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SGBCCommunity Showcase

The SGBCCommunity Showcase series highlights what sustainability means to SGBC Members and how they are helping to build a greener and healthier built environment.



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How is the company helping to build greener buildings?

Tectus Group, a family-owned multinational operating in diverse industries globally, has a particular focus on embodied Carbon within its construction, real estate and specialised engineering and inspection businesses.

Our mission is to protect, maintain and responsibly grow the built world using technology. By adopting a holistic view on the emissions impact of asset lifecycles, we contribute to minimising embodied carbon through employing CO₂-efficient construction methods, promoting the use of maintenance, repair and retrofit technologies and enabling stakeholders to proactively inspect, monitor and maintain structures to maximise longevity, asset health and Net Present Value (NPV).

What drove the founders to set up the company?

Tectus set up the Carbon Initiative to promote the use of our CO₂ effective construction technologies, promote asset longevity and maintenance and the potential of innovation, digitisation and offsite construction/automation which all contribute to lowering embodied carbon.

Furthermore, Tectus is uniquely positioned to synergistically support the AEC ecosystem leveraging its 80-year history in construction & engineering alongside its pioneering and entrepreneurial spirit - through the BBR network offering leading certified post-tensioning systems applied extensively in the construction and maintenance of buildings and infrastructure globally, Moderna Homes who has pioneered high-rise modular construction in Singapore with steel hybrid modular construction techniques, and Screening Eagle Technologies promoting asset efficiency and longevity through sensors, software and data for digitalised asset condition monitoring and preventive maintenance.

What is the biggest challenge the company has faced? Are there any learning points for the rest of the industry?

Major transformations including decarbonisation and digitisation take time, not least in the highly fragmented and regulated construction market which can be a laggard in adopting new technology and business model paradigms.

We have learnt that promoting a lifetime view of assets and understanding both the regulatory and financial imperative as well as the value generation opportunities help all the players in the value chain pull in the same direction, and that financial and sustainability impact can be maximised when engaging at the earliest stages of asset planning and decision making.

What do you think can be done to move the needle on built environment sustainability?

To support the industry transformation and engagement process described, it is vital to overcome on the one hand skepticism and on the other lack of reliable data to support decision making. Through our partnership with local decarbonisation experts Terrascope, we have gone very deep in the comparative analysis of specific innovative technologies versus traditional building methods.

For example:

1. A study on post-tensioning technology revealed a substantial 50%+ reduction in CO₂ emissions versus conventional construction techniques, growing to 73% when combined with recycled materials.
2. A second study delved into Prefabricated Prefinished Volumetric Construction (PPVC) modules. The findings indicated that Steel-Hybrid PPVC technology could reduce emissions by a significant 61% in contrast to Reinforced Concrete PPVC modules in combination with recycled materials.

Similarly, with our Screening Eagle products, we leverage a digital-first, connected tech approach, combining intuitive software and powerful portable sensors to deliver reliable data for construction and asset maintenance decisions. Through more efficient condition assessment through real time analytics and collaboration, we can help asset owners deliver longevity & NPV for through data intelligence.

How does the future of our built environment look like to you?

We believe the future of the built environment must become more sustainable and efficient through the simultaneous leveraging of sustainable design, material improvements, and productivity driven by efficient, automated and digitized processes and products. Digitisation and automation, driven by advances in artificial intelligence and robotics, will not only address the perennial issue of labor shortages but also pave the way for faster, higher quality builds.

As well as combining innovation and sustainability, there is a mindset shift that is already underway to rethink how to utilise and extend the life of our rapidly aging infrastructure stock. Renovation and rejuvenation will take center stage as we leverage technology not just for new builds but also for the preservation and enhancement of existing structures. Adaptive reuse and retrofitting will become integral components of a holistic strategy, ensuring that our built heritage remains resilient and functional in the face of evolving needs.

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As one of the most important CO2 intensive industries that also underpins the neural network of our everyday economy, it is the collective responsibility of the construction ecosystem to embrace and accelerate these transformative shifts, ushering in an era where construction is not just about erecting structures but about cultivating smart, sustainable and, resilient urban landscapes.

What's next for the company?

For Tectus, we will continue to expand our Carbon Initiative on several fronts. One is to further drive our portfolio innovation with technical and business model innovations to better meet the needs of our customers and the demands of the environment and legislation.

A second is to extend the reach of our portfolio through geographic expansion as well as strategic partnerships with key players in the industry with similar goals and complementary technology or footprint. Strengthening the link between digital first inspection technologies, smart monitoring and maintenance decisions, and delivering best-in-class solutions for asset conservation including repair and retrofit is one important example. At the same time, we look forward to continuing to learn from and educate the market through extending our comparative carbon quantification, demystify advanced construction practices, and continuing to champion the role of embodied carbon in achieving the world's decarbonisation targets.