

BARRIERS TO IMPLEMENTING SUSTAINABILITY MEASURES IN REAL ESTATE





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01.



EXECUTIVE SUMMARY

THE REAL ESTATE SECTOR AND SUSTAINABILITY

Property owners are increasingly integrating sustainable principles within their asset management activities in order to respond to tenants, who are progressively more concerned about the environmental performance and operational efficiency of the assets they occupy. However, an industry focus on financial metrics is still thwarting progress.



INVESTORS AND SUSTAINABILITY

Evidence backing the financial benefits of investing in sustainable buildings is making a difference to some investors, compelled by rental premiums and stable occupancy in green assets. The regulatory environment, tenant attitudes and the question of competitive positioning all have a role to play going forward.



01.

EXECUTIVE SUMMARY

SUSTAINABLE CONSTRUCTION IN DIFFERENT GEOGRAPHICAL AREAS

Although sustainability themes today receive global attention, the adoption of sustainable construction techniques in different territories varies greatly. Studies suggest that immature markets in particular face numerous barriers that prevent the successful adoption and dissemination of green building measures.



LIFECYCLE CONSIDERATIONS

The adoption of sustainable construction techniques has an impact throughout the lifecycle of a building, adding extra tasks. It is expected that the expense of these duties - which include technical, administrative, design, operational and maintenance aspects - is offset by the overall value of the project and the benefits that future savings will bring.



INTRODUCTION

02.

Sustainability is a key pillar of Sonae Sierra's strategy, leading us to not only pursue best practices, but seek to be a real estate pioneer in this area.

However, the company has perceived that investors take a cautious approach to the question of green buildings. Despite extensive studies demonstrating the added-value and benefits of choosing assets which are developed and managed according to sustainable principals, it appears that significant barriers continue to deter the industry from embracing a greener approach.

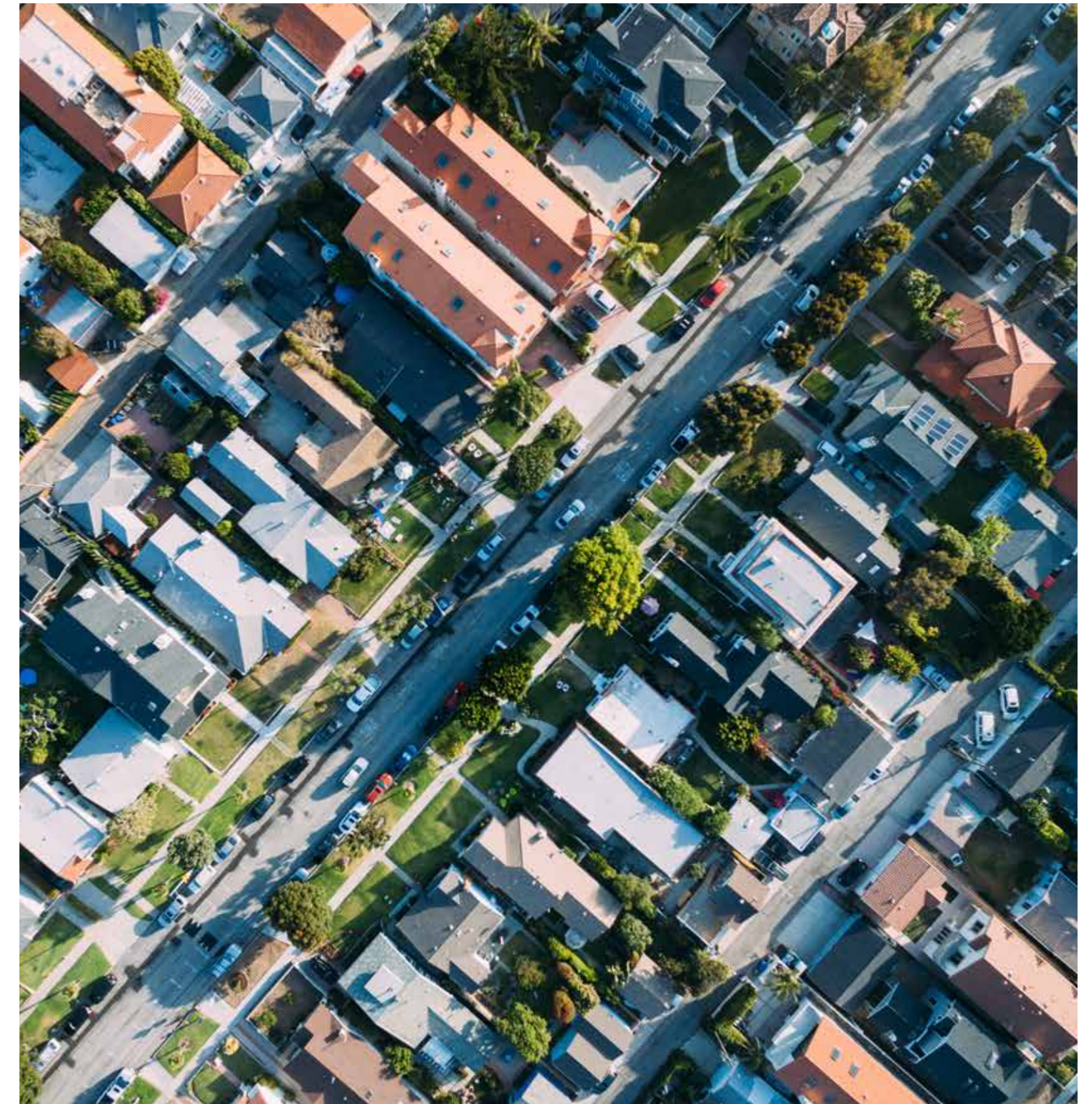
Geographical and regulatory aspects play a part, although financial considerations remain the principal factor behind real estate investment decisions.

While savings achieved through energy efficiency alone offer a good reason to prioritise sustainability, it does not always appear to be an argument that wholly convinces investors.

Improved occupier well-being, comfort and prestige are also key benefits of green buildings, which have perhaps not been effectively promoted.

Nevertheless, more than 25% of the \$88 trillion of real estate assets worldwide are today being managed according to environmental, social and governance (ESG) principles, and it remains the portfolio segment with the highest growth rate – increasing annually by 17%. *(McKinsey & Co. 2017).*

As international and social pressures rise, investors cannot afford to overlook the sustainability of real estate assets.



THE REAL ESTATE SECTOR AND SUSTAINABILITY

03.

THE POLITICAL LANDSCAPE

The issue of sustainability has been gaining ground on the international political agenda for more than half a century. During the 1990s, scrutiny about the role of corporates in determining the planet's future became more intense.

This gathered new momentum in 2015 with the United Nations Sustainable Development Goals (SDGs) and the Paris Agreement, also reached in 2015. Through these pacts, pressure on financial markets to consider environmental issues has been rising.

The Financial Stability Board (FSB), the international association of central banks, acknowledged in 2016 that climate change poses a systemic risk to the financial sector. It has therefore issued recommendations on how companies seeking investment should communicate their approach to climate change.

Meanwhile, the European Commission launched the Sustainable Finance Action Plan in 2018, which aims to promote the reallocation of financial resources to projects and initiatives that contribute to the SDGs and the Paris Agreement.

The EU's aim to be climate neutral by 2050 and the goal of reducing 55% greenhouse gas emissions by 2030 will be supported by the building standards in revision under the Green New Deal for Europe launched in December 2019.

SUSTAINABILITY PRACTICES WITHIN REAL ESTATE

Today, sustainable practices in real estate have developed effective measures regarding:

- **the measurement of CO₂ emissions and strategies to lower energy consumption levels**
- **materials used, their recyclability and future adaptation / demolition of the building**
- **transportation access or the potential for sustainable mobility**

Certifications

Sustainable certifications identify a building's sustainable credentials in detail. While a number of national systems have arisen, the most well-known are BREEAM and LEED, which incorporate several components (environmental, social, ethical, etc.). There are also specific benchmarks for assessing energy performance, such as the Energy Performance Certificate (EPC) and Energystar.

Obtaining these certificates signals to occupiers and investors that steps have been taken to reduce a building's environmental impact, both during its construction or refurbishment and when it is occupied.

It is worth noting that significant differences exist in the US and EU markets when it comes to certification.

The US market invests in LEED certification to further enhance its recognition, because the degree of regulation surrounding construction is considerably lower than in Europe. In this way, LEED is an asset that differentiates between buildings and demonstrates the sustainable construction requirements that have been applied.

In Europe, the Energy Performance of Buildings Directive (EPBD) and the national legislation that transposes it to national law ensure a higher level of regulation for the markets, guaranteeing:

- **increased uniformity of buildings in terms of energy performance**
- **high standards and energy certification**

This is reflected in the number of LEED certified buildings in Europe compared to the construction volume. It also explains the position of investors, who in one region are committed to distinguished requirements such as LEED, while in others are concerned with strict compliance with legislation.

INVESTOR MOTIVATION

Drivers of Sustainability Uptake

Investors are increasingly integrating sustainable principles within their asset management activities in order to respond to tenants, who are progressively more concerned about the environmental performance and operational efficiency of the assets they occupy.

However, most real estate fund investors are still only concerned with the financial performance of their asset portfolio, overlooking the importance of good management in controlling some variables.

This is not entirely rational in view of the financial findings. According to Eichholtz et al. (2009a), sustainable buildings have an average rent that is approximately 3% higher, while the value of the assets is about 16% greater than non-sustainable buildings.

Despite the availability of this information and similar studies, the sector has remained slow to adopt sustainability practices.



THE REAL ESTATE SECTOR AND SUSTAINABILITY

03.

The energy equation

Sustainability is not merely energy efficiency, but its relative impact on the operating costs of a real estate asset compared to water, waste, air quality and well-being has elevated this metric.

This often means that it is the only aspect which is properly valued, although the importance of other variables is being increasingly taken into consideration.

Breaking the circle of blame

While tenants and owners increasingly show interest in occupying or acquiring sustainable buildings in their search for quality and differentiation, evidence suggests the existence of a vicious cycle of blame.

David Cadman describes how all agents in the industry pass on the responsibility to each other, without implementing sustainability measures themselves:



However, an alternative is possible. Lorenz and Hartenberger (2008) have created a chain of action which creates a positive outcome, through greater stakeholder cooperation:

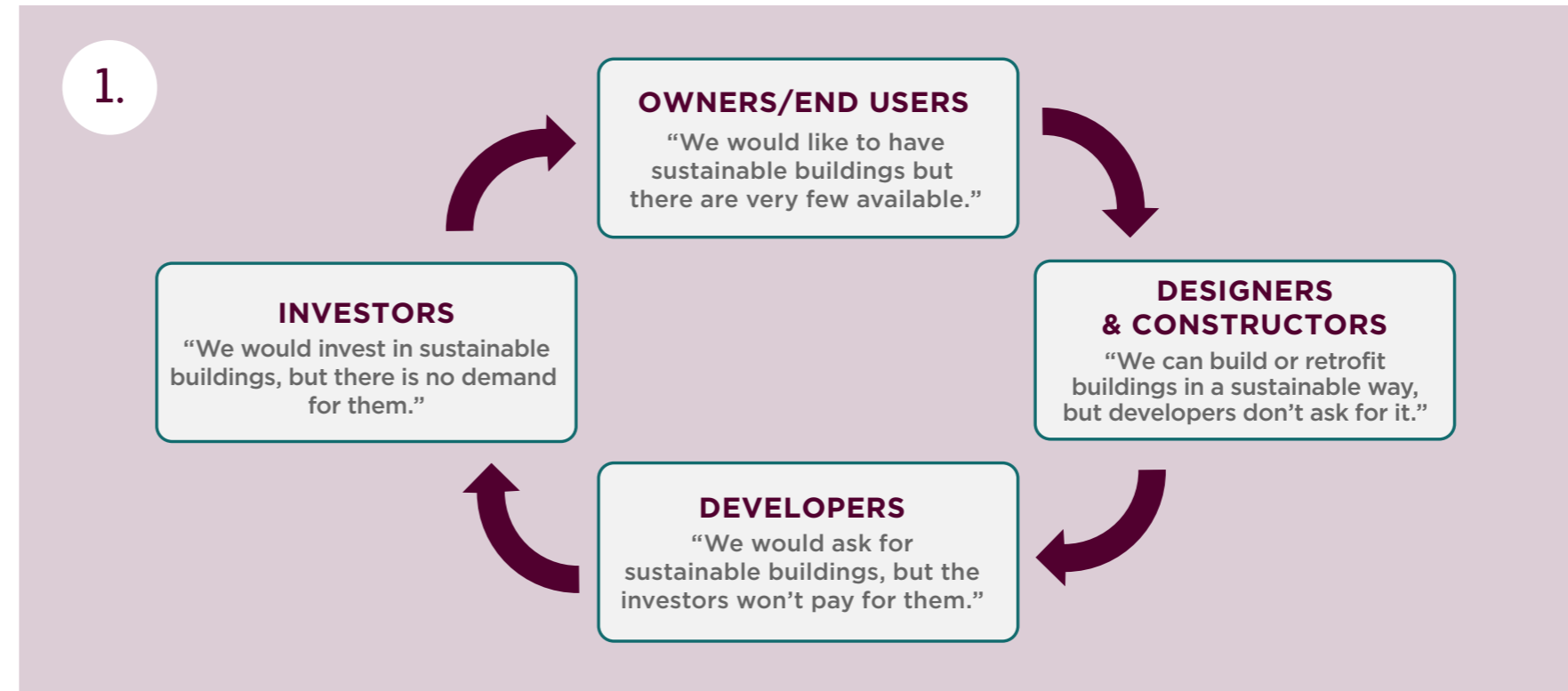


Figure 1: The vicious circle of blame in real estate

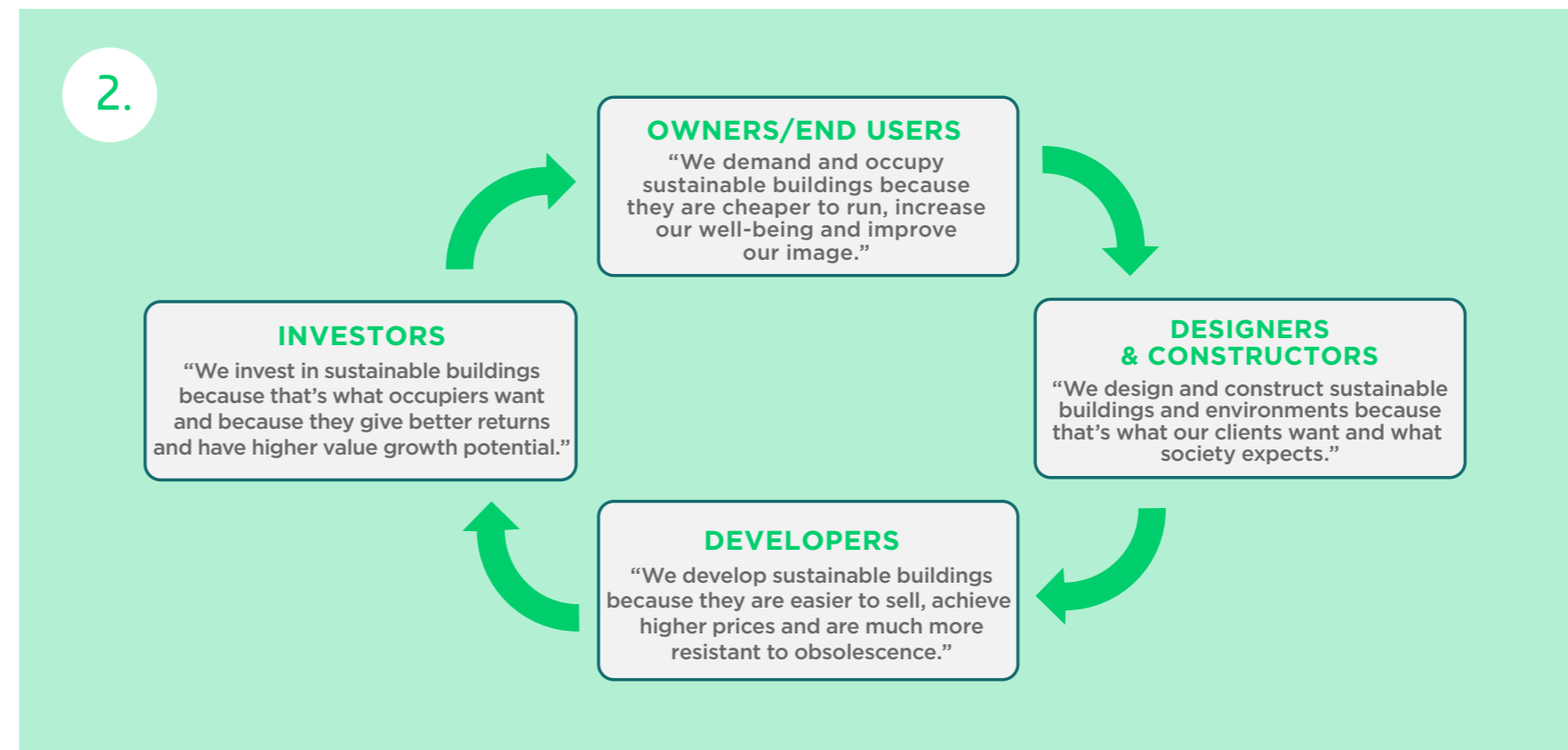


Figure 2: The virtuous circle of blame in real estate



04.

According to Nelson and Frankel (2012), there are six drivers that influence attitudes to sustainability uptake in the real estate market, namely:

- **Investment rationale and the asset valuation gap**
- **operational efficiency**
- **investor criteria**
- **regulatory compliance and incentives**
- **tenant demand**
- **competitive positioning**

INVESTMENT RATIONALE AND THE ASSET VALUATION GAP

Most decisions are based on a narrow view of costs and benefits. That said, the research shows that people are not always as logical as they present themselves to be, or are only focused on short-term outcomes, without considering the impacts of assets on society, culture, health or the environment.

Although there is evidence backing the financial benefits of investing in sustainable buildings, the business case is still fairly immature and cost analyses do not always incorporate the long-term value stemming from sustainable design.

In addition, for some stakeholders, the notion of sustainability is not appealing, especially when marketed with a focus on energy saving features. Marketing strategies centred solely on these characteristics are doomed to fail, as consumers are more likely to respond to aspects of improved well-being, comfort and prestige.

OPERATIONAL EFFICIENCY

Today, there is substantial evidence that energy efficiency can lead to a rental premium or a good occupancy rate. An office building that has good operational efficiency generates incremental cash flow, while energy efficiency in residential properties leads to capital gains (*Brounen and Kok (2011)*).

Studies of rental premiums on energy efficient buildings suggest that they range from 3.7% to 5%, while energy cost savings can reach up to 76% (Heineke, 2009; Snoei, 2008 and Visser, 2010).

INVESTOR CRITERIA

A growing number of funds do see sustainability as an integral part of the commercial real estate market, in part compelled by the risk dynamics.

Research suggests that the higher a building's sustainability rating, the higher the rental premium and the higher the transaction prices. (*Fuerst and McAllister (2008a, b)*).

Eichholtz et al. (2012) note that Real Estate Investment Trusts (REITs) are still in an early stage of incorporating elements related to sustainability into their investment portfolios. They therefore present substantial opportunities to improve operating returns by investing in energy-certified buildings or in renovating commercial buildings.

Robust quantitative results indicate the relative appeal of LEED certification, with a 3.5% rental premium and an increased return of about 7.5% in the USA real estate market. Given that portfolio greenness is positively related to operating performance and negatively related to risk, its adoption is likely to partially protect returns from the volatility of the economic cycles.

Furthermore, occupancy rates in more efficient buildings are not only higher, but tend to be more stable.

REGULATORY COMPLIANCE AND INCENTIVES

Government policies can be a long-term risk because decisions are processed slowly. While this may seem rather harmless, real estate funds should either be ahead of legislation or face considerable potential reinvestments in their asset portfolios. Government policies regarding sustainability are often related to the measurement and disclosure of carbon emissions and other (sustainable) metrics for buildings.

Compliance with environmental standards set by government regulations will have potentially significant implications for investors, who may risk reducing the return profiles of existing assets until, for example, energy performance has improved.

TENANT DEMAND

Sustainability as an investment decision is not only based on a real estate fund wanting to be more sustainable and environmentally friendly.



Without end-users or tenants in an office context, there would be no green buildings, environmentally driven investment approaches or green real estate funds.

Retail tenants increasingly consider the total cost of their location choices, and many look for a space with high sustainability ratings or well-recognised certifications, in part to reinforce their own environmental image with clients, customers, shareholders and others.

This underlines the fact that there is a growing correlation between sustainable real estate and the role of CSR in companies.

Research from Eichholtz et al. (2009b) finds that corporations in the oil and banking sectors, as well as non-profit organisations, mining and construction companies, and public administration organisations - as well as organisations that employ higher levels of human capital - are more likely to lease a green office.

This strategy benefits both the developer and the occupier. The developer is happy to accommodate the tenant, while both gain exposure through the corporate image and 'prestige' value of the green asset.



04.

Furthermore, while the productivity and health benefits of occupying a sustainable building are hard to measure, these properties tend to be more technologically advanced which provides a better working environment. Other benefits of green buildings can be seen in terms of employee behaviour: less absenteeism, increased productivity and pride in working for the company.

Overall, moving to a sustainable building can mean higher initial expenditure that may be necessary for a newly built green building, but the expenses should be recovered through energy efficiency.

COMPETITIVE POSITIONING

Building owners and investors should be as concerned with the value of their investments in terms of a future resale, as they are about current cash flow.

The sustainability assessment of buildings is a growing science which provides crucial information about property values.

However, the valuation profession has been criticised

for its slow adjustment to a rapidly changing environment, with calls for not only a change in mindset, but also a recalibration of the traditional value systems. *Lütkenhof and Lorenz (2011)*.

More traditionally-inclined valuers have some doubts about the level of detail of the new value systems and their accuracy. The struggle between these two sides can be seen in current practice, as a common approach for valuing sustainability features has not yet been approved.

Issues include the fact that sustainable valuations currently take longer, partly due to the lack of appropriate asset data, and are thus more expensive.

It is in this context that the subject of certification gains relevance, as a driver of competitiveness and differentiation. Certification systems provide investors with additional information, which can be positive in assessing potential returns.

At the same time, when attempting to formulate a new and more accurate valuation approach, it is important not to focus on the relative brand value of a particular label or certificate but on its informational content.



SUSTAINABLE CONSTRUCTION IN DIFFERENT GEOGRAPHICAL AREAS

05.

Although sustainability themes today receive global attention, the adoption of sustainable construction techniques in different territories varies greatly. Studies suggest that immature markets in particular face numerous barriers that prevent the successful adoption and dissemination of green building measures.

Issues exist on both the demand and the supply side, for example with regard to access to innovative materials, more complex construction techniques or even skilled labour.

Comparative analyses between markets indicate that although the critical barriers to the adoption of green technologies in developing countries usually vary from those in developed countries, the higher costs associated with sustainable techniques remain a top barrier in all countries.



THE BASE GEOGRAPHICAL BARRIERS RELATING TO THE ADOPTION OF SUSTAINABLE CONSTRUCTION MEASURES CAN BE SUMMARISED AS:

GOVERNMENTAL BARRIERS

HUMAN BARRIERS

KNOWLEDGE AND INFORMATION BARRIERS

MARKET BARRIERS

COST AND RISK BARRIERS



Research shows that the most dominant of the five groups is government-related barriers. This implies that it is necessary for governments to play a more active role in promoting sustainable construction techniques.

GOVERNMENTAL BARRIERS

THE GOVERNMENT'S ROLE IN PROMOTING THE ADOPTION OF SUSTAINABLE CONSTRUCTION TECHNIQUES IS REPRESENTED BY SEVEN CRITICAL BARRIERS, THE LACK OF:

- Green building classification systems and labelling programmes
- Green construction codes and regulations
- Green building technological training for the project team
- Promotion of sustainable construction techniques by the government
- Demonstration projects
- Local institutes and facilities for the R&D of sustainable construction techniques
- Government incentives

SUSTAINABLE CONSTRUCTION IN DIFFERENT GEOGRAPHICAL AREAS

05.

Although lack of government incentives is given the lowest level of importance in this group, it is the most critical barrier.

In order to promote the adoption of sustainable techniques, it is necessary for the government to establish effective incentive schemes, including financial incentives (e.g. tax credits) and non-financial incentives (e.g. rapid approval) for those who adopt sustainable construction techniques.

Another critical barrier is the lack of local institutes and facilities for the R&D of sustainable construction techniques. Hwang and Tan (2012) emphasise the importance of R&D for the adoption and development of green building systems. However, there is a huge gap between funding for R&D in the construction sector and R&D in other vital sectors.

HUMAN BARRIERS

THIS GROUP IS COMPOSED OF FIVE CRITICAL BARRIERS:

- Lack of importance given to sustainable construction techniques by management
- Resistance to changing from the use of traditional technologies
- Unavailability of sustainable construction technique suppliers
- Lack of civil construction professionals with knowledge of sustainable construction techniques
- Lack of financing schemes (e.g., bank loans)

These five barriers are closely linked to people's attitudes and behaviours.

The lack of finance is closely related to issues surrounding of the comparatively higher costs of sustainable construction techniques. Without a better financial foundation, companies and industry professionals cannot purchase and use more expensive sustainable construction techniques.

To overcome this, banks and other financial institutions should provide financial support, for example, soft loans and grants, for the adoption of sustainable construction techniques. Lessons can also be gleaned from the experiences of developed countries, where it is often easier to securing financing for green projects.

Suppliers also play a crucial role in the successful adoption of sustainable construction techniques. The suppliers not only provide the industry with the necessary skills, but they are also the main sources of relevant information about best practices. Likewise, a lack of civil construction professionals familiar with sustainable construction techniques inhibits their adoption.

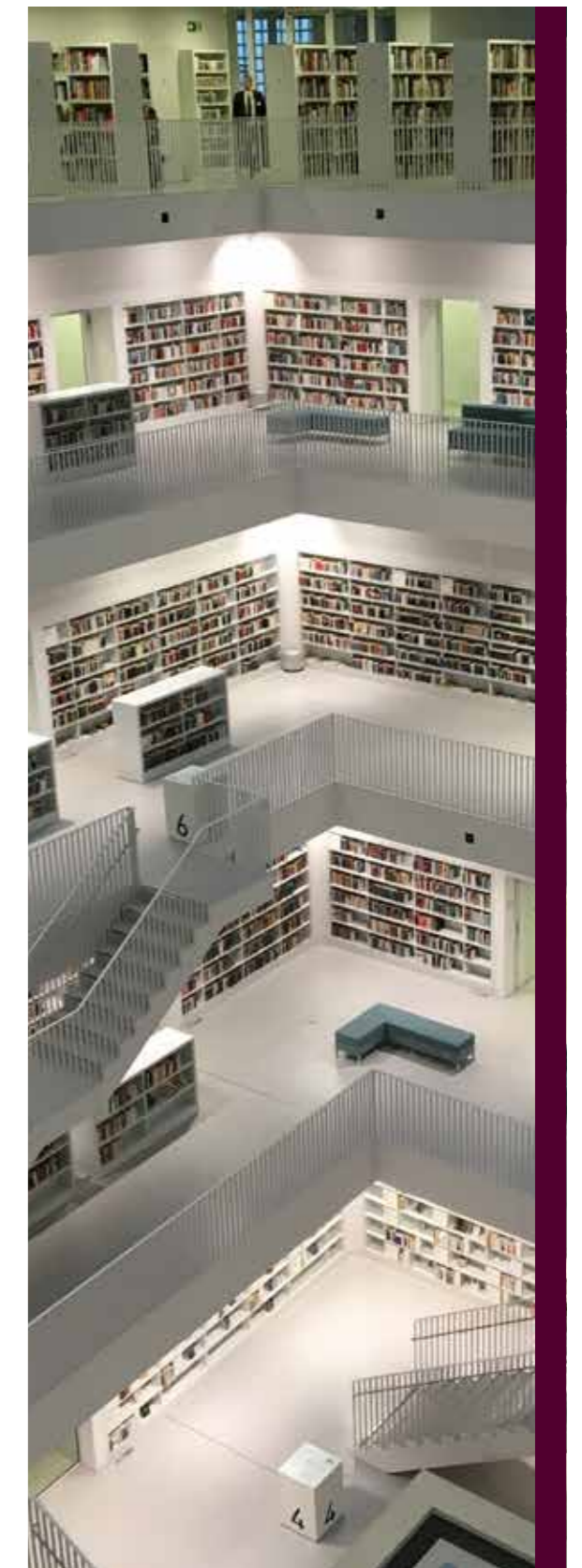
KNOWLEDGE AND INFORMATION BARRIERS

THIS GROUP CONSISTS OF THREE TYPES OF BARRIERS:

- Lack of professional knowledge and expertise in sustainable exit techniques
- Lack of databases and information regarding sustainable land management techniques
- Lack of awareness of sustainable construction techniques and their benefits

Having professional knowledge and expertise is a key factor in the adoption of sustainable construction techniques. The global trend of adopting green technologies creates a growing and urgent need for skilled workers and professionals in this area. To achieve high-performance results in an organisation, skilled workers are needed in all departments (Ozorhon and Karahan, 2016).

Furthermore, lack of databases and technical information does not encourage the market to adopt sustainable construction techniques.



05.

MARKET BARRIERS

THIS GROUP CONSISTS OF THREE TYPES OF BARRIERS:

- Unavailability of sustainable construction techniques in the local market
- Lack of client interest and market demand
- Limited experience with the use of non-traditional purchasing methods

Lack of client interest and market demand is considered a critical barrier to the adoption of green building technologies in the construction market. This indicates that civil construction professionals are in markets where the demand for sustainable construction techniques is low.

COST AND RISK BARRIERS

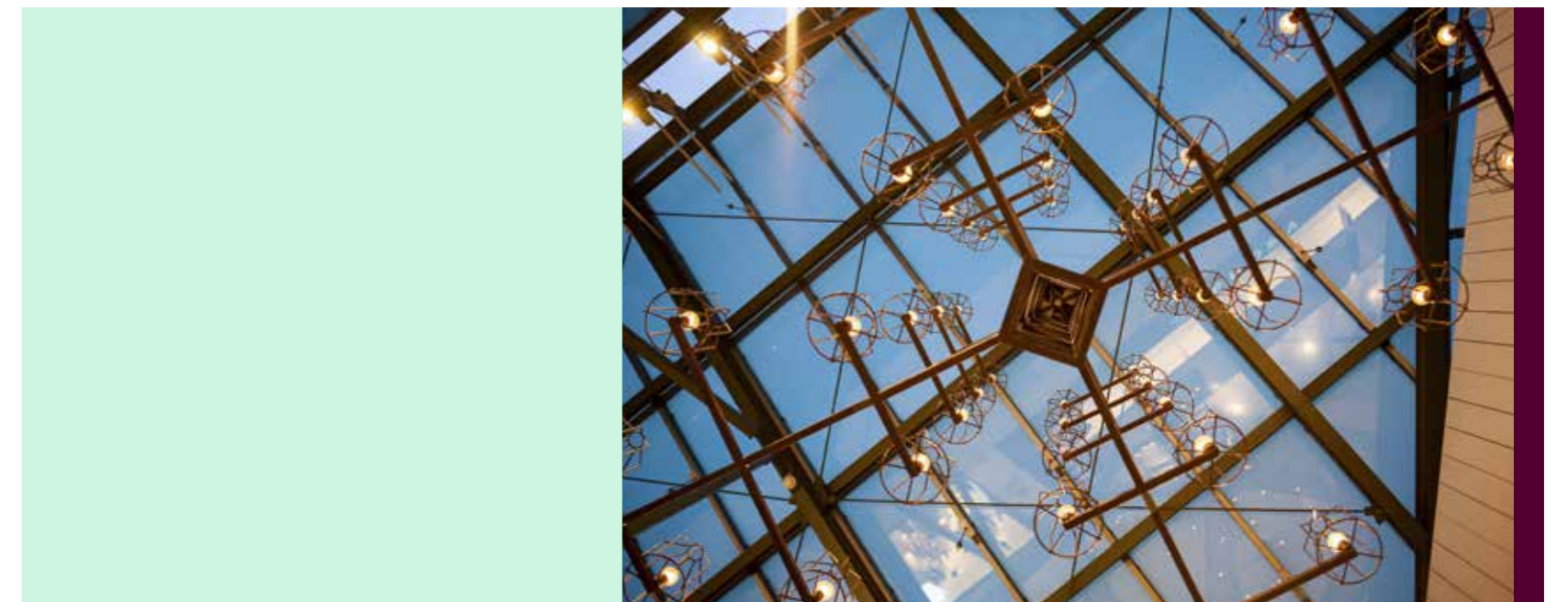
As previously mentioned, cost is a major barrier to the adoption of sustainable construction techniques in developed countries and a bigger one in developing countries. Many industry professionals estimate that the use of sustainable construction techniques can increase project cost by 10 to 20% (WorldGBC, 2013).

In developing countries, where poverty is widespread and deeply-rooted, the higher costs associated with adopting sustainable construction techniques can hamper the adoption of sustainable construction techniques.

This cost barrier is closely related to other barriers, including lack of government incentives, lack of financing schemes and lack of awareness of sustainable construction techniques and their benefits. Therefore, the introduction of incentives, greater professional experience and the existence of successful green building projects could help underline the real costs and benefits of adopting sustainable construction techniques in the market.

The risks and uncertainties involved in adopting new technologies are also considered a critical barrier faced in the adoption of green technologies. In countries where the adoption of sustainable construction techniques is relatively new, it is difficult to persuade many construction stakeholders to embrace them.

It is not uncommon for construction stakeholders to be cautious about the performance of new green building methodologies. Studies suggest that the degree of risk that stakeholders are willing to accept plays an important role in the adoption of new approaches.



06.

The adoption of sustainable construction techniques has an impact throughout the life cycle of the building. According to The Royal Institute of British Architects (RIBA), additional work must be carried out at each stage of the building's life cycle when adopting sustainable solutions.

It is expected that the expense of these extra tasks – which include technical, administrative, design, operational and maintenance aspects – will be offset by the overall value of the project and the benefits that future savings will bring.

However, the industry cannot be immune to the pressure that developers exert on designers to obtain the highest possible productivity level for the lowest price. Today's competitiveness levels in a global market don't always look favourably on quality, and may penalise the extra effort required for the tasks associated with a sustainable building project.

THE MAIN BARRIERS IN THE LIFE CYCLE OF BUILDINGS

- Increased work at all stages of the value chain
- Higher investment to develop specific studies
- Longer period to identify contractors with green building skills
- Limited market interest in valuing the extra cost of the projects

IMPACT OF BUILDING TYPE

OFFICES

The operational requirements of traditional service buildings, such as office assets, are generally stable and predictable. Energy and water use can be easily monitored and managed, given the constancy of office working hours.

The challenges facing these types of buildings are largely related to the retrofitting processes of older assets, which do not have the easiest structures to increase energy efficiency, compounded by the challenges that stem from existing rental models.

Owners tend to pass on energy and water costs to tenants, who carry the burden of supporting the building inefficiencies.

There is an obvious misalignment between who manages the asset and who rents and uses it, with the latter not being able to change and improve the existing systems.

New contractual models that include a bundle comprising of rent, condominiums and commodities, have the advantage of promoting the efficiency and sustainability of the asset, ensuring that the expectations of owners and occupiers are aligned.

SHOPPING CENTRES

In the retail sector, shopping centres are of particular interest due to their:

- **Structural complexity and multi-stakeholder decision-making process**
- **Potential for energy savings and reducing carbon emissions**
- **Importance and influence on shopping and lifestyle trends**

Shopping centres are designed and built to host many interconnected activities in different areas. As well as fulfilling a commercial role, they respond to various customer needs, e.g. recreation and other services. That means that the mix of retail stores and the overall atmosphere are of key importance, along with convenience and location.

In Europe, while most shopping centres are already built, there is still vast potential for energy savings due to periodic modernisation and re-design practices. That creates regular opportunities to improve technical systems such as lighting, ventilation and the surrounding building and monitoring systems.

However, in practice, many real estate managers are not concerned with energy sustainability as inefficiencies are always passed on to tenants. Additionally, given the rental price per square metre, the attribution of sustainability inefficiencies is more dispersed than in an office building.

Increasing knowledge about energy use in shopping centres at all stakeholder levels can help fuel potential energy efficiency upgrades. The associated costs can be simultaneously seen as drivers and barriers.

Similarly, customers will continue to focus on commodities and location if they are not encouraged by those who own and manage shopping centres and stores to shop in a more sustainable way.

A comprehensive approach is needed when assessing a shopping centre's energy performance, the quality of comfort levels and the economic viability of its future evolution.

Improvements in equipment performance or the reduction of building loads, in reality, also influence other parts of the entire shopping centre system.

These aspects should all be factored in during the design process. The complexity of a shopping centre also requires a consideration of the different parts that make up a centre, such as the surrounding building and different zones in use, natural and mechanical ventilation, lighting, cooling, heating, ventilation and air conditioning (HVAC) systems, as well as their how they are connected.

MAIN BARRIERS

- Sustainability measures not highly valued by visitors
- The need to establish agreements between several retail tenants
- Energy inefficiencies and water consumption are passed on to retail tenants, consequently, there may be no incentive to implement energy efficiency measures by management

CONCLUSIONS

07.

Investors face a number of obstacles in the quest for sustainability.

Difficulties in assessing the positive impacts of sustainability practices

Despite the presence of classification systems, certifications and benchmarks, these do not provide the investor with detailed information on energy use, locational factors, waste management, carbon emissions and water use, and their impact on the future value of an asset.

Property valuers do not incorporate sustainability issues into their valuations

Real estate appraisers lack valuation tools that properly incorporate environmental components - both in terms of quantitative matters (savings on energy and water) and qualitative aspects (better levels of light and indoor air quality, and an improved sense of well-being).

Investors still feel uncertain about the return on sustainable investment

Despite increasing evidence that the additional investment required to construct a green building is offset by the rent premium that can be earned during occupancy, investors still lack clarity on overall returns.

High dependency on financial market trend-setters proactivity from the real estate sector

Real estate is often the target of investment by funds transacted in the financial markets. But if the mainstream financial market is not yet incorporating sustainability issues into its risk management, pressure on the real estate sector to innovate remains low.

To date, the real estate sector has not been proactive in issues related to sustainable practices and green buildings. Yet the majority of research demonstrates that the initial additional investment required to build a green building is offset by the rental premium that the occupant is willing to pay, due to the advantages that the green building brings to their daily life. These benefits include lower energy and water consumption, better light and air quality, increased productivity and improved well-being, among others.

Other studies indicate that occupants are only willing to pay a premium during periods of economic growth and this may not be the case during an economic slowdown or recession.

In conclusion, increased investment in energy efficiency will only be valued if managers recognise that sustainable projects can decrease the volatility of returns, and that these returns will be maximised in a shorter period of time than the lease roll-over.

For most of the real estate market, the stimuli needed for the effective implementation of green construction are still not in place. Fiscal incentives or more explicit steps by the financial sector may be necessary to compel real estate fund managers to choose more efficient assets.

Future regulatory proposals at a European level are currently being outlined, which would define carbon benchmarks; include the CO₂ component of a project in its risk analysis; and place greater pressure on the financial sector to include sustainability in its assessments and outlook.



ABOUT



We are a global integrated real estate player that unites organizations and people around good solid real estate projects and investments.

We commit to generate sustainable value and deliver a better life for people and communities by selecting, creating and managing space.

From economic to social progress, we are firmly aware of our impact and committed to being a positive force in business and on the planet. That's what we have been doing for over 30 years.

Sustainability is the cornerstone of our approach, and we actively work with clients to develop sustainable and socially responsible projects that have a positive impact on society and the environment.

We leverage decades of our own experience to offer holistic sustainability services that meet our clients' needs. These range from assessing and mitigating risks, to designing and implementing stand-out strategies for success. Our experts actively identify new trends, emerging challenges and technical innovations, to ensure our clients have the best solutions delivered on time, within budget and correctly aligned with their ESG agenda.

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BARRIERS TO IMPLEMENTING SUSTAINABILITY MEASURES IN REAL ESTATE

