#SmartNationIB #GovTechSG

Sustainable Digitalisation – Opportunities and Challenges

HENRY CHANG

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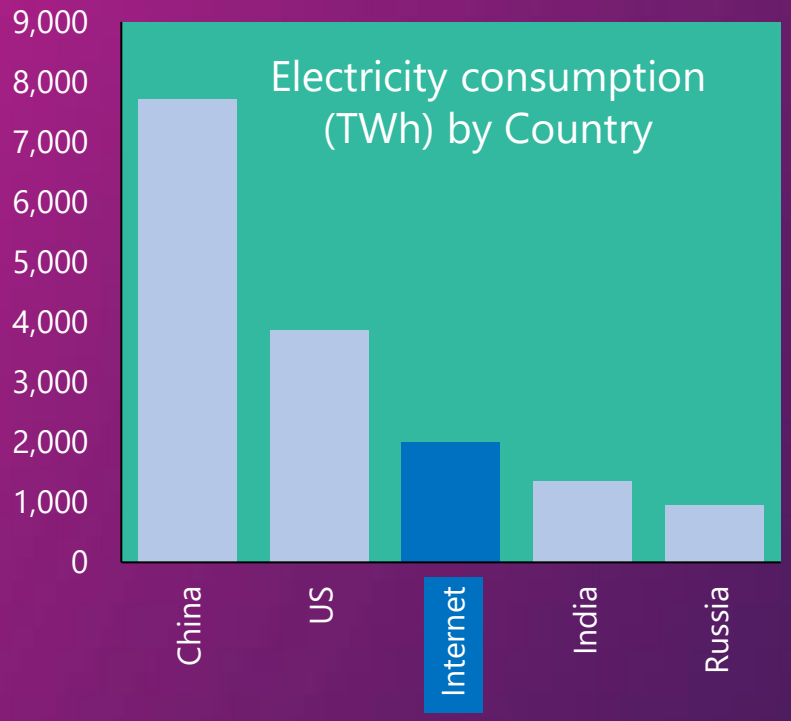
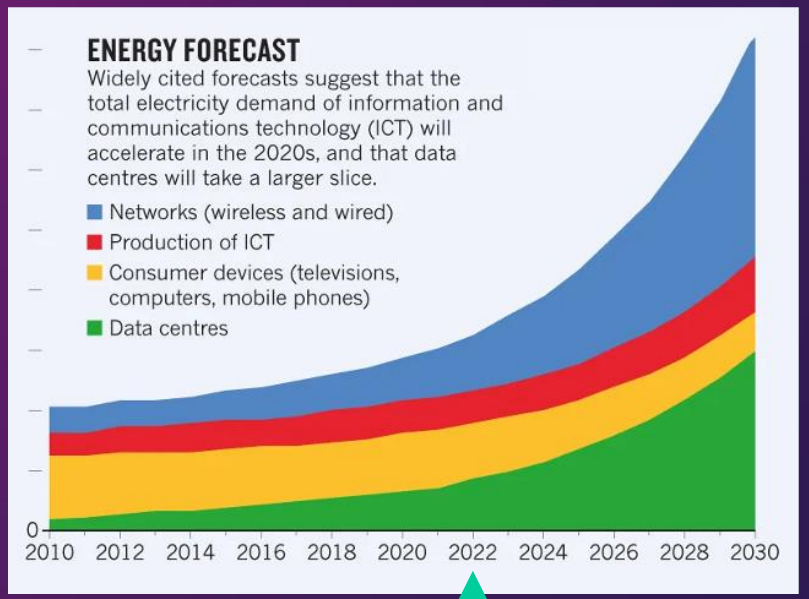
Digitalisation has a high carbon footprint and growing trendline

If the Internet was a country, it would rank 3rd in global electricity demand [1]

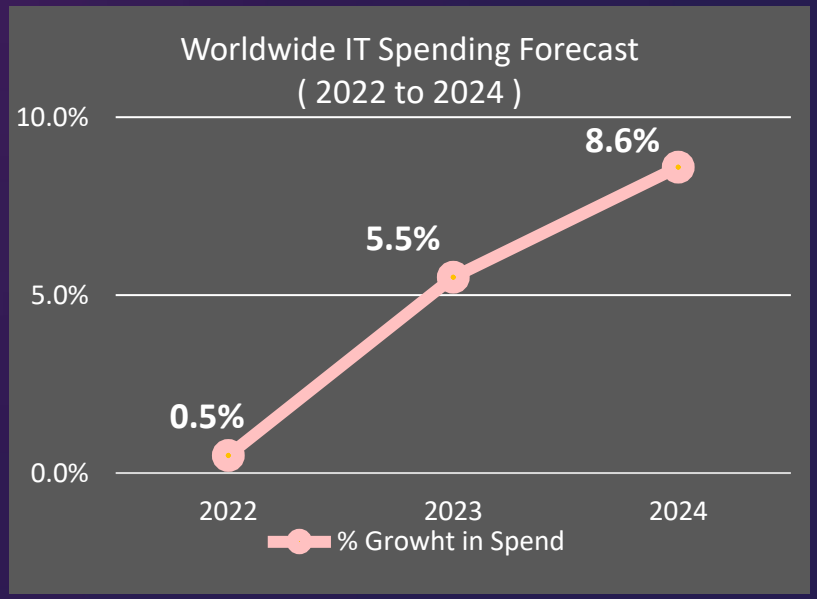


By 2030, electricity used by ICT could rise beyond 30% [2]



~10% global electricity use today

Steady Growth in Worldwide IT Spend [3]



Source
1) Smart Green World (Steffen Lange, Tilman Santarius, 2020)
2) On Global Electricity Usage of Communication Technology: Trends to 2030 (Anders Andrae, 2015)
3) Gartner, April 2023

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Mounting pressure for organisations to Be Green(er)

Lower Cost of Renewables

Renewables cost less than fossil fuels and continue to decrease in price

High Cost of Carbon Tax

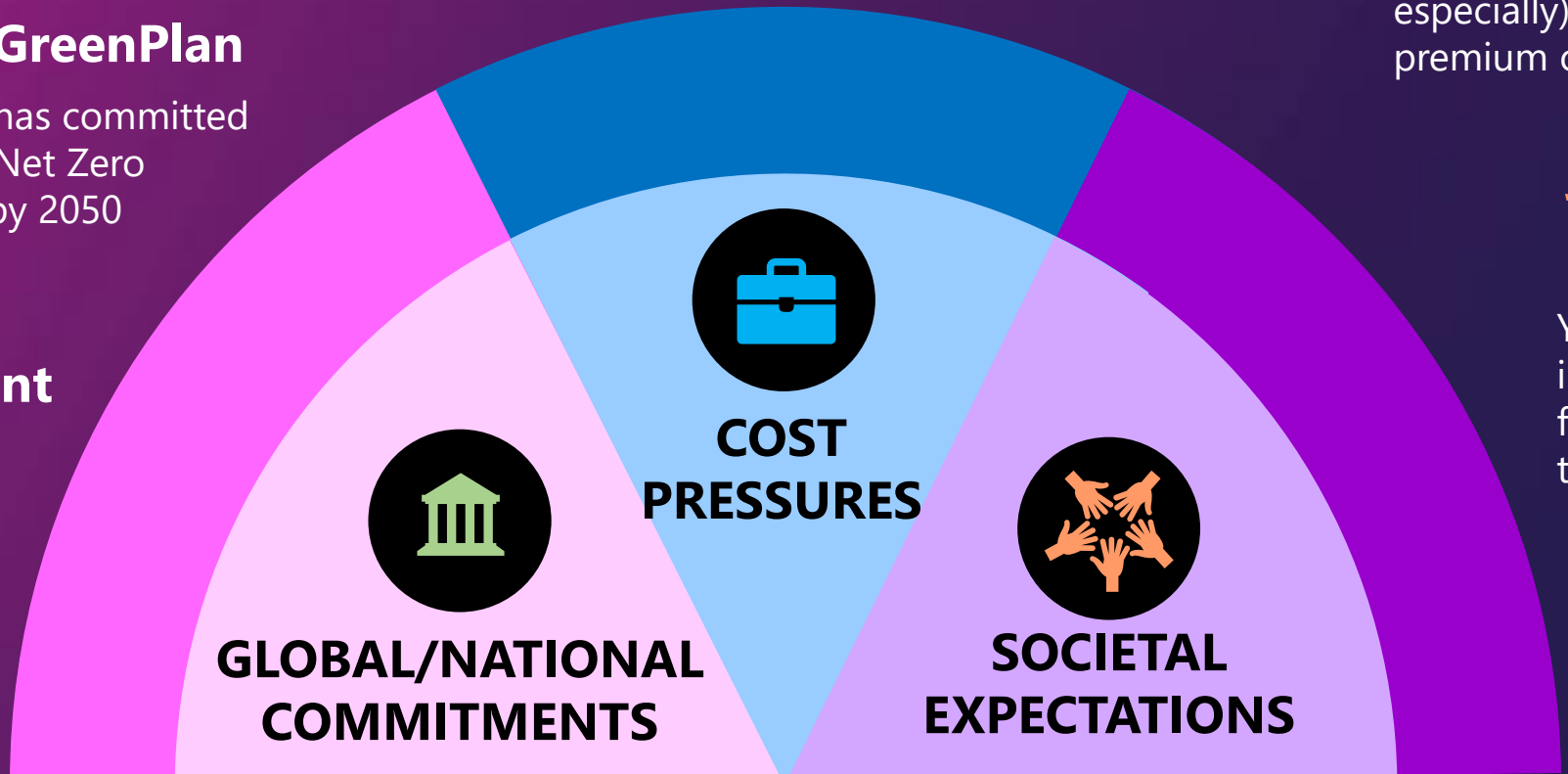
Govts are taxing the carbon externality; IMF recommends $75/tCO2e as the 2030 target

Investor/Buyer Appeal

Investors and Consumers (Gen-Zs especially) say they will place a premium on sustainable products

SG GreenPlan

Singapore has committed to achieve Net Zero emissions by 2050



Talent Attraction

Younger workforce increasingly want to work for companies aligned with their personal ethics

Paris Agreement

1000+ companies have pledged to act against climate change

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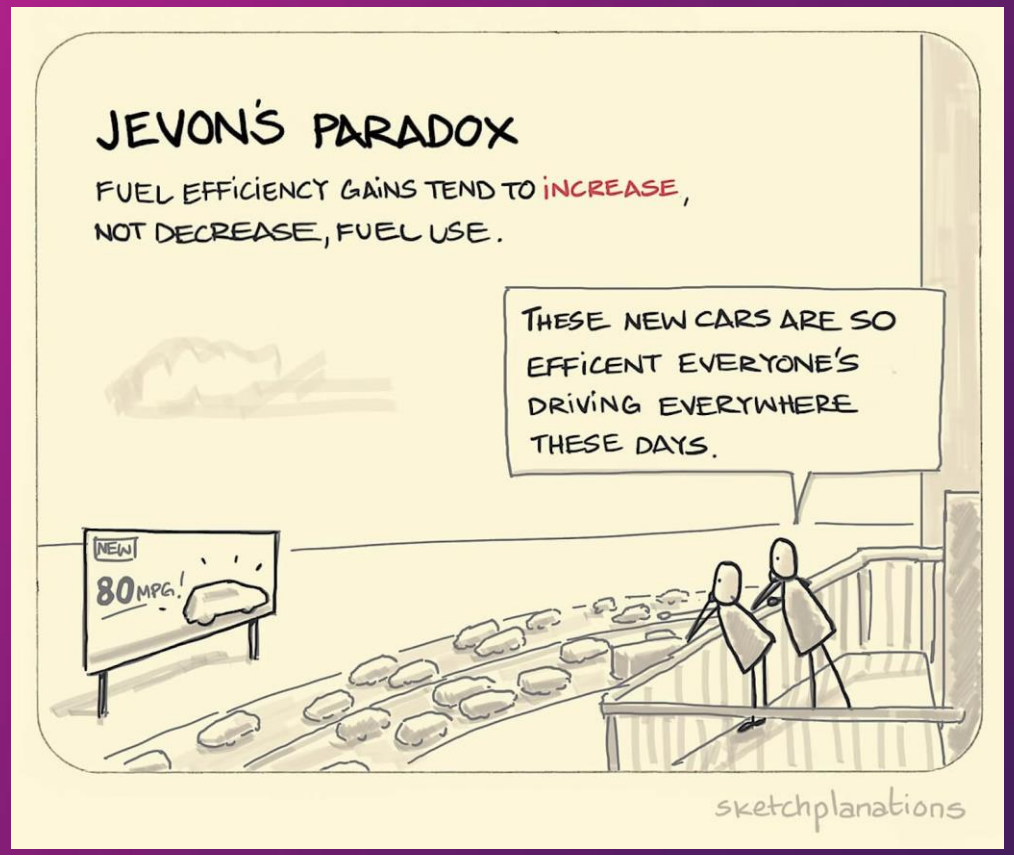
Digitalisation and Sustainability Paradox



The global AI market could be worth $1,600 Billion by 2030.

Digitalisation and AI have potential to address major societal issues, but it can have serious environmental implications if not well-managed

Calls for a balancing act between its huge potential vs its carbon footprint

Sustainable Digitalisation

1	**How we, <u>as IT professionals</u>, perform digitalisation in a sustainable manner** (our practices across the digital value chain)
2	**How we, <u>in our organisations</u>, leverage technology for sustainable outcomes** (our digitally-powered sustainable outcomes)

GovTech's Sustainability Framework at a Glance

Vision To become a Net Zero Government by 2045

Mission Adopt sustainability as a core principle in our digitalisation business and professional way of life

SG Green Plan [WHY]	City in Nature	Energy Reset	Sustainable Living	Green Economy	Resilient Future

Key Pillars [WHAT]	**Sustainable Organisation** Green GovTech Operating Culture	**Sustainable ICT&SS** Green Digitalisation Practices for WOG	**Digital Innovation for Sustainability** Green Outcomes Enabled for WOG

	PEOPLE	PRACTICES	PARTNERSHIP
Key Enablers [HOW]	1 **Green Workplace**	3 **Green Supply Chain**	5 **Innovation & Ops-Tech**
	2 **Education & Outreach**	4 **Architecture Standards & Best Practices**	6 **Ecosystem Partnerships**

Measure & Optimise	Digitally Enabled Monitoring and Reporting Platform
Govern	Sustainability Committee & Workgroups

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Key Pillar #1 - Sustainable Organisation

Optimise operations through deliberate consideration of a wide array of environmental factors when making business decisions, and the consistent practice of Reduce, Reuse, Recycle

Sustainability Culture

Sustainability is a shared value at all levels of the organisation, and an integral part of any decision-making process

Optimised Operations

Environment management is strengthened with data and smart automation with predictive and adaptive process controls in real-time

Green Digital Office

Physical workflows and transactions are digitalised to cultivate a sustainable and collaborative workplace that inevitably minimises waste

Key Pillar #2 - Sustainable ICT&SS Value Chain

Incorporate sustainable practices across the digital value chain ensuring that our digital production and operations are done as sustainably as possible to reduce emissions

Green Supply Chain

Sustainability criteria embedded in relevant procurement and disposal tenders, and suppliers are screened regularly for their sustainability compliance

Equipment & User Devices

Equipment and devices are evaluated for lifecycle carbon emissions, and used/re-used optimally to minimise energy use and physical wastage

Green Hosting in Cloud & DCs

Data centre consolidation, adoption of green cloud architecture and best practices, and optimisation of cloud resourcing with IAC, auto-scaling and active mgt.

Green Software and Data

Apps eco-designed and coded efficiently to prevent unnecessary data storage/transfer and resource utilisation. Fit-for-purpose data storage including dark data mgt.

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Key Pillar #3 - Digital Innovation for Sustainability

Innovative use of digital tech in critical use cases that would enable sustainable outcomes and contribute to SG GreenGov and Singapore's Net Zero goals

Strong Ops-Tech Integration

Co-ideation and co-delivery of sustainable services with agencies implemented via cross-functional and cross-agency ops-tech teams

Ecosystem & Community

Strong Partnerships with ecosystem actors to jointly innovate, crowdsource, and deliver on sustainability trials and/or solutions

Sustainable Facilities

Automate resource optimisation and preventive maintenance

Biodiversity Protection

Intelligent monitoring for protection and conservation

Digital Twins

Build digital twins for various city planning use cases

Data Mgmt & Analytics

WOG Sustainability Dashboard for for analytics & decision-making

Growing global momentum to advance research & discourse

INR Institut du Numérique Responsable
SUSTAINABLE IT CHARTER

CODES
COALITION FOR DIGITAL ENVIRONMENTAL SUSTAINABILITY

GeSI
ENABLING DIGITAL SUSTAINABILITY

Green Software Foundation

THE GREEN WEB FOUNDATION

Sustainable Digitalisation calls for a whole ecosystem effort

Architects
green archiecture and solution design

Sw Engineers
green coding, software stack, and dev-ops

Infrastructure
green digital facilities and equipment

Data Scientist
green AI with balanced ML training

Procurement
sustainable sourcing

Designer
green UI/UX

Ops Manager
green end-of-life management

End-Users
responsible digital habits

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Will the Smart City
we are engineering also
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Moderator

Eleana Liew
Managing Director
Public Sector
Accenture SG Services

Patrick Pang
Chief Technologist, ASEAN
Worldwide Public Sector
Amazon Web Services

Andy Sim
Vice President & Managing Director, Singapore
Dell Technologies

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Quick Poll

Sustainable Digitalisation is still fairly nascent.

Q1. What is the top priority of your organisation?

Q2. What is the top challenge in your organisation?

Enter Password

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Will the Smart City we are engineering also be a Sustainable City?

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