

Digital tech playbook, local carbon metrics launched to help firms go greener

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During the Covid-19 pandemic, sales staff from textile manufacturer Ghim Li Group were unable to travel to the US and Europe to present their seasonal designs to their customers.

Forced to pivot quickly, the company used 3D design software to replicate sample fabrics digitally and showcase them using a virtual showroom.

"The software uses fabric simulation algorithms to model the behaviour of textiles in a digital environment. Data points such as yarn thickness, weave density and elasticity that influence how the material drapes, stretches and reacts to movement are input in the software," said Ghim Li chief executive Felicia Gan.

Besides allowing the company to

adapt quickly during the pandemic, digitalisation has also helped it to cut its carbon footprint since.

The company scrapped two rounds of in-person fabric sample viewings that required taking more than 100 physical samples each time to customers abroad.

This reduced sample waste and emissions associated with those long-haul flights.

"From 2020 to 2025, we have managed to reduce approximately 10 per cent of samples sent to buyers, which translates to about a 5 per cent reduction in carbon emissions," said Ms Gan, adding that the company hopes to reduce its carbon emissions by another 10 per cent.

Ghim Li is one of the case studies featured in the Digital Technologies for Sustainability Playbook, launched on Jan 22. The guide shows enterprises how they can tap on technology to be more sustainable, using real-life examples.

The playbook is one of three practical resources by the Infocomm Media Development Authority (IMDA) launched by Senior Minister of State for Digital Development and Information Tan Kiat How at the Sustainable Tech Forum 2026.

Mr Tan said that as businesses around the world invest in cloud computing and artificial intelligence (AI) to remain competitive, the growth of energy-intensive data centres, electronic waste and demand for more powerful software and devices is driving up the global carbon footprint.

"Digitalisation offers tremendous opportunities to optimise resource usage and create more energy-efficient systems," Mr Tan said.

A survey by IMDA in 2025 found that a third of companies that had not adopted digital sustainability solutions said their key barrier was limited knowledge about sustainability practices.

The three resources were created to help such businesses.

For example, the playbook features examples like smart monitoring systems that can optimise energy usage, and virtual prototyping tools that help with waste reduction.

The second resource is a set of

emission factors developed by IMDA and the National University of Singapore Energy Studies Institute to determine the environmental impact of cloud services in Singapore.

Emission factors refer to the average rate at which a given business activity releases greenhouse gases, and are an essential part of calculating a company's carbon footprint.

Available on the Singapore Emission Factors Registry (<https://sefr.netzerohub.sg>), the data details emissions by service type, cloud configuration and usage duration.

Mr Prannoy Chowdhury, associate director at sustainability consultancy The Carbon Trust, said the lack of localised data for digital services like cloud computing has led to many organisations in Singapore relying on emission factors developed for other regions.

"While these sources are widely used, they are often based on assumptions that don't reflect Singapore's unique energy mix, infrastructure or climate," he said.

For example, data centres in Singapore need more cooling due to the tropical climate, driving up energy and water use.

"Using non-local data can therefore lead to over- or underestima-

tions, making it harder for businesses to report accurately or identify meaningful opportunities to reduce emissions," said Mr Chowdhury.

Mr Tan said that with the help of Singapore-specific emission factors for cloud services, businesses can identify opportunities for decarbonisation and more energy-efficient digital infrastructure.

The third resource released is the Practical Green Software Guide for Enterprises, which sets out how software can be designed in a way that minimises carbon footprint. Like the playbook, it is available on IMDA's website.

It offers "practical steps such as right-sizing AI models, designing leaner software, and tracking and monitoring energy usage and costs", Mr Tan said.

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