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Artificial Intelligence: Policy Implications For Small States

By Tan Teck Boon

Synopsis

Artificial Intelligence promises to benefit humankind in unprecedented ways. But small states are especially vulnerable to the technology's downside short of strengthening social cohesion and resilience.

Commentary

ARTIFICIAL INTELLIGENCE or AI, broadly defined as human-like intelligence and qualities exhibited by machines, has made a huge technological leap since 1956 when the term was first coined. Tech giants like Google and IBM believe that AI will benefit mankind in unprecedented ways. For example, autonomous vehicles are expected to enhance both traffic safety and flow whereas care-bots will aid in areas such as elderly and patient care.

However, AI's coming-of-age has also sparked concerns about the technology's downside, particularly when it is integrated into our daily lives. Given their relatively smaller size, small states like Singapore could be especially vulnerable and will struggle to cope. So will AI unleash more harm than good?

Demystifying AI

In pop-culture, sci-fi movies like *Terminator* and *Battlestar Galactica* have depicted humankind's extermination at the hands of AI. How else would a super-intelligent machine react when faced with an imminent shutdown by alarmed humans except to launch a first-strike against its masters? The trouncing of Go board game champion Lee Sedol by Google's AlphaGo AI program is perhaps the harbinger of our demise in the not-too-distant future. The reality is however, far less fanciful or fearsome.

As much as AI has advanced since the 1950s, the technology remains quite rudimentary; indeed, most realistic projections do not see AI developing human cognition at least until the end of this century. While AI is far superior to humans in rule-based and routinized functions, it continues to be wholly deficient in unstructured tasks. In the starkest indication of AI's limitations, it still finds many simple household tasks like folding laundry and assembling furniture overwhelming. So at least in the foreseeable future, humankind can rest assured that AI will not be an existential threat.

Real Challenges Posed by AI

Technological unemployment – i.e., jobs eliminated by new technologies – will be inevitable when AI-enabled technologies are introduced. For instance, autonomous vehicles – which rely on AI-enabled software to operate on-board sensors and controls – will displace many transportation workers because these vehicles are much safer and efficient than human-driven ones.

Similarly, AI-enabled automatons will displace many workers in the service industry precisely because their work tends to be routinized and structured. True, new jobs will be created but displaced workers may not have the requisite skills for them. Moreover, traditional coping mechanisms like continued education and lifelong training are less likely to be effective due to the difficulty of foreseeing the kind of jobs that will be created in this high-tech scenario.

Meanwhile, cybersecurity will be an issue since AI-enabled technologies are susceptible to hacking and manipulation by cyber criminals and hostile forces. No matter how sophisticated these technologies are, they will always be software-based and hence, share the same vulnerabilities of computer programs today.

More importantly, because of plans to link AI systems together to facilitate data transfer and sharing, a breach in one system can potentially spread across the entire network with deadly consequences. Furthermore, as autonomous weapon systems like robotic sentries and killer drones proliferate, the real danger is that these systems could be spoofed and manipulated by the enemy to turn their guns against us. This is a major reason why many countries still opt for semi-autonomous systems over fully-autonomous ones.

In the banking sector today, AI-enabled software is used extensively to provide advance warning of fraud. It is also used to assess the credit worthiness of borrowers. Crucially, the decision to extend loans is based strictly on algorithms the software had learned through mining and analysing vast amounts of data. In other words, the basis of a decision is free of human involvement. And this is just the banking sector.

If AI-enabled software is integrated into a global network of interconnected systems, we might end up being penalised in seemingly unrelated ways for mundane and long-forgotten infractions. Besides loans, we might find ourselves wrongly denied insurance, employment and so on due to the datafication of our lifestyle habits and personal history. This scenario does not seem so farfetched once we recall “Tay” –

the AI chat-bot that had to be terminated by its creator, Microsoft, when it turned into a crazed program after mining online conversations.

Policy Implications for Small States

One should not equate small states with weakness; but considering their inherent limitations in size, population, resources and so on, small states will inevitably find AI's downside especially problematic.

Certainly, small states may not have enough resources to temper AI-inflicted unemployment. An interesting suggestion to mitigate the disruption AI might produce in the labour market is to introduce a form of universal basic income – a subsistence salary for everyone financed by AI-enabled technologies. As appealing as this may sound, it is unclear if small states have the fiscal capacity to bring such a techno-utopian idea to fruition.

Similarly, small states may not have enough human and financial resources to confront cyber threats to their AI systems. If big powers like the US are already struggling with frequent cyber intrusions into their infrastructure, then the challenge is likely to be greatly magnified for small states. When it comes to protecting their citizens from being unduly penalised by AI-enabled software, small states also face an uphill battle.

With limited control over their citizens' data (because the data can be stored on privately-run servers out-of-reach in other parts of the world) and how AI-enabled software work, small states will be hard-pressed to protect their citizens from unwarranted treatment by these software.

Small states, if they are to remain viable and competitive in a globalized world, cannot shun AI. The Luddites, it will be recalled, never got very far. Meanwhile, to thrive in this high-tech scenario, small states must constantly innovate and adapt. Indeed, human ingenuity might be something that AI could never match. Beyond that, small states will reap the technology's benefits by strengthening national cohesion and resilience that will ensure that regardless of the challenges posed by AI, they will not only remain standing but bounce back stronger.

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