

Time for Sustainability

Reconciling human expectations and planetary boundaries



Editorial

Today's societies seem to be driven by an increased speed in so many aspects of our lives — from work to leisure. Moreover, our rate of consumption exceeds the planet's ability to provide the resources required to keep up with this pace. The result is contributing to climate change, with increasingly severe effects every year.

Our challenge, as a human species, is to find ways to reconcile our expectations of growth rate - not to mention comfort, convenience, and other factors that make us resistant to climate action - with the limitations of what our planet can provide.

Our *ReThink* series of white papers poses the question of how to build a sustainable future. The first paper, Tech and the Living World, was dedicated to technology and biodiversity. In this issue, Time for Sustainability — coauthored with Salesforce — we reflect on the implications of our new relationship with time imposed on us by the climate emergency.

We believe this critical relationship is one of the greatest societal challenges for several generations and one that so often is hidden or overlooked. By steering us toward sustainable growth, we can deconstruct the values associated with speed and slowness and stop pitting them against each other. One way to achieve sustainable growth is to slow both production and consumption of goods.

Salesforce and Capgemini both operate in a world that is trending increasingly toward the imperative of immediacy, a world where we need to accelerate our transformation toward more sustainable business. The consideration of time and acceleration as they pertain to production and consumption leads to rethinking the stakeholder experience of time more thoroughly: might a long-awaited product actually be more desirable? Can companies keep up with immediate expectations from consumers sustainably? Could a slow transition to sustainability be considered a risk? Let's take the time to reflect upon these paradoxes... Enjoy the read!

Cyril Garcia,

Capgemini Group Executive Board Member,
Global Sustainability Services and Corporate Responsibility Head

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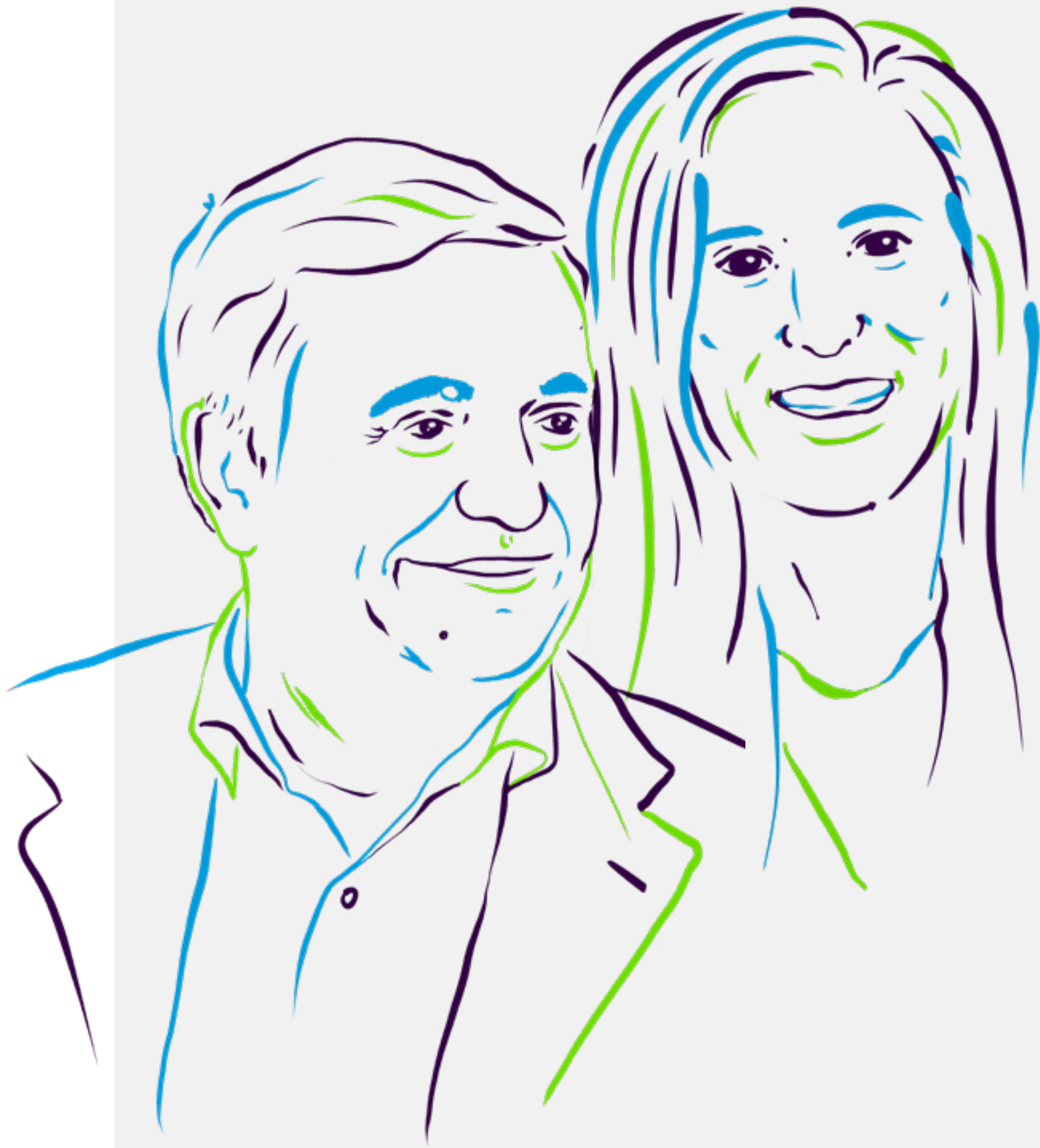
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Businesses are rising to the **challenge of** **the climate emergency**

We asked Suzanne DiBianca, Salesforce Executive Vice President, Chief Impact Officer, and Cyril Garcia, Capgemini Group Executive Board Member, Head of Global Sustainability Services and Corporate Responsibility, to sit down and reflect on how companies can leverage technologies to better answer the question of racing toward sustainability solutions.

Time and Sustainability... What do you think are the terms of the problem? How is the tension between these two apparent opposites articulated?

Suzanne DiBianca The Intergovernmental Panel on Climate Change (IPCC) issued a dire warning of “code red” for humanity in 2021¹, making it even clearer that we need to urgently address the climate crisis. The clock is ticking, and we must all accelerate climate action now. We can’t wait until 2040 or 2050 to reduce emissions.

Our planet needs everyone — governments, scientists, investors, businesses, and ecopreneurs (startups focused on solving climate challenges) — to take bold climate action today. And it’s all interconnected. If we don’t act now, we risk disrupting the natural systems that underpin all life on Earth. Nature plays a key role in solving the climate crisis, and we have much to learn from nature.

Cyril Garcia In tackling the relationship between time and sustainability, two interrelated paradoxes come to mind. The first is based on the gap between long-term commitments and short-term actions regarding the climate emergency. In a study from the Capgemini Research Institute, we observed that only 49% of executives say their company has defined a priority list of sustainability initiatives to be implemented in the next three years².

The second paradox centers on the clear change in consumers’ expectations. They want faster deliveries and faster transportation, to the point where it seems there is no room for delay. This poses a clear dilemma for companies; how can they respond to the demands for immediacy, given that the act of doing so would seem to contradict the implementation of sustainable practices?

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SD Absolutely. The challenge in front of us is indeed complex and multifaceted. It can be difficult to take a strategic or proactive, long-term approach to sustainability when there are so many other urgent issues that companies are grappling with these days, including pressure from stakeholders on social issues, meeting operating margins, and delivering in times of economic uncertainty. But we know that sustainable choices drive value. Business leaders just need to look at the wealth of emerging data to see the ways in which sustainability is driving positive business outcomes across an industry.

Is the climate emergency also an economic emergency? And which urgency are we talking about? The urgency to slow down? Or the urgency to act?

CG The greater understanding of climate change, and its increasingly evident

impacts, has obviously led to an urgency to act, to prevent our society and the planet from suffering more damage and incurring significant costs. However, the concept of “*degrowth*” is frankly too utopian to contemplate realistically, especially considering the systemic and multi-stakeholder system globalization has created. It also overlooks the fact that innovation can not only improve and accelerate a sustainable transition, but also maintain responsible growth.

SD : Indeed, the climate emergency could become an economic emergency if we don’t seize the opportunity to reshape our activities more sustainably. There is an urgency to innovate — innovation is needed to transform and expedite the path to decarbonization. We must increase investment in ecopreneurs and nature, research and development, and infrastructure, to incubate and scale new technologies and solutions.

Upcoming legislation and rules in the U.S. such as the SEC's climate disclosures and the Inflation Reduction Act, and the EU's Green Deal Industrial Plan are also poised to help guide companies to align financial goals with sustainability initiatives.

Isn't the climate emergency a fundamental opportunity for companies, insofar as they are forced to reinvent themselves?

SD Absolutely, and one of the most powerful forces in business is the bottom-line. If management loses track of it, or deprioritizes the factors that lead to success, trouble is around the bend. The good news is that sustainability is becoming more core to essential bottom-line functions like marketing, sales, procurement, and other key business operations.

The logic here is straightforward: Cutting down on expensive transportation fuel costs, building or renting more efficient office

spaces, and decarbonizing supply chains, all reduce traditional — and sometimes enormous — costs. Whether doing so in the name of sustainability or another objective, these traits are simply good for business. Take American Electric Power, they recently reported saving US\$12 billion in cost - just by reducing their absolute emissions.

CG Exactly. We cannot deny that businesses have the potential to benefit from sustainable practices, as well as facing the challenges and costs in tackling the complexities of sustainability. In fact, it's been found that frontrunners in sustainable transformation have already observed a 9% higher net profit margin compared to the average.

SD That's the reason why companies must embed climate action in the core of their business. At Salesforce, we established sustainability as a core company value³,



and we ensure we operationalize the value in every area of the business — from the board level to every employee and partnering deeply across key functions like purchasing and real estate.

We continually look for ways to bring solutions to the table and innovate our own carbon emissions reporting, such as how we can we improve our carbon accounting

process to deliver faster, better, and more accurate data as how we can we improve our carbon accounting process to deliver faster, better, and more accurate data?

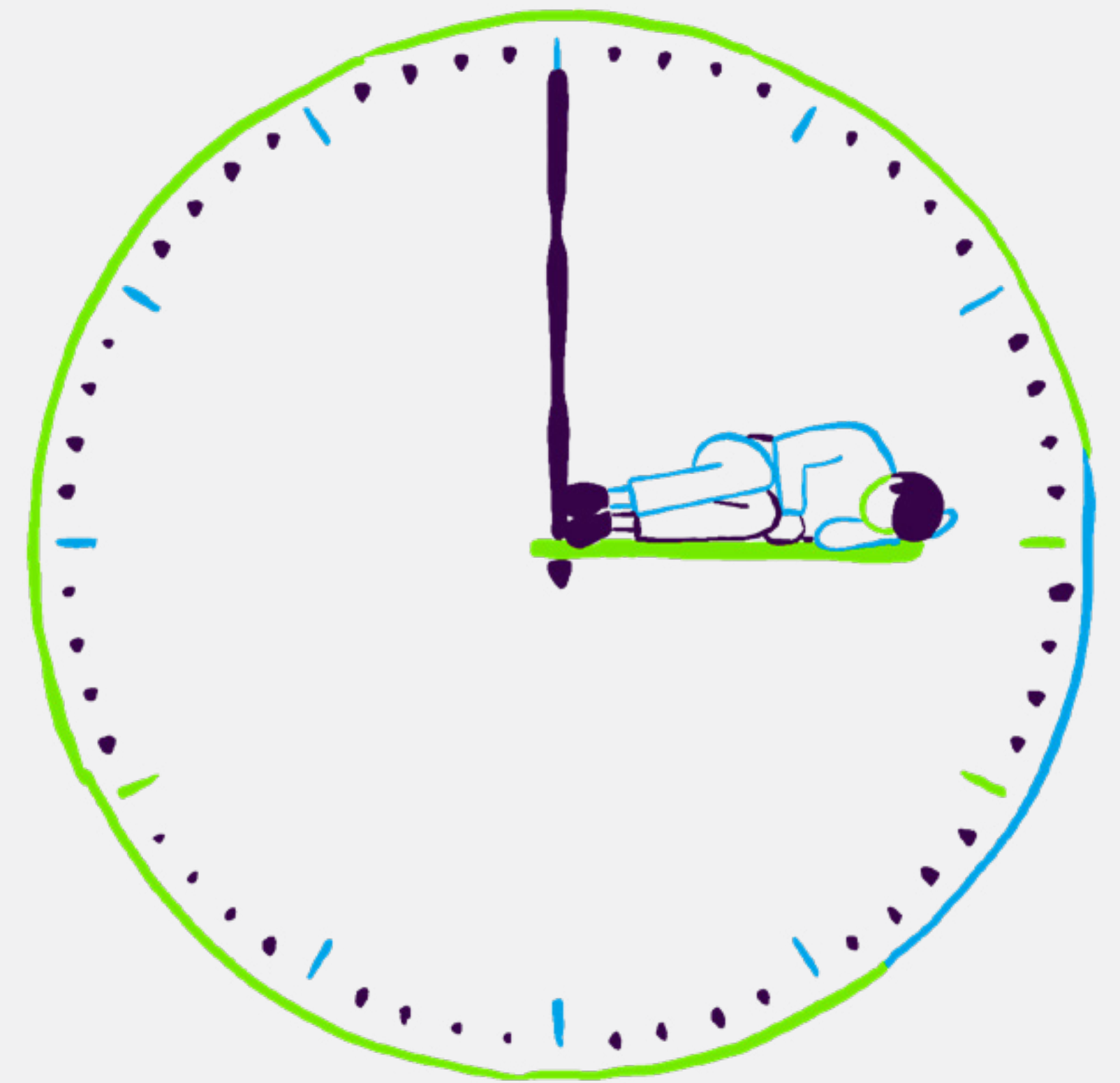
Would you say that a company that has not initiated its sustainable transition is “at risk”? From the point of view of its corporate image or (re)financing for example?

CG Given the long-term commitments from the Paris Agreement, I think a company with a weak sustainable roadmap could be at risk over the next few years, particularly if their competitors have already achieved sustainable and cost-effective practices, because they’ve anticipated the introduction of increasingly restrictive regulations. So, it comes as a surprise, particularly given the 2022 energy crisis, that our report noted that 28% of executives indicated that their companies were reducing their investments in sustainability⁴.

This shows a clear gap between short-term preoccupations and the long-term risks of climate change, which have been estimated to cost in total US \$178 trillion in the next 50 years⁵.

SD And yet, consumers, investors, employees, and regulators today expect companies to make climate pledges, before they buy or invest. And business leaders are feeling the heat. Studies indicate that the majority of CEOs feel pressure to increase transparency across their environmental, social and governance (ESG) initiatives⁶.

We believe that accountability through transparent reporting and measuring progress are vital to help organizations achieve their sustainability goals and communicate their impact to their stakeholders. In 2021, we published our Climate Action Plan⁷ to clearly outline our journey to net zero and provide a blueprint for others to accelerate theirs.



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Does sustainability depend on mastering time? How can companies, economic agents and citizens regain control of time?

SD Sustainability depends on a world in balance and that includes time — healthy ecosystems mean healthy and thriving humans. There is so much we can learn from nature and its intrinsic pace. At Salesforce, we like to think of evolution as innovation in slow motion. In nature, problems are solved with endless patience and ingenuity. In business and society, innovation is often impatient, challenges are pressing, and change is the only constant. In the end, you can only control your own actions, and your values as your north star to guide your decisions. It's best to embrace a beginner's mindset - to stay nimble and responsive to the current moment.

CG Mastering time is a very complex question as ultimately it boils down to structural changes in our own practices, at both institutional

and personal levels. The control over time is clearly related to prioritization. We need to place sustainability as a core priority, and this certainly is still a challenge, when we see that, for instance, only one in five executives see the sustainability business case as clear⁸. At an individual level, we also need to place the value that is embedded in sustainability above that of speed. Immediate gratification is not always related to, say, the quality and durability of a product; on the contrary. Look for instance at tourism; this industry is shifting its focus, including more and more digital or purpose-driven experiences, where sustainable solutions are integrated and can influence consumers' choices⁹. Slow tourism is definitely an opportunity to rethink the visitor experience, but we need to find the right balance between the product promises and the actual “*delivery*”.

This is why I think it is important to empower stakeholders with both information and choice. Whether it is new options for consumers

to meet their immediate expectations more sustainably, or new solutions for companies to achieve their objectives at different speeds while still considering their sustainable goals.

What role can technology play in this generalized reset? Do you share the idea that technology is a small part of the problem and a large part of the solution?

CG I would say that tech is a double-sided coin; IT represents the third most polluting “country” when aggregated. But it also has the great power to accelerate sustainability solutions and scale them up to the required level, so that we can meet our long-term commitments. I would even say that, beyond the idea of techno solutionism, technology bridges the gap between the short- and long-term actions, by providing very quick solutions.

SD Absolutely, technology can play a critical role to help us act faster and smarter.

We’re at an inflection point in the climate crisis where we need “*all of the above*” solutions at the speed and scale that the planet will notice. We need everyone to leverage their superpowers or core competencies to tackle climate change. Our superpower is our technology.

CG The transition to a low carbon economy is as big as the Industrial Revolution, but we need to deliver it at the pace of the Digital Revolution, and climate technologies will play a crucial role. From green hydrogen, to batteries, or carbon capture, usage, and storage (CCUS), most businesses will need to integrate such innovations to decarbonize and reduce their environmental impact¹⁰.

And if hardware technologies are key for sustainability transformation, the collection and analysis of big data, generating more accurate predictive insights, is also helping to design more efficient roadmaps. We’ve found that 53% of organizations have

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experienced faster progress towards their net zero goals by embedding emissions data in decision-making¹¹.

SD And our own research¹² has revealed that only 17% of business leaders are using data to help guide their climate targets. Other studies have revealed that the vast majority of companies still use spreadsheets to manually enter and track some or all of their carbon emissions data.

We're also proud that earlier this year Salesforce became one of the first global companies to launch a Nature Positive Strategy¹³. For Salesforce, incorporating nature into our decision-making is not only about managing risks and costs, but also about value creation, innovation, and collaboration. We're excited to bring the full power of Salesforce to our customers, partners, and ecopreneurs so they too can be part of shaping a net zero, nature positive future.

We are also a founding sponsor of UpLink¹⁴, an open-source, digital crowd-engagement platform, to connect ecopreneurs around the world as they develop the next generation of climate solutions. Ecopreneurs are launching innovative ideas to protect the planet and drive climate impact locally, and at scale. Business leaders need to invest in and empower them.

CG With the rise of IoT, the quantity of data to process is unprecedented, and the number of solutions too. AI and Cloud are playing undoubtedly a core and critical role in this race towards a more sustainable future. At Capgemini, we are becoming a trusted integrator of climate technologies.

SD Together, we can leverage the power of technology to accelerate our sustainable transition and envision in the long-term a more equitable and sustainable world.

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A time for humans, or for nature: is there a crisis of desynchronization?

The consumer frenzy of the last seventy years has disrupted our relationship with time, and we no longer understand the limits of natural resources. In essence, humans are going too fast for the planet. We need to re-synchronize our development with that of the planet.

Since the 1950s, the promise of gaining more time, accompanied by the economic growth and mass consumption of firstly the OECD countries, followed by Asia in particular, has become an advertising selling point, in favor of “*progress*”. Household robots, 3-in-1 beauty products, TV dinners, etc., all these products seek to make our lives easier by saving us a few precious minutes every day.

But, today, the way in which the consumer experiences time - while in the process of consuming - also comes into play. Time as a subjective feeling is now an integral part of marketing strategies, with brands seeking to satisfy consumers who are increasingly conscious of how they manage their time assets.

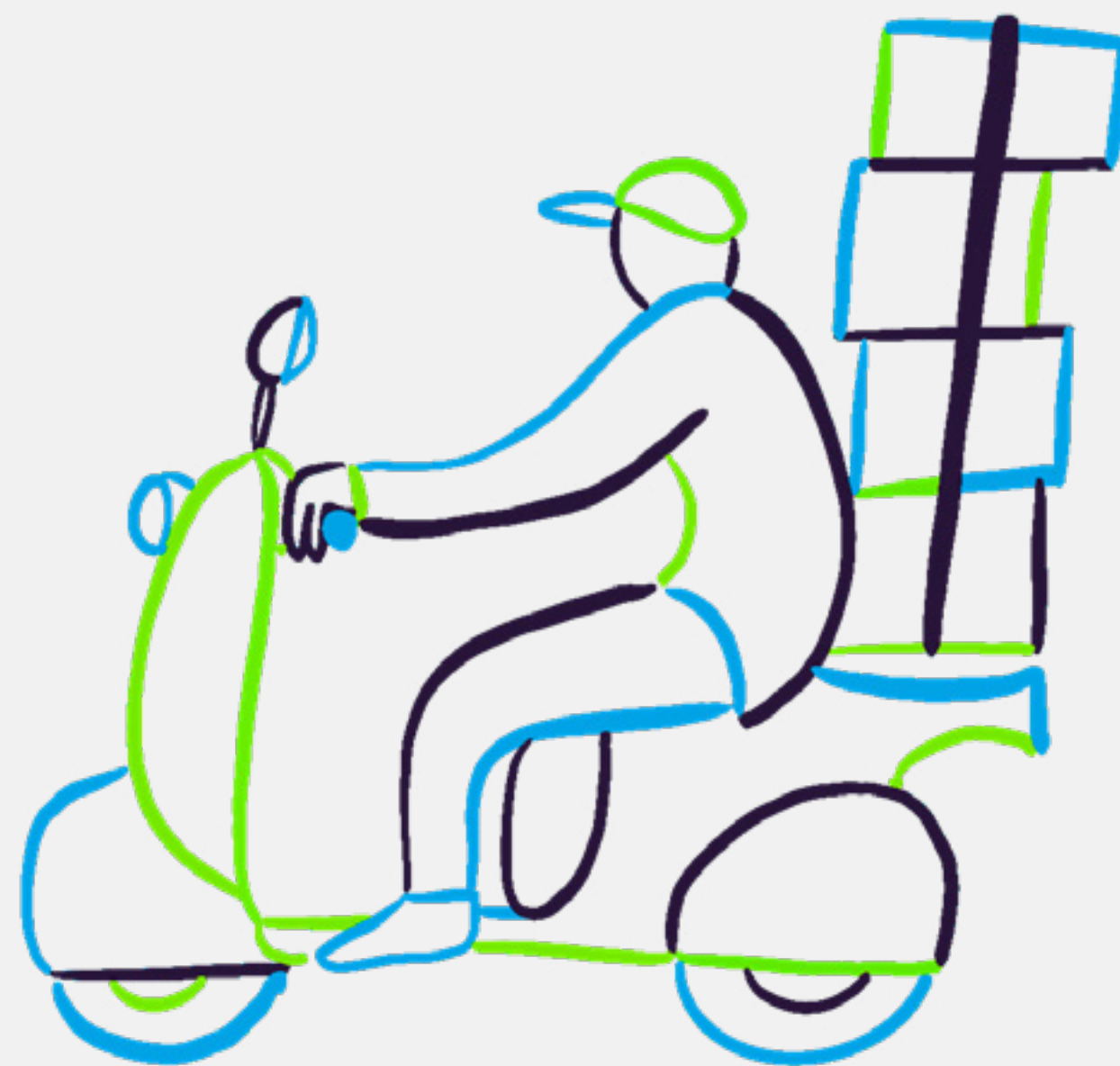
In our “*fast*”, hyperconnected societies, where purchasing decisions are often made in just a few seconds, everything is designed to enable you to buy and consume as quickly and easily as possible. Strawberries in winter, supermarkets open in the evenings, on-demand video - the concept of frustration is gradually becoming foreign to us. We want everything, right now.

Whether it’s goods for consumption, or services to experience, immediacy seems to be the ultimate goal; the holy grail that needs to be achieved to please consumers who are increasingly in a hurry. Food delivery in 15 minutes, walk-in beauty salons, glasses ready while you wait - the relationship between quality and price seems to be giving way to the relationship between time and price.



Bought quickly; thrown away quickly.

As payment methods continue to get quicker and more streamlined, they are playing an important role in facilitating these instantaneous purchasing experiences. We can now pay in just a second, with a simple click online, or by placing our debit card on a contactless terminal or flashing a QR code with a phone.



Logistics is also at the heart of this acceleration. Haulage companies are the subject of significant innovations in delivering to our homes or place of work ever faster. In just a few years, we have seen the evolution of the promise of “fast delivery”, reduced from 48 hours to 24 hours, to as little as 1 hour. Estimated at US \$263 billion in 2020, the express delivery market could reach US \$484 billion in 2030¹⁵. This evolution has been particularly fueled by GenZ, who are willing to pay an additional 5% of the value of their order to get a product within 2 hours¹⁶.

This is leading to a growing lack of investment in items - assets, products and things - on the part of the consumer. Everything can be thrown away; everything is replaceable. It is often quicker, and even cheaper, to buy a new item than to have it repaired. *“In terms of repair, there are still many barriers for the consumer,»* explains Anicia Jaegler, a senior professor of Sustainable Supply Chains at Kedge Business School.

“These barriers are both technical (finding a repair center, being able to take the item to it) and psychological (will the repair be reliable? given the cost, would it not be better to buy a new item?)”.

“Fast fashion” is emblematic of this frenetic consumption; for many, as soon as a piece of clothing is bought and worn once or twice, it is abandoned, already out of date as the next new trend emerges. Some brands revamp their collections several times a month. We are therefore now buying 60% more clothes than we did in 2000 - clothes which we wear for half as long¹⁷.

A dictatorship of the instantaneous

While ancient civilizations lived by an established rhythm—alternating between day and night, the cycle of the seasons, the reproduction of plants and animals, the liturgical calendar – we seem to have lost this measurement of time, as a consequence of this acceleration. Paul Virilio, an architect and philosopher, observed a major desynchronization between the tempo of living and that of technology. *“Ancient societies were attuned to logical rhythms. Today, we have entered in an arrhythmic society, where everything relies in the snapshot¹⁸.”*

Real-time communications, continuous news flows, lean economics: because

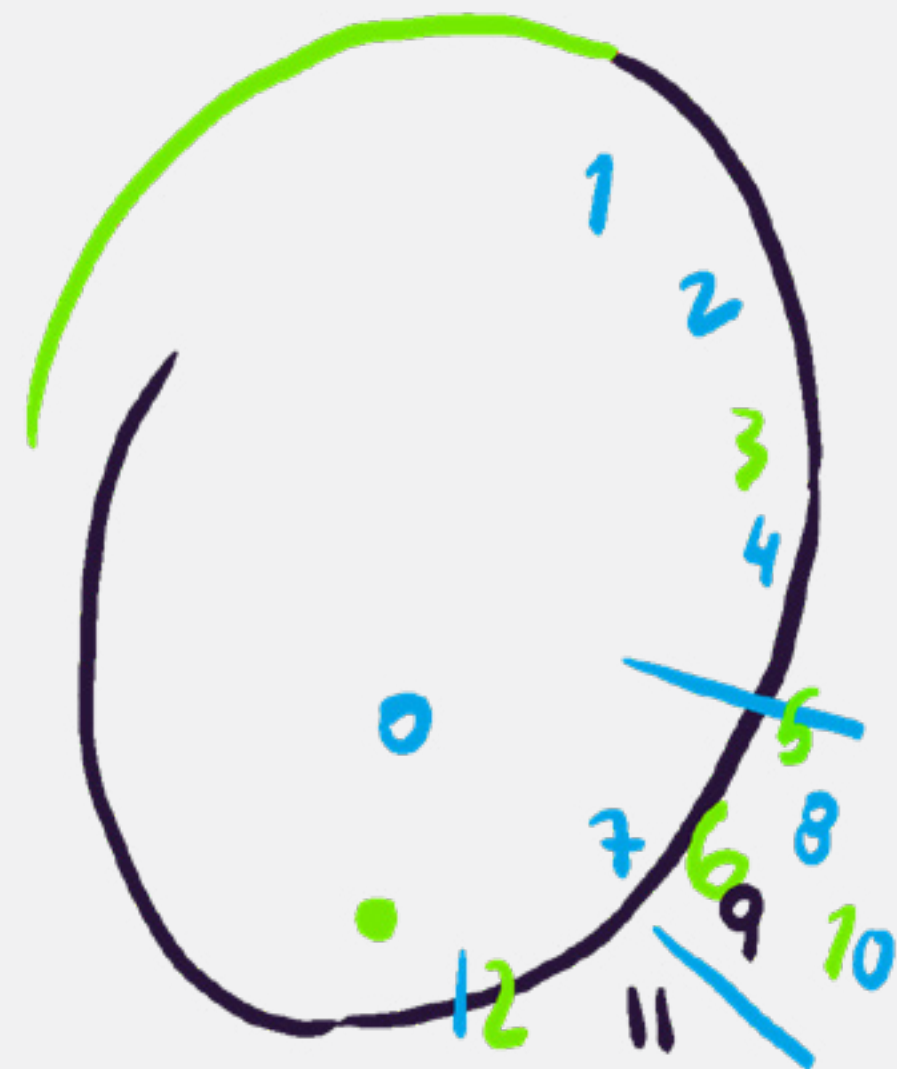
of technological advances, we can have the feeling that we are living under a dictatorship of the instantaneous. In effect, urgency imposes itself upon us, therefore destroying our relationship with time: it is the reign of the short-term, of the deadline.

This culture of immediacy deprives us of our decision-making power, making it ever more difficult to distinguish between what is essential from what is secondary; in other words what is truly urgent. Once limited to a few specific areas – medical emergencies, firefighting, natural disasters and even warfare – urgency is now becoming the new standard of time in our societies.

A desynchronization crisis

For Hartmut Rosa, philosopher and sociologist, this acceleration constitutes a time regime that is characteristic of our *“late modernity¹⁹”*. However, this new time frame is leading to a harmful desynchronization; our activity is depleting natural resources faster than they can renew themselves. Also, we are throwing away products, as waste, at a rate that is too fast to allow nature to decompose it and recycle it. In summary, our ecological footprint is reaching new heights.

“All the current major crises”, Rosa summarizes, “can be described as desynchronization crises. Society has become too fast-paced for nature’s own rhythm and processes. Let’s take the example of tree felling. Beavers have been felling trees for thousands of years. But humans are felling them so quickly that the forest doesn’t have time to grow back²⁰.” The same goes for a variety of our activities.



“ All the current major crises can be described as **desynchronization crises** ”

Beyond living things, this observation also applies to the planet itself. We now know that the Earth is 4.5 billion years old, and that its geological resources are becoming more and more scarce. Unthinkably, something that is as ordinary as sand is a commodity that is disappearing. Forty billion tons are used each year, the majority of which is used to make concrete. This could be viewed as unbridled consumption of a resource that took the Earth tens of thousands of years

to produce and is now being replaced at a much slower rate. This surpassing of the planet's limits has given its name to the first geological era that bears the trace of human activity: the Anthropocene.

We are therefore living in the awareness of a double present: that of our human immediacy, and that of geological time, which by contrast is immeasurably long. *“We humans are more and more entangled*

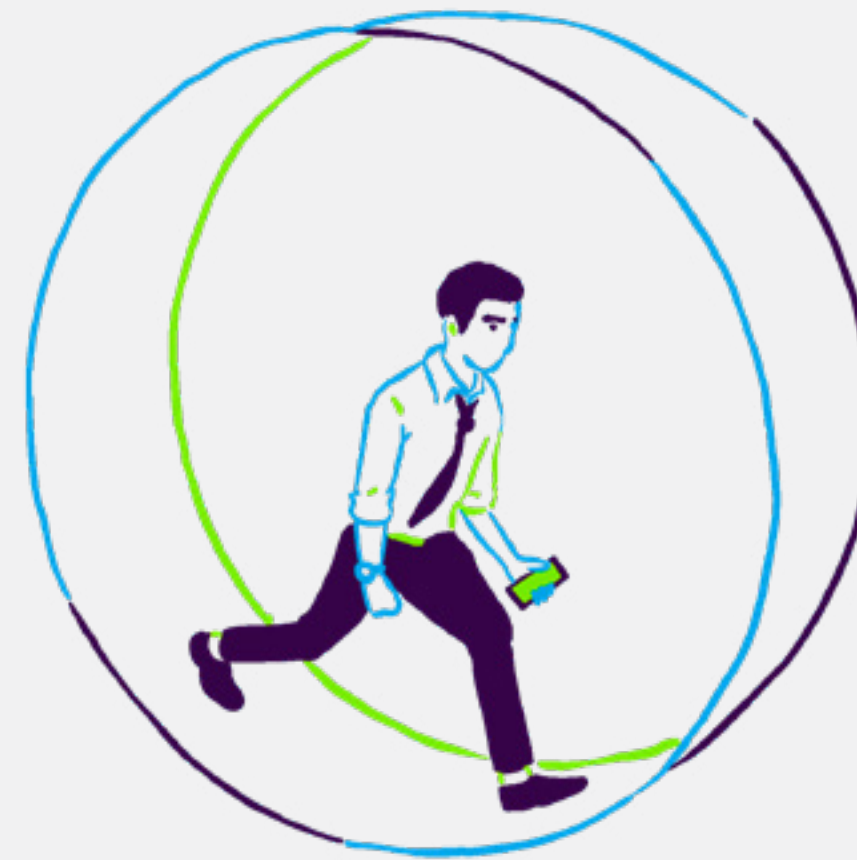
in long-term horizons in relation to time frames”, summarizes historian Dipesh Chakrabarty.

“Through their activity, human beings have the capacity to modify the climate for the next hundred thousand years. That is a time interval which is extremely difficult to consider. When it comes to petrol reserves, companies only consider the next two hundred years, at most²¹”.

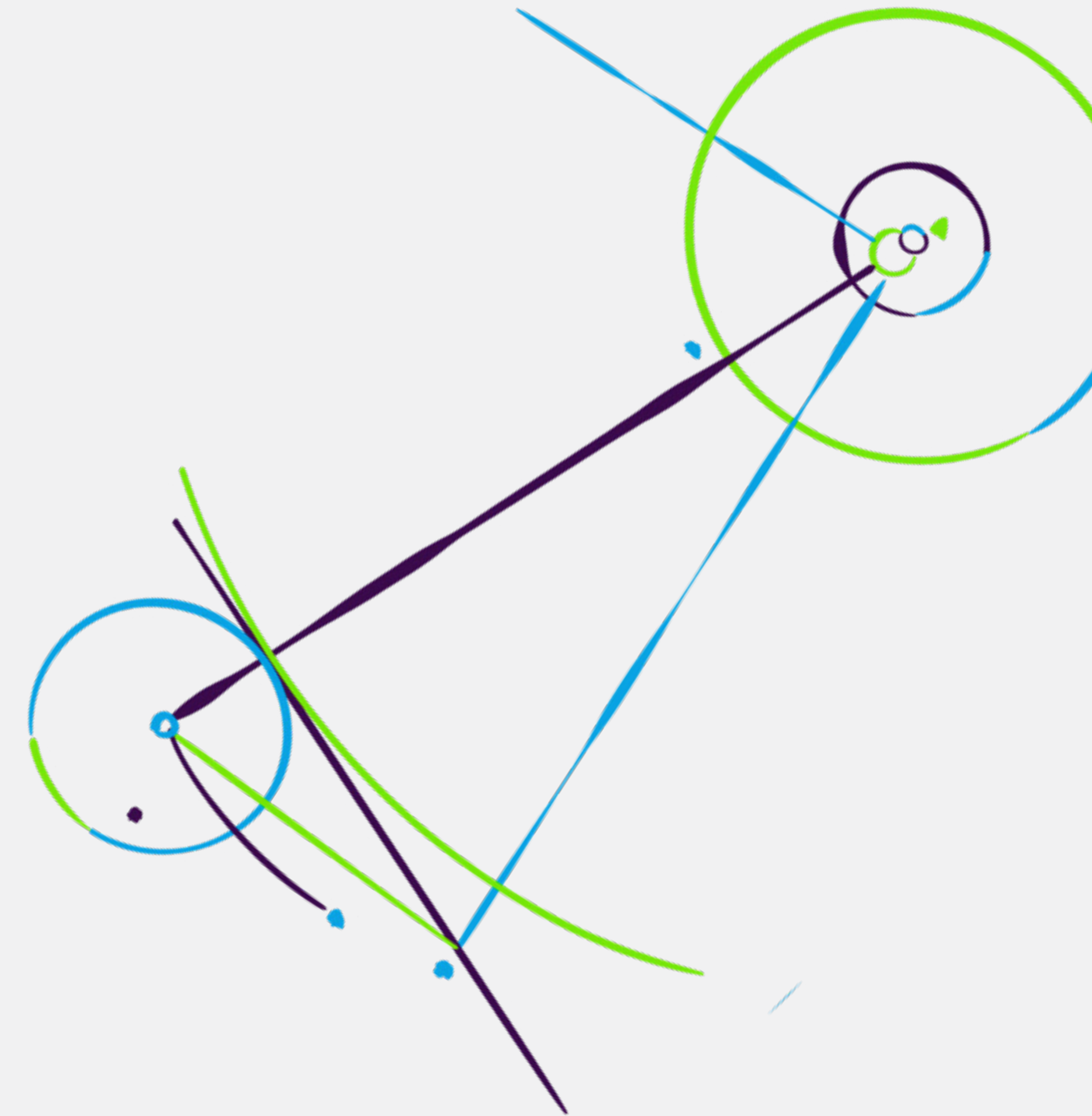
Re-establishing ourselves over time

How can we re-establish our human activity in cycles that respect the planet's cycles? How can we learn to ensure that the rhythms of our societies work together with nature's long-time frames?

“Putting in place sustainable supply chains takes time”, warns Anicia Jaegler. “We need to start by taking an inventory of the current situation, in order to see where the points for improvement are. Then, we need to develop products that take account of these scarcities, but also change the mentality of all the actors in the chain, from manufacturers to end consumers”. It is difficult to find a common tempo. “As supply chains get longer, all the actors will not necessarily have the same degree of maturity in terms of sustainability”. This long-term cooperation and shared vision are, however, essential conditions for the implementation of an approach that is truly sustainable.



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Use Case: TOWT

Wind power: making maritime transport environmentally friendly

With its sailing cargo ships, the maritime shipping company TOWT is aiming to reduce the carbon emissions of maritime transport by 90%, because shipping goods around the world represents one of the main cogs in the machinery of globalization.



As a cornerstone of our globalized economy, the maritime transport industry represents 70% of all goods trading worldwide²². Maritime freight is renowned for being “greener” than air transport, but still constitutes a significant source of pollution. It currently represents 3% of greenhouse gas emissions, and accounts for 40% of the CO2 emissions attributed to transportation²³. So, what was the solution devised by Guillaume Le Grand and Diana Mesa, co-founders of TOWT, in 2011? A high-capacity ship powered by...wind.

Both traditional and disruptive
This surprising solution represents a real technical challenge. Here, Guillaume

Le Grand sees an alliance between tradition and the future. *“In reality, boats like these have existed for five thousand years. We have simply innovated by exploiting different materials, such as a carbon mast, a Dacron sail, etc., and invested in advanced technology. For several years now, we have had high-performance routing software, which allows winds to be predicted with extreme precision”*. According to Le Grand, this quote from Nietzsche best sums up this return to common sense, enriched by technology: *“Fertilizing the past by creating the future; that is the meaning of the present”*.

Use Case: TOWT

90% de-carbonized journeys

The TOWT sailing cargo ships undertake almost their entire journey using only wind power, which leads to a decarbonation rate of 90%²³. Two ships are currently under construction, with an order for 12 additional ships. Armed with a portfolio of a hundred clients, TOWT is number one in the world for sailing transport and aims to attract a significant portion of global maritime flow.

Slower...but faster

A traditional shipping container certainly moves faster than a sailing cargo ship: 16-18 knots, compared with 10-11. However, the success of the TOWT ships lies in the fact that they can cross the Atlantic in 17 days, compared with shipping containers, which take around 30 days. This is because traditional cargo ships need to make additional stops and also, they are subject to the constant congestion



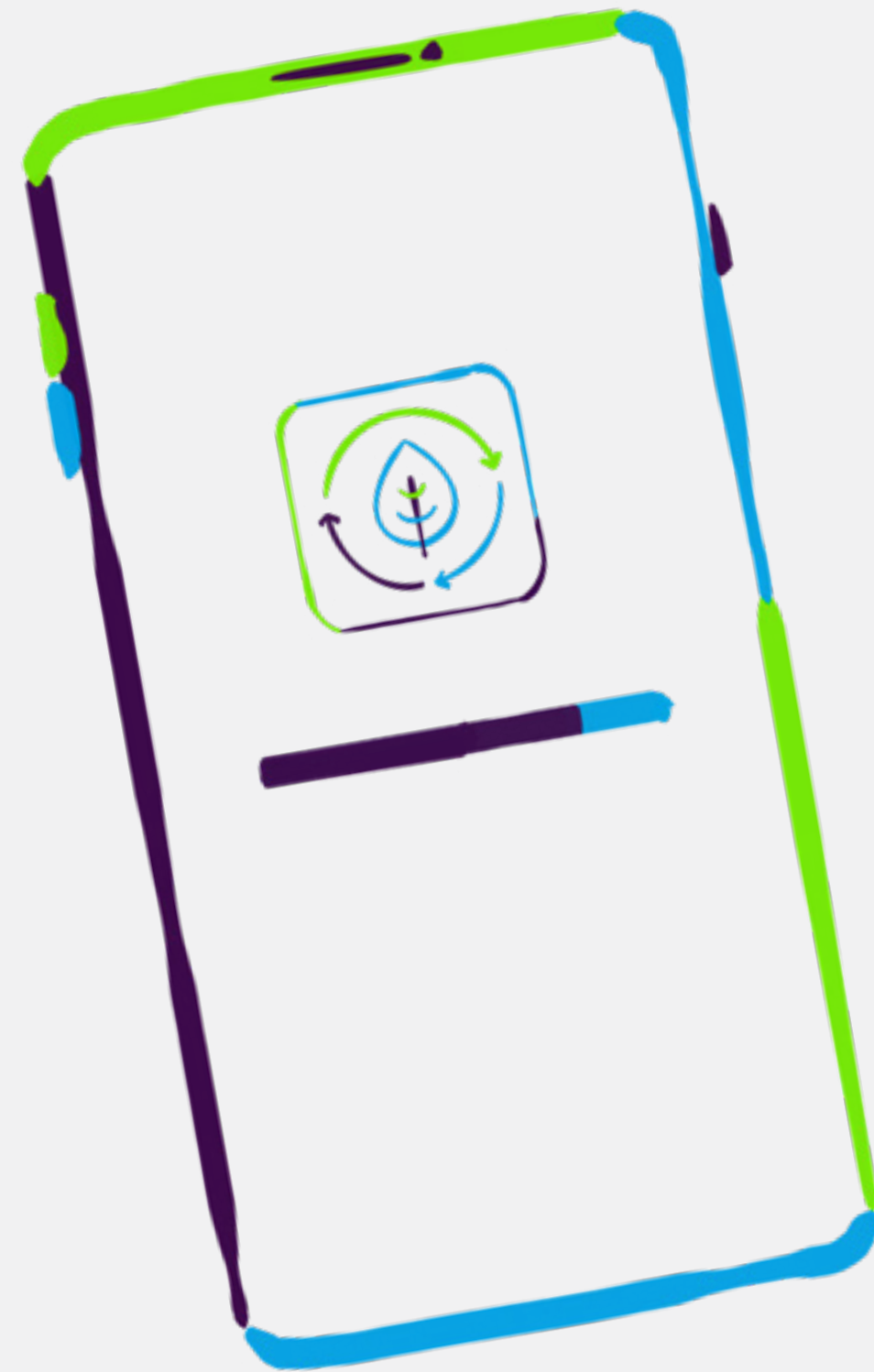
of ports. This contrasts with a typical TOWT crossing.

“Our ships do not experience port congestion, and because they are sailing ships, they are entitled to special treatment”, explains Le Grand. In this way, we can see that, as exemplified in the fable The Tortoise and the Hare, *“it is of no use running; to set out betimes is the main point”*.

22. ITF (2021), ITF Transport Outlook 2021, OECD Publishing, Paris.

23. ITF (2021), ITF Transport Outlook 2021, OECD Publishing, Paris.

24. Per ton and per kilometer, compared to the average ship on the La Havre – Guadeloupe route (230 m long, 2750 TEU [Twenty-foot Equivalent Unit])



Can tech help accelerate sustainable development?

Technology plays a dual role in our quest for a more sustainable world. It is a factor that exacerbates the loss of time management and, as an industry, it has an ever-increasing carbon footprint. However, it is also the purveyor of solutions that can help us achieve our sustainability objectives more quickly, and with greater certainty.

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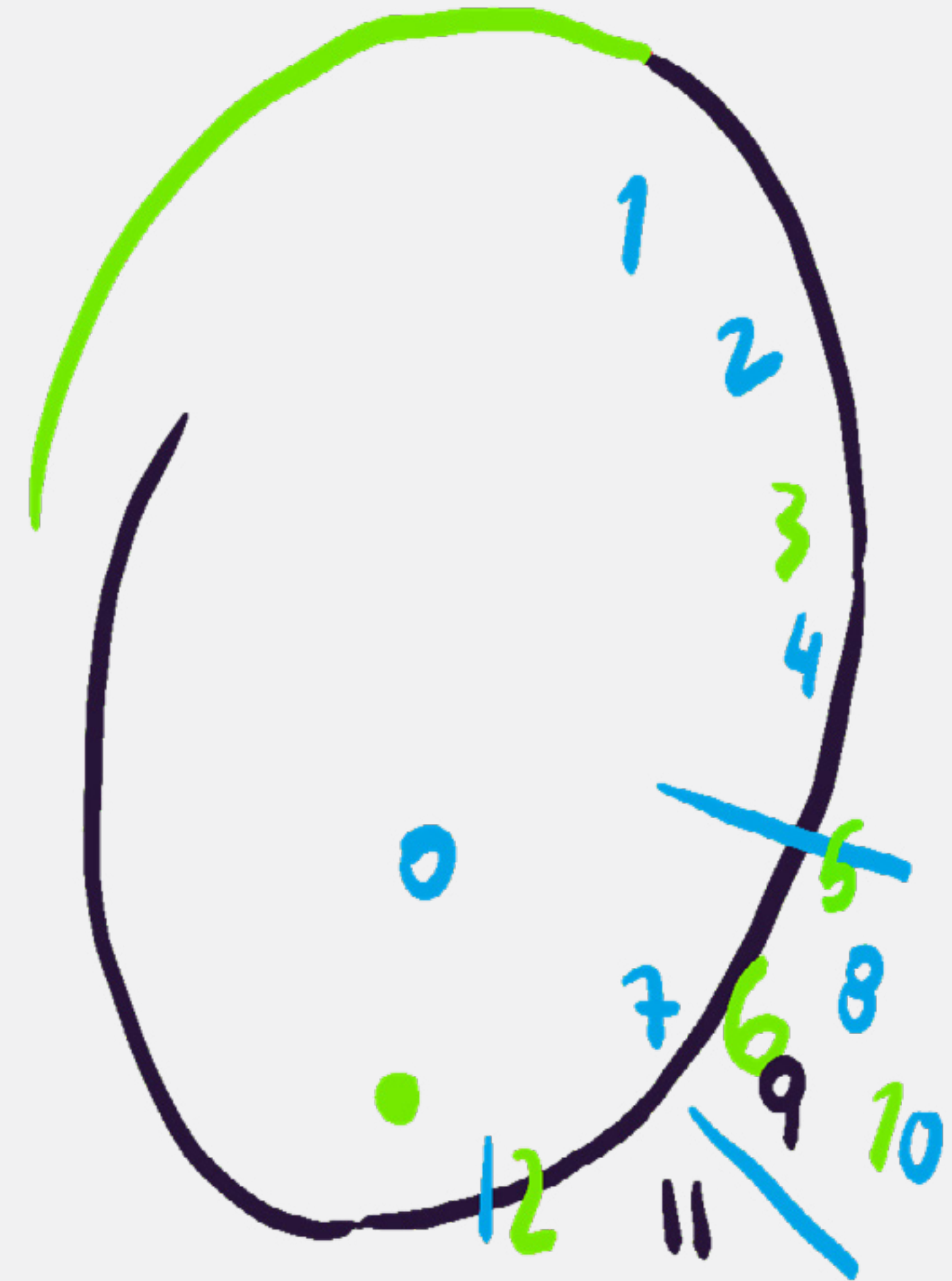
Nowadays, it is difficult to imagine a world without technology. It's omnipresent in our lives, and on a planetary level, it has led to the production of 34 billion pieces of equipment for 4.1 billion users²⁵. And while it saves us precious hours every day, at the same time, technology swallows up our time.

Firstly, this paradox is linked to the levelling up that technology enables. Certainly, sending an email is faster than writing a letter and going to post it, but where once we wrote just two letters, now the average office worker sends out 40 work-related

emails, and receives 90 of them each day, cancelling out the time saved.

In addition, we know that the social media giants are engaged in a relentless battle for our attention, and, in the process, they are re-shaping our relationship with time. *"When you pull out your phone and they design how this works or what's on the feed, it's scheduling little blocks of time in our minds"*, explains Tristan Harris, a former ethicist at Google, now a whistleblower²⁶.

"If you see a notification, it schedules you to have thoughts that maybe you didn't intend to have. If you swipe over that notification, it schedules you into spending a little bit of time getting sucked into something that maybe you didn't intend to get sucked into". Endless newsfeeds, targeted advertising, videos, online games; if we don't know which of the giants will win the attention battle, we're already certain who will be the ones that will lose.



The environmental cost of tech

In addition to stealing time, tech is also guilty of pollution: its omnipresence in our lives has an environmental cost. Today, digital technology represents 3-4% of the world's greenhouse gas emissions. If tech were a country, it would have two to three times the ecological footprint of France²⁷.

The costliest aspect of tech, in terms of the environment, is equipment manufacture, followed by the electrical consumption of the equipment, and then the electrical consumption of the network. These impacts are destined to increase significantly, particularly with the expansion of smart products. The International Data Corporation estimates that, by 2025, we will be using more than 55 billion smart objects (IoT), which will generate almost 80ZB (zettabytes) of data²⁸— or 80,000 billion bytes.



Rethinking our usage

If the issue is about finding a rhythm that is viable and sustainable for our many societies, tech is undeniably an integral part of the problem. Firstly, as individual, we obviously need to rethink our use of tech. Some voices are amplifying this viewpoint, arguing in favor of low-tech. This approach consists of becoming much more aware of our use of tech, taking the issue more seriously, seeking out recyclable materials,

and more sustainable devices, while also adopting a logic of discernment in its use. Other voices are urging us to recover our *“time well spent”*, which is the name of the movement launched by Tristan Harris. The idea is not to renounce the use of the smartphone, but to look at it less often, while making a conscious decision to look at it (rather than it being a reflex action) and being much more aware of what we are doing.

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Tristan Harris blew the whistle in 2017 and, rather remarkably, in the wake of this, Google, Facebook (now Meta) and Apple developed tools to allow users to “*track*” the time spent on a device, enabling them to be more mindful of their usage. Tech steals time, but it can also give us the solutions to recovering it.

An accelerating factor in achieving sustainable objectives

On a collective level, tech gives us the means to achieve ambitious goals related to sustainability more easily, or more quickly. Thanks to its potential for more accurate modelling and long-term forecasting, it can help shape more informed strategic decisions, meaning that tech can constitute an accelerating factor in the transition to a more sustainable life.

However, for both companies and governments, promises of sustainability are, by their very nature, directed towards

the long term. But who will still be there in 2050 to verify that they have honored their commitments? For this reason, it is necessary to back up these long-term visions with specific short-term objectives.

By adopting a systemic approach to transformation, in which technology and data use play an essential role, we can design innovative technologies and sustainable objectives together. In this way, data analysis allows a company to visualize its carbon footprint so that it can optimize its practices.

In addition, in terms of the planet, open data can be an essential asset in monitoring the populations of endangered species. One clear example is the Elephant Listening Project²⁹. Thanks to its 50 listening units covering 1,250 km² in the Congo and the acoustic science data collected, the project allows environmental NGOs to monitor the movements of elephants. In the same way, to help protect endangered sharks, the NGO Ocearch³⁰ collects data from the oceans and publishes them in real time on their website, enabling researchers to understand shark movements better³¹.

25. GREENIT.FR, BORDAGE (F.). Étude : Empreinte environnementale du numérique mondial [Study: The ecological footprint of the digital world], October 2019.

26. HARRIS (T.). How a handful of tech companies control billions of minds every day, TED Talk, made available online on July 28, 2017.

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28. IDC BLOG. Future of Industry Ecosystems: Shared Data and Insights, January 6, 2021 (online).

29. www.elephantlisteningproject.org

30. www.ocearch.org/tracker

31. See no. 1 in our series ReThink: Tech and the Living World.



Use Case: Peugeot Sport Hypercar

Peugeot Sport: accelerating electrification

Faced with the climate emergency and increasing regulations, car manufacturers are being forced to innovate increasingly quickly. The 9x8 hybrid hypercar from Peugeot, developed in collaboration with Capgemini, is a laboratory in itself - for the cars of the future.

Subject to increasingly strict standards to help fight global

warming, such as legislation to ban the sale of combustion engine cars in the EU from 2035, the car industry needs to substantially rethink its models. It also needs to constantly innovate, to imagine what sustainable mobility will look like – starting from tomorrow.

In this race to innovate, automotive sport is a field for advanced experimentation. This is how Linda Jackson, CEO of Peugeot, sees it. *“I’ve always thought of motorsport as a bit like a laboratory, where we can develop creative innovations and technology, try them out on a race car, and then, of course, they can be transferred to the end customer in our production cars³².”*

From the racetrack to our roads
Revealed in July 2022 at the FIA (Fédération Internationale de l’Automobile) World Endurance Championship (WEC), the Peugeot 9x8

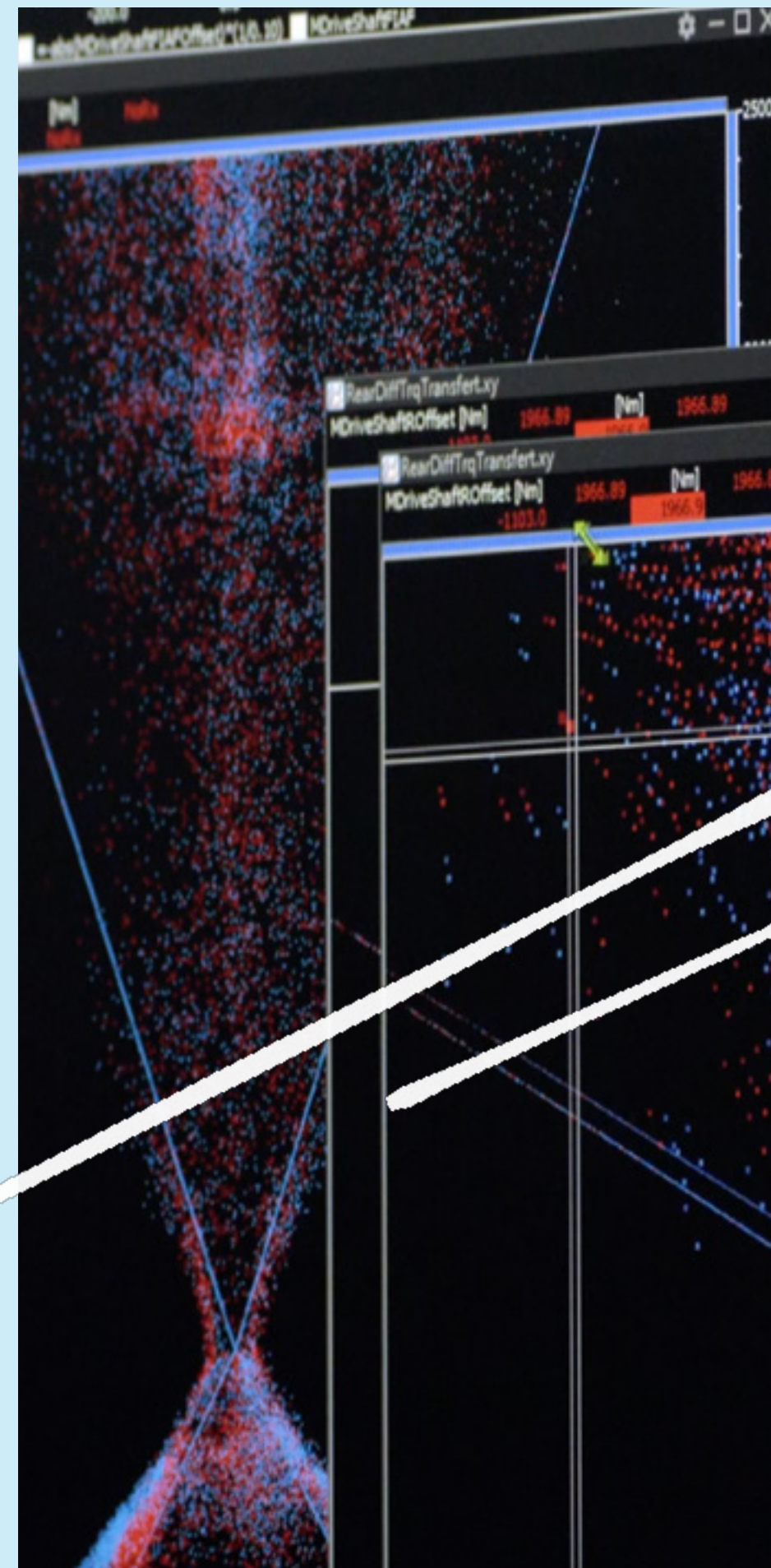


hybrid hypercar serves as a springboard for innovation, and for considering the mobility of tomorrow. *“Energy transition is really important for Peugeot,” continues Jackson. “And looking at it through the lens of endurance means that we can really demonstrate our excellence in terms of engineering, in terms of hybridization, the link between internal combustion and of course performance and electrification”.*

Use Case: Peugeot Sport Hypercar

Jean-Marc Finot, Senior VP of Stellantis Motorsport and Director of Peugeot Sport, confirms this: today's innovations are destined to become tomorrow's norm. *"We are trialing a new voltage at 900 volts, as traditionally we have been working with 400 volts on the road-legal cars. So, it's a new field we are discovering with this car. It's also about skills. The engineers who are developing race cars, such as the 9x8 hypercar, are the same as those who work on mainstream cars, so what they are learning in motorsport and in racing is also applied to our road-legal cars. We also have the same development tools for both*

cars, so we have many fields and possibilities to carry over what is done in motorsport into what our customers will find in their Peugeot cars".



AI in service of performance

The Peugeot 9x8 was designed to win; nothing was left to chance. In addition to the software developed by Peugeot, the scientific calculation methods, algorithms, and artificial intelligence were provided by Capgemini as part of the hypercar partnership

between the two companies. The use of AI allows the performance of the car to be improved through multiple simulations, but also under real-world racing conditions.

32. PEUGEOT SPORT OFFICIAL. Introducing Peugeot 9X8 - Reveal Hypercar, made available online on July 7, 2021.

Conclusion

Working towards a new hierarchy of rhythms?

Time for humans, for our societies, for economic and social development? Time for nature and for the planet? As we have shown in this white paper, the rhythms of our lives and that of nature are now out of synch. What must we do to resolve this issue?

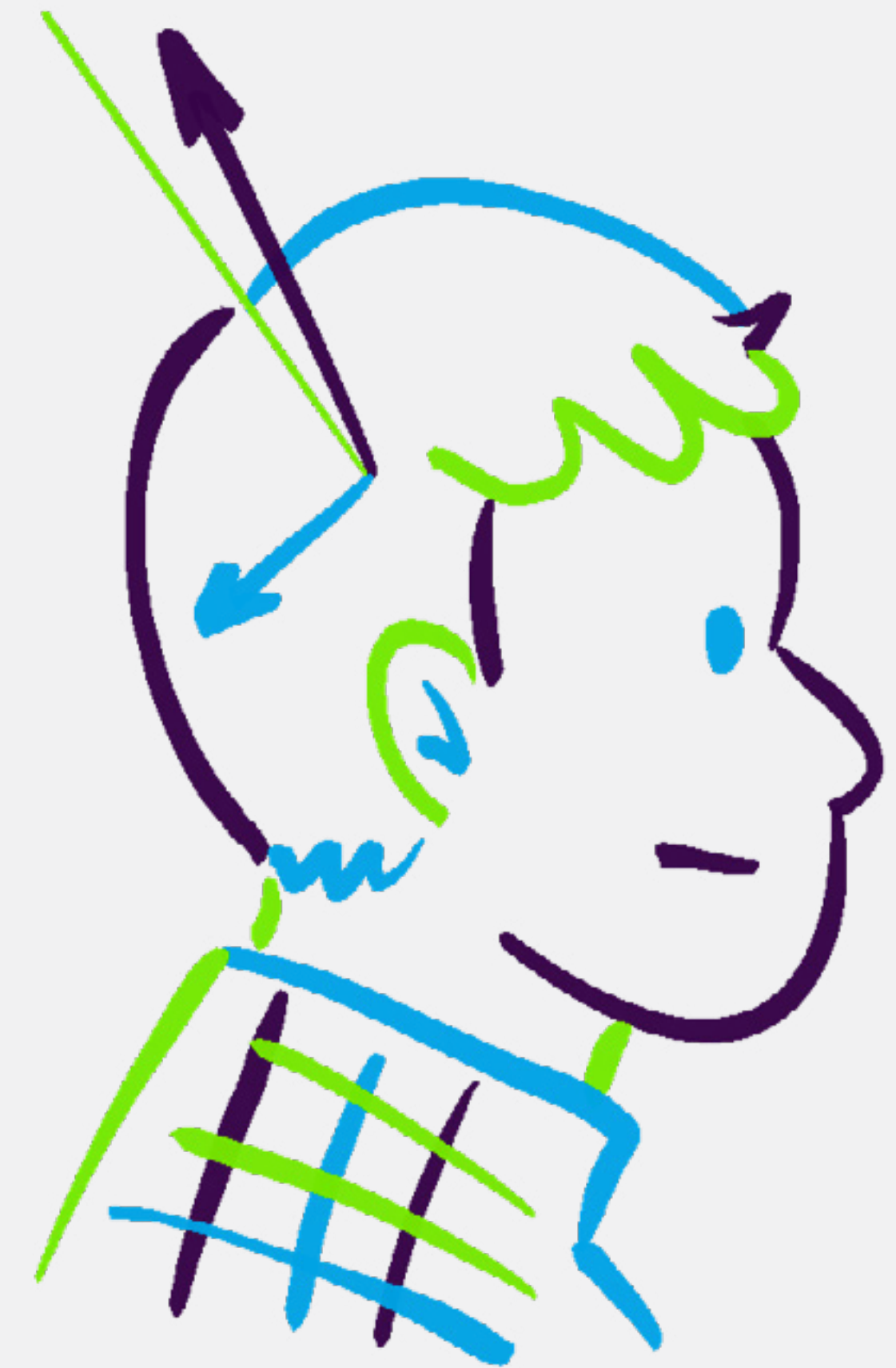
The age of the Earth, and the length of time that natural resources take to renew themselves, should cause us to show some humility, even perhaps to slow down. However, it is difficult to imagine that we would adopt the concept of degrowth unless it was economically viable.

So, isn't it the case that the solution lies in new determinations of time? Somewhere between a utopian degrowth and destructive over productivity, it is up to us to invent a hierarchy of rhythms that enables human development

and economic growth to become sustainable once again. No doubt, in our daily lives, we would be better off if we freed ourselves from this state of permanent urgency: one-hour deliveries, urgent emails, incessant notifications, etc. Extracting ourselves from this regime could allow us to better distinguish the essential from the secondary and redefine our priorities.

This clearer vision would also help us make tech an important ally in our approach to sustainability. Modelling, previewing, forecasting: from now on, exploring different medium- to long-term scenarios will prove to be indispensable in making appropriate decisions - without being blinded by false urgency.

We conclude with a comment attributed to US President Dwight Eisenhower: "What is important is seldom urgent, and what is urgent is seldom important".



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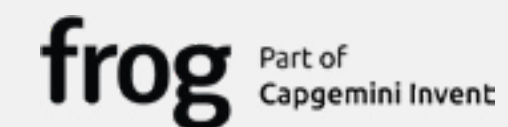
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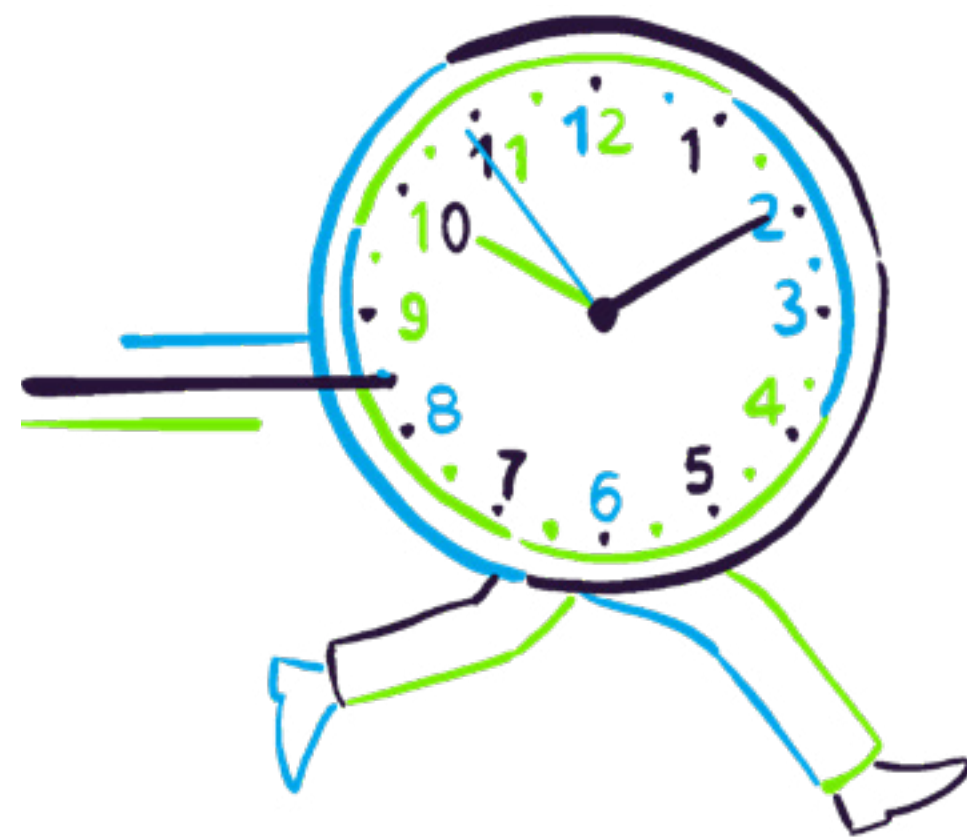
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