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Small Places Can Defy Physics: Context and Comparators for Canada's AI–Energy Choices

Abstract

Small nations that have been blessed with favourable geography are considering their options in the AI-energy value chain. Some nations seek to stay in the middle of a geopolitical tug-of-war, pursuing new partnerships that do not close off future trade routes. Many such nations are gearing up to be energy sources for neighbouring nations, or to process AI tokens locally. Singapore, Tajikistan, Kazakhstan, and Bhutan are ahead of most others in confronting the same choice. Canada, a middle nation also benefiting from high renewable energy potential, should engage with other comparators to learn how they create gravitational pull for talent and capital. Nova Scotia can turn surplus power into compute, anchored by a defence buyer whose data must stay in Canada.

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Author

Zia Zaman, Research Fellow, MacEachen Institute, Dalhousie University

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Contact

For more information on this research, contact mipp.papers@dal.ca

Author's Note

This paper does not intend to break new empirical ground, and it does not recommend a particular course of action for Nova Scotia. It sets out the choice Canada now faces in the AI–energy chain and puts small places side by side, places that faced the same physics and answered differently. This is context.

1. Defying Gravity

1.1 Context: Industry Dynamics are Misunderstood

Analysis of the future of the AI industry centers around the frontier models, chips, and the competing tech stacks between the United States and China. Commentary in the US likens the dynamics to The Space Race, warning of the dangers if China's models win. "AI companies in the US and other democracies must have better models than those in China if we want to prevail." (Amodei 2025) The corollary resulting from this characterization is that the rest of the world is caught between two poles, with seemingly little agency. This is a misrepresentation of the complex nature of the AI value-chain, because sovereign nations have different goals from the US and China. Each individual nation seeks to improve its countries' outcomes without becoming locked-in to one regime or another. The emergence of China as a choice scares many. It should not.

Choosing Chinese tech is the default option, not conquest. Middle nations (states with enough capability to matter but not enough weight to set the rules), like Kazakhstan, and smaller nations like Singapore, Bhutan, and Tajikistan, offer useful comparators for Canada in terms of the choices for AI. These nations cannot do everything on their own, and due to geography, history, and pragmatism, strike arrangements that exhibit variable geometry—the practice of holding multiple, non-exclusive options open simultaneously, to avoid a single point of failure. Moreover, the comparators enable their workforces, encourage AI usage, and promote tech-optimism. These are credible advantages that a nation can build intentionally.

Typical coverage of China's AI expansion is supply-side or geopolitical. Almost none is written from the receiving end—from the countries choosing to subscribe to its cost advantages, or the strategic playbooks they are authoring. I am not a Sinologist, and I don't forecast Beijing's strategy. I am a China expert from the world of technology (the products, the deals, the stack), not from statecraft. What I bring is access, stories from the ground, and the discipline to provide hard, cold, on-the-ground analysis based on what I've observed.

1.2 Ulanqab: a comparator small place within China

Returning to the outcome-based approach that Chan and others evidence, business decisions across Asia are made with an optimization function that is less ideological and more pragmatically ROI-driven. This numbers-first approach can also be seen in Central Asia and can certainly be seen in China. While each of the thirty-four provincial-level Chinese governments competes for resources, local leaders are constantly looking for an Adam Smithian edge. A model for the steppe has emerged in, of all places, Ulanqab, Inner Mongolia. I was invited there, to go see the innovations at the 21Vianet data centre and in the city more generally.

I thought I would be in for an arduous journey, but instead, after two hours in a 249 kph train, I was in a landscape with volcanoes on the steppe. Everything was neatly laid out in a grid: the roads, the data centres, and the power lines. My hosts had to point out the coal infrastructure in the distance, but they did not have to show me the wind farms which were prominently visible. The smell of the diesel fuel for backup wafted in the rooms. The sun was harsh, and the promise of future cold undeniable. The planners I met in Ulanqab talked lucidly about the ambition and the scale of their deployments, which had minimized risk by using existing off-the-shelf technology. Where new innovations were discussed, it was in the interest of improving efficiency and lowering cost, such as the direct current generation co-located with its data centres, a potential minor reversal of the Tesla-Edison Electricity Wars with DC vs AC.

When I asked my host about their price of power per kilowatt-hour, his answer of "ten fen" raised my eyebrows. This was his marginal rate when the wind was blowing, so it is not completely analogous—it averages about three times that (36Kr, 10 September 2026; Caixin, 14 August 2026). When compared to my experience opening up the energy market of Singapore, I calculated that his best marginal hourly rate was one-eighteenth that of Singapore's regulated tariff.[1]

1.3 The winning playbook and six-part strategy

A credible playbook for a middle nation lowers three types of risk: technological risk, execution risk, and market risk. For certain infrastructure assets that have a high minimum efficient scale (MES), this playbook borrows from China and the West, reducing technological risk and related execution risk. Another aspect of execution risk is tied to geopolitics. By reducing political uncertainty and the risk of being taken over by an aggressor, countries mitigate risk and reassure investors through their defence apparatus, institutions, and/or the continuity they have achieved politically. Lastly and crucially, by focusing on what it already does well with its current workforce, a middle nation can invest in upskilling and narrowly focus its innovation agenda on areas where there is a demonstrated market for its intellectual property.

[1] One fen is a hundredth of a yuan

So, in sum, the successful middle nation builds gravity that pulls in capital and talent, while exporting something weightless: intelligence.[2] How can a nation or a province get to this gravity-defying moment?

The lesson we can learn from a new middle nation like Kazakhstan can inform decisions in Nova Scotia and across Canada. The strategy has six parts: **own the land, rent the silicon, open-source the models, anchor one customer, second-source power, spend the surplus on your people.** Kazakhstan is on track to follow this strategy: owning state-allocated land and racks through Kazakhtelecom, renting NVIDIA silicon through Firebird, second-sourcing nuclear power from Russia's Rosatom and China's CNNC, using open-source models, and investing its surplus in its people, while still looking for an anchor customer.

2. Examples of strategies from sovereign Asian nations yield clues

When we look for exemplars of how smaller economies benefit from AI, we must look at Asia. The comparators here are Singapore and Kazakhstan, which seek independence and pursue development deals, and Bhutan and Tajikistan, which are geographically blessed with hydro or molecular carbon.[3] In some ways, Canada has to both pursue dealmaking as well as leverage its energy advantages.

Why study a region most Canadians cannot place on a map? Because Central Asia is where the choices are being made the fastest. It is a land of demographic dividends, benefiting from an influx of capital, replete with tech optimists. Use of AI in Central Asia is booming, and local data centres are preparing to make tokens available at scale. It has an abundance of talent. Its nations have history and experience in charting their own paths sandwiched between great powers, and seem to be successfully courting the best from both the US and Chinese technology stacks.

2.1 Co-locate compute and innovation

Small nations benefit from being small and having their energy, datacentres, and scientific hubs in reasonable proximity to each other. One of the solutions for succeeding in computing is to remove distance and loss, which is often done by co-locating assets this way. In the simplest form, the innovation that AI delivers should be built as close to possible to the datacentres they rely upon, and those datacentres should be co-located with the energy infrastructure—or at least rely on resilient grids. The construct that is used to describe this comes from Greek: a 'holon' is a system that can be scaled up elegantly. In energy terms, it is a triad of generation, storage, and usage. It is self-contained, but can still be connected to other holons—for backup, for example. Using co-location is where small nations have an underappreciated advantage, though the geometry of that advantage is not well understood. Consider the smallest possible holon in this context: the home. Solar generates power, batteries hold power, air conditioners and cars use it. A larger holon could be the combination of a data centre and a power plant, one serving the other.

As we expand the image, individual holons connect with others to form what we call the grid. Worldwide, grids are under strain and are in need of modernisation. We now have the potential to decentralize energy generation, co-

[2]The paper uses "middle nation" rather than the more familiar "middle power." In the AI-policy literature, middle powers are countries that cannot compete with the United States and China at the frontier, but nonetheless aim to influence how AI is developed, deployed, and governed (Chatham House 2026). The term has a longer pedigree in international relations, where middle powers are identified variously by their position in the international hierarchy, their behaviour, or their identity (Jordaan 2003; Cooper, Higgott and Nossal 1993). "Nation" is used here to keep the focus on what a state can produce for itself rather than on what it can negotiate.

[3]"Molecular carbon" is used here to mean energy carried in molecules — gas, hydrogen, ammonia — as opposed to electrons.

locating it with local users such as datacentres, by building holons that have bi-directional connection to the grid. This design would lessen the overall risk of failure and make the growth in the energy infrastructure more modular and feasible. China has already demonstrated the benefits of holon geometry at a larger scale in Ulanqab. The remote, the small, the greenfield, and the unencumbered small nation understand the strategic value of the self-contained unit first, and may benefit from such concentration.

Bhutan is a small nation neighbouring two much larger powers, without much internal need for compute, but blessed with Himalayan snowmelt rivers. It needs an answer as to what to do with its electricity. I met with an executive of SATO, the Canadian developer behind Bhutan's data centre and hydropower project, built for Indian demand. The answer it has ideated is to site a data centre in Bhutan, that exists virtually in India. This solution chooses to export bits, not volts (SATO Technologies 2026; DatacenterDynamics 2026).[4]

2.2 Source intelligently and efficiently

Singapore is often used as an exemplar in various policy and regulatory circles, as a nation that makes smart choices about sourcing and strategy. As an innovator, I partnered with the financial regulator, the Monetary Authority of Singapore, on a new use of distributed ledger technology to offer innovative health micro-insurance products: a claims-free product built inside the regulator's own sandbox. Ravi Menon, the Managing Director of the Monetary Authority of Singapore, named it in his speech at the Singapore FinTech Festival in November 2018: "MetLife's LumenLab here in Singapore is already making this a reality for gestational diabetes insurance. They are testing this out in MAS' regulatory sandbox" (Menon 2018).

In the era of AI, Singapore has struck two types of deals. The first is to secure power and build data centres. The second is to attract capital, entrepreneurs, ecosystem partners, and use-cases that would allow its resident researchers to tackle old challenges with new tools. The Singaporean stance towards usage and regulation is pragmatic and adoption-oriented, with a permissive regulator who chooses to publish guardrails rather than leave its market members guessing and seeking permission. The institution itself reflects the larger government stance: a positive outlook towards the future, a quality some call tech-optimism.

The first half of the AI value chain is delivering the compute that AI needs. In a Singapore context, with limited available land, this can be challenging. Data centres find it difficult to get permission for land in Singapore, an island only the size of Laval & Montreal. It also proved difficult to locate places appropriate for new renewable energy infrastructure. Solving this trilemma by 2050, however, was part of what was required in Singapore's Net Zero strategy. I played a role in approving the study's final decision, which involved recommending all four switches: demand response, existing renewables, energy imports, and nuclear. Energy imports played a big role in every one of the scenarios we gamed out. But from where would we draw the necessary power? Proximate relationships from the Riau Islands of Indonesia and Johor? Ambitious long-range projects to import hydroelectricity drawn from peninsular ASEAN?

That last example is known as LTMS, the Laos–Thailand–Malaysia–Singapore Power Integration Project, which I saw in its infancy during my time on the board of Singapore's Energy Market Authority. Through this project, Laos exports hydroelectricity through the LTMS interconnection, to supply green power to energy-hungry Singapore.

[4]A sovereign data centre is one whose workloads belong to a single nation and which is therefore required to sit inside that nation's borders.

2.3 Export volts or even bits

Each of Central Asia's hydro-rich states faces a choice about whether to export raw electrons exclusively or process them into compute tokens. This should be familiar to Canadians. Tajikistan is the closest mirror to Quebec. It has abundant green energy, and is home to the Rogun Dam which, when complete, will be the highest dam in the world. Bhutan sits outside Central Asia, yet it is landlocked and sandwiched between two great powers; the geometry is the same. Bhutan is pursuing the sovereign-data-centre creatively. Such advanced strategies hit roadblocks, however, if, for example, insufficient local demand for compute makes financing AI infrastructure too risky for investors. In Bhutan's case, the facility exists to serve demand from India. Given that, India building its own sovereign data centre within its own borders removes the customer on which the financing depends, and the project becomes a white elephant.

The challenge with small places is that there is often a mismatch of supply and demand. In the modern world, energy is a necessary but not sufficient element of the AI value-chain. Small nations need to export, because it is still costly to timeshift (store with little loss at reasonable capex) and placeshift (transport over long distances at virtually no cost) electrons. To timeshift is to hold a resource so that it can be used later; a water reservoir allows us the ability to timeshift water, for example. In computing, these innovations were born a half-century ago—the problem of timeshifting was tackled with memory storage, placeshifting solved by networking. The dilemma of how to placeshift low-carbon electrons is the question for the small place with high energy potential. Importantly, the trick to defy physics is still available in the second half of the chain.

2.4 Tech-optimism is a winning strategy

Kazakhstan is finding its own path between its larger neighbours and benefiting its promising young talent. It won five gold medals at the 56th International Physics Olympiad in 2026, a national record, and joint world No. 1 alongside China, India, Russia, South Korea, and Taiwan (Qazinform 2026). Jessica Neafie of Nazarbayev University writes that Kazakhstan is "not balancing or bandwagoning with a specific pole but choosing to hedge between them," (Neafie 2025, 301) positioned as "a source of geopolitical rivalry between Russia, China, and the US." In my view, Kazakhstan is expertly playing the cards it has been dealt: abundant talent, good geography, non-committal geopolitics, and usage driving innovation. Neafie also says, "Kazakhstan provides opportunities for connectivity strategies and structural power relations between countries that give Astana the power to develop autonomous and influential foreign policy strategy" (Neafie 2025, 301).

Kazakhstan shows what a tech-optimist nation looks like when it strikes deals with a wide set of players: a Turkish cable manufacturer, a Chinese development bank financier, Kazakhstan's accession to Pax Silica (August 2026, Times of Central Asia, 20 August 2026), and its deal for NVIDIA chips. The optimism was palpable to me when I visited Almaty this March. With the demographic dividend, the belief in the future, and the magnetism it had bringing in new young people and capital amid abundant resources in a boreal alpine climate, it reminded me of the optimism felt in Montreal in the early seventies. But I digress.

2.5 Leverage

The lesson for Canada is not "copy Central Asia" or "be as resource-efficient as Singapore." It is that variable geometry is required for small places to achieve their goals in the era of AI. And it is my view that the generation of or sourcing of power is only one prerequisite to success. The second part of the chain is using that gathered input appropriately to fuel the machinery of innovation. Innovation, "something different that has impact" (Anthony 2012), is about culture,

and people are indelibly at its core. Singapore and Kazakhstan are using leverage in the Archimedean sense to achieve more as AI first-movers. Astana, with Physics Olympiad-winning students standing at the ready, cut the red-tape to give its young innovators the power they need and the compute engine they require to innovate. Balaji Srinivasan's Network School, whose Forest City campus in Johor, Malaysia had its operating licence revoked and was ordered to cease operations in July 2026, reopened in Kazakhstan in August of the same year. It now operates from the fifth floor of the Astana Hub technology park in the capital, under a five-year memorandum of understanding with the Ministry of Artificial Intelligence and Digital Development. This positions Astana as a cultural crossroads for young innovators (The Straits Times 2026; TNGlobal 2026; Fortune 2026; Business Insider 2026a; Business Insider 2026b).

Singapore is a magnet for talent. It is attracting innovators from places as far away as Dhaka and Seoul, by offering two advantages: company founders have access to competitively priced infrastructure that produces tokens, and Singapore's labour policies and culture have created a deep and upskilled talent base remarkable for a country its size. The evidence is plain to see in two sectors. As I mentioned earlier, Singapore is excelling at leveraging its material science and financial expertise to lead in the use of AI to discover new materials (A*STAR 2026; NUS 2026), and to innovate in fintech (MAS 2026).

3. Canada and Nova Scotia

3.1 Extrapolating to Canada: All of the Above

The commentary is organised around gravity wells and military edge (Amadori, Balfour, Miotti and Behrens 2025). What the evidence shows so far is smaller and more useful: value accrues inside firms and inside processes, not yet at the level of a national system (Stanford HAI 2026; McKinsey 2026; Gartner 2026). Usage is the unlock for firm-level gains (Brynjolfsson, Li and Raymond 2025; Noy and Zhang 2023), so if a country has a low national ranking in terms of AI use, it likely means fewer of its firms are achieving frontier gains.

Canada, at an aggregate level, has an interesting problem. Geography is the starting line in the AI value chain. Hydropower is a privilege that allows a nation to supply green electrons, participate in the infrastructure build-out powering AI tokens, or both. If hydro-rich nations fail to heed the history of natural-resource exploitation, they risk being locked out of high-value downstream industries while failing to upskill their local workforce.

Canada is behind in the share of people who used AI during the reported period, at work and at home. Microsoft counted the correlation between AI usage, user permissiveness to AI, and economic growth outcomes in its AI Diffusion Report[5], the results of which do not bode well for Canada. The UAE leads the world, at 73.3% of the working-age population using AI tools, followed by Singapore at 64.3%, Ireland 49.9%, France 49.6%, Norway 49.4%, and Canada at 38.5%, ahead only of the United States at 33.0% in that group (Microsoft 2026).

In this same set of reports, Brad Smith lays out the historical case that for the past century, the availability and use of electricity has predicted GDP growth. Imagine a country that gets the hard goods right, and supplies the early inputs of the infrastructure, but lags on usage of the infrastructure. The assembled AI assets must turn into usage, then into innovation, and then into economic growth. As we move beyond the first few years of concentrated power in the AI industry, small groups of talented researchers will discover that their previous innovations, carried forward with AI, can

[5]https://www.microsoft.com/en-us/research/wp-content/uploads/2026/09/Microsoft-AI-Diffusion-Report-2026-Q2.pdf

still be world-class and accrue value, compounding the benefit in the early AI investments in their nation. Without resultant innovation, AI infrastructure is an asset that does not compound.[6]

At MIT, there are two opposing AI professors—both of whom I admire—who have made their calls on the value of AI so far. Acemoglu's estimate of gains (0.66%) is very low, while Brynjolfsson's estimates of firm-level gains are much higher. They are not in conflict: they are working with different timescales and different scopes. Brynjolfsson, Li, and Raymond followed 5,172 customer-support agents, and found that access to an AI assistant raised the number of issues resolved per hour by about 15 per cent; this kind of productivity gain was observed informally by many of my Microsoft financial services customers, including DBS Bank and FWD Group, who used AI to change workflow and accrue real gains at a firm level in a given year. Noy and Zhang found that ChatGPT cut the time taken on mid-level professional writing tasks by about 40 per cent. The way these savings aggregate to a macro-level is slow. The corollary is that we are seeing concentrated benefits of AI in fewer companies (the leaders), but their effects are not driving a broader increase in income.

Canada is one of the more robust middle nations, blessed with geography, access to capital, rule of law, and alliances that Central Asia can only dream of. The underlying geometry is the same: a sovereign state that navigates between great powers, owns what makes it special, and partners where it must. These factors make Canada's dependencies a feature, not a bug. Canada doesn't need to use the Kazakh playbook. We need to find our own set of contingent and adaptive strategies.

3.2 At a regional level, what does this practitioner's comparative analysis say?

Looking at Atlantic Canada, one cannot help but see the parallels with Asia. There is sizeable renewable energy potential in Nova Scotia, as well as Newfoundland and Labrador. There is the potential to work with neighbours. There is new demand for electricity, and untapped potential for participating in the AI economy. As Nova Scotia's Premier Tim Houston said in September 2026, "If a company can protect our water, protect ratepayers, strengthen our communities, create economic opportunity and keep critical Canadian data in Canada, we will hear them out" (CBC News 2026b; CBC News 2026c). Like the Central Asian nations, Nova Scotia is seeking energy deals and growth, maybe in AI.

Nova Scotia will need to make viable choices to monetize its energy, given that the province will generate more clean power than it can use. It can either build a cable to placeshift electrons to serve demand that is not local, or it can solve timeshifting electrons by turning the electrons into bits. As the province considers its alternatives, the scenario planning tool can be of use to weigh the available options rather than to predict the future.

The obvious answer to a wind surplus is to export the power. The obvious buyer is Boston. The obvious model is the one I watched succeed in Asia. Singapore is Boston in our example; Nova Scotia is Laos. But there are two critical differences which make this analogy inexact. For the LTMS:Nova-Scotia-and-Boston comparison to hold, it must be true that wind can do what hydro does. It cannot. We are able to timeshift the delivery of hydropower through dams; wind is ephemeral and its energy while it can be stored for four hours (Nova Scotia Power 2026), does not yet have longer-duration options that are economically viable. Capital can choose to invest anywhere in the world to find a

[6]As a previous chief innovation officer, I use the idea of compounding to explain how one iteration of an innovation builds on another. Constant activity and test-and-learn, leveraging the "greedy algorithm" gets companies to results quicker, and benefits compound over time.

return; the Canadian government has other restrictions. At Microsoft, dozens of governments came to our business development teams asking for sovereign capabilities: the ability to manage their own data, their own models, and their own controls. This sovereign defence compute is a solution for the mismatch problem whereby Nova Scotia may have more renewable energy created, than use cases for it. I present some options below in an attempt at an answer.

The test I apply below is a strategic viability test: does a given option meet a pressing need, that can be served cost-effectively, for which there is no better credible substitute or a competitor with clear advantages?

The assessment in the table is the author's; the research behind it is in Appendix A. The viability test rows are an assessment. They are not a recommendation.

What should Nova Scotia do to monetize its potential electricity surplus?

Option	What does it need?	Strategic viability test: the author's assessment	Will it work?
1. Export raw electrons: subsea cable to Boston, or long-haul transmission via New Brunswick or Quebec	An HVDC subsea link or overland rights of way, multi-billion capital, and an anchor power purchase agreement	No: the buyer can be served by others, capital can invest anywhere, Mi'kmaw land rights need to be upheld, and consent through New Brunswick or Quebec is the binding constraint	Not viable on its own.
2. Timeshift the electrons (convert to hydrogen or ammonia)	Electrolysers at scale, dedicated generation, a buyer	No: cost-prohibitive against global producers; Mi'kmaw rights and the duty to consult due to potentially adverse environmental effects.	Fails on cost.
3. Sell compute (commercial customers)	Competitive power, connectivity, land, permitting speed	No: no cost edge over Quebec or the Nordic grids (Hydro-Québec 2026; Eurostat 2026)	Not viable without a captive customer.
4. Sell sovereign compute (state and defence)	Canadian defence, maritime and sovereignty workloads that must sit inside Canada (Halifax: RCN Atlantic home, DRDC Atlantic, DalSolutions, Over-the-Horizon Radar)	Yes: legally captive, recurring demand that cannot be outsourced.	Worth exploring, as no clear blocker visible.

4. Conclusion

Nova Scotia can turn surplus power into compute, anchored by a defence buyer whose data must stay in Canada. Other buyers can be found later: commercial compute customers in Canada, and power exports to markets such as Boston. Neither is currently viable, but an emergent strategy (Mintzberg and Waters 1985) would be additive. Hydrogen remains too costly.

AI for small places relies on dependencies. It is about arcs, not nodes. For centuries, trading nations have depended on comparative advantage. We accept dependencies that offset our natural deficiencies so as not to be left behind.

Computing is abundant and falling in price, even with a recent increase in the price of memory subcomponents. AI is more accessible, inclusive, and lower cost, a form of Jevons paradox: as AI compute gets cheaper, consumption expands. In other areas of the infrastructure chain, such as energy, procuring the resource is highly costly, prohibitively distant, or politically unviable. Second sources, new technologies, and new friends: that is what variable geometry means in deal-making.

Three cases show that enterprises that are growing in value are targeting the right problems, that the assembled workforce is capable of doing something that others have not yet achieved, and that the market is rewarding them for delivering potentially new sources of cash (DBS, Insilico, World Bank examples below). Even if for the first few years the benefits have been concentrated in coding efficiency and productivity gains, the next few years of resultant innovations are more vertical in scope and more closely tied to the traditional economic engines of our world economy. We can see strong examples in financial services, life sciences, and education.

Financial services: DBS, a Singapore bank and therefore one of this paper's own comparators, reports the economic value of its AI and machine learning work: CAD 200.5 million in 2022, CAD 412.2 million in 2023, and CAD 835.5 million in 2024, against a public target of more than CAD 1.1 billion in 2025. Cost avoided and revenue added is the metric, the bank's own count of value against a baseline rather than an audited profit line, converted at S$1 to CAD 1.1140 on 9 October 2026.

Life Sciences: Rentosertib, a TNIK inhibitor discovered and designed with a generative AI platform at Insilico Medicine, completed a randomised phase 2a trial in idiopathic pulmonary fibrosis, published in Nature Medicine in June 2025: 71 patients, with an improvement in lung function of about 98 mL. It is now in phase 3. As told to the author by its founder Alex Zhavoronkov, this is the first peer-reviewed phase 2a result for a drug whose discovery was led by AI. The market is rewarding Insilico with funding for a robust pipeline of new drugs. Insilico's IPO on 30 December 2025 valued the company at about US$1.84 billion at listing (Bloomberg, 30 December 2025). Its shares have almost doubled from the HK$24.05 offer price as of 12 October 2026 (HKEX: 3696, closing price HK$47.32).

Education: The World Bank ran a six-week after-school programme in Nigeria. Eight hundred first-year senior secondary students worked with a generative AI assistant. Their subsequent English grades were about 0.23 standard deviations better or roughly one and a half to two years of ordinary schooling.

The counter-case is real. The same tools are also used nefariously to extract other people's data and to penetrate sensitive systems. Measuring benefits while tracking the knock-on security costs is essential.

The countries that will compound their advantage are those that plan the dependency from the start: what do we own, what do we rent, and what do we skip?

In Canada, the lessons are to watch the playbooks emerging from these Central Asian exemplars and to learn from knowledge-economies like Singapore. Canada must identify ways to build holons which turn its resource advantage into electrons and compute tokens. And Canada must simultaneously stimulate usage and ambition, to yield an outsized share of innovative discoveries.

Appendix: Research base (evidence for the argument)

The grid wall. Nova Scotia electricity demand peaks at ~2.4–2.5 GW (Financial Post 2026; DNV 2026). Premier Houston (Feb 2026): "Nova Scotia only uses about two gigawatts of energy at peak demand" (CBC News 2026a). Offshore potential vastly outstrips local demand: DNV cites 17 GW; Houston claims 40–60 GW producible; Wind West phase one alone is 5 GW by 2033 at ~$60B (about one-third transmission), scaling toward 62 GW. 80% renewable by 2030 is servable by ~1.5 GW added onshore wind + 200 MW solar + gas firming + storage. Everything beyond ~2 GW is export, by definition.

The Boston corridor. Feb 4 2026: Houston and Governor Healey signed an MOU in Boston (Government of Nova Scotia 2026; CBC News 2026a); Massachusetts needs ~140 TWh/yr by 2050. Route options: overland via New Brunswick, or subsea direct to Quebec or New England. ~$240/MWh without federal support, ~$170/MWh with investment tax credits and Canada Infrastructure Bank financing. The NEMOEC coalition (seven developers; Power Advisory + DNV white paper) proposes a 2,000 MW HVDC subsea corridor, ~$780M–$1B/yr consumer benefit, ~$30B project; route shortlist published Aug 2026. Precedent: Hydro-Québec's NECEC (1,200 MW) survived a 2021 Maine referendum, was inaugurated Jan 2026, and Hydro-Québec suspended exports a week later in a cold snap.

The sovereignty case. Halifax is the Royal Canadian Navy's Atlantic home; DRDC Atlantic is there; Dalhousie is already contracted on defence-AI (DalSolutions human-AI teams for sovereignty, Feb 2026; Dr. Mae Seto + DRDC autonomous Arctic sensing, Jun 2026); the Coast Guard is digitizing maritime domain awareness; Canada's Over-the-Horizon Radar partnership (~$290M/yr GDP, 2026–33) is underway. Canadian defence and maritime compute must physically live in Canada: a legally captive, recurring demand that cannot be outsourced.

The molecule route. Hydrogen is proving to be a difficult and dangerous molecule to transport, even if converting to ammonia which itself requires special handling. The costs are so far high enough to thwart investors from the capital expenditures required except in a few corner cases.

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