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Artificial Intelligence: Sustaining Singapore's AI Ambitions

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SYNOPSIS

In the year since Singapore's National AI Strategy (NAIS) was launched, intensifying rivalry between China and the US and a global pandemic have upended the operating context. To sustain its AI ambitions, Singapore must re-evaluate how it will attract the global flows of talent and investment essential to realising its goals.

COMMENTARY

IN 2019, SINGAPORE launched its National AI Strategy (NAIS) in pursuit of its three-point vision of the Smart Nation: *First*, Singapore aims to be a global hub for developing, test-bedding and scaling AI solutions. *Second*, AI will be used by government to deliver anticipatory and personalised services, and by businesses to generate growth in key economic sectors. *Lastly*, Singaporeans will be equipped with the requisite skills and competencies to thrive in an AI-driven economy.

Aligning the vision for Singapore's AI ecosystem to the broader Smart Nation effort should translate to greater coherence for various public sector AI initiatives, minimising the need to manage competing visions. The emphasis on developing Singapore into a global hub for AI solutions recalls a familiar – and relatively successful – playbook used by policymakers in the past for sectors of the economy ranging from transportation to financial services. There is also a clear intent to deliver social and economic gains for Singaporeans, whether through better government services or developing local workforce capabilities.

Humans Still in the Loop

One of the key challenges faced by the NAIS is addressing an oft-cited concern around

the shortage Singapore faces in both the quality and quantity of talent required for the wide range of AI-related job roles.

Since 2017, AI Singapore (AISG) – a cross-agency national AI capability building programme – has rolled out initiatives including graduate scholarships, apprenticeships and professional conversion programmes targeting individuals in adjacent STEM and digital job roles as well as mature workers.

AISG's "AI for Industry" initiative aims to train 25,000 professionals in basic AI programming skills in Python by 2025. Furthermore, AISG is scaling up broader AI literacy to reach 100,000 adult and school-going Singaporeans by 2025.

Nevertheless, chasing training throughput targets is only one tactic in trying to push Singapore towards realising its AI ambitions. Putting individuals through training does not guarantee deeper capabilities. Greater emphasis could instead be given to solving common business problems such as productivity and personalisation by training employees to implement off-the-shelf AI solutions.

AISG already has enablement and "quick start" programmes for SMEs which could be expanded on a sectoral basis and strengthened by emphasising capability development to close the gap between available AI solutions and their adoption.

Attracting AI Talent

At the same time, building capabilities to solve common business problems using AI will not diminish the importance of attracting top-tier international AI talent. While off-the-shelf solutions are increasingly available, AI remains a largely "artisanal" endeavour, requiring specialised hardware, programming, and highly skilled talent to bring hardware and software together for meaningful applications.

It has yet to be fully "industrialised", allowing it to achieve the kind of scale required to deploy it effectively and without the challenges of bias.

This means that programmes such as Tech@SG, which facilitate company-level Employment Pass (EP) applications to build core teams for tech companies, remain critical. However, a spanner in the works is presenting itself: it is not yet clear how the new EP criteria announced in September 2020 to address COVID-19's economic impact on local jobs will affect such programmes.

The Ministry of Manpower has raised the minimum qualifying salary for EP applications to S$4,500 for all new applicants from 1 May 2021. With economic uncertainty due to the pandemic likely to persist into 2021, there may be direct implications for tech companies looking to bring in talent.

Further, the recently announced Tech.Pass scheme (an extension of Tech@SG) is intended to increase the attractiveness of Singapore in attracting top-tier tech professionals. Unlike an EP, it is linked to the individual instead of a company, which provides comparatively more professional flexibility. It remains to be seen if this scheme will gain traction.

Will "Hub Strategy" Still Work?

In the year since the NAIS was launched, the intensifying rivalry between China and the United States has threatened to disrupt the international collaboration and flow of talent to America that drives research in AI.

Singapore's ability to develop a global hub for AI solutions could potentially benefit from this if international researchers and companies are looking for a neutral space to continue collaborating and developing solutions.

At the same time, cities like Berlin, London, Paris and Tel Aviv already possess well-developed AI ecosystems that can easily absorb new talent and investments – and it is useful in understanding why these places are attractive. Over and above the high demand for talent, there appear to be other pertinent factors influencing the decision of international talent and companies in setting up in Singapore.

The NAIS must therefore reevaluate where Singapore stands in relation to its competitors, taking into account new initiatives such as the European Union's white paper on AI and complementary data strategy published in February 2020. These documents position the EU to harness its capabilities and resources at a regional level, which for now is an unrealistic prospect for Singapore and ASEAN, given that much of Southeast Asia is at the early stages of AI adoption.

Prospects for Singapore's AI Ambitions

The COVID-19 pandemic has highlighted the government's capabilities in rapidly developing and implementing AI solutions. Efforts such as VigilantGantry and SPOTON, which use AI to assist in effective temperature screening with minimal manpower, validate the NAIS' emphasis on developing and deploying solutions.

However, they also serve to highlight the fact that AI solutions require careful experimentation in a set-up that differs considerably from traditional software engineering. Furthermore, unlike established general-purpose technologies, the economics of AI are not yet fully understood, and much of the existing research and applications have yet to deliver significant real-world impact.

However, the NAIS appears to assume that the economics of AI follows a logic similar to a value chain, with Singapore's chosen niche in the deployment of AI solutions. Given that the NAIS has been described as "a living document", it may need to be revisited from time to time and continuously reviewed to ensure it remains relevant as AI evolves rapidly across technical, ethical and socio-economic dimensions.

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