ADDRESS BY MR CHAN CHUN SING, MINISTER FOR EDUCATION AT THE GLOBAL LIFELONG LEARNING SUMMIT, 1 OCTOBER 2024

1.   A very good afternoon to all of you and a special welcome to our foreign guests for joining us for this second edition of the Summit.

2.   The theme of this year's Summit is about humans flourishing in the age of artificial intelligence, or AI. This word "flourishing" was chosen carefully, because it means that we need to try, that we want to go past the doom and gloom that some people associate with AI.

   a. There has been much discussion about AI, as I have mentioned, and many people are concerned about the disruption that AI will bring to our lives, jobs, education system, and perhaps every aspect of our roles. But at the same time, I think it's always important for us to remember that there are always opportunities for us to create new value propositions in this fast-changing world.

   b. The focus of this Summit is to go beyond AI itself, to explore AI's intersection with lifelong learning and human capital. How do we think about harnessing AI for work and for learning?

3.   The Summit's conversation is set against the backdrop of two key transformations. First, AI is transforming jobs in profound ways.

a. The International Monetary Fund (IMF) estimates that almost 40% of global employment is exposed to AI. This climbs to 60% in advanced economies, given their proportion of highly-skilled jobs.

b. Jobs that involve more repetitive tasks, such as data crunching, were already exposed to automation. With AI, they face a higher risk of displacement.

c. Even creative work such as writing and media production that rely on originality, imagination and artistic expressions, once regarded as traits that are difficult for AI to imitate or replicate, are being impacted by generative AI.

d. The jobs where AI is less likely to replace humans yet are more likely to be found in high-touch and high-trust sectors, such as healthcare.

4. So all is not doom and gloom, there are tremendous opportunities too.

    a. New jobs will be created, with demand for human skills to manage AI infrastructure and data management.

    b. Greater productivity savings could be reaped with AI tools, allowing workers to better focus on core functions such as exercising human judgement.

    c. In fact, the more we use technology, the greater the human judgement needed on what to use, how to use it ethically, how much to use, and use it for whom.

5. The second set of sources impacting us is that education technology is also rapidly transforming the way we deliver education and skills training.

    a. In the past, the traditional classroom suffered a classic trilemma, as we call it. They could not achieve quality at scale, proliferation with speed, and affordability in cost all at the same time.

b. So if you think about it, if you have quality and scale, it may be expensive. If you have quality and affordability, chances are that you can't scale. If you have scale and affordability, then chances are the quality may not be high.

c. As we shifted towards asynchronous and blended learning, combined the physical and digital classrooms, we are now starting and able to break this trilemma.

d. EdTech can allow us to move towards mass customisation in teaching and learning, putting high-quality, customised, affordable training in the hands of every learner. For example, to make content more bite-sized and accessible, we can leverage technology to deliver lectures in short snippets, even on TikTok, or what we call "TeachTok", so that people can watch it in a digestible format anytime.

e. The Singapore Public Service has also developed an AI application tool, Pair, which can be used to generate curriculum-specific Kahoot quizzes on any subject, in a much shorter period of time than if someone were to do it manually.

f. And with AI, data science and the science of learning, the potential for transformation in how we train and learn is even greater.

g. In MOE we do hope to leverage technologies like AI, but not necessarily just AI, data science and science of learning to break that trilemma of education and training in order for us to mass customise our education offering to every learner.

h. And if you think that trying to mass customise to the learners in our school is challenging, then I will say the real challenge comes in mass customising to our adult learners, whose backgrounds, experiences and needs are much more diverse. But I think we can do that, and I've seen technologies applied to adapt learning that can allow us to mass customise the same content to different age groups, for people with different backgrounds. So that is both our challenge and our opportunity.

6. Against this backdrop, how can humans flourish in the age of AI for work, and harness it for learning?

a. To harness AI as a multiplier for human capabilities, we need to organise ourselves better and adopt a whole-of-society approach.

b. Individuals, institutions – both educational and research, industries, government will all have our work cut out for us.

c. Let me start with individuals.

Individuals not just as proficient users but must also be smart builders

7.   First, let's consider the personal responsibility that each of us has. To stay relevant, we must learn how to use AI responsibly and ethically.

a. We need to have a basic understanding of how different AI models work, their biases and their limitations. For example, how can AI and different models of AI help us to distil, and maybe discover, but AI till now, cannot help us to not discern. There are three skills that I always talk about in MOE - the ability in the new age of students to distil from the info-

overload, to discern with values and to discover and create new value propositions.

    i.   To distil, I think AI can do very well,

    ii.   To discern, I think that AI cannot do so well; even then it requires human judgment and value systems

    iii.   To discover. AI can do some, but not everything.

b. So, we must know where AI can work for us well, and where AI cannot work for us so well yet.

c. To gain confidence in this, we need to play around with the different AI tools and understand the potentials and the pitfalls. This is critical as concerns about the safety and security of AI continue to grow.

8.   We can take comfort in knowing that some things will not change:

a. Values and inter-personal relationships will continue to define how we work and learn, and we should be careful not to over-focus on digital and AI upskilling at the expense of other critical core skills such as critical and creative thinking, as well as collaboration.

b. Our lifelong learning must continue to be fuelled by a spirit of inquiry, which must be nurtured from a young age.

c. In mastering Generative AI, as is the case with learning all other subjects, it is about asking the right questions. That is also the key to prompt engineering so that we can design input for AI tools to get the most optimal output for our purposes.

9. There will be individuals who will need additional support to be smart users and builders of AI. For example, mature workers who may need a skills reboot after being out of school for a long time.

a. Upskilling and reskilling require significant resources and time commitment.

b. It can be challenging to adapt to redesigned jobs or to transition to new sectors.

c. What we have introduced in Singapore this year is the SkillsFuture Level Up Programme, which provides those aged 40 and above with a $4,000 top-up in SkillsFuture Credit to

invest in their own upskilling. Over 7,000 courses, including many for digital upskilling, these are all available.

d. Next year, we will further launch a Training Allowance to support mature workers in full-time longform upskilling.

e. Now beyond the individuals having to take the first step and master some of these skills to use AI, our industries must also evolve with the use of AI. We must use the AI to develop our respective sectors and human capital.

Industries using AI to develop their sectors and human capital

10. Individuals and industries share a symbiotic relationship in AI innovation and adoption. What is the role that industries can play in enabling humans to do well in the era of AI?

a. When enterprises adapt to new technology and relook their business models, they set the tone in encouraging their workers to acquire the correct skills to stay relevant to the business.

b. In turn, these workers will not only be able to implement new approaches effectively, but are also now agents of change to develop new ideas for the company.

11. Human capital is core to businesses. Frontrunners who invest in their employees and use AI well are gaining productivity and manpower savings.

   a. Our local Kwong Wai Shiu Hospital's partnership with Nudgyt , an AI and behavioral science company, offers an instructive example.

   b. Kwong Wai Shiu Hospital created immersive, AI-driven simulations to resemble different seniors in real-life situations.

   c. This reduces trainers' time, and also allows staff to do better by getting personalised feedback and practising complex care situations in a controlled environment, which enhanced real-life performance.

   d. So again, this is an example of customised training offered to help our learners gain the appropriate knowledge and skill

sets, according to their needs. But the role of using AI in industry is not just about doing things better. The real breakthrough in our industry must include doing better things.

e. In fact, doing things better with AI is perhaps the basic 101 that we must aspire towards. For example, how to use existing data, existing process powered by AI to do things cheaper, better and faster. But the real breakthrough for our industry must come from doing better things, where we can create new value propositions. So, for example, in the area of healthcare, we can use data. We can use data analysis to help improve our healthcare system. But one day, we can combine the science of genomics with the individual needs to the public healthcare system and create new models of preventive healthcare, then we would have achieved doing better things, and not just doing things better.

Institutions – key enabler to digital and AI upskilling and research

12. Let me move on to the role of educational and research institutions.

13.   Our educational institutions are key enablers to support the scaling of digital upskilling needed at the national level.

    a. Classrooms used to be catered to the average learner and a largely homogenous student profile where it sparks a problem because 50% of the students will find the syllabus too difficult, and 50% of the students will find it too easy. We will be 100% off the mark.

    b. Adult learners have a larger range of different needs and they come from many different backgrounds as we explained. So if we continue to use the same way where we teach to a homogenous profile, we will not be doing justice to our adult learners, nor the time or resources spent on that.

    c. So, our educational institutions, like our Institutes of Higher Learning, are already tapping on AI to produce adaptive materials for adult learners. These learning analytics systems can create lesson plans, receive and give feedback, and spur learners towards the next level.

d. For example, Singapore Polytechnic and the Institute of Technical Education (ITE) use learning analytics systems to monitor and pace students learning Maths and Science concepts, and identify gaps for teachers to adjust their lesson plans accordingly.

e. How do we do this? I would like to share an example of Singapore Polytechnic. They have done away with all physical lectures. They have begun uploading their materials online. The 101 version of lessons are uploaded onto YouTube. For the 201 version, they learnt to cut the video to a much shorter period. And for 301, they started to incorporate quizzes to test whether their students were learning. Finally, for the 401, they realised that you can even get even more data out of the video analytics like how the students are learning. So if we continually collect data on how our students learn, target our lessons according to their needs, rather than teaching to a homogenous class, every class will be different, and every class can be different.

f. Beyond content and pedagogy, AI can support educational institutions in other ways too. The National University of

Singapore, or NUS, has developed an application that uses AI-powered tools to help alumni make informed choices about upskilling courses at NUS. The AI system will identify their current skillset, recommend potential job roles and skills needed, and suggest appropriate NUS courses for upskilling.

14.   We must, however, not get ahead of ourselves here.

a. I have shared how our schools and institutions in Singapore must continue to establish and strengthen the socio-emotional foundations before we apply the technologies into the lives of our students.

b. This must be especially so in place for our high-needs students. We need the high trust, before we need the high-touch before we need the high-tech.

c. Only then can we bridge the digital divide and build a more inclusive physical and digital classroom for learners from all ages.

15. Our research institutions and collaborations will also play a key role in the next frontier of AI.

   a. In terms of hardware, we need continued investment in core research to advance AI innovation. We have built a strong base of AI capabilities and should leverage this to encourage more experimentation.

   b. We also need applied research to drive AI applications and usage based on industry problem statements, use cases, supported by strong educational research to harness AI for teaching and learning.

16. If the evolution of technology and AI is moving faster than human evolution, we need to ask ourselves this very important fundamental question - how do we harness technology if the technological evolution is faster than human evolution or how can we use faster technological evolution to complement the learning of our people. Much has been talked about the dangers of screen time for our young, but much more research also needs to be done to figure out how much of what kind of screen time is most appropriate for what kind of learning across the diverse learning of our young.

There is no one size fits all solution, and not all screen time is the same. So, there is a lot of research that you can do and must do to make sure that the technological evolution complements the human evolution rather than the opposite.

a. Our research institutions must also lead the way in looking at AI as a multiplier of our human potential and capabilities of our workforce.

b. To do this, we have to meld our research approaches, combining the science of learning with AI-enabled interventions to enhance learning for learners across all ages.

   i. Our education researchers from the National Institute for Education (NIE) are working with computer scientists from the Agency for Science, Technology and Research, or A*STAR, to tailor AI-enabled learning at scale for younger students' individual needs and characteristics.

   ii. Our Institute for Adult Learning in Singapore has also launched an Adult Learning Collaboratory in August,

bringing together enterprises, educators, researchers from different fields and learners to come together to explore best practices in adult education that will help our people to use digital and AI education to succeed.

Government to demonstrate thought leadership

17. Now finally, beyond the individual industries and institutions, the government also has our work cut out for us. First, we must ask ourselves, "What is the role of Government in this new environment?".

18. The easy thing is that we need to provide thought leadership on how to use AI ethically regardless, and how to pull together the whole-of-societal method so that it's not just about technology advancing at a certain pace while our people are lagging. Those parts are easy for us. But more importantly, it is for our government to set out rules to encourage innovation and enable good things to happen. The Government needs to make sure that there are rules, sandboxes, framework for all our industries and institutions to experiment and find out how to do things in new ways that can achieve better results and better outcome.

a. There are many big problems that remain to be addressed across the world, from climate change to healthcare costs and many others, but we all need to learn to use these new tools and find new frameworks so that we can use AI to enhance our governance and enhance the legal structures to promote innovation.

19. Singapore hopes to play a small part in contributing to these global conversations.

a. For example, we launched a Model Governance Framework for Generative AI earlier this year, to set out a balanced approach that addresses generative AI concerns while facilitating innovation.

b. And I hope that this Global Lifelong Learning Summit can be yet another opportunity for us to further some of these conversations on how we can harness the potential of AI.

Conclusion

20. So ladies and gentlemen, I thank you all for your partnership in this journey. As we discuss this important topic in the second Summit, we know that the challenges and opportunities are all out there before us. While we

focus our energy to overcome many of the challenges, upgrading the skill sets of our people, upgrading the capabilities and capacities of our industries and research institutions, we must also apply our minds to see how we can seize those opportunities that comes with technology and AI to enable our people to be better so that we can complement the right technology to be a multiplier of the human potential. And ultimately, our goal is not just to solve problems. It's not just learning to prevent problems. Our goal as a society, is to unleash the human potential, and if we can do that, the technology and AI, all the better.

21.   And on that note, we thank you for your friendship, and we look forward to more fruitful exchanges with you in this Summit.

22.   Thank you very much.