BUILDING A GREENER FUTURE:
THE ROLE OF AI, DATA AND PROPTECH IN DECARBONISING THE BUILT ENVIRONMENT

A summary of a British Property Federation (BPF) and UK PropTech Association (UKPA) roundtable, in association with Greengage Environmental.

The hype around Artificial Intelligence (AI) sparked by the launch of ChatGPT in November 2022 generated much greater global interest compared to previous technology innovations such as Blockchain, tokenisation (Bitcoin), and the 'Metaverse', and has had a major impact in real estate.

This wave of interest provided the context for the first BPF and UKPA sustainability 'Techfast' - a breakfast discussion (at the BPF on 18 April 2024) on how technology is helping deliver a more sustainable built environment. This is the first of four planned by the BPF and UKPA.

AI is being put through its paces in the race to net zero and is of growing interest to investors, occupiers, developers, and portfolio managers seeking to strengthen sustainability credentials and accelerate decarbonisation of buildings.

20 attendees including building owners, developers, managers and software developers, venture capitalists, consultants, enthusiastically shared their experiences of the opportunities and challenges posed by technology, such as building management software (BMS), and of the impact of AI on daily real estate tasks.

PI Labs' research director Luke Graham presented PI's latest report Sustainability Intelligent. This plots seven 'environmental AI use cases' along the real estate chain setting out a detailed list at each stage of activity where AI is being applied.

According to the research, the potential impact of applying AI in just four of these activities – site supply and acquisition; construction; asset management and occupation; end-of-life/retrofit – could save enough greenhouse gas emissions (6.46 gigatonnes) 'to offset the entire annual carbon footprint of the United States', said Graham.

It is this enormous potential for reducing real estate's environmental impact that is driving the surge in collaboration between PropTech companies and property professionals that was evident in the room.

A key question for the industry, Graham observed, is whether to develop your own 'DIY' software or use external solutions provided by consultants. Real estate companies are small by comparison with tech giants, who have access to large venture capital resources, and may find themselves conflicted by the 'originator's dilemma' of not being able to partake in tech companies' innovations.

Some property-owner attendees reported operational reductions of up to 20% in energy use from heating, ventilation and air-con (HVAC) systems by utilising energy optimisation software that connects with these systems. But the complexity of co-ordinating data and solutions across a portfolio of buildings to obtain a clear overview of performance is a core problem. Differing ages of buildings, of systems, and non-standardised data all increase complexity, making it difficult to share information. Occupiers can also complicate the picture with some tenants customising systems to suit themselves.

How can PropTech help address the need to retrofit portfolios, particularly historic properties where highly individual applications and human inspections are needed to determine and apply solutions? PropTech solutions are now making it possible to access more granular detail about building materials and infrastructure, and model potential retrofit solutions to assess viability and cost implications. However, this is only possible with better building data.

Datasets across portfolios can be out of date and expensive to update. Without access to accurate, regular, granular energy data, the ability to measure, manage and improve efficiency is tough. The real estate industry must adapt rapidly and radically for this to change, it was felt. Not least by being more collaborative. There was a 'big problem' with 'visibility of data' across the industry.

Major buildings especially are delivered and managed by 'hundreds of individuals' making it hard to ensure 'buildings end up as specified'. Like the financial industry's use of standard accounting practices and audit rules, similar protocols are needed for measuring sustainability. The developing UK Net Zero Carbon Building Standard should deliver a more standard approach to how we understand and define net zero buildings.

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A common data model to enable mapping across different systems was desirable to enable aggregation, built from 'granular' data into a portfolio picture. Full time data managers are needed for larger portfolios, to achieve any reliable 'global picture'. But the shortage of tech skills in the industry was noted – so any help AI can offer in standard tasks was vital.

And is such data 'really commercial sensitive?' Some building owners, investors, and occupiers clearly think so. And that owners and occupiers are highly sensitive to it.

Sustainability consultant Greengage spoke about software that uses data-mining techniques and energy plus to create a dynamic virtual replica of properties and how this tool was helping owners understand the performance of large portfolios where there was little access to asset-level data. They also spoke about how some co-working spaces were using PropTech solutions and highlighted an example where heat-mapping was being used to understand heat distribution within shared working spaces. This data was shared via dashboards to help occupiers find those spaces with the right level of thermal comfort leading to increased occupant satisfaction.

Some attendees noted particular challenges with industrial and retail sites where BMS were absent and there was still 'huge' energy wastage in buildings with such systems. Human technical knowledge was required to understand both data and to design and implement physical and tech solutions. It was essential not to 'lose data when changing buildings managers' and equally essential to be able to see 'how a building has been running' to find answers.

Attendees hoped the BPF would campaign to accelerate the use of PropTech, to influence policy makers to overcome any regulatory blockers and champion the use of technology and innovation to help BPF members navigate the PropTech market.

Concluding Sammy Pahal MD of the UKPA said, 'we are working with members to get case studies out there' and to understand 'exactly what works'. Efforts were also being made, she said, to understand what the industry needed from PropTech companies, and vice versa, to make collaboration easier.

The next BPF/UKPA techfast can be found here.
The full programme of techfasts can be found here.

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