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AN ARMS RACE

ARTIFICIAL INTELLIGENCE IS REDEFINING GEOPOLITICS

It is time for European governments to reinvent their strategies. Power will shift to the nations that can best build, attract and tax the profits of Artificial Intelligence. Elon Musk tweets that the AI arms race might cause WW3, China is set on world domination, and European governments' main response is to pledge more money.

Developing Artificial Intelligence (AI) is not easy, nor does it follow a straight line. Do not expect the opportunities to be evenly distributed across our globe. It will unfortunately take at least a decade before we know for certain that success is a result of first mover advantages. It is widely accepted that with intelligent algorithms, automation and robotics, most sectors can increase productivity with lower labor costs: jobless growth. AI is changing all facets of society and sometimes at exponential speed. The impact on *who* works and *how* will be significant and many predict that we'll need a new definition of 'work'. A question that has been less thoroughly explored is *where* we will find AI hubs and which countries, companies or individuals will dominate the new world order.

AI is the defining geopolitical factor of our time. AI is changing the game in terms of security, intelligence, production, healthcare, transport and media. It is an arms race and the resources required to develop sophisticated AI are capital, talent and most importantly, data.

Capital – Investing in AI technology seems like a no-brainer (pun intended) and is in line with how nations traditionally act. Strategies are ceremoniously declared, and budgets allocated to funds or technology companies with a vague but ambitious objective to support future AI companies. The topic is clearly hot in the corridors of power and over the last few years several countries have declared their focus on and ambitions in technology. President Macron launched a fund of €10 billion for AI investments, while the British Chancellor's budget included a significant commitment to investing in technologies such as AI.

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However, the truth is that capital is a commodity and if Europe is to stand a chance, we need to rethink our strategies and find additional ways to address the real bottlenecks affecting AI development.

Mapping the capital flows and analyzing the power players' underlying interests and alliances is key to predicting and understanding the consequences for geopolitics. Identifying the key venture funds in Silicon Valley and their political or non-political agenda is an obvious starting point. The next layer of influence is global kingmakers like Soft Bank's Vision Fund. Their investment portfolios are an indicator of what types of technology and entrepreneurs might succeed. Finally, we must remember who the main investors in the most influential funds are, as well as those investing in (or sitting on the boards of) both a sophisticated AI company like Facebook, Amazon or a smaller company like Palantir for that matter. Power is shifting and private ownership structures are playing a role in geopolitics. Capital is a fundamental part of building transformative AI, but it is not enough to win the race.

Talent – Attracting and retaining the right talent is a real challenge, as very few people actually know how to build neural networks for machine learning. A handful of companies and governments are systematically scouring the market for tech talent and are thereby dominating the global output of relevant AI. Newly-graduated data scientists, developers and mathematicians are being offered substantial salaries by a few tech companies who have completely distorted the market for everyone else. This could have long-term democratic consequences as society, the economy and our infrastructure are being reengineered by AI, alongside a few companies and governments pursuing particular values and strategies.

To make matters worse our educational systems are archaic, geared to creating job-seekers and not job-creators. The parents and countries that are rethinking how to equip the next generations with the right tools to flourish

in an AI-powered entrepreneurial economy will have the advantage.

Data – Data is the fuel of the AI economy. Whoever controls the data controls the world and AI is developed using vast amounts of data. We might think of it as masses of examples that the algorithms can practice deduction on – the more the better. The Economist wrote that data is the oil of our era. That is to say, AI-companies with access to the biggest pools of usable data flourish. Moreover, AI development is self-perpetuating – more data results in better AI and better AI provides more data.

Others and I predict that the future economy will be dominated by data-rich tech giants with a massive first mover advantage. They not only have access to huge stockpiles of data, but also the network power and expertise required to analyze it. Today, the players on the forefront of AI are the likes of Google, Facebook, Alibaba, Tencent/WeChat and Amazon. Where are they based? Which nations earns the tax revenue? Which nations can leverage the talent pools and innovative cluster thinking? China and the US. The geopolitical consequences of this shift of capital, talent and firing power in terms of sophisticated Artificial Intelligence are unparalleled.

Why is tax revenue a factor? The answer is that AI is likely to fundamentally change our labor markets and have a catalyzing effect on the current trend of wealth concentration, making it even harder for the working and middle classes. Thus, we might need to rethink allocation of capital to citizens – some call this universal basic income. However, one can only reallocate what one has, so we predict that the host nations of successful tech giants will have the financial buffers to take care of all its citizens if it chooses to do so. Governments also sit on data gold mines. By opening up public databases and responsibly cooperating with scientists, academics and trusted commercial companies, countries can nurture the growth of AI and attract the necessary talent.

In the West, we are uncomfortable with sharing public data, but China's goal is to become the leader in AI by 2030. It currently has three key advantages in the AI arms race: a big pool of data engineers, 750 million internet users and, more importantly, a state committed to sharing data with trusted commercial partners. We need to accept that AI is not a level playing-field. For example, in terms of healthcare, Chinese AI companies have access to 1.4 billion radiology scans and diagnoses are developing rapidly and saving lives, identifying and treating cancer with greater precision and swiftness. In the near future, these are the companies likely to be supporting doctors and treating patients all over the world. If we act now, maybe there will be a German or Swedish competitor, developed with our European preferences for privacy, transparency and security in mind.

It's obviously important to be prudent with taxpayers' money and when public institutions invest in technology, they have rigorous processes and requirements in place to ensure they invest in robust and tested tech. The price is unfortunately that this by definition means that there will be very little public investment in cutting-edge technology, with the natural consequence that there is very little public influence on what type of tech is being built and on what value base the algorithms will be created. We must hope the commercial powers at play have our publics' best interests and democratic values at heart.

The Russian president Putin states that whichever country becomes the leader in the AI sphere "will become the leader of the world". Elon Musk tweeted; "competition for AI superiority at national level" is the "most likely cause of WW3". To be a serious candidate in the global AI arms race, governments need to not only address capital requirements but more importantly understand their role as a partner and key source of fuel – i.e. data. Success hinges on investing in high-risk AI technology, rethinking our

educational system and allowing researchers and companies to develop artificial intelligent and train algorithms on data derived from hospitals, prisons, schools, energy consumption and demographics.

Many reports state that the risks of AI being used maliciously are increasing, and for good reason. We need to be very cautious when redeveloping the foundations of society. It is already clear that AI can cement biases, increase gender gaps, jeopardize personal security and autonomy, reduce transparency, create legal challenges for liabilities and make cyber security more vulnerable. However, if we let ourselves be paralyzed by the risks or halt development in order to think through *all* the aspects, we might find ourselves overrun by less prudent players in an arms race that is accelerating.

AI is not just about technology – it comes with moral, social, security and practical considerations. Additionally, I would argue that we need a sense of urgency. If we aim high in Europe, governments and AI talent can work together to improve diagnosis in healthcare, fight terrorism more effectively, treat young people with mental illness far earlier, send fewer innocent people to jail, use environmental resources more efficiently and much more. Europe needs to wake up to the fact that AI is redrawing the political map and we need to rethink many aspects of our society to keep up.