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INSIDE

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Coffee Chat with
a Blockchain expert

GARY SPENCE

Chief Architect, Distributed Ledger Technology

Green Pulse had a chance to speak to Gary on Yotta's vision and how it is going to leave its mark as the leading sustainable future proof technology.

Gary Spence (Director) is an Inventor, Chief Architect of Distributed Ledger Technology (DLT) and a Digital Technology Specialist. Gary's ambition is to bring business technology to the next level through creating a time- and cost-saving technology. Innovations in Distributed Ledger Technology have huge potential for the near future. With the emerging and apparent new Internet of Things (IOT), coupled with smart contracts, DLT will serve as a huge cost savings mechanism for all businesses from small SME's to large multi-nationals.

Gary has a wide range of experience and unique skillsets in the areas of Blockchain protocol details, transactions, mining and consensus. He is also equipped with smart contract developmental experience with extensive pioneering research in a number of emerging areas including IOT, cloud security, malware propagation, intrusion detection, cloud resilience and survivability, software defined systems, social network analysis, Cloud-IOT converged areas, cloud-driven semantic web, cloud based testing and virtual environment malware, bio-inspired solutions for cloud computing, fog and edge computing, cloudlet, and mobile cloud computing, among others.

He is also well versed in Financial Technology Specialities, Technology Driven Trends, Strategic Innovation, Strategic Advice and Planning, Business Keynote Presentations and Speaker.

In the recent LATTICE80 Blockchain 100 List, Gary took on the 37th spot among the leaders in the global blockchain community who make their impacts as start-ups, corporate, governments or investors in the space.

Congratulations on being ranked 37th, among the top 100 World Block chain expert. Could you tell us, what is the application of Block chain technology and how does it contribute to sustainability?

Firstly thank you, the news came as a surprise and it's been six years of research and dedication that is now starting to be recognised. In fact, at Yotta we work as a team and it should be the whole team who is recognised. So, from me, thank you to everyone at Yotta Laboratories for their hard work.

Blockchain technology along with other new and emerging technologies of which we call hybrid based systems will change the way we work in the future and with real time data we will not only reduce waste but also make industries more productive.

So a question I get asked a lot is what is Blockchain technology and what are the use cases?

A blockchain is simply a distributed ledger (database) with no delete option. A system that enables people with no formal connections to use and benefit from it. The technology works by storing a time stamped entry and the next entry will form a new block into a chain of records, hence the name blockchain. So why is this so revolutionary? A blockchain can be used for transactions and proof of purpose in a real time basis.

The very first research we did was for the supply chain of coffee and the traceability from the plantation to the jar by scanning a code. The blockchain listed when and where the coffee bean was grown and even the geographical location, the day it was collected and shipped, the processing procedure and all the way to the supermarket shelf. Now link this to smart contracts and at every stage of the process automatic payments can be made of which reduces payment time from 90+ days to just hours.

We then thought; if we can do this for coffee what else can we do it for. That was how we embarked on a whole new project and fast forward to over 150 studies six years later, we now have an extensive portfolio.

So how does this fit into sustainability? By having access to real-time data we can in theory reduce not only food wastage but also food availability into the right locations or even reverse engineer the process so we don't over produce or over grow products of which end up in landfill. We can also adopt the systems for renewable energy, and any supply chain globally. The other advantage is that the transaction fees are greatly reduced as the technology enables businesses to cut out the need for middlemen.

As you can imagine with our extensive research we could go on listing the benefits but the true potential when the technology adopted and the end user does not realise they are actually using a blockchain.

Kindly elaborate what are Yotta's future proofing technologies and what inspired you to develop these?

We have designed a new cloud platform for data storage that goes beyond revolutionary as it's also a lot more energy efficent, which we have called the Yotta Cube - a fully scalable network of cloud storage devices that have the ability to be 5g enabled smart nodes. The team of data scientist at Yotta led by Prof Elhadj Benkhelifa are always designing new and innovative systems of which will ensure our future.

Personally I have always been the type of person who is interested in the 'what if' way of thinking rather than improving something that already exists. That's why as part of Yotta's future proofing technologies, we focus on developing new technologies in AI, virtual and augmented reality, semantic annotation and also machine learning and deep learning systems of which will be at the forefront of our lives in the next couple of years.

As cities are adopting a range of high-tech solutions to position themselves as 'smart' and sustainable, in what way would Yotta's Technology fit in the equation?

We are pleased to be getting involved in many smart homes, offices, cities, and nation projects that centred around connectivity and forward thinking. We have researched things from smart recycle bins through to fully connected transport networks to reduce congestion. At this moment in time there's no single definition of what a smart city or nation is but we are certainly at the cutting edge of developing such systems for the future.

In the next few years we will see a rapid adoption of smart enabled devices and systems, and Yotta will be at the forefront of bringing these to market.

Yotta is expanding its presence to Singapore to serve the ASEAN region. Do you have specific goals in mind for this expansion plan?

Yes we have. As you would imagine, we have conducted extensive research into where we need to be, not just as a company but also location wise and Singapore for us is the right place. It is a forward thinking country and also the gateway for ASEAN regions. In addition to our research, I personally am fond of Singapore given its cultural diversity and adaptability to new and emerging technology. Further afield our visions are to expand in the next few years while making Singapore our global HQ.

Could you tell us briefly about Yotta's game changing technology which you believe will make Yotta a unicorn in next five year?

I would love nothing more to tell you about what we are currently working on at Yotta but I just can't at the moment. However, we are very excited in the responses we have had from major corporate companies, governments and leaders of smart nation projects.

Do we believe we will be a unicorn? YES

We have only scratched the surface of our capabilities. With over $80 million IP portfolio and ever growing, our aim is not to be a unicorn but more a household name - and one comes with the other. I'm sure the founders of Grab, AirBnB, Uber etc didn't set out to build a unicorn but they started out to build a solution to a problem.

Our motto is Tomorrow's Technology Today and we live by that in everything we do.

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5-6 September 2019
Singapore
• https://locationworld.tech/

FM Expo 2019,
17-19 September 2019,
Dubai,
• www.fm-expo.com

2019 Vietnam - LNG-to-Power Summit
19-20 September 2019
Hanoi, Vietnam

Solar Power Expo Vietnam
25-26 September 2019
NCC Hanoi, Vietnam

Nelis Asia Summit 2019
October 17-19, 2019
Singapore
• www.nelisglobal.org/asia-summit-2019

The Asia-Pacific Agri-Food Innovation Week
Nov 20-22 , 2019
• https://agrifoodinnovation.com/

Living Planet, Singapore

Professor Jeff Obbard

The Earth is out of radiative energy balance. There is more energy coming into the Earth's atmosphere than is being radiated back to space. The reason for this is the excess of greenhouse gases (GHGs), primarily as carbon dioxide (CO_2), that are being emitted to the atmosphere from our combustion of fuels (coal, oil and natural gas). If this energy imbalance is not addressed then the world will continue to warm with dire consequences for humanity and wildlife.

The Earth's energy imbalance is now being quantified accurately by a global array of Argo floats - a flotilla of over 3,000 remote sensing devices distributed throughout the world's oceans that are constantly monitoring its heat content. Over time, the Argo floats have measured a large and growing global energy imbalance. In the period from 2005 to 2016 the increase in ocean heat content measured by the Argo floats was equivalent to a planetary energy gain equal to the detonation of over 500,000 Hiroshima-sized nuclear weapons - every day. This level of energy gain in the Earth's climate system has become the key driver for the observed increase in extreme weather events around the world, the disintegration of the planet's ice-sheets and a threat to the stability of global ecosystems.

Levels of CO_2 in the atmosphere are now at 413 ppm, up from a pre-industrial level of 280 ppm. As a result, global warming is both accelerating and intensifying, where the radiative forcing from GHG emissions is 40% higher since 1990. The month of July 2019 was the warmest month ever to be recorded since records began in 1850, where the warmest 20 years have all occurred in the last 22 years. The last 4 years have been the warmest of all. Overall, average global surface temperatures have now risen by about 1°C since the start of the industrial revolution about 250 years ago.

Satellite measurements have confirmed that the Greenland and Western-Antarctic Ice-sheets are now losing ice-mass at an accelerating rate. In turn, this is driving non-linear changes in the climate system and a faster rate of sea-level rise. Paleoclimate evidence,

from the Earth's climate history, shows that during the Eemian interglacial period (about 120,000 years ago) that sea levels, at thermal equilibrium, were up to 9 metres higher than today. For a predicted level of global warming of over 3^{0}C by the year 2100, then the world will resemble the climate of the mid-Pliocene (3-5 million years ago) where sea levels, at thermal equilibrium, were between 15 and 25 metres higher than today. These ancient changes in the radiative heat balance of the planet were caused by slow and steady changes in the Earth's orbit and spin axis operating over a time scale of hundreds of thousands of years. In contrast, the rate of global now taking place is much more rapid and completely unprecedented in the paleoclimate record.

In October 2018, the United Nations issued a stark warning to the world. We have just 12 years to avoid a committed mean global temperature rise of 1.5°C, or risk triggering catastrophic climate change. According to the UN, keeping to the 1.5oC target under the 2015 Paris Climate Agreement will require "rapid, far-reaching and unprecedented changes in all aspects of society" to avoid what the UN refers has previously referred to as "dangerous anthropogenic interference with the climate system".

The intricate relationships that exist between global ecosystems and biodiversity play a vital role in controlling the fluxes of GHGs and regulating climate stability. Coupled with the climate crisis, the world is also facing an equality dire ecological crisis which has been caused by the rapid and extensive degradation of the planet's ecosystems, including its oceans, forests, and wetlands. As a result, the Earth has now entered its sixth-mass extinction event, where the rate of species loss has risen to between 100 and 1000 times higher than natural background levels. In the last 50 years alone, the world is estimated to have lost over 60% of its wildlife, and about 75% of the planet's land area is now degraded as a result of modern agricultural practices and rapid urbanisation.

Nothing short of massive, strong and global coordinated global action is now required to prevent a climate catastrophe and ecological breakdown, and their associated risks to humanity. A return to the climate of the current Holocene interglacial period, in which human civilisation developed, requires that the Earth's radiative energy imbalance be corrected via rapid GHG reductions and the restoration of global ecosystems.

Singapore faces unique threats and opportunities in the face of a rapidly changing climate system and the global ecological crisis. As a small, tropical island state nation, Singapore is increasingly vulnerable to both rising sea levels and warmer temperatures. The nation also faces indirect threats from a disruption of the global food supply chain as a result of changing weather patterns. In the face of these threats, Singapore is nonetheless well-placed to increase its resilience to climate change by developing appropriate adaptation and mitigation strategies. By leveraging its economic strength, its robust urban planning system, and its advanced research capabilities, Singapore has a unique opportunity to rise to the challenges of a changing climate. Furthermore, as a leader in the ASEAN region, Singapore also can develop advanced technologies to address sustainability challenges and lead the way for the rapidly growing nations of Southeast Asia.

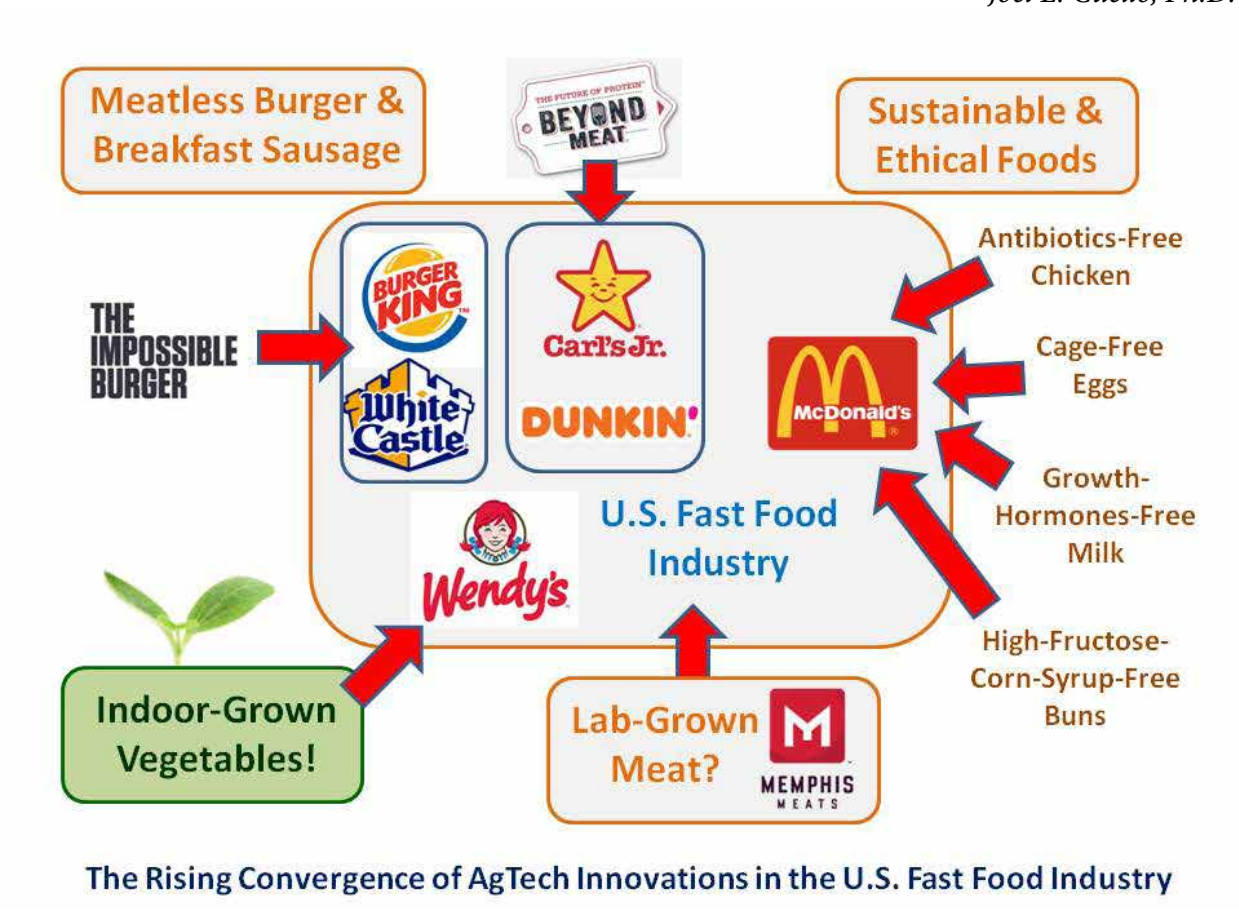
Living Planet Pte Ltd has been recently established in Singapore by Professor Jeff Obbard, an environmental scientist and ecologist who has spent the last 25 years living and working in Singapore, and around the world. Jeff spent over 17 years working at the National University of Singapore (NUS), in the Faculty of Engineering. He was also the Research Director at the Tropical Marine Science Institute, and was also as Director of its Sustainable Development & Water Alliance. During his time at NUS, Jeff served as the Principal Scientist for Bioenergy at the Agency of Science & Technology, and as Vice President for Science & Technology on a Royal Dutch Shell Petroleum project to develop low-carbon, renewable biofuels in Hawaii, USA. He has also served as an Expert Reviewer to the Intergovernmental Panel on Climate Change and led a team from NUS to win the United Nations Mondialogo Award for Sustainable Development. Jeff is also as a Visiting Professor to the School of Water, Energy & Environment at Cranfield University in the UK - one of the UK's leading postgraduate engineering universities

By establishing Living Planet in Singapore, Prof Jeff will provide strategic advice to government and industry on matters relating to sustainable development, climate science and natural resource management. Prof Jeff is also a Board Member and Advisor to Green-In-Future. "Living Planet looks forward to working in close partnership with Green-in-Future to provide expert advice and solutions to our clients on their sustainable development challenges", he said.

You can contact Prof Jeff Obbard via his Linked-In profile at www.linkedin.com/in/jeff-obbard-phd, or via his email at obbardjeff@gmail.com.

Disruption in the U.S. Fast Food Sector Creates Prospects for a New Market Opening for the Vertical Farming Industry

Joel L. Cuello, Ph.D.



The Rising Convergence of AgTech Innovations in the U.S. Fast Food Industry

U.S. fast-food customers' growing expectations for healthier, ethical and more environmentally sustainable options directly correspond with the values and produce that the Vertical Farming industry provides

As the vertical farming industry in the United States grows, its market segments correspondingly diversify and widen.

Aerofarms, Gotham Greens and Square Roots, for instance, all deliver their produce to local grocers as well as to Whole Foods Market.

Plenty sells its leafy greens through the online retailer Good Eggs, San Francisco's Faletti Foods as well as to fine-dining restaurants, including Atelier Crenn and the Michelin-starred Protege in Palo Alto, among others.

New-Jersey-based Greens Do Good, whose entire profits go to helping people with autism through an innovative and socially-responsible business model, delivers the bulk of its produce to a partner golf country club.

Meanwhile, Crop One Holdings has recently and emphatically helped push the market frontiers for vertical farming by forming a joint venture with Dubai's Emirates Flight Catering to supply 105 airlines and 25 airport lounges at Dubai International Airport with a full array of greens for catering services.

A GREAT CONVERGENCE

In a parallel industry universe, the U.S. fast food sector is in the midst of experiencing arguably its biggest disruption in decades caused by the tectonic shifts

in customers' preferences and expectations. With customers' growing demand for healthier, ethical and more environmentally sustainable options, the industry's major players from McDonald's to Burger King to Carl's Jr., among others, have taken notice and are promptly strategizing and responding.

McDonald's, the largest fast food chain in the United States, now exclusively offers antibiotics-free chicken, cage-free eggs, cow milk unadulterated with artificial growth hormones, and buns devoid of high fructose corn syrup, among others.

And in direct response to mounting customer discomfort with the health, environmental and ethical costs of meat, Burger King has introduced its vegetarian burger Impossible Whopper using the plant-protein-based meat supplied by Impossible Foods.

Plant-based alternative meats are gaining increased traction with customers owing to their smaller environmental footprint compared with traditional meat production. It is well known, for instance, that livestock production for meat and dairy accounts for close to 15 percent of the global greenhouse gas emissions annually. That animal ranching also consumes exorbitant amounts of water, feed, land and energy further exacerbates the sustainability deficits of traditional meat production.

Burger King currently sells its Impossible Whopper to 59 restaurants in the St. Louis area, and plans to swiftly make it available in all of its 7,200 locations nationwide.

Carl's Jr. now also offers a vegetarian burger by the alternative-meat maker Beyond Meat at over a thousand of Carls' Jr. restaurants, while White Castle has been selling a Slider version of the Impossible burger since last year in its over 380 stores.

Earlier this month, Dunkin' began serving its meatless Beyond Sausage Breakfast Sandwich in some of its restaurants in New York City with plans to sell it eventually nationwide.

Even KFC is currently exploring adding plant-based fried chicken as part of its standard offerrings.

And McDonald's, while still currently weighing whether to add a meatless burger on its menu in the United States, has now added a vegan burger -- called the Big Vegan TS -- as part of its permanent offerings in Germany. Nestle sources the meatless burger to McDonald's restaurants in the country, one of the company's top five international markets.

For true meat lovers who prefer their burger to be

The author with Wendy's Chief Communication Officer Lilliana Esposito (June 2019)

actually animal-derived and non-vegan -- but ethical and environmentally sustainable just the same -- Memphis Meats is currently at work in perfecting its lab-grown meat constituted from actual beef cells. This innovation is still very much in development, however, that the meat product is not expected to be made available in the market any time soon.

IT'S ONE SMALL STEP FOR WENDY'S

The rising convergence of AgTech innovations in the U.S. fast food industry -- a direct result of the aforementioned customers' evolving and more enlightened expectations and preferences -- certainly received a recent big boost when Wendy's finally decided to source all of its tomatoes from indoor hydroponic greenhouses located in the U.S. and Canada for all of its 6,000 restaurants in the United States.

In keeping with Wendy's motto of Always Fresh, the decision ensures superior quality as well as enhanced food safety, predictability, reliability and product traceability for the American international fast food's fresh tomato supply.

Wendy's, the second largest burger fast food chain in the U.S., also has plans over time to source its other fresh vegetable ingredients from similar indoor crop production systems.

Dr. Joel L. Cuello is Vice Chair of the Association for Vertical Farming (AVF) and Professor of Biosystems Engineering at The University of Arizona. In addition to conducting design and research on vertical farming and cell-based bioreactors, he teaches "Globalization, Sustainability & Innovation" and "Integrated Engineered Solutions in the Food-Water-Energy Nexus". Email cuelloj@email.arizona.edu.

ONE GIANT LEAP FOR U.S. VERTICAL FARMS?

Could Wendy's one small step translate into one giant leap for both the U.S. fast food industry and vertical farming industry?

The likelihood is real in part given their now shared product values and since the economy of scale involved helps provide impetus and cushion to both industries

For U.S. fast food, partnerships with vertical farms would help meet the former's customer expectations on the health, ethical and sustainability fronts, while also ensuring produce quality, nutrient value, consistency and supply reliability even as they help reinforce local jobs creation.

For U.S. vertical farms, partnerships with U.S. fast food would help effectively reduce their price of produce through the expanded economy of scale even as they also help strengthen local jobs creation.

The size, of course, of the U.S. fast food industry is gargantuan, with approximately 50 million Americans eating at fast food restaurants every day, generating annual sales of about $200 billion at 200,000 fast food locations across the country. Indeed, just the top 10 U.S. burger and chicken fast food chains -- namely, McDonald's, Wendy's, Burger King, Chick-fil-A, Sonic, KFC, Carl's Jr./Hardee's, Jack in the Box, Popeyes Louisiana Chicken, and Whataburger -- post a combined annual sales of over $84 billion (2016).

The entry of U.S. vertical farms into the U.S. fast food industry would certainly provide the former a momentous and immense market opportunity that it seeks.

One hopes that the continuing convergence of AgTech innovations in the U.S. fast food industry would help launch both the U.S. fast food and vertical farming industries into a jointly reinvigorated sustainability trajectory for people, planet and proft.

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IEW

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IS YOUR WINDOW 'SMART' ENOUGH TO FIGHT RISING HEATWAVES?

Boardroom-tinted_LR

BY David Yim, Sales & Marketing Senior Manager, Halio International Asia Pacific

Keeping cool is a priority in the tropical island state known for its high consumption of air-conditioning. On a per capita basis in ASEAN, Singapore has the highest consumption of electricity as well as the highest installed rate of Air conditioning. By 2040, the consumption of electricity could account for up to 40 per cent of ASEAN's electricity demand, up from 25 per cent currently.

While there are around 1.2 billion room air-conditioning units around the world, they operate at around 14 per cent of the maximum theoretical efficiency as compared to products like LED lights that run at up to 89 per cent efficiency.

Such inefficiencies are taking a toll on the planet. Air-conditioning currently consumes 2,000 Twhs of electricity annually, contributing 12 per cent or 4 billion tons of CO2 into the environment. Electricity consumption is expected to triple to 6,000 TWhs by 2050, according to the International Energy Agency.

While air-conditioning is the go-to solution to beating the heat, it isn't the only one. Windows are the first line of defence to combat the heat and glare. However, are the current 'face' of windows 'smart' enough to protect occupants from the fluctuating weather conditions and optimise air-conditioning efficiency? With the majority of solar heat gain derived from windows, glazed doors and skylights, current solutions like blinds, curtains and second-skins around buildings offer partial respite but lack the real-time dynamism to curb heat before it enters the building.

This is where next generation electrochromic technology or smart-tinting glass can help. It transforms windows to respond to light conditions, time of day, and seasonal patterns to precisely control the tint of glass panels in the building's façade - from clear to its darkest tint within 3 minutes.

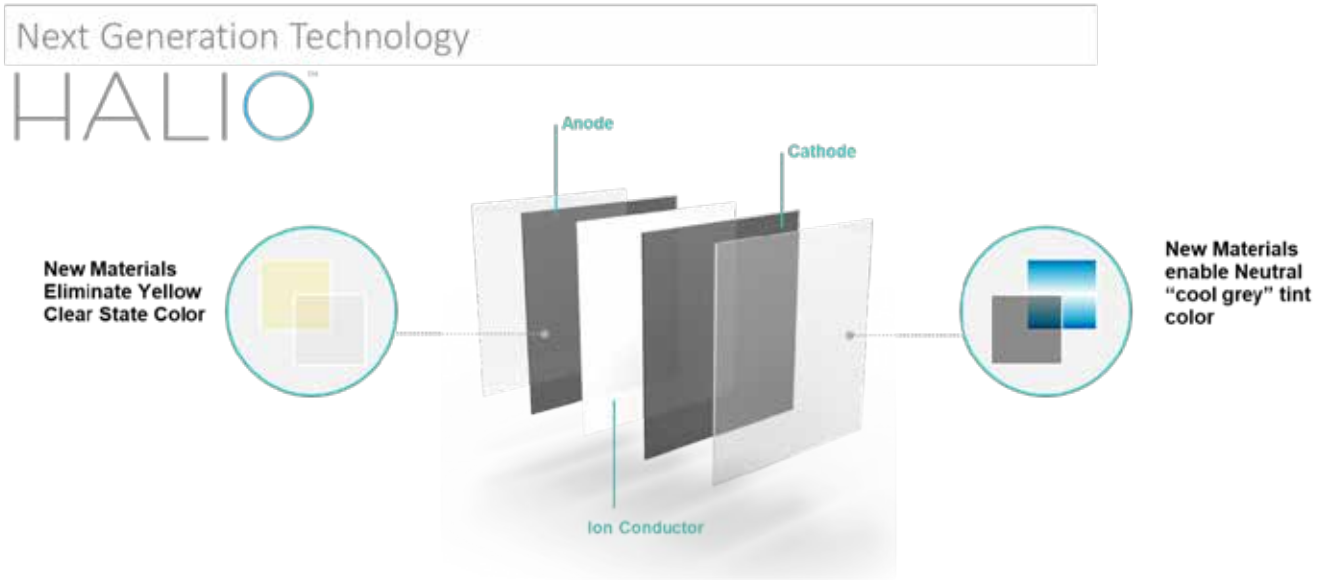

Image 1: Low-voltage electrical charge move ions between two thin layers of glass to tint or clear the glass window panes.

How does it work? Through a stable and patented electrochemical reaction between two glass panes, users can change the optical characteristics of the glass when a low-voltage electrical charge is applied; ions move between materials to darken or clear the glass; see Image 1.

As electricity is only needed during the transition, Halio smart-tinting glass can be set to 'clear' or achieve various levels of tint for aesthetic or comfort reasons and does not require power to maintain the desired tint level.

While electrochromic technology has been around for decades, newer technologies such as those used by Halio smart-tinting glass have not only tackled the drawbacks of earlier versions on the market in terms of tint colour, uniformity and speed. Halio also enables window automation in connection to its cloud system with bank encrypted security.

Halio Cloud can monitor facades in real-time with solar irradiance sensors and can be integrated with a building management system (BMS) to respond dynamically to external weather conditions and internal factors like the number of occupants, space, position of lighting, office or room layout.

This means that air-conditioning no longer needs to be manually adjusted to coincide with the weather patterns. Controlled through the building management system, glass facades and air-conditioning can adapt to changing climate conditions throughout the day, making it more intuitive, environmentally sustainable and efficient.

For instance, the windows facing East can be programmed to a darker tint at 7:30 am, while the other windows remain clear and air-conditioning adjusted to a cooler setting in preparation for people to start their workday. As the sun path moves throughout the day, the real-time data collected by the solar irradiance sensor will be interpreted by the Halio algorithm to adjust the tint according to the sky conditions on each façade orientation.

From a design perspective, the key issue on hand is how to integrate and optimise the use of such smart glass technology. Why?

With a responsive living glass façade, automated electrochromic glazing will bring benefits in greater energy efficiency and savings without having to compromise on the views.

While air-conditioning is not going away anytime soon, smart-tinting windows coupled with building automation can provide occupants relief from glare, optimise daylight, while reaping the rewards of energy savings and sustainability.

Southeast Asian youths pitch impact start-up ideas to investors at YSI SEA Demo Day 2019

YSI SEA Sustainability Innovation Program Participant Thu Thao Cu pitching her impact start-up idea, Youth Inc!

SINGAPORE – Last weekend, Young Sustainable Impact Southeast Asia (YSI SEA) completed the second run of its Innovation Programme which culminated in a Demo-Day, where Southeast Asian youth shared their impact start-up ideas with prospective investors for potential incubation and funding.

Eight teams, comprised of 24 youth from the ASEAN region, had the opportunity to pitch their impact start-up ideas to a crowd of over 50 venture capitalists, impact and angel investors, academics and other stakeholders. This included organisations like Temasek Foundation, Facebook and Sembcorp.

The solutions proposed by the teams tackled various issues in key ASEAN markets, addressing one or more Sustainable Development Goals (SDGs) as set out by the United Nations (UN). The start-up ideas this year addressed topics such as mental health in youths, educational skills gap in Southeast Asia, and upcycling resources for sustainable packaging.

One of the teams, Farmability, clinched the 'Most Dynamic Start-Up Award' along with a SGD1000 cash prize, sponsored by Utoocentral. Their start-up hopes to tackle poverty in Eastern Visayas, Philippines, by upcycling Agri-wastes such as coconut husks into sustainable eco-products.

Another start-up team, eBenta, also won the 'Audience Choice Award'. At the end of the event, the audiences virtually invested and were asked to split their imaginary 'investment' to the groups that impressed them the most. With the aim of reducing economic hardships faced by vulnerable sectors in society, eBenta creates alternative income-generating opportunities through eCommerce and livelihood training.

Farmability receiving the 'Most Dynamic Start-Up Award' along with a SGD1000 cash prize, sponsored by Utoocentral

Sai Surya, CEO of YSI SEA said, "What YSI SEA does is important because we empower youth in Southeast Asia who are passionate about sustainability to come up with innovative solutions for pressing issues in the world, and we bring these impact ideas to stakeholders in the ecosystem for potential funding and mentorship, bringing their ideas to fruition."

"One thing that drives the YSI SEA team is that we lie safe in the knowledge no one truly understands what sustainability means. Here at YSI SEA, we're trying to collectively find an answer for that as well," said Irsyad Ramthan, COO of YSI SEA. "What we need is a generation that cares and works towards sustainability by collaborating and learning from one another. Only then can we develop our capacity, knowledge and skills to come up with feasible solutions for measurable impact."

The Demo-Day, which took place at Marina Bay Sands on 27th July 2019, is a culmination of a fully funded 5-month long Innovation Programme, with Temasek Foundation as the Principal Partner. The Innovation Programme is a hallmark of YSI SEA, where youths from across Southeast Asia are brought together to create potential impact start-ups.

Heng Li Lang, Senior Director of Temasek Foundation and Guest-of-Honour for Demo Day said, "Temasek Foundation sees YSI SEA as a conduit for gathering youths from different universities, not only in Singapore, but also from around Southeast Asia. Besides just being aware, young people need to take action and be an advocate to their peers, families and friends. But more than that, we need solutions – and this brings us to YSI SEA."

The 8 impact start-ups teams also showcased their ideas to the public during the YSI SEA Showcase – Sustainabiltiy: Hype or Hope? – which took place later that afternoon. Over 500 public visitors turned up at the showcase, which was graced by Minister Masagos Zulkifli, Minister for the Environment and Water Resources. The event also saw speakers from IKEA, S&P Global, The Fashion Pulpit and Edible Garden City.

Moving forward, these eight teams will continue to receive support from YSI SEA in the form of mentorship, grants for solution-testing and networks to ensure their continuity and success.

Koh Ghee Kian, a team member of Lega S.E.A., said, "The most important thing is to not be afraid of trying. We are very lucky to have found YSI SEA and this programme to groom our impact start-up. Searching for any opportunity and going after them is the most important thing to do. Any idea can be a good idea, but you have to believe in it first."

Allen Glen Gil and Huyen Cam Le from Farmability said, "The greatest takeaway from this programme has been meeting people from all over Southeast Asia with the same passion, interest and drive. To the youth who want to be part of the impact space: Observe everything you are interested in, and spot opportunities."

Please refer to Annex A for more details on the eight impact start-up teams.

For more information, please visit https://www.ysisea.com/

YSI Global COO Amund Grytting, YSI SEA CEO Sai Surya and YSI SEA COO Irsyad Ramthan walking alongside Minister Masagos Zulkifli, Minister for the Environment and Water Resources

KONE WINS ORDER TO EQUIP CENTRAL BOULEVARD TOWERS, A MIXED-USE DEVELOPMENT IN SINGAPORE

SINGAPORE, August 7, 2019: KONE Corporation, a global leader in the elevator and escalator industry, has secured an order to deliver a total of 47 elevators and escalators to Central Boulevard Towers mixed-use development. The complex will be equipped with KONE's groundbreaking innovations including the KONE UltraRope® hoisting technology and the intelligent KONE 24/7 Connected Services.

Located in Singapore's Central Business District and developed by Wealthy Link Pte Ltd (a subsidiary of IOI Properties), Central Boulevard Towers will consist of premium Grade A office and retail spaces.

KONE will deliver 37 KONE Minispace™ elevators, 6 KONE MonoSpace® elevators, and 4 KONE TravelMaster™110 escalators to the development. 19 of the elevators will be equipped with KONE UltraRope® technology. Using the latest technology, KONE 24/7 Connected Services will help predict issues for preventive maintenance and increase equipment uptime. Additionally, the building will be equipped with KONE E-Link™, a facility management tool designed to secure the best possible tenant service quality in the building, and KONE Destination control system for reduced waiting and travelling times.

"We want to provide value for our customers during the entire lifespan of their building, and we are extremely excited to bring the latest innovations and digital solutions in the industry to the benefit of IOI

Properties and the Central Boulevard Towers tenants," said Axel Berkling, executive vice president for KONE Asia Pacific.

The Central Boulevard Towers project is scheduled for completion in 2022.

KONE booked the order in the second quarter of 2019.