

ESG IMPACT

Driving ESG outcomes in the built environment through innovation and technology

July - December 2022

Powered by



REALTECHX

Supported by



TARONGA
VENTURES



\$5.2

USD trillion

required over next
decade to decarbonise
the built environment
and green real estate.

Source: McKinsey

Innovation for a better world

Our climate is undeniably changing, with environmental catastrophes becoming increasingly frequent and severe. Being responsible for 37% of total global carbon emissions, the real estate sector must do more to reduce its negative environmental impact on the planet. These changing conditions have taken their toll on occupants, tenants, and communities and in this environment, all asset owners need to apply new and innovative strategies to enhance the cultural, commercial, security, and social functions of the assets in which we live, work and play.

Global real estate corporates and institutional asset owners have started to recognise and prioritise these issues, and have placed improving Environmental, Social and Governance (ESG) performance at the core of their corporate agendas. While most corporates have taken early steps to embark on their journeys, market leaders are now looking to double down on their initiatives to accelerate both financial and non-financial outcomes.

Implementation remains the key challenge for many real estate groups.

At Taronga Ventures, we believe that innovation offers a clear path to delivering stronger ESG results. We invest into market leading and scalable emerging technologies that have the ability to positively impact the portfolios of our investor partners.

Through the Advisory and RealTechX - our global innovation platform – we have been able to empower leading real estate institutions to become more effective adopters of innovation and technology. The platform sits alongside our funds to amplify the opportunities for innovation implementation across our partner network.

With this incredible group of 12 global emerging technology companies, we look forward to driving further positive impact with our corporate partners and driving sector-wide ESG outcomes for many years to come.


Sincerely,



Avi Naidu
Managing Partner,
Taronga Ventures



Jonathan Hannam
Managing Partner,
Taronga Ventures



Real estate generates

37%

of total global
carbon emissions

Source: United Nations Environment Programme, 2021



Welcome to our ESG Impact community

To our founders, partners and industry supporters,

We are pleased to welcome you to the ESG Impact innovation program for 2022.

Our RealTechX team has successfully delivered three innovation programs, supporting 15 corporate partners and 33 emerging technology companies to deliver world-class innovation projects. Over the past three years, dozens of projects have been delivered around the world, accelerating the growth of our participants and driving tangible impact through innovation for our partners.

Historically, RealTechX has sought to address the real estate sector's greatest challenges and, with real estate owners, investors, and tenants increasingly demanding better ESG performance, this has organically led to over 80% of past participants addressing either an environmental, social or governance problem.

For 2022 and 2023, RealTechX has chosen to theme this innovation program "ESG Impact" and focus purely on environmental, social and governance related technologies and innovations.

Our vision is to create a global network of entrepreneurs, innovators and industry leaders that collectively drives toward improving the real estate sector's innovation capabilities and sustainability outcomes. The success of our community comes from all stakeholders generously sharing insights, learnings and ambitions. We look forward to continue inspiring thought leadership and best practice amongst our network.

We are proud to announce the 12 outstanding technology businesses that are participating in the ESG Impact program for 2022. These solutions were selected from a large applicant pool of more than 220 companies from more than 30 countries, based on their ability to deliver meaningful ESG impacts to our partnered corporates.

We encourage you to engage with these 12 global program participants and explore how they can help your organisation drive towards greater ESG outcomes.

Warm regards,



Julian Kezelman
Program Director,
ESG Impact



Dwayne Kaan
Program Manager,
ESG Impact



Chanelle Tan
Marketing & Community Manager,
Taronga Ventures

ESG Impact Partner Network



CBRE

dexus



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Real estate assets by definition cannot be moved. As such, we are exposed to significant changes like social trends, environmental changes, policy patterns – innovation is essential for us to be able to navigate those changes and adapt our portfolio and future-proof our assets.

Stéphane Villemain

Vice President – Corporate
Social Responsibility
Ivanhoé Cambridge

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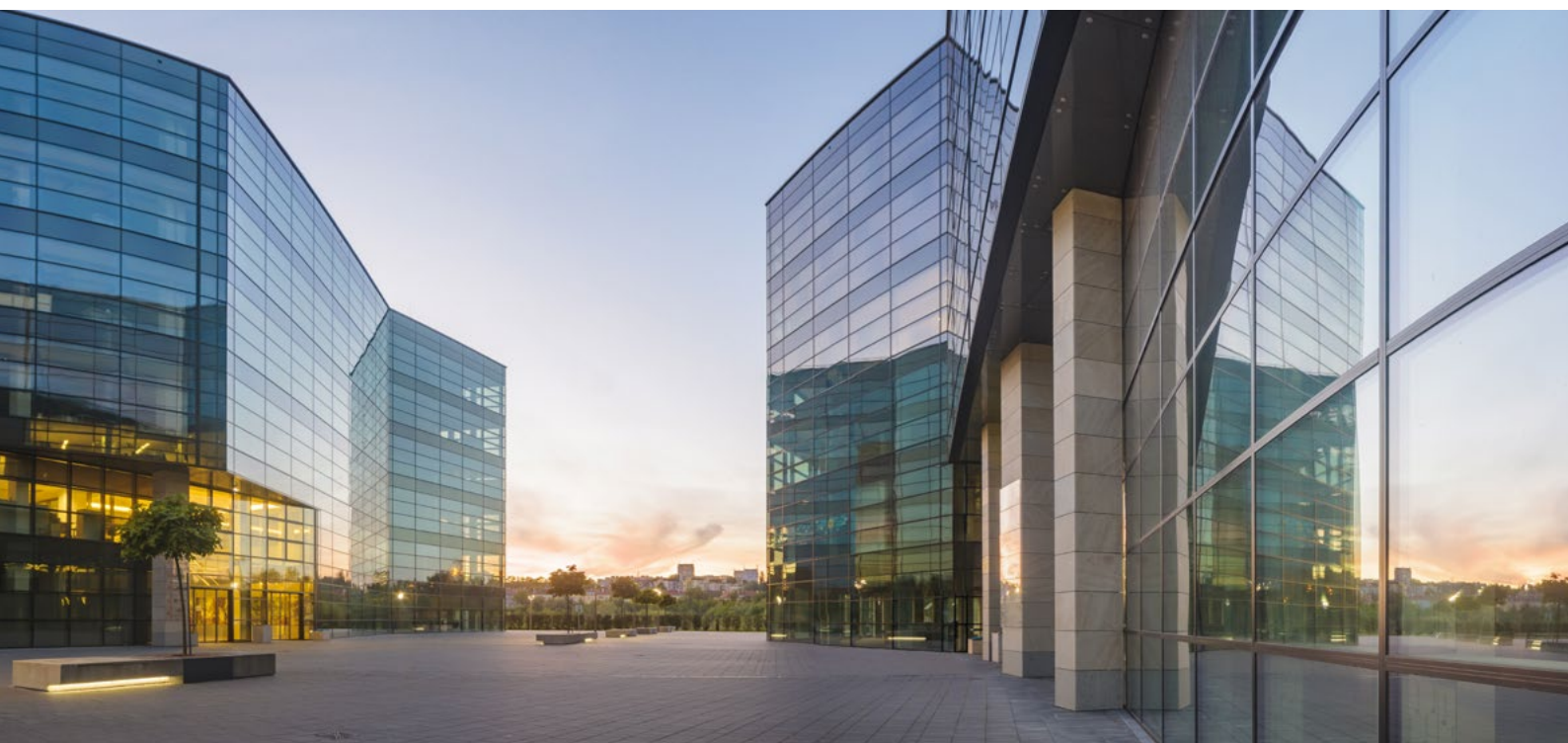
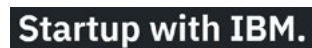


Supporting Partners

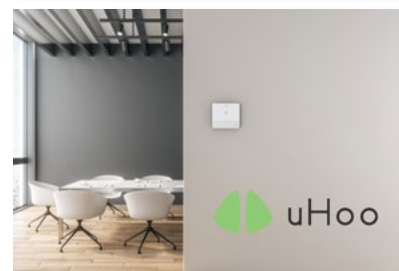
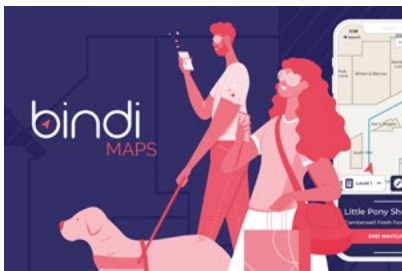
Supporting Organisations



Technology Partners



ESG Impact Participants for 2022



Innovation and technology will play a huge role in PGIM's ESG objectives going forwards. As an industry, we have 53% of carbon issues around buildings unanswered, with retrofitting reducing by 36% and the move to renewables leading to a further reduction of 11%. We have a long way to go to reduce to net zero and technology has to be the solution behind much of the reduction that we need.

Julie Townsend

Vice President - ESG Lead for Europe and Asia Pacific
PGIM Real Estate



Website: alveole.buzz | **HQ:** Montréal, Canada | **LinkedIn:** [Alvéole](#) | **Twitter:** [@alveolebuzz](#)

Alvéole

Alvéole, the urban beekeeping company, helps companies transform their property into bee-friendly spaces. Our turnkey service increases engagement and sustainability within real estate assets to drive better wellness and biodiversity outcomes.

Problem

Asset owners seek innovative solutions for tenant engagement, sustainability programs, and underutilised spaces.

Asset owners are looking for innovative ways to engage with tenants about ESG-specific issues, in particular biodiversity, and report on their environmental impact through quantitative data. In addition, pollinator loss is advancing rapidly and represents a significant risk to corporate and financial stability, yet owners are finding it challenging to monitor and track risks.

Solution

Honey bee hive and bee hotel installations provide an educational experience and environmental impact data.

The urban beekeeping program includes hive and bee hotel installation and maintenance, optimising underused spaces in assets and helping asset owners score points for green building certifications such as LEED and BREEAM.

An interactive online platform provides educational content and real-time updates on the bees, as well as social and environmental reporting data, including bee health and plant diversity around assets.

Alvéole's service includes team-building activities to raise awareness about important topics such as biodiversity.

Meet the Team



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Impact

2,000+ buildings
with beekeeping programs

4,000+ beehives installed

130 million bees

350,000+ people reached



Website: ampd.energy | **HQ:** Hong Kong | **LinkedIn:** [Ampd Energy](https://www.linkedin.com/company/ampd-energy)

Ampd

Ampd Energy exists to create an emission free future for construction and sees electrification and connectivity as a key part of the transformation. The company pioneered the use of energy storage systems to power construction projects, with the aim of displacing the carbon intensive, polluting, noisy and operationally inefficient fossil-fuel generators that are often used in the industry.

Problem

Construction sites often require carbon intensive and operationally inefficient fossil-fuel machinery.

The world is urbanising faster than ever and this is a major driver for the construction industry. The construction industry today often relies on machines which burn fossil fuels, resulting in a high carbon footprint, air pollution, noise and a need for significant labour. Developers, contractors and regulators are seeking lower carbon, cleaner, quieter, digitalised solutions to power construction sites.

Solution

Mobile, industrial scale batteries which are designed to power construction sites.

Ampd has created the 'Enertainer', an energy storage system to power construction sites without the use of fossil fuels. The Enertainer contains 30,000 automotive grade battery cells, designed into fire and explosion-proof battery modules driven by high performance power electronics. A key differentiator is the deep integration of hardware, software and data enabling operations with near zero human intervention and greater energy throughput with less hardware.

Meet the Team



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Impact

13,606 tonnes
CO2 reduced to date

250 million tonnes per
year CO2 reduction potential

Air quality impact equivalent
to removing **28,000** cars

55 million data points on
construction site power & energy

Bardee

Bardee is reshaping the global food system. We transform food waste into protein and fertiliser using insects to support a carbon positive future for agriculture and the built environment.

Problem

One-third of food today is wasted with every tonne emitting 1.9 tonnes of carbon dioxide equivalent.

Most of the wasted food ends up in landfill, producing large amounts of methane, a greenhouse gas 30 times more potent than carbon dioxide. Asset owners and tenants need a better solution to process food waste to reduce their greenhouse gas emissions.

In addition, food production must double by 2050 to keep up with global demand, necessitating a transformation of the global food system to be more sustainable and circular.

Solution

Bardee diverts food waste from landfill to produce sustainable animal feed and fertiliser.

Black soldier fly larvae are at the heart of our solution. Food waste from real estate assets is first sorted and processed to create the ideal diet for insect larvae. Once the food waste has been processed, the biomass of the insects is used as an ingredient for animal feed and the insect frass (manure) becomes a nutrient-rich organic plant fertiliser.

Meet the Team



Phoebe Gardner

Co-founder

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Alex Arnold

Co-founder

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Impact

1.9 tonnes of carbon offset for every 1 tonne of food waste

Diverts 10 tonnes of food waste every 8 hours (at current capacity)

Offsets 15 kilograms of CO₂ per kg of insect protein produced

Offsets 5 kilograms of CO₂ per kg of plant fertiliser produced



BindiMaps

BindiMaps helps anyone and everyone navigate an unfamiliar indoor space. While BindiMaps provides convenience for able bodied users, it is life-changing for those with accessibility needs. BindiMaps has functionality to assist in navigation for those with vision impairment, those who prefer wheelchair-accessible routing, and those requiring sensory sensitivity mapping.

Problem

Real estate assets are not easily navigated by guests and occupants with accessibility needs.

Our public spaces and buildings are getting more and more complicated, making them increasingly difficult to navigate. These difficulties are further increased for visitors with accessibility needs. While assets are taking steps to improve accessibility, such as wheelchair ramps and Braille signage, these are not wayfinding solutions. The next time you see a Braille sign in public, ask yourself – if you were blind, how would you know that the sign was there?

Solution

BindiMaps is a mobile app that helps anyone and everyone navigate unfamiliar indoor spaces.

BindiMaps is a mobile app that locates users precisely in indoor spaces. Wayfinding is adaptable for differing abilities: there is a map view for those who can see, and a simple, natural language audio system for those who cannot. The app also features options to choose wheelchair accessible routes, and sensory sensitivities routing options for those on the autism spectrum.

We empower people with accessibility needs to navigate with ease. BindiMaps helps remove barriers to mobility, which assists with employment, independence and engagement with the whole community.

Meet the Team



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Impact

16 million+ sqm of indoor and outdoor spaces mapped

Removes barriers to mobility, which assists with employment, independence and engagement with the community

Enables people to **navigate with confidence and independence** as they move through unfamiliar and complex indoor spaces



Website: carboncure.com | **HQ:** Halifax, Canada | **LinkedIn:** [CarbonCure Technologies](https://www.linkedin.com/company/carboncure) | **Twitter:** [@carboncure](https://twitter.com/carboncure)

CarbonCure

CarbonCure offers a technology for the concrete industry that introduces recycled CO₂ into fresh concrete to reduce its carbon footprint without compromising performance.

Problem

Concrete is the largest contributor to embodied carbon in the built environment.

Buildings produce 37% of the world's carbon emissions, with almost 20% of this from concrete alone, given that it is the most abundant material in construction.

As building stock is expected to double by 2060, innovation is needed to reduce the footprint of concrete.

Solution

Innovation that enables the production of the same reliable concrete but with a reduced carbon footprint.

CarbonCure's technology injects a precise dosage of carbon dioxide (CO₂) into concrete during mixing where it mineralizes, improving concrete's compressive strength. This enables producers to safely reduce cement content in their mixes and achieve carbon reductions without compromising quality.

The solution is easily implementable and can be retrofit into any concrete plant, helping to decrease costs and improve business operations without significant capital investment.

Meet the Team



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Impact

5-7% reduction in carbon emissions with pathway to ~20% reductions in next generation solution

4-6% reduction to Global Warming Potential (GWP)

180,000+ tonnes of CO₂ saved

2.8 million truckloads delivered



Website: globechain.com | **HQ:** London, UK | **LinkedIn:** [Globechain](https://www.linkedin.com/company/globechain) | **Twitter:** [@globechain](https://twitter.com/globechain)

Globechain

Globechain is the leading construction and fit-out materials reuse marketplace connecting enterprises with non-profits, small businesses and people to redistribute unneeded items. They help corporates generate ESG data on their impact, reduce waste costs and achieve their sustainability and UN SDG targets.

Problem

Construction and fit-out materials are typically sent to landfill at the end of a project

Construction, real estate, and refurbishment projects often dispose of items (e.g. tiles, furniture, doors) that are still in good working condition. NGOs and SMEs globally need these items but, due to limited financial resources, are unable to procure them.

While this problem is well-known, there are few solutions that connect the parties. In addition, the logistics involved in the sharing of the items can be challenging for corporates and recipients to manage.

Solution

Materials ESG reuse marketplace that redistributes unneeded construction and refurbishment items globally to improve circularity

Globechain has created an online, circular materials and items marketplace connecting corporates, including builders, developers and facilities managers, with a global network of more than 10,000 non-profit and SME members. The solution can also be used as an internal reuse and lending marketplace to improve and achieve internal circularity.

The marketplace allows corporates to effortlessly manage and track their items, reduce costs, increase transparency and generate ESG data for reporting.

Meet the Team



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Impact

Over 58 million kgs
diverted from landfill

Over 5.5 million items
listed on the site with items
requested within 24 hours

Helped over 50 million people across the world, saving them £350 million through reuse



Measurabl

A meter-to-market ESG platform that automates the full scope of utility, physical climate risk, and other sustainability data, providing a centralised, global hub for real estate companies to track ESG performance.

Problem

It's difficult for real estate owners to manage ESG data.

ESG data collection, analysis, and reporting is a complex and tedious undertaking. There are an ever-increasing number of data types to collect, validate, and submit to comply with investor mandates and other regulations. To achieve ESG goals, performance must be driven at the asset level with operations teams and third-party providers.

Solution

Scalable technology that empowers owners to effectively measure, manage, and report ESG performance.

Measurabl is the world's most widely adopted ESG management solution for real estate. Customers use Measurabl to measure, manage, and report ESG data on more than 13 billion square feet of real estate across 91 countries. Measurabl's platform streamlines collection of bill, meter, and equipment data and automates data validation, completeness, and anomaly detection. Measurabl ensures data is timely, accurate, complete, and auditable. Measurabl also helps companies satisfy reporting requirements to disclosure frameworks like GRESB, CDP, and TCFD.

Meet the Team



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Courteney McDonnell

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Impact

+8 point average
improvement in GRESB score

82,000 buildings across 90 cities with **13 billion+ sq. ft.** of commercial property covered

Identify, implement, and verify energy and carbon reduction projects



Website: oneconcern.com | **HQ:** Menlo Park, USA | **LinkedIn:** [One Concern](#) | **Twitter:** [@oneconcerninc](#)

One Concern

One Concern has built a Digital Twin of the world around us, revealing hidden risks across the built and natural environments posed by

natural disasters, extreme weather, and climate change. Our Digital Twin enables customers to uncover direct structural risks to their buildings, as well as risks posed to the external networks they depend on.

Problem

Increasing climate risks are difficult to model, with respect to their physical, operational and financial impacts on asset portfolios.

As climate disasters become increasingly prevalent, real estate owners are looking to pre-empt, model and mitigate the impacts on their assets and the associated downtime. However, these risks are difficult to model effectively and few solutions are able to help owners develop effective adaptation and resilience strategies for their assets and portfolios.

Solution

Digital Twin of the physical world, revealing risks from natural disasters and climate change.

One Concern's solution leverages a range of collated data sources processed with machine learning and state-of-the-art resilience modelling to enable asset owners to understand natural disaster risks to their portfolios and develop adaptation and resilience strategies..

Features include downtime insights, stress testing and climate eye, as well as scoring for resilience, downtime, expected probability and expected financial loss.

Meet the Team



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Nnenna Nnoli
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Sean Rider
Chief Revenue Officer
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Impact

4 UN SDGS addressed

\$6 saved in damages and recovery for every dollar spent on disaster mitigation

Quantification and visualisation of **climate risks** to asset portfolios

Inform portfolio management, investment and development decisions with **forecast data**

SiteHive

SiteHive transforms how people manage environmental compliance in construction projects. We harness modern technology to provide software and monitoring devices that are not only easy to use, but deliver dramatic time and cost savings.

Problem

Environmental monitoring at construction sites is typically manual, expensive and reactive and retroactive.

Construction projects must manage environmental impacts including noise, dust, air quality, water and vibration, and provide regular and detailed reporting to regulators, stakeholders and the community. Compliance is mandatory and highly complex. In all projects, contractors are under increasing pressure to monitor environmental factors and keep clients and stakeholders informed and satisfied. Across the board, expectations continue to rise, and teams are having to do more with less. The current technology is mostly analogue, highly technical and very expensive, only providing retrospective data at the end of the month, and requiring technical specialists on site to operate.

Solution

SiteHive provides real-time environmental management for today's world, providing an innovative integrated hardware and software solution for proactive environmental management.

The SiteHive Hexanode is a new type of environmental monitoring device that brings innovative new capabilities to market. The Hexanode provides continuous, real-time data and combines multiple digital sensors (noise, dust, images & audio) in one device. It also includes innovative features such as directional noise monitoring, cameras and audio capture to identify sources. SiteHive delivers major efficiencies across all processes, providing the information people need to keep teams safe, prevent stop works, build client and community trust, and manage environmental impact.

Meet the Team



Ben Cooper-Wooley
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Adam Ferguson
Co-founder
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Impact

Reduced environmental impact from construction projects through optimised monitoring and data collection

Improved safety for teams on construction sites

50% reduction in monitoring and management cost from improved project team efficiencies

Social Value Portal

Social Value Portal brings consistency to the way organisations

measure, manage, and report social value and their ESG outcomes. Corporates increasingly need to know exactly how their stakeholders, suppliers and themselves are making a difference in communities. The solution ensures social value is embedded in a way that's transparent, accurate and effective.

Problem

Real estate professionals want to improve social outcomes, but lack a practical framework and way to collect data.

Corporate businesses are rising to the challenge of creating a more sustainable and socially responsible world as they drive towards greater ESG outcomes.

However, there is a significant challenge in collecting the data to map the social impacts from an organisation's activities and its supply chains, its assets and developments.

Solution

Market-leading framework and software that makes clear the social value from assets for reporting and improvement.

Social Value Portal helps clients to measure and manage social value through an intuitive reporting dashboard. Data is benchmarked to a standardised and practical 'Themes, Outcomes, and Measures (TOMs)' framework allowing enterprises to procure and report social value operationally, in a way that's consistent, collaborative and transparent.

This gives transformative and improved outcomes for communities and incorporates more social value in organisations and ecosystems.

Meet the Team



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Impact

Unlocked £12.5 billion+
worth of Social Value

65,000 jobs created
or sustained

Better development through
social impact insight

Build trust with local
communities through social
value concern



Website: getuhoo.com | HQ: Singapore | LinkedIn: [uHoo](https://www.linkedin.com/company/uhoo) | Twitter: [@uhooair](https://twitter.com/uhooair)

uHoo

uHoo allows real estate owners, tenants, and individual customers to take control of air quality to improve productivity, ensure health and wellbeing, and boost business growth by providing best-in-class indoor environmental monitoring solutions.

Problem

Indoor air pollution is not easily detected, but its negative effects are increasingly becoming evident.

People spend 90% of their time indoors where the air quality can be up to 100 times worse than the outdoors. Poor indoor air quality contributes to the survival of viruses, to the development of asthma, lung cancer, and other respiratory diseases. It also weakens cognition, productivity, and work performance. In addition, the inability of buildings to manage their indoor environment increases their carbon footprint, resulting in their failure to achieve or exceed sustainability objectives. Asset owners are seeking solutions that provide real-time air quality monitoring to mitigate these issues.

Solution

Air quality monitoring solutions that provide insights to make spaces healthier, efficient, and sustainable.

The uHoo Aura is the most comprehensive indoor environmental monitoring solution that provides real-time measurements on 13 factors affecting indoor air quality. Data can be managed using a dashboard and the solution can be integrated with any building system to create a smarter approach to indoor air quality management.

Data can be used by organisations to secure green and healthy building certifications such as Fitwel, LEED, WELL, and RESET, and to enhance GRESB performance.

Meet the Team



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Impact

20 million+ sq. ft.
of homes and businesses
monitored across the globe

95% reduction in
tenant complaints

80% reduction in carbon
dioxide and **95%** healthier
air achieved in buildings

WiredScore

assessing, certifying and improving digital connectivity and smart technology in offices and homes.

Problem

Building owners need recognised standards to benchmark, improve, and promote digital connectivity and smart outcomes.

The way we live and work has radically transformed. Best-in-class digital connectivity and sustainable, inspirational, cost-efficient and future-proofed buildings, powered by smart technology have never been more important for solving some of the most pressing issues of our time, from the global climate crisis to creating buildings tenants want to work in. Despite this, owners have few tools to benchmark, improve and promote the digital connectivity and the smart outcomes of their buildings.

Solution

Global certifications, that help landlords design and promote buildings with powerful digital connectivity and smart capabilities.

Independent global standards for in-building technology, providing globally recognised ratings to assess connectivity and smart technology implementation in offices and homes. These ratings help landlords to benchmark, improve, and communicate their building's digital connectivity and smart capabilities.

In turn, this powers their ESG efforts, from supporting digital inclusion of all communities, helping landlords to improve the climate resiliency of their assets, and enabling owner efforts to reduce the carbon footprint of their buildings, utilising smart technology.

Meet the Team



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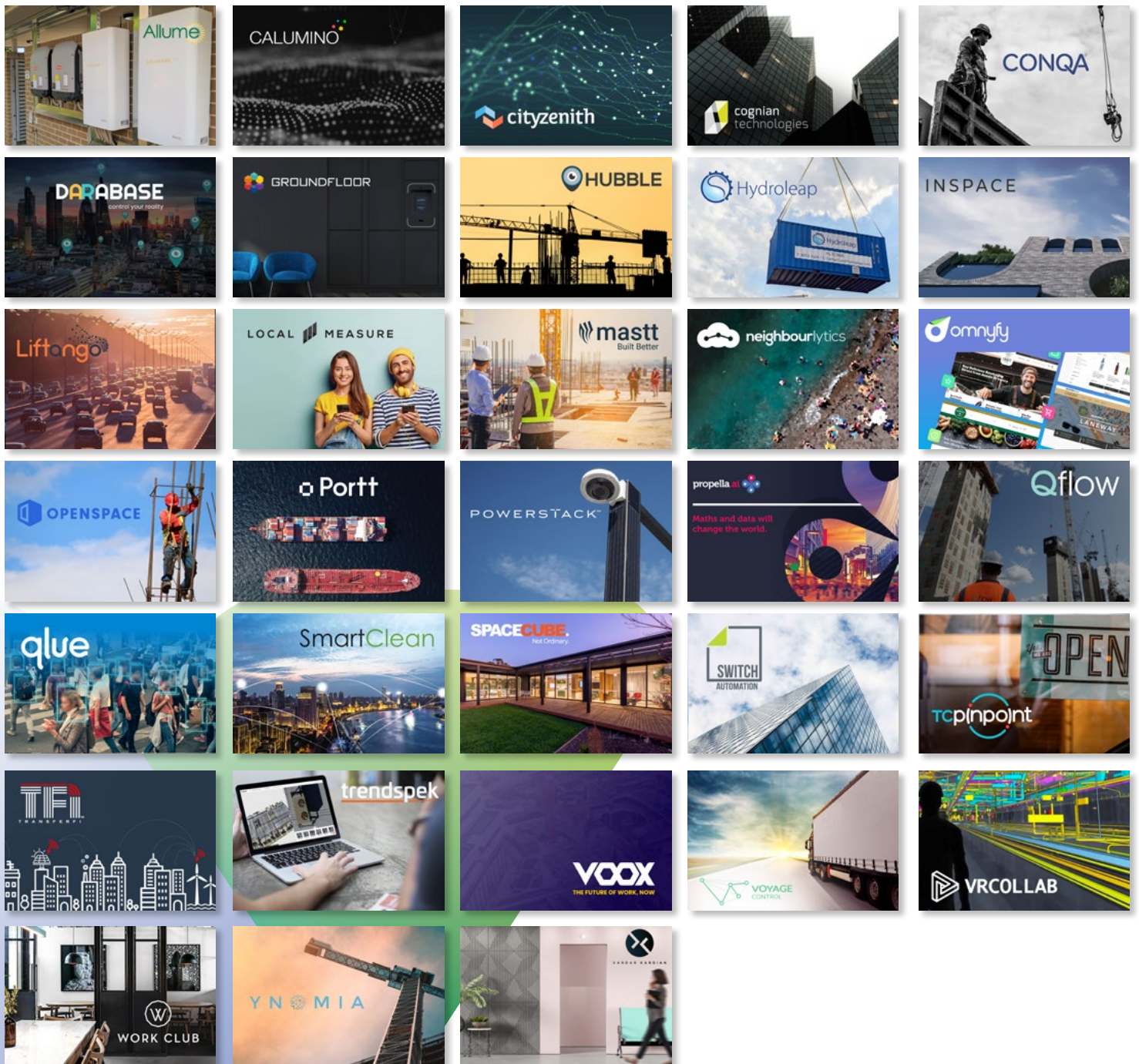
Impact

800 million sq. ft.
certified, for over 800 landlords/
developers across 160+ cities

8 million+ people living
and working in WiredScore
certified buildings

SmartScore platinum buildings
outperform peers on energy
efficiency by up to **20-30%**

RealTechX Alumni





About Taronga Ventures

We invest in innovation and technology companies to shape the future of our built environment

Established in 2015, Taronga Ventures is a technology and innovation investor focused on the wider built environment. Through our funds, the group invests into globally scalable entities that will enhance or challenge the way the built environment operates throughout the entire life-cycle.

Our funds have developed a diverse portfolio of investments including across sustainability, design, materials, energy and new operating models; providing capital, mentorship and global networks for the businesses in which it invests, as well as competitive advantage for its corporate partners. Taronga Ventures has extensive experience across global markets and built environment sectors and is supported by strategic and institutional investment partners.

Contact us

RealTechX Innovation Platform
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RealTechX is an innovation platform designed to drive sustained growth in emerging real estate technology businesses.

Investment
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Our funds invest in innovation, technology and business models that impact the portfolios of our institutional partners.

Advisory
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Our advisory service offers strategic advice for institutional owners and operators of real estate and infrastructure to accelerate the adoption of innovation.



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