



Ministry of Communications
and Information

An Engaged and Connected Singapore

Speech by SMS Tan Kiat How at 35th CIO Workshop on

21 Jul 2022

Shaping the World of Tomorrow

Ms Ng Wee Wei, Country Managing Director, Accenture Singapore

Mr Daniel Tang, Managing Director, Accenture

Chairman, 35th CIO Workshop Board of Advisors,

Mr Ivan Ng, Chief Technology Officer, City Developments Limited

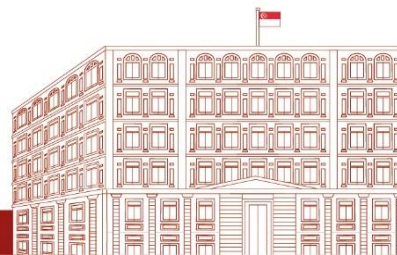
President of ITMA,

Ladies and Gentlemen,

Introduction

1. A very good morning to everyone. It is my pleasure to join you this morning at the 35th CIO workshop.
2. This is an important milestone – the 35th edition of the CIO workshop - in ITMA's distinguished history. It is also an important platform to bring together thought leaders, industry captains and practitioners to discuss important digitalisation issues of the day.
3. I am glad to have the chance to exchange views on the opportunities and challenges in our digital economy.
4. COVID-19 has accelerated the pace of digital transformation. Technological adoption across organisations and in our society has become much more pervasive, including ordering dishes from our favourite hawker stalls online and delivered to our doorstep, to households using digital CDC vouchers at the heartland merchants and shops.
5. According to a recent KPMG report on the outlook of CEOs during COVID-19¹, almost 3 in 4 CEOs in Singapore (72%) have seen their digital business models accelerate during this period.

¹ <https://home.kpmg/sg/en/home/insights/2020/09/digital-transformation-and-the-workforce-of-the-future.html#:~:text=Most%20Singapore%20CEOs%20have%20accelerated,have%20accelerated%20their%20transformation%20programmes.&text=A%20majority%20of%20CEOs%20in,during%20the%20COVID%2D19%20period.>



6. Even as we seize these digital opportunities, the backdrop we operate against is fraught with new and more complex challenges:

7. On the public health front, we are seeing more countries transitioning to live with COVID-19, like what we are doing in Singapore. However, we must continue to keep up our vigilance as new variants of concern might emerge, particularly with the coming winter season in other parts of the world. This COVID-19 pandemic was a stark reminder to all of us that we live in an interconnected world.

8. Another reminder is the disruptions arising from ongoing conflict in Ukraine. The repercussion of the conflict goes beyond Russia and Ukraine, and even US and Europe. The conflict has wider ramifications on the broader global geopolitical, security and economic architecture that many of us have taken for granted for many years.

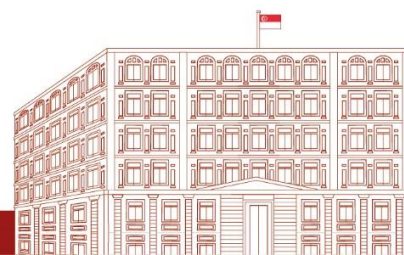
9. In the near term, we saw impact to energy and food markets, as well as disruptions to logistics supply chains. These have further complicated economic recovery as the world slowly emerges from COVID-19.

10. Our technology sector has not been spared. For instance, industry partners have shared with me that digitalisation projects were put on hold due to the shortage or delayed delivery of equipment and parts.

11. We can expect more of such tensions to bleed into the digital technology domain in which we operate, which would further splinter the global digital ecosystem. What all these translate to is that organisations would need to factor in more risks and considerations as part of their digital transformation effort.

12. There are many more leaders and practitioners in the audience today who are more qualified than me to speak on the topic of digital transformation. However, if I may frame this complex issue simplistically, I think of it in terms of “the right place, right people and right time”.

13. **Singapore aims to be in the right place for companies to be for their digital transformation and a partner in your digital journey. We have an established set of enablers to give our firms and workforce a competitive edge** in the digital economy.



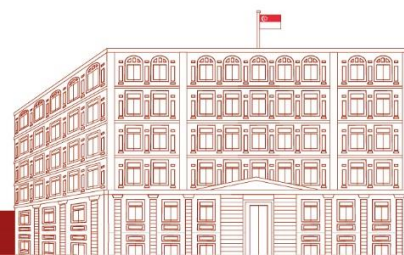
14. **First, a digital infrastructure that is secure and resilient which underpins our digital economy.** An example is our nationwide fibre to the home broadband infrastructure that was put in place more than a decade ago. It proved invaluable in supporting remote working and other use cases when stricter Safe Management Measures were in place. Another case in point is the rollout of our 5G standalone networks, which enable innovative new use cases employing IoT and Artificial Intelligence (AI). This promises to boost efficiency and productivity across many sectors if harnessed to its full potential.

15. **Second, beyond the physical digital infrastructure, our development and innovation of the “softer” layer infrastructure – or digital utilities – enable enterprises and consumers to access digital services in a convenient, secure and trusted manner.** These include applications for authenticating digital identity, document attestation, payments, and secure data sharing that facilitate digital trade. The most recent example is the Singapore Trade Data Exchange (SGTraDex), which is a common data infrastructure for enterprises in the supply chain ecosystem, to share data in a secure and seamless way.

16. **Third, to complement our secure and resilient infrastructure, our laws and regulatory frameworks are regularly reviewed to ensure they remain fit-for-purpose,** balancing between harnessing the benefits of technologies, while protecting the interest of the public and building trust in these technologies. To this end, the Cyber Security Agency of Singapore (CSA) is reviewing the Cybersecurity Act to enhance the cyber resilience of CII sectors and better secure Singapore’s cyberspace.

17. **Additionally, cyberthreats have grown in volume and sophistication in recent years. With our supply chain networks becoming more global, complex, and multifaceted, cyber supply chain risks will be a more commonplace systemic issue.** Vulnerabilities introduced at any point in the supply chain will have the potential to infect many victims at once. CSA is developing cyber supply chain initiatives to strengthen CII sectors and organisations’ overall supply chain cybersecurity posture. We will share more details when ready.

18. **Fourth, on the international front, Singapore has also invested in developing enablers to allow our firms to scale globally.** We have advanced international partnerships in the digital domain, for example through Digital Economy Agreements (DEAs), which build consensus on rules, norms



and standards, so that our cross-border digital ecosystems are interoperable and resilient. To date, Singapore has signed and concluded DEAs² with five countries.

19. This brings me to the issue of getting the right people. Over the decades, the role of the CIO³ has constantly evolved:

20. The 1980s saw the role of the CIO being established in many organisations. Then, CIOs were largely seen as **technology developers** as the mainframe era was maturing. A CIO's primary focus was on managing technical projects, launching IT systems, and using technology to increase efficiency and productivity through automation.

21. In the early 1990s to 2000s, with faster and more reliable connectivity and the maturing of the internet, we saw the flourishing of internet-based business models. CIOs led the push as organisations established their online presence to better service customers, and became **technology integrators within the organisations**, integrating various business solutions with the deployment of systems like Enterprise Resource Planning.

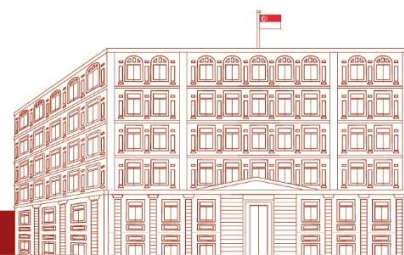
22. Today, as more businesses move onto cloud-based platforms and leverage technologies like AI and machine learning, CIOs evolve to become **not just technology architects but business architects** – championing new business models, re-engineering existing processes and orchestrating vast amounts of decentralised IT resources and data to advance product and service innovation.

23. **Today, CIOs have a firm seat at the leadership table.** Your roles have expanded far beyond technology – you drive agility, innovation, and business growth. You conceptualise and execute, as businesses are increasingly shaped by digital opportunities and enabled by digital technology.

24. **We are proud of our digital leaders who are pushing boundaries and taking your organisations to the next level, and we want to develop more of such leaders who would be critical in the next phase of our economic development.**

² Singapore's DEAs (and partners) include the: Digital Economy Partnership Agreement (with Chile, New Zealand) (signed), Singapore-Australia Digital Economy Agreement (signed), UK-Singapore Digital Economy Agreement (signed) and the Korea-Singapore Digital Partnership Agreement (concluded/pending signing).

³ Deloitte, *From the Basement to the Cloud – "The role of the CIO over our decades"*.



25. **The Government has rolled out a suite of initiatives to partner the industry in nurturing the next generation of tech leaders.** For instance, our Singapore Digital (SG:D) Scholarship grooms aspiring tech talent to become trailblazers by supporting them in deepening their skillsets through courses, certifications, and overseas programmes. We also offer internship opportunities with regional exposure in key areas such as product development.

26. IMDA also aims to develop mid-to-senior level tech professionals who are primed for senior leadership positions within their companies, through leadership training and mentorship.

27. Together with our SG:D scholars, these selected professionals experience facilitated access to a vibrant global community of past scholars and industry experts, building a network of tech leaders who can contribute to the tech ecosystem and uplift new generations of tech talents in Singapore.

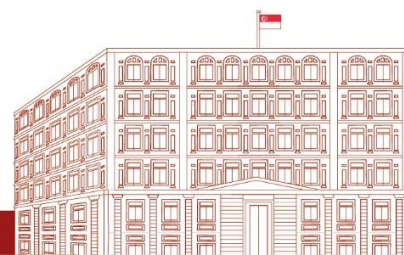
28. Another example is the SG Women in Tech (SG WiT) initiative which is supported by community and industry partners. Launched in 2019, the initiative aims to attract and develop more girls and women in tech especially in leadership positions. Programmes include MentorConnect, a cross-company mentorship programme which has developed close to 100 women professionals in tech, and the She Loves Tech conference, which has provided more than 3000 attendees with exposure to thought leaders and role models in tech.

29. Yet, even with the right people at the helm, digital transformation will remain but a vision without the right talent to execute it.

30. Today, around half of Singapore's tech professionals fill tech roles outside of the tech sector, helping to drive transformation in companies across the wider economy.

31. **A systems-based approach is needed to ensure that our firms have access to a robust pipeline of skilled digital talent,** to fill these roles and take your companies to the next bound.

32. We are committed to working with industry to nurture a strong pipeline of local tech talent, and to ensure that our existing tech workforce remains relevant and competitive. Your partnership – as leaders in your respective fields, and as hirers of tech talent across the economy – is crucial to the success of these efforts.



33. **First, given your understanding of industry needs, you are essential to equipping our workforce with the relevant tech skills for the workplace.** Very often, this involves partnering with our institutes of higher learning to ensure that our ICT curriculum is up to date.

34. As an example, we recently announced an upcoming Bachelor of Science with Honours programme in Applied Computing at the Singapore Institute of Technology (SIT), that will come with a specialisation in FinTech.

35. IMDA and MAS had worked closely with financial institutions including DBS, Standard Chartered Bank, AIA and JP Morgan (Southeast Asia), and of course SIT, to ensure that the course would introduce the right technical skills and finance knowledge for FinTech roles. The course will see its first cohort of students this year. They will be trained not just in finance, but in software engineering, blockchain, and machine learning too.

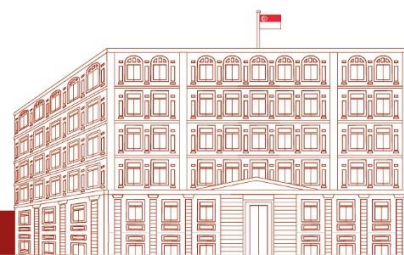
36. **Second, to support hirers of tech talent, we want both fresh graduates and mid-career workers to enter the tech ecosystem. We also work with you to train Singaporeans to take on these roles.** This is particularly important for Polytechnic and ITE students, who account for more than half of our graduates from tech courses every year – 4,500 out of 7,500 students.

37. Our new TechSkills Accelerator (TeSA) for ITE and Polytechnics (TIP) Alliance, brings together companies which have committed to supporting these students with attractive career pathways – including internships, apprenticeships, and work-study programmes.

38. With the support of progressive employers, such as NCS, Accenture and IBM, which have committed to providing structured opportunities, many Polytechnic and ITE graduates will be able to contribute in roles such as data engineers, database administrators, and application developers.

39. I would like to urge more companies to partner IMDA to provide more hiring pathways for our Polytechnic and ITE graduates, and also to adopt more progressive hiring practices, by looking beyond academic qualifications and using skills-based assessments and certifications.

40. **We welcome more firms to join us in this effort.** Please give our Polytechnic and ITE graduates a chance **to demonstrate their skills in the tech industry, alongside their resilience and determination to succeed,** and not filter them out at the outset.



41. **Lastly, the fierce competition for tech talent also means that Singapore must remain open to global talent.** They bring expertise and skills that help sustain the growth of our Digital Economy – and create jobs and value for Singapore and for Singaporeans.

42. Businesses can continue to tap on channels like Tech@SG and Tech.Pass to bring in top-tier tech talent. We will continue to support these firms that contribute to our economy and tech ecosystem while creating opportunities for Singaporeans.

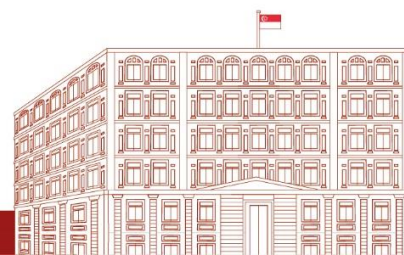
43. **Besides bringing in global talent, tapping on offshore delivery centres to complement our local tech talent** would be another way to enable a more resilient and sustainable manpower strategy.

44. As our economy re-opens, it is clear that the way people live and work has fundamentally changed. Digitalisation has enabled us to remain productive without needing to work fully from the office, and recent studies have shown that more people want flexible work arrangements as the “new norm”.

45. Nonetheless, the challenges of developing offshore tech teams are non-trivial and having more local teams working on a hybrid basis further complicates matters. Language barriers and cultural differences are just a few issues even big companies have to grapple with when orchestrating feasible remote overseas teams, let alone the smaller ones.

46. As an overall tech industry, there is scope for companies to come together to rethink an industry-led offshore talent strategy - How to better organise and position our firms to attract and retain offshore talent? What markets to enter? And how can the Government facilitate your endeavours? These are some of the questions which my colleagues and I would be happy to hear your thoughts on, and continue to work with you on these approaches. We don't presume to have these solutions, but we are very happy to sit down and discuss options, and understand your thinking and gather together some of our ideas moving forward.

47. I spoke about Singapore's aim to be the right place for you and your team as your organisations embark on the next phase of your digital transformation journey. I also spoke about how we would like to partner you in developing the right people to drive your digital transformation, not just at the digital leadership level, but also nurturing the right set of tech talents at various levels.



48. I would make a final point that there is no ideal right time. We need to act now when investing in our future, and no time is as good as the present.

49. I look forward to partnering you in seizing exciting opportunities in the digital economy, even as we navigate the many complex challenges ahead of us. By working together, I am confident that we can successfully do so.

50. I wish everyone a fruitful workshop ahead. Thank you.

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