About the Project

This project is a sub-set of another larger TSB funded endeavour ‘CarbonBuzz’, an online platform updated by the construction industry that confirmed the performance gap between buildings’ design-stage carbon emission predictions and their actual output. The consortium led by Aedas also includes AECOM (including Davis Langdon), Building Research Establishment (BRE) and Chartered Institution of Building Services Engineers (CIBSE).

Looking at captured metadata factors such as type of building, use, purpose, heating systems and occupancy establishes the effects that specific factors and their inter-relationships have on a building's carbon emission predictions. Such predictions are made during the design phase, often as part of compliance calculations. What CarbonBuzz established is that substantial performance gaps exist between compliance calculations and what occupied buildings actually use. A building can use many times more energy than estimated and this is a problem; not only for the building's occupiers who face the additional energy costs, but also in terms of risks of investing in low carbon solutions that only examine part of the picture. No wonder as a nation we are failing to meet construction carbon emission targets. Regulatory targets are based on predicted use, instead of actual use, so responsibility rests with designers. It stands to reason that more accurate benchmarking tools are needed.

The aim of this current project is to create a tool that sits on the CarbonBuzz platform and gauges how accurate the prediction tools are. This will allow more precise estimates to be made, enabling designers to fulfill their compliance obligations, while helping the construction industry nationally to achieve Government-set emissions targets.

“As a newcomer to the TSB's funding process, attending the Creative Industries KTN event and discussing our idea was really helpful for me in figuring out how our project could fit into the scope of the Metadata funding call.”

Jamie Bull, UCL Researcher Aedas

Benefits of Funding

The funding will allow the consortium to formalise the current picture, enabling hypotheses to be developed and tested about existing ways of predicting carbon emissions. Analysis on data collected from both CarbonBuzz and the TSB Building Performance Evaluation Programme (a wide study across various sectors over 2 years) will be conducted to create a model for how design and prediction methods could be improved.

The exploitation plan includes feeding some percentage of the project's profits back into the non-profit making CarbonBuzz in order to maintain the in-flow of needed data. It will also enable the team to run workshops to engage with other stakeholders such as the Carbon Trust and owners of large building portfolios, such as developers and local authorities, to gain critical insights and opinions on how best to manage carbon emissions.

Results

The consortium hopes to work on approximately 1,000 fee-paying projects per year – helping to improve predictions and thus de-risk builds by using benchmarking. This project sets out to adhere to the topical principle of the Triple Bottom-line Agenda, in that not only will it surely be ‘profitable’ but will also help ensure a sustainable future both for ‘people’ and ‘planet’.

Fast Facts

Sectors: Architecture, Construction
Funding Source: TSB ‘Metadata Production Tools’ Mainstream
Total Project Value: £257k
Duration: Dec 2011 – Oct 2013
Market Impact: Estimated 1,000 fee-paying projects per year and helping to ensure a sustainable future.
Creative Industries KTN input: Aedas attended PFI to assist them in making their proposal to the TSB.

http://creativeindustriesktn.org