2024 – Closing out the AI year

Q4 2024: AI The new wealth of nations

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Executive summary

2024 was the year AI stopped being a forecast and became infrastructure. Compute clusters are the new oil fields, energy is the new currency of intelligence, and the nations building the factories — not just the algorithms — are the ones that will own the next decade. The race is no longer about who has the best model; it is about who has the power, the silicon, and the political will to put them to work.

Five shifts defined the year. First, AI infrastructure became a sovereign asset: Australia, South Korea, the UAE, and Denmark moved decisively, while Sweden's own AI Commission delivered a roadmap that politics has yet to embrace. Second, inference quietly overtook training as the commercial center of gravity — and with it, a new class of low-power chips that most boards have not yet heard of. Third, generative AI proved to be the great equalizer, delivering its largest productivity gains to the least-credentialed workers. Fourth, agentic AI moved from demo to deployment, signaling the end of prompt-by-prompt computing. Fifth, the Nobel Prizes themselves crowned AI's arrival in the sciences, with AlphaFold rewriting half a century of structural biology in a single year.

The risks sharpened in equal measure. The convergence of AI and biotechnology is humanity's most promising — and most dangerous — pairing in a generation. The divide between AI haves and have-nots is hardening into a new axis of global inequality. And a new profession, the AI ethics and safety officer, is no longer optional in any serious organization.

The generational fault line is the through-line. Politicians and executives are sorting themselves into two camps: those who get it and those who do not. The market will reward the first group; voters will, too. The second group will be left chasing shadows in the woods while others take the prize.

Sweden enters 2025 with rare cards in hand: clean energy in abundance, a world-class research base, EcoDataCenter scaling one of the world's largest AI compute clusters, and a national roadmap on the table. What is missing is political velocity. The thesis of this brief is simple — turn energy into intelligence, build the factory before debating the prize, and trust the generational coherence that AI, at its best, makes possible.

The work ahead is not theoretical. It is industrial, urgent, and ours to lose.

An [AI] year in review.

As we close out the fourth quarter and reflect on the year gone by, it becomes evident that 2024 has been a year of profound shifts, challenges, and opportunities. From technological breakthroughs and economic recalibrations to the rising importance of AI, biotechnology and sustainability, this year has set the stage for what is to come.

Over the past year, I have traveled to countries such as Japan, South Korea, France, the UAE, the USA, and Denmark to further investigate their advancements and strategic plans regarding AI. These nations are moving decisively, building infrastructure, fostering innovation, and integrating AI into key areas of society and business. The insights gained from these visits have been both inspiring and revealing, providing a clearer picture of what it takes to compete on the global stage.

For both businesses and policymakers, the pace of change has accelerated, requiring adaptability, strategic foresight, and a renewed focus on new forms of collaboration. The dialogue between technology, leadership, and society has grown sharper, with AI emerging not just as a tool but as a foundational force reshaping industries, governance, and global competitiveness.

This Q4 letter aims to provide key reflections on the year's progress, highlight significant trends, and offer thoughts on how we can harness these changes for a stronger, more innovative future. Looking ahead to 2025, the lessons learned, and the groundwork laid will serve as our compass in a rapidly evolving AI world.

AI and its infrastructures – the new wealth of nations.

AI continues to be everywhere, nowhere, and elsewhere, as I wrote in my Q1 letter. AI has now become the wealth of nations, and the race to get your hands on these new machines of intelligence is on. Why is that so? Data may be the new oil, but unlike oil, the choice of where to build data centers rests with nations, not natural resources. Sweden, along with other countries, now stands at a critical crossroads, with a unique chance to establish an AI compute cluster — our modern natural resource — that could position us as a global leader in the AI era. These clusters, or data centers, serve as the factories of AI, transforming energy and data into intelligence and creating essential infrastructure for innovation. The potential

benefits for any nation and its surrounding regions are substantial as we pursue turning energy into intelligence.

AI infrastructure, unlike traditional resources or universal technologies like electricity, isn't bound by geography. Compute clusters can be strategically placed to deliver immediate and transformative value. Leading nations understand this: Australia has invested $15 billion into AI infrastructure, and South Korea, the UAE, and Denmark are making similar moves. These countries see AI as the cornerstone of future economic strength and national independence. Yet Sweden's government appears to overlook that AI infrastructure is a comprehensive undertaking requiring a new operating model that runs across all departments and initiatives. Despite calls for [AI] dual-use technologies, government tardiness is ultimately risking the nation's competitiveness and autonomy in an increasingly digital and connected world. The AI commission's report was clear on this point – it is the Swedish politicians that are lagging while most other pieces are in place to excel.

Amid the most turbulent period in global affairs since the Cold War, building sustainable AI infrastructure has become a geopolitical imperative that companies and nations must meet.

Artificial Intelligence, paired with its underlying infrastructure, is rapidly redefining economic power and national wealth in the 21st century. In the same way that natural resources such as oil, steel, and electricity once fueled industrial revolutions, AI now drives the digital revolution — transforming economies, societies, and global influence.

At the heart of this transformation is AI compute infrastructure: the data centers, compute clusters, and national AI grids that power innovation. Nations that invest in AI infrastructure are not just preparing for the future — they are creating it. Countries like the United States, Japan, South Korea, and the UAE are racing ahead, building national AI supercomputers and data hubs that accelerate research, industrial development, and real-world applications. For nations like Sweden, this represents both a challenge and an opportunity.

AI infrastructure generates strategic advantages. It enables industries to tackle large-scale business problems, create efficient and sustainable systems, and produce actionable insights across every sector — from healthcare to manufacturing. Moreover, sovereign AI compute infrastructures ensure digital independence, freeing nations from reliance on foreign technologies and aligning innovation with national priorities.

As the competition intensifies, countries that fail to invest in AI risk losing their economic and strategic edge. In contrast, those that act decisively — by building infrastructure, fostering AI talent, and encouraging partnerships — will set the terms for global progress. In this new world, AI and its infrastructures are not just tools of development but the very foundations of national wealth and sovereignty.

Contributions: Falun/Borlänge/Smedjebacken in a central part of Sweden is getting one of the largest AI compute clusters in the world through EcoDataCenter AB. This fact alone should add to Sweden's climbing on the AI indexes of the world. Better yet, it is the start of an exciting journey for that region as they embrace the technology. I am keen to learn, 5-7 years from now, what they did as a region and how it brought new wealth to them.

Observations: Sweden draws a real interest from international investors scouting for AI companies to invest in. This is great as it is the ultimate proof Sweden is not lagging in the AI race. The Dalarna cluster will perhaps be the new core of Sweden's AI movement.

Turning energy into intelligence.

The transition from traditional energy usage to leveraging energy for intelligence represents one of the most transformative shifts of our time. At the heart of this revolution are AI compute infrastructures — data centers and AI clusters — that harness vast energy resources to power artificial intelligence systems capable of solving complex problems, innovating industries, and transforming societies.

AI compute clusters act as modern factories, where energy is not consumed for physical production but instead fuels algorithms and machine learning processes. These infrastructures process massive amounts of data, using energy to generate insights, predictions, and intelligent solutions across fields like healthcare, manufacturing, finance, and sustainability. In essence, energy is converted into intelligence — enabling systems to "think," adapt, and learn.

This shift requires both sustainable energy sources and advanced technological capabilities. Countries with access to renewable energy — hydropower, wind, or solar — have a competitive edge. Sweden, for example, with its abundance of green energy, is uniquely positioned to lead in this area. By building AI compute clusters that efficiently utilize renewable resources, nations can drive innovation while maintaining their environmental commitments.

Ultimately, turning energy into intelligence is not just about technological advancement but about unlocking new economic and societal value. The nations that seize this opportunity today will shape the world of tomorrow, leveraging AI to address global challenges, fuel industries, and secure long-term competitiveness.

We talk a lot about Artificial General Intelligence and while that might be the ultimate utopia, very few talk about what can really help humans – Artificial Competent Intelligence, ACI. A kind of middle ground where AI is geared towards harnessing competence to augment the human. ACI is a logical extension of the GenAI we see today; combined with other technologies — such as the meshing of telecommunications and internet capabilities with edge devices — that competence can directly amplify human capability.

An AI infrastructure is energy consuming; we know that. However, if you look at the energy required you can simplify it like this:

If you send 100 kW into a computer, roughly 3% of that energy goes to actual compute; the rest is heat — heat that can be reused in a circular, economically smart way.

If you send the same 100 kW into a city or industry, you can easily make the case that you siphon off 3 kW to drive AI compute, turning that "spill" energy into intelligence.

It is simple: all other things equal — and since most AI data centers will run on either Nvidia or AMD chips for training — a country with the cheapest energy will win the AI race. It is that simple.

Food for thought: Every nation must reconsider how they spend their energy going forward. I claim that putting a kW to work has fundamentally different value if you make green steel, electric-car batteries, or AI. My bet is that energy for AI use is much more valuable for a nation like Sweden than the other two.

Inference is putting the new oil to work.

If data is the "new oil," inference is the engine that transforms it into real value. While model training builds and refines AI systems, it is inference—the real-time application of trained models to new data—that delivers the actionable results businesses, governments, and industries rely on.

Unlike the heavy compute demands of training, inference is where AI meets the real world. Whether it's identifying objects in real-time video streams, enabling voice assistants to respond seamlessly, or optimizing energy grids, inference requires systems that deliver speed, efficiency, and scalability. Importantly, inference relies on a different kind of hardware than training. While training often uses high-performance GPUs or specialized AI chips to handle massive computations over long durations, inference depends on optimized, low-power chips that can deliver real-time processing — often at the edge or in distributed environments. These are often referred to as LPUs.

This distinction highlights why robust AI infrastructure is so critical. An AI factory doesn't function effectively without dedicated infrastructure, software stacks, operating systems, and scheduling tools designed for both training and inference. It’s not an academic exercise but a practical, industrial effort to scale AI across real-world applications.

Inference is where innovation becomes implementation. It is the bridge between raw data and actionable intelligence, transforming the "new oil" into tangible solutions that drive

economies, improve lives, and solve complex challenges. Without the right hardware, infrastructure, and software, this potential remains unrealized.

A task for you: Find the companies in the world that make inference chips, get to know them and make sure your AI team has these on their radar. My take is that there will be a shortage of these chips going forward and running AI on training chips rather than inference chips is not defensible from an energy-sustainability perspective (and it's a cost passed on to ordinary people).

Generative AI, chatGPT, and the likes.

Generative AI, including technologies like ChatGPT, has become essential for sovereign nations to ensure economic resilience, technological independence, and geopolitical strength. These technologies are more than just tools for innovation; they represent foundational infrastructure capable of shaping the next era of societal and economic advancement.

The strategic role of generative AI cannot be overstated. Its capacity to analyze vast amounts of data, generate human-like insights, and automate complex processes makes it indispensable for driving productivity, fostering innovation, and improving national efficiency. Economically, nations that invest in and develop their own generative AI systems can accelerate growth across industries, from healthcare to renewable energy and education. AI's ability to enhance automation, innovation, and resource management places countries in a better position to compete globally while unlocking transformative opportunities for local ecosystems.

At the core of generative AI’s significance lies its role in national security. Technologies like this power modern cybersecurity, intelligence gathering, and advanced threat detection systems. Without sovereign AI infrastructure, nations risk dependence on foreign actors, leaving themselves vulnerable to disruptions, limited access, and external control. By prioritizing the development of domestic AI capabilities, countries can protect sensitive data, safeguard critical infrastructure, and strengthen decision-making autonomy.

Furthermore, technological sovereignty ensures control over a nation’s future. Relying on foreign-owned AI infrastructure, often concentrated in the hands of global tech giants, poses risks of misuse, restricted access, and geopolitical leverage. By building national AI compute clusters, supercomputers, and research systems, nations retain their ability to innovate and operate independently while fostering homegrown talent, startups, and academic expertise. This local AI ecosystem becomes the engine for research breakthroughs, economic development, and societal advancement.

The practical applications of generative AI further demonstrate its importance. Public services can leverage AI for improved efficiency, smarter infrastructure, and citizen engagement. Healthcare systems benefit through accelerated medical research, personalized treatments, and cost-efficient operations. In defense and security, generative AI strengthens cyber resilience, enhances intelligence analysis, and supports national defense strategies. Even in sustainability and energy management, AI enables nations to monitor emissions, optimize renewable energy, and manage natural resources effectively.

The importance of generative AI for a sovereign nation is ultimately a matter of leadership and self-determination in the digital age. Countries that fail to prioritize their own AI infrastructure and capabilities risk falling behind both economically and strategically. The absence of sovereign AI development leaves critical sectors exposed to the influence of other nations and corporations that hold control over this transformative technology.

For a nation to secure its position in the global digital order, investment in generative AI and the infrastructure supporting it is no longer optional — it is imperative. By embracing this technology, nations can ensure their future economic competitiveness, protect their autonomy, and lay the foundation for long-term innovation and growth.

Contribution: Sweden, through EcoDataCenter, is already on its way to securing our position as an AI nation. EcoDataCenter is a private initiative and in that can service any public or private partnerships.

Comparative advantages for the less educated.

Generative AI (genAI) offers significant comparative advantages for individuals with less formal education by democratizing access to advanced tools and knowledge that were previously reserved for highly skilled experts. Unlike traditional technologies that often require specialized training, genAI platforms like ChatGPT can interpret natural language, making them intuitive and easy to use for anyone, regardless of their educational background. This lowers barriers to entry, enabling people to perform complex tasks such as content creation, language translation, coding assistance, and business idea generation without needing formal training in those fields.

For example, genAI can empower small business owners, freelancers, or workers in underserved areas by providing cost-effective support in drafting marketing materials, customer communications, or solving technical problems. It effectively bridges skill gaps by acting as a real-time assistant that delivers actionable solutions. Additionally, genAI tools

enhance learning opportunities, allowing individuals to ask questions, gain knowledge, and upskill at their own pace.

This transformative technology levels the playing field by enabling anyone with access to a device and the internet to harness its power for problem-solving, productivity, and creativity — areas that traditionally relied on higher education and specialized expertise. In this way, genAI supports economic participation, empowers underserved groups, and helps create pathways to social mobility.

Observation: Research from the Stanford AI Index shows that, all other things equal, persons with less education benefit comparatively more from AI (genAI) than the more educated do. Could this be the new driver of equalized democratization?

Sweden's AI commission and the aftermaths in politics.

The release of Sweden's AI Commission report, "En färdplan för Sverige," marks a critical moment for the nation's future in artificial intelligence. The report provides a comprehensive roadmap to position Sweden as a leader in AI development and application. However, for this vision to materialize, the Swedish government must take a highly active role. AI is no longer just a tool for technological advancement; it is the foundation for economic competitiveness, national security, and societal transformation.

A passive approach risks Sweden falling behind other forward-thinking nations, such as the United States, Japan, South Korea, and EU counterparts like Germany and Denmark. These countries are already making significant investments in national AI infrastructure, education, and innovation ecosystems. The report highlights Sweden's comparative strengths — such as its access to green energy, existing technological infrastructure, and skilled workforce — but these advantages require decisive political leadership to capitalize on fully.

The government’s role is critical in three key areas: infrastructure, education, and governance. First, establishing sovereign AI infrastructure, such as national AI compute clusters, ensures Sweden remains independent from external technology providers and avoids reliance on US or Chinese systems. The EcoDataCenter and other emerging AI hubs in Sweden are excellent starting points, but government support is necessary to scale these initiatives nationally.

Second, a significant emphasis on education and upskilling is imperative. AI will transform the labor market, and Sweden must ensure that its workforce — both current and future generations — is equipped to thrive in an AI-driven economy. From K-12 education to

advanced AI research in institutions like WASP, the government must prioritize STEM programs and lifelong learning opportunities.

Finally, the government must establish clear regulatory frameworks that encourage innovation while safeguarding ethical and societal concerns. AI governance requires balancing rapid technological deployment with oversight to ensure transparency, fairness, and trust. Pave the way for the national AI safety officer.

Sweden’s position as an innovation-driven economy gives it a unique opportunity to lead in AI, but leadership requires action. The AI Commission's "färdplan" provides the blueprint; now, the government must show resolve, allocate resources, and unite stakeholders across industry, academia, and society to deliver on its recommendations. Inaction is no longer an option in a world where AI leadership will determine economic and geopolitical strength. By actively driving this agenda forward, Sweden can secure its future as a global AI pioneer.

Noted: One chart in the AI commission’s report was the one showing we as a country are doing well, except on the political side. How can we get the sitting government to put AI front and center instead of thinking it has to do with the overall “advanced digitalization”? I know we have work to do but perhaps the sitting politicians listens and understand the difference between AI and advanced digitalization.

Agentic AI – the next frontier of intelligent systems.

The rise of AI agents, or agentic AI, marks a profound shift in the evolution of artificial intelligence. While much of today’s AI is task-specific — executing commands and producing outputs — agentic AI systems operate with greater autonomy. They don't just respond; they act, making decisions, executing plans, and iterating on results in a way that mimics human-like initiative and reasoning.

Agentic AI systems are designed to work with minimal supervision, dynamically solving complex problems and navigating uncertainty. These agents integrate perception, reasoning, and action, making them capable of performing multi-step tasks while adapting to new inputs. Imagine an AI system not only identifying inefficiencies in a supply chain but autonomously reconfiguring it for optimal performance, or a research agent that iteratively conducts experiments to discover solutions to scientific problems.

What sets agentic AI apart is its ability to reason and operate proactively. Unlike traditional AI tools that rely heavily on user prompts, agents can set goals, gather information, test hypotheses, and refine strategies — often in real-time. This evolution requires more than just

large datasets; it demands robust AI infrastructure with advanced software stacks, scheduling systems, and compute power to handle these iterative and dynamic workloads efficiently.

The practical applications of AI agents are vast: automating workflows, optimizing industrial systems, managing energy grids, or developing personalized learning pathways in education. However, they also underscore the need for careful governance and ethical considerations. With agents acting autonomously, ensuring alignment with human values and goals becomes essential.

Agentic AI represents a step closer to AI systems that not only process data but also interact with their environment, refine their outputs, and actively drive innovation. It's the next wave—where AI moves beyond passive tools and becomes an active partner in solving real-world challenges. For organizations and nations, embracing agentic AI means investing in the infrastructure, compute systems, and collaborative networks necessary to build this future.

Observed: The number of agentic architectures is exploding. It is really the missing piece in making AI a true friend, close at hand. Agentic AI will be like your own smart extension of you and ultimately you will only need one app on your phone – your own AI Agent app.

Nobel prizes and AI, combinations that matter.

In 2024, the intersection of AI and biotechnology is proving to be one of the most impactful scientific combinations, underlining the spirit of the Nobel Prize in recognizing groundbreaking advancements. The Nobel Prizes, particularly in fields like Medicine, Physics, and Chemistry, often celebrate paradigm shifts that not only advance science but also address pressing global challenges. AI's role in transforming research and discovery in biotech is a clear example of this kind of revolutionary progress.

Artificial Intelligence accelerates innovation in biotechnology through its unparalleled ability to process massive datasets, identify patterns, and predict outcomes with precision. Tasks that previously took years — such as genomic analysis, protein structure prediction, or drug discovery — can now be accomplished in weeks. A prominent example is DeepMind's AlphaFold, which solved the 50-year-old challenge of protein folding, fundamentally advancing medical research and pharmaceutical innovation. Such AI breakthroughs not only enhance scientific understanding but also enable faster development of treatments for diseases, positioning AI as a force multiplier in modern biotech.

Furthermore, AI-driven personalized medicine allows scientists to tailor treatments based on an individual's genetic profile, leading to better outcomes and reduced healthcare costs. Sweden, with its strong foundation in both biotech research and AI infrastructure, has a unique opportunity to be at the forefront of this revolution. The Nobel Prize, as a reflection of the world's most significant achievements, could honor such collaborative innovations that combine AI's analytical power with biotechnology's life-changing applications.

These AI-biotech synergies address global challenges such as pandemics, food security, and sustainability — problems that cannot be solved by traditional methods alone. Recognizing such achievements highlights the importance of multidisciplinary approaches in modern science, where AI serves as a unifying tool to push boundaries across sectors.

In short, the Nobel Prizes in 2024 and beyond may increasingly reflect these "scientific combinations that matter," underscoring how AI, when combined with fields like biotech, transforms theory into life-saving solutions. For Sweden, a country already associated with innovation, this intersection represents not just progress, but leadership on the global stage.

Noted: What a crescendo of AI related Nobel prizes. It is hard to discard AI now, really hard!

The Convergence of AI and Biotechnology: Promise and Peril

The combination of artificial intelligence and biotechnology is one of the most transformative and promising developments of our time. At its core, AI's ability to process vast, complex biological data and predict outcomes at an unprecedented scale enables breakthroughs that were previously unimaginable. It has accelerated everything from drug discovery and personalized medicine to genetic editing and predictive diagnostics. Tools like AlphaFold — which solved the decades-old challenge of protein structure prediction — show how AI can revolutionize our understanding of biology and pave the way for new treatments for diseases.

This synergy is fantastically promising because it holds the potential to cure diseases, extend lifespans, and address some of humanity's greatest challenges, such as food security through bioengineered crops or combating pandemics with AI-driven vaccine development. The ability to tailor medical solutions to an individual's genetic profile could eradicate certain illnesses and vastly improve quality of life. AI systems are now helping scientists analyze patterns in human genomes, predict the effects of specific drugs, and engineer solutions with precision and speed unmatched by human efforts alone.

However, this combination is equally frightening because of the immense power it holds. Biotechnology enhanced by AI raises significant ethical and security concerns. Tools like CRISPR, when combined with AI's predictive modeling, allow for the rapid editing of DNA,

blurring the line between treatment and enhancement. While the potential for curing diseases is undeniable, this power could also be misused to create dangerous pathogens, disrupt ecosystems, or deepen societal inequalities by allowing genetic enhancements for only a privileged few. The risk of biosecurity threats, unintended consequences in genetic modification, and lack of governance for these emerging tools cannot be ignored.

The convergence of AI and biotechnology, therefore, represents both a profound opportunity and an urgent responsibility. While it holds the key to solving some of humanity's most pressing problems, its power must be carefully managed, governed, and aligned with shared values to ensure it serves humanity as a whole. The question of who controls this technology — and how — will determine whether it becomes a tool of unparalleled progress or a force of unintended destruction.

Noted: I will cover this topic in much more length in my next letter and yet I wanted to put it on your radar now.

The [AI] have and the have-nots.

The divide between "the AI haves and have-nots" is emerging as one of the most significant challenges in the global digital transformation. Countries and organizations with access to AI infrastructure, expertise, and resources are poised to reap exponential economic and societal benefits. Meanwhile, those left behind risk deepening economic inequality and stalling technological progress. Overcoming this disparity requires deliberate efforts to democratize AI, ensuring it becomes a tool for inclusion, innovation, and shared prosperity.

AI democratization entails enabling broader access to AI tools, infrastructure, and education, regardless of geographical or economic status. This is not just a question of fairness — it is a prerequisite for global stability and growth. Nations that invest in AI infrastructure, such as compute clusters, open datasets, and talent development, position themselves to attract industries, create high-value jobs, and solve critical societal challenges. Sweden's AI roadmap underscores this potential, pointing to the necessity of national strategies to empower AI adoption and avoid dependence on global AI monopolies.

The link between AI and wealthier nations lies in its ability to unlock innovation in key sectors such as healthcare, energy, and manufacturing. For example, combining AI with biotechnology accelerates medical breakthroughs, while AI-driven energy solutions optimize consumption and production, addressing sustainability challenges. Countries that actively bridge the AI gap can transform these advancements into economic strength and improved quality of life.

However, failing to act will solidify divides. Just as access to industrial and digital technologies determined economic leadership in the past, AI will define future economic

winners and losers. Nations must prioritize AI education, ensure affordable access to AI infrastructure, and foster public-private partnerships to deploy AI equitably.

In conclusion, addressing the AI divide is not just about staying competitive — it is about building resilient, equitable, and prosperous societies. Countries that democratize AI and create opportunities for its practical application will emerge stronger, with richer economies and healthier populations. The choice is clear: invest in AI or risk falling further behind in a world driven by intelligent technologies.

Amplify: Countries that democratize AI and create opportunities for its practical application will emerge stronger.

The rise of a new profession – AI ethics and safety officer.

The role of an AI Ethics and Safety Officer has become essential as artificial intelligence takes on a growing presence in society, business, and daily life. This position ensures that AI development and deployment remain ethical, safe, and aligned with human values, addressing challenges like bias, transparency, and accountability. AI systems, while transformative, can unintentionally perpetuate harmful biases, compromise privacy, or create unintended consequences. By establishing ethical guardrails, the officer helps organizations proactively identify and address these risks.

Trust in AI hinges on its fairness, transparency, and explainability. An AI Ethics and Safety Officer ensures that systems are not only effective but also understandable and accessible to users and stakeholders. This transparency builds confidence in AI as a tool that serves people's best interests. Additionally, with global regulations like the EU AI Act emerging, organizations must navigate complex compliance requirements. The officer plays a vital role in maintaining adherence to laws and ethical standards, protecting organizations from legal and reputational harm.

AI innovation must balance progress with safety, and this role serves as a critical bridge between technological advancement and ethical governance. By implementing risk management strategies, the officer ensures AI systems are assessed for safety, fairness, and security at every stage. Importantly, ethical oversight does not slow innovation; rather, it drives sustainable growth by creating AI solutions that are equitable, responsible, and beneficial for society.

In essence, an AI Ethics and Safety Officer safeguards the integrity and future of AI. Through thoughtful oversight, they help organizations harness AI's immense potential while minimizing risks, fostering trust, and ensuring that AI contributes positively to individuals and society.

Comment: Any [AI] project, private or public, must include the role of an AI ethics & safety officer, and while this profession is new, there are plenty of people with the skills adequate to fill the role.

The constant chat about an AI factory (or why it takes 30 years to create an overnight success).

My observation over the last few years is that many AI readings, talks, and presentations have been heavy on theorizing with a clear lack of practical experience woven in. That is not necessarily a problem until one is called upon to produce active results with some kind of monetary outcome (save, create or make money/wealth). An AI factory cannot operate effectively without a robust AI infrastructure that includes comprehensive software stacks, operating systems, and scheduling tools. While the concept of an AI factory may sound visionary, it is ultimately a practical effort, not a theoretical academic exercise. At its core, an AI factory is a production environment where data is transformed into actionable intelligence. However, this transformation relies on seamless orchestration of hardware and software components in collaboration with humans.

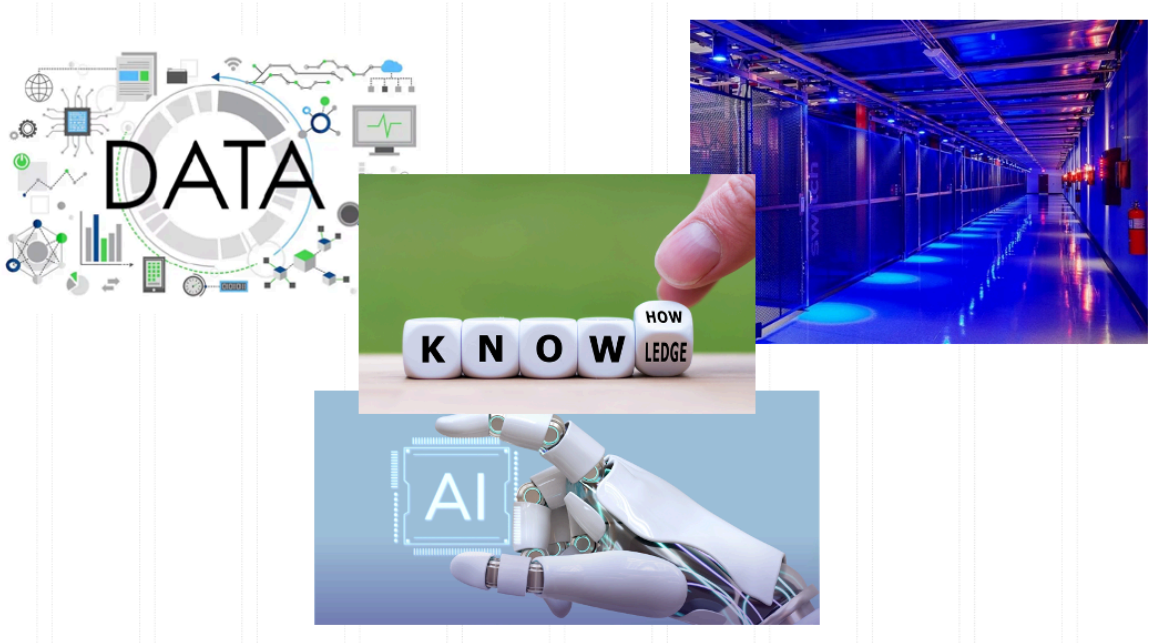
Without purpose-built AI operating systems and scheduling software, the vast and complex workflows — spanning data ingestion, model training, deployment, and scaling — become inefficient, chaotic, or even unmanageable. Software stacks serve as the foundation for these processes, integrating compute power, algorithms, and data pipelines into a cohesive system. Scheduling tools ensure optimal utilization of compute resources, enabling the AI factory to meet demand for continuous, real-time insights and applications.

Furthermore, AI factories must function as living systems capable of scaling rapidly, adapting to changing datasets, and delivering results with industrial-level reliability. This level of efficiency is only achievable when AI infrastructure is built to operate like traditional manufacturing plants, where precision, timing, and resource coordination are key. Anything less reduces the concept of an AI factory to mere theory — a promise without the practical backbone to deliver real value.

In short, the success of an AI factory lies in its infrastructure. It is not just about algorithms or raw computing power but about the operational integration of systems, tools, and processes that ensure AI can be produced, deployed, and refined at scale. Without this, the AI factory remains a concept on paper rather than a transformative intelligence engine for industry and society.

It is a very simple comparison, illustrated by the two pictures below: turning knowledge into knowhow is all it takes.

If you want a transportation system — cars, roads, etc. — and your comparative advantage is access to cheap iron ore: unless you have factories that can refine that iron ore into cars, trucks, and so on, you get no transportation system — period.



If you want to become a global leader in AI and your comparative advantage is cheap clean energy: unless you have the practical kind of factories refining that resource into intelligence, you get no AI — period.

Finally: An AI factory may give the wrong impression – that it is a “factory” that shoots out AI products in masses, this may send the wrong message as most AI algorithms are created elsewhere, and it is the fine-tuning, repurposing, and remodeling that an AI factory might do. An AI Lab or Studio may be a better name.

Politicians – an observation of generational shifts.

AI represents a defining issue of our time — a technological transformation that will shape economies, societies, and governance for decades. As with any transformative innovation, it creates a generational divide, where forward-thinking leaders embrace progress while others lag, unwilling or unable to adapt. This divide will ultimately determine not just the future of nations but also the political fates of those who lead them. Politicians who seize AI as a strategic opportunity will likely earn the trust and votes of citizens, while those who resist or neglect its potential risk obsolescence.

AI is not a niche technology; it is a force that redefines work, education, healthcare, infrastructure, and national security. Leaders who integrate AI into their policies will be seen as visionaries capable of navigating complexity and delivering tangible results. Countries that invest in AI infrastructure, talent, and governance will foster innovation, grow wealthier, and offer better opportunities for future generations. Citizens, especially younger demographics, who are acutely aware of AI’s promise, will gravitate toward leaders who champion its adoption.

On the other hand, dismissing AI as a distant or abstract challenge is politically perilous. As AI continues to shape everything from job markets to healthcare, voters will demand leaders who can secure their economic futures and national competitiveness. A failure to act could amplify societal frustrations and make political inaction synonymous with stagnation and missed opportunity.

The generational divide is already emerging. Younger leaders and politicians who understand AI see its potential to solve real-world problems — from sustainable energy to precision medicine — while older, more hesitant leaders risk being seen as out of touch. Progress-minded politicians will prioritize AI literacy, education, and infrastructure, creating tangible benefits that win public support and secure reelection.

In conclusion, AI is not a question of "if" but "how quickly" leaders act to harness it. The political divide will fall into two clear camps: those who embrace AI as a path to progress, prosperity, and relevance, and those who fail to act and lose public trust. The choice is generational, and for politicians, it will determine not only their legacy but also their ability to lead and be reelected in an AI-driven world.

Noted: People sometimes tell me I am too hard and crass, and yes! I know. However, I cannot be clearer on this – politicians either get it or they don't — leave that cohort in a divide. We will vote for the ones that get it, period!

Business leaders – an observation of generational shifts.

AI is no longer a distant concept — it is a defining factor that will determine which businesses thrive and which fall behind. As with any transformative innovation, AI creates a divide among business leaders: those who embrace it to drive progress and those who hesitate, risking stagnation and obsolescence. The leaders who act decisively will not only secure a competitive advantage but also future-proof their organizations for a rapidly changing world.

For forward-thinking executives, AI is an opportunity to unlock new efficiencies, reimagine business models, and deliver value to customers like never before. From automating routine operations to generating actionable insights and enabling predictive strategies, AI can revolutionize processes across industries. Leaders who take AI to heart — by investing in AI infrastructure, talent, and strategic applications — will set their businesses apart as innovators and position themselves to capture significant market share.

The divide is already visible. Organizations that integrate AI-driven tools to optimize decision-making, supply chains, and customer experiences are achieving measurable gains in productivity and growth. Companies that fail to act, however, risk falling into irrelevance as competitors outpace them in agility, innovation, and adaptability. Employees, shareholders, and stakeholders expect leadership that not only understands AI's potential but has the vision to implement it effectively.

AI adoption is also generational. Younger executives and digitally-savvy leaders are leveraging AI to build smarter, more efficient businesses that are prepared for the future. Those who dismiss AI as a passing trend, or delay investment, will increasingly be perceived as out of touch, risking both organizational and personal credibility in the eyes of boards, customers, and employees.

In short, AI is a litmus test for business leadership. Those who harness its potential will emerge as market leaders, driving progress, profitability, and resilience. Conversely, those who fail to adapt risk being left behind. The choice for executives is clear: embrace AI as a transformative force or watch as more agile competitors seize the opportunities of this new era. Now is the time to act with purpose, invest in innovation, and lead with conviction to secure long-term success.

Noted: People sometimes tell me I am too hard and crass, and yes! I know. However, I cannot be clearer on this – leaders either get it or they don't — leave that cohort behind. The "market" will remove the ones that don't get it.

People – an observation of generational coherence.

AI, at its core, is a technology that connects rather than divides. While we often hear concerns about the disruptive nature of artificial intelligence, it is ultimately a force that bridges boundaries — cultural, geographic, and generational — by fostering shared progress and solving challenges that no nation or group can tackle alone. In an increasingly fragmented world, AI presents an opportunity for global coherence, a chance to unite societies around the common goal of creating a better, more efficient, and more sustainable future.

AI's ability to process and analyze vast amounts of data transcends borders. Whether it's mitigating climate change, improving global health outcomes, enhancing education, or streamlining communication, AI enables countries, businesses, and communities to collaborate in ways never before possible. The challenges we face today — climate crises, healthcare disparities, or food security — are not confined to any single nation. AI serves as a universal tool that allows us to pool knowledge and resources, enabling solutions that benefit all of humanity.

This generational moment is critical. AI adoption isn't just about technological advancement; it's about fostering shared human purpose. While older generations have witnessed waves of transformative technologies — electricity, the internet, mobile communication — it is this generation that can champion AI as a unifying tool. Younger generations, digital natives with a deep affinity for technology, view AI as a natural part of their future. Their optimism and creativity, combined with the experience and wisdom of older generations, create an unprecedented chance for collaboration across age groups.

To embrace AI as a force for unity, we must place our faith in generational coherence — trusting that each generation brings unique strengths to the table. The wisdom of experience must intersect with the daring spirit of youth. Business leaders, policymakers, educators, and innovators must work together to harness AI ethically and inclusively. AI is not a zero-sum game; its power grows when knowledge is shared, when collaboration replaces competition, and when systems are designed to empower people, not isolate them.

The story of AI should not be one of division — of the "haves" and "have-nots," or of regions racing in isolation. Instead, AI can inspire us to build bridges across divides, both real and perceived. It calls upon us to believe in humanity's collective potential to work as one, with

technology as a tool for equity and shared progress. This moment requires bold trust and leadership — trust that AI will serve as a unifier and leadership to guide its development responsibly.

The promise of AI lies in its ability to amplify what is human: creativity, collaboration, and purpose. By bringing the world together around shared challenges and opportunities, we ensure that AI becomes not a source of division, but the foundation of a more united, capable, and forward-looking global society. This is where we must place our faith — on a generational bridge that connects past, present, and future through shared technological progress. Together, we can move forward.

Food for thought: I have lived through four technology shifts and my own experience is that technology, at the end of the day, doesn't divide us – it makes us much more coherent with each other bridging our differences and makes us better together.

A look at 2025 – what will matter for business leaders and politicians?

As we approach 2025, both business leaders and policymakers stand at a pivotal moment. This year will demand decisive action, visionary thinking, and collaboration between public and private sectors to navigate the transformative forces reshaping our world. What will truly matter is how we align our goals to harness these changes for shared progress.

Artificial Intelligence: The Backbone of Progress

For business leaders, AI is no longer a "nice-to-have" but a critical driver of competitiveness. By 2025, AI will redefine industries, offering new pathways for efficiency, product innovation, and customer engagement. Leaders who invest in AI capabilities today will own the markets of tomorrow.

For politicians, AI is more than a tool for economic growth — it's a matter of national resilience. Nations that prioritize AI infrastructure and policy will lead not just in innovation but also in cybersecurity, healthcare, and sustainable development. This requires collaboration between government and industry to build sovereign AI infrastructures that balance innovation with ethical oversight.

Climate Action: From Policy to Execution

2025 will be a year where environmental goals must evolve from rhetoric to results. For businesses, this means integrating sustainability into core strategies. Companies that use

technology, including AI, to decarbonize supply chains and create circular economies will not only meet regulatory demands but also gain customer trust.

For policymakers, the challenge is to create a regulatory framework that incentivizes sustainable business practices while fostering innovation. Public-private partnerships will be essential to developing green technologies, from renewable energy to AI-driven climate modeling.

Geopolitical Shifts and Digital Sovereignty

In 2025, digital sovereignty will become a central issue for both businesses and governments. For corporate leaders, expanding into global markets will require navigating complex geopolitical landscapes, ensuring data compliance, and partnering with governments to build secure digital ecosystems.

Politicians must act to safeguard their nations' technological independence while fostering international cooperation. The competition for leadership in AI, quantum computing, and secure data systems will define global alliances and rivalries. Collaboration between innovation hubs like Silicon Valley and emerging AI centers in Europe and Asia will be vital for global stability.

If you want to lead the AI race, you first need to bring the bear down—there's no point planning what to do with the prize until you've secured it. And in this context, the "bear" is AI compute infrastructure: the powerful, energy-intensive clusters that are the beating heart of artificial intelligence. You can't expect to reap the rewards of AI innovation—economic growth, technological leadership, and global competitiveness—if you haven't first built the necessary infrastructure to support it.

Nations that slap energy taxes or erect bureaucratic barriers to building AI compute clusters are shooting themselves in the foot. Think about it: you wouldn't try to carve up a bear while it's still roaming the forest—it's premature, messy, and doomed to fail. The same goes for AI. Before we talk about benefits, we need to ensure the essentials are in place—affordable energy, streamlined trustworthy regulations, and a clear path for investment into large-scale, sustainable AI compute hubs.

The bear analogy is simple, but powerful. If you want to bring it home—AI-driven solutions, industries, and competitive economies—you must first focus on the groundwork. Only then can we unlock the full potential of AI. The countries that recognize this, act quickly, and remove impediments will be the ones to dominate the future. Those that hesitate? Well, they'll be left chasing shadows in the woods while others take the prize.

Generational Shifts in Leadership

A new wave of leadership will emerge in 2025, shaped by digital fluency and purpose-driven values. For business leaders, this generational shift is an opportunity to attract talent and

innovate workplace cultures. Companies that embrace diversity, transparency, and flexibility will lead the way.

For politicians, engaging younger generations is critical. These voters are deeply invested in issues like climate change, digital equity, and social justice. Policies that reflect their priorities will not only build trust but also shape the future of governance.

The Reimagined Workforce

Automation and AI will transform the global workforce, creating both opportunities and challenges. Businesses must focus on upskilling employees to remain competitive, leveraging technology to enhance human creativity and problem-solving.

Governments, meanwhile, have a duty to ensure no one is left behind. This means investing in education systems that prepare citizens for a digital economy, supporting lifelong learning initiatives, and ensuring fair access to technological advancements.

The Path Forward: Collaboration Over Division

The defining question of 2025 will not just be about technological progress, but how we use it to build a more inclusive and resilient world. For businesses, this means finding ways to align profitability with purpose. For governments, it requires creating policies that foster innovation while addressing societal challenges.

Together, business leaders and politicians have the power to shape a future where technology serves as a unifying force. By focusing on shared goals — sustainability, equity, and innovation — we can ensure that 2025 is not just a year of transformation but one of meaningful progress.

Sweden in an AI nutshell.

2024 has really been the year of practical AI for Sweden and many other countries. There are plenty of initiatives and practices going on. I can only conclude after a decade plus working on what has become the AI wave that Sweden is uniquely positioned to emerge as a global AI leader thanks to a combination of strategic infrastructure investments, academic partnerships, and collaborative efforts across sectors.

EcoDataCenter, with its state-of-the-art infrastructure and focus on sustainability, provides the critical backbone for AI operations by offering scalable, green data processing power — transforming energy into intelligence. Sweden's AI Commission report, "En färdplan för Sverige," has laid out concrete actions to level the playing field and set a clear path forward, combining policy, innovation, and governance to accelerate AI adoption in practice.

Collaboration with top academic institutions further strengthens Sweden’s position. Engagement with Stanford HAI and their global AI index connects Swedish AI research and

industry to Silicon Valley's cutting-edge advancements, while Örebro University's Amy Loutfi contributes to Sweden's leadership in applied AI. Initiatives like EHUB in Mälardalen accelerate the energy transition, leveraging AI for practical, sustainable solutions that are crucial to tackling global challenges. In the end it is what we do together that matters and moves the needle.

Additionally, through my work — building global and local networks — I focus on amplifying knowledge-sharing, guiding organizations toward AI self-sufficiency, and ensuring Swedish expertise is positioned at the forefront of global AI development. Together, these interconnected efforts — combining infrastructure, policy, academia, and leadership — create a thriving AI ecosystem, making Sweden the natural hub for innovation, progress, and sustainability in the AI-driven future. We are moving forward with some speed!

Jonas Kjellstrand is a senior strategic adviser operating through UCC AB, based between Stockholm and Palo Alto. He advises at the intersection of European sovereign AI infrastructure, Nordic energy economics, government relations, and Silicon Valley technology partnerships. He holds an MBA from Stanford GSB (joint with Stockholm School of Economics) and business administration from MIT Sloan.