



Real Estate Bulletin

Special ESG Issue
September 2023







Preface

Dear Readers,

we proudly present you our special international ESG issue of the KPMG Real Estate Bulletin. At a time when the challenges of climate change and sustainable development are becoming urgent, the real estate industry is also increasingly focusing on sustainable practices and environmental responsibility.

This special issue offers a multi-faceted and in-depth look at how environmental, social and governance issues interact with the real estate industry. From the circular economy to biodiversity to urban renewal, we explore those aspects that not only shape today's real estate project development and portfolio management, but also set the course for the sustainable future of the real estate industry.

A central theme of this issue is the Corporate Sustainability Reporting Directive (CSRD), which heralds a new era of transparency and accountability for companies. We shed light on how this directive will impact the industry and the opportunities it offers to promote sustainable practices and embed them in companies for the long term.

We also illustrate how the real estate industry can contribute to biodiversity, whether through digital irrigation systems, nesting facilities for insects, or ecological building renovations. Our experts also analyze the legal framework and show how efficient energy management can not only save costs but also reduce the ecological footprint.

We hope that this issue will provide you with valuable insights, suggestions and perspectives to actively shape the future of the real estate industry. May it serve to create awareness of the pressing ESG challenges while highlighting the limitless opportunities that exist when business and sustainability go hand in hand.

Thank you for your continued interest in our publications.

Together, we are shaping a sustainable future.

Yours sincerely

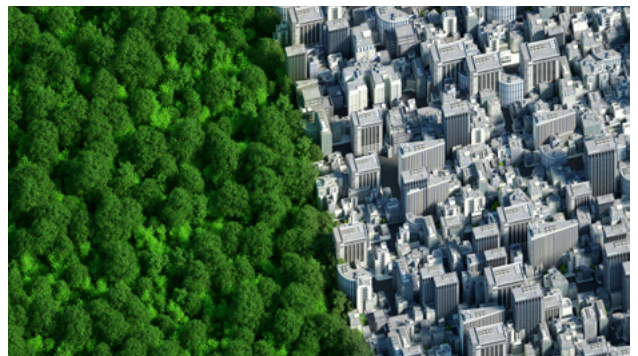
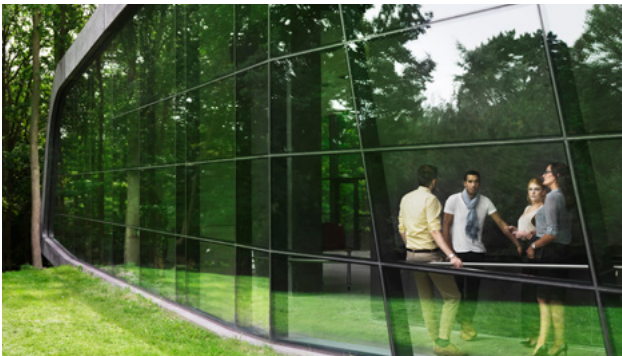
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In an interview with:

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ESG at alstria office REIT-AG

An interview with Robert Kitel, Head of Sustainability
& Future Research.



What strategic significance does ESG have at alstria?

ESG is an intrinsic part of daily life at our company. It's critical for the strategy to be lived by our Management Board and incorporated into our daily work. We see our business model as a vehicle for transformation; office properties are purchased and repositioned. We deliberately don't do new construction, because we have a maxim: "There are enough buildings on the market – so let's maximize their working life". In our company, we developed awareness of our ESG strategy at an early stage. As a German portfolio holder of office property, we were also involved very early in the EPRA discussions on ESG and did real pioneer work together with European partner companies, with peer group companies from the UK, Italy, France and from Scandinavia. European exchange and a joint learning process are key success factors. Together, we navigated a steep learning curve. Looking beyond borders between industries is also fundamental: for example to energy companies, which have many touch points with our real estate sector, or to Norwegian energy suppliers, with whom we learnt some really interesting things. All in all, I think the most important thing is to be open to new ideas.

How are you organized?

My department, "Sustainability and Future Research", is a staff unit under the CEO function. It has now existed for almost nine years. I'm an architect myself: I completed a master's in Real Estate Management and Construction in Wuppertal and Reading. As an architect in Germany and abroad, I've worked in Sydney, among other places. At alstria, I first worked as a project developer, the supreme position in the real estate industry. When our Management Board asked me nine years ago if I could imagine creating the unit, I didn't hesitate to accept such an important task, despite all the surrounding skepticism. Because sustainability is a conviction for me, and impact is an attitude.

Where do you see yourself in the transformation process on a scale of 1 (beginner) to 5 (champion)?

It's difficult to assess yourself, but alstria is perceived in our industry more as a champion high up on the scale. I'm very happy with this, because I see it as an acknowledgement of our work. However, I'd like the real estate industry overall to move more towards a 4-5 on the scale. In my opinion, it's far from that in

practice. Many companies are still right at the beginning. What's interesting is that many owner-occupiers of real estate are already much further ahead than professional property owners active in the third-party leasing business. "Much further ahead" meaning sustainable use of real estate in a sustainably organized production process. Companies in the chemical industry are interesting sparring partners when it comes to the use perspective of their real estate.

How do you go about implementing CSRD?

The CSRD is a major challenge, and is setting the regulatory framework. It's another opportunity for the sustainable positioning of our business model. Although we've already made very good progress, this transformation is a major task because a wide range of factors must be examined.

We consider this transformation to be a responsibility for our entire corporate group. Therefore, together with KPMG as ESG transformation consultant, we held an extensive workshop with all departments to ensure that all employees are building on a solid basis of knowledge. Active knowledge management for CSRD is essential for us, as it's such a dynamic topic and you need to take in new insights almost every week.

Our next steps will be to address the new concept of double materiality and create a gap analysis of our current sustainability reporting based on this materiality concept. The result will be a CSRD roadmap with clear responsibilities for our group.

What do you consider to be the biggest challenges in implementing CSRD requirements?

Obviously, the sheer amount of data and information that you have to manage. You cannot underestimate that, under any circumstances. Implementing CSRD requirements urgently requires tangible examples and a culture of "we as an industry". Active networks such as the German Property Association [Zentraler Immobilien Ausschusses e.V. (ZIA)] in Germany or the EPRA (European Real Estate Association) at European level are important for interpretation guidance on the CSRD requirements in the "E"-standards [digital standards for data exchange]. Implementing CSRD is a strategic opportunity for our industry. ESG is a strategy; it's not marketing. The "hard" rules will move the market. But it's those who start implementation now who will end up being a lot more relaxed.

What tips would you give other real estate companies for implementing CSRD?

Definitely start early. Companies should create a small team, just as Alstria did, and then include all of the divisions relevant to CSRD. The transformation takes place within the entire corporate group, I can't emphasize that enough. I think that we're on the right path for us, and so I recommend approaching the CSRD transformation agenda based on a roadmap.

What networks are relevant?

I already mentioned ZIA, where I'm currently engaged as vice chair on the Corporate Social Responsibility Committee; there's also the EPRA and really important platforms like BuiltWorld. It's a great time – eight, eight thirty on the way to work – to listen to discussion forums that always provide new ideas and momentum. Here too, I've often been involved in the discussion. Alstria participates in a peer-group exchange – this is a knowledge exchange among real estate development companies, investment funds and project developers which takes place on a quarterly basis. "Mess up stories" are of course particularly interesting and instructive. We're all in a huge learning process together.

How is the digital agenda planned?

Continually developing the digital strategy is a particular challenge. The ability to trace and verify the data and information is fundamental. There are a great deal of IT solutions, proptech and climatech companies – a mountain of offers. Our challenge is to find the right solution with the right partner. Data governance is a massive topic and will separate the wheat from the chaff. There have to be clear responsibilities for data and for the control systems behind the data. At present there is largely no quality control for non-financial data. You can imagine it as a sort of external payroll office where a group has outsourced its payroll accounting. Quality-assured data from the reporting company is also sent there. What is my vision for the future? AI algorithms will ensure the plausibility and accuracy of energy data. Industry consumption data will become more transparent and thus easier to compare. I'm convinced that there will be a trend to low tech. Simple construction, just a few sensors. If we keep buildings simple, fewer things can break.

Can you name some exciting peer markets/ projects that you're interested in and learning from?

As an industry we're right at the start of the mega issue of biodiversity. In my opinion this will gain massively in importance. Many people currently don't know yet what lies ahead for us in the real estate industry. This is something I currently notice in our regular ESG round tables with peers. I think that the Netherlands are really far ahead in this regard. We had our last meeting in Amsterdam, and the city published a list of measures for biodiversity, such as policies for greening facades, for nesting boxes for birds etc. A nice idea for bringing in tenants.

Another exciting thing is timber construction. Alstria acquired a forest a few years ago. This is mainly about learning and gaining experience, such as in mass production. However, we also know that wood is finite. This is why we are observing CO₂ developments in the concrete industry very closely. There are close relationships to the concrete industry, because we see further development as providing the greatest leverage for the future.

Final question: does the "Last Generation" have a point? Should we take them seriously? Is that just the government's responsibility?

The daily news about the Last Generation, the discussions in the media and the time spent in traffic or at airports due to blockades by climate activists have had an impact. But radicalism can't be the solution. The question is what can be leveraged in our society to tackle and work through the important challenges of our time. In my view, Scandinavia and the Netherlands are doing it better. The political process is too complicated in Germany; in other democratic systems it's obviously easier.

Mr. Kitel, thank you for this open and honest interview. We've known each other for many years. I'm always enthused by how you live sustainability for Alstria and for yourself personally and how you follow it with great passion. We really appreciate the honest LinkedIn Posts from your CEO Olivier Elamine, which are consistently fabulous.

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Bradford Asset Management, President

Joint interview on urban regeneration within Responsible Asset Management

Two chairmen of property asset management companies answer our questions on the role of ESG at the heart of urban regeneration



A favorable environment for land revitalization projects is emerging with 80 % of the 2050 urban space already in place. As part of the Climate and Resilience Act of August 22, 2021, the French government has set itself the goal of achieving "Zero Net Artificialization" (ZAN) of land in France by 2050. Land artificialization (30,000 acres every year in France) has been recognized by the UN's IPBES as a key contributor to climate change. However, with only €650m earmarked for tackling urban wasteland in the government's 2021 stimulus plan, the public authorities don't seem to be in a position to respond to the problem.

To achieve the ZAN objective by 2050, urban regeneration is emerging as a viable solution. This would make it possible to respond to housing shortages in areas under pressure, while avoiding urban sprawl and land artificialization. With the rate of replacement of old buildings at less than 1 % per year, the renovation of existing buildings is at the heart of the national strategy to combat climate change. Faced with this situation, private players are entering the urban wasteland market to relieve local authorities of the financial burden of carrying out these operations.

In this respect, you have undertaken on behalf of your asset management company to create an urban regeneration fund under article 9 of the SFDR regulations. This commitment to responsible investment is also reflected in the fund's SRI labelization. We would like to thank you for this joint interview to discuss this subject, which lies at the heart of your vision and strategy for Responsible Investment.

How does your business contribute to the responsible transformation of the real estate value chain?

VH: Responsible transformation is at the heart of our strategy: we anticipate a decrease in constructible land, meaning we view the fight against urban sprawl as a priority. This means we anticipate the necessary transformation of existing buildings or wasteland; we anticipate the value for green and low carbon emission buildings, and we use responsible transformation not only as a tool to create value for our investors, but also for all stakeholders. Therefore, we have launched two investment funds based on urban regeneration with a single specific investment thesis. The first fund – an article 9 fund under SFDR – aims to rehabilitate existing buildings and contaminated sites, while the second is geared towards repurposing existing buildings into high-end hospitality assets.

BAM: As investor, the Asset Manager is one of the pillars of the transformation and can intervene at any step of the whole value chain.

What impact do ecosystemic (climate and biodiversity) and disruptive (digital, circularity, low-carbon and energy) transitions have on your business?

VH: It is a paradigm shift. The real estate sector is amongst some of the highest greenhouse gas emitters. We have to anticipate and propose the best strategy at all stages, taking into account ecosystemic stakes: choice of land, best possible transformation strategy, as well as the best strategy to preserve biodiversity and gas emissions. But this is only the beginning: our aim is to utilize buildings as energy-efficient assets throughout their lifespan to create tangible value for stakeholders, investors, users and municipalities, allowing for sustainable economic activity.

BAM: They change the way we finance and invest in real estate. Investors are asking what specific changes are to come. Bradford AM considers that, as the real estate actor (real estate is responsible for 40 % of global emissions), we are responsible for ensuring that we reduce emissions proactively. We believe that those who take action first in this transformation will be able to reduce their emissions more efficiently".



We can impact the entire ESG chain by reducing our energy consumption, and by promoting biodiversity and being aware of our social impact). Real estate is adopting a digital approach to support the transformation process, such as through the construction of (so-called) “smart buildings.”

What role does ESG performance play in your real estate fund creation activity?

VH: ESG is a key differentiator and a value creation tool. We believe that the ESG objectives we have set out are clear, quantifiable and set us apart. Our real estate fund aims to deliver outstanding ESG results, aiming to be an SFDR 9 fund with the French “ISR” label with a value-add strategy and return. It is worth noting that only very few real estate investment funds are SFDR 9-compliant.

BAM: Collecting equity is the key to our business. Investors are demanding more and more ESG objectives labelled as “ISR” or “ART8”/“ART9.” As a new player, we take into consideration that we must build our business model with a very strong and clear ESG policy.

How have you integrated the requirements of the SFDR and the sustainability criteria of the European Taxonomy?

VH: Thanks to the expertise we have built in-house as well as that brought by KPMG, we have managed to integrate both European taxonomy requirements and SFDR building requirements to develop a sustainability matrix that allows us to apply our investment strategies while ensuring compliance with these standards.

BAM: We are establishing a rating with 3 pillars: environment, social and governance. This rating will support us to reach a decision in the acquisition process. It also serves as a tool to allow us to define an action plan and follow up on the improvement, thus allowing us to truly change how we do acquisition.

How are they reflected in your management and investment tools, as well as in your reporting?

VH: We have put in place an ESG management tool that enables us to assess, monitor and report ESG indicators alongside our usual financial indicators from the screening to the exit stage. As such, by exploiting our existing investment, asset management and divestment processes, we have been able to expand these and to include our ESG grid at every stage.

BAM: Bradford Asset Management uses these ratings and scores as a management tool and decision-making tool, not only for reporting.

Why have you decided to seek SRI certification for your fund(s)?

VH: SRI certification allows to adapt the ESG criteria to our investment thesis. With its accurate methodology, SRI enables us to accurately measure the ESG policy we implement and its impact, while remaining accountable to investors. SRI also allows us to translate our long-term beliefs and values into a specific ESG grid while enabling our investors to measure how successfully our implementation of these values translates into our investments.

BAM: On a matter of principle, mainly. We believe that we must support the climate transition.

What impact do these regulatory and voluntary measures have on the governance of your fund(s) and your management company?

VH: We have had to adapt our governance structure to reflect SFDR 9, taxonomy and SRI requirements. This has proven very advantageous, as the top management, our investors and our shareholders have integrated the value of our ESG policy and are more and more demanding. We have set up specific committees and enlarged our existing ones. We have also made the decision to anticipate the regulatory measures rather than applying them at the last minute; we believe that is the best choice.

BAM: The regulation is considered as a guideline in the improvement process.

What impact will this have on the skills of your teams? How will it affect their staffing and remuneration?

VH: We have integrated the specific requirements of our ESG policy in our hiring and training strategy. Our belief is that aligning ourselves with a sophisticated ESG grid is a highly effective means to attract and retain talents. Our strategy is to create internal skills, unless we need a very specific set of skills that would require external hiring.

Remuneration policy has also evolved to take into consideration our commitments: without a specific and significant part of the remuneration linked to ESG, we believe it is difficult to appear credible to our stakeholders.

BAM: Skills related to climate change and transformation will be key for change and for us to be a leader in this area. We consider that information and training are key success factors for the future.

What do you consider as the main challenges ahead for your real estate sector?

VH: Energy temperance coupled with the rising constructions costs necessary to build highly energy-efficient buildings together with the decline of low nominal interest rates. We believe that the sooner the investment thesis adapts to this new paradigm, the higher the value creation will be for their investors and stakeholders.

BAM: The ability to accelerate the GES reduction in the real estate sector is the main challenge we face on the road ahead. Adopting smart buildings (AI) will be one key success factor.



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8 success factors in preparing for a CSRD disclosure




European Sustainability Reporting Standards (ESRS) including examples of real estate-related measurable targets.



The Corporate Sustainability Reporting Directive (“CSRD”) was adopted by the EU Parliament in November 2022. Real estate companies will have to comply with CSRD within the next three years. The timing of the required implementation of CSRD is dependent on company size, or more specifically, a real estate company’s balance sheet total, net sales and number of employees.¹

Many real estate companies have recognized the need to start preparing for CSRD in order to comply with the timelines set by the EU. A first step in preparing for CSRD reporting is to perform a double materiality analysis. This is a key element of CSRD and determines to a large extent the reporting scope. The double materiality assessment is more complex than many companies have previously been used to, as it requires companies to identify both their impact on communities and environment (impact materiality), as well as the sustainability matters that financially impact their organization (financial materiality)².

Figure 1:
European Sustainability Reporting Standards (ESRS) including examples of real estate-related measurable targets.

Environment ³ 	Social 	Governance 
E1 Climate Change⁵ <ul style="list-style-type: none"> Primary Energy Demand (PED) Greenhouse gas equivalent emissions (CO₂) 	S1 Own workers <ul style="list-style-type: none"> Nr. of incidents % absence employee satisfaction⁴ 	G1 Business Conduct <ul style="list-style-type: none"> Code of Conduct, Frequency of bribery/corruption⁴ Outcome of legal cases⁴ Lobbying expenses⁴
E2 Pollution <ul style="list-style-type: none"> Emissions to water Emissions of air pollutants such as NOx, N₂O, CH₄ 	S2 Workers in the value chain <ul style="list-style-type: none"> Nr. of incidents % absence Gender pay⁴ 	
E3 Water and marine resources <ul style="list-style-type: none"> Water consumption⁴ in m³ Total water recycled and reused in m³ 	S3 Affected communities <ul style="list-style-type: none"> Local contractors and employment (%)⁴ 	
E4 Biodiversity and ecosystems <ul style="list-style-type: none"> % of projects whose ecological integrity was improved³ Conversion over time of land cover (i.e. forestation) 	S4 Consumers and end-users <ul style="list-style-type: none"> Social rent (%), tenants satisfaction, experienced safety end-users⁴ 	
E5 Resource use and circular economy <ul style="list-style-type: none"> Increase of circular material use rate Materials passport⁴ 		

Source: KPMG Germany, 2023

The disclosure requirements are based on a set of ESG topics defined by the European Sustainability Reporting Standards (ESRS), which include, among others, climate change, pollution, biodiversity, affected communities and business conduct.

KPMG has identified eight success factors in preparing for CSRD reporting. These are based on experiences from the initial phases of the CSRD journey, which are usually initiated by executing a double materiality assessment.

¹ Source: KPMG, via Corporate Sustainability Reporting Directive (CSRD) – KPMG Germany

² Corporate Sustainability Reporting Directive – KPMG Netherlands

³ Source: European Sustainability Reporting Standards (ESRS)

⁴ Source: KPMG analysis

⁵ The EU taxonomy defines two objectives for Real Estate on climate change: adaptation and mitigation. Other sector-specific objectives are not yet disclosed.

The success factors are:

1 Take CSRD as an opportunity for transparency

CSRD reporting constitutes not only a responsibility, but also an opportunity. CSRD reporting can demonstrate in a transparent manner which ESG efforts are being taken to add value in a sustainable and socially responsible manner. The CSRD framework can be used as a strategy tool to focus on those aspects that really matter in order to 1) minimize negative societal impacts, 2) increase positive impacts and 3) mitigate adverse sustainability-related financial risks.

2 Designate responsible persons

Reporting on ESG is not just the responsibility of the Control and Finance Department. Designate ownership clearly via business owners and report governance in such a way that reporting on metrics of material CSRD topics becomes a shared responsibility.

3 Create awareness within your real estate firm

Although CSRD is a reporting directive, it impacts employees across your organization. For example, in the way you do (future) business, in marketing and in the control department. Involving employees in the process ensures that CSRD reporting does not become just a formality or a showpiece, but instead underlines the ESG efforts of your firm.

4 Be thorough in the assessment of material topics

Be comprehensive and clear in identifying material topics to reflect your organization's priorities. This helps your stakeholders to assess your ESG priorities adequately.

5 Mapping the value chain

In performing a double materiality analysis for CSRD, it is key to have a complete picture of all stakeholders in the specific value chain of your company. Regardless of whether these are real estate investments, development or construction companies, a real estate manager or another real estate company, mapping the value chain helps to identify the key topics for your key stakeholders, and may also result in material topics being identified for your company. Moreover, understanding at what position in the value chain topics are material is in part relevant for what needs to be reported on exactly for CSRD.

6 Be open to critical feedback on material topics

Among other reasons, CSRD has been put into place to increase transparency. Both internal and external stakeholders can help your firm to increase the relevance and integrity of your list of material topics, which calls for an open mind towards criticism.

7 Start mapping data requirements

Right from the start, it is crucial to assess which data requirements belong to the material topics identified. Data may not yet be available in a way that is futureproof for periodic reporting and/or may have to be made accessible by an external partner in your value chain. Understanding the importance of unlocking relevant data helps to prepare for reporting at a later stage.

8 Ensure adequate systems for the disclosure of data

To comply with CSRD, disclosure of data is not a one-time effort as CSRD requires companies to report on progress. Setting up and relying on adequate systems helps to prevent continuous reporting from becoming an unbearable burden.



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Why the world needs to move to a circular economy

For centuries, businesses have followed a 'take, make, waste' approach to production.



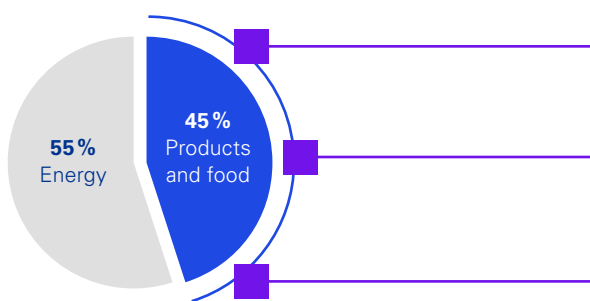
The global economy is accustomed to extracting materials, using them to make products and then subsequently discarding them".

- The global economy is now only 7.2 % circular¹, a proportion which, as a result of rising material extraction and use, is in decline.

- Overall material extraction is on the rise across the globe; it has almost doubled since the year 2000, exceeding 100 billion tons today².
- 45 % of total global greenhouse gas emissions are generated through the extraction, manufacturing, consumption and disposal of foodstuff and products. Moving from a linear to a circular economy will support the transition to a net zero economy.

Figure 1:
Filling in the gaps / blanks: tackling the overlooked emissions³

Total current global greenhouse gas emissions



How the circular economy helps tackle climate change



Design out waste and pollution **to reduce GHG emissions** across the value chain



Keep products and materials in use **to retain the energy embodied** within them



Regenerate natural systems **to sequester carbon** in soil and products

Source: KPMG Germany, 2023

The circular economy presents a multi-trillion dollar economic opportunity. Shifting towards a circular economy model will not only deliver climate and other ESG benefits, but will also provide significant new and better growth opportunities, as well as better value for money⁴. For instance, adopting a circular economy approach in the areas of mobility, built environment and food throughout Europe could offer annual benefits of EUR 1.8 trillion (USD 2.1 trillion) by 2030⁵.

What opportunities does a circular economy present for the Indian real estate sector?

The Indian economy is the fifth largest in the world and is growing quickly, having doubled in size since 2010⁶. It is expected to become one of the world's largest economies by 2047 with a GDP of about \$35- 40 trillion⁷. The country's urbanization is also expected to grow at a consistently fast pace.

Investment in the built environment drives and supports this continuing economic growth. Given its huge growth potential, India serves as an excellent lens to consider the implications and impacts of a circular economy on its development.

As cities strive to achieve ambitious net zero targets, most are now considering how they can better plan building lifecycles, from construction to maintenance and, ultimately, demolition. For India's real estate sector, embracing the circular economy concept could offer substantial benefits for both environmental sustainability and economic growth. A circular approach to real estate development could contribute to a range of sustainability goals:

- **Sustainable development:** the circular economy aligns with India's goals of sustainable development by reducing the environmental impact of the real

¹ Source: (Circle Economy Circularity Gap report 2023 & International Resource Panel (IRP). (2020). Global resources outlook 2019: Natural resources for the future we want)

² World Bank Releases Its First Report on the Circular Economy, Says Decoupling Growth From Resource Use in Europe Achievable Within Decade

³ Ellen MacArthur Foundation, Material Economics, Completing the picture: How the circular economy tackles climate change (2019)

⁴ P. Lacy, J. Rutqvist (2015). Waste to Wealth – The Circular Economy Advantage, New York/London: Palgrave Macmillan

⁵ Source: (Ellen MacArthur Foundation, Growth Within: a circular economy vision for a competitive Europe (2015))

⁶ DataBank | The World Bank

⁷ CII

estate sector. It encourages efficient use of resources, minimizes raw material consumption, and promotes recycling and reusing construction materials.

- **Waste reduction:** the implementation of circular practices in real estate can significantly reduce waste generation. By repurposing materials and adopting modular construction methods, the industry can divert construction and demolition waste from landfills, alleviating the burden on waste management systems.
- **Emissions and pollution:** circular practices contribute to lower emissions and pollution levels. By reusing materials and reducing the need for new production, the real estate sector can lower its carbon footprint and air pollution, improving local air quality.
- **Water conservation:** circular principles advocate the use of innovative construction methods which incorporate water-saving technologies, leading to potentially more efficient water usage. Reduced resource consumption can ease pressure on water sources, which is particularly critical in water-stressed regions.

How will the real estate sector in India benefit from a circular economy?

The circular economy provides a new solution to several of the real estate sector's long-standing challenges, thus offering a holistic approach.

The circular economy can help the real estate sector to **reduce costs**. Firstly, by adopting circular approaches, organizations are more proactive in their use of materials and can more easily identify ways to reuse them, thereby reducing the amount of material purchased. Secondly, eliminating and reducing waste translates to a reduced volume of waste to manage and dispose of, thus reducing costs and improving sustainability outcomes. Thirdly, minimizing reliance on new materials reduces the sector's exposure to supply chain pressures. This is an important benefit given the potential for future disruptions and shocks in supply chains as a result of climate change and market adjustments to the net zero transition.

The circular economy can drive **improvements in asset performance**. An end-to-end circular asset

management strategy can provide real estate owners with a proactive asset management and maintenance approach, improving asset performance and durability. Furthermore, buildings that are more adaptable to alternative uses benefit from higher internal rates of return – 3% over 50 years⁸. The circular economy can also stimulate economic activity by creating new business models and opportunities while attracting environmentally conscious consumers, positively impacting property sales and leasing^{9 10}.

The circular economy can **galvanize innovation and collaboration**. Adopting technological solutions to circularity can help organizations to develop a digital spine that underpins their materials, assets, project and portfolio management processes and activities. Furthermore, these technological approaches provide the opportunity to enhance collaboration with other organizations, driving economies of scale and opening avenues for new revenue sources. For example, one water company in the UK is piloting a scheme to use water pipes to carry fiber optic cables¹¹. If successful, telecommunication companies will be able to contribute to investing in maintenance of critical water infrastructure instead of new capital expenditure in routing fiber optic cables.

The circular economy can **improve the environmental performance** of assets and organizations. By improving an asset's lifecycle requirements for virgin materials, a firm can positively impact that material's supply chain, thereby reducing energy, carbon and resource costs in its production, transport, storage. When scaled across assets, portfolios and organizations, this can have a huge impact. A circular built environment could reduce global carbon emissions from building materials by 38% in 2050 as a result of reduced demand for steel, aluminum, cement and plastic¹².

The circular economy can benefit an organization's **sustainability reputation**. By implementing circularity principles throughout its operating model, firms can attest to their progress in their reporting and disclosures. This can improve the organization's brand, its access to sustainable finance, its pool of new employee talent and its revenues, given that financiers, staff and customers will focus more on sustainability.

In sum, applying circular economy principles to India's anticipated real estate development could

⁸ <https://emf.thirdlight.com/link/kcu0cjsxctpb-mknyfi/@/preview/1?o> – 19.09.2023

⁹ Ministry of Housing and Urban Affairs, Government of India: <https://mohua.gov.in/>; Centre for Science and Environment (CSE): <https://www.cseindia.org/> – 19.09.2023

¹⁰ Confederation of Indian Industry (CII): <https://www.cii.in/>; The Energy and Resources Institute (TERI): <https://www.teriin.org/> – 19.09.2023

¹¹ <https://www.yorkshirewater.com/about-us/innovation/fibre-in-water/> – 19.09.2023

¹² Reimagining our buildings and spaces for a circular economy (ellenmacarthurfoundation.org)

create annual benefits of US\$ 76 billion in 2050

compared with the current development path while providing environmental and social benefits¹³.

What are the enablers to develop a circular economy in India?

The transition to a more circular economy is gaining momentum as businesses and governments recognize the urgent need to move away from the traditional linear economic model of take-make-dispose. The systemic change and holistic approach required to deliver a circular economy will involve a spectrum of stakeholders and will address a range of challenges across policy, finance, innovation, education and infrastructure. Three key enablers will be required to drive this change:

- Government policy and regulation
- Supporting frameworks
- Technology and tools

Firstly, governments will need to encourage organizations to embrace circularity through **policy and regulation**:

- **Regulations and Standards:** the Indian Government is implementing regulations and setting standards that encourage or mandate circular practices. For example, it is mandating product labeling to indicate recyclability or impose minimum recycled content requirements in products. This approach could also be applied to autonomous green buildings. A green building consumes less energy and water, and is constructed with environmentally friendly materials that boost recycled content and heat resistance. India's green building rating system is based on three principles: design out waste and pollution, keep products and materials in use and regenerate natural systems. While these principles are voluntary, the government can accelerate their adoption by simplifying processes, adjusting taxes and providing grants.
- **Collaboration and partnerships:** collaboration between governments, businesses and civil society organizations is crucial for the successful development of a circular economy. This can involve sharing knowledge and best practices, coordinating actions, and fostering innovation. Partnerships between public and private sectors could include private developers, town and country planning

departments, state designated agencies and municipal bodies.

- **Investment and financing:** adequate funding is needed to support the transition to a circular economy. This can include investment in research and development of innovative technologies, providing financial incentives for circular businesses, and supporting infrastructure development for waste management and recycling.
- **Research and Development:** developing and adopting innovative technologies is essential for creating a circular economy. This can include advancements in recycling technologies, resource recovery methods and digital platforms that facilitate the reuse and sharing of products.
- **Training and capacity building:** a shift towards a circular economy requires a change in mindset and behavior among individuals and businesses. Education and awareness initiatives can help promote the benefits of a circular economy, highlight the importance of sustainable consumption and production, and encourage people to adopt circular practices in their daily lives.
- **Infrastructure and logistics:** appropriate infrastructure and logistics systems are needed to support the circular economy. This includes establishing efficient waste collection and recycling facilities, developing logistics networks for reverse supply chains, and creating platforms for the exchange and sharing of resources and products.
- **Recycle & reuse:** implementing a resource efficiency policy that measures and incentivizes improvements in waste management and reduced landfill use as well as better management of construction waste, electronic waste and waste from other growing sectors.

Secondly, organizations can draw on a range of **circular economy models or frameworks** to define their supply chain and business ambitions, strategies and operating models. These include:

- **Ellen MacArthur Foundation's Circular Economy Framework:** this framework provides a holistic approach to achieving a circular economy. It consists of three principles: design out waste and pollution, keep products and materials in use, and regenerate natural systems.

¹³ Circular economy in India: Rethinking growth for long-term prosperity (ellenmacarthurfoundation.org)



- **Cradle to Cradle (C2C) Certification:** developed by William McDonough and Michael Braungart, C2C is a design framework that focuses on creating products that can be fully recycled or composted. It aims to eliminate the concept of waste by ensuring that all materials used in products can be returned to either the biological or technical cycle.
- **Extended Producer Responsibility (EPR):** EPR is a policy approach whereby producers are responsible for the entire lifecycle of their products, including take-back, recycling and proper disposal. This approach encourages organizations to design products that are easier to recycle and from which materials can be easily recovered.
- **Environmental Product Declaration (EPD):** an EPD is defined by International Organization for Standardization (ISO) 14025 as a Type III declaration that “quantifies environmental information on the life cycle of a product to enable comparisons between products fulfilling the same function.”
- **Waste Hierarchy:** this model prioritizes waste management strategies based on their environmental impact. It encourages organizations to focus on the prevention, reutilization and recycling of waste before considering disposal options like landfill or incineration.

Thirdly, **tools and technologies** support organizations to implement and improve circularity within their activities and supply chains. These include:

- **Life Cycle Assessment (LCA) Tools:** LCA tools assess the environmental impact of a product or service throughout its entire life cycle. They provide insights into resource consumption, emissions and waste generation, enabling organizations to identify opportunities for circularity improvements.
- **Digital Product Passport (DPP):** these tools help organizations map their supply chains and identify potential risks and opportunities for circularity improvements. DPP tools enable product traceability by providing transparency of the origin of raw materials, transportation, processing and waste management.
- **Blockchain and Distributed Ledger Technology:** these technologies enable transparency, traceability and trust in supply chains. They allow organizations to track and verify product origins, certifications and sustainability claims, enhancing circularity and reducing the risk of fraud.

- **IoT (Internet of Things) and Sensors:** IoT devices and sensors can collect real-time data on resource consumption, energy usage and waste generation. This data can be analyzed to identify areas for circular improvements and enable more sustainable supply chain management.
- **Circular Economy Platforms:** these platforms facilitate the exchange and reuse of materials and products between organizations, making it easier to close the loop in supply chains and to minimize waste.
- **Waste Management Systems:** these systems help organizations track their waste streams, monitor recycling and reuse while identifying opportunities for waste reduction and resource recovery.

By leveraging these tools and technologies, organizations can enhance the circularity of their activities and supply chains, reduce environmental impact, and contribute to a more sustainable future.

How can the real estate sector benefit from a circular economy?

The real estate sector can leverage the circular economy concept to deliver significant environmental and economic advantages. To do this, real estate companies can set overarching strategies, develop implementation plans, and leverage their influence to bring about wider change.

To bring about effective change, setting out a **clear strategy** is key. A strategy can include:

- **Strong leadership:** effective leadership is crucial to drive change and set the tone for a circular economy transition.
- **Clear vision and goals:** establish a clear vision for circularity and set measurable goals. Communicate these goals across the organization to ensure alignment.
- **Employee engagement:** involve employees at all levels in the transition. Encourage their participation, ideas and commitment to circular practices.
- **Incentives and training:** provide incentives for employees to adopt circular practices and offer training to enhance their ability to implement them.
- **Collaboration:** collaborate with partners, suppliers and customers to co-create solutions and drive collective change.

Strategies require **implementation plans** to deliver their aims. Circular economy strategies should include:

- **Material reuse and recycling:** prioritize the reuse of construction materials and components from existing buildings. Salvaging materials like brick, steel and wood can reduce the demand for new resources, decrease waste generation, and lower costs.
- **Modular construction:** embrace modular construction techniques which involve assembling prefabricated components. This approach enhances resource efficiency, reduces construction time, and minimizes waste on-site.
- **Design for disassembly:** design buildings with easy disassembly and component replacement in mind. This facilitates future renovations and upgrades, extending the lifecycle of the structure and reducing the need for complete demolition.
- **Adopt renewable energy:** incorporate renewable energy sources, such as solar panels and wind turbines, into building designs. This reduces reliance on fossil fuels, decreases carbon emissions, and potentially generates surplus energy for the grid.
- **Green building certification:** certifications like LEED (Leadership in Energy and Environmental Design) emphasize sustainable construction practices. These certifications enhance the marketability of properties and attract environmentally conscious buyers.
- **Circular business models:** explore innovative circular business models, such as leasing materials or components, rather than selling them. This incentivizes manufacturers to create durable and easily repairable products.
- **Stakeholder collaboration:** collaborate with suppliers, contractors, and local communities to create a circular ecosystem. Engage in partnerships to develop recycling and reprocessing facilities for construction waste.

A circular economy is more likely to take hold when organizations operate in a supportive ecosystem. By leveraging their influence with stakeholders, individual organizations can add their mass to the momentum of change. Organizations can consider:

- **Advocating for policy changes:** engage with policymakers to shape regulations that encourage

circular practices. Lobby for incentives, tax breaks or mandates that promote sustainable construction and resource efficiency.

- **Raising awareness:** use marketing and public relations campaigns to educate consumers about the benefits of circular economy practices while creating demand for environmentally friendly buildings.
- **Research and development:** invest in research to develop new materials, technologies and construction methods that align with circular principles. Innovations can drive change by providing practical solutions.
- **Collaborative initiatives:** join industry associations or consortiums dedicated to advancing circular practices. By collaborating on research and sharing best practices, organizations can collectively drive change.

What can KPMG employees offer in the global transition to a circular economy?

KPMG employees can see that the world is increasingly moving from 'linear' to 'circular.' We are here to help with a team of dedicated circular economy specialists and a suite of wide-ranging digital advisory solutions. As well as our expertise in circular strategy, as well as its measurement and execution, we also leverage our knowledge of digitalization and data management, tax and regulatory, financial modelling, reporting and assurance.

KPMG employees support clients as they develop their new circular strategies and business models, and as they reimagine and reinvent their existing products and services. We were at the forefront of the World Business Council for Sustainable Development's work to develop the Circularity Transition Indicators framework¹⁴. This approach can help companies to measure and monitor their circular performance while enabling them to use their new-found insights to make business decisions and set a strategy to achieve circular targets and objectives. Our KPMG Origins¹⁵ solution can help companies to trace, certify and manage waste streams, and our alliance with Circular supports our clients to implement circularity into battery energy storage¹⁶.

In a world where responsible business is becoming the norm, companies cannot have a successful future without becoming more circular. In short, 'going circular' is quite simply good for business.

¹⁴ Circularity Transition Indicators – KPMG Netherlands

¹⁵ KPMG Origins | Enabling Ecosystems to Thrive

¹⁶ KPMG and Circular announce alliance – KPMG Sverige

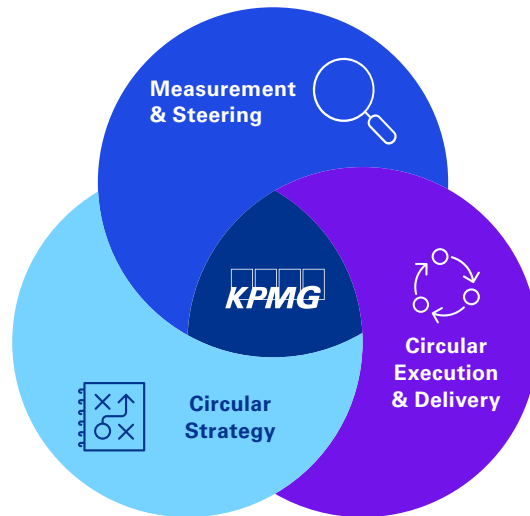
A client perspective

A leading real estate construction & leasing company, known to have one of India's largest commercial land footprints, has taken significant strides to promote sustainability and a circular economy by implementing them within their business and sustainability strategy. With their entire portfolio having already achieved a LEED Zero Water certification (which recognizes efforts in water conservation, recycling, and reuse), they have now set targets to achieve a LEED Zero Waste certification for their sites.

The organization continually challenges itself to raise the standards of circularity and set new benchmarks for coming years. Following a top-down approach, senior management members spearhead initiatives to enable employees at every level to take responsibility in measuring, monitoring, evaluating and improving organizational performance. Although there are site leads responsible for driving these initiatives, the organization also has respective audit teams overseeing the system at a central level through MIS and regular meetings.

The organization has a strong belief that educating stakeholders internally (employees, property management, etc.) and externally (tenants, recyclers, etc.) can promote improvements in circularity and sustainability, and has proactively engaged tenants to do so. While their efforts have delivered significant successes, the organization recognizes that gaps still exist. Nevertheless, they are confident that greater successes are possible with the engagement and support of all stakeholders.

Figure 2:
Our solutions



Source: KPMG Germany, 2023



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In an interview with:
Timo Kappius
Sustainability Manager,
HAMBORNER REIT AG

Climate protection and decarbonization from the perspective of sustainability management

Once you have a strategy it's time to implement it – how challenges become opportunities and how climate protection can become a part of a company's DNA



The fact that limiting global warming to 2 degrees Celsius, preferably 1.5 degrees Celsius, is necessary at an ecological and social level, but is also imperative for preserving value and value stability, has found its way into the heads of those in the real estate industry. However, the prerequisite for achieving this goal is a drastic reduction in greenhouse gas emissions in the real estate sector over the entire lifecycle.¹ But against the backdrop of limited resources and funds, how can the transformation of the real estate portfolio be successful? Timo Kappius, Sustainability Manager at HAMBORNER REIT AG, a portfolio holder for office and retail properties in Germany, occupies himself with the right approach, from the strategy all the way to the implementation.

How significant is climate protection and decarbonization in the real estate industry?

Climate protection and decarbonization are highly significant in the real estate industry, primarily because the German building sector is responsible for 40 % of national greenhouse gas emissions over the entire lifecycle, that is across production, construction, modernization and use.² This is associated with great responsibility to fulfil the national and international climate targets. In addition to these heavily accentuated numbers, the increasing pressure from growing requirements for transparent, comprehensive and reliable sustainability reporting is also having an effect. Within the scope of implementing construction and technical measures to achieve these goals, the real estate industry is presented with the major challenge of modernizing the old property portfolio for the future given the current low quota of new construction. An additional challenge is the collection and processing of the data required as real estate companies are reliant on the cooperation of third parties, especially tenants and service providers.

Where do you think the market stands on climate protection and decarbonization on a scale of 1 (low market relevance) to 5 (high market relevance), and why?

Currently the market has not yet reached the required ambition level, although there is agreement in principle that the necessity exists to implement optimization measures.

From my perspective, the reason for the hesitant action is the lack of empirical data on the effect of sustainability factors on property values. This still causes uncertainty in some instances regarding the profitability and the effectiveness and efficiency level of measures. The associated risk still presents an obstacle to investment at present.

Nevertheless, I would still rate the current situation positively and give the market a 3 on a scale of 1 to 5. Especially because awareness of sustainability has increased significantly in our sector over the past few years and we have taken a few important steps in the right direction. In my opinion, an important milestone for this is the CRREM tool, which offers an initial estimate of sustainability performance at the asset and portfolio level. The striking presentation makes it possible for all stakeholders to obtain an easily understandable and consistent assessment, which provides the basis for goal-oriented discussions. In addition to that, the tool gives good guidance on the future path to decarbonizing a building.

There is no question that there is also still great potential for decarbonization in the sector. By improving data availability, increasing dialogue with tenants, providing transparent reporting and successfully implementing initial measures, we were able to make progress in recent years which needs to be expanded upon in the future.

¹ Pursuant to GHG protocol and Science Based Target initiative (SBTi) about scopes 1, 2 and 3.

² Cf.: German Federal Environment Agency, Energy-efficient Buildings [Energiesparende Gebäude] (Online August 20, 2023); BSSR online publication no. 17/2020, Environmental Footprint of Buildings in Germany, Short Study on Cross-Sector Effects of the "Construction and Usage of Buildings" Area of Activity on the Climate and Environment [Umweltfußabdruck von Gebäuden in Deutschland, Kurzstudie zu sektorübergreifenden Wirkungen des Handlungsfelds „Errichtung und Nutzung von Hochbauten“ auf Klima und Umwelt]; Bonn, 2020

What are the transformation's biggest challenges in your view when it comes to hitting the national climate targets?

Decarbonizing a property is a process whose success requires a lot of data, that many requirements are fulfilled and that the needs of the stakeholders involved are considered.

On the portfolio side, individual buildings can be clustered, for example, by year of construction, type of use, type of energy supply, tenant stock, and degree of technology usage, in order to derive possible starting points for decarbonization. For concrete planning of measures and costs you need a good database at the asset level above all else. This is a big challenge for older existing properties for which there is generally not much data available. Furthermore, cooperation from tenants for data collection on energy usage and emissions is especially imperative for commercial real estate. In our carbon footprint, for example, our tenants are responsible for about 80 % of total emissions.

As regards the implementation of measures, a number of stakeholders stakeholder who must be coordinated and whose demand must be considered are involved. Besides that, regulatory requirements and approval processes must be observed.

After successfully implementing a measure, it can generally only be fully exploited if the new technologies are used correctly and responsibly.

What tips would you give to companies?

Decarbonization needs a binding definition of targets and a transparent and consistent method for generating carbon balances emissions balances. The current status and the targets have to be clearly defined to ensure goal verification and strengthen stakeholders' confidence in the process.

As the database needed for this is very large and data availability is still incomplete in some areas of the market, clear delineation and definition of the scope under review are important in order to substantiate possible necessary adjustments in the future.

Due to the high data width requirements, several divisions of a company are called upon. The biggest challenge in doing this is to make all employees aware

of this subject area's high level of relevance and to build upon additional expertise as required. Last but not least due to the dynamic and highly complex regulatory framework, purposefully including an external expert is essential.

What role do digitalization and technical equipment play in achieving climate goals?

Digitalization plays a decisive role in data collection and data management. Here we already benefit from some cooperation agreements for the central metering point operation and ESG data management. In the future, automated and centrally controlled data collection of tenant data, to the extent possible, would be another great labor-saving measure.

Using modern technology in the building usually increases user comfort and meets social requirements for the property. With higher levels of technology usage the complexity in building operations also rises and harmonizing individual parts of the technical building equipment becomes more difficult. This is often associated with higher energy usage and emissions.

A high degree and standard of technology can be helpful but isn't a solution for every building. In this case digitalization can have an important impact on energy efficiency.

What networks are relevant?

I consider every network that promotes the exchange of ideas and experience to be relevant and am thankful for everyone who confronts the matter across all companies and industries. Our readiness to learn from each other and to share our experience with other participants in the market is an important factor for reaching our goal in my eyes. Therefore, networks and the general exchange amongst ourselves are definitely helpful.

With respect to the set requirements and standards, I would like for there to be more uniformity. For instance, ESG benchmark and rating requirements regarding assessment, weighting and method are so various that high additional costs arise for those who choose to participate. Uniform standards could alleviate this, increase the acceptance of systems and create more security in the market.

Can you name some exciting peer projects that you're interested in and learning from?

If the required conditions are fulfilled, photovoltaic projects represent a financially attractive option for connecting decarbonization to reducing operating expenses in my opinion. The combination of battery storage technologies and charging stations are also subject areas, where further development could be key.

Beyond that, AI-supported operations management offers promising approaches to reducing energy usage and costs for properties with high levels of technology usage.

What motivates you and how do you motivate those around you?

The key factor for motivating yourself and others is understanding the purpose of a task in my opinion. Internal and external communication are essential for this.

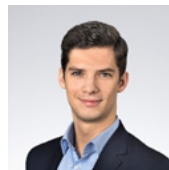
Climate protection and decarbonization are important for all of us to have a livable environment for a long time to come. In the long term, successful implementation of decarbonization will also affect the performance of our portfolio and by extension the success of our company.

As the transformation needed for this will only be possible with the cooperation of all stakeholders, I see it as part of my task to elucidate the "why" behind the additional effort needed that is connected to the transformation process. Throughout the company, it's my goal to highlight the contribution of every individual to the overall achievement of the goal. In organizational terms, this is supported by linking individual target agreements with departmental and organizational targets, which of course also provide an incentive.

The extra work focused on our properties also supports day-to-day operations, uncovers new optimization potential and strengthens identification with our portfolio.

Conclusion / Key Facts:

On the topic of decarbonization in the real estate industry there is no longer any doubt about "if we should do it", but there is still uncertainty regarding the question of the "right" measures to implement and their effects on property value. As a starting point for decarbonization, scientifically binding definitions of targets and a transparent and consistent method for generating carbon balances are required. Digitalization and data management, which must be in line with the designated methodology are an important part of the path to total transparency of all greenhouse gas emissions. For the phase of implementation, there is a variety of opportunities to reduce greenhouse gas emissions from real estate. In addition to technical solutions for increasing energy efficiency and measures for generating renewable energy close to or far away from the building, AI-supported operational control can make a substantial contribution. However, to achieve the own climate targets individual stakeholders must not be ignored. The motivation and importance of the contribution of all own divisions and external stakeholders involved is essential.



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In an interview with:

Jürgen Utz
Head of Sustainability, LIST AG

Biodiversity as a value driver: Why there is still no joined-up thinking on real estate and nature investment

**From green roofs to ecological design concepts – how
integrating biodiversity can make real estate more
sustainable and attractive**



The preservation of biodiversity has grown in importance in recent years, as the drastic impacts of species extinctions and associated risks to ecosystems become ever more visible. This change in attitude is also influencing the real estate sector, which will play a crucial role in pursuing sustainability and environmental objectives. Biological diversity does not just mean greening roofs or facades: it also concerns the careful planning of buildings and surrounding infrastructure so as to preserve habitats for plants and animals. Jürgen Utz, a biologist, and architect, has been focused on sustainability and climate change for almost 15 years and, as Head of Sustainability at the LIST Group, he is rethinking the real estate sector.

How significant is biodiversity in the real estate industry?

The key question is how significant it is and how significant it should be. So far, biodiversity has only really featured in the context of certification systems. For example, the criterion has been retained in the new 2023 version of the DGNB System [German Sustainable Building Council] and has been supplemented by new indicators. This shows that the issue is becoming more specific and more important. In general, however, biodiversity still plays a secondary role. Until today, it has primarily been considered by large companies with real estate portfolios and certain reporting requirements, such as in the food industry. Otherwise, biodiversity has no visibility in the real estate industry, although many companies are focusing on it behind the scenes. Heads of sustainability, ESG managers and people administering real estate portfolios over many years are addressing biodiversity because of regulatory requirements and because it is now often an unavoidable factor in the purchase of land or property. Thus, one could say that biodiversity may be currently underrepresented but is steadily gaining importance due to its increasing relevance.

Where do you think the market stands on biodiversity on a scale of 1 (low market relevance) to 5 (high market relevance), and why?

1, definitely. There are some sectors other than real estate that are interested in biological diversity because their own business model depends on it. Putting this into the CSRD perspective (Corporate Sustainability Reporting Directive): Certain industries having a stronger risk impact due to being exposed to biodiversity cycles, such as the food industry (being directly affected), or banks and insurers (being indirectly affected). However, this does not apply to the real estate sector, since it is not directly dependent on biodiversity. If we look at real estate development, it is obvious that we do not have an overarching steering and planning level. Similar to municipal heat management planning, you could say that through the integration of numerous small biotopes, it becomes possible to stabilize biotic structures. A good example for such overarching planning concepts can be found in the Netherlands. There is a map in Amsterdam illustrating the distribution of native bat species across different areas. City planning takes such data into account and always include promoting biodiversity as an objective. The real estate industry should pursue a

similar approach, as addressing the neighborhood and location development level is crucial for biodiversity preservation. To do that, the entire development and life cycle of properties must be kept in mind, so that we gain a thorough understanding of the issue. Starting with urban planning considerations like preventing additional ground sealing, moving on to the building, and renovation phase and then finally addressing property management decisions on how to deal with biocides – there are many ways of influencing respective life cycle phases and collectively they can significantly affect biodiversity.

Where do you see the biggest challenges in transformation regarding biodiversity for real estate companies?

In general, three main factors can be identified:

- Firstly, it is imperative to integrate the concept of biological diversity at an early stage of project development and in asset management. This is the only way of ensuring that the matter provokes serious discussion and genuinely influences project design and execution. Both in new and existing construction, in ongoing operations and during renovations.
- Internal and external expertise plays a crucial role in achieving this objective. It provides a basis, ensuring that the measures go beyond the planning phase and can be sustainably implemented by facility management inside the buildings and in its surrounding open spaces. Well planned is no guarantee for effective execution and maintenance.
- Without doubt, the biggest challenge lies in determining suitable metrics that allow management and comparative valuation of biodiversity. This is difficult especially given the indirect side-effects tied to biodiversity, which may not be immediately visible when looking at one individual property but can have a profound impact as a whole. This is exemplified by how a high-quality bio-façade can enhance energy efficiency and improve a building's ability to retain water. Accurately quantifying these side effects and their resulting advantages is still very time-consuming and complicated. Irrespective of these side-effects, we need clear biodiversity metrics that can be incorporated into real estate valuation.

What tips would you give to companies?

Building on the previous points, biodiversity should be considered early in blueprint and development planning, and the entire life cycle of the property should be kept in mind. It is also necessary to build up appropriate knowledge within the industry so that opportunities and risks can be recorded and assessed, and suitable measures can be derived.

For anyone interested in the topic, there is a lot of literature out there. For instance, the German Federal Agency for Nature Conservation [BfN] has some excellent practical examples, while the Lake Constance Foundation and the WWF also publish materials on the subject. Using suitable sources, you can quickly gain a comprehensive overview of the topic.

However, it is more difficult with suitable metrics, because it is still unclear for our sector how biodiversity can be uniformly and correctly recorded. If you would like to get started, the development of Science Based Targets (SBTi) would be interesting. It is also interesting to see what the TNFD (Taskforce on Nature-related Financial Disclosures) and IPBES (Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services) are doing. If this is too theoretical for you, you can have a look at the German Sustainable Building Council requirements, which address relevant key issues. The web-based tool ENCORE (Exploring Natural Capital Opportunities, Risks and Exposure) offers banks, investors and insurers an introduction to measuring risks arising from changes in natural environments and biodiversity. However, there is still a big gap between what research knows about the matter and what the tools can do. The question is how quickly these gaps can be closed and who will support and drive this development.

What role does digitalization play in biodiversity?

For individual properties, like commercial real estate, there are reliable digital assistance and monitoring systems for individual elements available. For instance, there are digital irrigation systems that are linked to weather analyses, and which precisely measure rainfall. This means that when it starts raining, the irrigation system can automatically switch off and the water volume can be adjusted according to previous precipitation.





The level below is the more complex one, i.e., how well can we use satellites, drones, DNA analyses, imaging systems with AI, infrared cameras or sound analyses to measure biodiversity. There is a central problem here: even experienced biologists can only speak in regional terms and only for well-known ecosystems when determining how biological diversity is measured. In Europe, we are relatively well positioned and have sufficient knowledge of species inventories. Seen globally, however, there is still too little known about biodiversity for any reliable measurements and statements to be made. Biodiversity is a complex matter with many different factors interconnecting and interacting. Ultimately, it probably poses a philosophical question for the real estate industry: can I manage biodiversity only if I can assign a price to it? Or should it possess inherent value simply because it forms the basis of existence?

How far that can be achieved is a different discussion, but an important and interesting one. In my opinion, biodiversity should be considered as a general good worthy of protection. It is much more complex than CO₂ reduction, because we cannot recover species or soil or other ecosystems with money. Biodiversity belongs in a different category to all other goods that we speak about in the economy, and that means we must step back from demanding biological diversity metrics that can be converted into profit. Nevertheless, industry will start to invest in the areas where we know that natural systems capture carbon more efficiently and cheaply than technical systems, and will calculate a value. For example, there will also be

projects cross-financed by the real estate industry in nature restoration, rewilding and regenerative agriculture. By doing this, the real estate industry will try in its own way to offset the negative impacts on biodiversity.

What networks are relevant?

Although there is not a specialist office for biodiversity in the real estate industry yet, there are some associations and working groups where you can gather valuable information. This includes the German Association of Building Greening [BuGG]. There are often events that inform about the topic, such as the Sustainable Finance conference recently organized by the German Federal Environment Agency [UBA], which focused on biodiversity in March of this year.

Can you name some exciting peer projects that you're interested in and learning from?

In the specialist literature you can find a lot of research projects addressing the topic of biodiversity. In Austria there is a company named GRÜNSTATTTGRAU Forschungs- und Innovations GmbH, which is an integrated center of competence for building greening and innovations aimed at fostering the green, intelligent city of the future. On their website, www.gruenstatttgrau.at, they provide a lot of information about training, networking opportunities, current trends in biodiversity, strategy and certification.

Conclusion / Key Facts:

The loss of biodiversity is impacting the whole world. Therefore, the relevance of biodiversity in the real estate industry is increasingly being underscored by international and national regulations. There are numerous solutions for real estate projects to protect and restore habitats. Acting at an early stage to incorporate biological diversity into blueprint planning, and making sure your facility management focuses on sustainability, will allow the development and maintenance of effective concepts to benefit the ecosystem and society as a whole.



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The heat transition in Germany's housing stock

Impacts of the German Buildings Energy Act [GEG] amendment and municipal heat planning on heat supply and refurbishment of existing properties



In recent months, the decarbonisation of Germany's housing stock has come into the legislator's focus. The envisaged amendment to the German Buildings Energy Act [GEG] will create a legal framework especially addressing the heating technology installed in buildings. After the vote on the amendment, originally scheduled before the summer break, was still stopped by the Federal Constitutional Court, the Bundestag passed the GEG amendment in September. The amendments to the GEG will therefore come into effect from 1 January 2024.

Core provisions of the GEG amendment

The heat transition in Germany's housing stock is key to a successful energy transition and achieving climate objectives. While new builds are already subject to stringent standards in terms of energy efficiency categories, the legislative initiative is now also focusing on the refurbishment of existing buildings. In this regard, the technology used to generate heat in existing buildings will play a key role. Regarding the decarbonisation of heating technology in existing buildings, the GEG amendment includes clear specifications on which heating technologies will be permitted once the amendment becomes effective from 1 January 2024.

The core of the GEG amendment is the requirement for heat to be sourced from at least 65 % renewable energy in the future. Thus, the GEG is effectively focusing on the installation of heat pumps. Gas heating may still be installed after 1 January 2024, but only if it can be repurposed for hydrogen. The GEG now also considers pellet and wood heating to be regenerative energies.

The GEG amendment also includes a neighbourhood approach: efficient implementation of the GEG requirements will allow up to 16 buildings to all receive heat from one heating system. The governing coalition sees this as a significant efficiency advantage, especially in light of the 65 % threshold.

Municipal heat planning provides investment and legal security

According to the current status of the legislative process, the implementation of the GEG requirements for the housing stock are to be tied to the deadlines for the also newly implemented municipal heat planning. The legal framework for municipal heat planning comes from the German Heat Planning Act [WPG]. In the first step, the WPG requires German municipalities to make an inventory of the existing (district) heat supply for buildings. Based on this data, heat plans will be prepared for cities and municipalities, illustrating the future heat supply for buildings. The objective of the WPG is to promote the development of district heating from renewable energies and to prescribe it for certain areas.

The obligations under the GEG in terms of renewing the heating systems of individual buildings apply only once the municipalities have published their heat plan. Therefore, these plans are to be prepared beforehand. The submission deadline for the heat plans is 30 June 2026 for municipalities with more than 100,000 inhabitants and 30 June 2028 for all other municipalities. Once published, the heat plan establishes "grandfathering" protection for the building owners and can thus be used as a basis for investment decisions. This is because any implementation of local or district heating envisaged in the heat plan involves connecting all households to the heat network without extensive prior investment in the buildings' heating systems.

In addition to the requirements on heat planning, the WPG also contains binding decarbonisation rules for existing district heating networks, which could in turn impact the future heat supply of buildings. By 2030, 30% of the heat fed into district heating networks is to be sourced from renewable energy, rising to 80% by 2040. Full climate neutrality for district heating networks is to be achieved by 2045.

Compliance and implementation models for the GEG requirements

The GEG obligations address building owners. For purposes of implementation, the German federal government plans to develop an extensive financial support framework, which will notably include special subsidies for measures in owner-occupied buildings. Subsidies are also available to landlords, although the funding quota is likely to be lower than for owner-occupied buildings.

Furthermore, the GEG's requirements concerning a building's heating technology do not necessarily have to be fulfilled by the building owner. Rather, by means of a make-or-buy decision, a service provider can also be contracted with providing heat to a building or a neighbourhood. This commercial heat supply allows building owners to provide heat to their tenants and thereby meet the GEG requirements without having to make the investment themselves.

Conclusion / Key Facts:

Decarbonising Germany's housing stock is a huge challenge. This can be seen not least in the heated debate over the GEG amendment. The interconnection between the GEG amendment and municipal heat planning should be welcomed in principle because it allows existing potential to be identified locally and a reliable basis for building owners' investment decisions to be established.



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The Age of Digital Real Estate:

Shaping the Future of Property



In the rapidly evolving real estate landscape, digital transformation has emerged as a driving force, reshaping every aspect of the industry. From construction companies adopting industrialized techniques to investors prioritizing Environmental, Social, and Governance (ESG) factors, to the digitization of processes making home ownership more accessible, the real estate sector is witnessing a wave of innovative trends and developments. For a long time, the sector was not at the forefront of digitization but recent developments and changing market conditions are driving digitization forwards. This article explores seven fundamental digital trends that will have an impact on the real estate ecosystem in the coming years.

The (digital) real estate ecosystem encompasses constructors, developers, investment managers, real estate service providers, property managers and capital markets/financers. Digital transformation affects all actors involved in this ecosystem but in different ways. The following seven digital trends will fundamentally reshape the industry for the years to come.

1. Industrialized Construction: Revolutionizing planning & construction

Industrialized construction methods have revolutionized the way buildings are constructed. Prefabrication and modular construction streamline processes, reducing time and costs while enhancing quality and safety. Some construction companies are able to fully manufacture houses from a 'file to factory', accelerating the delivery of projects. These factories use cutting-edge technologies like 3D printing and robotics. Instead of building houses on the construction site, houses are assembled in just a few days, saving enormous amounts of time. These advancements empower builders to meet the growing demand for real estate with speed and precision.

2. Digitization of the Construction Site: Enhancing Productivity, Safety and Sustainability

Construction sites are increasingly embracing technology to improve productivity, safety and sustainability. 'Digital twins' – virtual replicas of physical construction sites – are emerging, powered by Internet of Things (IoT) devices and sensors to monitor and improve construction processes, ensuring compliance and minimizing risks. These digital replicas can be used to model the site, simulate scenarios and test and optimize processes without physical

boundaries. Opportunities include optimizing waste management, logistics and on-site assembly processes. At the same time, Augmented Reality (AR) and Virtual Reality (VR) can be used to visualize design and provide trainings to help identify potential issues before they occur, further reducing delays and cost overruns.

3. Digital Asset Portfolio: Digitizing assets and optimizing Real Estate Management

Data-driven insights have become invaluable for effective real estate management. Investment managers and property managers are increasingly digitizing their entire asset portfolios and creating 'smart building passports'. By digitizing the portfolio, analytics platforms can be leveraged to optimize rental yields, predict maintenance needs, optimize sustainable renovation and improve tenant experiences. Artificial Intelligence (AI) assists in automating routine tasks, enabling both investment managers and property managers to focus on strategic decision-making and customer engagement.

4. (Digital) Real Estate in the Metaverse: a new sector on the horizon?

The metaverse – a virtual shared space created by the convergence of physical and virtual reality – is an emerging trend with potentially profound implications for digital real estate. Just as in the physical world, individuals and businesses are seeking digital spaces. Virtual real estate in the metaverse, including virtual properties and spaces for social interaction, commerce, and entertainment, is becoming a sought-after asset class. Will it lead to new players in the real estate ecosystem or current players investing in the trend?

5. Digital Interaction: Simplifying Real Estate Transactions for all parties involved

Digital portals have reshaped the way we buy, rent, own and invest in properties. Online platforms connect sellers, buyers, landlords, investors and tenants, providing a seamless and transparent experience. Virtual property tours enable remote exploration, expanding market reach for both residential and retail real estate. Smart contracts on blockchain ensure secure and efficient transactions, accelerating the pace of deals and enhancing trust among parties. Finally, investors can gain real-time insight into the performance of their assets, as well as the financial impact of the Route to Paris, in order to make their assets more sustainable.

6. Battle for digital services: who will extend its business model?

Within the digital real estate realm, established players are recalibrating their roles through inventive digital services and fresh business models. Operational real estate services are evolving to offer a range of seamless, technology-driven solutions. From digital concierge services that enhance tenant experiences to shared mobility solutions such as renting a communal car, the range of offerings is expanding. Moreover, businesses are exploring ancillary services like interior and exterior upgrades, allowing tenants to personalize their living spaces digitally and physically. Additionally, loyalty programs tied to specific properties or property management companies are emerging, incentivizing long-term tenant relationships and fostering community engagement.

7. ESG in Real Estate, sustainability Takes Center Stage

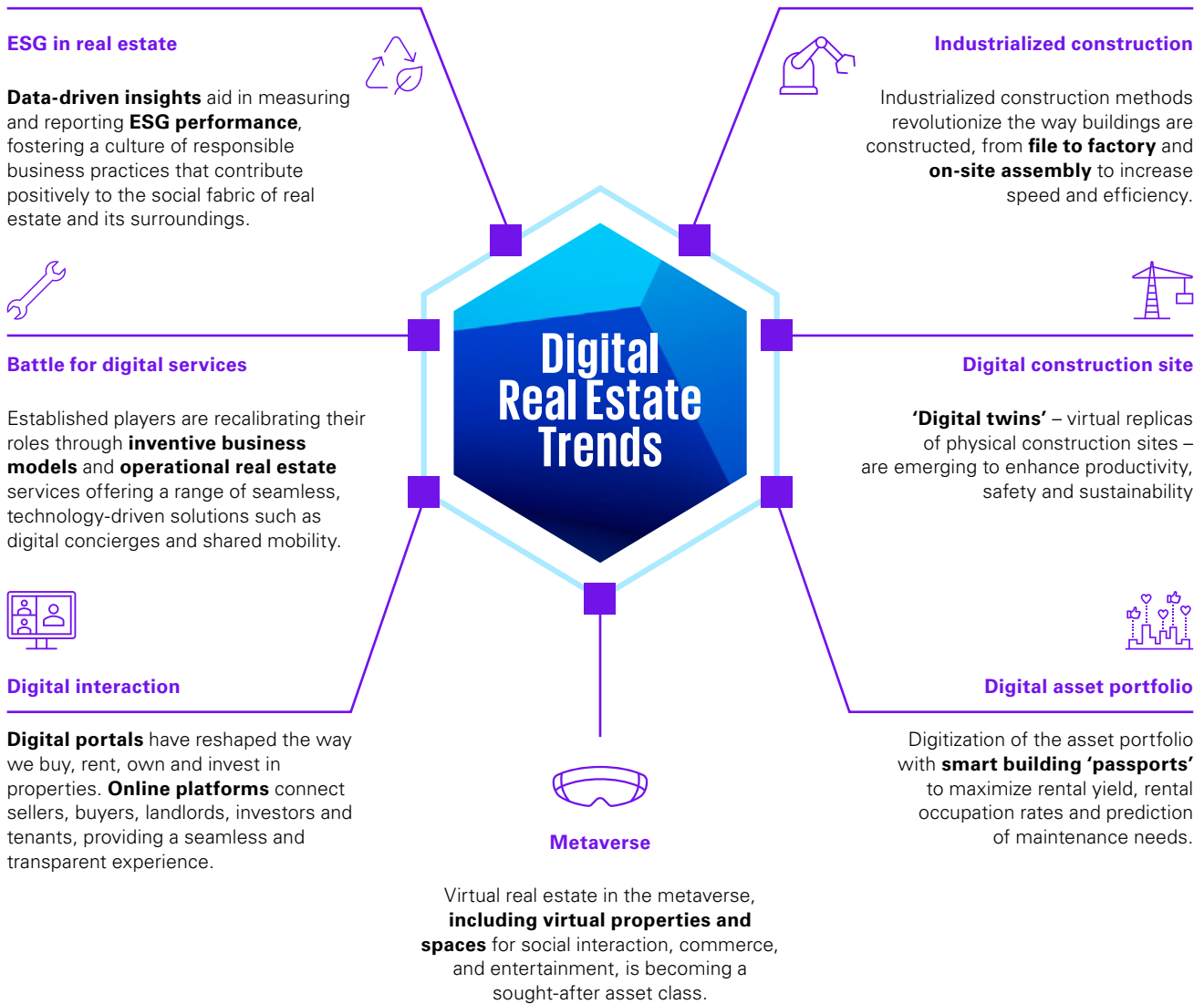
Environmental, Social, and Governance (ESG) considerations are increasingly shaping the real estate industry. Investors, constructors and developers now prioritize sustainability, energy efficiency, and eco-friendly design. In the digital real estate evolution there is a significant focus on harnessing digital advancements to drive these principles. Investors, developers, and property managers are actively integrating digital solutions.

Smart building management systems use data analytics to optimize energy consumption, monitor water usage, and manage waste. IoT devices and sensors enable real-time monitoring of resource utilization, allowing for swift intervention to minimize waste and carbon footprint. These digital tools enable a comprehensive understanding of the social impact of real estate projects. Social data analysis helps gauge the compatibility of a project with its surroundings, assess its potential impact on communities, and ensure alignment with local needs. This data-driven approach ensures that real estate developments contribute positively to the social fabric of their surroundings. Finally, data-driven insights aid in measuring and reporting ESG performance, fostering a culture of continuous improvement and responsible business practices.

Conclusion / Key Facts:

In conclusion, digital real estate has emerged as a game-changer for the construction, investment, and management sectors, revolutionizing the way real estate are developed, traded, and maintained. Industrialized construction methods boost efficiency, while ESG considerations promote sustainability and attract socially responsible investors. Digitization not only simplifies transactions but also broadens access to home ownership and retail spaces. Moreover, data platforms empower real estate management with insights, enhancing operational efficiency and tenant experiences. Embracing these digital trends is critical for staying competitive in the ever-evolving real estate landscape. As technology continues to advance, the industry must adapt to these transformative changes to shape a more connected, sustainable, and accessible future for all stakeholders involved.

Figure 1:
An overview of digital real estate trends across the value chain



Source: KPMG Germany, 2023



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Tax Governance in focus

Advantages of a digital tax compliance management system



In the current market environment, ever more attention is being paid to Tax Governance – by investors, tax authorities as well as by the supervisory authorities.

The introduction of stricter sanctions in the case of non-compliance with tax obligations, rising transparency, documentation and reporting requirements, as well as the updating of taxation procedures, are evidence of this.

As part of the audit of the 2022 financial statements of asset management companies (AMCs), the German Federal Financial Supervisory Authority (BaFin) has defined an audit focus area for tax business structures.

Substance of the audit focus area and approach during an audit

The substance of the audit focus area was to verify whether and to what extent the AMC has a tax business structure that prevents the AMC

- from violating tax regulations on its own account or for assets under its management,
- thereby exposing itself to the risk of involvement in a tax criminal offence or subsequent claims being asserted by the tax authorities.

The review procedures carried out as part of the audit focus area are in line with IDW AsS 980 with its seven fundamental elements of a Tax Compliance Management System (Tax CMS). The assurance standard (AsS) of the German Institute of Public Auditors (Institut der Wirtschaftsprüfer (IDW) describes the requirements placed on a proper Tax CMS.

The objective of a Tax CMS includes ensuring tax compliance, which means satisfying tax obligations and avoiding non-compliance by providing exculpatory evidence to tax authorities.

IDW AsS 980 includes the core elements of a proper tax business structure of the company.

Documentation of the following fundamental elements of the Tax CMS was checked in accordance with IDW AsS 980. A test of the design and effectiveness was not within the scope of the audit.

1 Tax compliance culture

This includes the definition and documentation of measures to embed tax compliance in the corporate culture and involve the tax department when dealing with tax-relevant topics. Furthermore, it includes implementation of a sanctions system that is suited to disciplining violations related to tax compliance.

2 Tax compliance objectives

This fundamental element includes the definition of objectives for the tax function/Tax CMS and definition of a tax risk strategy.

3 Tax compliance organisation

Assignment of clear responsibilities and definition and documentation of the tax function's organisational and operational structure are key components of the Tax Compliance organisation. In addition, interfaces to the specialist departments – which are involved in tax processes – are defined.

4 Tax compliance risks

The identification, recording and evaluation of tax risks – taking into account the scope and nature of business activities – are key aspects of a Tax CMS. Risks are documented and assessed by means of a risk inventory.

5 Tax compliance programme

Measures to reduce existing tax risks are defined in this fundamental element. Measures include, for example, process documentation, policies/procedural instructions, IT-supported controls or the inclusion of tax advisors.

6 Tax compliance communication

This fundamental element deals with the definition and documentation of processes concerning internal and external reporting requirements and reporting channels (including reporting on tax risks). In addition, information is provided on the tax compliance programme/defined roles and responsibilities, as well as the instruction of affected staff on tax obligations.

7 Tax compliance monitoring and improvement

The final fundamental element includes the implementation of a systematic approach for monitoring the Tax CMS on a continuous basis/ monitoring the tax function and tax processes. In practice a regular check of the implemented Tax CMS is recommended.

The value of a Tax CMS

Effectively handling the challenge of being compliant necessitates clearly defined processes, where the tax department assumes a governance function – with instruction and control rights – and responsibility for efficient and transparent risk management. A Tax CMS that is appropriately designed and effective in practice contributes significantly to identifying and sustainably avoiding tax risks. As a result, it especially supports governing bodies in ensuring proper business management, the avoidance of losses and protects against claims being asserted against personally liable members of the governing body. In addition, a company improves its process transparency by intensively illuminating core tax processes and risks, which enables the optimisation of workflows and creates efficiency.

Advantages of a digital Tax CMS

Both the BaFin audit focus area as well as a wide range of practical experience show that Tax CMS implementation projects at many AMC's are still in the implementation phase. AMC's often have only limited staff available for implementing a Tax CMS and then rolling it out to regular operations.

This makes it all the more important to align the design of the Tax CMS with the company's requirements and general conditions already during the planning stage.

Especially relevant in this regard is that the processes and risks are an element of a Tax CMS not only on AMC level, but also on product level. Attention should be paid already in this step to ensuring that documentation is digital rather than analogue, so that it does not disappear in some drawer unused due to lack of practicability. Maintaining an analogue documented Tax CMS requires significant manual work that, combined with the increasing shortage of staff, cannot be implemented and no longer fits with advancing digitalisation in day-to-day operations.

Consequently, the recommendation can only be to implement a Tax CMS, where core tax processes, including responsibilities and interfaces, are linked to the risks and, furthermore, the risk-mitigating measures and controls derived from them are also included.

Firmly defined tax events can be used to automatically initiate follow-up processes. The execution of controls and system-generated documentation can be automated as well. Sending reminders along with firmly established escalation steps help to fulfil tax obligations on time while simultaneously reducing manual administrative work.

Furthermore, a digital Tax CMS can be integrated into the AMC's overarching process landscape and, thus, become an integral part of a comprehensive CMS.



Outlook:

Tax Governance and Tax Compliance are hot topics for the various different internal and external stakeholders of an asset management company and should be core elements of a comprehensive ESG strategy.

In the course of numerous Tax CMS projects, we have developed various approaches on how to implement a proper Tax Governance strategy, based on company size, staffing and complexity, together with our clients.

An effective digital Tax CMS reduces tax risks and improves the transparency of the core tax processes. This also makes it possible to identify more quickly changes in tax legislation and their impact on the business model. The tax function is thus able to respond to changes early and actively, thereby becoming a reliable business partner within an asset management company.



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Advancing Energy Efficiency across the Built Environment

Is the real estate sector switched on?



As the world moves rapidly to tackle the climate crisis, all sectors have been working to find the best levers to reach net zero efficiently and cost-effectively. Energy efficiency is one of the lowest-cost and most effective options to achieve this goal, while it is also the main driver of decarbonization in the building sector. So, if measures to improve energy efficiency are so beneficial to real estate businesses, how can we make it work?

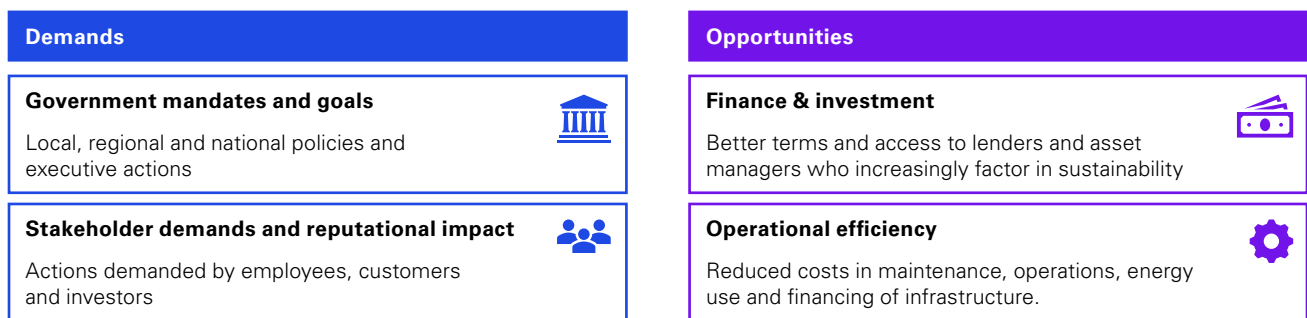
The significance of energy efficiency to the real estate sector

Climate change is a global emergency, and nations have pledged to pursue efforts to limit the temperature increase to 1.5C above the pre-industrial level. This will require significant endeavors from all business sectors to reduce their emissions, including real estate. This highlighted sentence reads weirdly. Please replace with: By 2050, 70 % of the global population will be living in cities, which brings the challenge of ensuring lower environmental impact for both new and existing infrastructure. Regulatory requirements are focusing increasingly on buildings' GHG footprint, and this will challenge real estate companies to explore and implement GHG reduction solutions. With carbon cost set to increase, companies owning and operating carbon-intensive buildings will

inevitably be impacted by higher operating expenses and lower real estate value.

Since two-thirds of current buildings will still be in use by 2040, real estate companies will need to systematically plan their retrofits to focus on GHG reduction and comply with regulatory requirements. This will also help them maintain a competitive edge with customers and potential investors, who will seek better performance across the assets they invest, operate, and use. Buildings account for about 40 % of global emissions, with 27 % of that coming from energy used to heat, cool, and power. This operational energy could be reduced through energy efficiency solutions. Faced with stringent demands but also multiple opportunities (figure 1), real estate can play a crucial role in focusing on energy efficiency to decarbonize its assets.

Figure 1:
Drivers for Sustainable and Energy Efficient Buildings



Source: KPMG US, 2023

Energy efficiency: A crucial link in the energy transition

To reach net zero emissions from existing buildings, real estate companies can use a myriad of solutions entailing different levels of complexity: from eliminating the use of on-site fossil fuels and focusing

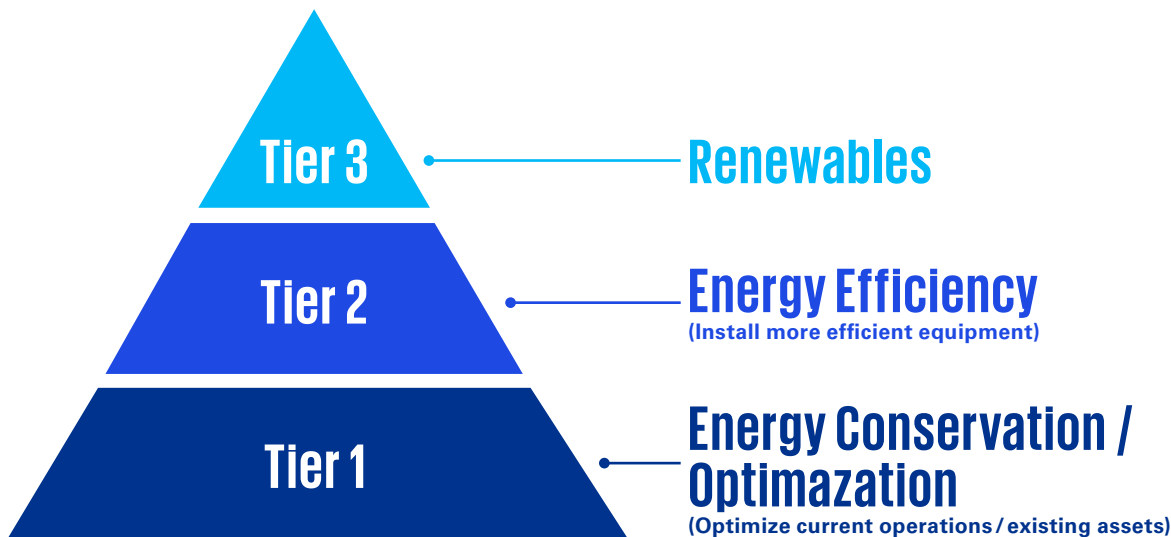
on the procurement of 100 % renewable energy to implementing energy conservation, optimization, and efficiency measures – as shown in figure 2 in the next page:

Improvements in energy efficiency alone could significantly reduce global emissions and energy

needs, with research suggesting that the United States’ emissions could be halved by 2050 through such work.¹ A strategic approach to energy management can be beneficial, as it allows

organizations to decarbonize while also achieving substantial energy and cost savings – crucial in a time of high and volatile energy costs.

Figure 2:
Energy Efficiency Pyramid



Source: KPMG International, 2023

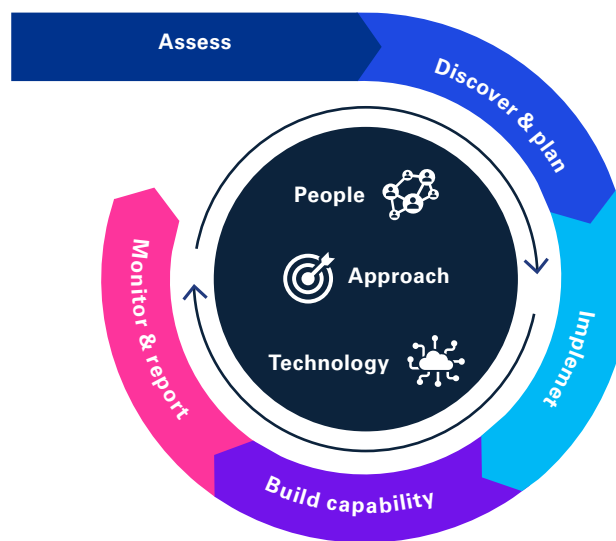
Strategic Energy Management (SEM) in practice

SEM is a holistic, continuous improvement framework that enables organizations to adopt a culture of energy efficiency and decarbonization. This reduces energy consumption and costs, while also cutting scope 1 emissions from sources owned or controlled by the organization and scope 2 emissions from the generation of electricity, steam, heating and cooling that the organization purchases and consumes – key emission factors throughout the real estate sector.

SEM’s people-centered approach is based on three tiers of interventions with increasing levels of investment and complexity. Approximately 5 percent of savings can be achieved annually through optimizing current assets in tier 1.² These savings can be unlocked quickly, allowing teams to make further improvements across tier 2 by upgrading equipment, then tier 3 by implementing renewable energy. However, any benefits from adding renewable energy assets may be significantly reduced if energy consumption is not yet being optimized, so it is crucial to pursue conservation and optimization measures for the best results overall.

Underpinned by active governance, stakeholder engagement, organizational change, project planning, risk mitigation and reporting insights, SEM comprises a cycle of improvements across five pillars (figure 3):

Figure 3:
SEM Framework



Source: KPMG International, 2023

¹ American Council for an Energy-Efficient Economy, Halfway there: energy efficiency can cut energy use and greenhouse gas emissions in half by 2050, 2019

² Northeast Energy Efficiency Partnerships, The potential of strategic energy management to contribute to state decarbonization goals, 2021

The Five SEM pillars in detail

- 1. Assess:** Evaluate facility portfolio, measure current energy performance, assess energy reduction ambition, develop data collection, monitoring plan and deployment plan.
- 2. Discover and plan:** Identify energy saving measures involving conservation, optimization and efficiency; review financing, tax, regulation and government policies; develop implementation plan; set energy reduction target.
- 3. Implement:** Program, project, change, data and performance management, emphasizing the people element by assigning responsibility across functions.
- 4. Build capability:** Deploy communication and engagement plans to ensure progress is shared company-wide via capacity building and cultural enablement.
- 5. Monitor and report:** Embed control, monitoring and reporting that provides meaningful insights to conduct continuous improvements and progress updates.

By implementing SEM, real estate organizations can achieve maximum potential savings for their buildings while also creating a long-lasting culture of improvements in energy efficiency. This was the case for a commercial real estate holding company in Canada, which applied the SEM framework across a few of their commercial real estate buildings. The interventions included:

- 1. Temperature regulation:** Improvements started with resetting car park and domestic water temperatures, adjusting chiller and chilled water setpoints and changing supply air temperature.
- 2. Behavioral changes:** By engaging the energy team and staff members, the company instilled helpful practices and operational efficiencies via an energy saving strategy toolkit incorporated across the portfolio of buildings.
- 3. Updating systems:** By changing scheduling practices and updating their building management systems, building managers could consistently monitor the building data, examine trends and better predict maintenance needs.
- 4. Leveraging new technologies:** The installation of a pair of combined heat and power systems (CHP) to efficiently produce power, save money and

reduce GHG emissions decreased the building's GHG emissions by up to 3,000 tons per year.

The company saw a 7.6% reduction in their energy consumption across a portfolio of buildings, which translated into energy cost savings of US\$473,113 per year.

Putting SEM at the core of buildings' operations

Instilling energy efficiency practices can offer buildings additional benefits of resiliency during extreme weather and other events, including geopolitical turmoil. In this sense, SEM has a strong focus on systemic, organizational changes that can support the real estate sector in decarbonizing and in gaining competitive advantages. Among the best ways to reduce carbon emissions and use energy with greater efficiency is to harness people's power to change business strategies, practices and processes in a cost-effective way.

KPMG has been supporting clients with strategic energy management, renewables, power purchase agreements, and an entire suite of climate, nature and decarbonization solutions. Supported by an ecosystem of technical and software alliance partners such as CoolPlanet, JCI and others, we can help organizations accelerate progress towards their decarbonization goals.



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