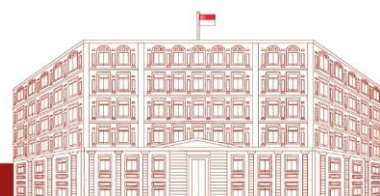


**Transcript of Speech by Dr Janil Puthucheary, Senior Minister of State for
Communications and Information, at ATxEnterprise on Thursday, 8 June 2023**

Ladies and Gentlemen,

Good morning.

1. These days, it is hard to start a speech without acknowledging the pervasive influence of Artificial Intelligence (AI).
 - a. The potential of AI tools like ChatGPT is only the tip of the iceberg. Generative AI will unlock transformative possibilities, across many sectors and industries.
 - b. But as our businesses scale up adoption of these AI-powered services, demand for high-bandwidth connectivity and compute power will increase significantly as well.
 - c. To enable our businesses to seize the opportunities of such emerging technologies, our digital infrastructure has to be ready to support these demands.
2. Digital infrastructure is foundational not just for the adoption of cutting-edge technology like AI, but also for the day-to-day activities of our people and businesses.
 - a. Many of our widely-used digital solutions, like digital identity and e-payments, depend on trusted and secure digital connectivity.
 - b. Many jobs and businesses today, even those beyond the tech sector, rely quite heavily on digital infrastructure that is reliable, safe, secure, and always on.
 - c. Even the way we communicate daily with our loved ones increasingly takes place on apps and platforms that are underpinned by reliable digital connectivity. It is that social inclusion for people in the older generation, to be





able to be kept aware of what their children or grandchildren are going through. This may not be as exciting or interesting as the possibilities from other new innovations, but it is an important part of what we deliver with our digital connectivity.

3. To ensure our people and businesses are well-positioned to seize the opportunities of the fast-growing digital space, it is critical to ensure our digital infrastructure is future-ready.
4. Here in Singapore, we have always adopted a future-oriented approach to digital infrastructure planning. We made strategic investments to build ahead of demand, even before the use-cases or “killer apps” had been well-defined. This approach has thus far served us well, for example:
 - a. Our early investments in our Nationwide Broadband Network made back in the mid-2000s not only enabled us to enjoy richer and more immersive digital experiences, such as e-learning, high-definition entertainment and online collaboration, but it was crucial in giving us the capacity to support the transition to online work and home-based learning during the pandemic, supporting societal resilience and business continuity, and uninterrupted education.
5. We will continue to take such a future-oriented approach in planning for our digital infrastructure developments. To that end, Minister Josephine Teo just launched our Digital Connectivity Blueprint on Monday, which sets out our digital infrastructure plans for the next decade.
 - a. In the Blueprint, we go beyond traditional connectivity infrastructure and set out our plans for all three layers of our digital infrastructure stack – hard infrastructure, physical-digital infrastructure, and soft infrastructure.





- i. We will ramp up our connectivity and compute capacities in our hard digital infrastructure – such as our subsea cables, data centres, broadband networks, and mobile networks.
 - ii. We will also enhance our soft infrastructure which supports key digital transactions, including digital identity, e-payments, and document verification. Collectively, this forms our Singapore Digital Utility Stack.
 - iii. We also set out plans for more nascent physical-digital infrastructure and the issues around them, which supports interaction between the physical environment and digital systems. This includes sensor devices and middleware that enables different devices and systems to communicate with one another.
6. Across the digital infrastructure stack, we are laying the foundations to ensure our people and enterprises continue to benefit from emerging technology trends, that they can stay at that cutting edge; and to support future demand for domestic and international connectivity, which are crucial to the value proposition that we have here in Singapore:
 - a. We will enable end-to-end 10Gbps domestic connectivity within the next five years – across broadband, Wi-Fi and mobile networks. This seamless connectivity will pave the way for future enterprise applications, such as the pervasive use of autonomous systems.
 - b. We are also committed to providing enough landing space and resources for submarine cable landings to double within the next 10 years. This will support the growing bandwidth needs of the global digital economy.
7. To complement our investments in connectivity infrastructure, we will also ensure that our compute infrastructure can meet future demand for computational power to support large-scale digital applications.





- a. The ramp up and growth of compute capacity has to be matched with ensuring environmental sustainability, and to this end we will pioneer a roadmap for the growth of new green data centres.
 - i. On this front, I am happy to announce that Singapore has developed one of the world's first standards for optimising energy efficiency for data centres in tropical climate countries.
 - ii. As demand for data centres increases, energy efficiency will be critical for ensuring sustainable growth of the industry. These standards will help operators determine the best operating temperature and conditions to optimise energy efficiency, whilst safeguarding operational reliability.
 - iii. One data centre operator which has adopted this standard, estimated energy cost savings of 250 thousand dollars per year.
 - iv. We invite more data centre operators to use this standard to achieve greater cost savings for themselves, and to promulgate sustainability at a wider level across the data centre sector.
- b. Besides data centres, we are also working closely with international partners to contribute to regional and global efforts in digital sustainability.
 - i. I am happy to announce that we have formed partnerships with key industry leaders, like IBM and Microsoft, to drive the establishment of green software and best practices in sustainability. The more we can engineer greater energy efficient algorithms to work in the most energy efficient way, the more that we can drive our sustainability agenda.





- ii. We also participate actively in industry-led initiatives. We are a supporting member of the European Green Digital Coalition - a group of companies supported by the European Commission and the European Parliament, which aims to leverage the benefits of digitalisation to support sustainability goals for various sectors. Singapore's Infocomm Media Development Authority (IMDA) was also the first government agency to join the industry-led Green Software Foundation, which aims to foster collaboration in the software industry for sustainable and green software development.

8. To further support our enterprises in their digitalisation journey, Singapore developed a suite of digital public infrastructure, which we call the Singapore Digital Utility Stack. The Digital Utility Stack provides key functionalities like e-payments and digital document verification to support enterprises and serves as a base upon which we hope innovative digital services and products can be developed.
 - a. One example of these Digital Utilities is OpenAttestation, an open-source framework to simplify the issuance and verification of digital documents using blockchain technology.

 - b. Leveraging this framework, TradeTrust was developed, which enables the digitalisation of trade documents into Electronic Transferable Records, or ETRs. Using TradeTrust, ExxonMobil, Bunkerchain and VLK, in partnership with IMDA, executed the world's first fully paperless live ETR cross-border trade earlier this year.

 - c. This pilot showcased the potential of fully digitalising cross-border trade processes. Businesses will benefit from increased efficiency, cost savings and greater trust. This can potentially lead to more cross-border opportunities not only for enterprises in Singapore, but also the wider global trade ecosystem.



9. The jobs and businesses of the future will have digital woven into their DNA. We are therefore laying the foundations of our digital infrastructure today, to ensure our businesses have the tools and capacity to create the innovations of tomorrow.
10. Fully realising the potential of the digital domain for our economy and society will require the public and private sector to work hand in hand.
11. The launch of our Digital Connectivity Blueprint, which was developed in consultation with the Advisory Panel for Digital Infrastructure, is only the first step in an ongoing conversation between the Government and industry on how to shape Singapore's digital future.
12. As the digital domain rapidly evolves, we will continue to work closely with industry as we implement and refine the plans outlined in the Blueprint.
13. We welcome industry partners to work with Singapore in shaping a digital ecosystem that supports our people and enterprises in seizing the opportunities of the digital domain.
14. Thank you.

