

Speech by Ms Low Yen Ling, Parliamentary Secretary, Ministry of Education & Ministry of Trade and Industry, at “Future Skills for Advanced Manufacturing” Event on 22 February 2016, 10AM

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Distinguished Guests

Ladies and Gentlemen

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Introduction

1. Good morning. I am pleased to be here today to witness the signing of a Memorandum of Understanding (MOU) between the Singapore Workforce Development Agency (WDA) and five of its strategic partners: the Advanced Remanufacturing and Technology Centre (ARTC), the Institute of High Performance Computing (IHPC), the

Centre for Optical and Laser Engineering (COLE), the Singapore Centre for 3D Printing (SC3DP) and Nanyang Polytechnic (NYP). This MOU signals a strong commitment by all parties to build our workforce's strategic capability and skills in advanced manufacturing, through a new series of masterclasses, workshops and conferences.

Outlook of Manufacturing Sector – Importance of Advanced Manufacturing

2. Manufacturing has been a key pillar of Singapore's economy as we progressed from a labour-intensive economy into an innovation-intensive one. Today, the sector contributes about a fifth of GDP and employs over half a million workers.

3. The manufacturing sector is also witnessing the advent of several exciting trends. 3D printing allows companies to design and print their own products, replacing slower prototyping methods such as machining and moulding. It also enables companies to customise production easily, be it for a simple dental crown, or a sophisticated engine component. As companies employ ICT technologies to coordinate production chains across the world, they are able to

obtain real-time visibility of the value chain. This means lower inventories, faster product cycle and more agile, responsive manufacturing. This is also known as the Industrial Internet of Things.

4. We must constantly keep up with these trends to ensure that Singapore remains a key global player in manufacturing. Other countries have also recognised the potential of advanced manufacturing. Germany, for instance, has embarked on “INDUSTRIE 4.0”, to establish itself as a market leader in advanced manufacturing. China’s “Made in China 2025” blueprint aims to boost its high technology industrial sectors including robotics, aerospace, electric vehicles and transport systems.

5. The Government is committed to supporting our companies in adopting advanced manufacturing technologies, to enable them to capture future opportunities, as well as to overcome current challenges. Recently, we announced a \$19 billion dollar Research Innovation Enterprise 2020 Plan (RIE2020) to support Singapore’s research and development (R&D) efforts over the next five years. Under RIE2020, advanced manufacturing and engineering (AME) has been identified as one of four primary domains that will

strengthen the competitiveness of Singapore's manufacturing sector.

Manpower Needs / Skills Requirements

6. Besides investing in advanced manufacturing capabilities to upgrade our companies, we also need to invest in upskilling our people. This will enable them to take advantage of the new and exciting job opportunities in advanced manufacturing, which will require specialised, cutting-edge skills. Some of these jobs could include robotic software engineers, 3D printing programmers and automation inspection engineers, and potentially even jobs that may be hard to imagine today.

7. To this end, WDA and sectoral lead agencies have consulted with industry to identify potentially game-changing technologies that companies can deploy, including advanced robotics, additive manufacturing and data analytics. They are also working together on the Sectoral Manpower Plans for sectors such as Aerospace, Marine and Precision Engineering. The aim is to train a pipeline of highly skilled and future ready talent in these sectors, to enable our companies to maximise new growth opportunities.

8. I am also pleased to note that WDA and its partners are taking active steps to equip our workforce with these skills, by organising masterclasses, workshops and other advanced manufacturing events.

9. Among the workers who have benefitted from these efforts is Ng Jun Da, a Project Engineer from Tru-Marine Pte Ltd. Jun Da attended the Design for Additive Manufacturing Masterclass organised by ARTC in August 2015. After the masterclass, Jun Da acquired a better understanding of additive manufacturing and its applications, and is now able to use additive manufacturing techniques to fabricate and repair turbocharger parts for Tru-Marine's customers.

Advanced Manufacturing Series

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10. Jun Da's experience shows that masterclasses and workshops can be a means of transferring knowledge from industry experts to our workforce. I am heartened to learn that WDA and its strategic partners have embarked on a collaboration to roll out an Advanced Manufacturing Series consisting of such events, with the intention of encouraging local enterprises to adopt advanced manufacturing

to remain competitive, as well as helping our workforce acquire new skills to stay relevant.

11. The Advanced Manufacturing Series will cover a variety of disciplines, such as Advanced Robotics & Automation, Additive Manufacturing, Big Data Analytics and Computing, Optical and Laser Engineering, and Advanced Materials. These technologies carry the potential for exciting new applications in various areas. For instance, in the Aerospace sector, Additive Manufacturing will enable companies to significantly reduce the amount of time required to produce complex and high-value aircraft components such as fuel injection nozzles, and drive just-in-time manufacturing. Also, advanced Optical and Laser metrology equipment can capture entire surfaces in just one scan, thereby providing users with highly accurate results in half the time it takes for conventional methods. This can significantly improve the turnaround time for quality inspection and enable companies to reduce lead time required to fulfil customer orders.

12. The Advanced Manufacturing Series also caters to different audiences, from management executives to engineers, product designers and technical specialists. More than 400 workers from

various manufacturing sectors are expected to benefit from the Advanced Manufacturing Series over a one-year period. I would strongly encourage all manufacturing firms to participate by sending your staff to events that are relevant to your respective industry.

Supporting SkillsFuture

13. Today's MOU signing reflects the need to continually provide the workforce with avenues to deepen their existing skills and acquire new ones. This is also in line with the national SkillsFuture movement, which aims to provide Singaporeans with opportunities to embrace lifelong learning in order to stay relevant amid ever-changing workplace demands. This MOU also reflects employers' key role in enabling and supporting Singaporeans in deepening their skills, and to progress in their careers through workplace skills and performance.

14. In closing, I would like to thank WDA, ARTC, IHPC, COLE, SC3DP and NYP for your commitment towards the Advanced Manufacturing Series. Your collaborative efforts will help to build a pipeline of Singaporeans who are future-ready, equipped with the skills,

knowledge and experience required to support the continued growth and transformation of our manufacturing sector.

15. I would also like to thank ARTC for hosting today's MOU signing, and I look forward to touring the premises later.

16. Thank you.