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The promise of artificial intelligence is not assured

AI.SG is of the view that mindsets must first change, or AI adoption will not be uniform or rapid across all industries

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THE allure of artificial intelligence (AI) is well known: technological solutions to laborious burdens, boosting output efficiency across the economy. Equally certain, however, are the anxieties arising from fears of AI's far-reaching societal consequences.

Even prolific technology evangelists have sounded warnings, with Jack Ma of Alibaba and Elon Musk of Tesla calling for government intervention to mitigate AI's negative outcomes such as widespread job displacement.

But the call is clarion: AI disruption will happen, and people will have to prepare to embrace change or face obsolescence. And Singapore is no exception.

Accenture recently found that the absorption of AI into Singapore's economy could boost labour productivity by 41 per cent, to double annual growth rate from 3.2 per cent to 5.4 per cent by 2035. AI adoptions will also double Singapore's economy in 13 years, compared to 22 years without it.

Efforts to catalyse these figures into reality had already begun on a policy level with the rolling out of Singapore's Smart Nation blueprint and the S$150 million AI.SG initiative in an effort to foster AI innovation and adoption – even within the local business community.

"The objective of AI.SG is to build an eco-system and gather an interdisciplinary team to build AI solutions that will impact Singapore's future," says AI.SG director of AI technology Leong Tze Yun.

"A lot of worldwide AI innovation happens in companies such as Google, Facebook and Baidu, and Singapore doesn't have that. So, we hope that AI.SG provides a platform for accessing the technology, infrastructure and people to help bring researchers, developers and users together," says Prof Leong.

While AI.SG is still in its early stages, the team has already started working to unlock the synergies from an interdisciplinary team to harness intellectual capital in the humanities and sciences to support practical solutions by industry practitioners.

Business owners have purportedly expressed interest to work alongside AI.SG, although specific names are still under wraps.

In order to attract talent from competing AI research centres, AI.SG executive chairman Ho Teck Hua says AI.SG will focus on projects with industrial applications rather than pure sciences. Also, grant calls will put forth problem statements that keen participants will be expected to provide a holistic solution for; essentially, proposals must consider the societal implications of AI implementation.

"We are optimistic that industries with tech-savvy leaders who are used to change and employing digital technology will adopt AI more readily," says Prof Ho (above)

In terms of results, Prof Ho stresses AI inventions must have clear quantifiable benefits and scalability to impact lives in an entire society.

Citing an example in healthcare, Prof Ho says an interactive AI healthcare assistant with the ability to generate responses to questions – after analysing the individual's health status in drug interaction, body type and genomics – would alleviate Singapore's demographic woes, but would require a diversity of specialist input before going online.

In the same vein, AI assists those coping with dementia to live independently for a longer period, says Prof Leong. Implantable chips may monitor dementia patients, and AI will alert caretakers when it determines that help is required.

Notwithstanding its implementation, greater investment into AI would also see the emergence of ancillary industries. Prof Ho says AI development will consist of three crucial segments, called the three Cs – "capture data, compute to derive insights and create solutions". The likes of which require GPUs (graphics processing units) and data storage; and solutions providers to market technologies respectively.

"As the field matures, especially in different industry sectors, we will see adaptive, packaged solutions (algorithms and applications that work together) that will be targeted for specialised purpose in different contexts," says Prof Leong. "For example, in healthcare we will have personalised health monitoring systems that work with strong but varying regulatory data privacy guidelines through the continuum of care and the like."

In fact, AI.SG is particularly keen on partnering local small and medium enterprises (SMEs) to enhance commercial operations through data technology. He says AI.SG works with individual SMEs to help them embrace technology while ensuring solutions are customised to the requirements of each firm's unique corporate culture.

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>
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"The two groups of people that we are targeting: One segment develops AI technology to sell; they are AI solution providers. The other segment consists of AI adopters; this is the segment with which we want to develop AI solutions," he says.

AI.SG is at present working to develop SME AI solution providers by working with them through a scheme known as "Hundred Experiments" – where AI.SG co-funds projects and provides its expertise to jointly develop a shared intellectual property, which the SMEs may then commercialise as a service.

AI adopters are in the "business of improving their operations so they can become more globally competitive, and provide better services to customers".

According to Prof Ho, AI penetration among SMEs remains low, even though AI can assist in operations – by maximising the efficiency of service delivery – and upstream research and development in streamlining design possibilities to meet market expectations.

But the AI wave is not a complete inevitability. AI.SG holds the view that mindsets must first change, or AI adoption will not be uniform or rapid across all industries.

In order for AI to be readily accepted and adopted, it is imperative that people are able to recognise how AI can help them.

AI.SG ensures developing holistic AI solutions. Before embarking on projects, they employ not only scientists and engineers, but also psychologists, social scientists and lawyers. This allows for the various concerns to be raised and tackled, thereby crafting the AI solution comprehensively.

According to AI.SG, "being human-centric is crucial".

Cost of adoption has also become a growing concern with regard to AI. Many do not recognise the value of it, given that the initial cost of adoption tends to be steep.

Prof Ho provided another perspective on this view. He says: "If companies are told that AI technology can possibly make their customers come back twice as many times as they used to, they would definitely adopt the technology without a second thought. I want to challenge such companies to think about what their vision is for AI, and how they plan to improve their business operations."

It is, however, crucial that AI is not adopted as a "one-size-fits-all" solution in all industries. For example, in healthcare, AI would be more advantageous if it is personalised and catered to different individuals differently. This is especially so, given that not all treatments work the same for all individuals.

Data forms the foundation of AI. According to AI.SG, industries with wide data availability allow for AI to leverage data generated. Consequently, much can be accomplished through AI data application. Pertinent examples of such industries are healthcare, transportation and finance.

On the other hand, industries less likely to embrace AI would be those with less data generated. An example cited by AI.SG is the construction industry.

Also, mindset plays a crucial role in the adoption of AI technology. In particular, the mindset of those at the helm of companies and industries is instrumental in determining its adoption.

In general, the younger generation tends to embrace change more readily than the older generation. As such, whether or not AI is readily adopted into an industry could be contingent on the demographics of those at the helm.

Prof Ho says: "Industries with risk-averse leaders may be slow in adopting AI solutions. However, we are optimistic that industries with tech-savvy leaders who are used to change and employing digital technology will adopt AI more readily."

In terms of regulation, the real challenge occurs when the technology is being applied. This is especially so in industries such as healthcare, where life and death is concerned.

There are also various ethical issues which need to be considered. Seeking advice from AI technologies or AI software is a contentious issue. In the healthcare domain, should advice be followed but does not cure the patient, there is much debate on who should be liable for the fault.

Privacy has long been a contentious issue with regard to AI, as many fear jeopardising their own privacy. To fully embrace and benefit from AI, people have to rid themselves of their concerns and worries about AI.

When such technologies come into play, many considerations fall under the legal framework. At present, humans are still the final decision makers.

Prof Leong says: "AI technology can be seen as a smart textbook that provides you with insights into various options, possibilities and outcomes, but ultimately the decision makers are human."