BigTech and FinTech Befriending Circular Economy

Mother Earth is a great example of the circular economy. In nature, there is no waste, because nature recycles all in its ecosystem. Waste is an inevitable by-product of human activity, and it has been associated with the concept of disposal. However, this is changing in recent years.

Waste is increasingly seen as a resource with growing awareness of risks caused by waste to the environment and human health, and depletion of limited natural resources. Intensive attention is being given to the environmental, social and governance (ESG) pillars of sustainability. For example, all the listed companies on Singapore stock exchange are required to report on their ESG progress.

Nations as well as industries pledging zero carbon emissions by 2050 could learn from the circularity of various systems of nature. More than half of the world's carbon emissions come from resource extraction and processing, and subsequent waste management.

In other words, the zero carbon emission pledges and circular economy vision are symbiotic. A conscious shift towards circular economy would dramatically reduce waste and pollution, and also transform our toxic relationship with the ever-depleting natural resources into one of renewal.

Digital technologies as well as green technological progress are crucial in opening up newer opportunities for businesses and individuals alike. BigTech is now fostering FinTech to capitalise on market opportunities in the zero carbon and circular economy ambit, and also to respond and adapt to new frameworks, regulations and standards of sustainability.

An example of interplay between FinTech and circular economy is the series of plans by European Commission to introduce a "digital product passport" early next year. This passport would contain information about the composition of goods on the European market to help boost their chances of being reused and recycled.

FinTech can enable the circular economy by enhancing financial and transaction data with product information such as material composition, emissions along supply chain, instructions for disassembly and recycling, product profile and pictures for resale and share economy.

Advisor for Circular Economy at the European Commission, William Neale said that 'we really need to make sure that the products that are put on our markets are designed to be durable, repairable, and so on'.

Furthermore, FinTech innovations will facilitate data disclosures, risk assessments, finance and investor-matching and insurance. These in turn accelerate a system-wide transition towards circular economy and carbon neutrality. Recently, about 500 global financial institutions representing USD130 trillion in assets pledged net-zero emissions by 2050 thus embarking on their sustainability journey. Verifiable data, ESG ratings and global standards facilitated by FinTech will avoid the pit falls of greenwashing and greenflation.

Open data is a necessary means to promote trust, investments and innovations. Data is the lifeblood of the digital future and circular economy. Robust and quality data improves decision-making and operational efficiencies while detecting and preventing fraud, scams and unethical behaviors.

BigTech thrives on data management, and the need for storing data is growing exponentially. For example, an average internet user needs 1.5GB of data storage, a smart hospital requires 3,000GB, autonomous driving takes up 4,000 GB, a flying plane generates 40,000 GB and a smart factory requires 1 million GB.

Digitalisation of sustainability also involves cashless transactions, digital currencies, banks, insurers and a multitude of digital assets. Data centres are the hearts of BigTech, and running them requires energy. Data centres accounted for seven per cent of total electricity consumption in Singapore in 2020.

Singapore is committed to halving carbon emissions by 2050. In other words, Singapore is balancing sustainability with economic needs and growth. BigTech heavyweight, Meta and the Singapore government recently invested 23 million dollars in the design of a world-class sustainable tropical data centre testbed and site at the National University of Singapore.

Renewed engineering innovations are also critical for sustainability. In recent years, digitalisation and industry 4.0 technologies are engendering engineering innovations. Hence, going digital is more than a matter of embracing the trends for GreenTech solutions to deliver on carbon-neutral, circular economy. GreenTech innovations are economy-wide involving diverse sectors such as food and nutrition, energy, water, manufacturing, buildings and infrastructure, transportation, and lifestyle products and

services. Shipping, the backbone of the world economy, is undergoing a digital transformation thus reducing carbon emissions and improving on circularity.

Technology innovations facilitate unique identification, tracing and tracking to ensure food security, nutrition and circularity. Furthermore, they enable mobilisation of alternative finance and social finance such as equity crowd funding, philanthropy and donations to build a socially and economically resilient society. In other words, an effective, impactful and sustainable alternative and social finances.

With the rapid growth of FinTech, BigTech and GreenTech, the gig economy is poised to grow. In addition to their domain expertise, freelancers also often offer perspectives from diverse markets and cultures. Hence, companies are engaging them to gain an edge and cost-savings. According to the Ministry of Manpower, the number of freelancers in Singapore in 2019 is 211,000, which translates to 10 per cent of all employed residents.

The world of work is rapidly evolving and the need for reskilling and upskilling has become particularly pronounced. Creating digital and sustainable future-ready talent is often a complex challenge, requiring a holistic value chain of ecosystem actors. Hence, social innovations in addition to engineering innovations are necessary to generate economic development while advancing environmental and social well-being. All of them would contribute towards the realisation of the 17 UN Sustainable Development Goals, which are aimed at the welfare of humans and more importantly, vulnerable groups such as minorities, children, seniors and women.

In celebration of the World Engineering Day for Sustainable Development on 4 March, the Institution of Engineers Singapore is hosting the prestigious Charles Rudd Distinguished Public Lecture series themed circular and digital economy on 17 February.

Her Excellency Ms Iwona Piorko, Ambassador of European Union; Professor Cheong Koon Hean, Chairman of Centre for Liveable Cities, Ministry of National Development; Ms Sheila Remes, Vice-Present of Environmental Sustainability, the Boeing Company; Ms Susanna Kass, Data Center Advisor to the UNSDG; and Dr Darian McBain, Chief Sustainability Officer, Monetary Authority of Singapore will delve into digitalisation as an enabler to circular economy hence boosting the full potential of circular businesses and industries for a sustainable and resilient future.

Insights into the future of sustainable flight, green data centres, financing the green revolution, integrated action towards climate compatible development, reimagined jobs in the digital and circular economy, reskilling workforce for circular economy and getting serious about sustainability topics are directly relevant to Singaporeans.

Deliberations at the event will be aimed at future Singapore - a global city state in harmony with nature.

BigTech as well as FinTech have grown by leaps and bounds since their early years. The sustainability journey is filled with promises, yet fraught with unpredictability. Climate effects are indiscriminate, and the underprivileged groups suffer the most. BigTech, FinTech and GreenTech would ensure that these groups are not only protected from the climate effects but uplifted towards a more equitable future.

FinTech and GreenTech provide opportunities for new entrants, and their creativity enables them to compete with the incumbent established players and long-entrenched privileges. Furthermore, they disrupt socio-economic stratification.

A sustainable, climate-resilient and healthy planet is taking centre stage in our daily life and world economy. Serendipitously, this may herald the largest opportunity of our time to reset our societies and economies.

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