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# Digitalisation is growing, so is its carbon footprint

Every digital service – from teleconferencing to YouTube videos to Bitcoin mining – exacts a cost in emissions. More attention needs to be paid to the greening of the digital supply chain.

**Girija Pande and Frederic Donck**

It would be an understatement in today’s world to say that digitalisation and green transformation have become two top priorities for governments and businesses around the globe.

Global spending on digital transformation could top US\$2.4

trillion (S\$3.3 trillion) by 2024, more than double that in 2019 before the pandemic. This dramatic shift to digital everywhere has been driven by an increased understanding of how environment and climate changes can affect economic growth, asset values and financial markets.

Digitalisation clearly has streamlined existing processes, transformed many industries and is widely seen as a major bridge

towards a new carbon-neutral world.

While much of sustainability efforts have focused on digitalising traditional industries, the environmental impact of the Internet itself remains poorly addressed at a global level. Yet research shows it is huge.

In its effort to “greenify” its activities, the digital industry has committed to optimising the use of its equipment that is required to run the Internet – tangible equipment such as data centres, servers and end-user terminals – or to using renewable energy wherever possible to cut back on emissions.

However, this misses the intangibles which also have their

own carbon footprints. For example, demand for Internet traffic, data and digital services, which represent the intangible part of the Internet, is expected to continue its exponential growth globally and is at least doubling every year.

Excluding this intangible part of the Internet would not only prevent an accurate assessment of the full environmental impact of the Internet, but it will also deprive key stakeholders, the industry, the investors and governments from accelerating their sustainability objectives.

Some examples will be illustrative. Numerous studies from think-tanks indicate that carbon emission of the Internet itself is nearly twice as much as the pre-pandemic airline industry, and its annual water footprint equals one million Olympic-size swimming pools.

Bitcoin mining activity is so carbon-intensive that even Tesla’s chief executive Elon Musk gave a warning of its sustainability challenge.

The increase in videoconferencing and video calls in these pandemic times also has an environmental impact. A recent study in the United States by Purdue University estimates that an hour of videoconferencing or streaming emits between 150g and 1,000g of carbon dioxide. It is estimated that a single intervention in the design of YouTube video streaming services

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Besides video streaming, other services such as the 5G roll-out, the massive build-up of cloud computing services, online ads, gaming, artificial intelligence, quantum computing and blockchain technology would offer similar benefits from a renewed emphasis on redesigning digital products and services with sustainability in mind.

This is why Brussels-based global organisation DigitalGoes.Green Foundation was set up to research, advocate and bring together industry, governments and consumer groups that are all keen to keep the exploding digital services green.

The focus must be to make sure digital services are “green by design” while they are being created. The foundation is supported by many leading Institutions, including the European Union and the World Economic Forum.

Recognising that the digital economy is circular, DigitalGoes.Green works with every stakeholder involved in the financing, design, development and deployment of digital services.

In Europe, the foundation’s objectives align with the objectives of the European Commission’s EU Green Deal and sustainable finance. The aim is to incentivise the digital industry to reach its sustainability targets by accelerating its existing efforts and offer businesses a competitive advantage while investing in eco-friendly and innovative digital services.

Sustainability should be the new standard for investing, and it can go hand in hand with the promises of an eco-responsible digital services sector.

Finally, one should empower users to make informed choices and shift demand for sustainable digital services, and help policymakers navigate in a sustainable digital services ecosystem.

As we start our journey towards sustainability in every human activity, it would be wise to focus on the substantial impact the greening of digital products can bring.

Singapore has been leading the digital and environmental challenge in Asia under its Singapore Green Plan 2030, which outlines its whole-of-nation approach to sustainable development. It would be wise to focus on greening the digital chain itself – right from the beginning.

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