![Ministry of Communications and Information - An Engaged and Connected Singapore]

Transcript of Speech by SMS Janil Puthucheary at
36th CIO Workshop on Tuesday (11 July 2023)

Ladies and gentlemen,

1.   Good morning, thank you for inviting me. It is my pleasure to join you this morning at the 36th CIO workshop. I am heartened by the organising team's choice to bring together this group to talk about issues of environmental sustainability. And I think the opportunity to discuss the best practices; share ideas of prevailing challenges that we all face, such as how to bring this industry and the environmental sustainability agenda forward, is going to be very useful.

2.   In this room, we recognise the potential for innovative technology solutions to catalyse transformation within our organisations; industries; and business models. That technologically driven transformation allows us to deliver our missions more effectively and productively. However, not all would have developed as deep an understanding of the potential for technology solutions to uplift our organisation's environmental sustainability and resilience.

3.   Today, I will share some thoughts on the opportunities at the convergence of technology and environmental sustainability, and how we can strategically position ourselves to unlock opportunities for our organisations, Singapore, and the world.

4.   Sustainability has always been part of Singapore's DNA, even before the term "sustainability" became common. Once, during a certain age, the term "green" in Singapore was always preceded by "clean and". We were talking about greening our city for a long time. There was this recognition in our society, governance and development. But the idea that "we are not just small, but also constrained" – that resource output, carbon output, the factors of production – were always limited for us. This meant that we had to think about "being green" before we scientifically understood the environmental cost. We find ourselves now in transition, where much of the world has understood the same challenges.

5.   In 2022, we renewed this commitment through our Green Plan to achieve net zero by 2050. The public sector is committed to lead this via our GreenGov.sg initiative. To achieve this, we will continue to develop innovative solutions and changes in how we operate.

6.   We have made progress in sustainability of the built environment through infrastructure improvements which promote walking, cycling and public transport, enhancing energy efficiency such as through the use of LED and energy saving devices, and cultivating communities to care for the environment.

7.   As an ICT community, we are powering the digitalisation and transformation across sectors. Therefore, if we take active steps across our value chain to enable this increasingly Green ICT and unlock ICT for Green, we can bring very significant benefits to all. While this is a nascent space, it is timely to think about what our approach might be and what we should put effort and priority on.

8.   Green ICT could take many forms such as:

      i.   adapting data centres to be more energy efficient,

      ii.   adopting green software and software development practices that minimise energy consumption and

      iii.   exploring green ICT products and services with lower emissions profile.

9.   To catalyse these efforts, we have prioritised sustainability as a key theme in our Next Bound of Digital Government. We have recently launched our Digital Connectivity Blueprint (DCB) detailing some of the things we will need to do in the next 5 to 10 years to make sure of infrastructure that supports our technology and ICT transformation here in Singapore is – robust, resilient, fit for purpose – and you will find throughout that document, repeated commitments to an increasingly green infrastructure standard. Green ICT will

also be a consideration in our procurement practices. We cannot do it on our own and need industry to widen the range of cost-effective sustainable products and services.

10.   Green ICT has to be harnessed as a means of pursuing sustainability. This includes:

i.   using modelling and simulation tools to optimise planning and design options which leads to reduced emission pressures – such as building configurations that optimise environment factors requiring less energy for cooling and locating EV chargers to promote adoption of EVs,

ii.   implementing smart systems in buildings, such as smart lifts which are both energy efficient and reliable and

iii.   employing sustainability monitoring and reporting tools to help households reduce energy consumption and businesses to access green financing.

11.   We see these starting to manifest in our new towns, such as Punggol, which is greener. We have the Punggol Digital District, developing jobs in this ecosystem and industry. Punggol as a town is also greener. We have made a deliberate effort to make sure the environment has that ecological footprint. We have used micro-climatic simulation which informed the town layout during the planning stage improving wind flow; and smart lifts, utility meters, lighting, pumps, irrigation are deployed within the estate today. These technologies have improved over the last few decades and HDB has done this over 20 – 25 years and you can see different stages of these implementations, informing us how we might take these technologies and implement around field sites across Singapore. These solutions, together with changes in business models have the potential to scale across both brownfield and greenfield sites, and potentially offer good returns on investment.

12.   In this space, we can't get things done without data. We need fit-for-purpose data to drive the above innovations; the tools alone will not deliver the desired outcomes. Simulations rely on representative data as inputs to the studies; smart systems will depend on timely and accurate data to inform decisions, and reporting standards requires reliable

and efficient data sources if the reporting standards were to play their part as adequate safeguards.

13.   These are unfortunately not easy to address, as data may at times be costly to collect and manage; there may also be different interests between the data owners and data consumers. Having robust governance mechanisms to facilitate data sharing among public and private stakeholders, is one of the means that we believe can help overcome the challenges.

14.   For example, the Building and Construction Authority (BCA) and the National Research Foundation (NRF) have set up the Super Low Energy Building (SLEB) Smart Hub to aid building owners and developers to assess the cost-benefit of solutions. This centralised resource is a one-stop platform to access information on green building technologies and performance data. It is also equipped with artificial intelligence (AI) capabilities, to provide personalised recommendations tailored to the specific needs of building owners.

15.   As part of our national Research and Innovation and Enterprise (RIE) efforts, we are building a new platform to facilitate the safe sharing of government data in the Urban Solutions and Sustainability (USS) domain. This will streamline the search and access of data needed for USS research and enable more insights and innovation to be unlocked.

16.   To foster Green Financing, the Monetary Authority of Singapore (MAS) has been driving Project Greenprint to facilitate flow of consistent and reliable ESG data among financial institutions, investors, and green technology solution providers. This collaborative framework focuses on putting verifiable data in the hands of financiers, to allow investments and loans to flow towards firms that are keen to leverage technology in their sustainability journeys. This also supports financial institutions' own efforts to decarbonise their portfolios, creating a win-win situation for all involved.

17.   For the above to happen, partnerships are key, and are essential in our way forward. We need to pool together our collective wisdom and efforts of the public sector, industry, institutes of higher learning (IHLs), professional bodies and our communities.

18.   In places like Punggol Digital District and Jurong Lake District, we are experimenting not only with new smart and green technologies, but also new models of partnerships. In PDD, JTC and SIT formed a Living Lab to enable like-minded partners to jointly build a talent pipeline, co-innovate and do test-bedding, and drive entrepreneurship to scale these models. In Jurong Lake District, IMDA, SNDGO and URA launched an Innovation challenge to invite solutions from industry and researchers to address challenges in waste and water management, promote a car-lite lifestyle, and enable low-carbon solutions.

19.   Other than these industry partnerships, community driven initiatives also have a role in engineering sustainability and community spirit. Efforts by Engineering Good has ensured that vulnerable communities such as those who are low-income or have disabilities also have access to these empowering technologies. They do this by salvaging and upcycling laptops to provide devices to those in need, thus making sure that no one gets left behind in this digital age while also tackling the issue of e-waste.

20.   There are many things to be done in this space. Things for Government, things for the private sector and things for the community. Many challenges and tasks to be addressed – how do we green our infrastructure, data and governance, development processes, how we bring together new models and how do we bring together tools to govern all of this. This means that there are plenty for us to do and hopefully this means there is lots of opportunity in this space.

21.   I urge all of us in the ICT professional community to bring together our expertise and experience to chart the future approach of Green ICT and ICT for Green together. This will serve our generation and future generations well, as we continue to harness the growing capabilities of ICT, developments from AI and autonomous systems, and our ambitions in smart cities and smart urban solutions.

22.   I wish all of you a fruitful time in the workshop.

Thank you.