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Assemble Media Group

Building

The value of sustainability in the built environment

Building THE FUTURE THINK TANK 2024

Sponsored by

RLB Rider Levett Bucknall

Contents

Methodology p2

Executive summary p3

Part 1: Commercial viability p4

Part 2: Circular models p6

Part 3: Balancing upfront costs with lifecycle benefits p9

Recommendations p11

Methodology

This research, conducted by Building in conjunction with RLB UK, was carried out via group and individual interviews with experts in the field from across the sector and the answers to a selection of qualitative questions. The research was carried out in spring and summer of 2024.

Interviews were conducted by Building special projects editor Jordan Marshall, and the report produced by Matilda Battersby.

The feedback from interviews and surveys all contributed to the conclusions and recommendations. However, the views expressed in the report are those of the Building the Future Think Tank, and participants cannot be assumed to have endorsed the final findings.

Acknowledgments

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- Jamie Bursnell, group head of technical and innovation, Bellway Homes
- Georgia Elliott-Smith, strategic sustainability consultant, Earth Ethos
- Heather Evans, partner and head of sustainability, RLB UK
- Ceire Kenny, sustainable futures manager, Lendlease
- Anna Lisa McSweeney, architect, White Arkitekter, and steering committee member, UK Architects Declare
- Andrew Reynolds, global board director and CEO, RLB UK
- Simon Wyatt, partner, Cundall, and chair of the CIBSE Knowledge Generation Panel

Participants cannot be assumed to have endorsed the final findings.

Building THE FUTURE THINK TANK 2024

After the success of the Building the Future Commission in 2023, Building established its own editorial research hub, known as the Building the Future Think Tank, dedicated to producing more in-depth research and reports on behalf of the industry.

This year the think tank's programme has produced four reports: on immigration, net zero, building safety and workplace and people.

Executive summary

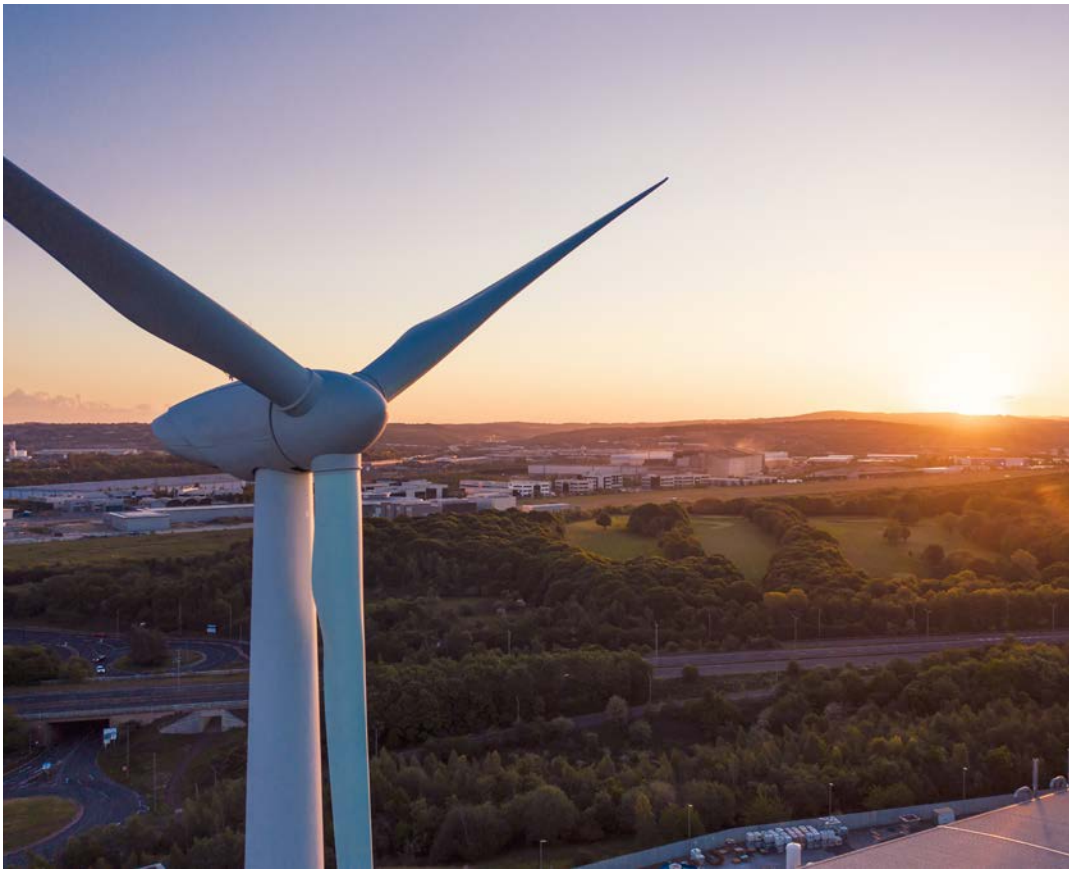
With extreme weather, rising sea levels and a world that is already 1ºC warmer than in pre-industrial times, the impact of climate change is no longer an abstract concept on which we can afford to conjecture. According to the UK Environmental Audit Committee, the built environment accounts for 25% of the UK's total carbon footprint, meaning the construction industry has a vital role to play in sustainability.

Despite important conversations and innovation around sustainability, the business argument has yet to catch up with the environmental one. The construction industry is risk-averse and almost entirely compliance-led, so not enough is being done quickly enough. With short-term goals and profit continuing to trump longer-term solutions and innovation, the sector has a lot to do to meet the government's target for reaching net zero by 2050 – and even more if it wants to make far-reaching progress that will safeguard our planet and the security of our supply chains over the long term.

> “ The construction industry is risk-averse and almost entirely compliance-led, so not enough is being done quickly enough

The challenges

1. The UK Green Building Council (UKGBC) confirmed in a report in 2021 that the UK construction industry was capable of reaching net zero by 2050, but only with urgent government action.
2. Despite consensus from the UKGBC and parliament's business, energy and industrial strategy select committee, industry recommendations on net zero were ushered into a period of political wrangling in Westminster, with a new housing minister arriving virtually every three months.
3. The vacuum of political focus on sustainability was filled by commercial objectives and financial regulations, with sustainability still seen by many in the industry as a marketing exercise rather than a fundamental shift in approach.
4. While there is some excellent work being done by businesses in this space, particularly around data-gathering, the problem of not having one joined-up objective and political focus has meant valuable information is being collected in silos, and innovation is not being shared.
5. Changes in government policies, building codes and sustainability standards can create uncertainty about future requirements and incentives, and uncertainty leads to delays in action while the industry waits to see what will happen.
6. Meanwhile, measurements by which the industry monitors progress on sustainability need to stand up to scrutiny and fit with broader shared objectives.
7. Education is required around the concept of circularity in building and infrastructure, with too many misinterpreting this as being about recycling and failing to understand its future value.
8. Supply chains need to catch up, with higher costs on sustainable materials meaning industry is approaching them as the exception rather than the rule.
9. The insurance and warranty market's focus on virgin materials and products means circularity is currently unsustainable at scale, despite its huge potential.



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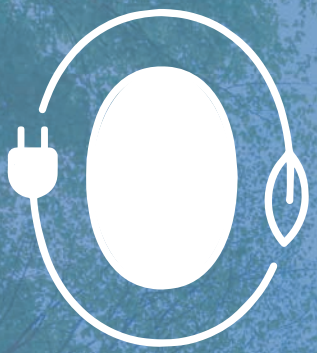
Part 1: Commercial viability



When it comes to decision-making on sustainable building practices, one of the pitfalls is a tendency by clients or construction companies to prioritise short-term cost savings over long-term gain. Policy and practice are shifting, if slowly. Over the last decade there has been a focus on energy-efficient buildings and ventilation, primarily towards considerations around material selection, upfront carbon and ongoing emissions.

Budget cuts early on may lead to increases in operational and maintenance costs, whereas accounting for carbon considerations may lift initial costs but lead to lower post-construction costs. Stakeholders must consider the various carbon outcomes and costs, looking beyond shareholder expectations and quarterly financial reports.

Perceptions of risk and uncertainty play a significant role in the decision-making processes within the UK built environment sector, especially when balancing upfront costs of carbon with anticipated lifecycle benefits. The anticipated benefits of sustainability, such as energy savings, reduced maintenance costs and higher property values, can be difficult to quantify accurately, however. By standardising sustainability goals across the industry, we can work to mitigate perceived risks – which will allow stakeholders to make more informed decisions for the longer term.

Financial benefits and market impacts

The business case

The UK has implemented a carbon pricing mechanism through the UK Emissions Trading Scheme (UK ETS), which replaced the EU ETS post-Brexit. The UK ETS aims to provide a financial incentive for businesses to reduce their greenhouse gas emissions. The government has also announced plans to increase the carbon price to encourage further reductions in carbon emissions.

The UK is a hub for green finance, with the London Stock Exchange hosting a growing number of green bonds and sustainability-linked loans. The Green Finance Institute is actively promoting investment in projects that support the transition to a low carbon economy. In 2021, the UK issued its first sovereign green bond, raising funds to finance green projects such as renewable energy and clean transportation.

The Climate Change Act 2008 mandates the UK to regularly assess the risks of climate

change and develop adaptation programmes. However, publicly listed companies may find fiduciary duty goes against innovation on climate or sustainability because it harms profits. For chief executives beholden to investors who might happily sack them for reducing profit margins to benefit the environment, it is challenging to prioritise going beyond the minimum targets on sustainability.

Future-proofing

In building for the future, industry leaders and decision-makers should be anticipating regulation changes. A benefit of doing more rather than less on sustainability is the potential to avoid penalties for non-compliance down the line. It is also a powerful way to shore up market position. Ultimately, sustainable and non-carbon-intensive development will be key to securing funding and remaining competitive in a landscape where sustainable investments will hold less risk.

Heather Evans, partner and head of sustainability at RLB, highlighted this, saying: "We're increasingly seeing our clients recognise that acting now not only mitigates climate risk but also solidifies market position while avoiding stranded assets."

Overcoming barriers

Perception problem

While experts say there remains a disconnect between proposed cost savings through sustainable measures and the reality (sustainable materials and construction options are generally priced higher), there is evidence that the financials of investing in sustainability stand up to scrutiny over the longer term. The assumption is that until the market has to prioritise sustainability as standard, it will remain priced in as an extra rather than an essential.

> "A benefit of doing more on sustainability is the potential to avoid penalties for non-compliance down the line. It is also a powerful way to shore up market position

Unfortunately, the net zero narrative is still viewed largely as a marketing exercise, appealing to sustainability policies and the environmental, social and governance (ESG) agenda, rather than as a fundamental shake-up in approach that is inevitable. As a result, clients say they're experiencing a "brown discount" on buildings rather than a "green premium". Sustainability consultants are being hired to prepare net zero pathway reports for acquisitions to give clients leverage to get a discount on the purchase price because of the retrofitting work needed in future to meet sustainability regulations later.

Risk mitigation

Stakeholders often perceive the upfront costs of low carbon technologies and materials as a financial risk. This includes potential cost overruns, financing challenges and uncertainty over long-term savings or returns on investment. That risk is combined with uncertainty over future market conditions, including changing energy prices, regulatory environments and demand for sustainable buildings.

All this can deter investment in low carbon solutions. As with anything new, there are also concerns over the reliability, performance and longevity of new, low carbon technologies. Stakeholders may view proven traditional methods as less risky than newer, potentially less tested technologies.

A centralised approach

There is a perception within the industry that professional institutions such as the RICS, the Chartered Institute of Building and the Chartered Institution of Civil Engineering Surveyors are too conservative in their attitudes and have not moved with the times. Industry needs them to lead, to inform and educate, to collate data and to facilitate collaboration across different areas of the sector.

With the industry facing shared challenges, professional institutions have a role to play in bringing the biggest firms together to solve those challenges. This way, innovations that are needed could be shared as open-source across the sector, saving individual firms from doing the same things in silos. The basis for testing and standardisation could also be agreed across the industry. There are government grants available from Innovate UK, but institutions need to apply for them.

As a firm working within an industry, it is only possible to make incremental changes alone. By working together, it becomes possible to properly innovate – and open-source knowledge-sharing is critical. The industry managed it with health and safety in the early 1990s, and now health and safety is truly embedded. Sustainability goes beyond

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commercial gain and competitive advantage. It should be a shared primary focus.

One of our expert panellists, Georgia Elliott-Smith, strategic sustainability consultant at Earth Ethos, pointed out that more radical and more collaborative change is needed. "Organisations are working on incremental improvements within a broken system, rather than focusing on changing the system itself," she said.

Greenwashing

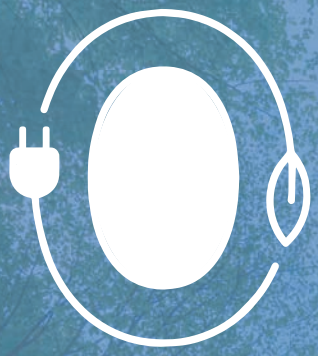
When environmental action is voluntary – as is generally the case in the built environment sector – this creates the perfect conditions for greenwashing. It stands to reason that the industry will not cut its own throat financially to be more environmentally ambitious than it is required to be. Almost all (89%) of industry lobbying activity is regressive, working to delay or derail climate-positive regulation.

The government's target to reach net zero carbon is set for 2050, which might seem, to many in the industry, far away enough to ignore. Worse, it applies only to a building's carbon footprint during the construction stage. Net zero in construction is defined in the UKGBC Net Zero Carbon Buildings Framework as "when the amount of carbon emissions associated with a building's product and construction stages up to practical completion is zero or negative, through the use of offsets or the net export of on-site renewable energy".

Combined operational and embodied emissions over a building's lifecycle are known as whole-life emissions, and any definition of net zero should reflect this complete picture, but this is not currently mandated by the government in its net zero targets – despite the UKGBC and the LETI recommending a whole-life definition of net zero.

> "When environmental action is voluntary – as is generally the case in the built environment sector – this creates the perfect conditions for greenwashing

Part 2: Circular models



The benefits of circularity are not yet well enough understood across the industry. Instead of considering the long-term role of materials within the industry – and tracking what can be reused through methods such as digital twinning, material tracking and passports – clients and designers still see circularity as a nice-to-have, a virtuous marketing exercise rather than a commercial imperative.

While circularity is, of course, about waste reduction and recycling, it is misconceptions around these concepts that often drives the lack of broader understanding. Circularity is about seeing the value of materials stored in buildings and infrastructure as something that can be extracted at the end of a lifecycle and reimagined, rather than wasted.

It can be useful to consider circularity as a risk mitigation measure. As global supply chains become more fragile due to climate change, disruption from conflict and political instability, the value of the materials tied up in existing building stock should increase; they can be treated as a bank of resources ready for use. These materials are already right there in front of us – so the economic value of programme certainty alone should offset the investment in circular supply chains.

While circularity might make perfect sense as a concept, we lack the data as an industry to prove that it can be used at scale. It is often dismissed by industry leaders as too difficult, potentially more expensive than using virgin materials, harder to scale or insure, and even a "hippy" concept that strays too far from traditional capitalism.

Buildings as banks of materials

If you look at the buildings in front of you as a bank of materials, you have cost certainty and surety of supply. You can assess those materials, measure them, and recondition if necessary. The value and potential are sitting right there. As an industry, we have a commercial imperative to learn how to capitalise on the stuff that is already in front of us.

The industry is dragging its feet because circularity seems like an airy-fairy concept rather than a commercial necessity that is going to help construction and real estate to manage a supply chain of future materials. And yet there are acres of industrial property in this country that we could be using for remanufacturing processes. We should be licensing products to be remanufactured and repaired over and over.

> "There are acres of industrial property that we could be using for remanufacturing processes. We should be licensing products to be remanufactured and repaired over and over

Insurance and warranties should apply to materials and products that can be reused. Technically these are all things within our gift. During the demolition process, valuable resources end up as landfill because it is cheaper than finding a way to repurpose them and extract their value. The key to solving this problem at scale is knowing what resources we have where, and how to go about reusing them.

So, how do we do this? The key is to capture data in a way that will be accessible at the end of a building or piece of infrastructure's lifecycle, even if that is well into the future. Digital twinning, for example, has been used on landmark projects such as the Shard, Crossrail and Heathrow Terminal 5.

Digital twinning uses BIM and 3D AutoCAD to create a model of a building's infrastructure and its materials so that all elements can be catalogued for future reuse. Such models are obviously helpful for maintenance too, but if we had a centralised process where materials within buildings could be counted and valued as an asset class, the potential is huge.

There are other potential benefits to standardising how we collect data and keep that digital information about what we design and build, too. As well as government targets on carbon emissions, there is biodiversity: the less we extract raw materials from nature, and the more we reuse and harvest materials from the existing built environment, the better.

Indemnity for scale

The insurance industry has a massive opportunity to foster integrating circularity principles in construction and real estate. One of the biggest blockers to scalable circularity is indemnity. If it is not insurable, risk-averse clients are not likely to go for it. There are small areas of construction already getting circularity

Case study: UKGBC circular steel initiative

The UKGBC circular steel initiative has brought together stakeholders across the value chain to iron out the blockers and challenges of reusing structural steel.

Steel is particularly suited to reuse and recycling because it is a high carbon material that often lasts well beyond the 60-year design life of a structure and is subject to supply issues and price fluctuations. Encouraging reuse over recycling can lead to carbon reductions when assessing a project's LCCA (lifecycle cost analysis) or LCA (lifecycle assessment) impact.

The steel industry globally is responsible for 7% of all human-caused carbon emissions. In the UK, steel accounts for 14.2% of greenhouse gas emissions from manufacturing and 2.4% of total greenhouse gas emissions. When buildings and infrastructure are dismantled, 99% of all UK structural steel sections are recovered, with 86% sent for recycling and 13% for reuse.

The reason the UKGBC circular steel initiative works at scale is that it brings together insurers, designers, clients, recyclers and other parties that are all traditionally risk-averse. It is of course relatively simple to apply such an idea to a single material, but it is also a potential starting point for broader application – what we learn from it can be applied to more multi-component products later.

In addition, the British Constructional Steelwork Association (BCSA) has produced a decarbonisation roadmap for 2050, showing how the circular economy can help to reduce the carbon impact of structural steel production by 15%.

right, such as refurbishment and fit-out. But if you want to bring in the bigger players, then insurance is one of the core stepping stones to making sure that it can be rolled out at scale. A large part of the conversation that clients are having about circularity is around scale. They are asking: can we do this across an entire portfolio? The construction industry needs to talk to the insurance industry about circularity so the answer to that question can be yes.

> “A large part of the conversation that clients are having about circularity is around scale. They are asking: can we do this across an entire portfolio?

The changing regulatory landscape

The UK government and regulators have been proactive in promoting ESG transparency and accountability. For instance, the Financial Conduct Authority (FCA) introduced new rules requiring premium-listed companies to make climate risk disclosures in line with the Task Force on Climate-related Financial Disclosures. The UK is also working on implementing mandatory climate risk disclosures for large companies and financial institutions by 2025.

Nevertheless, there has to be a way to make the industry work collaboratively. Our expert panel agreed that the biggest challenge to achieving this is changing the industry mindset. It needs to see sustainability as a real commercial imperative rather than a virtue-signalling marketing exercise. To facilitate this, clear government direction and a joined-up approach at policy level are critical.

One of the difficulties highlighted in this research is that the industry has historically been a very competitive space, and by its nature sustainability must be collaborative. Bringing the big players together will take work, time and investment. Embracing circularity requires not only a shift in approach, but new technology, too. The innovations needed to develop the frameworks for circularity to work at scale require too much time and resources for one industry player to take on. If the industry shares that load, it can cement its bonds and shared objectives over the long term.

One suggestion for a radical approach from the government is to introduce a sustainability levy, similar to the apprenticeship levy. Money for innovation and collaboration would go into a fund so that it can be used to foster education and technological innovations from which we can all benefit.

Simon Wyatt, partner at Cundall, pointed out that government action is essential. “We’re not going to back out of 2050… We were gaining traction in this area before Brexit. The Conservative government was the first to declare a climate emergency and set a zero carbon agenda. Since then we’ve basically had eight years of political vacuum and non-engagement.

“In that time the industry has actually come together and pulled quite a lot of the necessary data and solutions together, but it needs government support to roll it out across the industry. The political vacuum is being partially filled by the commercial finance sector and the global financial regulations, but we need greater engagement from the government,” he says.

Frameworks

Data is central to sustainability, but we must clarify how objectives are being measured and who is responsible for them. Is it the owner of the building or the contractor? Lifecycle cost analysis (LCCA) is the process for evaluating an asset’s total financial cost over its service life, whereas lifecycle assessment (LCA) examines the carbon impact from resource extraction to its disposal – from “cradle to grave”. Both frameworks are useful, but LCCAs are seen as important from a financial services viewpoint too because they examine a building’s impact as a functioning asset over the longer term.

Our expert panel expressed concerns over how LCAs are filled out, with a consensus that two sustainability professionals could each fill out an LCA for the same building and come up with entirely different costs and sustainability interpretations, depending on the available data and the client’s intentions. While frameworks are useful, it is clear the industry as a whole needs to have more compelling shared metrics which are comparable.

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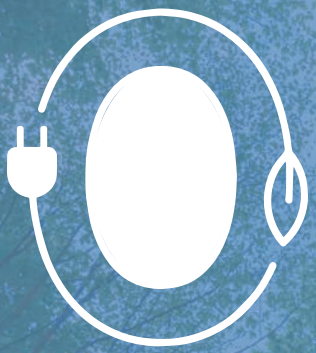
Part 3: Balancing upfront costs with lifecycle benefits



How do decision-makers in the UK built environment industry assess the trade-offs between upfront costs associated with carbon reduction measures and the long-term lifecycle benefits? Of course it is possible to look at costs versus emissions, to balance LCAs and LCCAs, and work out if a more environmentally friendly building costs more in the long term.

However, the consensus from industry players is that the fundamental frameworks for deciding the value of sustainability in pounds and pence per square foot do not easily equate to margins and asset value. Until we reframe sustainability value from a holistic, industry-wide viewpoint, it will fail to be prioritised.

To foster a joined-up, cross-industry approach that results in systemic change, there needs to be a clear regulatory and business imperative. The feeling is that where something is non-negotiable, businesses will find a way to turn a profit from it. Until that point, it will be too easily shelved.

For example, exploring and implementing concepts such as circularity can seem costly, with no demonstrable or meaningful return on investment. When times are tough, these concepts fall by the wayside and the industry reverts to greenwashing exercises.

"Sustainability doesn't fit neatly within the financial structures we have created," said Earth Ethos's Georgia Elliott-Smith. "We're trying to shoehorn it into KPIs like the value of carbon saved per square foot. But this doesn't work."

Data and education

There was agreement among the panel that in order to be successful, sustainability cannot sit only in the hands of sustainability professionals. It has to be naturally integrated into other

> "To foster a joined-up, cross-industry approach that results in systemic change, there needs to be a clear regulatory and business imperative

decision-makers' roles. While data and reporting models might be valuable, our experts agreed there are so many reports that sustainability professionals barely have enough time to read, understand and actually act on them.

They agreed that while written reports are valuable, real in-person conversations across industry are the best way to further education and understanding of the decision-making and challenges around carbon.

Our experts suggested an industry-wide process of education that would take knowledge into the wider teams within industry. Such courses would be tailored to specific roles, from structural engineers to project directors and cost planners. These programmes would need to be interactive, so that people can talk and react to progress and share ideas.

There is already some funding available for work like this. The Department for Energy Security and Net Zero has allocated up to £17m for a Public Sector Low Carbon Skills Fund to provide grants for public sector organisations to engage the specialist advice and skills required to create a robust heat decarbonisation plan or for detailed designs to prepare for this and other energy efficiency works.

"Our civil servants and policy-makers are trapped in perpetual popularity contests. They need to know that there is support, there is energy and momentum within our sectors, to make the kind of radical changes that we need. They need to hear it from us – and not just once, but over and over again," said Elliott-Smith.

Balancing costs and benefits

The panel agreed that the industry needs to think about the true value of sustainability to the client (or the client's client). Developers have been responding recently to institutional investors, and considering ways they can demonstrate the sustainability credentials of any asset in their funds.

There is a huge global movement in the financial markets to put a value on sustainability and also to bake it into pricing. When financial institutions are looking at due diligence for acquisitions, they are pricing in what it would take to make an asset compliant with EU taxonomy or Securities Financing Transactions Regulation requirements.

If all the heating systems have to be replaced to decarbonise it, then that comes off the value of the asset and adds a significant cost on to the deal. As a result, the sector is starting to see a shift in focus, but the panel said this is so far heavily led by the commercial sector.

> "There is a huge global movement in the financial markets to put a value on sustainability and also to bake it into pricing

Of course, in the public sector it is harder to demonstrate the added value of sustainability. At the moment, financial regulations are driving the sector forward quite hard in the commercial sector, but the rest of the market relies on government focus.

There is a feeling that European finance is heavily influenced by ESG but in America progressive funds are a bit more varied, with the definition of value moving away from simply capital costs to something wider. This might include things like social impact and wellbeing, and trying to put some clear metrics around it. If we are establishing the value of sustainability as an industry, we can be very focused – and not simply on carbon, but on putting some clear, tangible metrics around holistic sustainability.

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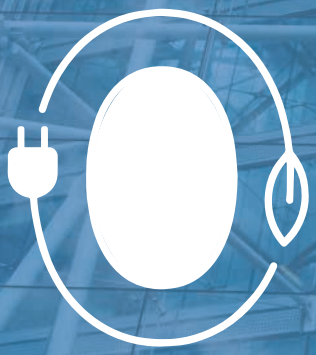
Recommendations



1. Government-led shared objectives to reflect an industry-wide consensus
With the new Labour government's manifesto objective of turning Britain into a green energy superpower comes an expectation of renewed focus and unity of objective. The industry needs to get behind its shared objectives just as it did with health and safety in the 1990s.

2. Open access and shared resources to help solve broader problems
The problems of climate change are too big for one business (however large or powerful) to solve alone. Although this is a competitive industry, joining forces – with government backing – is an opportunity to share the cost of innovation and make solutions more profitable.

3. Greater education on sustainability at all levels of the sector
While there is complexity in getting sustainability right and we need trained professionals, this cannot be left solely in the hands of sustainability professionals. It must transcend job titles, and all areas of the industry must have training on how best to approach it and the trickle-down effects of ignoring it for profit or habit reasons.

4. Treat buildings like banks
There is huge potential and value in our existing real estate stock. Rather than prioritising the import and creation of virgin materials, we need to prioritise using what we already have and understanding where it is. Again, this relies on industry-wide shared metrics to provide transparency over what we have and where to find it.

5. The insurance industry to get on board with circularity
Unless it becomes possible to indemnify reused materials, the circularity concept will never be adopted by large clients which work at scales that demand significant insurance and warranties. It is the role of the construction industry to petition for this change.

6. Valuing sustainability not only in pounds and pence
Making sustainability a priority is buffeting against the financial priorities natural to any capitalist economy. While we can come up with cost-benefit exercises in various formats, the bottom line is that sustainability usually costs more upfront and that makes it easy to deprioritise. We need to think about the value that sustainability brings in terms of heading off future risk, as well as other metrics attractive both to investors and to clients over the longer term.

7. No more Mr Nice Sustainability
The perception that sustainability is a marketing exercise and a "nice to have" rather than a commercial imperative must change.

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