

Preparing for Industry 4.0

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IN as early as 2020, 22% of Malaysia's 3D (dirty, dangerous, and difficult) jobs could be automated. The Fourth Industrial Revolution or Industry 4.0 will see the rise of intelligent systems and robotics that can work longer hours than the humans they replace.

What makes Industry 4.0 distinct from the Third Industrial Revolution are cyber-physical systems (CPS) and integrated

networks.

CPS are controlled by algorithms and networked with the Internet to control physical operations.

During the new revolution, thriving economies will be driven by information, ideas and innovation. Most innovative endeavours will be enabled by CPS.

In contrast, traditional

economies that depend on land, labour and capital will suffer loss of jobs and competitiveness if they do not adapt to the changing global economic landscape.

Prof Mahendhiran Nair, vice-president of research and development at Monash University Malaysia and chief executive officer of Monash Malaysia Research & Development Sdn Bhd, shared his insights on the changing industry in his key-



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note presentation at the Finance Accreditation Agency's Institute of Higher Learning Forum.

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According to him, countries that wish to stay afloat should develop a dynamic national innovation ecosystem with the 7i elements, which are:

L Infrastructure and infostructure to connect with the global economy

L Intellectual capital development for continuous knowledge creation and transfer

L Interactions (partnerships) that create value to organisations and others in the ecosystem

L Incentives, both fiscal and non-fiscal, that foster innovation

L Institutions that promote a knowledge culture and adherence to global best practices

L Integrity in managing resources for the benefit of all stakeholders in the economy

Where it all starts

"Universities are not only suppliers of talent. They are at the forefront of solving problems for the industry and community. "Give students context and expose them to the tools of enquiry that will enable them to solve problems and create new systems to improve the socioeconomic well-being of people around the globe," says Prof Mahendhiran.

What can universities do to prepare graduates for the new economy? Prof Mahendhiran describes 10 skills that should be nurtured in students:

L Critical thinking –To challenge the norm, find alternative ways of doing things and come up with more efficient solutions

L Sound information and communication technology (ICT) literacy – Not only to use ICT systems but also be able to analyse the strengths and weaknesses of existing systems

L Technical skills – To operate across multiple systems and

diverse industrial sectors

L Communication skills –To articulate creative ideas clearly and persuasively

L Sound multidisciplinary/ interdisciplinary knowledge –

For one to have depth of knowledge in her chosen discipline and breadth of knowledge across other disciplines

L Learnability – Ability to pick up new skills

L Strong power of association – To combine different ideas and create value through innovation (recombinant innovation)

L Experimentation –To try different things, troubleshoot current practices and foster a culture of risk taking within oneself

L Problem-solving and observation skills

L Leadership skills –To be a dynamic leader who is a purpose-maximiser, not a profit-maximiser

In his presentation, Prof Mahendhiran cited examples of job areas that may grow in demand – market analytics, artificial intelligence design, Internet of Things engineering, game and application development, robotics and drones, environmental science, and precision farming.

“We may not have control over the revolution, so we should focus on what we can do to support students and professionals by nurturing, upskilling and preparing them to be more agile in the changing economic landscape,” he says.

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