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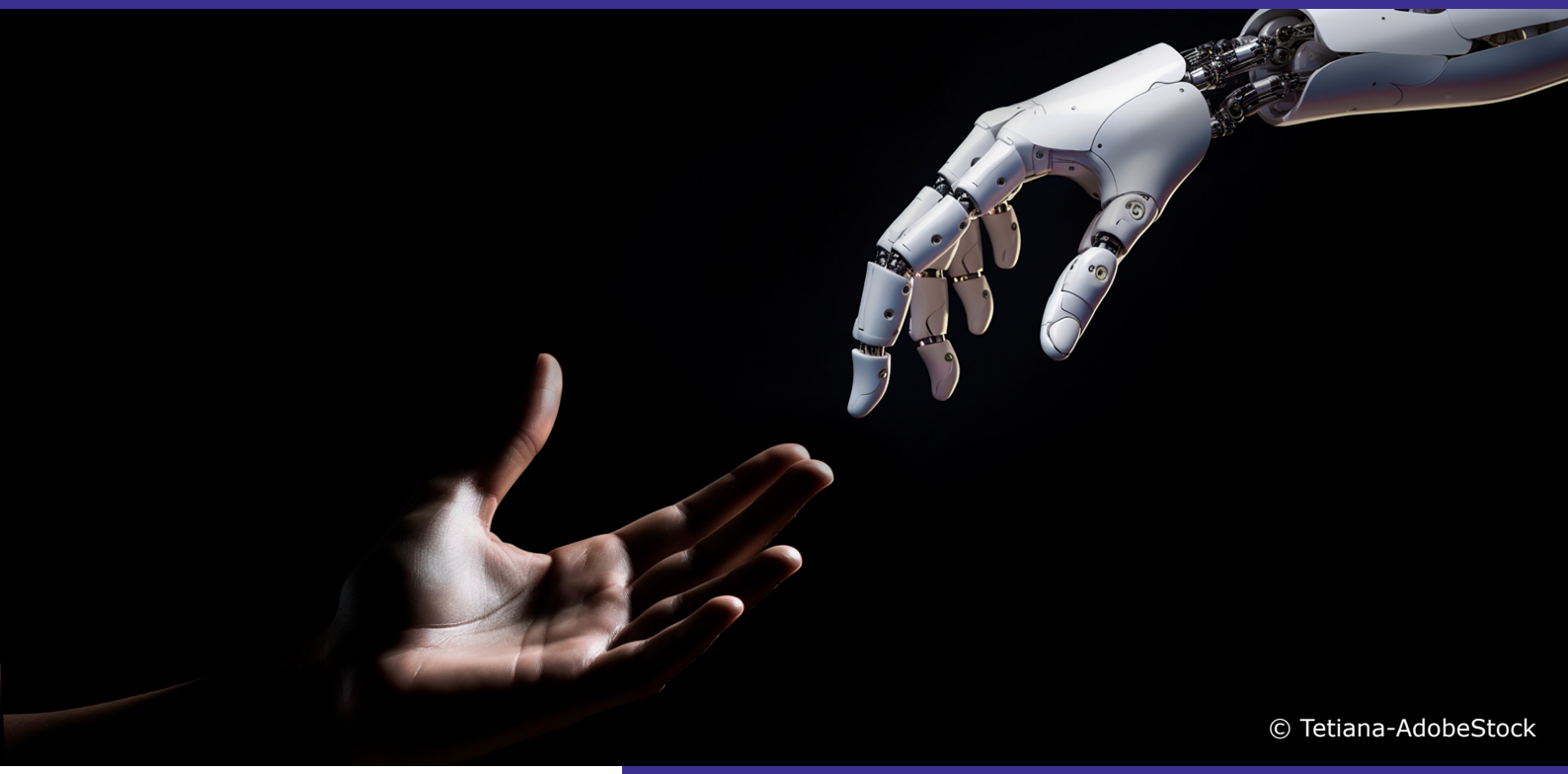

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LIGHTS - Technology

GenAI and sustainability: Which wave should we ride?

ESCP Impact Paper No.2024-52-EN

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Abstract

In this essay, we draw inspiration from surfers to find new ways to approach the recent progresses in Artificial Intelligence. We explore the parallels between surfing and the rise of generative AI (GenAI), highlighting the environmental and societal costs. While GenAI promises transformative changes, its energy consumption and potential risks raise concerns. The emergence of Green AI, focused on sustainability, is presented as an alternative. However, as we face the reality of climate change, the essay urges a shift towards sustainable solutions rather than chasing technological waves. On the eve of the European elections, we need to ask ourselves what direction we want to take. Surfing aficionados may have one or two ideas to share with business-savvy practitioners and scholars.

Keywords: genAI, sustainability, wave, innovation

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GenAI and sustainability: Which wave should we ride?

26.21 meters - the highest wave ever surfed rolls in Nazaré, a few hours from Lisbon. A surfer on top of an eight-story building of water. Surfers travel from plane to plane to ride on mythical waves, from Hawaii, to southern France, to Tahiti. Only experienced surfers practice these waves with sophisticated equipment. A frantic quest for the exotic emerged recently. Devotees prioritize the unusual over surfing and set out to conquer new spots, new records for ever more adrenalin, at great costs.

Since December 2022 – when OpenAI previewed ChatGPT –, businesses have dreamed of surfing another wave, GenAI, promising landslide transformations of our societies and economies. GenAI is the new craze, the new spot where everyone is going. And, just like surfers' mythic waves, GenAI is extremely expensive and only few companies afford such investments. Training new AI models does not generate less CO2 than surfers' transcontinental flights to tame new waves. Still, do we develop technology and pave the way for a greater future, or do we save the planet for the future to exist?

In this essay, we draw an analogy between the ethos of surfing, particularly Polar Surfing, and the emerging concept of Tech-for-Ecology. We explore the pressing sustainability challenges faced by society and advocate for a localized approach to AI development. We argue that just as in surfing, where the most meaningful waves may be the smaller, more sustainable ones close to home, our focus should be on riding the sustainability wave gently to shore. With the impending European elections, it is imperative that we deliberate on the direction we wish to steer. In this endeavor, business leaders must make strategic decisions to align with the most meaningful wave of progress. Insights from enthusiastic surfers may provide valuable perspectives for both industry practitioners and academic scholars.

GenAI: the wave everyone wants to ride

The GenAI race is raging. After a thunderous start, ChatGPT is far from being the only contender in the competition. Everyone wants to develop their own platform. ChatGPT appears "too woke" for Elon Musk. At least, that is how he justifies developing his new chatbot. Meta launched its Llama - Large Language Model Meta AI[1]. Some like the transhumanist philosopher Nick Bostrom even start to think about what humans will do if AI solves everything. When will we see the creation of a *strong* artificial intelligence capable of imitating or even surpassing human intelligence? 2045 according to Ray Kurzweil (2005), author of the theory of the Singularity – the moment when machines will become more intelligent than humans. And "shortly thereafter the human era will be over" (Vinge, 1993: 11). According to Kurzweil, Bostrom and other techno-utopians, new technologies such as computing, artificial intelligence and biotechnology will change the way we live for the better.

Surfing GenAI: living the mythical dream?

These techno-utopian are like surfers in the quest of mythical waves. Their modest dream: to build from scratch a new world populated by augmented, immortal human beings. In their eyes, technological progress can increase human capacities tenfold until the ultimate

[1] Interestingly, Meta kept Llama open source (and free), despite pouring unprecedented levels of R&D investments into the technology. Some investors suggest that Meta seeks to avoid the emergence of a competitor or a substitute.

limit, that of death, is crossed. These propositions may look like pure fantasy, but a few years ago who would have predicted that machines would be able to entertain a conversation? "Killing death" (the aim of Calico[2]), changing the way humans reproduce, integrating machines into the human body to create a society of cyborgs: each of these projects appears to be crazier than the next. For the first time, new technologies are directly affecting human physiology through the development of prostheses and bioengineering. In the techno-utopians' view, the creation of true artificial intelligence will mark the next stage in this process, the ultimate goal: to eventually replace life with technology itself.

But AI specialists are already warning us. "Companies have not yet grasped the scale of the problem posed by the energy consumption of AI", says Frédéric Brajon, co-founder of Saegus, a consultancy specializing in the transition of companies to AI. According to a recent study from two French public institutions, the digital sector's carbon footprint could increase by 187% by 2050 if no significant action is taken between now and then. Numbers don't lie. A single Nvidia H100 GPU chip, one of the most widely used to run AI algorithms, consumes more electricity each year than an average American family. Each prompt to generate a fantasy picture on Dall-E uses up the amount of electricity necessary to charge your smartphone. From 2027 onwards, the new servers needed each year for AI algorithms will represent the electricity consumption of a country like the Netherlands or Sweden. In a finite and overheating world, an additional country will appear every year. Business leaders may need to tackle this issue today in order not to be blamed tomorrow. They may not be able to turn around their reputation in the future if they do not strategically commit and make the right investments today.

GenAI, the wave "too big" to surf?

Many voices, especially those of high-tech utopians, have been raised to warn of the consequences of GenAI for quite some time now. As Stephen Hawking pointed out ten years ago: "Succeeding in creating artificial intelligence would be a great event in human history. But it could also be the last" (Karayan, 2015). For his part, Elon Musk described artificial intelligence as a "demon" (Karayan, 2015) and called for regulation at national or international level. Bill Gates also shared this concern: "I agree with Elon Musk and others, and I don't understand why people aren't worried" (Karayan, 2015). On 29 September 2016, Google, Microsoft, IBM, Deepmind, Facebook, and Amazon already set up a partnership to "define good practice in artificial intelligence" for society and individuals, called Partnership on AI. With the prominence of GenAI today, we might wonder whether such *tech for good* initiatives are not in fact more good for tech (Acquier et al., 2020) in the sense that it makes it possible to assign technology a socially laudable goal.

GenAI is perhaps the wave that is "too big" to surf. Maybe it is time to *kick out* – the moment when you finish catching the wave and eject from it. We are developing new technologies that we cannot control. They will end up overtaking us, just like those mythical waves when surfers *wipe out* – injuries are extremely serious, sometimes lethal. Man is overtaken by the natural element, which remains always stronger.

Tech for ecology and polar surfing: having your cake and eating it too

Surfers have more to tell us. They look for remote, arid areas. Temperatures are not very mild, but the spots stay relatively uncrowded. A new discipline is even emerging: polar surfing.

[2] The California Life Company (Calico), a biotech research center founded in 2013, has a project to combat ageing and the diseases associated with it and, ultimately, to "kill death".

Surfers set out to conquer new waves, in less-than-ideal conditions, to reconnect with the soul of the sport. These surfers are like the *Soul Surfers* described by Allaert:

> We call these surfers Soul Surfer. They explore the imperceptible facet of the discipline, dreaming of the precious equation between man and the element, the one that drove Duke Kahanamoku, the pioneer of Hawaiian surfing, to take to the colossal walls of water with an antique acacia board. For them, surfing is neither a means of showing off nor a series of spectacular maneuvers, but an art of living, a philosophy. Sometimes they even see it as a belief akin to animism, in which the natural elements - particularly the ocean - are endowed with a vital force.
> (Allaert, 2019)

Seeking neither maneuvers nor glory, these individuals dream of perfect osmosis with the ocean. However, going to remote places requires from modern-day explorers to boast advanced technical equipment, tools, and a supervising team to ensure safety and logistics. Polar surfing resembles a lost, timeworn sport, but with all the technological paraphernalia and strong communication. Movies, books, documentaries are booming (eg. Under an Arctic Sky (2017), Arctic Swell: Surfing the Ends of the Earth (2014)). Surf photographer Chris Burkard presents his work as a "personal crusade against the mundane". These surfers are still looking for the extraordinary. They crave to be the first to explore a spot. Just like surfers on mythical waves, polar surfers are looking for the ultimate feat.

A Green AI panacea...

Like polar surfers who chase the exotic and absorb the ocean with osmosis, GenAI sees two waves. Considering the worsening climate crisis, a new Green AI emerges against Red AI. Academics and companies develop AI models that require less computing (e.g., algorithms with fewer parameters). High tech in the service of ecology is a repentant tech that no longer serves the crazy dreams of techno-utopians. Green AI now pledges to save the planet, putting "technology at the service of sustainability" (Acquier, Carbone & Ezvan, 2020). There is no shortage of terms to describe this use of technology. GreenTech, EcoTech, CleanTech, tech for good seems to have acquired a new finery: ecology. Saving humanity now goes hand in hand with sustainability: technology can solve the climate crisis. Many commentators criticize the tech for ecology approach as lacking authenticity. Customers are increasingly sensitive to meaningful consumption and call firms for higher levels of alignment between their self-proclaimed values and choices. At the same time, many players in the tech industry, such as Elon Musk, claim to be part of this new way of thinking, which consider technologies as tools to save humanity.

The Jurisnautes association has made this tension between technology and ecology the central theme of a fictitious trial, which they organized in October 2021 and entitled "2050, the tech-ecology trial". In this mock trial, Jurisnautes members, mostly judges and lawyers, anticipated how new technologies bring societal upheavals. Using scenario planning, they examined how existing rules of law shoulder new problems and challenges, so that regulation catches up a little bit with societal developments. The tech-ecology trial envisioned 2050. The world faces an unprecedented climate threat and needs novel agreements to protect the planet's inhabitants. The question is: "How can we save the planet without sacrificing our individual freedoms?"

...Likely to face reality?

Today, the mock trial has given way to the European elections. And there is nothing fictitious about them. Europe has proven incredibly responsive to GenAI challenges and desperate

calls from scholars. The 27 countries unanimously pushed in February 2024 the first ambitious regulation framework for AI in the world. The text seeks a balance between security and innovation. But the sustainability challenges AI poses remain unaddressed.

Let's face the *facts*. The latest IPCC report is unequivocal: new technologies may mitigate the climate crisis, but by no means do they represent a long-term solution. Faced with the climate change tsunami, there is only one solution: sustainability. However, society seems to suffer from a major cognitive bias: despite the analyses of the IPCC scientists, despite the proof of the ineffectiveness of green growth, despite the scientific proof in short that we need to change our way of life, we remain, as in the movie *Don't Look Up*, mesmerized, inactive, and impassive in the face of the situation. The tsunami will eventually crash on our lives. What if, in fact, the only wave we can surf is the wave of saving the planet, not conquering the world? It's less exotic, it's less mythical, it's less grandiose, but it's perhaps the most sensible thing. Between the clever technological adaptation and the dystopian apocalypse, we need to find another way.

Fitting the limit of the Anthropocene: Learning to read the local surf forecast?

There are plenty of small waves around us. We can surf just the local surf spot around the corner rather than fly to the other end the world. If we learned to read the forecast for the waves around us, we could be busy doing that for a lifetime. When Yvon Chouinard, founder of Patagonia, published *Let my People go surfing* in 2016, concerns about ecology and private-work life balance were not primary concerns of the corporate world. For instance, when Chouinard decided to switch from conventional cotton to organic cotton in 1994, Patagonia paid 300% more for cotton in 1996 than it paid in 1995. Today, Patagonia's sustainability strategy is studied like an example of company that positively impact its employees and the environment. Maybe, like Chouinard, we need to build new utopias likely to improve the fate of our planet. Maybe it is time to enable people to turn sustainable? Maybe, like in the case of Patagonia, going sustainable can represent positive opportunities. Developing less energy-craving GenAI solutions requires accepting to develop less efficient solutions. Maybe we don't always need to be efficient. We inspire ourselves from the concept of 'hope without optimism' (De Cock, Nyberg & Wright, 2021), "a particular species of hope that is no longer connected to an expected success, but which tries to keep open the space for difference, for the future as a time-yet-to-come". As the need to manage climate impacts becomes more immediate, we need "to develop management and organization studies as a discipline fit for the Anthropocene" (De Cock, Nyberg & Wright, 2021: 21–22). We need to keep some space to adjust to reality, like surfers who need to adjust to the forecast. Instead of flying to mythical waves or remote areas, surfers need to accept what the ocean has in store for them today. As Allaert writes:

> To surf is to hold on to the outside elements, to reckon with the vagaries of the weather. You don't decide to go surfing in the same way as you decide to meet at the gym. You can't control the waves, nature dictates its laws and man either abdicates to it or adapts to it.
> (Allaert, 2019)

Embracing sustainability is like surfing, it means adapting to the laws of nature including not going when the forecast doesn't allow it. It can sometimes be a tough fight. You need to reach the line up from the shore. To do that, you need to face a set of waves arriving consecutively. You may even end up stuck in the *impact zone* where the waves are breaking. But once you have passed this area where the waves break, you reach the promised land where the waves move forward without breaking. There the fun can start. You can sit on your board and take the time to analyze the approaching waves before

deciding to paddle out and surf one. We could apply this metaphor to sustainability – with an added political touch.

The difference is that developing new sustainable models is not a fight against nature like surfing, but *people*. Power relations are at the core of the climate change debate. It is not just about "sustainability challenges" but defining a new political model that considers scientific data on the climate. Political ecological models already exist (Parrique, 2022). However, how communities share knowledge about climate change, and negotiate responses is central to address this question (Bowden, Nyberg & Wright, 2021). Some authors show how political pressures can lead to a certain type of response to climate change that "privilege particular goals, actors, interests, and forms of knowledge" (Wissman, Levy & Nyberg, 2024). They highlight a mechanism of silencing in order to "facilitate consensus by downplaying community voices, equity concerns, and more extreme climate scenarios" (Wissman, Levy & Nyberg, 2024). We need to stop this quest for consensus and start to read the forecast. And the forecast is well known: a tsunami is coming. Scientists are unanimous. We need to imagine new political ecological models to face this tsunami, with hope but without optimism (De Cock, Nyberg & Wright, 2021). To do so, we need to pass the psychological and institutional barrier of unlimited growth[3] and adjust the system to the limits of the Anthropocene. We must make important choices. They will enable those who, like Patagonia, dare to do so to seize unique opportunities that the most timid will refuse. With an entrepreneurial mindset, businesses need to take actions to make things happen… before everyone else.

Conclusion

So, on the eve of the European elections, the question is not *which wave* should we ride between GenAI and sustainability challenges but *how can we face the tsunami* coming to our shores? Well, like surfers, we should not be taken in by the beauty and grandeur of the wave that GenAI is or to the consensus provided by GreenAI. Because the tsunami is coming. We need to stop our quest of the next good wave and develop actionable solutions that fit the Anthropocene. The European elections represent the perfect opportunity to start going in that direction.

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[3] It's not really a psychological barrier, more an institutional one, since it's like the hegemony of GDP, of for-profit business models, etc. Only one (small) part of consumerism could be described as psychological, and even that is collectively determined too.

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