE continues to advance as rest of region lags

Abu Dhabi is the global top improver in 2020, with its score boosted by government initiatives to improve corporate and real estate sustainability, such as the UAE Ministry of Climate Change and Environment working with the Abu Dhabi Global Market (ADGM), a financial free-zone, to embed sustainable finance policies. The UAE's first Green REIT was also launched in the ADGM in early 2020. Open-data initiatives under the city's development accelerator program, Ghadan 21, have also contributed to the improvement in its score. **Dubai** continues to strengthen its position as the most transparent real estate market in MENA with additional advancements in market tracking, like the creation of an official transaction-based index by the Dubai Land Department and a private sector partner.

Elsewhere in the region, improvements have been muted with political and economic headwinds leading to regression in several countries including **Lebanon**, **Iraq** and **Libya**, with the latter taking last place in the global ranking.

Gradual improvement in Latin America, but progress stalls in largest markets

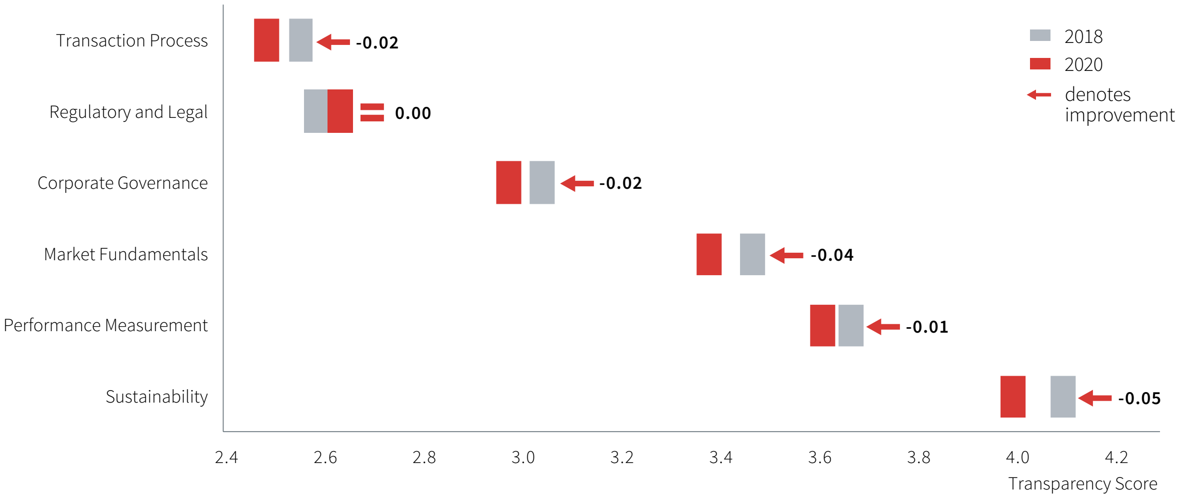
Costa Rica is among the top global improvers and is now on the cusp of entering the 'Semi-Transparent' tier, with gains underpinned by continued improvements in sustainability standards. Several South American markets, such as **Peru**, **Argentina** and **Chile**, have also shown steady gains. In contrast, Latin America's two largest markets, **Brazil** and **Mexico**, have both seen progress falter and, as a result, they have slipped several places within the 'Semi-Transparent' tier.

Most other markets across the region have recorded moderate improvements, though the scores of the **Dominican Republic** and **Guatemala**, both already in the 'Opaque' tier, have declined further.

Transparency by Topic Area

Transparency Sub-Index Change, 2018-2020

Increase in sustainability initiatives and market fundamentals data drives transparency improvements



Covers markets included in both the 2018 and 2020 surveys. Lower score = higher transparency
Source: JLL, LaSalle

Steady improvement in sustainability transparency

The most significant progress since 2018 has been made in the Sustainability components of the survey, where an increased focus on corporate social responsibility and acknowledgement of the need to create a sustainable built environment have brought ESG considerations into the mainstream of the sector.

Adoption of voluntary sustainability measures have driven the improvement, with green building certification systems now in use in the majority of markets. Energy efficiency standards for new or retrofitted buildings and energy benchmarking are also prevalent tools in higher-performing countries. European markets have made the most notable improvements in these areas, with implementation of the EU's updated Energy Performance of Buildings Directive (EPBD) helping to drive advances in standards in several countries.

However, there is considerable room for progress. The Sustainability Transparency Sub-Index is the lowest-scoring within the survey on average and there has been relatively low implementation of mandatory standards, including in areas that are set to take on much greater prominence in coming years, such as net zero carbon buildings frameworks and building resilience standards (see Climate Action: Net Zero Carbon and Resilience).

Progress in availability and quality of real estate data

'Market Fundamentals' – the availability, quality and depth of real estate market data – has also seen an improvement as demand for information widens to new geographies, sectors and types of data.

Drivers of change include:

- **Enhanced tracking of alternatives sectors:** With institutional investors active in alternatives sectors in over half of markets tracked, data availability is advancing rapidly to meet demand. Transparency in these niche sectors still has significant room for improvement, and we expect alternatives to be a primary driver of progress in the Transparency Index in coming years (see Transparency Deepens in Alternative Property Types).

- **Technology and proptech:** The growing adoption of proptech platforms, digital tools and 'big data' techniques are rapidly increasing the volume of real estate market data available. The COVID-19 pandemic is also spurring an acceleration in new types of non-standard and high-frequency data being collected and disseminated, which is taking transparency to new levels in some parts of the market due to its near-real-time nature. This ranges from office utilization rates collected from sensors in buildings, to retail footfall data from companies like Placer.ai and digitally collated surveys on rent payment and deferral rates; for example, JLL's apartment rent payment survey or those provided by industry bodies like NAREIT and NMHC in the U.S. (see Technology and Transparency).

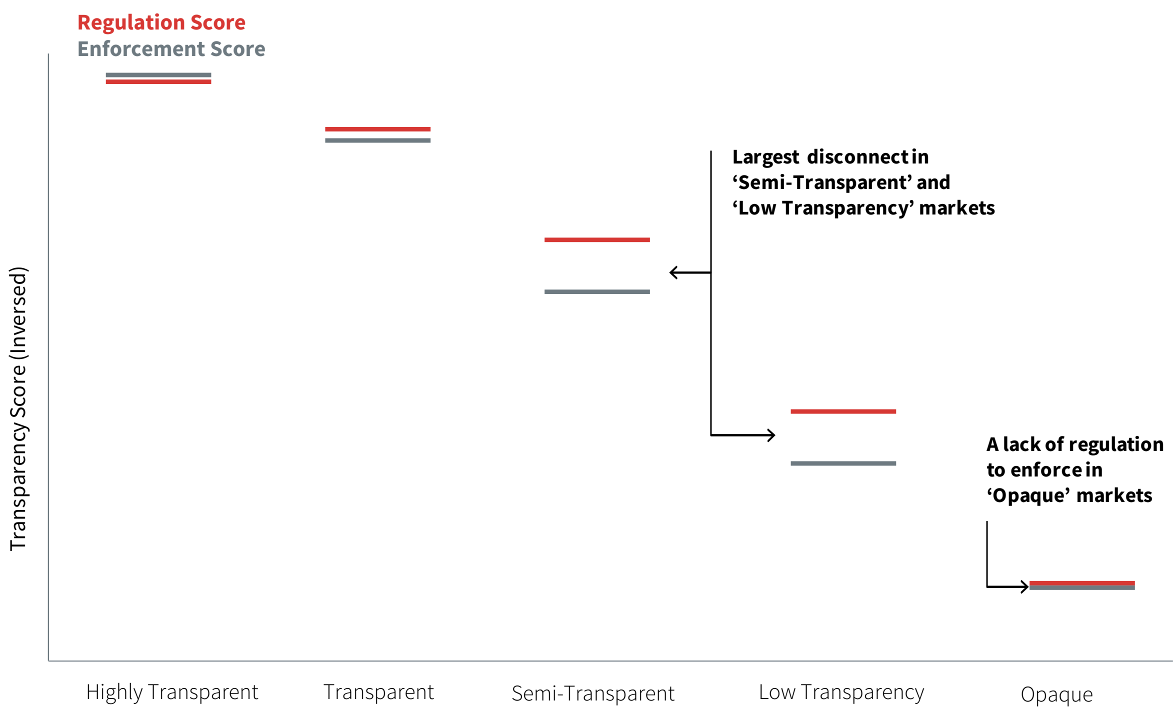
- **Increased geographic scope:** Investors and corporate occupiers are increasingly looking beyond gateway markets to secondary and tertiary cities, as well as widening their scope within cites beyond 'core' submarkets. This is driving data providers to enhance the data they collect in these locations; for example, more expansive net effective rental series in the U.S. beyond coastal gateway cities.

Regulatory reforms continue, but little progress on enforcement

Regulatory reforms have continued to be implemented in several countries, with new legislation introduced in **Ireland**, **Germany**, **India**, **Morocco**, **Kenya**, the **Philippines** and **Belgium**, among others. However, a significant divergence between regulation and enforcement capacity remains evident in 'Semi-Transparent' and 'Low Transparency' markets.

As investors gravitate toward 'Highly Transparent' markets with robust regulatory structures, further progress in the ability to put regulations into practice – particularly in financial regulations, land-use planning, anti-money laundering and eminent domain – will be necessary to raise transparency levels.

Regulatory Reforms and Enforcement, 2020



Includes regulatory and enforcement scores for: taxation, land-use planning, building codes, enforceability of contracts, land registry, eminent domain, financial regulation, beneficial ownership disclosure and anti-money laundering regulations
Source: JLL, LaSalle

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The first Global Real Estate Transparency Index was published in 1999, shortly after the merger between LaSalle Partners and Jones Lang Wootton, which created JLL. The merger opened up many new markets to the LaSalle Investment Management teams to consider. We needed some way to determine how to approach unfamiliar markets and how to determine a risk premium when market information was scarce and property rights were enforced inconsistently. Thus, this index was created to help fill that need.

As the years have gone by, many different user groups inside and outside JLL have found the GRETI to be a useful tool for understanding what to expect in different countries. The list of users includes: corporate occupiers, securities investors, private equity investors, banks and other lending institutions, government ministries, NGOs, data providers, academics and students. Real estate industry organizations in several countries, and the government agencies that regulate them, have used the index as guide to improve their scores and raise their country rankings.

Of course, an index score or ranking is no substitute for getting to know a market through direct experience. But, it can be an excellent starting point to see what to expect when venturing into different countries for the first time. Even though investors and occupiers cross international borders routinely, local real estate practices around the world are quite diverse. The GRETI highlights this diversity and helps practitioners prepare for it.

Jacques Gordon
Global Strategist
LaSalle Investment Management

The Legal and Regulatory Environment Faces the COVID-19 Challenge

Jacques Gordon

Global Strategist, LaSalle Investment Management

The legal and regulatory environment for real estate investors, occupiers and service providers entered 2020 with many new issues to tackle. Then COVID-19 hit and priorities were quickly shuffled. Hastily enacted regulations intended to address a fast-unfolding pandemic sent property owners and tenants scrambling. The scale and scope of unprecedented situations, still unfolding, is itself unprecedented. New rules to establish how social distancing, virus testing and contact tracing all intersect with existing property and privacy laws are being created in a compressed time frame. Each jurisdiction is undertaking the tasks of policy-setting, rule-making and enforcement differently. Countries with federal systems of government have an especially bewildering, wide range of new regulations to consider.

Another complexity is that waves of pandemic rule-making are now followed by rounds of rule-relaxing and reopening. Then, if a new spike in caseloads occurs, a fresh round of 'stay-at-home' rules is required. A confusing set of new laws and policies are therefore constantly evolving – some might say mutating, like the coronavirus itself.

Legal traditions and cultural differences also matter, as countries used to centralized controls and rapid disaster response have often proved to be more effective in reducing caseloads and in preparing their countries for reopening. Countries with a civil code tradition are challenged to be prescriptive about social behavior that was previously taken for granted. Common law countries cannot build up case law fast enough to deal with the COVID-19 crisis. Countries with a tradition of individual freedom and protection of privacy have great difficulty granting government or private software firms the right to put personal health information into central databases, even if they may make it easier to do contact tracing.

In addition to the rapid adoption of new and complex regulations governing social behavior, fiscal stimulus and relief money has also quickly been made available in many countries. The procedures for applying for and ultimately gaining access to these resources can be highly confusing or remarkably well-administered, depending on the jurisdiction, the property type and the clarity of the various relief acts. At times, they can also appear unfair when large, well-established companies appear to qualify for as much or more assistance than small and medium-sized enterprises. When it comes to property law, rent relief will likely prove to be a difficult set of policies to administer fairly and consistently. As we go to press, sorting out these challenges still lies ahead in the second half of 2020 and in 2021.

Property's economic and societal status

One of the key distinctions between countries thus far has been their acknowledgement, or not, that property is embedded in a larger economic and social system. In some countries, like Australia, the Netherlands and Singapore, the authorities realize that as much as rent relief is needed for tenants, it also means that property owners may have trouble paying property taxes, covering common area charges and making mortgage payments. These countries recognize that real estate ownership is part of an interconnected economic and financial system. The income generated by properties is used to pay the pension benefits of retirees. The taxes paid by property owners helps pay for local infrastructure, like roads, transport and schools. The jobs generated by construction, fit-out, property management and finance are an integral part of the national economy. And a large portion of the wealth traded on local stock exchanges comes from the listed property companies.

Thus, the COVID crisis shines a bright light on the transparency of real estate's legal and regulatory systems. In the tier 1 and tier 2 countries, rights of tenants and property owners are relatively well balanced. Over the decades, these countries have learned that when the scales of justice are tilted too far in favor of tenant rights or landlord rights, the system does not work as well. When tenants can break leases without any redress to the property owner, it becomes much more difficult or impossible to use income-earning property as collateral for a loan. When property owners take advantage of, or help reinforce, monopoly powers conferred by supply constraints, then local tenants and local economies suffer.

The 2020 Legal and Regulatory scores

The scoring of the 2020 Legal and Regulatory factors was completed in February and March, just as the lockdown of economic activity and the closing of shopping centers and office buildings was underway in the Americas and Europe, having already occurred in East Asia. As a result, the scoring of many of the attributes relating to the fairness, effectiveness and clarity of the regulatory environment took place before many of the complex policies such as return to work, rent relief, and codes of conduct for forbearance and for helping tenants or property owners get access to government grants and loans were fully known. In fact, as of June 2020 they are just beginning to be worked out. Another highly contentious looming issue is whether insurers will have to pay claims for business interruption or whether COVID-19 exposure is covered under property casualty and liability policies. In the words of one of LaSalle's risk management team, "the long tail of litigation in many countries will likely last for years."

Nevertheless, we can look to the 2020 scores for insights into the broader patterns of legal transparency as they relate to planning permissions, dispute resolution, taxation, compulsory purchase mechanisms, land registration systems, and whether there is a level playing field between locals and outsiders who own or operate property in a specific country or city.

Over decades of charting transparency progress, GRETI reveals that the real estate industry has generally accepted, and even embraced, the free movement of tenants, investors and lenders across borders at higher levels with each edition. In the two years leading up to the 2020 edition, more roadblocks to this secular trend were observed. Chinese insurance companies and property companies were reined in by regulators to divest themselves of many foreign holdings. Trade disputes between the U.S. and Europe and between the U.S. and China threatened the free flow of tenants across national boundaries.

At the same time, the use of technology became more important in the record-keeping and forensic work used to combat money-laundering and insider trading. Cyber-security regulators in many countries improved their ability to impose penalties and provide enforcement to reduce outbreaks of ransomware or phishing attacks. And the ESG movement began to focus more on the S (social) and G (governance) attributes of responsible investing. In most jurisdictions, the S and G factors are usually based more on voluntary than mandatory compliance. Yet the UN's Principles for Responsible Investment has picked up many more (1,340) signatories[1] since the 2018 edition of the Transparency Index, while awareness of the unsafe conditions at construction sites and in worker dormitories has increased during the COVID-19 crisis and could lead to safer worker conditions in the years ahead.

[1] See https://www.unpri.org/signatories Investment managers and Asset owners are both included in the 3,110 signatories to the UN's Principles for Responsible Investment.

Regulatory responses to COVID-19: opportunities and challenges

By the time the 2022 edition of the GRETI is published, most of the new regulations promulgated in response to the pandemic will have been integrated into planning and property law in a more coherent fashion. The shared responsibilities of tenants, owners and service providers will be much clearer, and the science and technology that supports prevention, testing and treatment will be much further advanced. The legal systems in many countries will undoubtedly be put to the test in adjudicating the gray areas that are bound to crop up when laws are written and enacted in a compressed time frame.

However, in the view of JLL's corporate counsel, as well as many members of the extended legal teams at JLL and LaSalle, the new regulations are unlikely to present systemic risks to the way that the industry operates in many countries. Property registration, compliance and transaction processes currently used in transparent countries will adapt to whatever new health and safety considerations are required. The existing legal and regulatory frameworks that rely on leases, purchase and sale agreements, development rights and planning permissions should be able to handle the backlog of transactions that have built up during the pandemic. The legal systems of the tier 1 and tier 2 countries should still function to protect property rights, ensure that tenants' welfare is also protected, and help keep the playing field reasonably level between local and international interests. Finally, service providers, owners and developers who are able to lean into the new regulations by meeting or exceeding local health and safety requirements, along with other ESG disclosures, may be able to thrive in the post-COVID world.

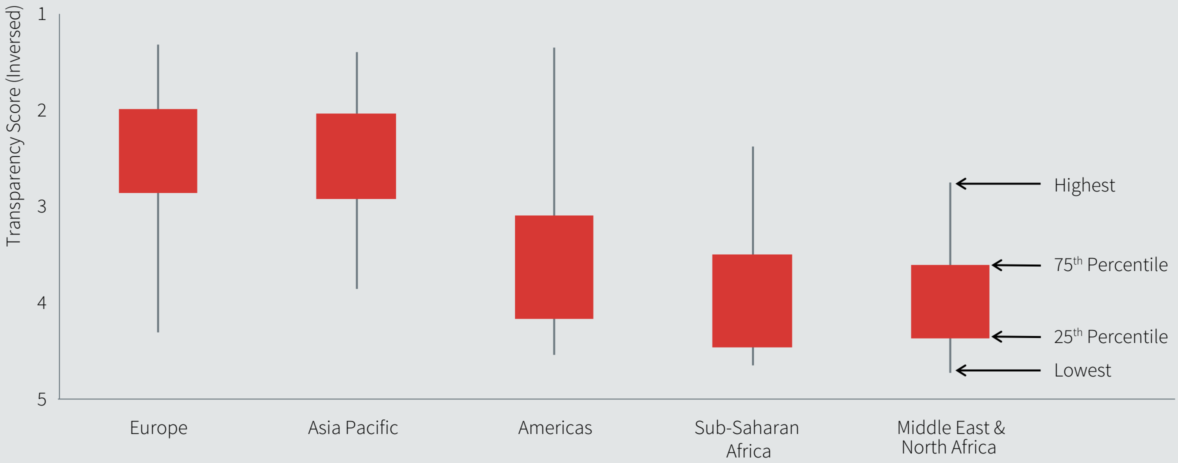
Acknowledgements to Interviewees: Michael Coulton, David Doherty, Rachel Fenwick, Suzanne Gibson, Claire Handley, Rochelle McAllister, Richard Mowthorpe, Demetri Rackos, Gordon Repp, Kevin Scroggin and Alan Tse

"In this time of unprecedented disruption, there is a need for responsible and visible leadership that champions integrity and transparency. Governments, regulators, investors and businesses must work together to align their efforts against corruption and illicit market practices in order to effect meaningful change. I am proud that JLL is a leader in tracking the progress of the international real estate industry as it moves steadily toward higher transparency by fulfilling its responsibilities to the marketplace and the communities it serves.

Alan Tse
Global Chief Legal Officer and Corporate Secretary, JLL

Regional Transparency Trends

Transparency Index – By Region, 2020



Source: JLL, LaSalle

Transparency Index – By Sub-Region, 2020

Source: JLL, LaSalle

Americas

Gradual improvement as progress stalls in largest Latin American markets

The Americas continues to see improvements in real estate transparency, though the pace of growth has slowed from previous years:

- The region's two most transparent markets, the **U.S.** and **Canada**, have both registered improvements that have outpaced the global average and reaffirmed their positions as the second and fifth most transparent markets globally. In the U.S., we continue to see advances being made around data availability for mature and niche property types, including more expansive tracking of net effective rents. Meanwhile, the Canadian market has benefitted from stronger energy benchmarking systems for commercial properties as ESG guidelines increasingly come into focus.

- In Latin America, both **Mexico** and **Brazil** have fallen in the global ranking in 2020. Brazil's decline is a by-product of improvements elsewhere across the globe, rather than deteriorating transparency. On the other hand, Mexico's relatively opaque regulatory and legal environment and corporate governance has led to a lower ranking. Optimism was high when FIBRA, the Mexican REIT structure, was introduced in 2011 and 10 REITs were listed by 2016. Since then, they have been criticized by investors for closely-controlled boards, conflicts of interest, high fees from external advisory companies and anti-takeover measures.

- Among the top global improvers in 2020 has been **Costa Rica**, which is now on the cusp of entering the 'Semi-Transparent' tier. Gains have been underpinned by continued enhancements in sustainability standards.

- Improvements in real estate transparency continue to be made in South America. Countries such as **Peru**, **Argentina** and **Chile** have seen gains that have outpaced the global average as they continue to advance within the 'Semi-Transparent' tier. In Chile, for example, the use of an independent third-party valuation has now become the norm prior to property transactions despite no legal requirement to do so. Argentina has seen notable rises in sustainability standards, particularly surrounding green building certification and energy benchmarking. For instance, manufacturers and various industry bodies in Argentina recently introduced an online system for both commercial users and the general public to verify energy efficiency information about their windows.

- Markets in the Caribbean and Central America remain among some of the world's least transparent. Countries such as the **Dominican Republic**, **Guatemala** and **Honduras** are all still firmly in the 'Opaque' tier, and continue to face issues with their data availability, regulatory and legal regimes, and inefficient transaction processes.

Real Estate Transparency in the Americas, 2020

Transparency Level	Global Rank	Market	Score
High	2	**United States**	1.35
	5	**Canada**	1.51
Semi	39	**Mexico**	2.83
	45	**Brazil**	2.93
	47	**Chile**	3.05
	49	**Peru**	3.21
	55	**Puerto Rico**	3.37
	59	**Argentina**	3.49
Low	62	**Colombia**	3.60
	63	**Costa Rica**	3.60
	67	**Cayman Islands**	3.74
	71	**Bahamas**	3.84
	77	**Uruguay**	4.10
Opaque	82	**Ecuador**	4.18
	83	**Panama**	4.26
	88	**Honduras**	4.41
	93	**Guatemala**	4.50
	96	**Dominican Rep.**	4.54

Brazil and **Mexico** on the cusp of 'Transparent' but see improvements stall

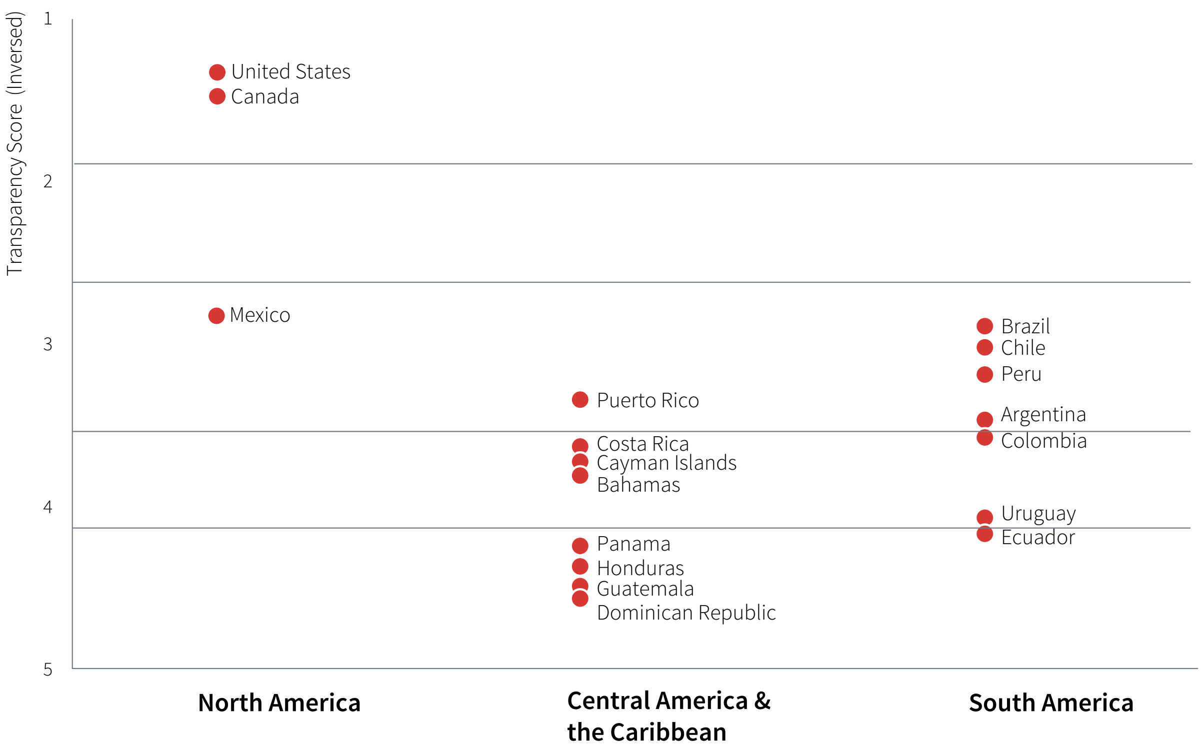
Chile continues to advance driven by improved valuation practices and enhanced market fundamentals data

Green building certification and energy benchmarking boost transparency in **Argentina**

Sustainability initiatives contribute to **Costa Rica** being among the top global improvers

Source: JLL, LaSalle

Range of Real Estate Transparency in the Americas, 2020



Source: JLL, LaSalle

Asia Pacific

Registers strongest improvement

The Asia Pacific region has made further progress on the transparency front, albeit gains have been more modest than evident in recent surveys. Emerging markets have once again shown the greatest advancement, with six markets from the region sitting amongst the top 10 biggest improvers globally, while mature markets such as Australia (3rd) and New Zealand (6th) have maintained their positions near the top of the global ranking.

Overall, the improvements have been small, with the biggest advances recorded on the sustainability front as governments and industry players have placed a greater emphasis on health and well-being. Market fundamentals have also been an important driver as rising occupier and investor demands have necessitated greater market intelligence, particularly in high-growth areas and emerging sectors such as logistics.

- **Australia** and **New Zealand** remain the standard-bearers for transparency in the region, sitting alongside the likes of the U.K., U.S. and France as the world's most transparent countries.
- **Singapore**, **Hong Kong SAR** and **Japan** are jockeying for the title as 'the most transparent market in Asia' and to be the next market to enter the elusive 'Highly Transparent' tier. However, improvements have been relatively modest.
- **Mainland China**'s leading cities (Shanghai and Beijing) have moved into the 'Transparent' tier on the back of modest progress in areas such as market fundamentals and land-use planning. A government plan to prioritize the development of major city clusters such as the Greater Bay Area, Yangtze River Delta, Jing-Jin-Ji (Beijing/Tianjin/Hebei) and Chengyu (Chengdu/Chongqing) into world-class innovation centers has resulted in increased coordinated planning across local administrative boundaries including development plans. While there continues to be a disparity in the level of transparency, gains have also been recorded across other city tiers in China.
- Moderate gains in **Thailand** have in part been driven by changes on the regulatory front, and this has led to it advancing into the lower reaches of the 'Transparent' tier alongside Mainland China's leading cities. The national accounting body has adopted new measures to move Thailand's GAAP more in line with international standards, while regulators have tightened up on some lending standards including requiring greater frequency of appraisals. In Bangkok, a new land-use plan is scheduled to be launched in 2020 after significant public consultation, and this has helped to improve the predictability of the changes to come.
- **India** has recorded the region's biggest improvement, with gains observed across several areas. The much-anticipated launch of the country's first REIT took place in 2019 and this helped attract a greater level of investor interest, particularly from foreign institutional investors, to the real estate sector. The heightened investor demands have further necessitated the need for greater market intelligence to evaluate and benchmark investments. With a higher level of activity by foreign occupiers and investors, coupled with the Indian government tightening up on its anti-money laundering law in 2019, the transaction process has also made positive progress in becoming somewhat more transparent. India has also edged into the top 20 for Sustainability Transparency through the active role of organizations like the Indian Green Building Council (IGBC) and Green Rating for Integrated Habitat Assessment (GRIHA).
- Sustainability has been a key contributor to gains achieved in the **Philippines** as developers put a renewed focus on this area. The number of green-certified buildings has been on the rise and the first non-bank issuance of a green bond took place early in 2020 by a local developer. Steps to digitize the land registry are also a positive stride, leading to better quality records and easier access.
- **Vietnam** has made further progress on the regulatory front with government bodies tightening their oversight to ensure rules and regulations are being adhered to in areas such as land-use planning and lending standards. The country's strong economic prospects have drawn significant interest from both occupiers and investors, and this has led to increased competition and service offerings from property management companies. Following on from steady advances made over the last two surveys, these changes have helped to push Vietnam into the 'Semi-Transparent' tier.

Mainland China's leading cities transition to 'Transparent' tier

JLL and LaSalle have been tracking the progress of Mainland China's leading cities – Shanghai and Beijing – for the past 20 years, as they have moved steadily from the 'Low Transparency' category prior to 2006, through 'Semi Transparent' over the 2006-2018 period, to achieving 'Transparent' status in the 2020 Index. Recent years have seen Shanghai and Beijing become major destinations for cross-border capital, in which institutional money has helped to improve transparency, increase professionalism and expand access to market data, not only in traditional sectors but also in alternatives like co-living. Testimony to their success – back in 2006, Shanghai was barely in the top 50 global destinations for real estate capital; today it appears regularly among the world's top 5 cities for cross-border investment.

Supporting the transparency momentum is a burgeoning proptech ecosystem in Shanghai and Beijing that includes tech giants and start-ups, developers, contractors, universities and research institutions. The power of proptech has been further reaffirmed during the COVID-19 pandemic, with market participants actively seeking technology applications to ensure safety, health and continuity in their workforces and buildings.

We are also witnessing more widespread adoption of sustainability certification – such as LEED and China's domestic green building certificate – by developers and landlords. In addition, increasing numbers of office building owners and occupiers have successfully applied for WELL certification focusing on health and well-being.

City governments have further improved the visibility of land-use planning with online postings, and they have also expedited application procedures for changes in land-use rights. Primary land sales and residential transaction records are updated daily in a government database that is available to the public online, while information on residential pre-sales has also improved, providing greater price and sales volume visibility for market participants.

China's further integration into global capital markets and a swell in new Mainland developer listings has helped investors screen for real estate asset performance within publicly listed firms. The April 2020 announcement of a pilot program for publicly traded REITs with a focus on infrastructure is a positive signal for improvement in transparency in sectors such as warehousing.

Where can Mainland China improve?

For many institutions, moving capital in and out of Mainland China remains a bigger hurdle than in most other jurisdictions. Not only is the normal procedure cumbersome, but it is sometimes made more challenging when the State Administration of Foreign Exchange (SAFE) exercises too much discretion. This is much less of an issue today than it was 5-10 years ago, but for as long as capital controls are in place, it would be an area that investors would look to see further improvement.

While more information has become available through some equity research reports, there remains a lack of standardized and in-depth datasets for commercial real estate debt (non-performance, maturities/origins, total outstanding). Expanding the REIT codes to include a wider spectrum of income-generating commercial real estate would enhance the market's ability to monitor the financial and transaction dealings of such assets via regular reporting and announcements.

Real Estate Transparency in Asia Pacific, 2020

Transparency Level	Global Rank	Market	Score
High	3	**Australia**	1.39
	6	**New Zealand**	1.67
Transparent	14	**Singapore**	2.00
	15	**Hong Kong SAR**	2.03
	16	**Japan**	2.03
	23	**Chinese Taipei**	2.34
	29	**Malaysia**	2.56
	30	**South Korea**	2.57
	32	**China - SH/BJ**	2.59
	33	**Thailand**	2.64
Semi	34	**India**	2.69
	40	**Indonesia**	2.86
	44	**Philippines**	2.91
	56	**Vietnam**	3.38
	58	**Macao SAR**	3.49
Low	65	**Sri Lanka**	3.65
	72	**Myanmar**	3.85

Singapore, **Hong Kong SAR** and **Japan** remain on the cusp of 'Highly Transparent'

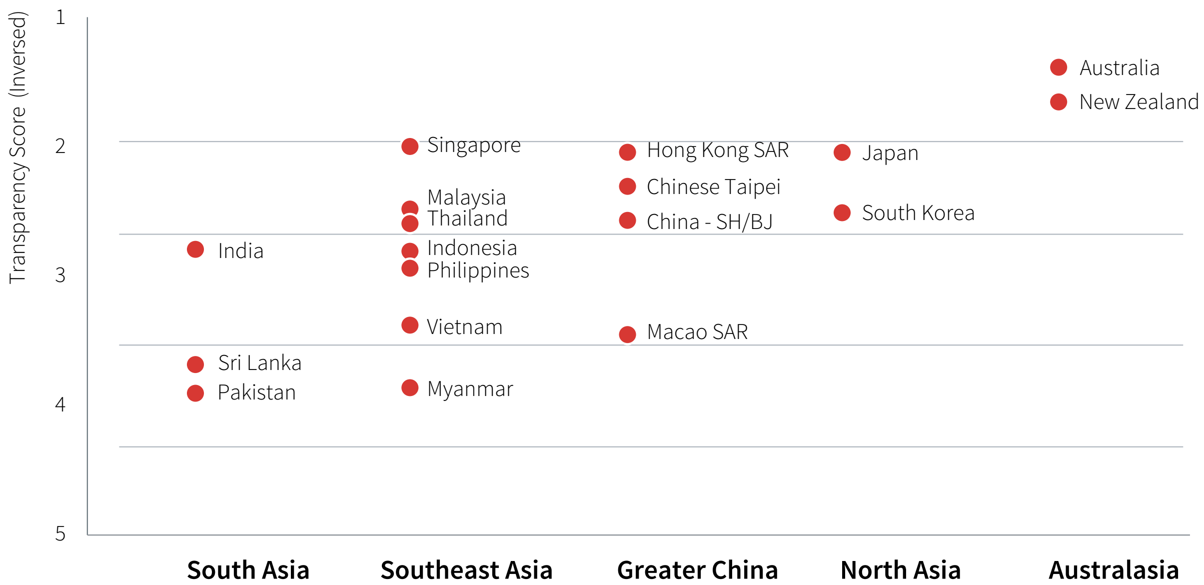
Mainland China's largest markets among the top global improvers and enter the 'Transparent' tier

Regulatory reforms boost **Thailand** into the 'Transparent' tier

India, **Indonesia**, the **Philippines** and **Vietnam** among most improved markets

Note: China - SH/BJ = Shanghai and Beijing
Source: JLL, LaSalle

Range of Real Estate Transparency in Asia Pacific, 2020



Note: China - SH/BJ = Shanghai and Beijing, Pakistan included in South Asia for comparative purposes
Source: JLL, LaSalle

Europe
Mature markets lead while CEE struggles to maintain improvements

Real estate transparency within Europe has continued to build on its progress from recent years. The **UK** and **France** have retained their positions among the top 5 'Highly Transparent' markets, while a number of European countries, including **Belgium**, **Italy**, **Austria**, **Norway** and **Luxembourg**, have all stepped up within the 'Transparent' tier.

Among the 'Transparent' European countries, three smaller markets – **Switzerland**, **Finland** and **Belgium** – have now moved just below the 'Highly Transparent' tier. Belgium in particular is among the global top improvers with advances in residential data availability, the digitization of planning data and sustainability metrics resulting in marked progress from the 2018 survey.

Ireland is also among the top improvers. Sustainability and technology initiatives are beginning to take off and are having substantial impacts on the real estate sector. On sustainability, start-ups such as Smart Dublin are working with local authorities and tech companies like Google, SoftBank and Microsoft to develop new urban solutions in Dublin's built environment through open data and smart technology. Meanwhile, regulatory reforms (for example, the 2019 Climate Action Plan) and better access to beneficial ownership records have also contributed to Ireland's progress.

In contrast, the advances made during the previous survey in CEE countries – including **Romania**, the **Czech Republic** and **Slovakia** – have slipped, with Romania dropping out of the 'Transparent' tier into 'Semi-Transparent'.

Real Estate Transparency in Europe, 2020

Transparency Level	Global Rank	Market	Score
High	1	**United Kingdom**	1.31
	4	**France**	1.44
	7	**Netherlands**	1.67
	8	**Ireland**	1.83
	9	**Sweden**	1.89
	10	**Germany**	1.93
Transparent	11	**Switzerland**	1.96
	12	**Finland**	1.98
	13	**Belgium**	1.99
	17	**Italy**	2.08
	18	**Denmark**	2.10
	19	**Spain**	2.16
	20	**Poland**	2.24
	21	**Austria**	2.32
	22	**Norway**	2.33
	25	**Czech Republic**	2.41
	26	**Portugal**	2.42
	27	**Hungary**	2.44
	28	**Slovakia**	2.44
	31	**Luxembourg**	2.59
Semi	35	**Romania**	2.71
	37	**Israel**	2.80
	38	**Russia**	2.81
	41	**Greece**	2.86
	42	**Bulgaria**	2.87
	43	**Turkey**	2.91
	46	**Croatia**	3.00
	50	**Slovenia**	3.32
	54	**Serbia**	3.35
Low	69	**Ukraine**	3.80
	79	**Kazakhstan**	4.13
Opaque	84	**Belarus**	4.30

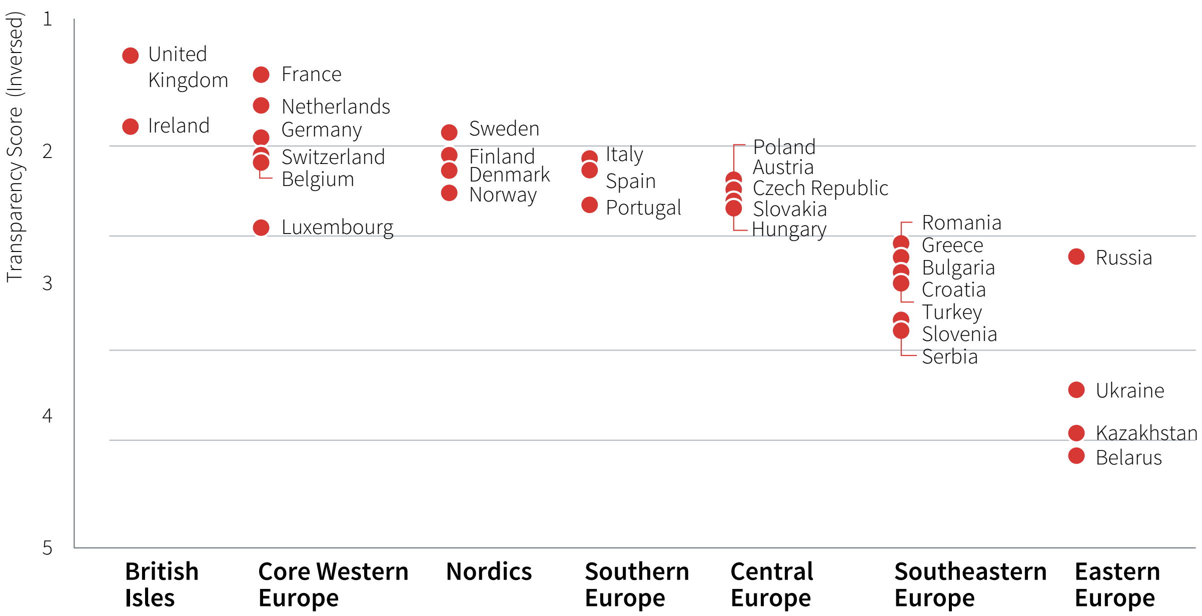
Source: JLL, LaSalle

Ireland among top global improvers, boosted by the proptech sector, sustainability initiatives and regulatory reforms

Switzerland, **Finland** and **Belgium** on the edge of 'Highly Transparent', with Belgium among global top improvers

Romania struggles to maintain progress and drops out of 'Transparent' tier

Range of Real Estate Transparency in Europe, 2020



Source: JLL, LaSalle

Middle East & North Africa
UAE continues to advance as rest of region lags

The MENA region continues to see its largest markets make incremental gains in transparency, while many other countries in the region lag behind. In the UAE, **Dubai** (36th) has further strengthened its position as MENA's most transparent real estate market, climbing three places up the global ranking. However, it is the UAE's capital **Abu Dhabi** (48th) which has recorded substantial improvement in transparency, becoming one of the top performers globally on the back of its robust sustainability initiatives. Meanwhile, with a focus on diversifying its economy away from oil and attracting private investments, **Saudi Arabia** is ranked third in the region. Overall, however, the MENA region has seen transparency levels decline from 2018.

Abu Dhabi a top performer mainly on the back of sustainability initiatives

Driven by the introduction of further initiatives to promote corporate and real estate sustainability, **Abu Dhabi** has emerged as a top performer globally, reflecting positively on its overall transparency ranking and future investment outlook. Among the many initiatives introduced, the UAE Ministry of Climate Change and Environment has signed a pledge with the Abu Dhabi Global Market (ADGM), a financial free-zone, to embed sustainable finance policies in the UAE. This refers to any form of corporate or investment financial service which yields environmental, social and economic benefits.

The first Green REIT was also established at the ADGM in early 2020 by Masdar, a subsidiary of Mubadala Investment Company and one of the world's leading renewable energy and sustainable real estate companies. Green REIT's property portfolio will initially include four commercial properties in Masdar City, Abu Dhabi.

Beyond sustainability, the Abu Dhabi Digital Authority (ADDA) has unveiled a new Abu Dhabi Data Management Program (DMP), which offers a data-centric platform and sharing ecosystem. This falls under the Open Data initiative within the city's development accelerator program, Ghadan 21.

Dubai continues to record improvements

Dubai continues to strengthen its position as the most transparent real estate market in MENA. The most significant initiative launched in 2019 was the creation of an official transaction-based index, Mo'asher, by the Dubai Land Department (DLD) in partnership with a private sector entity. While the new index may lack the robustness of the valuation-based indices available in more mature markets, Mo'asher constitutes a potentially important step forward for Dubai, as it means the establishment of a single index that is widely used by all market participants.

Saudi Vision and National Transformation Plan drive the need for more transparency in Saudi Arabia

Although further effort is needed for **Saudi Arabia** to significantly climb up the global transparency ranking, there remains strong commitment to the implementation of positive reforms to expand the economy and the real estate market. Conscious of the role data plays in market transparency, the Saudi government has rebranded its publicly available central database – the General Authority for Statistics – and has continued to collate more data from government agencies. At the same time, ministries and government organizations such as the Ministry of Finance and the Saudi Arabian Monetary Authority have started to publish more micro-level indicators on a monthly and quarterly basis. Data from the Ministry of Justice has also become a valuable indicator for commercial and residential real estate transactions and performance.

More promising outlook for transparency in Egypt while the rest of MENA lags

While registering no noticeable improvements in its overall ranking in 2020, **Egypt**'s (60th) economy and real estate sector have performed strongly over the past couple of years on the back of various initiatives launched to attract private investments, one of which was a recent personal data protection law. The government is currently undertaking extensive strategic plans to ease doing business, lure more foreign direct investment, reinforce the role of the private sector through partnerships (PPPs), and enhance the country's overall investment climate. In the long run, the extent to which both the public and private sector collaborate to share data will determine the further transformation of the real estate sector.

Elsewhere in the MENA region, political and social headwinds continue to overshadow any potential progress toward improving real estate transparency. **Libya** (99th) and **Iraq** (97th) continue to rank among the lowest globally, while **Lebanon** (87th) has dropped further down the ranking. Over the course of the past two years Lebanon has faced various economic woes which have hindered progress in real estate transparency.

Real Estate Transparency in MENA, 2020

Transparency Level	Global Rank	Market	Score
Semi	36	**UAE - Dubai**	2.75
	48	**UAE – Abu Dhabi**	3.10
	57	**Saudi Arabia**	3.40
Low	60	**Egypt**	3.52
	61	**Morocco**	3.60
	66	**Jordan**	3.69
	70	**Bahrain**	3.83
	73	**Pakistan**	3.88
	74	**Kuwait**	3.98
	75	**Qatar**	4.03
	76	**Iran**	4.07
Opaque	81	**Oman**	4.16
	86	**Tunisia**	4.36
	87	**Lebanon**	4.38
	91	**Algeria**	4.44
	97	**Iraq**	4.60
	99	**Libya**	4.73

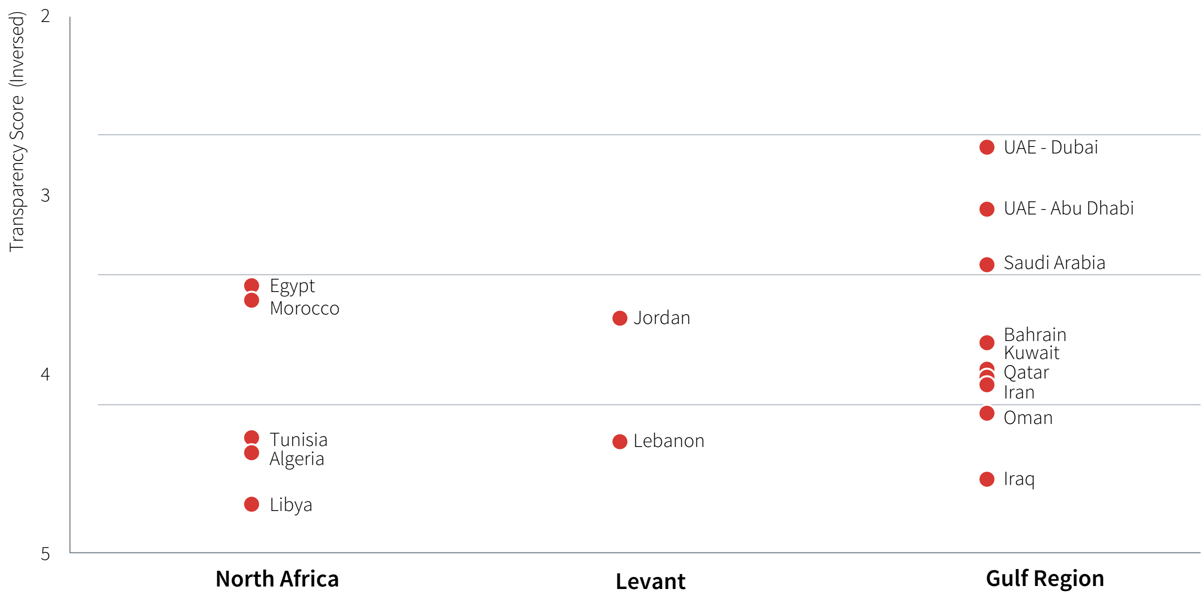
Dubai registers further improvement in market data availability and is on the cusp of 'Transparent'

Abu Dhabi among top global improvers on the back of sustainability and open-data initiatives

Political and economic challenges cause several markets to regress, including **Tunisia**, **Lebanon**, **Algeria**, **Iraq** and **Libya**

Note: Pakistan included in South Asia for comparative purposes - see Asia Pacific section
Source: JLL, LaSalle

Range of Real Estate Transparency in MENA, 2020



Source: JLL, LaSalle

Sub-Saharan Africa
Uneven progress as some markets slip back

The Sub-Saharan Africa region has continued to see progress stall following limited improvement in the 2018 survey, with only 5 out of 15 countries registering an improvement in their scores.

- **South Africa** remains the region's only 'Transparent' market, although it has registered a marginal decline in its score. While the country continues to have one of the world's most established REIT sectors, concerns around corporate governance in some companies over recent years have led to regulatory interventions and the industry body, SA REIT, publishing an update to its Best Practice Recommendations. New legislation has also raised concerns about the security of property rights in the future.

- Moderate improvements have been made in some of the region's least transparent markets such as **Ivory Coast**, **Senegal** and **Mozambique**. Ivory Coast has improved building quality controls by requiring permits to be reviewed by an in-house architect, while also making processes at its land registry simpler. Senegal has enhanced processes related to property transfers at its land registry and is carrying out consultations on land tenure reform and the development of a national cadastral system as part of its Emerging Senegal Plan. Meanwhile, Mozambique has made progress in digitizing cadastral plans and ownership records.

- The West and East African regional hubs **Nigeria** and **Kenya** have seen mixed results. Nigeria has recorded modest improvements, with streamlined construction permit procedures and the introduction of a GIS-based land administration system contributing to its gains. Kenya has also implemented several reforms including continued work on digitizing its land registry and moving procedures online, but it has also withdrawn some measures – for example, land ownership information is no longer publicly available – and implementation of past initiatives remains slow.

Real Estate Transparency in Sub-Saharan Africa, 2020

Transparency Level	Global Rank	Market	Score
Transparent	24	**South Africa**	2.37
Semi	51	**Mauritius**	3.33
	52	**Kenya**	3.34
	53	**Botswana**	3.35
Low	64	**Zambia**	3.65
	68	**Nigeria**	3.74
	78	**Rwanda**	4.11
	80	**Ghana**	4.15
Opaque	85	**Angola**	4.32
	89	**Mozambique**	4.44
	90	**Uganda**	4.44
	92	**Ivory Coast**	4.48
	94	**Senegal**	4.52
	95	**Tanzania**	4.54
	98	**Ethiopia**	4.64

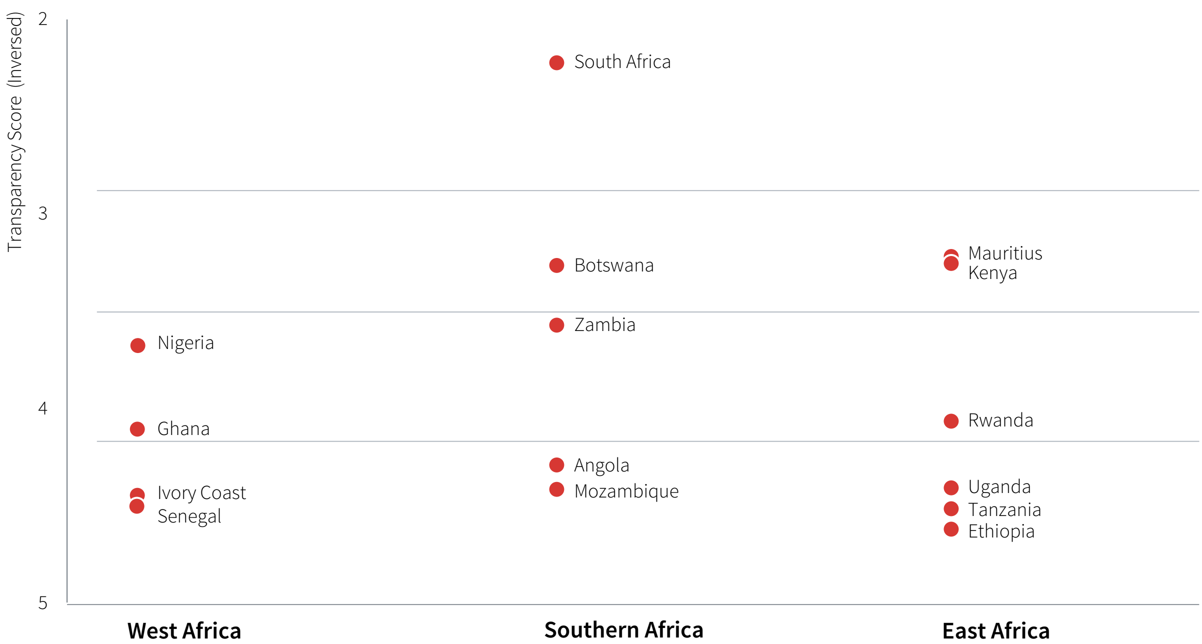
South Africa remains region's top performer but registers marginal decline in score on corporate governance and ownership security concerns

Nigeria registers moderate improvement as it implements changes to its land registry

Ivory Coast and **Senegal** top regional improvers due to regulatory and land administration reforms

Source: JLL, LaSalle

Range of Real Estate Transparency in Sub-Saharan Africa, 2020



Source: JLL, LaSalle

Real Estate Transparency at a City Level

In GRETI 2020 we have extended coverage to 163 city metropolitan areas across the globe to complement national-level coverage, in recognition of the material differences in transparency within some national territories. Understanding differences in real estate transparency between cities is essential because:

- **Real estate investors** are increasingly targeting city regions and have a pressing requirement to understand the nuances of transparency, market openness and risk across competing cities.
- **Corporate occupiers** need insight into the different business environments between cities in terms of the transparency of the legal and regulatory environment, access to market intelligence and alignment with corporate social responsibility objectives.
- Meanwhile, among **city governments and urban planners** there is now a widespread acceptance of the crucial role that a transparent real estate sector plays in attracting new investment and business activity, enabling sound long-term planning, enhancing community well-being and safeguarding the environment.

Anglophone cities dominate the top global positions

The second iteration of the City Real Estate Transparency Index confirms that the large liquid Anglophone cities are in the leading positions in the global ranking. **London** once again takes top spot as the world's most transparent real estate market and remains the most active cross-border real estate investment market. **Los Angeles**, **San Francisco**, **Sydney** and **Washington DC** round off the global top 5.

Notably, the global top 20 includes several small-to-mid sized second-tier cities that have been punching above their weight as real estate investment destinations in the recent upcycle. They include **Seattle**, **Denver** and **Portland** in the U.S., **Brisbane** in Australia, and **Manchester**, **Birmingham**, **Glasgow** and **Edinburgh** in the UK.

Paris is the notable non-Anglophone city in the top 20. The city particularly excels on sustainability transparency where it sits in first position globally, supported by ambitious governance targets including plans to become a carbon-neutral city powered by 100% clean energy by 2050.

World's Most Transparent Cities, Top 20

Rank	Market
1	London
2	Los Angeles
3	San Francisco
4	Sydney
5	Washington DC
6	Manchester
7	Birmingham
8	Seattle
9	New York
10	Melbourne
11	Glasgow
12	San Diego
13	Denver
14	Edinburgh
15	Boston
16	Paris
17	Portland
18	Brisbane
19	Miami
20	Dallas

Source: JLL, LaSalle

Within-country differences

The Index also confirms that in most 'Highly Transparent' and 'Transparent' countries, intra-national differences in transparency are relatively marginal. This is certainly the case in the **UK** and **Germany** for example, as well as the more geographically dispersed cities across **Australia** and **Canada**.

Differences in transparency are wider within Japan, between **Tokyo** and its second-tier cities of **Osaka**, **Fukuoka** and **Nagoya**, largely reflecting differences in access to market data.

Differences are even greater still in the **United States**, where a patchwork of state and municipal governments has led to differences in transaction disclosure rules and taxation, compounding the effects of distinct market practices and data availability across metropolitan areas:

- Californian cities rank highly overall, with **Los Angeles** and **San Francisco** the most transparent cities nationally, in part due to more predictable property tax escalations under the current tax rules and deep CRE fundamental coverage bolstered by tech-driven data solutions. **Washington DC** and **Seattle** also stand out, enjoying high transparency related to land-use planning and registry information. Western mid-tier cities like **San Diego** and **Denver** have also developed strong reputations as being transparent and well-run. Examples include initiatives such as the redevelopment of Denver's Stapleton Airport into a successful residential community, while San Diego is a perennial winner of awards bestowed by the Center for Digital Government.

- **New York**, among the world's most liquid commercial real estate markets, is ranked ninth globally. Local property measurement standards, which differ from international best-practice conventions – for example, through non-standardized and occasionally arbitrary loss factors which require negotiation between landlord and tenant – contribute to its lower score. Additionally, complex and sometimes unpredictable land-use rules can cause unanticipated costs and prolonged litigation.

- Non-disclosure laws in Texas mean that transparency around sales prices and transaction activity can be lower than in other major U.S. cities. In addition, other Sun Belt markets are impacted by relatively limited ownership details – such as **Tampa** and **Atlanta**.

Yet the largest variation in transparency is found in China. While **Hong Kong SAR** remains head and shoulders above Mainland China, **Shanghai** and **Beijing** have been steadily catching up over recent surveys and have nudged into the 'Transparent' category for the first time in 2020. Meanwhile, Mainland China's second and third-tier cities remain in the 'Semi-Transparent' category, though notably they did record similar rates of improvement to the first-tier cities. Mainland China's two leading cities have kept ahead of lower-tier cities due to their robust performance in data availability, proptech and property management categories.

Perspectives on Transparency

Sustainability and Transparency

The Imperative for Transparent and Sustainable Real Estate


Jeremy Kelly, Lead Director, Global Research, JLL
Rupert Davies, Analyst, Global Research, JLL

Coverage extended to include net zero carbon, resilience and wellness frameworks

In its 5th iteration, the Real Estate Environmental Sustainability Transparency Sub-Index has been further expanded in 2020 to cover several new metrics and frameworks, in recognition of the mounting pressures on the real estate industry to move to a healthy, resilient and low-carbon future.

The journey to a transparent and sustainable built environment

2012

The Transparency Survey began to track regulations and metrics relating to sustainability in 2012. For the first time, data was collected for 28 territories across the globe covering green building certification and financial performance indices, green leases, building energy efficiency regulations and benchmarking, and carbon emissions reporting.

2018

Sustainability becomes a mainstream issue for governments, real estate investors and corporate occupiers, and therefore warrants greater coverage by 2018. The 2018 survey was expanded to cover 100 territories and was integrated into the composite Transparency Index for the first time with a 5% weighting.

2020

With the urgency to tackle climate change intensifying and with a marked shift in the commitment from investors, developers and corporate occupiers to lowering carbon footprints, the latest Sustainability Transparency Sub-Index has been extended further. The 2020 survey now includes an assessment of zero carbon building frameworks, health and wellness, building resilience codes and water efficiency standards. The Sub-Index now covers 11 different elements, accounting for 10% of the weight of the overall Index.

A steady but muted improvement in sustainability transparency

The 2020 survey reveals that the Sustainability Transparency Sub-Index, on a like-for-like basis, has seen the greatest improvement compared to the other five components of transparency. While this is a welcome trend, progress has nonetheless been muted:

- Only one-third of territories have registered positive advances in their Sustainability Transparency score since 2018, and around half of all territories have seen no change.
- Adoption of voluntary sustainability tools or regulations has increased, but the widespread use of mandatory measures is still limited.
- Disappointingly, sustainability remains the weakest element of the six components in GRETI. The median score for Sustainability Transparency is 72% lower than the average for the other five sub-indices, indicating that a large proportion of territories still score poorly on sustainability regulations. There continues to be plenty of scope for countries to enhance their sustainability scores, not only to support environmental improvement but also as a facilitator of growth and investment.

Transparency by Sub-Index, 2020

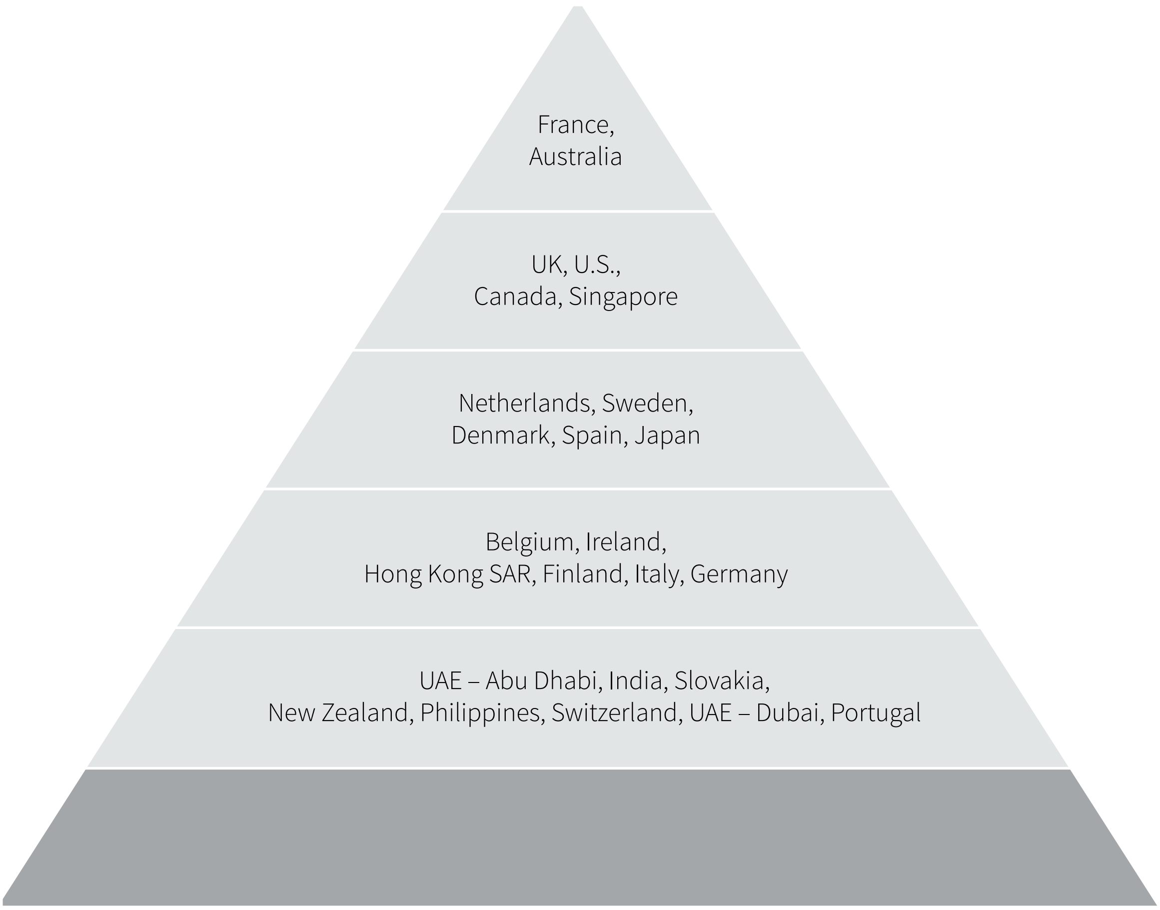
Based on average for 99 markets assessed in 2020
Source: JLL, LaSalle

France and Australia top the 2020 Sustainability Transparency Sub-Index

France once again heads the global ranking for sustainability transparency overall. It scores well on most sustainability criteria and is one of the very few territories which has mandated green leases and possesses an index to measure the financial performance of green buildings.

Australia comes a close second in the global ranking, and notably scores highly in some of the criteria new to this year's survey such as water efficiency standards (NABERS Energy and Water for Offices Rules) and building resilience frameworks.

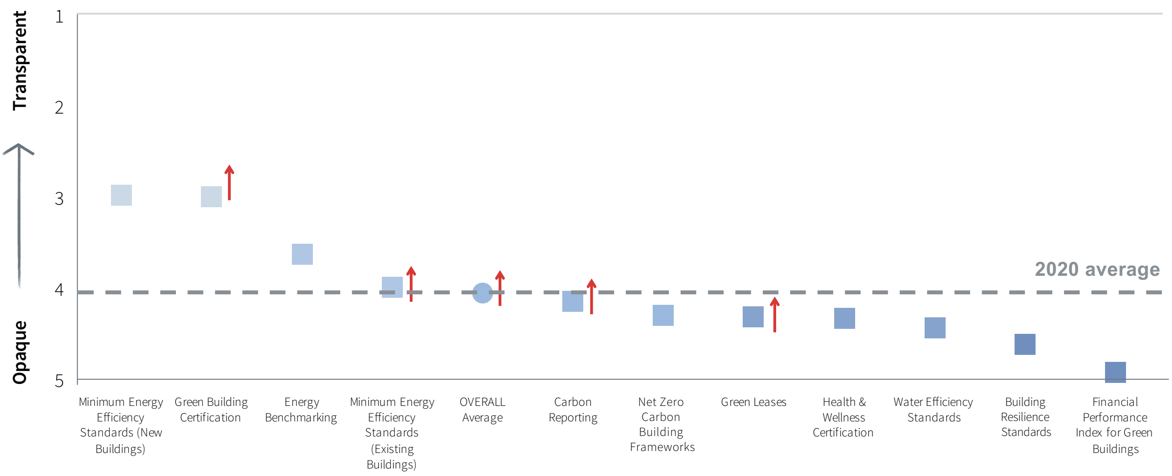
Sustainability Transparency: Top Positions in 2020



Source: JLL, LaSalle

The top group of territories in the Sustainability Transparency Sub-Index has remained relatively stable on the 2018 results. **Singapore** has moved into the top six for the first time, alongside the **UK**, **U.S.** and **Canada**, by virtue of its strengths in health and wellness, and in energy and water efficiency standards. The **UAE** has also made solid progress.

Sustainability Transparency by Category, 2020



Based on 99 markets assessed in 2020; ↑ = improvement in score vs. 2018
Source: JLL, LaSalle

Widespread adoption of green building certification

Our 2020 survey finds that green building certifications are now in use in the majority of territories, although incidence of use varies significantly:

- LEED and BREEAM, from the **U.S.** and **UK** respectively, remain the most widespread green building certification systems in use internationally. LEED and BREEAM continue to grow, including extensions for entire neighborhoods (e.g. LEED for Neighborhood Development and BREEAM Communities) which have emerged as an option for large, high-profile new developments.

- Among the territories that feature at the top of the Sustainability Transparency Sub-Index, a market-specific green building certification system is standard. This includes local/nationally developed systems such as DGNB in **Germany**, HQE in **France**, BCA Green Mark in **Singapore** and Green Star in **Australia**, as well as officially adopted and adapted international systems, like BREEAM-NL in the **Netherlands**, BREEAM-SE in **Sweden** and LEED Italia in **Italy**.

- Some of these certification systems are employed outside of their home market. For example, **Germany**'s DGNB is used in some Central European countries, while **Singapore**'s BCA Green Mark is utilized in other Southeast Asian markets such as **Indonesia** and **Vietnam**.

- In the Middle East, the **UAE** is taking the lead on green buildings with its increasing adoption of Abu Dhabi's Estidama Pearl Rating System and the Dubai Green Building Regulations.

- EDGE (Excellence in Design for Greater Efficiencies), a green building certification system developed by the International Finance Corporation (IFC), a member of the World Bank Group, was designed to meet the needs of developing countries and has seen adoption in many parts of the developing world.

Energy efficiency standards and energy benchmarking are prevalent tools

Minimum energy efficiency standards on new builds and energy benchmarking are also among the most prevalent sustainability tools globally:

- Energy benchmarking systems are a mandatory requirement in most of the top-performing territories, as are minimum energy efficiency standards on new builds, although they tend to be only voluntary for existing buildings.

- However, our survey finds that progress has stalled on energy benchmarking. Approximately half of all territories still have no energy benchmarking system in use; and while the remaining half have such systems, currently only about half of these make them mandatory for building energy reporting.

- Our survey also shows negligible change in the number of markets with minimum energy efficiency standards on new builds; still less than two-thirds of territories employ this tool. Neither have we observed a shift from voluntary to mandatory use. While there has been a slight uptick in the number of territories moving to mandatory minimum energy efficiency standards on existing buildings, in absolute terms mandatory legislation on existing buildings still significantly trails behind new builds.

Green lease frameworks are rare

Green lease frameworks are still uncommon:

- **France** remains the 'gold standard' for green lease frameworks, where green lease clauses (annexe environnementale) are mandatory for all commercial leases (offices and retail, above a total floor area of 2,000 sq m).

- While green lease frameworks exist in many other markets (e.g. Better Building Partnership's Green Lease Toolkit in the **UK** and the U.S. Department of Energy's Green Lease Leaders program in the **U.S.**), these remain only voluntary.

- However, there has also been a small increase in the number of green lease frameworks, with the ROZ (Dutch Real Estate Council), for example, establishing a new green lease provision in the **Netherlands**.

Limited adoption of green building financial performance benchmarks

Despite the need to demonstrate to investors that sustainable buildings make for more resilient investment assets, the number of nationally-based green building financial performance indicators remain rare, existing in only a handful of territories, namely **France**, **Australia**, **Canada** and **South Africa**.

The rise of net zero carbon building frameworks

For the first time, the Transparency Survey includes net zero carbon building frameworks, in recognition of the imperative for the real estate industry to reduce carbon emissions:

- Several of the highest-ranking territories for sustainability transparency have developed frameworks for net zero carbon buildings, with the most comprehensive of these frameworks covering both operational and embodied carbon emissions.

- Leading the advancement of net zero carbon buildings are a number of Green Building Councils, such as UKGBC in the **UK** and GBCA in **Australia**, that have developed their own national frameworks/ definitions of net zero carbon buildings.

- However, no country has, as yet, made net zero carbon buildings a mandatory compliance requirement. Even so, such frameworks are likely to become an essential ingredient of a transparent real estate market.

The World Green Building Council's (WorldGBC) 'Net Zero Carbon Buildings Commitment' (of which JLL UK is a signatory) calls on businesses, organizations, cities and states/regions to reach net zero carbon operating emissions within their portfolios by 2030 in order to meet the Paris Agreement's ambition of limiting global warming to below 2°C. Since building construction and operations accounts for approximately 40% of carbon emissions globally, net zero carbon buildings will have a critical role to play in reducing global warming and CO_2 emissions (see Climate Action: Net Zero Carbon and Resilience).

Health and wellness takes center stage

Health and wellness building certification has also been included in the Transparency Survey for the first time in 2020:

- WELL Building Standard and Fitwel, both originating from the **U.S.**, remain the foremost health and wellness building certification systems internationally.

- As with green building certification systems however, local/nationally developed systems are beginning to emerge. **Australia**'s NABERS Indoor Environment and **Singapore**'s BCA-HPB Green Mark for Healthier Workplaces have contributed to those countries' strong placing among the top 10 markets for sustainability transparency overall.

The COVID-19 pandemic has brought the health and wellness agenda to the fore and is likely to fast-track the rise of 'well buildings', which will be held in higher currency (see Health and Wellness Takes Center Stage).

Evolving building resilience standards

The impact of physical climate risks (e.g. increased occurrence and severity of storms, greater precipitation, increased flooding, longer and more severe droughts, warmer temperatures and extreme heat) on real estate assets is of increasing concern and new guidance on reporting on such risks has been formed by the Task Force on Climate-related Financial Disclosures (TCFD).

In response to these growing risks, the real estate industry is starting to develop its approach to resilience, and the Transparency Survey has put a stake in the ground by including building resilience codes in this year's edition, with **Australia** and the **U.S.** taking the lead in developing resilience benchmarking (see Climate Action: Net Zero Carbon and Resilience).

Mixed progress on sustainability transparency in middle and low-income countries

Most middle and low-income countries continue to be burdened by low sustainability transparency, with still limited adoption of green building certification and energy efficiency frameworks. Nonetheless some developing countries are showing progress:

- **India** has edged into the top 20 for Sustainability Transparency through the active role of organizations like the Indian Green Building Council (IGBC) and Green Rating for Integrated Habitat Assessment (GRIHA) in developing green building certifications, a net zero energy buildings standard and a people-centric health and well-being certification. Meanwhile, Indian states are at various stages of mandating the Energy Conservation Building Code (ECBC). The Bureau of Energy Efficiency (BEE) has also established a voluntary Star Rating energy benchmarking system. Additionally, an industry-led voluntary framework (India GHG Program) exists to measure greenhouse gas emissions.

- In Africa, the Green Building Council **South Africa** (GBCSA) has been leading the advancement of sustainable real estate on the continent. GBCSA is working in collaboration with emerging Green Building Councils throughout Africa to allow adaptation of its Green Star SA tool.

- Progress is being made in the **Philippines**, where the Energy Efficiency and Conservation Act 2019 includes guidelines on energy-conserving design for buildings. The sustainability agenda is also gaining traction in the likes of **Mexico** and **Indonesia** in terms of green building certification and energy efficiency standards.

Developing countries are at the sharp end of having to face the worse impacts of climate change and environmental degradation. However, with much of the real estate and infrastructure yet to be built in fast-growing cities in developing countries, policymakers are afforded an opportunity to incorporate sustainability into planning, construction and operational processes. Failure to adopt sustainability transparency measures now would be a missed opportunity to embed a green building culture within these development-heavy real estate markets. Doing so will not only benefit the environment but will also future-proof asset values and the built environment.

“

I applaud the fact that sustainability is not only a key component of this year’s Transparency Index but also that improvements are being shown. Recent events have proved that many countries and businesses have not had sufficient resilience to cope with the impact of COVID-19; where we have come from did not work. As we build back better we must create a more resilient world to face the even greater challenges that climate change will give us. And to do that we will need to work together, collaboratively. Transparency will help us do that, which is why the findings of this report are so important. And then we just might be able to reshape the future for a better world.

Richard Batten
Global Chief Sustainability Officer
JLL

Climate Action: Net Zero Carbon and Resilience

Eric Duchon, Global Head of Sustainability, LaSalle
Sophie Carruth, Head of Sustainability, EMEA, LaSalle
Lucy McCracken, Associate, Global Sustainability, JLL

Real estate has a crucial role in reversing global warming and CO_2 emissions

With building construction and operations accounting for approximately 40% of carbon emissions globally (according to the World Green Building Council), the real estate industry has a critical role to play in reducing or reversing global warming and CO_2 emissions. Since our last Transparency Index in 2018, awareness of the threat that climate change poses to our planet has increased significantly. From the 1,000+ organizations that have publicly signed on as supporters of the Task Force on Climate-related Financial Disclosures (TCFD), to the US$4.6 trillion in assets under management represented by the United Nations-convened Net-Zero Asset Owner Alliance, actors of many different types are taking steps to keep global warming to well below 2°C and to accelerate the transition to a clean energy, low-carbon economy. Moreover, the global COVID-19 pandemic has spotlighted how carbon emissions have plummeted during lockdown phases. This gives climate scientists optimism that it may be possible to 'flatten the curve' of global temperature rise.

As per the United Nations Sustainable Development Goal 13, the aim of climate action is to "both adapt to climate change and invest in low-carbon development." In our 2020 Transparency Index we have expanded coverage on environmental sustainability to include factors such as building resilience standards and net zero carbon building frameworks to strengthen our focus on these two aspects of climate action.

One framework which is already influencing much greater transparency across climate action and mitigation is that produced by the TCFD. Companies from all industries, including real estate, will use the TCFD framework to report on the climate-related risks and opportunities affecting their businesses, providing transparency to investors on their climate action efforts and enabling better long-term decision-making and resilience.

Net zero carbon – market-driven as the regulatory landscape evolves

While many countries are working toward net zero carbon legislation, our Transparency Index now explicitly monitors adoption of net zero carbon building frameworks, which are far rarer at this stage in the evolution of climate action. In fact, no country has achieved our highest score for this factor. However, as an industry, many real estate owners and managers are driving the market toward lower carbon emissions and, in a few countries, to net zero carbon adoption.

The first definition of 'net zero carbon' as it pertains to buildings was released in June 2016 by the World Green Building Council (WGBC) Advancing Net Zero project: a net zero carbon building is a building that is highly energy efficient and fully powered from on-site and/or off-site renewable energy sources. Since this definition was released, myriad other net zero definitions and frameworks have been developed, such as those by the UK GBC, the Science Based Targets initiative (SBTi) and ILFI Zero Energy Standard.

Real estate owners and managers in many countries can now align their efforts both to the legislation applicable to a building's geography for regulatory compliance and to an industry-developed scheme for portfolio governance.

Therefore, it should come as no surprise that building owners and managers are banding together in several countries to form industry commitments. Since first defining net zero carbon, the WGBC in 2019 launched its 'Net Zero Carbon Buildings Commitment' which now has over 82 signatories, including businesses and organizations, cities, and states and regions around the world. Another such spotlight is the UK Better Buildings Partnership Climate Change Commitment, whereby 23 of the UK's leading commercial property owners have signed on to deliver net zero carbon real estate portfolios by 2050. These owners have made these commitments at different levels, whether on behalf of their UK portfolios, European portfolios, or their global portfolios. Signatories will publicly share their pathways by the end of 2020 and report annually on their progress, disclosing the energy performance of their portfolios. These pathways will cover new and existing buildings, both operational carbon and embodied carbon, and include the impact of the energy consumed by the buildings' tenants. Although based in the UK, the signatories are demonstrating a clear intention to lead the broader market to higher levels of sustainability transparency around the world.

Market transformation and disclosure have been the main drivers of lowering carbon emissions to date in the real estate industry, especially in Australia, Canada and across Europe, including in the UK. Investors are increasingly looking at the net zero carbon strategies of owners and managers. Those companies that can demonstrate a clear pathway to lowering carbon emissions – including the impact of energy consumed by a building's tenants – will receive the backing of investors who are committed to 'responsible investing'. It remains to be determined if and how each country's regulatory environment will begin to shape policies to produce net zero carbon buildings, since most efforts, like the UK Better Building Partnership's Climate Change Commitment, are voluntary.

Building resilience in the real estate sector

While carbon mitigation strategies are critical to reducing the effects of climate change, some of these effects are already being felt around the world. We are already experiencing the increased occurrence and severity of storms, greater rainfall, increased flooding, longer and more severe droughts, warmer temperatures and extreme heat and wildfires, all of which are significantly impacting our communities and our built environment. As concern about the effects of climate change has grown, the industry's attention on resilient buildings – buildings that are able to withstand these environmental shocks like severe weather – has also increased. While a wholly different concept to green buildings, the two go hand-in-hand, and both are needed in a robust approach to climate action.

The risks posed by the earth's increasingly volatile climate affect the way that the industry designs, manages, values and invests in buildings. This is of growing interest for real estate investors who are considering the impact of acute risks (infrequent, high-impact events such as hurricanes) and chronic risks (long-term, lower impact events such as the rise in sea levels) which can disrupt income flows and affect the long-term value of their portfolios.

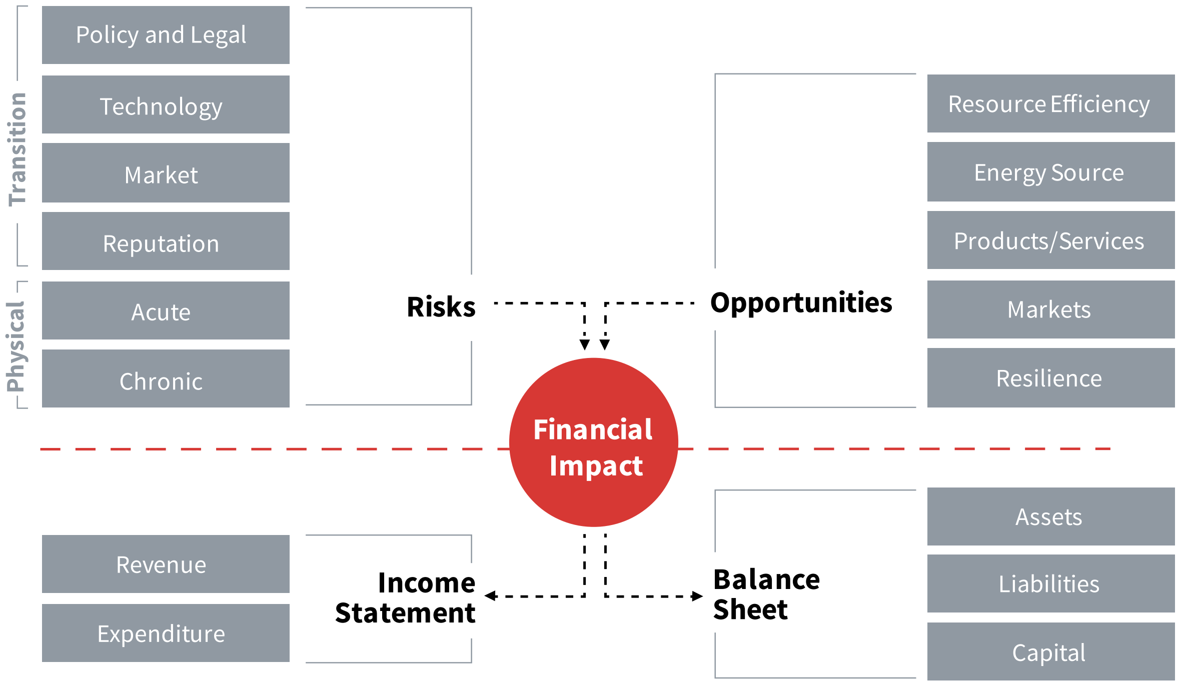
The resilience of the built environment is not a new concept, and the practice of resilient building design and retrofit has been advancing for several years. Developments in construction techniques, use of alternative materials and innovative technologies are enabling us to better retrofit old, and design new buildings to withstand the impacts of climate change, minimizing disruptions to our communities and economies. Even so, while design solutions are advancing, and market-specific guidance, standards and benchmarks are beginning to emerge, uptake is fragmented and led primarily by markets that have already experienced some of the most significant environmental changes, such as the coastal cities of the U.S. and Australia.

Transparent data on the resilience of assets and portfolios is still lacking, despite recent advancements in global initiatives such as the Global Real Estate Sustainability Benchmark (GRESB), which in 2018 added a voluntary resilience module, encouraging property owners to report how they manage their exposure to environmental stresses in their portfolios. However, in recent years TCFD has increasingly helped real estate owners and managers assess the climate risks faced by their portfolios, develop strategies for resilience, and report on these transparently to their stakeholders.

A framework for transparency: TCFD

TCFD is a framework for how companies from all industries, including real estate, will report on the climate-related risks and opportunities affecting their businesses, providing transparency to investors around climate risk and resilience.

Climate-Related Risks, Opportunities and Financial Impact



Source: Task Force on Climate-related Financial Disclosures

Using the TCFD structure, the real estate sector will experience two types of climate risks – physical and transitional:

- **Physical risks** are broken down into acute and chronic. Acute risks refer to those that are event-driven, including increased severity of extreme weather events, and chronic risks refer to longer-term shifts in environmental patterns like the rise in sea levels. Acute physical risks may have financial implications such as direct damage to assets and indirect impacts from supply chain disruption.

- **Transitional risks** involve broader societal, economic and political implications that real estate companies may experience via market, technology, policy and reputation factors. Market risks include utility price rises, reduced occupier demand for properties or increased vacancy risk. Technology risks include the rising capital costs for building and maintaining infrastructure. As tracked in our Transparency Index, policy risks such as climate-risk disclosure requirements, tougher building standards, carbon pricing and emissions caps may impact real estate operating costs. Organizations may also see reputational risks associated with inaction in the face of increasing investor/occupier preferences for real estate products incorporating climate mitigation.

Using the TCFD framework, organizations can assess and report on risk and resilience at the asset, portfolio and organizational levels. This approach can bring considerable value to many different stakeholders in the built environment value chain.

- For **institutional investors** the TCFD framework means they will experience a consistency of reporting from investment managers across the asset classes in their investment portfolio, including real estate.

- **Real estate developers**, whether building speculatively for sale or for a longer-term hold, will need to address both the long-term horizons where physical risks typically manifest and the shorter-term transitional market where policy and technology changes may compel developers to maintain a reputation for 'future-proofing' in order to attract buyers.

- For **corporate occupiers**, TCFD helps to support enhanced understanding of where their business risks lie and how to manage them - including location of operations, making these more resilient to upstream supply chain and downstream customer impacts - and allowing them to better answer shareholder questions on long term climate risk.

While currently voluntary, TCFD reporting is becoming increasingly prevalent. On a market-driven basis, UN Principles for Responsible Investment (PRI) signatories will be required to report on aspects of TCFD in the 2021 assessment. From the regulatory perspective, a handful of governments around the world are considering mandating the reporting going forward. If this rate of both market and regulatory adoption continues, TCFD has the potential to be a powerful platform for climate transparency within the real estate sector. We look forward to seeing how this progress shapes the future of the sustainability component in future editions of the Transparency Index.

Health and Wellness Takes Center Stage

David Barnett
Corporate Research, Americas, JLL

The COVID-19 pandemic has disrupted economies, businesses and communities worldwide and upended how and where people work, live and play. Many employees are eager to return to the office, but they want and need to return to a safe and clean office environment. While always important, health and wellness are now at the forefront of the journey toward a post-COVID-19 world. This journey requires data transparency on health and wellness metrics for building owners and occupiers alike. The 2020 Transparency Index incorporates new questions in the survey to provide insight on which territories are leading in the adoption of health and wellness building certification, and what we can expect as we enter a 'new normal.'

What is health and wellness?

Building wellness reflects the impact that the physical workplace, from construction to occupancy, has on a person's physical and mental health. Lighting, air quality, noise levels and materials impact building occupants throughout the day, every day.

Although green buildings have become a must-have for many owners and occupants over the past two decades, it wasn't until the late 2000s when wellness came into frame. While green buildings address environmental sustainability, building health and wellness focuses specifically on human impacts.

Health and wellness takes shape in a variety of forms. This can show through the materials used in construction, HVAC systems and air filtration, or even tenant amenities. Occupiers use amenities to supplement their wellness goals. Whether it is adding green walls, a gym, outdoor patio space, a bike room, meditation space or a nap room, organizations have found creative ways to both attract employees and enhance their physical and mental health.

How does health and wellness affect productivity?

A wellness-focused building with high-quality air and abundant natural light can help keep workers in the office and enhance their productivity. In fact, a 2019 survey conducted by Future Workplace and View found that "33% lose more than 60 minutes of work per day due to physical and environmental factors" and "nearly one-half of employees say poor air quality makes them sleepier throughout their workday."[2]

These wellness factors go beyond productivity as the pandemic has spotlighted, where physical safety is at risk. In addition to productivity gains, owners and landlords must assess air filtration and the use of ultraviolet germicidal light to protect the health of their tenants and occupiers. Building entrances should also have health screenings in place for all visitors to help reduce the risk of spread.

[2] Future Workplace Wellness Study by Future Workplace and View, 2019

What does wellness transparency achieve?

Transparency forges a clear path for occupiers and owners to make the right decisions that bring value and safety to their organizations and employees. Access to clear wellness standards and protocols and the ability to assess data on HVAC systems and visitor traffic and to audit technical systems lead to quicker and more robust decision-making.

Do organizations have real-time data on air quality, noise levels, humidity, foot traffic, and lighting? Prior to COVID-19, organizations had increased their utilization tracking, occupancy data gathering and portfolio data. We need the same metrics and transparency for building wellness. Transparency can bring three key benefits to occupiers and owners:

1. Measuring the right metrics (i.e. air quality, noise, lighting) can provide owners and occupiers with the data they need to adopt strategies that boost safety, engagement and productivity.

2. Measuring the right metrics in real time enables occupiers to adjust and optimize a workplace that is much more responsive to external and internal factors.

3. Transparency can make for effective communications with employees during pressing events such as COVID-19. Real-time data and communications are paramount to mobilize employees and expedite the rollout of strategies to mitigate the risk of any future health event.

Select countries are leading the way when it comes to wellness transparency

Adoption of health and wellness building certification is currently not widespread. WELL Building Standard and Fitwel, both originating from the **U.S.**, remain the foremost health and wellness building certification systems internationally. Nationally developed systems are beginning to emerge, such **Australia**'s NABERS Indoor Environment and **Singapore**'s BCA-HPB Green Mark for Healthier Workplaces. **India** is also taking steps with the IGBC Health and Well-being Rating.

Occupiers and owners in these leading countries can use these standards to guide and streamline their decision-making when it comes to project development and design. These efforts can be aided by local governments and other entities, such as the International WELL Building Institute, which has been a leading organization in defining and providing a wellness performance standard since its launch in 2014. According to its directory, there have been over 1,000 buildings certified in the **United States** and over 200 certified in **Australia**.

Moving forward to a 'new normal'

COVID-19 has brought health and wellness to the forefront of any corporate re-entry and reimagination program. It is a substantial stress test for building operators and occupiers. It is also a game changer that has shifted attitudes to building wellness, health and hygiene. Given the severity of the pandemic and the stakes involved, 'well buildings' are not just a 'nice to have'; they are imperative not only to keep employees healthy but to enhance their safety and productivity too.

COVID-19 will fast-track the rise of building wellness which was already underway as an evolution of green buildings. Transparency of 'building health' will become far more important – in terms of access to metrics that track not only light and noise, but also building ventilation, air filtration and cleaning. We could see the confluence of proptech and medtech in the next generation of smart buildings that will embolden operators to make real-time, data-driven decisions.

Technology and Transparency

Technology Taking Transparency to New Levels

Matthew McAuley
Director, Global Research, JLL

The real estate industry is undergoing a transformation as the growing adoption of proptech platforms, digital tools and 'big data' techniques rapidly increase the volume of data available and enhance market processes. New services and technologies from online marketplaces, shared economy platforms and asset management tools through to digital twins, smart cities and smart buildings are all serving to improve transparency by opening up new types of data and making it easier to access and interpret. While real estate has been slower to embrace new technologies than other industries, this is changing – in the two years since the last Transparency Index, nearly 1,400 private tech start-ups focused on real estate have been founded and US$16.9 billion in funding raised.

Reflecting the growing impact of technology platforms and digital tools across all parts of the industry, we have added new questions to our 2020 survey relating to the adoption of different types of proptech platforms (for example, smart buildings and sensors, 'big data' and property management tools) in each market, as well as government engagement with the proptech sector and use of technology property solutions.

Broadening adoption of proptech

The highest levels of proptech adoption, perhaps unsurprisingly, are in the 'Highly Transparent' territories (e.g. **France**, the **Netherlands**, **Australia**, the **UK**, **Canada**, **U.S.**, **New Zealand**, **Ireland, Germany**) as well as the high-income Asia Pacific markets like **South Korea**, **Singapore** and **Hong Kong SAR** – though, interestingly, **Japan** is much lower down the list which perhaps reflects its well-documented wider issues with non-manufacturing business tech adoption.

Several less transparent, larger emerging markets also stand out – including **India**, **South Africa**, **Brazil** and **Mainland China** – potentially indicating the increased appeal of proptech solutions in markets where traditional data sources or transaction processes are less established.

Proptech Adoption by Market, Top 20

Rank	Market	Proptech Adoption Score
1	France	2.00
2	Netherlands	2.10
3	South Korea	2.40
4	Australia	2.40
5	United Kingdom	2.50
6	Canada	2.50
7	United States	2.60
8	Singapore	2.60
9	Belgium	2.70
10	New Zealand	2.80
11	Switzerland	2.90
12	Hong Kong SAR	2.90
13	India	2.90
14	Ireland	3.00
15	Germany	3.10
16	South Africa	3.10
17	Brazil	3.20
18	Spain	3.20
19	China - SH/BJ	3.20
20	Finland	3.30

Note: China - SH/BJ = Shanghai and Beijing
Source: JLL, LaSalle

- **Mainland China** stands apart as the largest proptech fundraising market outside the U.S., with some of the world's largest companies across the various categories covered in the survey – Beike, Changjia, Xiaozhu, FangDD and Ucommune, for example, have all had US$200 million+ fundraising rounds in the last five years.

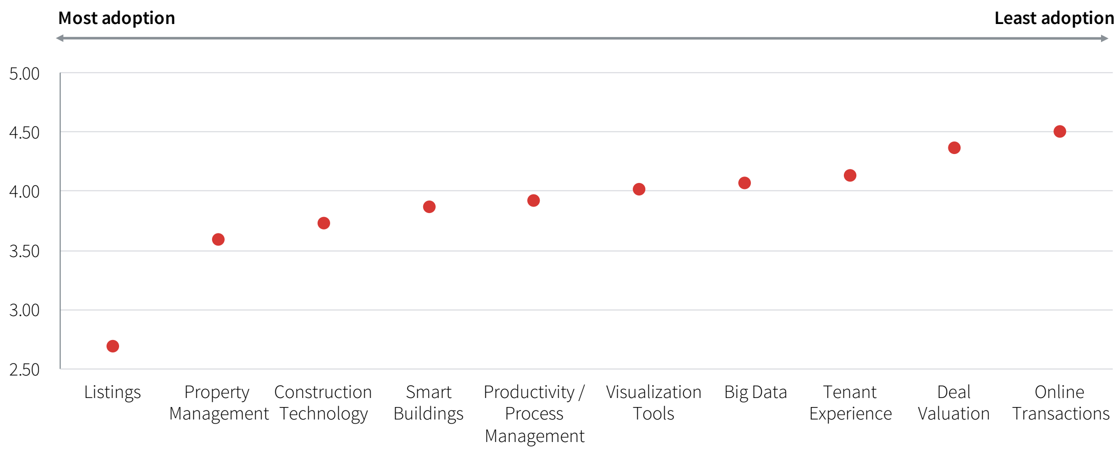
- **India** (NoBroker, Nestaway, Awfis) and **Brazil** (QuintoAndar, Loft) are also among the top 10 countries for venture-capital backed proptech fundraising, primarily into listings sites and coworking providers.

- **South Africa** has seen much more limited capital invested, which has been more focused on services (tenant experience apps, marketing tools) than the listings platforms prevalent across other emerging markets.

Adoption by proptech category

Listings websites are by far the most widely-adopted proptech platforms, present in even some of the less transparent markets (such as **Egypt**, **Nigeria**, **Ghana** and **Argentina**). In general, adoption decreases as complexity increases, with 'Big Data', Automated Valuations and Online Transactions tools seeing among the lowest levels of adoption. Interestingly, Construction Technologies comes relatively high up the list, where companies like Katerra and Procore have raised large funding rounds in recent years. Smart Buildings also feature in our survey as sensors and automated facilities management spread into less transparent markets.

Adoption of Global Proptech Tools, 2020



Source: JLL, LaSalle

Blockchain slow off the mark

Despite the hype around potential uses for blockchain in transactions, governments are at a relatively early stage in trialing its use:

- **Dubai** is actively working on a process to record all real estate transactions on blockchain as part of its Dubai Blockchain Strategy.

- **Sweden** has been piloting the use of blockchain for transactions and has carried out live end-to-end tests including automated contract verification.

- In addition, GRETI has recorded 31 territories where there is some government engagement with the technology, but this is at a fairly preliminary stage in most cases.

Increasing government engagement with proptech

In GRETI 2020 we have also investigated government initiatives and engagement with the proptech sector more broadly. There are several countries actively engaging and consulting with companies in the sector on how to improve services or make government data more available, but relatively few doing so in a structured way. The **UK**'s Digital Street program is one of the best examples, holding workshops and roundtables with industry on how the government can help, and running research programs and funding local authorities to trial digital property solutions.

Disruption leading to innovation

Technology is contributing to higher transparency by generating new types of data and increasing its accessibility, but real estate has lagged other industries in implementing new technology solutions fast enough and in making this information widely available. The COVID-19 pandemic could help to fast-track digitization and stimulate innovation in the use of technology due to the need for accurate and just-in-time data to keep track of activity – especially relating to health, mobility and space usage.

The pandemic is leading to an acceleration in new types of non-standard and high-frequency data being collected and disseminated, which is taking transparency to new levels due to its near-real-time nature:

- In the U.S. for example, organizations like the National Multifamily Housing Council (NMHC) and NAREIT pooled data on rent payments from software firms and property owners within a few weeks of the crisis escalating and have maintained this data with subsequent updates. This has provided visibility into a previously opaque indicator and informed both policymakers and business through the crisis.

- Individual companies are also contributing to greater transparency, with Placer.ai, for example, making its retail footfall data publicly available since the onset of the pandemic.

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The historic, simultaneous shock of a global pandemic followed by a global recession raises the bar for the real estate industry to provide ‘radical transparency’ to counteract ‘radical uncertainty’ in the marketplace. As I noted in 2018, incredible strides in the institutionalization, globalization and securitization of this huge asset class have been accomplished. Real estate has become a mainstay allocation for almost every institutional investor’s portfolio and it is becoming increasingly important as an asset class for individual investors. The continued progress of real estate’s status as a ‘mainstream’ asset class will depend on its ability to provide high levels of transparency right through these historic events. This includes timely and accurate performance benchmarks, stronger legal and tax frameworks, and more efficient methods for investors to acquire, lease, manage and sell their property assets.

The JLL Global Real Estate Transparency Index also points to the importance of technology to conduct business during a pandemic and to provide fast and accurate data streams, even when travel is restricted. This edition also tracks the measurement of sustainability efforts and disclosures about carbon emissions. Climate change is the next big challenge for the industry when the pandemic recedes, so ESG transparency will provide valuable insights. Cross-border investment activity will eventually resume when the shadow from the pandemic lifts. This report will be useful for evaluating what to expect when underwriting investments in less familiar markets.

Jeff Jacobson
Global Chief Executive Officer
LaSalle Investment
Management

Proptech Adoption and Technologies

Alex Edds
Director of Innovation, EMEA, JLL

Pretty much every article I read about proptech or the digital transformation of real estate talks of the accelerating use of technology, huge investment rounds into new tech companies, and endless narrations on its disruptive potential to the industry. But how well is proptech actually adopted by the real estate sector? Who is using it now? And for what? Where does it offer most value? How does it contribute to real estate market transparency? And which markets are leaders and who are laggards?

In this year's Global Real Estate Transparency Index, JLL and LaSalle have included some questions on proptech and its adoption, to learn more about how different markets are utilizing technology.

In determining adoption it is first important to understand who the key stakeholders of proptech are. And there are many:

- Real estate owners, investors and landlords – seeking to unlock new value in physical real estate, or to build efficiencies into what can be a rather complex and expensive process of investment and management.

- Developers – needing to drive efficiency throughout the supply chain and also looking to future trends for how consumers will use technology in their buildings.

- Occupiers of space – whether office, retail, industrial or residential, there is increasing demand to utilize technology to improve the time spent in the building.

- Visitor or customers – particularly relevant for retail – who are seeking to enhance their experience.

- Operators – the people keeping the building running such as facilities management and security. They all want a more efficient place of work and to use technology to aid their job functions.

- Real estate professionals – from the agent to the valuer, the fit-out consultant to the planning advisor. There is so much potential to automate tasks, gather new data to inform decisions, and ultimately digitize a largely analogue process.

- Governments – perhaps often overlooked, but as major users of real estate services and collaborators in providing funding and information, as well as being responsible for setting the policy direction, governments are key proptech stakeholders.

So the use cases are varied and the audience diverse. This makes for a huge market opportunity, but also a complex one. And it makes tracking adoption all the more difficult due to the range of stakeholders involved.

Our survey identifies Listing Platforms as the most dominant tool being used across all markets. This is perhaps unsurprising as this technology supports all asset classes and adds value to both consumer and seller by removing friction in the process and offering transparency on pricing. Starting life in the residential lettings market, these tools have quickly matured and become the dominant entry point for most renters and buyers of residential property, and we are seeing a rapid acceleration in their use in commercial space, particularly in the shorter-lease market. While not yet prevalent in the commercial property investment market, it is likely we will see traction here in the coming years, which will potentially give rise to transaction platforms (currently low adoption) and secondary real estate markets offering new forms of liquid investment and price discovery.

An extension of, and common use case of, the Listing Platform is the Shared Economy Platform. This is the ability to unlock value in physical assets by offering use of them, often temporarily, via an online booking portal. It has been one of the main use cases of the listing/booking platform and has revolutionized many markets, with more set to follow. And while cultural differences in different countries impact adoption, the growth in these types of platforms has been staggering and transformative. It is worth saying that a debate still rages as to whether these platforms should be classed as proptech. For now I'm going to avoid that discussion and simply acknowledge that the spread of these shared economy platforms has opened up a whole new submarket for business opportunities, as well as market information, in the real estate sector. One classification of proptech that can't be denied is the application of technology to the operation, maintenance and management of buildings. This is surely proptech 101? Indeed, it is the second most adopted technology category according to our survey. These tools range from strategic leasing and data tools to support portfolio management through to detailed and niche workflow tools for facilities management tasks. All are vital to support the transition of a more efficient and digital industry. Fundamentally this category, perhaps along with Smart Buildings (4th) and Tenant Experience (9th), are the most vital to support the transformation and transparency of our industry, as this is where the data is captured. Everything from understanding how efficient a boiler is to how happy tenants are constitutes essential information that should be on the BI dashboard of all decision-makers. The real estate industry is a long way from this being reality across the board, with a lot of solutions currently solving one or two pain points for individual stakeholders. But as the industry matures and the technology consolidates, I expect to see fully integrated systems to support digital asset management.

Construction Technology could be categorized as a completely separate vertical. Indeed, it often is: contech. One of the most inefficient industry sectors in any country, and desperate to find efficiencies and grow margins, the construction sector is now starting to see real progress by adopting a more technology-led approach – whether it be Building Information Modeling to create a single source of truth; Modern Methods of Construction to accelerate the design and build process; or automated workflow tools to capture and visualize the hugely complex environment of a construction project. It is likely that adoption will continue to grow quickly across all markets and all sectors.

I am often asked what I think the main barrier to technology adoption is. It's people. It's the mindset. It's the willingness and appetite to try something new, adopt a new approach and take a little risk. Ironically, real estate is an incredibly entrepreneurial sector, with new actors entering the market all the time seeking a niche to exploit. But how much differentiation is there? I would argue not much. Perhaps it has been too easy to repeat the old model? I believe that is changing.

Technology offers a new approach – both to enhance the way tasks have been done, but also to reimagine new ways to do them. The train has already left the station, with some markets more advanced than others, some sectors further ahead, and indeed some companies are leading while others lag. This is inevitable in any new growth sector. What is also inevitable is the continued growth of proptech, its adoption, and its disruptive and innovative impact on the transparency of the world's largest asset class.

The Proptech Ecosystem

Jordan Kostelac
Director of Proptech, Asia Pacific, JLL

Tech taking over

As technology becomes a more intimate part of everyone's lives, it is finally finding its place in how we construct, analyze, manage, and transact in the built environment. The applications and impact of these technologies are as varied, if not more so, than the architecture that houses them. However, unlike the architecture, construction and occupation of buildings, new technologies can be widely deployed almost overnight across regional and international markets. This raises the question of what the new standards for this technology will be and who the dominant players will be. Most importantly it prompts the question: will proptech become as specialized and local as the current real estate market is, or will we begin to see universally accepted international standards that increase transparency by aligning market practices and information globally?

Tech is decided by either platform or hardware owners

All technology products and services exist in a hierarchy of control, with hardware and operating systems at the top, software in the middle and customizations or plug-ins at the bottom. Any company which completely controls a widely-used platform, whether it be the hardware or operating system, controls access to an entire market and therefore controls its own ecosystem. This is why dominant tech companies such as Microsoft, Apple and Google remain in control of their own OS and hardware environments.

Since the early days of IBM, the United States has not only been a global leader in technology with its domestic research and development, but also the center of almost all global tech platforms. From SWIFT banking to the internet to the iOS, Windows and Android ecosystems, early adopters and developers alike have focused on investing in or developing the latest tech to come out of the U.S. Only one country in the world, China, has made a concerted and successful effort to build its own independent tech ecosystem.

Unlike with personal computers or mobile devices, in the built environment there is an advantage to being hardware agnostic as it allows a company to grow and standardize in buildings both new and old. The new dominant players in the proptech industry will be those companies that control the software platform that will be the foundation on which this new technology is built. Whoever is able to attract a critical mass of hardware, OS, users and apps will continue to grow in size, relevance and usefulness.

Once established, tech ecosystems have three ways to create and protect competitive advantage:

1. **Develop the fundamental technology or standards which enable their ecosystem** – This will be somewhat difficult to leverage as a competitive advantage as most of the technology which will have an immediate impact on proptech is already developed and commonplace in other industries.

2. **Build a wall** – Focusing on building a virtuous cycle, centralization and exclusivity will be important for proptech products, but not as important as it is for B2C markets. Property owners are often forward-looking and have the financial resources to invest in whichever technology is most beneficial to them in the long term.

3. **Become trusted and respected within the industry** – Of all the ways to establish and maintain a presence in the proptech industry, this will undoubtably be the most important. Proptech promises to be uniquely invasive in its reach and massive in its scale. Few technologies, bar more massive manufacturing industries or airlines, have so much value resting on the proper functioning of a

technology. Proptech platforms must be well trusted in order to be widely adopted. Proptech customers will have to believe that proptech providers are honest, well-managed and long-lasting if they are to fully commit themselves to these new technologies.

Building trust

The winner of the proptech revolution will be whichever organization is best able to build long-term trust in their technology. This means that property owners will want transparency from proptech organizations on how technologies are implemented and what information is collected. In many industries transparency and the free flow of information are a driver of commerce because increased trust in information means increased trust in investment. From a corporate governance perspective, transparency is an absolute necessity for allowing people to invest with confidence. In fact, one of the most immediate promises of proptech is its ability to simplify data collection and reporting.

However, transparency, while often considered of key importance, is not a universal demand. Full transparency for technology like this may be seen as a privacy threat or even a national security threat. In conflict with the currently influential and dominant U.S.-based tech platforms, rival economies are focusing on developing their own local or regional tech ecosystems, or at least insulating themselves from the influence of American-based tech firms. **Tech for built environments will face challenges balancing privacy with transparency in order to build trust.**

The last decade has seen a proliferation of **digital protectionism and innovation mercantilist**[3] policies across the world. Many countries, especially across Europe and Asia, have enacted policies to digitally isolate their economies from foreign interference and competition. This comes in the form of local standardization laws, personal data protection laws, digital taxes and data localization requirements. All of these make radical transparency more difficult across national borders.

In addition to protectionist regulations, there are many regions where personal relationships or government backing are more important for building trust in a product or investment than administrative transparency. Many countries' economies are still owned in a large part by tight-knit family businesses who maintain close relationships with government leaders. These regions may not demand the same level of radical transparency that a NASDAQ-listed REIT would require.

The global proptech sector will face constant challenges dealing with situations where it must build trust without the benefit of radical transparency. Nowhere will this challenge be greater than for companies trying to launch proptech solutions in both China and the U.S.

Divergent digital ecosystems

In a world where U.S.-based companies control almost all widely-used tech platforms, only one country has worked to develop its own independent ecosystem. A clear technological distinction has emerged between the world's two leading economies: the United States and China. This technological divergence presents a challenge for any company that wants to maintain a global presence in the hyperconnected business environment of the 21st century.

As an extension of the economic and political influence of these two superpowers, localized digital tools crafted in their respective ecosystems are shaping the evolution of the property industry. China's digital ecosystem is emerging at incredible speed and it already boasts more users of digital payment systems than the U.S. has people. But in contrast to the organic development that exists in the U.S., China's government has engaged in massive central planning projects concerning technology. Most recently, the Chinese government has announced its plan to release 5G standards that will likely be adopted in many countries across the world.

[3] http://www2.itif.org/2019-worst-mercantilist-policies.pdf

In recent years, the relationship between these two digital ecosystems has become more adversarial despite continued interdependence. A phenomenon we will refer to as 'technology de-coupling'. As the two digital ecosystems continue to diverge, it is important to understand how they might reshape proptech for the next decade, if not longer.

Different proptech ecosystems, different transparency

Proptech will certainly be a tool that enables greater transparency in the real estate industry. But the specific type of transparency it enables may differ from operator to operator and region to region. U.S.-based solutions will focus on transparency suited for public markets. This includes financial documents, legal documents and 'big data', which will be privately owned and used widely to establish market trends and make predictions. Transparency in this system will be dependent on data privacy restrictions and based on diffuse networks of information created and shared by individual companies or groups, in many cases focused on particular sectors or niches of the market.

Rival solutions will focus on more centralized systems of transparency where access to information, enterprises and technologies is readily available to policymakers and regulators – allowing better control over smart-city solutions, industry standards, environmental goals and restricting financial crime – but more limited for other industry participants.

The divergence of these digital ecosystems will have important implications for real estate technology and transparency in the years ahead as different forms of data collection, analysis and sharing are embedded in increasingly separate regulatory systems and standards.

Cooperation is key

Organizations that operate internationally must find a way to best serve their customers while cooperating with the countries they operate in. Different countries have chosen their own ways to achieve similar environmental, privacy, safety and business goals. This means that depending on the jurisdiction, multinational operators should expect transparency for regulators, occupiers and owners to be prioritized differently.

Developing a proptech and business plan strategy that best cooperates with local governments and citizens will be required to navigate these diverse regulatory and social priorities. Before pursuing a global strategy to upgrade proptech capabilities, multinational operators will need to set realistic expectations for what is possible within each jurisdiction. The limitations of technology are dictated not only by written laws but also government priorities and social assumptions unique to each local market. New technologies will therefore need to be designed with an international presence in mind, making both their technology and business model flexible enough to be deployed in the majority of countries across the globe.

Alternatives and Infrastructure

Transparency Deepens in Alternative Property Types

Dan Mahoney, Investment Strategist, U.S., LaSalle
Pranav Sethuraman, Global Capital Markets Research, JLL
Matthew McAuley, Director, Global Research, JLL
Jake Fansler, Research Analyst, U.S., LaSalle

A positive feedback loop between rising niche property-type institutional investment and greater market data availability has propelled property types like self-storage, data centers and life sciences to the leading edge of real estate transparency improvement in 2020. These niche – or alternative – property types have gradually become less 'alternative' and more mainstream. A dozen countries surveyed in our 2020 Index have reported significant institutional investment in at least four different niche property types, with REITs often leading the way. And another 54 countries have reported at least some limited institutional investment in niche property types, making them a truly global phenomenon.

We added questions to the Transparency Index on niche property types two years ago to measure the vast differences in alternatives market information between countries and property types. In our 2020 Index, in addition to our original eight niches, we have included four new niches that are garnering increased investor interest:

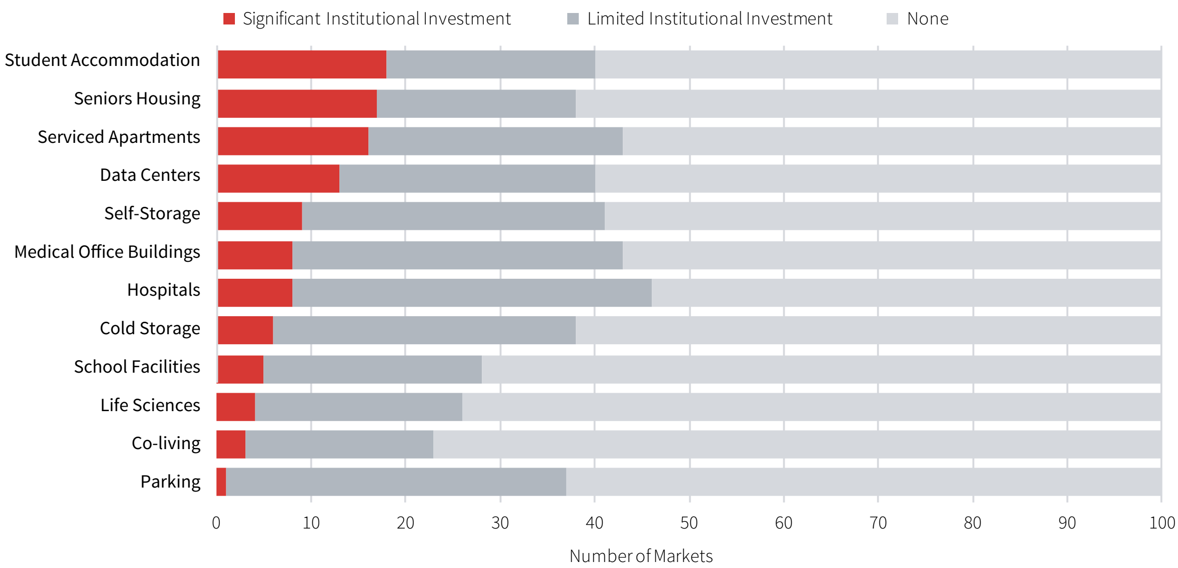
- **Life Sciences:** These lab and specialized office spaces for biotech and pharmaceutical R&D have attracted the most institutional investment in the **U.S.**, **Canada**, the **UK** and **France**, though only the U.S. has a specialized public life sciences REIT.

- **Cold Storage:** Asia Pacific investors in **China** and **Australia** have been among the first to embrace this niche.

- **Co-living:** These by-the-bedroom residential options with common living areas are among the least mature yet fastest-growing niches we have surveyed. The **U.S.**, the **UK**, **Germany** and **China** report the highest levels of institutional investment.

- **School facilities:** Buildings leased to international schools, private schools, and childcare or preschool operators are rare in some major markets, but they rank higher in investor acceptance in the **UAE**, **Turkey** and **New Zealand**.

Global Investment in Alternative Property Types, 2020



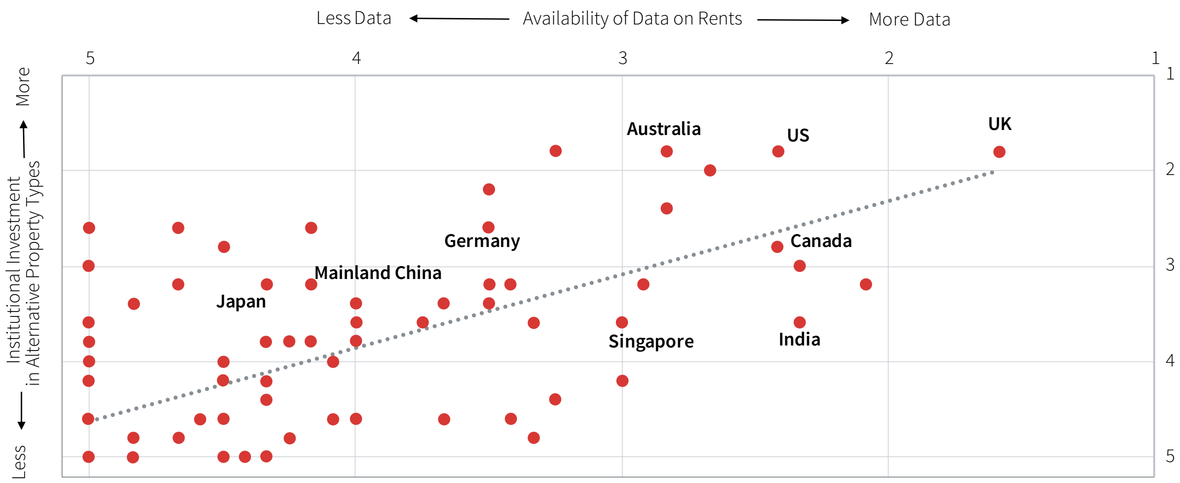
Source: JLL, LaSalle

In addition to institutional investor activity, the Transparency Index measures the availability of niche market data in three areas: inventory and construction, rents, and market transaction pricing. The results show that inventory and construction data is consistently more available than rent or transaction pricing data, which remains much harder to come by, even in many 'Highly Transparent' markets.

Data availability and institutional investment are highly correlated across niche property types. Student accommodation and seniors housing, the top two niches for institutional investment, also have the most data available on inventory, construction, rents and transaction pricing. This is no accident. Transparency and investment activity are self-reinforcing, with investors creating new demand for high-quality data and, in turn, that information often convincing additional investors to enter the niche. JLL's UK Head of Alternatives Research, James Kingdom, observes that there is a "natural increase in transparency" when investment activity increases. And JLL's Alternatives Investor Survey shows "investors consistently want more exposure to alternatives," though the availability of investment opportunities can be a constraint in several niches.

The correlation between institutional investment and market data extends to differences between markets. The scatterplot below shows their positive correlation (+0.69) across the national markets in the 2020 Transparency Index.

Alternatives Data vs. Institutional Investment



Source: JLL, LaSalle

The scatterplot also highlights that most countries still have limited niche institutional investment and even less niche market data. This makes them a fitting target for improving real estate transparency. Over the last two years, our alternatives market data transparency scores have improved 8% for inventory data and 5% for rent data. Behind these improvements are many small actions, largely focused in already 'Highly Transparent' markets.

These actions include work on more granular segmentation of niche subtype returns by NCREIF in the United States. MSCI has also created a distinct breakout for U.S. medical office, enabling investors to benchmark their relative allocation to this niche property type for the first time. The breakout shows that medical office accounts for 1.2% of the MSCI U.S. Quarterly Property Index, double its share from nine years ago, albeit still quite small. JLL is now tracking niche property-type investment volumes across 40 countries globally, a large increase from 2018, as part of our Global Capital Flows analysis.

Industry associations and JLL researchers have also undertaken extensive primary data gathering to better understand alternatives market fundamentals:

- JLL's European Coliving Index, for example, tracks inventory of the existing stock and pipeline of co-living beds from Vienna to Manchester and many cities in between.
- JLL's Co-living in Costly Cities Asia Pacific report provides visibility into co-living operations and expenses.
- JLL's Life Sciences Outlook gathers key market information on life sciences square footage, vacancy and rent levels in major U.S. life sciences clusters.
- The Federation of European Self Storage Associations (FEDESSA) continues to partner with JLL on an annual self-storage survey that provides granular statistics on inventory by country, average occupancy and rental rates.

High-quality information that reflects fast-changing market conditions is invaluable during periods of market turmoil, like the current COVID-19 pandemic, and many data providers covering niche property types have illuminated otherwise opaque market metrics:

- In March and April 2020, NAREIT quickly organized a survey of rent payments that includes healthcare as a separate property type.
- In March 2020, Smarking, a parking management software firm, began publishing data on shifts in daily parking revenues, typically a very opaque datapoint for those without access to proprietary data.
- JLL has launched investor surveys of UK student housing and US seniors housing to better understand expectations for fundamentals and pricing.

These innovative efforts, organized quickly in reaction to the market shock, highlight how sizable alternatives transparency progress is possible when it is made a priority. Looking ahead to our next Transparency Index in 2022, niche property-type data is likely to be a primary driver of future transparency advances.

With contributions from James Kingdom, Audrey Symes and Nicholas Wilson

Transparency and Infrastructure Development

Dana Salbak
Head of Research, MENA, JLL

Among the greatest challenges facing our urban environments is the provision of adequate public infrastructure, not only transport, telecommunications and power supplies, but also to respond to increasing demands for sanitation and healthcare facilities, which the COVID-19 pandemic has brought into sharper focus.

Many governments are actively pursuing private sector participation in infrastructure investment, but private capital deployment requires a high level of transparency and access to reliable and high-quality metrics to support risk mitigation.

The ambitions and experience of the Middle East region highlight the importance of transparency in unlocking private capital in infrastructure.

Attracting private capital in infrastructure across MENA

The numerous development plans launched over the past couple of years by countries in the Middle East, particularly the Gulf, have all emphasized the need to increase private participation and investment in various sectors of the economy. A key component of Saudi Arabia's National Transformation Plan under Saudi Vision 2030 for example, is to increase the percentage of private sector investment from 40% of GDP in 2015 to 65% by 2030.

The COVID-19 pandemic coupled with the volatility in oil prices and the threat these two factors pose for regional growth, emphasizes the need to create a proactive strategy to attract private investment, particularly into infrastructure, which is an integral component to raising the standard of living across cities.

This has highlighted the need for greater transparency in the MENA region. With investors hesitant to deploy capital, the availability of data is essential to help decision-makers understand the performance of assets and correctly assess investment risks. This is key to unlocking investments and mobilizing private capital in alternative asset classes, which provides greater income stability.

A priority sector

One of the key factors which makes the conversation around infrastructure development crucial and relevant, is the expected population growth and urbanization rate across MENA. The region's population is projected to increase by around 40% over the next few decades (according to Oxford Economics), which puts increased strain on infrastructure be it roads and transport or education and healthcare.

Looking at a post-COVID era where unemployment rates are expected to be higher, maintaining and even increasing the spend on infrastructure and promoting the sector to private capital will be important to support job creation.

From an investment perspective, and as volatility and uncertainty impact sentiment, investors are focusing on defensive sectors that ensure long-term income stability. As such, investments into infrastructure, both transport and social, are expected to increase in the mid-to-long term. This presents an opportunity for governments to create more strategic partnerships with private investors.

Challenges to investing in infrastructure in MENA

Impediments to private participation in infrastructure across the region are wide-ranging, and the underlying structures and frameworks are still in nascency, albeit with variances across the region.

One barrier that hinders the private sector's participation in infrastructure is the absence of a clear regulatory framework and a PPP central unit which can act as a 'one-stop shop' between public and private entities. This results in ambiguity of processes and further widens the gap between both parties, limiting the scope for public-private engagement to develop projects.

To successfully promote this model, it is imperative to put in place proper guidelines supported by revised regulations that clearly set out the roles, responsibilities and returns of different participants in the process. This will create a framework and achieve a more sustainable business model in the long term.

The importance and relevance of this is highlighted by the COVID-19 pandemic. With government hospitals at full capacity across the region, private sector hospitals have been requisitioned to provide additional beds. The financial arrangements by which these patients are currently being treated is placing an unsustainable burden on private sector hospitals that have also been starved of income from the cancellation of routine and elective surgeries and from the closure of many clinics and other operations. Unless a new model is found, the financial viability of private operators will quickly be called into question.

The lack of available and reliable data also acts as a hindrance to attracting private investment into the sector. While an economic crisis may not be the best time to increase mobilization of private capital, the lack of data further inhibits understanding the performance of projects and the risk factors. Certainly, across the region, the absence of data-collection policies and platforms remains an unfulfilled prerequisite which countries should look at more seriously.

Given the uncertainties that lie ahead, we expect to see countries across the region reassess their business models, calling on more private participation in the execution of large-scale infrastructure projects. To make room for this, governments need to roll out efficient PPP models and adopt mechanisms to collect and make available data that will allow for a better assessment of the risk and reward profile of projects. This will lead to further innovation, greater effectiveness, and more accountability and transparency in the sector.

Top 20 Markets
by Transparency Sub-Index

Performance Measurement

Sub-Index Rank	Market	2020 Sub-Index Score	2020 Composite Score
1	**United Kingdom**	1.00	1.31
2	**United States**	1.15	1.35
3	**Australia**	1.18	1.39
4	**France**	1.42	1.44
5	**Canada**	1.56	1.51
6	**Netherlands**	1.62	1.67
7	**Japan**	1.68	2.03
8	**New Zealand**	1.77	1.67
9	**Switzerland**	1.80	1.96
10	**Sweden**	1.95	1.89
11	**Hong Kong SAR**	2.03	2.03
12	**Germany**	2.18	1.93
13	**Italy**	2.21	2.08
14	**Singapore**	2.21	2.00
15	**Belgium**	2.25	1.99
16	**Ireland**	2.29	1.83
17	**Spain**	2.47	2.16
18	**South Africa**	2.51	2.37
19	**Finland**	2.58	1.98
20	**Malaysia**	2.65	2.56

Market Fundamentals

Sub-Index Rank	Market	2020 Sub-Index Score	2020 Composite Score
1	**United States**	1.41	1.35
2	**Netherlands**	1.63	1.67
3	**Australia**	1.64	1.39
4	**France**	1.74	1.44
5	**Canada**	1.77	1.51
6	**New Zealand**	1.77	1.67
7	**United Kingdom**	1.80	1.31
8	**Singapore**	1.95	2.00
9	**Hong Kong SAR**	1.99	2.03
10	**Ireland**	2.07	1.83
11	**China – SH/BJ**	2.09	2.59
12	**Indonesia**	2.11	2.86
13	**Russia**	2.12	2.81
14	**Chinese Taipei**	2.13	2.34
15	**Germany**	2.13	1.93
16	**Finland**	2.18	1.98
17	**Poland**	2.20	2.24
18	**Denmark**	2.20	2.10
19	**Italy**	2.22	2.08
20	**Slovakia**	2.22	2.44

Governance of Listed Vehicles

Sub-Index Rank	Market	2020 Sub-Index Score	2020 Composite Score
1=	United States	1.00	1.35
1=	Australia	1.00	1.39
1=	New Zealand	1.00	1.67
1=	United Kingdom	1.00	1.31
1=	Ireland	1.00	1.83
1=	Finland	1.00	1.98
7	Belgium	1.07	1.99
8	Switzerland	1.13	1.96
9=	Canada	1.17	1.51
9=	Germany	1.17	1.93
11	Sweden	1.32	1.89
12	France	1.33	1.44
13=	South Africa	1.60	2.37
13=	Mauritius	1.60	3.47
15	Denmark	1.62	2.10
16	Netherlands	1.64	1.67
17	UAE - Dubai	1.66	2.75
18	Singapore	1.68	2.00
19	Spain	1.69	2.16
20	Romania	1.80	2.71

Regulatory and Legal

Sub-Index Rank	Market	2020 Sub-Index Score	2020 Composite Score
1	United Kingdom	1.17	1.31
2	Canada	1.19	1.51
3	United States	1.24	1.35
4	Denmark	1.35	2.10
5	Poland	1.37	2.24
6	Sweden	1.39	1.89
7	France	1.40	1.44
8	Australia	1.51	1.39
9	New Zealand	1.55	1.67
10	Japan	1.55	2.03
11	Ireland	1.55	1.83
12	Switzerland	1.57	1.96
13	Netherlands	1.58	1.67
14	Finland	1.62	1.98
15	Israel	1.63	2.80
16	Slovakia	1.65	2.44
17	Hong Kong SAR	1.68	2.03
18	Slovenia	1.69	3.32
19	Germany	1.72	1.93
20	Austria	1.75	2.34

Transaction Process

Sub-Index Rank	Market	2020 Sub-Index Score	2020 Composite Score
1=	United Kingdom	1.00	1.31
1=	France	1.00	1.44
1=	New Zealand	1.00	1.67
1=	Ireland	1.00	1.83
5	Belgium	1.10	1.99
6	Denmark	1.13	2.10
7	Australia	1.13	1.39
8=	Canada	1.20	1.51
8=	Spain	1.20	2.16
10	Czech Republic	1.22	2.41
11	Finland	1.22	1.98
12=	Netherlands	1.24	1.67
12=	Portugal	1.24	2.42
14	United States	1.28	1.35
15	Italy	1.29	2.08
16	Sweden	1.31	1.89
17=	Poland	1.37	2.24
17=	Germany	1.37	1.93
19	Chinese Taipei	1.39	2.34
20	Israel	1.39	2.80

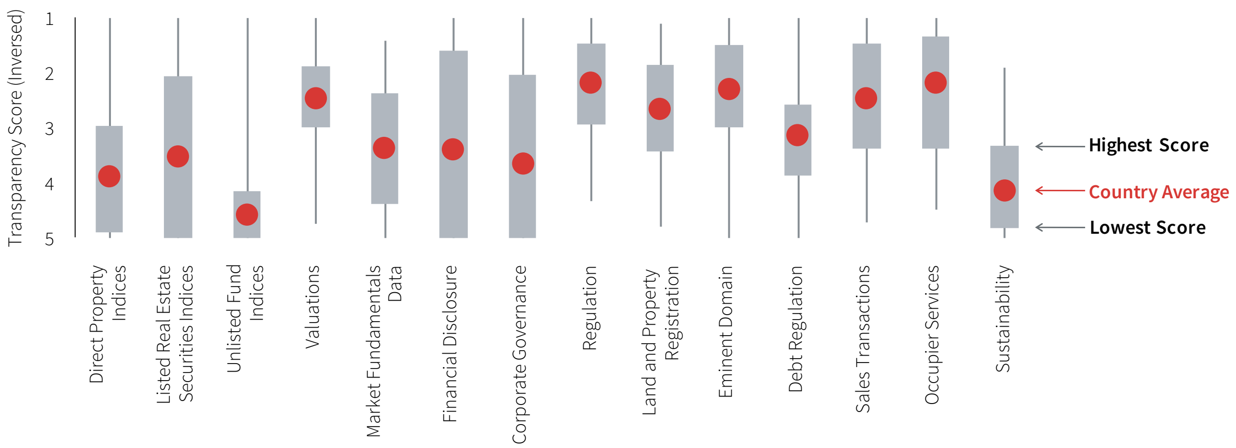
Sustainability

Sub-Index Rank	Market	2020 Sub-Index Score	2020 Composite Score
1	France	1.91	1.44
2	Australia	2.00	1.39
3	United Kingdom	2.36	1.31
4	United States	2.45	1.35
5=	Canada	2.55	1.51
5=	Singapore	2.55	2.00
7=	Netherlands	2.73	1.67
7=	Sweden	2.73	1.89
9=	Denmark	2.82	2.10
9=	Spain	2.82	2.16
9=	Japan	2.82	2.03
12	Belgium	2.91	1.99
13=	Ireland	3.00	1.83
13=	Hong Kong SAR	3.00	2.03
15=	Finland	3.09	1.98
15=	Italy	3.09	2.08
15=	Germany	3.09	1.93
15=	UAE - Abu Dhabi	3.09	3.10
19=	India	3.18	2.69
19=	Slovakia	3.18	2.44

Note: China - SH/BJ - Shanghai and Beijing
Source: JLL, LaSalle

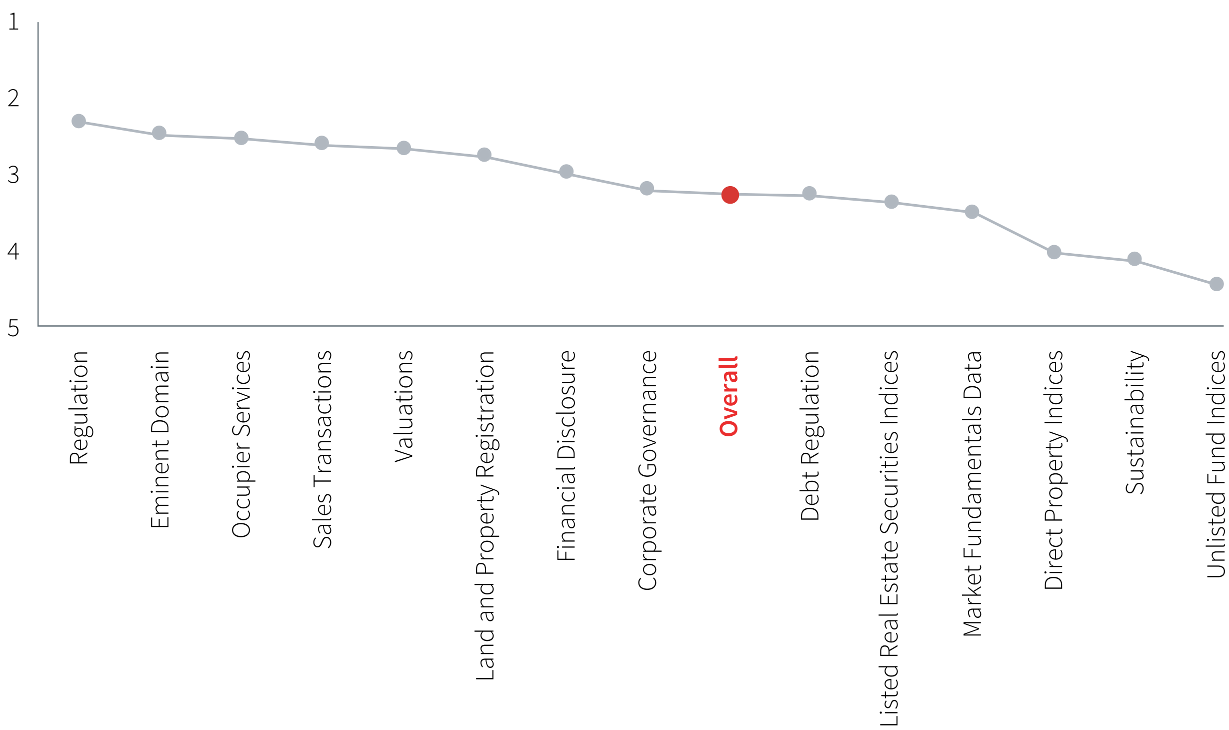
Transparency by Topic Area

Score Range by Topic Area, 2020



Source: JLL, LaSalle

Average Score by Topic Area, 2020



Source: JLL, LaSalle

Technical Note
Global Real Estate Transparency Index

The Transparency Index

The JLL Global Real Estate Transparency Index is based on a combination of quantitative market data and information gathered through a survey of the global business network of JLL and LaSalle across 99 countries and 163 city markets. For each market we use 210 separate factors, both quantitative datapoints and survey questions, to calculate the composite score. The survey data and quantitative measures complement each other. For instance, knowing the market coverage and length of a country's direct real estate index is only one half of the story; for a complete picture, we also gather qualitative data on whether investors actually trust and use the index. Local research teams, in consultation with business leaders and real estate professionals active in each market, complete the survey. A table summarising the factors behind the Index is at the end of this note.

In the 2020 Index we have continued to break general questions into more specific, granular components and to include new elements, moving from 186 constituent factors to 210. For example, we have expanded the list of alternatives sectors covered from 8 to 12, to include: life sciences, cold storage, co-living and school facilities. We have also expanded the list of Sustainability topics covered, with new questions on health and wellness certification systems; building resilience codes; net zero carbon building frameworks; and water efficiency standards. These changes allow us to drill deeper into where markets differ and to reduce measurement error by making the overall scoring less reliant on any single factor.

Quantitative Factors

52 of the 210 scoring factors, accounting for 29% of the overall factor weighting, are quantitative. These quantitative factors, primarily added to the Index in 2012, include the number of years fundamentals' data series (like vacancy) have been available, the market coverage of property return indices, and the free float of publicly-listed real estate securities markets. We score most of these quantitative factors on a continuous scale from 1 to 5, with 1.00 indicating very high transparency. For datapoints on performance measurement indicators, such as the market coverage of property return indices, we have set the top score of 1 equal to the 90th percentile observation in 2012. The cut-off thresholds to qualify as a 'Highly Transparent' market have been fixed at their 2012 level, so that markets can improve to higher tiers over time. For datapoints on market fundamentals data, such as the length of a market's office vacancy series, we have set the top score of 1 equal to a time series of 30 years or more, which we view as the 'gold standard'.

Researchers at JLL and LaSalle have collected detailed data on the available market fundamentals' time-series for each of five property types: office, retail, industrial, residential and hotels. We have included all available data series, not only those produced by JLL. For national surveys, the market fundamentals data is based on conditions in the top-scoring city of each country.

Data on property-level returns indices is from MSCI, NCREIF and other industry associations. Data on publicly-listed real estate comes from the European Public Real Estate Association (EPRA), Bloomberg, NAREIT and the LaSalle Investment Management Securities group. Fund-level index data is primarily from INREV, NCREIF, MSCI and ANREV.

Qualitative Survey Factors

The balance of the scoring factors, totaling 158 datapoints, are qualitative survey questions scored by local JLL and LaSalle teams. For each, local research teams are provided with a detailed rubric of five answer choices, ranging from 1 – most transparent – to 5 – opaque. Based on where their market fits within that rubric of options, local experts assign a score. Respondents consult JLL's local accounting, finance, asset management and legal experts to inform their responses to questions in those topic areas.

Scores within each region are then reviewed by regional and then global coordinators to ensure objectivity and rigor. Global and regional reviewers interrogate country teams' responses and challenge teams to justify changes in question scores from prior updates. The review process, high level of detail provided in the answer choices, and improved question granularity reduce subjective bias in scoring, and all contributors strive for impartiality in their responses.

Compiling the Transparency Index

We group the 210 individual transparency measures into 14 topic areas, summarized in the table at the end of this note. These topic areas are grouped and weighted into six broad sub-indices:

- Performance Measurement – 25%
- Market Fundamentals – 16.5%
- Governance of Listed Vehicles – 10%
- Regulatory and Legal – 23.5%
- Transaction Process – 15%
- Sustainability – 10%

The Transparency Index scores range on a scale from 1 to 5. A country or market with a perfect 1.00 score has total real estate transparency; a country with a 5.00 score has total real estate opacity. Markets are then assigned to one of five transparency tiers. The thresholds for these tiers are based on Jenks' Natural Breaks classification. 2012 scores are used to fix the thresholds, so that markets can move between tiers as transparency changes over time, even if their relative position does not change. This algorithm finds the cut-offs that minimize within-group variance and maximize between-group differences. We create 10 groups using this method and then aggregate them into five tiers with the following thresholds:

• Tier 1: Highly Transparent	Total Composite Score: 1.00–1.96
• Tier 2: Transparent	Total Composite Score: 1.97–2.65
• Tier 3: Semi-Transparent	Total Composite Score: 2.66–3.50
• Tier 4: Low Transparency	Total Composite Score: 3.51–4.16
• Tier 5: Opaque	Total Composite Score: 4.17–5.00

Transparency Index Time Series

2020 marks the 11th edition of the JLL Global Real Estate Transparency Index. Since its inception in 1999, the Index has evolved and been refined to reflect the changing demands of cross-border investors and corporate occupiers. Factors added over time have been included historically where available. Where no historic data is available, we have extended back data from the edition in which a factor was added so that changes in the new factors do not drive movement in the historic scores. A brief history of recent additions to the Index includes:

- **2008:** New questions were added to embrace the perspective of corporate occupiers relating to occupier service charges and facilities management. Questions concerning debt financing and the frequency and credibility of property valuations were also included.

- **2010:** The existing questions regarding debt financing were substantially revised to more appropriately reflect the key issues of debt transparency relating to the availability of information on commercial real estate debt and the role of bank regulators in monitoring commercial real estate lending. There were also revisions to questions on the transaction process covering pre-sale information and the bidding and negotiating process.
- **2012:** Major additions were made to incorporate a greater number of quantitative measures of investment performance and market fundamentals. In each of these two areas, general questions were divided into many different granular questions to better capture nuanced differences between markets. In all, 50 new factors were added by decomposing general questions into more detailed questions.
- **2014:** We continued to decompose general questions into more specific ones, resulting in the addition of 32 new factors. These additions were spread across categories, as shown in the table below. For example, rather than asking a single general question on tax fairness as we did in 2012, we included four questions on tax in 2014 covering the consistency of enforcement and predictability of tax rates for both domestic investors and foreign investors.
- **2016:** We added 18 new factors that captured the proportional market coverage of disaggregated databases on leasing, buildings and transactions, one example being Real Capital Analytics. We included coverage of alternative property sectors (such as student accommodation and self-storage). We also enhanced our debt questions to make them quantitative (based on the start year of data time series) and to cover LTV and margin data.
- **2018:** New questions were included to capture the extent of investor activity and data on alternative property sectors, resulting in 32 new factors being added. To reflect the growing importance of property ownership transparency, we included questions on beneficial ownership disclosure and anti-money laundering regulations. Questions on city-level direct performance indices, availability of fund indices by investment style (for example, core versus higher-return), publicly available appraisal assumptions, and the alignment of local property measurement conventions with global standards were also added. The 2018 GRETI also marked the first time the Real Estate Environmental Sustainability Transparency Index, comprised of seven questions, was incorporated within the main survey results as a sub-index.
- **2020:** We have increased the number of alternative property sectors covered from 8 to 12, leading to 16 new factors being added. We have enhanced our coverage of aggregated data series by including questions on net effective rental value series for the core sectors. Reflecting the greater importance of a broad range of sustainability issues across all aspects of the built environment, we have added questions on health and wellness certification systems, climate-resilient building codes, net zero carbon building frameworks and water efficiency standards.

	Number of Factors				
Factor Comparison	**2012**	**2014**	**2016**	**2018**	**2020**
Direct Property Indices	5	6	6	9	9
Listed Real Estate Securities Indices	5	7	7	7	7
Unlisted Fund Indices	2	3	3	5	5
Valuations	2	4	4	5	5
Market Fundamentals Data	47	47	68	94	114
Financial Disclosure	2	4	4	6	6
Corporate Governance	2	3	4	4	4
Regulation	6	13	13	13	13
Land and Property Registration	3	7	7	9	9
Eminent Domain	2	3	3	3	3
Debt Regulations	2	7	8	8	8
Sales Transactions	3	5	5	7	7
Occupier Services	2	6	7	9	9
Sustainability	0	0	0	7	11

Source: JLL, LaSalle

Global Real Estate Transparency Index 2020: Transparency Components

Sub-Index	14 Topics	Factors (210 Total)
Performance Measurement	Direct Property Indices	Existence of Direct Property Index
		Reliability of the Index and Extent to which it is Used as a Benchmark of Performance
		Type of Index (Valuation Based vs. Notional)
		Length of National Direct Property-Level Returns Index Time Series
		Size of National Institutional Invested Real Estate Market
		Market Coverage of Direct Property Index
		Length of City-Level Direct Property Returns Index Time Series
		City-Level Private Real Estate Index Publication Frequency
		Size of City Institutional Invested Real Estate Market
	Listed Real Estate Securities Indices	Dominant Type of Listed RE Securities (i.e. Long-term Holders of Real Estate vs. Homebuilders and Conglomerates)
		Use of Listed Real Estate Securities Data on the Real Estate Market
		Years Since the First Commercial Real Estate Company was Listed
		Value of Public Real Estate Companies as % of GDP
		Existence of a Domestic Listed Real Estate Index and Its Use as a Benchmark
		Existence of an International Listed Real Estate Index and Its Use as a Benchmark
		Length of Public Real Estate Index Time Series
	Private Real Estate Fund Indices	Existence of a Domestic Fund Index and Its Use as a Benchmark
		Existence of International Fund Index and Its Use as a Benchmark
		Length of Unlisted Fund Index Time Series
		Existence of Unlisted Fund Indices for Distinct Investment Styles (i.e. Core vs. Higher-Return)
	Valuations	Independence and Quality of Third-Party Appraisals
		Use of Market-Based Appraisal Approaches
		Competition in the Market for Valuation Services
		Frequency of Third-Party Real Estate Appraisals
		Availability of Appraisal Assumptions
Market Fundamentals	Market Fundamentals Data	Existence and Length of Time Series on Property Rents (Office, Retail, Industrial, Residential)
		Existence and Length of Time Series on Net Effective Rents (Office, Retail, Industrial, Residential)
		Existence and Length of Time Series on Take-up/Absorption (Office, Retail, Industrial, Residential)
		Existence and Length of Time Series on Vacancy (Office, Retail, Industrial, Residential)
		Existence and Length of Time Series on Yields/Cap Rates (Office, Retail, Industrial, Residential, Hotels)
		Existence and Length of Time Series on Capital Values (Office, Retail, Industrial, Residential, Hotels)
		Existence and Length of Time Series on Investment Volumes (Office, Retail, Industrial, Residential, Hotels)
		Existence and Length of Time Series on Revenue per Available Room for Hotels
		Existence and Geographical Coverage of a Database of Individual Buildings (Office, Retail, Industrial, Residential, Hotels)
		Existence and Geographical Coverage of a Database of Leases (Office, Retail, Industrial, Residential, Hotels)
		Existence and Geographical Coverage of a Database of Property Transactions (Office, Retail, Industrial, Residential, Hotels)
		Proportional Coverage of Databases on Individual Buildings (Office, Retail, Industrial, Residential, Hotels)
		Proportional Coverage of Databases of Leases (Office, Retail, Industrial, Residential, Hotels)
		Proportional Coverage of Databases of Property Transactions (Office, Retail, Industrial, Residential, Hotels)
		Institutional Investment Market for Alternatives (Parking, S. Housing, Self-Storage, Medical Offices, Hospitals, Life Sciences, Data Centers, Cold Storage, School Fac., Student Accom., Co-living, Serviced Apart's)
		Existence and Coverage of Databases for Alternatives (Parking, S. Housing, Self-Storage, Medical Offices, Hospitals, Life Sciences, Data Centers, Cold Storage, School Fac., Student Accom., Co-living, Serviced Apart's)
Governance of Listed Vehicles	Financial Disclosure	Stringency of Accounting Standards
		Level of Detail in Financial Statements
		Frequency of Financial Statements
		Data Disclosure by Listed Vehicles
		Availability of Financial Reports in English
	Corporate Governance	Manager Compensation and Incentives
		Use of Outside Directors and International Corporate Governance Best Practice
		Alignment of Interests / Shareholder Power
		Free Float Share of the Public Real Estate Market
Regulatory and Legal	Regulation	Extent to which the Tax Code is Consistently Applied for Domestic Investors
		Extent to which Real Estate Tax Rates are Predictable for Domestic Investors
		Extent to which the Tax Code is Consistently Applied for Foreign Investors
		Extent to which Real Estate Tax Rates are Predictable for Foreign Investors
		Existence of Land Use Rules and Zoning
		Predictability of Changes in Land Use and Zoning
		Enforcement of Land Use Rules and Zoning
		Existence of Building Codes and Safety Standards for Buildings
		Enforcement of Building Codes and Safety Standards for Buildings
		Simplicity of Key Regulations in Contract Law
		Efficiency of the Legal Process
		Level of Contract Enforceability for Domestic Investors
		Level of Contract Enforceability for Foreign Investors
	Land and Property Registration	Existence of Land Registry
		Accessibility of Land Registry Records to Public
		Accuracy of Land Registry Records
		Completeness of Land Registry Records on Ownership
		Completeness of Public Records on Transaction Prices
		Completeness of Public Records on Liens and Easements
		Existence of Property Beneficial Ownership Records
		Accessibility of Beneficial Ownership Records to Public
		Enforcement of Beneficial Ownership Disclosure Legislation
	Eminent Domain / Compulsory Purchase	Notice Period Given for Compulsory Purchase
		Fairness of Compensation to Owners in Compulsory Purchase
		Ability to Challenge Compulsory Purchase in Court of Law
	Real Estate Debt Information	Existence and Length of Time Series on Commercial Real Estate Debt Outstanding
		Existence and Length of Time Series on Maturities and Originations of Real Estate Loans
		Existence and Length of Time Series of Delinquency and Default Rates of Commercial Real Estate Loans
		Availability of Data on Loan-to-Value Ratios for Commercial Real Estate Loans
		Availability of Data on Margin Rates for Commercial Real Estate Loans
		Requirements for Lenders to Monitor Cash Flows and Collateral Value of Property with Loan Facilities
		Requirements for Lenders to Carry Out Real Estate Appraisals
		Penalties for Non-Compliance with Requirements
Transaction Process	Sales Transactions	Quality and Availability of Pre-Sale Information
		Fairness of the Bidding Process
		Confidentiality of the Bidding Process
		Professional and Ethical Standards of Property Agents
		Enforcement of Professional and Ethical Standards of Property Agents
		Existence of Anti-Money Laundering Regulations
		Enforcement of Anti-Money Laundering Regulations
	Occupier Services	Availability of Professional Third-Party Facilities and Project Management Companies
		Providers of Property Management Services Known to Occupiers
		Service Expectations for Property Management Clear to Occupiers
		Alignment of Occupier and Property Manager Interests
		Frequency of Service Charge Reconciliation
		Accuracy and Level of Detail in Service Charge Reports
		Ability for Tenants to Audit Landlord's Accounts and Challenge Discrepancies
		Consistency of Property Measurement Standards
Sustainability	Sustainability	Existence of Green Building Financial Performance Index
		Existence and Usage of Green Building Certification Systems
		Existence and Usage of Health and Wellness Certification Systems
		Existence of Resilient Building Standards
		Existence of Net Zero Carbon Building Frameworks
		Existence of Carbon Reporting Frameworks
		Existence and Use of Energy Benchmarking System
		Existence and Coverage of Minimum Energy Efficiency Standards for New Buildings
		Existence and Coverage of Minimum Energy Efficiency Standards for Existing Buildings
		Existence of Water Efficiency Standards for New or Existing Buildings
		Existence and Use of Green Lease Framework

Source: JLL, LaSalle

Global Real Estate Transparency Index Team

Global

Jeremy Kelly
JLL, London
jeremy.kelly@eu.jll.com
+44 20 3147 1199

Jacques Gordon
LaSalle, Chicago
jacques.gordon@lasalle.com
+1 312 897 4200

Matthew McAuley
JLL, London
matthew.mcauley@eu.jll.com
+44 20 7852 4014

Dan Mahoney
LaSalle, Chicago
daniel.mahoney@lasalle.com
+1 312 897 40234

Rupert Davies
JLL, London
rupert.davies@eu.jll.com
+44 20 7852 4701

Americas

Shawn Lambert
JLL, New York
shawn.lambert@am.jll.com
+1 212 812 5884

Pranav Sethuraman
JLL, Chicago
pranav.sethuraman@am.jll.com
+1 312 228 3224

Ryan Severino
JLL, New Jersey
ryan.severino@am.jll.com
+1 732 590 4182

Asia Pacific

Lee Fong
JLL, Hong Kong
lee.fong@ap.jll.com
+852 2846 5263

Elysia Tse
LaSalle, Singapore
elysia.tse@lasalle.com
+65 6494 3599

Europe

Petra Blazkova
LaSalle, London
petra.blazkova@lasalle.com
+44 20 7399 5568

Christian Denny
JLL, London
christian.denny@eu.jll.com
+44 20 7399 5005

Katie Taylor
LaSalle, London
katie.taylor@lasalle.com
+44 20 7399 5117

Middle East and North Africa

Dana Salbak
JLL, Dubai
dana.salbak@eu.jll.com
+971 4 2677 6554

Sub-Saharan Africa

Matthew McAuley
JLL, London
matthew.mcauley@eu.jll.com
+44 20 7852 4014

Tom Mundy
JLL, Johannesburg
thomas.mundy@eu.jll.com
+27 11 507 2200

Contributing Authors

David Barnett, Sophie Carruth, Rupert Davies, Christian Denny, Eric Duchon, Alex Edds, Jake Fansler, Lee Fong, Jacques Gordon, Jeremy Kelly, Jordan Kostelac, Shawn Lambert, Dan Mahoney, Matthew McAuley, Lucy McCracken, Dana Salbak, Pranav Sethuraman, Ryan Severino.

JLL Regional Headquarters

Chicago
200 East Randolph Drive
Chicago, IL 60601
USA
+1 312 782 5800

London
30 Warwick Street
London W1B 5NH
United Kingdom
+44 20 7493 4933

Singapore
1 Paya Lebar Link
#10-08 Paya Lebar Quarter 2
Singapore 408533
+65 6220 3888

LaSalle Headquarters

333 West Wacker Drive Suite 2300
Chicago, IL 60606

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