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CIO letter

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10 TRENDS THAT WILL SHAPE THE COMING DECADES

PART 2

Globalised capitalism in its current form - a quest for infinite growth enabled by a continuous decline in interest rates over the past 40 years and the over-optimisation driven by globalisation – has become so dysfunctional that it now threatens human existence on this planet. This model has damaged biodiversity and the climate, increased inequality ,created bubbles and led to capital misallocation. We are convinced that we are reaching the limits of this model and that the beginnings of its successor are starting to emerge. In view of the profound changes required for the emergence of a more sustainable model, we believe it is important to try to understand the major fundamental trends that will shape the structure of our economies over the coming decades. All the more so if the world enters a phase of weak and less optimised growth.

TIKEHAU CAPITAL

We now present the second part of our letter: the ten trends we seek to understand so that we can invest in the coming decades.

1. Demographics: the Indian Ocean as the future centre of the world
2. Deglobalisation: shifting from a Western-centred world to a multipolar world
3. Economic value creation: from efficiency to resilience
4. The risk approach: balancing risk-taking and insurance
5. Artificial intelligence: a revolution or an economic mirage?
6. The increasing weight of governments in economies
7. The debt problem
8. The boom in capital expenditure
9. Agriculture and urbanisation: a model that must pivot if it is to endure
10. Labour versus capital or the growth of inequality

6.
The increasing weight of governments in economies

The need to create resilience in a context of de-globalisation and geopolitical tensions marks the return of industrial policies and strategic sovereignty plans. It is therefore not surprising to see the use of aggressive fiscal policies to direct investment towards the creation of resilience.

Government spending is one of the four main components of GDP, along with consumption, exports and private investment. The government can have an impact on its country's economy in several ways: by issuing debt, as an employer, and through public investment. **In all the major economies, the weight of government in the economy is increasing**. Geopolitical and economic tensions are shifting the focus of value creation from the generation of efficiency in times of globalisation and falling interest rates, to the generation of resilience, in which the role of the state is a driving force.

In China, the mobilisation of abundant savings is enabling the state to direct investment towards its priorities: industrial production and technology, which will help to maintain employment and reduce dependence on the West. China has once again become an economy almost entirely owned and run by the state: growth is currently around 5%, with around 0% coming from the private sector.

> IN ALL THE MAJOR ECONOMIES, THE WEIGHT OF GOVERNMENT IN THE ECONOMY IS INCREASING

All the economic growth comes from public spending in sectors deemed strategic by the government and from exports. This allocation leads to industrial overcapacity and deflation, although not all of this deflation will be exported because Western countries are likely to ban Chinese goods produced at a loss. China exports cars, batteries and solar cells, and in these three sectors, Chinese products are extremely cheap, making it impossible for competing companies to remain profitable and putting major countries exporters of cars and industrial goods, such as South Korea, Japan and Germany, under pressure. Chinese products and services in rail, nuclear and aerospace are also, or will soon be, highly competitive. **As a result, China's forced savings will have to absorb the future depreciation of surplus industrial capacity in the 2020s. In technology, the Chinese government is compensating for the withdrawal of foreign investment, particularly American funds, in Chinese start-ups**. As a result, Chinese tech is once again being financed by state funds, which means that funding choices will be made in line with the state's strategic interests.

In the West, most states are obliged to maintain their military spending in view of current geopolitical tensions. The **United States** is geographically isolated from Eurasia and Africa, where most of the world's population will be concentrated by 2100. **The only way for the American superpower to maintain its monetary and economic position is to preserve its military and technological dominance** so as to project its power towards the remote areas of the territory that will concentrate growth in the coming decades. **At the same time, the country's health situation is deteriorating**. For the first time in modern history, life expectancy has fallen in peacetime. The costs of obesity, cancer, diabetes and opioids are rising, **and the government will have to contribute to these efforts**, **in addition to subsidising the energy transition** (notably through the Inflation Reduction Act). As a result, **the country will have to issue increasing amounts of debt and the US budget trajectory is clear: in 8 years, outstanding US Treasury bonds will have risen from $20 trillion (in 2017) to $40 trillion (forecast for 2025).**[1] The cost of the US debt has exceeded $1 trillion a year, equivalent to Switzerland's GDP in interest payments each year.

1. American Institute for Economic Research - https://www.aier.org/article/34-trillion-and-climbing/

GOVERNMENTS DO NOT HAVE A HISTORY OF EXCELLENCE IN CAPITAL ALLOCATION

Europe, for its part, **faces the same challenge**. European states will have to continue to fund the welfare state, not least because of their ageing populations. Furthermore, in response to the resurgence of war on the European continent, most governments will have to **significantly increase their military spending**. **At the same time, these same countries will have to finance their energy transition** to cope, among other things, with the sudden disruption of supplies of Russian gas, a very cheap source of energy. **The eurozone's cumulative budget deficit will then reach €650 billion, an all-time record.**

This trend towards an increase in the weight of governments in economies seems to be structural and not subject to political alternation insofar as all political parties seem to favour aggressive budgetary policies.

WHAT IMPACT WILL THIS HAVE ON FINANCIAL RETURNS?

With a few exceptions (such as Singapore), governments do not have a history of excellence in capital allocation. **It is therefore likely that the increased weight of governments in the global economy will result in lower financial returns**.

The major economies will have to protect their local businesses against the competitiveness of their international competitors. We can therefore expect an increase in protectionist measures. Deglobalisation is likely to accelerate. Non-economic considerations (political, strategic, ideological) in investment and financing decisions are likely to become more widespread. The weight of public investment via industrial policies and strategic initiatives in the various economies (USA, Europe, China, Japan, India) is likely to continue its upward trend, leading to a less optimal allocation of capital and a probable fall in financial returns.

7.
The debt problem

> THIS INCREASE IN THE WEIGHT OF GOVERNMENTS IN THE ECONOMIES IS LEADING TO AN ACCELERATION IN PUBLIC DEBT

This increase in the weight of governments in the economies is leading to an acceleration in public debt.

Who will absorb the increase in Western government bond issuance? Central banks are ending their quantitative easing programmes. Japanese investors, the largest foreign holders of US Treasuries, are likely to buy less as Japanese domestic interest rates rise. On the other hand, countries that usually need dollar reserves can now buy raw materials or capital goods (as is the case in Brazil) in other currencies. China and India, for instance, buy Russian oil in non-dollar currencies. As a result, these countries will buy fewer US Treasuries.

Finally, several emerging powers are shifting their focus to reinvesting capital domestically. This includes China and the Gulf Cooperation Council (GCC) countries, which increasingly rely on sovereign wealth funds to allocate capital to asset managers. These managers, in turn encourage the companies in their portfolios to develop their activities in the investors' home countries. As a result, capital from these countries will shift away from Western government bonds, real estate and minority stakes in listed Western companies.

> LONG RATES ON BOTH SIDES OF THE ATLANTIC ARE PROBABLY TOO LOW AT CURRENT LEVELS

Finally, what should we make of China's issuance of a US$2 billion bond to Saudi Arabia in November 2024, with an issue rate equivalent to that of US Treasuries? This overlooked transaction may hold profound significance.

It suggests that dollar-surplus countries are no longer confined to financing the US economy with the global reserve currency.

More importantly, if China can borrow in dollars at the same interest rate as the United States, or even on better terms, the implications could be far-reaching. The recycling of dollars may increasingly benefit nations that challenge US dominance. China, for example, could convert these dollars into local currency to finance not only domestic entities but also neighbouring countries, thereby helping to create an alternative currency zone.

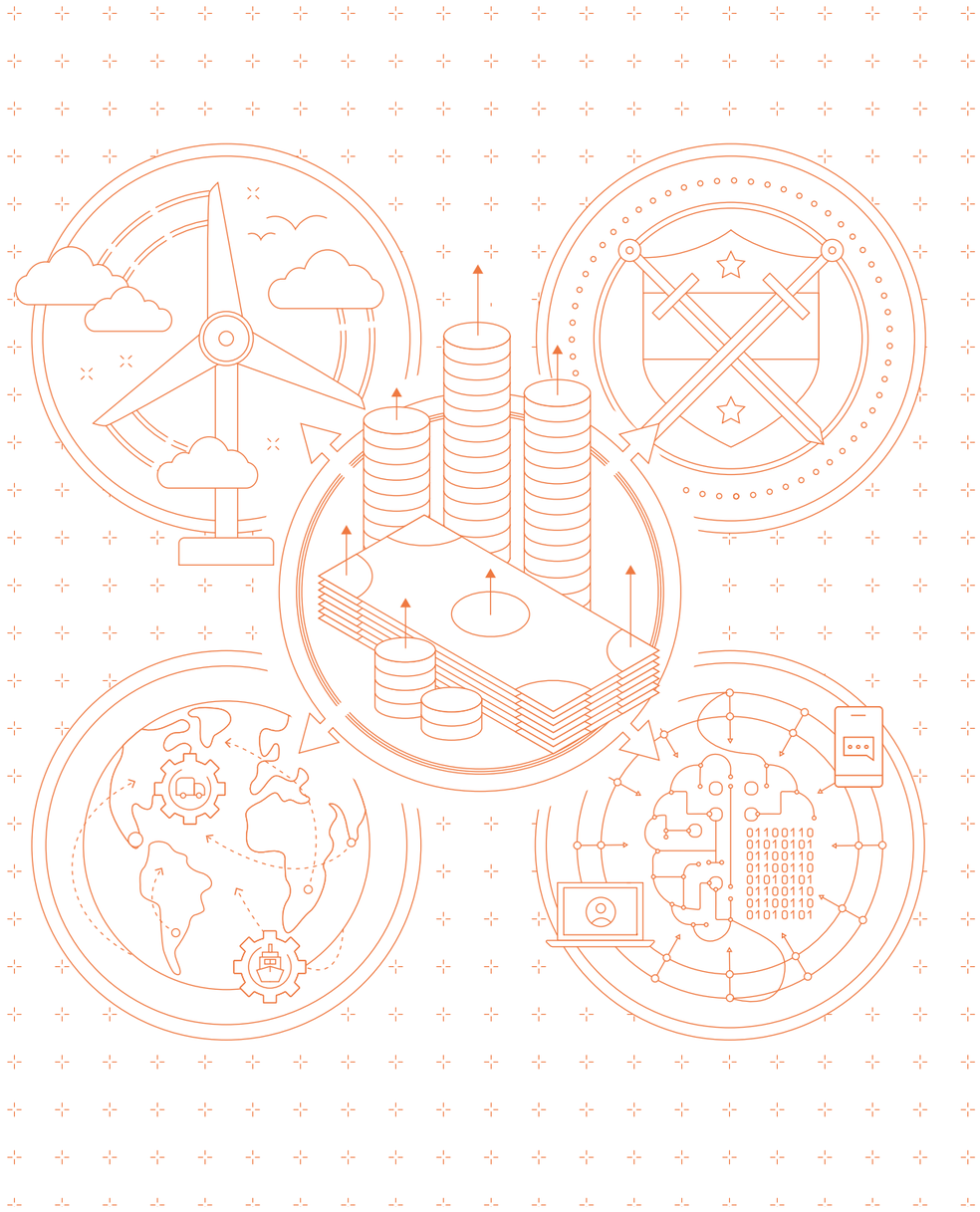
WHAT IS THE RIGHT PRICE FOR GOVERNMENT BONDS?

At the start of 2024, the market consensus was that inflation would fall, allowing central banks to lower their key rates. While this expectation is proving correct in Europe, the situation in the United States is more complex. Short-term interest rates may not decrease as much as expected by the markets and the Trump presidency could accentuate this lack of visibility on the path of inflation and therefore interest rates. If we consider government borrowing requirements over the next few years, we maintain our view that long rates on both sides of the Atlantic are probably too low at current levels.

> 1998 IN REVERSE?

COULD WE SEE A DEBT CRISIS IN DEVELOPED COUNTRIES?

1998 in reverse? There is, of course, no certainty on this question, but insofar as the financing needs of Western governments are increasing at a time when financing countries (China, GCC) are seeking to reinvest in their own economies, the scenario of a debt crisis in developed countries cannot be totally ruled out. The markets are not mistaken: the yield on 5-year emerging markets government bond indices is already lower than the yield on US Treasury bonds with the same maturity. Is this really an anomaly, or the reflection of a new reality?



8.

The boom in capital expenditure

The four Ds have been described as the trigger for the biggest capital expenditure cycle in history: decarbonisation, defence, deglobalisation and digitalisation. In 2022, McKinsey estimated the amount of capital expenditure required between now and 2027 at US$130trillion dollars, i.e. more than once the world's GDP[2].

According to Goldman Sachs[3], the investment required to decarbonise the world, meet water needs and strengthen transport and other essential infrastructure will represent US$6 trillion per year over the next decade. Extrapolated to the 5-year horizon of the previous study, decarbonisation investment alone would account for a quarter of total capital expenditure for the global economy.

> **DECARBONISATION, DEFENCE, DEGLOBALISATION AND DIGITALISATION**

In defence, military budgets are rising sharply worldwide. NATO's 2014 target, requiring member countries to allocate 2% of their GDP to military spending had largely been unmet until the start of the war in Ukraine. But since then, military spending, has been converging towards the target. In 2024, the European members of NATO invested US$380 billion in defence, i.e. 2% of their combined GDP[4]. The US military budget continues to break records, remaining the largest expenditure in the federal budget at almost US$850 billion.

In addition, investment in artificial intelligence, now a near-daily topic in the news, is accelerating. Most of this spending is being carried out by private companies, primarily tech giants,

2. Capital Investment is about to surge: are your operations ready? Mc Kinsey April 2022 - https://www.mckinsey.com/capabilities/operations/our-insights/capital-investment-is-about-to-surge-are-your-operations-ready
3. The $6 Trillion Plan – Unleashing New Waves of Green Investment, Goldman Sachs Research, 2022 - https://www.goldmansachs.com/insights/articles/unleashing-new-waves-of-green-investment
4. https://www.nato.int/cps/en/natohq/news_222664.htm

which are investing heavily in both research and development (R&D) and the construction of computing capacity through data centres. Goldman Sachs estimates that investment in AI will total US$1 trillion over the next five years[5]. It is clear that tech giant leaders are more afraid of under-investment, which would cause them to lose their competitive edge, than of over-investment, which would destroy economic value. "In technology, when you go through transitions like this, the risk of underinvesting is dramatically greater than overinvesting," says Google CEO, Sundar Pichai[6]. Their collective predictions mean that Big Tech investment in AI could more than double by the end of the year. Analysts at the Dell'Oro Group[7] now anticipate US$1 trillion in investment in infrastructure, such as data centres, over the next five years. However, these companies have yet to convince investors that their customers are prepared to spend enough on the products and services that will be provided to make these investments worthwhile. By way of example, Meta CEO Mark Zuckerberg estimates that the computing power required to drive its next Large Language Model will be 'almost 10 times' that of the previous version, while conceding that the profitability of these models will take years to materialise.

The geography of infrastructure investment needs is very broad. The drive to create resilience in a context of deglobalisation is forcing all countries to invest heavily. However, given the demographic and economic dynamics, the Indo-Pacific region is likely to attract a significant share of this investment in road, port, airport, energy and particularly renewable infrastructure. Against this backdrop, China, which accounts for between 65% and 95% of the supply chains for energy transition infrastructure, including solar panels, wind turbines, batteries and electric vehicles, is likely to find considerable growth drivers.

The demand for raw materials to build these infrastructures is likely to remain strong. Combined with protectionism and the need to secure supply chains, this should sustain structural inflation, driven by lower efficiency resulting from de-globalisation.

Is this good news?

Provided that capital expenditure creates economic value, a significant need for Capex in a particular segment is a positive sign, as it is expected to create new jobs or increase the productivity of existing jobs. But experience shows that this is rarely the case.

5. Source: Goldman Sachs Research, Top of Mind - Gen AI: too much spend, too little benefit? - 2024
6. https://www.ft.com/content/b7037ce1-4319-4a4a-8767-0b1373cec9ce
7. https://www.delloro.com/news/ai-infrastructure-spending-forecast-to-be-over-a-trillion-dollars-over-the-next-five-years/

Why? Because only the best management teams allocate a company's free cash flow effectively to capital expenditure. Building a factory is one thing, but building it at the right time and in the right place, while accounting for a long investment horizon that could render it obsolete before it starts producing is quite another challenge entirely. On the one hand, much of this capital expenditure fails to generate the expected creation of value. On the other, companies must also resist the temptation to rush into investments. When major competitors embark on large-scale investment programmes, it can be tempting to imitate them, either by simply copying their actions or due to market pressure. Investors often anticipate that companies failing to invest will quickly fall behind, as seen in the race to fund AI research and development in 2024. But it is sometimes wiser to opt for a return of cash to shareholders through the payment of a dividend or share buyback. In short, only the best management teams make capital investments that create value, because only they know how to estimate the future profitability of an investment in relation to its cost. This is why sectors that require high levels of capital expenditure, such as the automotive industry, heavy industry and nuclear or energy infrastructure, have historically seen lower returns on investment than less capital-intensive sectors. Financial analysts often consider Capex to be the enemy of the equity investor.

Consequently, it is possible that the substantial need for capital expenditure to create resilience in our economic system will result in lower-than-expected financial returns for investors. The combination of public intervention in capital spending decisions and short-term pressure on company management to adapt to new technologies will probably lead to disappointing returns, as has been the case in every economic cycle. **This suggests that we need to remain selective, do our homework in analysing the quality of management and pay close attention to measures of long-term returns on capital invested. We can therefore expect an increase in the dispersion between the performances of both companies and governments (as reflected in the cost of financing their debt).**

This surge in investment needs driven by these four factors (deglobalisation, decarbonisation, defence and digitalisation) presents both an investment and opportunity and a risk for investors who lack discipline in stock picking.

9.

Agriculture and urbanisation: a model that must pivot if it is to endure

> 95% OF THE WORLD'S FOOD PRODUCTION COMES FROM THE SOIL

After the Second World War, a third of the world's population faced food shortages. As a result, the focus shifted to mass agricultural production by industrialising traditional farming practices in many regions. This trend led to an increase in agricultural yields thanks to the creation of large farms and the extensive use of water and chemical products. But these practices have degraded the soil. In 2023, 40% of agricultural land was considered to be degraded[8]. **Agriculture is one of the main contributors to greenhouse gas emissions, even though soils have historically been the planet's largest carbon sink**.

> 40% OF AGRICULTURAL LAND WAS CONSIDERED TO BE DEGRADED

As well as impoverishing the soil and eliminating biodiversity, thereby eroding the value of land, these practices have led to massive indebtedness on the part of farmers to acquire equipment, water, pesticides and optimised seeds. **The development of intensive agriculture since the 1960s has had yield as its main objective. This model is the primary cause of land impoverishment, water pollution and biodiversity loss**. The intensive mechanisation of agricultural work, along withthe use of synthetic fertilisers and plant protection products, are the main causes of soil degradation. Yet, 95% of the world's food production comes from the soil.

8. United Nations Convention to Combat Desertification - Global Land Outlook, 2022

> BY 2050, 70% OF THE WORLD'S POPULATION WILL LIVE IN CITIES

WHAT IS THE RATIO OF URBAN TO AGRICULTURAL LAND?

By 2050, 70% of the world's population will live in cities. **The surface area occupied by cities is only 1% of the habitable land on our planet, whereas agricultural production occupies more than 50% of habitable land. Yet 80% of this agricultural land is used to produce meat (livestock or cereals to feed livestock), which is mainly consumed in cities. In other words, 40% of the world's land is used to produce meat to feed a population concentrated on just 1% of habitable space**. According to the World Health Organisation, urban populations consume five times more meat than recommended, leading to significant and health costs for governments, including rates of cancer, diabetes, heart disease and obesity.

These few figures are enough to highlight the scale of the problem, which combines an ever-increasing urban population with the need to feed it.

For millennia, farmers have cultivated a wide variety of crops, but today's profitability policies restrict variety to the most efficient. The destruction of ecosystem complexity impoverishes the soil and ultimately harms yields in the long term. Of course, the use of pesticides and sophisticated farming equipment helps to maintain these yields. But in the long term, soil impoverishment challenges this premise. Research since the beginning of the 21st century has shown that greater diversity there is in an ecosystem, the higher the productivity of each variety, the greater the stability of the ecological community and the better the quality of the soil. In the long term, lower yields or increased use of water and pesticides to maintain equivalent yields and compensate for soil depletion could lead to a crisis in feeding the urban population. Certain farming practices are to blame. While ploughing helps to control weeds, it also increases soil porosity. As a result, ploughed soil absorbs more and therefore releases more CO_2. **Since 1950, our agricultural soils have lost half their organic matter**. Mineral fertilisers also pollute the soil andsome end up in coastal waters, creating green and brown tides. However, there is no such thing as dead soil because of agriculture. What is destroying soil and function is the artificialisation of land, which is accelerating in France is it and worldwide. Since 1970, we have converted 10% of our usable agricultural land, covering it with concrete or asphalt as cities expand.

Regenerative agriculture replaces pesticides, insecticides and herbicides with biocontrol solutions. It innovates by reintegrating livestock farming to transform the biomass produced by photosynthesis into organic matter to feed the soil. Modern agriculture has separated the animal from the field by confining them to stables, whereas regenerative agriculture turns its back on hyperspecialisation and promotes diversity. By recreating natural ecosystems, with animals and hedgerows that provide refuge for biodiversity and protect crops, this approach fosters resilience Thanks to permanent soil cover, more carbon can be sequestered in the soil, helping to slow global warming. In fact, soil conservation agriculture captures around 20% more carbon than conventional agriculture[9].

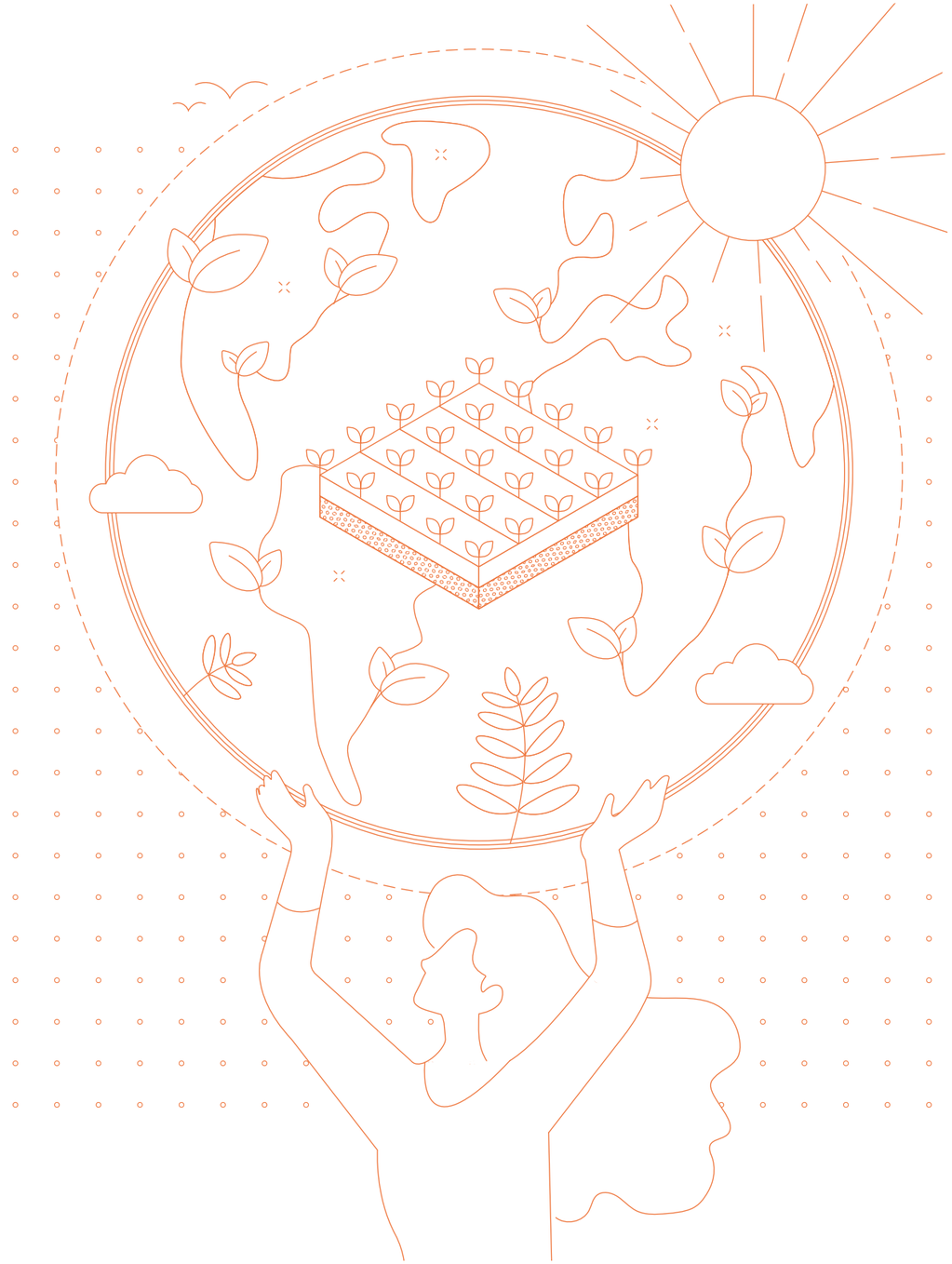
For some years now, major agri-food and textile groups have been betting on the evolution of the agricultural model towards a more sustainable system, using regenerative agriculture based on the restoration of soil vitality and the rational use of water and chemical products. This new model reduces dependence on water, lowers purchases of chemicals and farming equipment and decreases public health costs. **Regenerated natural ecosystems are less vulnerable to climate variability and social progress is supported by the return of short circuits and local solidarity.**

Soil regulates flooding and the climate while serving as a habitat for a multitude of organisms, from earthworms to bacteria. Around 25% of the world's biodiversity resides in it. Regenerative agriculture is a system of principles and practices that aim to rehabilitate and improve the whole ecosystem from the point of view of sustainability, including improved human health and economic prosperity. It is a form of agriculture that promotes a balanced ecosystem in which the cycles of nature work together holistically.

An increase of 0.4% in the amount of carbon in the soil each year could offset the annual increase in CO_2 emissions into the atmosphere[10].

Can this type of agriculture feed 10 billion people? Why not, given that around a third of the world's current agricultural production is not consumed, that the diet is far too focused on meat consumption and that, despite the smaller volumes of products from regenerative agriculture (which contain less water), their nutritional value is higher than that of products from intensive farming.

9. "L'agriculture régénératrice: summum de l'agroécologie ou greenwashing?" Cahiers agricultures, Michel Duru, Jean-Pierre Sarthou, Olivier Therond, 2022
10. 4 per 1000 - Storing carbon in the soil to combat climate change - https://agriculture.gouv.fr/4-pour-1000-stocker-le-carbone-dans-le-sol-pour-lutter-contre-le-changement-climatique



10.

Labour versus capital or the growth of inequality

We have written extensively on the subject of the relationship between labour and capital[11]. Even if there is no exact science in this area, and even if the subject is often politically tainted, understanding the dynamics in this area is crucial for long-term investment. The steady fall in interest rates and their move into negative territory for several years, coupled with the globalisation of the economy in the 1990s and 2010s, has contributed to an imbalance in the ratio of capital to labour in favour of the former.

> THE BUSINESS OF INVESTING INVOLVES DEPLOYING CAPITAL AT THE RIGHT PRICE

Capital and liquidity have a cost and the business of investing involves deploying capital at the right price. When a company has to pay the right cost to have access to capital (whether debt or equity), it must carefully manage how this capital is deployed soto create economic value. **When the cost of capital or liquidity is too low, a poor allocation of capital will destroy value over the long term**. It is therefore reasonable to assert that keeping interest rates too low is more deleterious to economic activity than lending at levels more in line with the cost of capital, which may seem counter intuitive. This imbalance, exacerbated by the COVID crisis, has likely contributed to widening inequalities, particularly between financial investors and workers.

11. CIO letter. Development, economics, climate change and the human factor: Human after all, September 2022

The accommodating monetary policies adopted by central banks to combat crises since the 2008 financial crisis have increased inequality. Low interest rates favour an ever-smaller section of the population, a population that is close to the financial markets, i.e. with a capacity for debt. On the other hand, it disadvantages a growing population without access to financial markets, including the unemployed and employees with limited savings capacity. In a note published in March 2019[12], the economist Charles Gave returns to this idea by evoking the thought of Richard Cantillon, an Irish economist living in France in the 18th century, who, in his work Essay on Commerce[13] explained that when a country's monetary policy led it to massively depreciate its currency, the fringe of the population closest to the central bank became richer, while the majority of the population became poorer. His work highlights the emergence of a class of '*nouveau riche*' and the impoverishment of the middle classes in political systems that print money. This account of the failure of the system set up by John Law in France rings incredibly true today. According to a report by the Oxford Committee for Famine Relief, in 2017, 82% of global GDP growth was captured by the wealthiest 1% of the population[14]. As financial markets, supported by public policies, return to their highest levels, this social dichotomy - between a population with access to debt and savings, who are getting richer, and those without access, who are getting poorer - will undoubtedly be a factor of social, and therefore political, instability in all countries. The capitalist economic system does not take kindly to instability, which generates uncertainty and, in turn, volatility in financial results.

In his book "*Marie Curie habite dans le Morbihan*", Xavier Jaravel[15] looks at innovation and its effects on inequality, productivity and the creation of economic value. It is widely believed that innovation increases inequality. He notes that innovation even seems to pose a democratic problem, insofar as a few large groups can become as powerful as states. Yet innovation drives growth, which contributes to economic development. This growth makes it possible to finance public services and social protection, which in turn reduce inequalities. Innovation is also the key to decarbonising our production system, according to the author. "Should we conclude, then, that the inequalities created by innovation are the price we have to pay for economic growth, our social model and the ecological transition? The author shows that, while innovation feeds inequality, it is not inevitable, because all that is needed to remedy it is a change of method and priorities. In the long term, innovation can reduce economic inequality if it is accompanied by educational reform, efforts to facilitate access to innovation for the least favoured geographical areas and appropriate regulation.

12. Not modern, not about money and not really much of a theory Gavekal Research 8 March 2019
13. Richard Cantillon, 1755
14. Oxfam International Report, 22 January 2018
15. "Marie Curie habite dans le Morbihan", Xavier Jaravel, 2023

THE REVOLUTION OF THE DATA ERA IS NOT BASED ON A NEW TYPE OF HARDWARE, BUT ON ALGORITHMS THAT CAN BE REPLICATED AD INFINITUM VERY QUICKLY

Without the innovations of the past two hundred years, our standard of living would be ten times lower. "The long history of innovation shows that it is a gradual, collective and iterative process involving the joint efforts of producers, consumers and regulators. By trial and error, a myriad of players refine technologies, adjust new products and integrate them into our daily lives, until they become indispensable. This is why all technological revolutions have taken at least thirty years to reach their full impact.

Previous major economic breakthroughs were based on the introduction of new agricultural, industrial (e.g., the steam engine) or service-sector (e.g., the computer) equipment. These changes unfolded over several decades, as it took time for the new equipment to be adopted and widely disseminated.

DISCONNECT BETWEEN PRODUCTIVITY AND JOBS

The jobs threatened by these innovations were replaced over relatively long periods. In contrast, the revolution of the data era is not based on a new type of hardware, but on algorithms that can be replicated ad infinitum very quickly. The disruption is immediate. Of course, optimists will say that previous major revolutions have led to an increase in global wealth while maintaining relative stability in the labour market. But each time, the increase in productivity has led to the transformation of low value-added jobs into higher value-added jobs. This new revolution will have a different effect insofar as the wealth created is concentrated in a very limited number of companies which create few jobs. Moreover, due to their monopolistic tendencies, these companies eliminate jobs in all the sectors they penetrate, on a scale and with a speed never seen before. These record-growth companies, most of which were founded in the 2000s, are already in these job-destroying monopolistic situations. The result is a disconnect between productivity and jobs, which had been avoided in previous major periods of technological breakthrough.

The major decoupling of productivity gains and wage growth is one of the main factors behind the changing relationship between labour and capital. Until the early 21st century, these two concepts were linked. **Productivity gains pushed workers towards higher value-added tasks. As their work created more wealth, their contribution was remunerated by higher wages, with the labour market operating naturally.**

THE SUBJECT OF TECHNOLOGY'S IMPACT ON EMPLOYMENT IS SOCIETY'S GREATEST CHALLENGE FOR THE NEXT DECADE

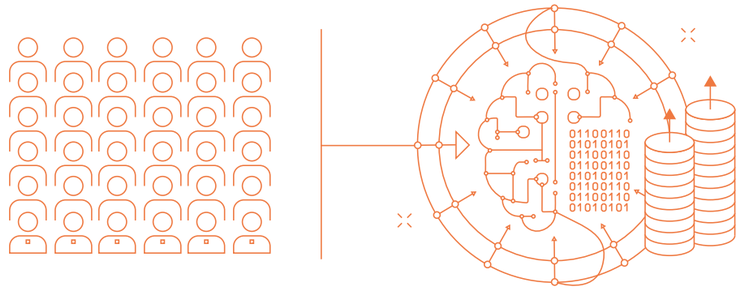
Until recently, it seemed empirically demonstrable that technological progress had not destroyed jobs and that, despite a world with strong demographic growth, unemployment had remained relatively contained. But with the advent of data, the speed and scale of job destruction across numerous sectors is unprecedented benefiting only a small proportion of the highly qualified workforce. This is the great debate between optimists and pessimists on the effects of this new technological revolution on employment. In an article published in 2014 in the New York Times[16], Erik Brynjolfsson, professor and director of the Digital Economy Lab at Stanford University in California, stressed that the subject of technology's impact on employment was "society's greatest challenge for the next decade", noting that the world was entering a period characterised by greaterwealth but a reduced need for work. On paper, this sounds like good news, but that is not necessarily the case. In the same article, former US Treasury Secretary Lawrence Summers[17] made it clear that, in his view, it was not a question of hindering technological progress but rather of being under no illusions about the risks in terms of job destruction and destabilisation of the social balance.

One of the political stakes of this phenomenon is the cohesion of the middle class in developed countries, and indirectly, the future of the democratic model in these countries – an issue particularly relevant today. In his book "*Des marchés et des dieux*", journalist Stéphane Foucart[18] talks about the growing inability of democratic governments to exercise any non-violent authority, even though these entities paradoxically have the power to exercise violence and start wars. This growing inability of the public sphere to impose its authority leads to a search for enemies. The electoral stakes in our democracies force candidates advocating change to look for scapegoats on whom to pin all the problems. Finance played this role after the 2008 crisis. European integration plays this role for certain nationalist candidates. Perhaps tech will play this role if the sector fails to demonstrate its positive contribution to a more sustainable and less unequal system.

16. "As Robots go smarter, American workers struggle to keep up", Claire Cain Miller, 15 December 2014, https://www.nytimes.com/2014/12/16/upshot/as-robots-grow-smarter-american-workers-struggle-to-keep-up.htm
17. Lawrence Summers was Treasury Secretary in the Bill Clinton administration, Chairman of the National Economic Council during Barack Obama's presidency and also Chief Economist of the World Bank
18. Des marchés et des dieux, Stéphane Foucart, 2017

But the increase in inequalities is not limited to social considerations within the various economic blocs. It also threatens geopolitical balances and population movements. The automation of tasks could deprive developing countries of the competitive advantage that has enabled China, Korea and Singapore to become developed countries: low-cost labour. The balance between developed and emerging countries can be illustrated by the empirical observation that, in developed economies, capital is cheap and labour is expensive, while in developing countries the opposite is true. China's incredible economic boom in the 2000s can probably be explained by a break in this balance, with cheap labour and capital made cheap by state over-investment. The dominance of the tech giants, and their impact on employment and wages, could in turn alter this balance, blocking the path to development for a large number of countries and widening the de facto gap between the leading technology nations and the rest. Wealth could become even more concentrated in a geographically concentrated fraction of the world's population, with all the potential implications with for migration waves, rising populism for global economic and geopolitical stability.

This effect of extreme wealth creation for a small number of individuals is accentuated by the dominance of the technology platform model and its ability to create an effect of scale. There are very few businesses where a recipe that works can be replicated on a very large scale with marginal additional costs. A good product or service can be produced on a larger scale, but this requires more staff, more production capacity and more processes, which has a cost. Very few activities have an almost infinite scaling effect and those that do tend to make their key protagonists extremely rich. This is the case with the image of a successful athlete in a high-profile sport, or a music or film star. Their mere inclusion in a club, film or advertisement can sell a product worldwide. In a way, this was the case for certain trading activities before the 2008-2009 financial crisis and the tightening of regulation. Hiring a talented trader required little capital outlay and the fact that the person took positions worth a few million or a few billion did not alter the fixed costs for his or her employer, resulting in remuneration sometimes in line with that of football or film stars, for the same reasons. The best people in tech are also in this category.



A successful algorithm can be replicated on a very large scale without very high marginal costs, creating a scale effect and encouraging the formation of monopolistic situations. The combination of aggressive monetary policies providing abundant liquidity and this effect of scale has had the effect of creating huge fortunes in a very short space of time for shareholders in technology companies. The combination of huge fortunes built up quickly by companies that create few jobs but destroy them in other sectors makes tech vulnerable to vindictiveness.

As a result, the disconnect between the majority of large companies operating in survival mode and a minority of tech giants attracting ever more capital, without creating many addition jobs, could ultimately generate social instability. This phenomenon is perhaps already beginning to be reflected in the electoral votes in our democracies. The translation of our physical world into digital data risks making a vast number of human tasks obsolete, not just those with low added value. **The era of data should be the era of the disconnection between productivity gains and wage rises**

In this context, the re-emergence of structural inflation is somewhat welcome. Indeed, periods of inflation generally go hand in hand with periods of reduced inequality, as workers earn more while savers earn less. It's certainly a headwind for corporate profits and margins in the short term, but ultimately it will rebalance the huge disconnect between the reward of capital and the reward of labour, a gap that has widened for decades since China joined the WTO in 2001 and is now threatening our democracies (through social unrest and populism).

Conclusion

There are probably many more than 10 trends that will shape our economic system over the coming decades. The key may not be to identify them all, but probably to understand what kind of human interaction they are leading us towards. Unfortunately, these trends could lead to isolationism, withdrawal, division, fear of others and fear of scarcity. Not to mention the fear of dying that feeds the illusion of transhumanism as a manifestation of the absolute reign of the human race over its environment. In short, without a collective awareness, these trends seem to be leading to a subtle form of servitude consented to by compartmentalised humans, prisoners of their material comfort and cut off from their link to the living world.

Because these trends encourage compartmentalisation: compartmentalisation of knowledge, compartmentalisation of the indicators we use to make decisions, compartmentalisation of human beings into castes, religions and political parties. But when we don't look at the problem as a whole, we focus on a specific objective, even if achieving that objective ultimately destroys more global value than it creates. For what we call scientific progress is the specialisation of knowledge that amounts to slicing up observation to its smallest observable unit. All that remains is a fixed entity, cut off from its environment and detached from the broader perspective that we could perceive with a bit more distance.

The Irish playwright George Bernard Shaw said: "Specialists are people who know more and more about less and less, so that in the end they know everything about nothing." Today, these specialists are praised and listened to, but by only commenting on one aspect of the problems they are called upon to address, their decisions or advice have consequences for areas in which they have no idea or in which they have no interest. Experts cannot have a holistic vision, yet they are the ones who are systematically put forward. The so-called wise men have a holistic vision, but their words are ridiculed or ignored. Apart from a few modern scientists, we have to go back to the so-called root peoples to rediscover respect for this holistic vision, which is essential if we are to respect the natural balance. Rediscovering the perception of the global dynamics of events would enable us to change scale, to consider humanity and its environment as a whole and to seek global solutions to our local problems. A holistic view is essential if humanity is to find solutions to its problems and move beyond self-destruction. Consciousness could then emerge as a natural regulator of our ecosystems.

This vast subject will be the subject of our next letter.

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CIO letter

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