

INVENTING THE WORDS OF THE DAY AFTER

Looking beyond COVID-19

What will the new normal look like?

By the time this question began to appear in conversations – that quickly became predominantly virtual during the lockdown – we all started to realize the uniqueness of the COVID-19 pandemic, and the extent of the impact it will generate for future business and society at large. The question of a different future rapidly arose among actors and decision makers in both the private and public sectors, journalists and influencers, citizens and consumers from all backgrounds.

Advising and supporting our customers through change and disruption lies at the very heart of our business. Inventing what comes next is the *raison d'être* of Capgemini Invent. Thus, from the beginning of the pandemic, for several months and in a quasi-systemic way, our experts mobilized to analyze its impacts. They studied them by considering multiple aspects: human, societal, organizational, as well as economic, financial and non-financial.

From the much debated collective versus individual freedom, to the protection of our planet, nearly fifty of our specialists have leveraged their experience and expertise to envisage the changes to come and try to imagine what the future will look like.

With this technological passion that characterizes us, but also the curiosity and collaborative spirit that drive us, the 16 articles gathered in this document will provide you, I hope, with new ways of understanding and deciphering the changes to come, to prepare for this “new” future.



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EDITORIAL

We wanted to invite reflection, not on the words of the moment, but on those of the day after. Those that enable us to project ourselves, because they seem to belong to the future and they make the future look desirable.

“FFP2 mask”, “R number”, “protective measures”, “lockdown”, “easing of restrictions”, “drug repositioning”, “herd immunity”: with coronavirus, our vocabulary has been reinvented. It brings up in our conversations words from the medical sciences and biology: epidemiology, virology, system modeling. In just a few days, the virus began stirring up our epistemological mud. We are entirely focused on a little “breeding ground” that is decidedly narrow, but also richer, than our usual thinking. It is impacting our lives to the extent that it has become a point of focus that attracts our collective thoughts. And, it is creating a rebooting effect. Our collective thinking has been set off towards new horizons.

We wanted to invite reflection, not on the words of the moment, but on those of the day after. Those that enable us to project ourselves, because they seem to belong to the future and they make the future look desirable.

One of the lessons from recent work on the dynamics of progress⁽¹⁾ is the weight of our imagination.

Because it determines our ability to tell the story of technological progress, it allows us to keep it under control and to steer it positively. Our rationality draws its lessons from it to project itself in the future. It also finds signals in this progress that keep questioning how alert we are.

Since the post-war period, literature has had a very specific form to warn us against ideologies: dystopia. *Brave New World* (1932), by Aldous Huxley, *Ravage* (1943), by René Barjavel, *1984* (1949), by George Orwell or *Fahrenheit 451* (1953), by Ray Bradbury, were the first examples of this. This literary genre, widely commented on⁽²⁾, was invented to help us project ourselves. It is undoubtedly one of the most useful crutches in the current period for shaping our convictions.

The first generation of dystopian fiction carried a warning of possible collusions, in the Cold War context, between technique and totalitarianism. Its purpose was for us to identify the fact that freedom is the “last bastion” of our humanity: of all the sacrifices we may have to make to increase our wellbeing or to build more egalitarian societies, freedom is the only one that is never acceptable. The dystopian genre uses the framework of utopia and corrupts it. Like utopias, these stories project us into an imaginary society, a society that doesn’t exist anywhere and that doesn’t claim to exist. Utopia projects us into an ideal society, such as we should build it.

Dystopia projects us into the worst society, to highlight risks we face in the present.

This imaginary projection is key to determine the consequences of a dynamic world whose complexity is beyond our grasp. The word “systems” is probably the first key word of the day after. The one we need to reclaim to restore our capacity for autonomy. It is illustrated by Moez and Noémie in our first article. The digital age has flattened hierarchies and made the world smaller, more interconnected and interdependent. We have known this for 20 years. But we are discovering that networks have formed on this flat land. And these networks have an extremely robust physical reality. Today, the management of COVID-19 is blowing up the notion of borders. Work by Imperial College has shown that re-establishing external borders does not have an impact on the spread of the virus. However, we are focusing our efforts on creating internal borders. They affect all our areas of socialization. Measuring the system that is being created around the virus has become the key challenge of the coming months. We have to control its natural spread while sustainably protecting the autonomy of individuals in an organization that will put them to the test.

⁽¹⁾ See Steven Pinker, *Enlightenment now: the case for reason, science, humanism and progress*, Allen Lane, 2017

⁽²⁾ See, for example, Jean-Paul Engélibert, *Apocalypses sans royaume (politique des fictions de la fin du monde)*, Classiques Garnier, Paris, 2013

We have to measure the borders and make them evolve in a systematic logic of balance between benefit and risk.

Because we must realize now: the day after will not be a sudden awakening, it will be a succession of “lockdown – return to normal – pandemic – lockdown” cycles. We will need fewer “flat” models that integrate localized interaction data, combined with test data that reflects the actual evolution of the epidemic. In this way, we will be able to fight the virus effectively, without putting our social interactions and our economic activity on hold indiscriminately.

Other words describe the future we hope for: trust, resilience, sobriety. And the challenges we must meet to keep control of our choices. Futurology is back in fashion, after forty years of almost abandonment. It developed in California in the 1960s. In the grand “Future studies” period, futurists organized their discipline with the main knowledge being that of grouping knowledge[3]. At Capgemini, not only are we passionate about technology, but we also have the ability to mix up perspectives and skills. Therefore, we wanted to play a role in the debate.

Our horizon has been considerably amputated and this does not date from COVID. Moore’s Law has been a steady and formidable driver for a “technological overflow” (J Ellul) since the mid-1960s. Part of our value resides in our ability to restore meaning to this overflow. Another part of our value is to continue to anticipate, despite the complexity.

We are entering the “post-Moore” or the “More than Moore” period to use the terms of the semiconductor industry. The shake-ups linked to 5G, to Edge computing, and to quantum computing are illustrations of this. The emergence of new artificial intelligence techniques resting on hybrid algorithms shows that we are continuing to drive the big data revolution forward.

The social consequences of these new accelerations will continue to be considerable. They must remain positive.

Today, it is impossible to project ourselves into the world in which our grandchildren will grow up[4]. At best, we have some notions. We know that our demographic growth cannot continue without depleting the planet’s natural resources. The reserves of the epidemiological transition seem depleted. Independently of COVID-19, for the past three years, in many countries, life expectancy at birth has recorded its first decrease in 50 years. We are observing that the technical innovations emerging each year are, nearly always, loaded with ambivalence and paradoxes. Ambivalences with regard to their consequences on our identities. Paradoxes with regard to their effects on the economy and our wellbeing.

Using the words of the day after, we have tried to give you a window on the world that is coming.

⁽³⁾ A few examples of these methods: Eleonora Masini, *Why Futures Studies*, James Dator, *Advancing Futures Studies*, Ziauddin Sardar, *Rescuing all of our Futures*, Sohail Inayatullah, *Questioning the future*, Richard A. Slaughter, *The Knowledge Base of Futures Studies et Wendell Bell, The Foundations of Futures Studies*. In France, we know that the journalist, Bertrand de Jouvenel, continued his complex trajectory with the creation, in 1974, of the review, *Futuribles*.

⁽⁴⁾ See for example D. Acemoglu, *The world our grandchildren will inherit*, or P. Lindert

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THE DAY AFTER

#COMMITMENT

The challenges faced by our society are becoming clearer to each one of us. Climate change, increasing inequalities, health and social crises are reinforcing the feeling that we need to return to nature.

This context is providing a unique opportunity to companies and their employees to reconnect with life and to reinvent themselves to improve the world we live in. According to a recent survey by [TLC Marketing Worldwide](#), 71% of French people intend to consume more responsibly after the lockdown period we have experienced during this pandemic.

To make this transformation possible collectively, we believe in a **responsible commitment** that focuses on ensuring the positive impact our economic activity will have on the living world.

Transformation and resilience will be the guarantees of a successful recovery

As a firm specialized in digital transformation, we are witnessing the profound impact of new technologies and new digital uses on organizations.

Encouraged to make unprecedented organizational change, in recent years companies have experienced a huge acceleration in innovation, intensifying their efforts to win back their employees, transform their operations and develop strong customer trust.

The global health crisis we are currently in could be the trigger for a new and profound transformation of companies. **Organizational resilience** and an ability to reinvent oneself will once again be essential to provide a sustainable response to this new tremor. An organization's ability to anticipate, respond and adapt to sudden changes is crucial for survival, but beyond this ability to ensure short-term business continuity, it is the **ability to sustainably shape an organization** that is coherent with its environment that will allow it to exist the day after.

For companies that would like to become "companies with a purpose" and discover their rationale, the following approaches are good starting points:

1 - Be close to users and understand their needs at a time when customers', employees' and citizens' expectations are converging;

2 - Ensure an alignment between their current portfolio of offers and their rationale;

3 - Create new high added-value business models that embody their rationale by meeting users' every expectation.

It's time for companies to reinvent themselves by taking the planet into consideration

In addition to proposing economically viable and desirable offers that are perceived as authentic by their users, companies must incorporate societal, human and planetary concerns into their strategic plans based on three areas: sustainability, profitability and performance measurement. This enriched "rationale" must be translated and be perceptible throughout companies' internal and external ecosystems in order to create a long-lasting and high-value relationship.

To be more **sustainable**, companies must incorporate new principles and methods. For example, "Planet Centric Design" is a new way of designing products and services, no longer focused only on users but also on environmental and societal impacts. Another example concerning the digital component, "Green IT" makes it possible to design digital solutions by optimizing their energy consumption.

In parallel, the **concepts of growth and profitability** are having to be redefined. First, because digital sobriety is essential in a crisis, proposing what is (really) useful and adjusted to behaviors is essential for strengthening bonds with users. The implementation of a behavioral observatory will make it possible to identify, monitor and incorporate long-term changes in users' practices. It is also necessary to adopt a systemic approach to the components making up all the services of a company in a multi-purpose logic. Tools like "Design System" allow the "costs" of a brand's digital services to be pooled while reducing the sum of their impacts on the planet.

It is essential to define **new indicators** to assess the progress and the impact of these transformations. It appears relevant to adopt a measure of the negative impacts of products and services and changes in the ecosystem's mentalities, with the objective being to "switch to a measure of the **positive impacts** of a regenerative economy."

Stimulate employee commitment

Creating conditions of awareness in the company allows employees to be actors of change, to activate actionable levers and to open the individual and collective paths of transformation leading to action:

- The initiative of the [Climate Collage](#) is a good example of raising employees' awareness thanks to an accessible and dynamic position. Fun, collaborative and creative, it allows employees to become aware of climate-related issues.
- The organization of in-house conferences with well-known personalities in the field creates moments of inspiration among employees by exposing them to the paths and convictions of people invested in building a more desirable world.
- Awareness-raising sessions at the initiative of employees who have taught themselves in these subjects make it possible to instil a dynamic of skills' development on societal matters and participate in the emergence of committed citizen employees, both within their company and in the private sphere.

Giving employees the possibility to express their values and those of the company is an excellent way to encourage them to engage in a more inclusive and sustainable economy.

The company can strengthen these initiatives by providing resources, for example tools to measure the carbon impact or intrapreneurship programmes on meaningful projects, like [Danone, Engie and BNP Paribas, which started the "intrapreneur for good" programme](#). These initiatives not only make it possible to reduce the gap that may exist between the expectations of millennials that challenge the status quo and those of companies, but also to create a collective, an emulation around these subjects of society, by implementing the means to align employees to the company's new rationale, making them want to stay and to commit.

Organizational resilience, implementation of sustainable methods and onboarding of employees are the three levers that can be actioned for responsible commitment.

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THE DAY AFTER

TERRITORY

Today, the word “territory” has a vast, rich and complex meaning; an opportunity to become smarter, more inclusive and more resilient.

Only yesterday, we were living in a world where a territory wasn't the focus of globalization with such fragile merit. We are now testing and discovering its limits day after day. While this pandemic is physically restricting us, our data is circulating faster than ever and to an unprecedented degree. Data encompasses a territory that we thought was borderless, that of the virtual territory, built to the scale of a whole society, which had taken several hundreds of years to shape and layer with physical and technological tools.

The speed at which our world has changed is breathtaking: schools, medical appointments, work, entertainment, culture, concerts, family dinners, so many things are now taking place in this new digital territory. In our [publication on work](#), we argue that this revolution is massive and will make a mark, particularly on the distribution of employees within territories. All of these sudden changes to our social relations, between families, friends and colleagues, are having an impact on the way we use space and therefore our relationship with the sense of belonging to our territories.

Beyond borders, there is now a question of digital borders and the new forms of infrastructure that define them.

In our geographical territories, we shared roads, local public services and common infrastructures to organize our livelihoods. In the digital world, there is a need to build new common areas that will serve to organize life together, while also establishing a new social contract.

This ambition to create new common areas leads to the **Territorial Data Trust** concept (developed more broadly in our publication “Data, Territories and Citizens – Rethinking the territory’s business model to reconcile data and democracy”). The Trust, as guarantor of the respect of the new social contract between the different territorial actors, sets the trusted technological foundations by “heritagization” the territory’s data and making it an integral part of the new common areas.

Towards a “heritagization” of territorial data

Integrating data as a territorial infrastructure will require implementation of ethical governance in the capture, processing and sharing of data.

Except for health infrastructures, the crisis we are experiencing has highlighted the benefits of re-qualifying data as a common good to fight the pandemic. Many Asian cities, which were the first to be affected by the virus, were able to depend on their smart city infrastructures for different purposes:

- In South Korea, by capturing data within a hub (Smart City Data Hub), provided by the Korean Center for Disease Control & Prevention, epidemiologists were able to rapidly detect transmission paths and therefore to minimize spread.
- Singapore, in addition to its ability to encourage residents to stay at home in record time, quickly evoked its Smart Nation infrastructure, launched in 2014, to set up contact tracing with a low announced figure of 11 COVID-19 related deaths.

Ordinarily, these same infrastructures allow a good number of services to be delivered to citizens, ranging from simple digital administrative procedures (eGov) to smart multi-modal mobility, synchronized and ubiquitous security services and predictive management of the territories, for example. These use cases allow for a smooth transition between the virtual and the physical, and a “heritagization” of data, which is a real strategic asset for the territory.

A relationship of trust and asset securing by public authorities

With this value must come a strong sense of responsibility and ethics, in line with the European Union’s recommendations for managing data in a way that is transparent, traceable and auditable. This should enable a new social and moral code of conduct between decision makers and citizens, guaranteeing harmony between the actors of the Territorial Data Trust.

On the other hand, with the expansion of digital comes an increased cyber threat. Public authorities play a key role in raising awareness of digital best practices, in defining common public/private principles to secure our critical infrastructures, and in managing cyber crises. But this needs to be taken further, with a reinforcement of cybersecurity forces to deal with a threat we know is growing.

Ethics and cybersecurity are to provide the basis for lasting trust between the stakeholders of the Territorial Data Trust.

The Territorial Data Trust, an investment in the future

While our policies test the strength of the economic recovery, why not move towards large Keynesian plans and build Territorial Data Trusts? Let's not forget that in order for this trust to come about, connectivity is essential. Investing in Territorial Data Trusts would therefore also be a way to encourage digital inclusion at a time when nearly 46% of the world's population is not connected to the Internet, due to living in a territory that is not well connected, illiteracy or affordability.

We must create data roads and highways that will make it possible to match the physical – be it rural or urban – with the virtual.

Public actors like the "Banque des Territoires" in France anticipated these issues, long before the COVID-19 crisis. They had set up innovative investment models, ecosystem-based approaches enabling territories of all sizes to be able to position themselves and create new business models around newly built common areas.

Develop this new business model for the territories

We will therefore see more and more Territorial Data Trusts, operating at different scales: international, national, regional and local, creating areas that will transform the business model of the territories, or at least speed up the transformation. These models will bring greater flexibility and agility to public services, while putting citizens back at the center of the transformation process with new forms of consultative and participatory democracies. Realigning the politician and the citizen, outside electoral periods, will also help avoid pitfalls and failing expectations of smart territory projects, like the recently aborted QuaySide project in Toronto, which divided public opinion.

With the COVID-19 crisis, we are already witnessing some brilliant success stories. The French Health Data Hub, an example of a Territorial Data Trust, was able, just after enactment of the order of 21 April 2020, to collect health data alongside the Caisse Nationale d'Assurance Maladie. This facilitated access to data, which helped fight the spread of the epidemic, but is also helping the research for treatment. On Dijon, the smart command center of the city of Dijon coordinated various public emergency services, which used to be organized in silos. Let's not forget the "Digital Nation" par excellence, Estonia, which represents one of the first National Data Trusts that has already transformed its business model, on a large scale. It has not had to endure a digital transformation because it had already made its transition with a cross-cutting and large-scale state digital infrastructure, X-Road, providing citizens with all public services online, with the exception of marriages!

This model will allow us to create the foundations of smarter, more resilient, more sustainable and more localized territories, where technology will just be a means of creating a link for greater cohesion.

Far from closing itself off from its own territory, this vision will make it possible to avoid getting stuck in the mud and move towards states and unions of states, made up of close-knit and collaborative territories, ready to rise to the challenges of tomorrow.

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THE DAY AFTER

PREDICT

Will the word “predict” completely disappear from our vocabulary post-lockdown, or will it simply have a different meaning and encompass other futures?

In December 2019, the Bank of France presented its 2020 predictions to journalists. A “small downturn” and an ensuing slight upswing were predicted for 2021, to 1.3%. Simultaneously, managers of a large energy group were finalizing their yearly budget, based on a Brent crude oil price of \$67.2 per barrel. In Paris, tourists were returning to hotels, with bookings, only just recovering from the Gilets Jaunes crisis, just about reaching the level of previous years.

By April 2020, in the French capital’s deserted streets, the only sound was birdsong. Planes were grounded and business at Roissy Airport has suspended. In hotels, voluntary carers replaced tourists in unoccupied rooms. In the space of a week, the Brent crude oil price temporarily dipped below 20 dollars, its lowest price in 20 years. In Le Monde, the governor of the Bank of France announced that, compared to the first quarter, the growth estimate for France stood at -6%:

“We are clearly experiencing an unprecedented and completely unpredictable crisis.”

Will the word “predict” completely disappear from our vocabulary post-lockdown, or will it simply have a different meaning and encompass other futures? If we admit that we can no longer predict, what solutions do we and our companies envision? What do they have to do in order to continue on their routes and build their strategy? Isn’t it time to see what other options will allow us to prepare, but especially to get through the months and years to come, in a world that is “lastingly VUCA*”?

Whatever happens, it is not on the day of the competition that we should ask ourselves who the competitors are, which strategy to implement, which equipment to use, which nutrition to adopt, nor is it at the height of the storm that we should ask ourselves where we want to dock.

Any athlete knows that success depends on preparation, visualization, practice and strategy. These same factors also allow us to cope with the unexpected. It’s just as important, perhaps more so, to be ready, even in the event of unforeseen events, as it is to anticipate everything.

Building and bringing your strategy to life, the day after: A few ideas.

1 – Set a course – Define your *raison d’être*

Historically, sailors sought their bearings at sea with guidance from the North star; thanks to the brightness and stability of which they could stay on course. In the same way today, many studies have shown the solidity and growth performances of businesses that were able to formulate their own ‘North Star’, in other words, their *raison d’être*. As the Notat-Senard report highlighted:

“Raison d’être will give most boards of directors a guide for important decisions, a useful counterpoint to the short-term financial criterion, which cannot serve as a compass”

In these troubled times and beyond, a *raison d’être* can therefore be an objective to reach as well as a framework of thought for actions that is all the more efficient because it is shared by a large number of people in the company and its ecosystem.

2 – Plan a path – from predictions to future scenarios

“Everything was perfect... until the inevitable defeat”

We are referring to France’s defeat against England in the rain in Sydney (7-24)! The fantasy of a plan B that the French rugby team could not have pulled out of the bag; the unforeseen, such as this sudden and incessant rain dampening its hopes for final victory.

Dwight Eisenhower said, “*planning is everything, the plan is nothing*”. Often, predictions are made in existing mental maps. Software is programmed and tested on the basis of a known and past world. But the future cannot be predicted, it is not a foregone conclusion, nor is it a finality: the future is something that is planned for. Rather than trying to predict it over three to five years with conventional strategic exercises, we can visualize it thanks to forward-looking approaches and therefore better anticipate.

By identifying different possible futures – “probable”, “optimistic”, “pessimistic” – it is possible to deduce, in the present, the best scenarios for action and adaptation for organizations.

*Volatility, Uncertainty, Complexity, Ambiguity: acronym created by the Army War College in the United States at the end of the Cold War.

We can see this clearly at the moment: the current state of affairs is encouraging us to tell ourselves that it would be useful to anticipate the unpredictability of events. How?

“The question is not so much to know in advance that a virus will cut off supply chains, but to think about what we do if supply chains are broken, whatever the cause. This is called perturbation analysis and with it, the resilience of the system can be measured” – Bernard Charlès, Vice-chairman of the Board of Directors and CEO of Dassault Systemes, March 2020.

For instance, it was by imagining a scenario of extreme failure of the social security system that Philips created its “healthcare at home” division in the 2000s, which now represents a very significant share of its turnover.

In addition, regular use of scenarios, which will need to be “stressed” positively or negatively to ease and enable innovation, encourage open-mindedness and creativity. This will lead employees to project themselves into the future and familiarize themselves with flexible strategy. The time spent today will speed things up in the future; collective decisions will have more depth and strengthen our systems. The clearer the destination, the easier it is to be flexible and agile in the moment, which will sow and engage a natural resilience of the systems in extreme conditions.

Thus, the results provided by an approach like this are fairly astonishing: according to a European university study on the long-term economic impacts of foresight*, companies that have prepared for the future outperform with 33% of profit and 200% of additional growth compared to the average of the companies studied.

3 – Identify unforeseen obstacles - the usefulness of the strategic radar

Let’s return to sea for a few minutes. On a boat, the radar has the role of avoiding obstacles, night and day, and in fog.

In companies, many managers, after the annual five-year strategic planning exercise is over, switch their attention to the rear-view mirror and focus on budgetary and financial reporting, concerned with reporting on results achieved and performance indicators. However, once at sea, the horizon the sailor faces is not still. It’s the same for our organizations. Unforeseen obstacles are real for a company and only active, multi-dimensional (technological and societal) and open monitoring can allow their arrival to be seen.

This monitoring will enable the company to anticipate pitfalls and to identify the strategic opportunities presented as quickly as possible.

We will focus, then, on identifying the famous weak warning and debunking signs of “black swans”, where the challenge is to disconnect what is paranoia, conspiracy or a possible reality. Distinguish the echo sent back by a simple crest of a wave from the fatal back of a whale.

In this context, data, and the company’s ability to analyze it, play a major role.

Again, we need to be well-equipped, and not improvise. This is one of the tools of future analysts, now present in your strategy department.

4 – Know how to maneuver quickly - the agile company guided by meaning

Amid these uncharted waters, you have spotted the iceberg. Avoidance is key. It’s time to maneuver!

For the leader, they need to question their path. For the teams, they need to be able to coordinate efficiently.

Because you were ready for this, the action is simpler. And because you have your course set, your *raison d’être*, this action does not call into question your ambition and your governance; instead it is an agile and essential adjustment to your strategy. Your teams can keep going through the storm because each person knows why they are there and what they have to do. Each person knows why they are onboard. Everyone knows the purpose of the journey; everyone can get behind the *raison d’être*.

In concrete terms, this means that throughout the future scenarios you may have imagined, you have trained...like the athlete who complements their physical training with visualization: you and your employees have already planned for action.

This ability to adjust is essential. Time has paradoxically been extended: there a future to build. Your *raison d’être* and your vision were defined by your vision, and your strategy was simply the roadmap. Previously immutable, it has now become agile. A three or five-year strategy may guide you towards the iceberg... The strength lies within detecting weaknesses and your ability to act and allow you to adjust, practically on a daily basis. It’s the dawn of change.

** René Rohrbeck (Aarhus University), Menes Etingue Kun (University Munster), *Corporate foresight and its impact on firm performance: A longitudinal analysis, 2018*

5 – And what about the leader in this? Do we really need a captain?

Well, not surprisingly, we continue to believe that the answer is yes. In any case, it is necessary to have someone who looks forwards while the others act and interact more closely. If the captain is busy in the hold, who steers the ship? The navigator has a two-fold challenge of remaining stable on a boat that moves constantly and acting rapidly and efficiently when it's time to change tack. It's the same for the leader.

Of course, he is not alone.

More than ever, he has to manage talent, be exemplary in representing meaning and raison d'être, a visionary more than a manager.

And therefore, equipped or complemented by his teams with new fundamental skills: agility of mind,

ability to listen, openness, aware of the level of interdependence of the ecosystems that surround him and able to focus on the long term. And it is this final point that raises the main challenge, both for his governance which must accept this position, and for himself, who has to learn to cope without giving in to the temptation of the short term.

If you are still hesitating, you should know that for many crisis cycles already, the companies that have demonstrated the best resilience are those with the most responsible and sustainable strategies, and therefore had to start looking forward to the long-term. In a "VUCA" world, the next crisis is not far away (the climate is still a serious "candidate", with albeit pessimistic forecasts speaking of an increase of 7 degrees by 2100... An opportunity to stress the need as of now for forward-looking scenarios!).

So, are you ready to hop on board and cross calm waters and storms with peace of mind?

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A young woman with dark, curly hair and glasses is looking down at her smartphone. She is wearing a dark jacket and a brown scarf. The background is blurred, suggesting an office or public space. A semi-transparent purple shape is overlaid on the left side of the image, containing text.

THE DAY AFTER

SYNCHRONIZING THE COMPANY WITH THE INDIVIDUAL

The times we are experiencing are shifting our perspectives and revealing unexpected truths. Faced with the impacts of the pandemic, we seem to respond and resist both collectively and personally.

We are all on the front line because we are all dependent upon each other. That's what makes us a society.

This moment could be seen as an opportunity to listen, discover or rediscover what makes us 'us'. Citizens, customers, partners – discuss and explore new possibilities. So, how do we restart and bring value, care for the individual opinion, the brand, as well as the company itself?

Under this new sky, the search for a meaning – a widely recognized fact – will play an even greater role in the purchase decision. Before COVID-19, consumers were already asking questions about the source of products, how they were made, their impacts on society and the environment, etc. Tomorrow, they will be even more aware and these will become standard criteria.

In recent years, environmental awareness has become a cornerstone.

Let's not be mistaken: "deconsumerism" – which means consuming less but, especially, consuming differently – is a tidal wave. It is growing, thanks to social media, which plays a decisive role in forming individual and collective opinions. Everyone uses social media to gain information, compare and judge. The customer is also the citizen who relays news on social platforms; the young graduate who turns down a job proposal from a company whose ethics do not correspond to his own, or employees who will only commit themselves if they believe in the mission of the company that employs them. By tackling these perspectives one by one, the individual regains power and takes control.

In this turbulent and fragmented environment, traditional strategies are no longer relevant. Price and service are no longer enough to stand out. We need to reinvent ourselves, regain control of our message and practices and to do this, the individual is the only valid point of reference. Thus, it is with the individual, in all their dimensions, that the company needs to synchronize again. It must be able to integrate concerns, uses and

preferences, and it must be able to render them in a coherent manner, throughout each interaction, via product attributes and associated services, exchanges with sales staff, and both online and offline communications channels.

For the consumer, each contact must be an experience that resonates with their aspirations and reinforces the love for their brand.

Sensitive listening and consistent responses: these are the key for the company to re-synchronize with the individual. But to do this, it needs to mobilize and coordinate in every aspect: strategy, to provide direction and cohesion; business to build an offer in line with demand; physical and digital interactions for an engaging experience; and lastly, internal organization, which needs to be restructured to focus on the customer.

The imperative to involve every dimension is reflected in the diversity of skills required to create experiences in line with the new model: engaging, consistent, meaningful and, of course, profitable. It is no longer possible to separate strategy from technology, creation from data, design from security, etc. All of these pieces must collaborate, mutually improve each other, in a fully agile and open-minded way.

My belief is that we cannot invent tomorrow with the methods of yesterday. We have enriched our business and what's ahead is very exciting.

Jérôme Chavoix
Vice President
Brand & Experience





THE DAY AFTER

RESILIENCE

Resilience is an iterative process in perpetual adaptation around the three phases of preparation, reaction and recovery.

On 25 March 2020, we launched [operation “Resilience”](#) to “contribute to the commitment against the spread of COVID-19”: providing aid and support for the population, and support for public services in the fields of health, logistics and protection.

While the term “resilience” is familiar, its popularisation and use in everyday language are fairly recent. Therefore, it is interesting to look at the origins of this term to understand its meaning and attempt to form a definition, albeit a complex task, as over 200 definitions have been identified by the academic Serban Ionescu⁽¹⁾.

Etymologically, “resilience” comes from Latin *resilire*, which means to jump back.

Initially, the word “resilience” is used in physics to characterize the energy absorbed by a body during distortion. “Resilience” has long been a concept reserved for psychology and psychoanalysis and related to individuals.

In France, neurologist and psychiatrist Boris Cyrulnik popularized this term in the 1990s and defined it as “the ability to live, succeed, and grow, despite adverse conditions”. This ability is specific to each individual, depending on their personal construction related to their family environment, their network and their socio-professional situation. Some people will develop protectiveness, others will develop vulnerability. This is what makes each individual more or less resilient.

Resilience in a collective approach is more recent. In 2008, the White Paper on Defence and National Security (LBDSN) presented it as “the desire and the ability of a society and authorities to resist the consequences of a major attack or catastrophe, then to quickly restore their ability to operate normally, or at least in an acceptable manner. Not only does it concern public authorities, but economic actors and civil society as a whole”⁽²⁾.

Looking into the deeper meaning of the term “resilience” and its evolution gives us a few keys for considering “the days after” and building a “resilient” society to deal with crises and difficulties.

Resilience is an iterative process in perpetual adaptation around the three phases of preparation, reaction and recovery.

Today, it is too late or too early to deal with preparation. COVID-19 has seen society caught in a seemingly endless reaction phase. Society, as a whole, is dealing with a variety of shocks. Unlike other crises, where the shocks are often strong but limited in time, such as during an earthquake, here they are still very strong, but also long-lasting, as reflected by the plateau of hospital admissions we have seen over a sustained period. In addition, we already know that the shocks will multiply; that an economic shock will follow the health shock. This reaction, or “dealing with” phase, will probably be longer than usual. To get past the reaction phase, the key lies with the individual and collective commitment of each of us, as well as trust.

Being resilient means being able to anticipate. And while we are still in the reaction phase, we already need to be thinking about the recovery phase. It is essential, in order for us to be ready when the day comes, to be able to start again as soon as the opportunity arises. It is also a way to help us overcome the acute phase of the crisis by thinking of better days to come. This recovery phase should last and comprise several sequences.

First, a gradual return to activity, often in a downgraded mode; then, gradual upscaling to make up for lost time and to handle the most critical subjects; lastly, the necessity to consider “the day after” and to make lasting changes and transform our organizations, the ways we work to build truly resilient ecosystems. In this phase of profound transformation, digital technologies will play a key role.

It is at this point that it will be necessary to think of the preparation phase, drawing lessons from the crisis that we are currently experiencing in order to maximize our strengths and reduce our weaknesses.

Resilience is a process in perpetual evolution, the purpose of which is to make us more adaptable, more agile, so that we can respond to an increasingly uncertain and unstable environment.

Being resilient is not having an answer to everything. It's giving ourselves the skills to be able to deal with anything.

⁽¹⁾ Serban Ionescu, *Traité de résilience assistée*, Presses universitaires de France, 2011

⁽²⁾ AA-IHEDN, *“Résilience d'une Nation, y'a-t-il une place pour le citoyen dans la sécurité de notre pays ?”*, 2017





THE DAY AFTER

REINVENTION OF LOGISTICS

COVID-19 is an unprecedented threat to our organizations, and the lay of our lands. It knows no borders, moves silently, without restriction, and does not require a permit.

The times we are living through are unique and sobering, they are also encouraging us to reinvent ourselves. First, to respond to the current emergency, but also to think about redesigning tomorrow's society.

We are offered the chance to paint a new beginning, and the challenge is to be ready to [reset](#) our society. Among the sectors affected by this crisis, the logistics sector is key. It is under intense strain and yet it is the lifeline of our economies while in lockdown. It is definitely one sectors that will undergo the biggest transformation throughout this period, and when this is over.

Goods which, pre-pandemic, crossed borders and territories unhindered are now parked as a result of the global disruption, impacting all links in the supply chain. The supply and logistics issues encountered by hospital services and entire economies are showing us just how volatile and how vulnerable our systems are. The race for masks and medical products shows that logistics is key to support and supply people to endure this crisis, and beyond.

However, tomorrow's logistics will look nothing like today's.

Like this virus, it must be free of borders, in the broadest sense: geographical, health wise or technological. Every player in this field must be ready to face these challenges to survive.

Flexibility and resilience: the chess of tomorrow's logistics?

Flexibility and resilience are becoming essential for all logistics.

Once this crisis is over, we will address the weaknesses tested over these past months.

Firstly, many companies will need to take back control of their chains of value. The lack of visibility and sharing with all direct and indirect players is crucial. These issues complicate risk and impact analysis; slowing down decision-making and the launch of corrective actions. This lack of continuous monitoring of their supply chain, coupled with a lack of real-time visibility on alternative options, is slowing companies down. In addition, these flaws make them less flexible and inhibit the ability to anticipate such storms.

Secondly, there will be a need for companies to implement flexibility in their distribution systems, to change both strategy and adapt network. This must become standard practice. For example, many players, dependent on their networks or without access to their end customers, must redefine the limits of their operational model. By reinforcing omni-channel operations or developing "direct to consumer", these companies will be in a position to strengthen their logistics systems and grow in new markets.

Lastly, this crisis has also highlighted the need for transparency and a flow of information throughout the supply chain. A reconciliation of all parameters such as supply and demand, storage, and real-time resources is virtually impossible within the current spectrum. This flow of information will allow companies to vow to be better, guarantee supply chain efficiency, but especially ensure the continuity of operations.

The three scenarios above merely highlight the importance of data and its role in our response to the problems encountered. This is the challenge of the logistics platform project studied by the French Government at the start of the year. If we take the example of borders, end-to-end tracking of products and their journeys, coupled with data sharing between carriers and customs, would make it possible to simplify border crossings while preserving the level of security and control. Daily, this would make the flow of goods smoother and would provide considerable productivity gains. In a crisis like this, the issue is even more important because a discontinuity in product flows can have a direct impact on citizens' health.

The need for a national data platform for logistics

A national logistics data platform would allow for a growth in efficiency, flexibility and resilience while reducing the sector's carbon footprint.

The collection, processing, sharing and analysis of data must become essential for all decision-making. Only with this knowledge, derived from both data available in real-time and historical data to simulate and prepare forecasts, will it be possible to meet challenges related to the flexibility of everyday operations, end-to-end performance evaluation and improvement of public and private investments.

In a competitive market, economic players have started to develop several initiatives based on data in order to carve a competitive advantage. Individual initiatives are essential for the sector's transformation, notably due to their ability to be business-oriented and to efficiently leverage data. The multiplication of collaborative platforms is also a strong sign of the change in the mindset of logistics and particularly for transport players, who are increasingly aware of the potential for improvement to be found through data. However, these initiatives are not yet sufficiently widespread, and this sharing only concerns the different facets of one same company, or at most their direct suppliers.

We believe that the future of logistics will involve not only individual initiatives, but also, and above all, a collective agreement between players, private and public to formulate tomorrow's major trends. Consolidating data from multiple players, standardization, sharing and comparison will be necessary for the deployment and success of numerous operations, such as the development of smart borders, investment, or the optimization of operations and carbon footprint. Only a collective initiative can leverage a reduction in the nominal costs of such an investment, allowing players, small or large, to participate in this transformation, multiplying both data and value-potential.

These collective initiatives, which will result in the emergence of open logistics data platforms, will enable major growth for the entire economy.

Australia, which is developing a similar platform estimates that this will provide an improvement in productivity of 0.1%. In France, this would translate into a gain of €200 million per year (the logistics sector represents 10% of GDP).

To launch these platforms, there will need to be a close collaboration between private and public players. In particular, this will make it possible to provide grouped responses to issues such as implementing a common language, defining data sharing standards and identifying the granularity of the data to share, thus meeting the different business requirements of each player.

Thanks to this shared knowledge, the ecosystem could be managed in a sharper and dynamic way by developing smart networks. The flow of goods at borders and in multi-modal hubs will be facilitated. Preventive maintenance of infrastructure will be more efficient and the carbon footprint of the sector will be drastically optimized.

In fact, the flexibility and resilience of the supply chain is key to its rebirth, but this rebirth must be linked to sustainability.

This crisis, unique in its magnitude, has the unfortunate yet beautiful opportunity of shorting all circuits and the local ecosystem. But once the crisis is over, logistics will distend again and this is why it is necessary to rethink them now, to endeavor for environmental responsibility and responsible distribution.

The public authorities can take on many roles in implementing this type of initiative. Foremost, they are the accelerator, the trusted party deploying advice and grouping together the various private and public actors and international standards organizations, the role of which is to facilitate the definition and adoption of common rules and standards in the logistics sector. In addition, they have a vested interest, providing support to a strategic sector whilst ensuring the national sovereignty of their respective countries.

To make this transformation a success, it will be essential to use the wealth of experience from our global initiatives, to organize with a large number of actors/institutions that want to take part in this project, and in particular to focus on concrete business cases that will become the foundation of these platforms. This is a wonderful opportunity to become one of the best-in-class in logistics in a global economy.

Gaël D'Hont
Principal Consultant
Operations Transformation



Gérald Murat
Vice President
Operations Transformation





THE DAY AFTER

RESET

#Reset helps us envision what the future will look like, inspires us to imagine new parameters, and brings us closer together to create more efficient systems.

A few days before our lockdown began, whilst riding the Central Line, I was looking at a map of the London underground. A 2D representation of a system with a complexity difficult to grasp. Just like this map, our understanding of the world is that of a flat world that exists within other systems. In these challenging times, the best (and the worst) news has spread quickly. Murphy's law applies, and it would seem that none of this was foreseeable, controllable, or inevitable.

Striving to operate within such a crisis forces us to face our limitations. We need more data and experience in this field to help us quantify and quantify risks and outline the various scenarios. Our current thought processes and tools no longer apply to our world today (as Stefan Zweig mentions in "The World of Yesterday"). We are making new decisions that have different consequences. We find ourselves confined to an unprecedented reality, without a clear path forward. We are now living in a spectrum that was unimaginable just a few weeks ago:

- **Politically** – the response to the chaos and to the fear has been to engage an emergency status. Our democracies have been rattled.
- **Economically** – banks and governments have committed to do whatever it takes to save businesses and jobs. Therefore, the very notion of money or any form of transaction is at risk of becoming obsolete.
- **Scientifically** – treatments and vaccines are being tested in record times. We're depending on the very sharpest of our medically qualified global talent to save lives.
- **Socially** – due to the lockdown, we have all somewhat become close without touching; supportive without meeting. New versions of 'normal' are arising, and will perhaps be here to stay.
- **Ethically** – the era of GDPR calls for the use of telecommunications data and contact tracing. Get ready for 'the day after', for when we move on.

Questioning our raison d'être to this extent opens the way and breeds desire for something else, a #Reset.

Which system, or systems (social, political, economic, entrepreneurial, etc.), will drive or will need to be driven going forward? How could we structure this future landscape? Which pillars will we be resting upon after this crisis?

This slowdown gives us an opportunity to question ourselves.

#Reset helps us envision what the future will look like, inspires us to imagine new parameters, and brings us closer together to create more efficient systems.

What's the scale?

Crozier and Friedberg (*L'Acteur et le Système*), and Giddens and his organizational system (*The Constitution of Society*) considered the organization as a system in which the actors play a fundamental role (to act, not to act, etc.). Today, that depiction of a system seems narrowminded. We speak of interdependence between systems: a systemic approach. An organization is no longer considered as a complete entity, but a part of a new entity to come – itself interconnected with other systems. Likewise, a manager is to be considered as a driver of this system, and there are many other drivers besides, beneath and above them. The world is no longer flat: we all depend on each other.

What does this mean?

In the face of so much adversity, the search for meaning, beyond strategy, has become key. A business must be useful, and the result of such usefulness equates to profit. Reverse the equation of usefulness and profit, and you lose purpose. Post-Friedmanian's vision of the company with a purpose "aligned with the needs of the world", according to Satya Nadella, Managing Director of Microsoft, places its activity within an ecosystem (a sector, a community, society, etc.).

This self-reflection is necessary, but not sufficient. The future will happen quickly. We should remain open-minded, driven and yet humble. A system, cannot be conceived and kept behind closed doors. That's what makes a system a system; a business.

What needs to change?

Let's look at the example of our supply chains. Intensely tested by a trade war, traditional strategies failed. The system needs utterly redesigning, from suppliers, to sub-contractors, customers, shareholders, etc. This is where open strategy makes sense. The horizons will also change from a projection of three to five years or short to long-term vision.

"Tomorrow is less about discovery than it is about invention"

The above are the words of Gaston Berger, founding father of the discipline, and they're reassuring: we are in control! By taking a cross-disciplinary and cross-sectoral approach, etc., it is possible to build scenarios and use them to design a strategy. Thanks to the creation of this open system of reflection and action, you can create, and scale, a sustainable and resilient system.

Where are our weaknesses?

In yesterday's steadfast world, resilience meant good risk control. This measure of uncertainty as the probability of an adverse event is based on assumptions of independence that the world as we knew it will no longer exist. We used to quantify risk and anticipate weaknesses. This is no longer the case. We are vulnerable. More than ever, our vulnerability – in this period of crisis – digital prevails. Imagine not being able to talk to your loved ones, consult a doctor online, or work remotely, etc.

We may find ourselves exposed: our health system, our supply chains, our businesses and our social support systems, etc.

The best way to weather this crisis is to rethink our strategic approach, derive and embrace potential scenarios.

Going forth?

Sustainability is a melting pot of resilience, responsibility and legacy. This stands true particularly from an environmental, social, and ethical standpoint. In the wake of this crisis conundrum, your clients, your employees and your stakeholders might not forgive a lack of awareness on these matters. They ought to be at the heart of your strategy, purposefully and thoughtfully at the center of your behavior at every level – every day.

In the face of this unknown, the systems to be reinvented will have value. They apply to our new ecosystem. They will be sustainable, strong and responsible; we will be building a future together.

So... let's #Reset

Noemie Lauer
Vice President
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Moez Draief
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THE DAY AFTER

SOBRIETY, FRUGALITY

The question is whether we, as individuals, businesses, investors and public authorities, will seize the opportunity to sustainably transform our models towards more energy sobriety and frugality using natural resources.

We continue with our 'Words of the Day After' series with some thoughts on frugality. Was 2019 the year of peak greenhouse gas emissions? #Sobriety and #frugality — two words used just a few weeks ago in debates on climate change between those who believe in declinism and those who support green growth. These terms apply very well today to the unprecedented global health crisis we are going through, such as sobriety in our movements to limit transmission of the virus, and frugality to spare our resources until the end of the lockdown.

This pandemic dramatically highlights the strong interdependence of environmental, health, social and economic issues. The [disappearance of ecosystems](#) is thus considered to be one of the causes of the development of coronavirus. And by forcing us to stop most of our industrial activities and avoid travel, this pandemic could lead, in the short-term, to a reduction in global (carbon dioxide) CO₂ emissions of around 5 Gt, which is 10 times the reduction observed in 2009. China, responsible for nearly one-third of global CO₂ emissions, witnessed a decrease of at least one quarter between 3rd February and 1st March, compared to 2019, which is the equivalent to half of annual UK emissions. At this stage, it is difficult to predict whether emissions will increase again, as they did after the financial crisis of 2008. Or perhaps they will remain slow, like the global economy, for which forecasters are not expecting a recovery until the fourth quarter of 2020 at best.

Reconciling recovery and "green pact": mission impossible?

Health and climate risks are not only connected but similar in many respects, notably their systemic aspects and their directly measurable physical consequences. We, therefore, must draw lessons from the pandemic and take advantage of the decade ahead to implement measures that fight climate change. But will we have the resources?

With COP26 being postponed to 2021, we might be tempted to take a rain check to focus instead on getting out of the crisis. Some voices are already calling to delay important investments linked to the energy and environmental transition. Thus, the development of renewable energies will undoubtedly be strongly impacted by two major challenges of the COVID-19 crisis: supply chain disturbances that might lead to delays in completing projects, and the likely decrease of investments due to pressure on public and private budgets. Add to this uncertainty concerning future electricity demand.

The question is therefore, will the pandemic be an accelerator of the structural transformations of our production model and our lifestyles to avoid global warming? It's uncertain yet: with the price of oil down 66% since early March, the temptation of recovery based on fossil fuels would be a dangerous quick-fix solution that would be tantamount to maintaining the status quo.

In the short-term, recovery plans being prepared by international institutions and governments will be focused on health, employment and support for businesses. The challenge is, therefore, to go further still: To encourage investments in low-carbon mobility, renewable energies and storage, green building and energy renovation, green infrastructure, efficient manufacturing and the circular economy.

A few avenues of thought to steer the debate of a green recovery

Logistics and on-line trade

On-line distribution and intra-urban delivery sectors should be required to accelerate the transition of their fleets to electric or hybrid vehicles. This would guarantee better air quality (some [recent studies](#) seem to demonstrate that COVID-19 has spread faster in areas with the highest levels of air pollution) and support for the automotive industry. In the same vein, this could be the moment to launch or accelerate the replacement of buses and public vehicles with electric and hybrid vehicles.

Low-carbon energies

The costs of renewable energies are already low and should remain so. However, their integration into the network remains an economic, technical and regulatory challenge in many places. In particular, storage, smart charging of electric vehicles and smart demand change management tools should benefit from the scaling up of capital and massive deployment. Likewise, emerging technologies such as graphene for storage, hydrogen from renewable sources, or carbon capture and sequestration require further major investments to reduce costs and to develop them.

Sustainable territories

Towns and territories could systematically implement digital solutions bringing about energy savings (smart lighting, smart public buildings, optimization of waste collection, etc.) in their development plans.

Energy efficiency

This is another key area that should be promoted. Since 2014, energy savings have been insufficient in Europe to offset the impact of economic growth, higher standards of heating and air conditioning comfort and lifestyle changes. See the "[Climate](#)" chapter of our latest global observatory of the energy markets (in French). And given the collapse in demand, petrol, gas, coal and carbon prices should remain low for a long period, thus reducing its economic justification. But, speed is of the essence, otherwise when demand bounces back, not only will emissions take off once again, but energy prices will increase too, thus contributing to slowing down the economic recovery.

We recently sketched the outlines of the [future global energy landscape](#) (in French). The extent of global progress towards a carbon-free future will depend on the intensity of a combination of key factors: energy demand, the evolution of the energy mix, regulatory conditions, development of fundamental energy and digital technologies, and other factors related to the profound change in consumer behavior regarding greenhouse gas emissions.

Sustainable transformation of our behavior and the necessary reinvention of our models

Solutions for remote collaboration or education

For those who can, working from home is becoming the norm. When lockdown ends, some businesses will want to continue with a remote working model, for a buffer period at least. It's also likely that many employees will demand the option of working from home for some of their working week, which employers are likely to allow more readily than in pre-pandemic days (read our latest study on how to [manage, motivate and collaborate in a virtual environment](#), in french).

Trips & travel

Business trips will be reduced in the months to come, and probably beyond that. We will probably be far less willing to take an airplane for a day's travel and for meetings that could take place remotely. In recent weeks, we have seen the emergence of new, entirely online conference formats instead of events that should have taken place physically. Suppliers of video conferencing equipment and even holographic video conferencing equipment have a bright future. We need to go further still and envisage solutions compatible with environmental requirements (Green IT, for example), to ensure that the cure is not worse than the disease in terms of CO₂ emissions.

Mobility

The growth of low-carbon mobility solutions, highlighted in large urban areas in France during the public transport strikes, will undoubtedly intensify. Multi-modal solutions, such as the personal mobility account (the solution being co-developed by La Fabrique des mobilités and Capgemini and the extension of existing cycle path networks will probably gain popularity among citizens that want to avoid the crowded environment of public transport, which encourages the spread of viruses.

Supply chain

In industry, relocation trends, already under consideration in recent years, will undoubtedly accelerate, even if they don't happen at once. International movements of goods will thus reduce. To shorten supply chains and reduce imported emissions, it is likely that solutions such as 3D printing will experience new growth. Likewise, the debate on the need to relocate the battery value-chain in Europe will be more topical than ever, as the current crisis emphasizes the issue of security of supply in the field of electric vehicles see our recent [point of view on the European battery strategy](#) (in French).

Food & Waste

Food safety will be a priority more than ever for states and citizens. We can, therefore hope, in the retail and food sectors, to see an acceleration of circular models reducing waste and promoting the reuse of waste (waste to energy) as well as local consumption. In our [latest study](#) on the circular economy, we present an approach to help organizations understand and assess their current impact to help them identify opportunities linked to this model.

All sectors are therefore impacted by this review and these changes. More than ever before, the question is whether we, as individuals, businesses, investors and public authorities will seize the opportunity to sustainably transform our models towards more energy sobriety and frugality in using natural resources. It is already interesting to note that [ESG funds](#) are more resistant to falling stock prices. The pressure from investors to take better account of societal and environmental issues in corporate strategies is not likely to slow down. Management committees will undoubtedly have to review their business models and strategies to align them to the 17 UN Sustainable Development Goals. In [Sustainable Business Revolution 2030](#), we underlined that the only way to have a substantial impact on climate change is to cooperate in broad-ranging ecosystems with a single focus on achieving net-zero carbon emissions. This will demand a radical reinvention of business models, open collaboration and sustainability-driven technology choices.

Florent Andrillon
Vice President
Transition Énergétique





THE DAY AFTER

DIGITAL SOVEREIGNTY

The only real link between 5G and the response to COVID lies in the term “sovereignty”

In mid-April, it was reported around forty 5G masts were vandalized throughout the UK.

Twenty of which were operated by Vodafone. Among the many far-fetched beliefs and conspiracy theories running around, the link between 5G and COVID is a surprising intellectual short-circuit. Yet it is very real, as a Vodafone mast on fire serving a temporary hospital in Birmingham sadly illustrates.

The only real link between 5G and the response to COVID lies in the term “sovereignty”. It is all about the government being able to make decisions that transform the lives of their people and taking responsibility for those decisions. At the start of the year, when the entry of 5G in the market accelerated and cloud projects for European states became clearer, when the agenda of the new European Commission took shape and the importance given to data and its wide-scale use was affirmed, the term “digital sovereignty” became omnipresent. In this time of COVID, and as we prepare for what’s next, this is vital. Ongoing projects around COVID patient cohorts or contact tracing applications illustrate this. Digital activities are becoming strategic, and a strong hold on their control is an issue throughout their production chains.

This is also an area where challenges might arise. The supply chain of digital activities are long, complex and scalable. Adding digital sovereignty requirements implies understanding the path from start to finish. And for this reason, it is more often than not a source of confusion. The flag of digital sovereignty is not enough to define digital autonomy strategies.

Sovereignty is the “power that a country has to govern itself” (Collins)

Ruling in the world of technology is not, and never will be, a matter restricted to government control. It first and foremost invokes understanding limitations and creating public-to-private technological ecosystems to push limits. These ecosystems will be all the more robust when they depend on vast and profound markets. Like a harbor, technological sovereignty implies docking the most modern ships, but having a quality hinterland to be able to do this. Three of these hinterlands seem to be decisive to us today in order

for all of our activities to explore the extent of use cases permitted by technological revolutions such as 5G, AI, the Internet of Things, edge computing, immersive technologies and blockchain.

The first of these is infrastructure. Don’t miss it; this is still a key issue. Continue to share information, share data, operate/maintain machines/infrastructure, collaborate, co-build, co-publish, all remotely, are all challenges that are connected. They show us just how essential⁽¹⁾ networks, calculation and storage capacities are⁽²⁾... And production models will have to evolve rapidly to take into account the exponential growth of requirements. Europe does not have Clouders today capable of addressing hyper-scale standards. This is becoming a strategic challenge, at the same time as regaining a place in the American-Chinese competition for new generations of semi-conductors.

Currently mainly located in large data centers operated by major US cloud providers, these capacities will be distributed in the future as close as possible to their usage zones (i.e. edge computing). They will all benefit from the evolution of networks, with 5G leading the way.

By combining 5G, edge computing, the Internet of Things and Artificial Intelligence, it will be possible, in particular, to offer more resilient services, to control the flow of data and offer a better user experience.

According to Gartner, by 2022 over 50% of business data will be created outside data centers or the cloud.

A second key hinterland is therefore cloud, and more generally the ability to move beyond what could be called big “big data”. The rapid growth of requirements (the data sphere could reach over 150 billion TB by 2025) is such that industrial models for mass storage of data need to be reinvented. Balancing the energy statement of data centers is not the least of the challenges.

Another key challenge is to recreate capacity to store and process data in secure spaces, legally protected from access requests based on extra-territorial legislation.

This concerns not only data relating to national security and defence, but also health data and data from strategically important companies, especially when this data contains trade secrets and critical processes. Building a trusted cloud offer, as Capgemini is working on in France and Germany with its partners,

⁽¹⁾ Le 10 mars, le DE-CIX (Deutscher Commercial Internet Exchange), le plus important carrefour mondial d’échanges Internet situé à Francfort, a constaté un pic de consommation historique : 9,1 térabits par seconde en hausse de 12 % par rapport au précédent record, qui datait de décembre 2019

⁽²⁾ la demande pour les services cloud de Microsoft explose de 775 %, une utilisation quotidienne 25 fois plus élevée qu’en janvier pour Google Meet

involves defining a catalog of state-of-the-art services to power native cloud applications, the Internet of Things, blockchain, analytical tools and Artificial Intelligence algorithms. In addition to these services being centrally accessible, they should enable the deployment of application intelligence that allows data to be processed as close to sources as possible in order to speed up response times, contain the explosion of network costs and bandwidth, and provide an enhanced experience and control information flows. These are the promises of edge computing, which will require a standardization of effort in terms of platforms and operations to deploy. But, in order to develop this type of infrastructure, we must first create the conditions to allow European champions to emerge.

It would also be a mistake to underestimate 5G and to delay in setting up the conditions for its distribution. Or to think $5 = 4 + 1$! Due to its properties: high throughput, minimal latency, high density of connections and prioritization of communications 5G is a disruptive technology that opens up a scope of unprecedented, ambitious and disruptive applications for all sectors.

We may have to wait another few years before the full power of “standalone” 5G is implemented. Nonetheless, it is now that the big technological winners who will guarantee controlled and secure use of these infrastructures that will support the vital services of governments and strategic industries are being decided. In concrete terms, we are talking here about European sovereignty in the face of Chinese dominance with Huawei and ZTE. In January, the European Commission, through the voices of Margrethe Vestager and Thierry Breton, called on member states to give precedence to Nokia and Ericsson, and to limit the use of “at risk” suppliers in non-critical/sensitive zones.

⁽³⁾ Approche « ungoogled », en remplaçant les Google Play Services par une alternative ouverte

⁽⁴⁾ Samsung, Huawei, Honor, Google Pixel, Xiaomi, HTC, Lenovo, LG, Motorola, OnePlus, Sony, etc.

⁽⁵⁾ Annonce d'une alternative aux Google Play Services — librairie de services d'identification / localisation & Co imposée par Google sur Android - en réponse à l'embargo américain

A final hinterland of digital sovereignty is that of operating systems and mobile development platforms. Its sensitivity reappeared in the context of Backtracking applications. Will we at last be able to rediscover a form of European sovereignty in the face of iOS or Android? An initial response could come from the Open Source /e/ project which is building a mobile OS based on the Open Source version of Android and removing all Google-dependent services⁽³⁾ as well as replacing Google applications with Open Source alternatives. The OS is already operational; it is possible to order pre-fitted Samsung telephones on the website, and 89 smartphone models have already been validated⁽⁴⁾. Companies like Huawei have also explored alternative solutions⁽⁵⁾. We are entering a period of geo-political re-fragmentation of the mobile sector, which will require European and national public authorities to take a stance.

“We need to nurture our garden”

There is no need to be The Optimist to apply this Voltarian principle to our innovation ecosystem. Mariana Mazzucato has shown that technology ecosystems develop in an exchange of strengths between large-scale public projects and private companies that address the issues of industrialization. These public-private ecosystems, as they have managed to develop around US defense agency DARPA or, more recently, initiatives such as the JEDI modernization project by the US Department of Defense, are the key to success and the leading factor of digital sovereignty. This is how we will rediscover the value of a “technocracy” in the true sense of the term, i.e. the ability of states to harness an explosive growth in technology and to ensure that the greatest number of people benefit from it.

Nicoals Gaudillière
Vice President
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Etienne Grass
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Citizen Services





THE DAY AFTER

TRUST

The way the epidemic has been managed and how we will come out of the crisis forewarns of a crisis of trust among “citizens, consumers and employees”.

Putting nearly three billion people into lockdown, the COVID-19 pandemic has had huge consequences: the digitization of socialisation.

Every single day, nearly 40 million in France alone are connected on social media. These exchanges are meaningful and numerous. Provided that the technology can analyze it with sufficient depth, accuracy, and privacy parameters, social media offers unparalleled access to people’s feelings, doubts and hopes.

An analysis of social media reveals one clear sign/question in particular: the way the epidemic has been managed and how we will come out of the crisis forewarns of a crisis of trust among “citizens, consumers and employees” with regards to public and private decision-makers. Throughout this crisis, people have been handed more responsibility: complying with the lockdown, independently organizing tasks as important as professional life or their children’s education, finding digital and local solutions for everyday needs. Social media also played a part, early on, to spread a certain number of false narratives. Instructions issued by authorities have been questioned, their apparent transparency and their efforts to justify on-line their ex-post positions.

Initial analysis conducted on social media confirmed, in a nutshell. That hyper awareness is growing.

In the face of adversity or risk, people’s ability to develop unique collective actions and their high demand for autonomy at every level has grown.

The demands on the leaders of today and tomorrow will only increase – especially since “trust”, as a concept, has been an issue in many countries for a long time. France, for example, is used to falling short in this area, as described in the [World Values Survey](#), in terms of trust expressed in institutions, schools or businesses. According to [Gallup](#), at the start of the epidemic, over 80% of the population in Germany and the United Kingdom expressed their trust in their health system and public decisions. In France, the level of trust was lower, at 71%. Yet trust is so important when it comes to health. At the individual patient level, it is the first element of effective care. On the collective scale, this link between trust and health is weakening. Today’s suspicion towards vaccines is a dramatic illustration of this: one French person in three does not trust vaccines, compared to one in ten 30 years ago.

Many surveys have been carried out to analyze the links between the level of information people have on a subject – genetically modified food, nuclear energy, for instance – and their level of mistrust. This relationship has the shape of a valley: for non-experts, any additional information is first a source of stress and therefore a loss of trust. Only after having reached a certain level of expertise do we see the trust build again.

This “valley of mistrust” brings us to view health and democracy in a different light. It warns against good educational intentions.

It also helps us understand the reflex of self-censorship that strikes some scientists at the time of publishing their work – aware that the initial effect of informing may be to create doubt. Lastly, it highlights a paradox of our “hyper-technical” society, which demands “hyper-trust”: once a new technology becomes part of our daily lives, we must let go, whatever uncertainties remain as to the associated risks. These dilemmas increasingly distance the citizen from public action. And sometimes, such as with vaccines, trust is broken with no apparent rationality and the citizen firmly demands to take back power.

For tomorrow's leaders, the ability to restore trust with the population is vital.

It's for the long term, and it will require new trends to be integrated into processes and organizations.

One can list for example : relocation of value chains, reconsideration of frontline jobs, thoughtful management of digital interfaces, thanks to which citizens have acquired a newly-found autonomy and – in part – overcome the economic and social consequences of the crisis. **More widely, this large project of trust will require new cultural reflexes – sincerity, humility, alignment between words and actions, a cooperative spirit** and reflection on a new form of democracy that brings stakeholders together around these matters to breed common good.

Note: [Capgemini Invent has formed a partnership with BLOOM](#), a company that is an expert in marketing intelligence and social media analysis via artificial intelligence. Objective: to address the French market concerning brand strategy and reputation risk management and to help businesses with the coherence of their Corporate Social Responsibility policy (CSR).

Etienne Grass
Executive Vice President
Citizen Services



Bruno Breton
CEO Bloom





THE DAY AFTER

WORK

Remote working, online learning, entrepreneurship, job sharing: what we used to call “the future of work” has become our present.

We continue with our ‘[Words of the Day After](#)’ series with an emphasis on: work. The COVID-19 pandemic has brought us into unknown territory. It has rattled our world to its core; shaken the way we live, consume, study and work.

In Greek, “Krisis” means ‘decision’ or ‘choice’. We decide what life post-COVID-19 will look like. We shall learn from this and build a better future. As Esther Duflo, Nobel Prize winner in Economics, said, “with climate change, things will be even worse. Let’s find the motivation to change, to find the true mission of the company, which cares about its social and environmental impact”, let’s change the way we work.

Remote working, learning, and newly-found camaraderie are all making headlines. We are providing working methods, as well as potential expectations for the future.

Many companies no longer have walls... yet they have a cloud

Everything changed in France on 17th March 2020. From one day to the next, millions of people were confined to their homes, asked to stay away from their offices, and fundamentally change their habits. About 8 to 12 million employees are now working from home. According to the Ministry of Labor, far more than 1.8 million were already regularly working in this fashion in 2017, according to the French Directorate for Research, Studies and Statistics (DARES).

At Capgemini, 97% of our employees worldwide have also changed their way of working.

The French experience has been replicated across the world. Many had only a few hours to provide themselves with the equipment to be able to work from home: Teams, Skype, iObeya, Trello, Slack, Klaxoon and Zoom, the latter of which recorded 200 million participants in daily meetings in March, compared to a 10 million in December. Whilst this has encouraged digitalization, we ought to acknowledge it may have disrupted those less comfortable with technology.

Remote working is all about tech, but it’s also about culture. Kids briefly appear on videoconferences, and

the usual routine for teenagers isn’t easy, neither is the time for preparing meals. However, our habits must change to facilitate. The coronavirus crisis emphasizes the need for more lateral, decentralized and autonomous thinking. Teams have built new habits, and their managers have had to realign priorities, and plan for the day after. Agility, empathy and resilience are key.

There is good news; less travel means less pollution. Coronavirus could be the cause of the greatest reduction of CO₂ emissions since World War II, according to the work of the Global Carbon Project or of the Chaire Economie du Climat de Paris Dauphine. According to a YouGov survey, 77% of French people see this crisis as an opportunity for ambitious ecological transition.

At the end of this ordeal, will we be prepared to massively continue working from home, like at UpWork or Gitlab, where 80% of employees are dispersed all over the world? Will job interviews on Skype become the norm? Will we desert megacities to work in the countryside? Will we recruit talents without frontiers in Manila, Bombay, Lisbon and New York? Will we work ultra-flexible hours so that we can have team meetings over several timezones? Will we leave the car in the garage to maintain the peace and quiet and keep the air pure?

Key jobs are at the front line, while others are organizing solidarity

Not everyone can work from home. To some extent, it’s a story of white and blue collar workers. Carers, bin men, supermarket staff, logistics staff and many others simply have to go to work. It took for this unprecedented crisis and clapping at 8pm on our porches to be reminded of the value of these public services. Shops like Auchan and Carrefour have announced exceptional bonuses to reward their courage.

But, even at home, we all have a role to play. We can sign up individually or in teams on platforms like TousConfinésTousEngagés.fr, help farmers in the fields or transform the product or service we sell for a good cause: LVMH or Yves Rocher, which are producing hand sanitiser, Airbnb which is offering accommodation to care workers, MAIF insurance firm, which has seen a reduction in the number of claims and is donating €100 million to its insured parties or to associations.

Capgemini Invent, is helping APHP free of charge to roll out the Covidom application to remotely track patients with or suspected to have COVID-19.

A sense of purpose – especially amongst our younger society – is now flowing through every generation. According to a survey by Society magazine, 56% of French people believe this crisis will provide an opportunity to redefine what is important and relevant to them.

When the crisis is over, will we continue our efforts of solidarity, giving our time or our know-how to help social entrepreneurs, associations and people in need? Will we make the leap of job-sharing between a business and an association? Will we be able to propose new performance indicators to teams and managers, to promote positive social and environmental impacts? Will we put CSR at the center of discussions in order to transform our businesses and our jobs?

The reinvention of online learning

The health crisis hit hard, and suddenly. Thousands of medical students have been trained in ventilation techniques and respiratory treatments thanks to online videos.

While INSEE announced in early April that the global economy was running at around 65% of its normal rhythm, some people have taken the opportunity to learn via online platforms, such as Coursera, Open Classroom or even Youtube: learn to code, boost your productivity, understand the history of art, etc. There is something here for everyone and in every profession! The rate of downloading educational applications jumped 1087% in the United States in March 2020 according to a Statista report.

Why don't we make use of the lockdown to learn something online? What if everyone could reinvent themselves and change profession thanks to the Internet? What if the professions that hire tomorrow required new skills, such as eco-design?

⁽¹⁾ You can find similar reading in our article called [Innovating for a recession](#), by [Mark Payne](#), Partner at [Fahrenheit 212](#)

Entrepreneurship, a new field of possibilities

It's a particularly harsh time for entrepreneurs, who are having to show stealth. As Marc Simoncini recalled in an interview with Le Figaro, "stop burning cash, now is not the time for hyper-growth, focus on profitability". Imagine the 40,000 vehicles for hire in France, without activity since the lockdown and which have lost 80% of their income.

New company registrations in France fell 25.5% in March 2020 according to INSEE.

However, in these difficult times, it is essential to innovate⁽¹⁾ and shake up the status quo. Some great initiatives are emerging, as with the Loop platform by La Fabrique by CA, which allows farmers to sell their products directly to consumers, or CovidBot developed by Clevy.io which fights against misinformation.

Will new graduates venture into start-ups, despite the looming economic shock? Will large groups develop intrapreneurship and studio start-ups to allow for safer innovation? Will the State come up with a new social contract to protect independent workers?

Remote working, online learning, intrapreneurship, job sharing: what we used to call "the future of work" has become our present. Let's learn and make the post-COVID-19 period as good as we can!

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THE DAY AFTER

RISKS

While tomorrow's world will have to prioritize the treatment of causes – vaccine, medical treatments, more effective containment strategies, etc. – our economies will have to incorporate this new risk of lockdown and minimize its effects.

The COVID-19 situation is shaking up our economies. For France, the estimated impact is at least 5 points of GDP, i.e. around €120 billion. More than numbers, the crisis is a calling to question the existing development models and their fundamentals. Although the risks of a pandemic were theoretically identified and qualified, our globalized and inter-dependent economies were not prepared for a large-scale lockdown.

“It is impossible to assess the medium and long-term impacts: there is no relevant precedent, and demand and supply are both affected, which is unheard of.”

Governments have all announced massive and widespread support plans. While the shape of the post-COVID world is under debate – similar or fundamentally different – the probability of a resurgence of this or another virus cannot be ruled out, and with it, the possible re-occurrence of lockdowns, possibly shorter and more localized.

While tomorrow's world will have to prioritize the treatment of causes (vaccine, medical treatments, more effective containment strategies, etc.), our economies will have to incorporate this new risk of lockdown and minimize its effects. Therefore, the impact of the current crisis has to be managed and systems put in place to cushion future potential occurrences, without just settling for tried and tested recipes. These approaches have demonstrated their limits faced with the complexity of today's world. We must prepare more robust mechanisms faced with “unknown unknowns”, with an evidence-based and iterative experimentation approach (“Building a culture of experimentation”, Harvard Business Review, Apr-March, 2020).

Decisive role for Banking and Insurance: Risk management to be reconsidered amid pandemic and lockdown

The economic management of this crisis is becoming imperative and our tools must adapt. Banks and insurance companies are particularly critical in this approach.

First, this is due to their respective roles in society: Banks and insurers must provide the tools to finance and protect against risk, which are fundamental pillars on which to build an economic future. Further, in the current crisis, the Government banks are considered by many to be essential for the continuity of the economy and they are directly involved in the national solidarity effort (accelerated loan procedures, free deferral of repayments, overdraft facilities, and much more).

Secondly, their criticality is because risk management and control are key to their business. For bankers, there is a default risk in the management of their assets, and for insurers, an underwriting impact. In view of the systemic nature of a large portion of these actors, any misjudgement of the risk can take on major proportions, like during the 2008 crisis. These two industries are also subject to scrupulous control by regulators (Basel, Solvency, IFRS, etc.). They are therefore limited in their room for maneuver and support cannot be provided at just any price. Banks in Europe have already called for a relaxation of prudential rules so that they can play their role in the current crisis, and in France, the Conseil de Stabilité Financière has authorized French banks to reduce their equity buffer to zero.

Bankers and insurers face two different short-term situations:

- As mentioned above, banks are directly involved in managing the crisis. Without any cynicism, this crisis is also the opportunity for them to play their role to the full, in a different register to that of 2008. Economic support through loans puts banks on the frontline and increases their cost of risk. Whereas the latter has significantly reduced since the 2008 crisis (0.11% of the banking balance sheet in 2018, i.e. around €8 billion), it could go up again, weighing on profitability. Banks are therefore walking a fine line between solidarity and safeguarding the economic model. Initial estimates in China record a potential doubling of “bad loans” to \$1,500 billion, i.e. an increase of \$750 billion compared to the €300 billion guarantee proposed by the State in France.

- Insurers are in a more complicated situation. Pandemic risk and the lockdown generated by this are generally not covered, notably when it comes to operating losses. Some guarantees, however, are directly impacted by the crisis, one way or another: increase of Death claims but reduction of Vehicle claims during the lockdown, for example. As far as society is concerned, the position of insurers is delicate and the expectations of a contribution to the national solidarity effort are pressing. Insurers announced support measures very early on (maintenance of guarantees in the event of payment difficulties, suspension of disputes, the contribution of €200 million to the solidarity fund, to name a few) and one even refunded a share of Vehicle premiums due to a drop in the claims received.
- Finally, insurers and bankers are facing a challenge of operational efficiency to manage the increase in flows with sometimes reduced teams.

How to integrate this new risk?

Insurers cannot exclude pandemic risk and its consequences, in particular, during a lockdown. Doing so would be a failure of their duty of protection and the necessary contribution to the future of the economy. Like the risk of natural disaster, regulated in solidarity with the state⁽¹⁾, or guarantees against terrorist attacks via a dedicated fund⁽²⁾, the risk of lockdown could also be the subject of a three-way discussion between civil society, the state and insurers, in order to define the fundamentals of coverage. In France, for example, insurers have made a commitment to reflect with the state on this model for the future.

In future negotiations, the ability to establish financial issues proactively and objectively will be decisive.

Two subjects thus emerge:

- The ability to adapt actuarial models to the risks covered. These technical impacts are generally

absorbed by the models, especially the case of excess mortality taken into account by Solvency II. In parallel, some property uses will be reduced, significantly transforming some underwriting profits, particularly in property and casualty insurance (60% of the P&C insurance market).

- The cover of operating losses resulting from the lockdown and therefore “without claims”. Although the demand is real and strongly relayed, actuarial models would only allow this risk to be considered on “limited and non-systemic⁽³⁾” perimeters. But, the systemic aspect is the defining characteristic of the impact of an epidemic or pandemic. The polemic around the World Bank’s pandemic bonds reflects the extreme complexity of the models to be implemented to cover these risks and questions their affordability. The massive use of AI presents a new avenue but is now confronted with the lack of historical data. However, it’s a big step and one that will require state support, as reminded by Jean-Laurent Granier, CEO of Generali and Vice-President of the FFA, insofar as the €50 billion of estimated losses corresponds to the total equity of French property and casualty insurers.

“Bankers will also have to introduce the risk of lockdown in their credit scoring models, at the risk of seeing their results considerably increase, with repercussions on the cost and the impact on the actual economy.”

Once again, discussions will surely take place with the regulators and insurers due to the inter-dependence of the risks.

Intelligent use of data is critical for refining scoring models considering an industry’s or an individual’s sensitivity to the risk of lockdown. In this analysis, the ability to provide nuance (intelligence) will be vital. The business sector, the ability to work remotely, financial status, etc., are all criteria that need to be cross-referenced in order to qualify this new risk and

⁽¹⁾ Natural disasters: covered in vehicle and home insurance contracts based on a standardised percentage of the damage premium and with specific reinsurance by the state

⁽²⁾ Terrorist attacks: indemnity by the FGTI (guarantee fund for victims of terrorism and other offences), funded by a lump sum on each property insurance policy

⁽³⁾ Hervé Marzal, director of Gras Savoye Risk Consulting – L’Argus de l’Assurance

integrate it into credit risk. Like the analysis models of the KYC file, the application of an artificial intelligence engine is a fundamental accelerator. In this case, it will be necessary to cross-reference:

- Existing client data
- Public data on the global situation by sector and activity type
- Any additional client data

This quantitative analysis will have to be confronted with political reality and then shared with civil society and the state. Using only statistical analyses carries the risk of only financing pharmacies and not a single restaurant.

“For bankers and insurers, data modelling work and the development of AI algorithms will now be the key factors for an efficient relaunch.”

AI also at the service of flows and the fight against fraud and vulnerabilities

Back-offices will deal with document flows to be processed thanks to OCR (image processing) and NLP (word processing) tools that are now robust and versatile. These approaches require less data to train the algorithms, benefiting from the transfer learning technique that has proven itself in recent years (The Economist, Artificial Intelligence, 13th May 2017).

These automatic document processes can be enriched with “learning” fraud detection tools that do not require the implementation of a series of rules. They are based on error detection approaches used for example in spam filtering, completed with explainable meta-algorithms that filter out false positives (European Banking Authority Report on Big Data and Advanced Analytics Jan 2020).

Further, banks that quickly apply algorithms and train them on data from the current crisis will develop a comparative advantage in terms of service, credit risk control and a head start in the discussions about the future.

For insurers, the use of this new data will have to optimize the actuarial models within the context of the creation of products adapted to the new risk mapping with which they are faced.

The two industries will also have to be major players in dealing with the most vulnerable members of our society. AI opens real prospects to anticipate and remedy them.

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THE DAY AFTER

FOOD SAFETY, INVENTING TOMORROW'S AGRICULTURAL MODELS

The COVID-19 crisis has revealed the difficulties that farmers have faced for a long time. In addition to the economic weaknesses linked to health, there are structural weaknesses which have long been ignored.

Published early May, seven large farming organizations called to “[rebuild our food sovereignty](#)”, echoing the “agricultural dependency” requested by the President of the Republic of France in his speech on 12 April, in the midst of the health crisis.

If, for several decades and despite several farming crises, the question of food no longer appeared to be a priority, the COVID-19 crisis has reminded us of the critical role of the supply chains.

COVID-19 crisis has [starkly highlighted the structural weaknesses and dependencies](#) experienced by agricultural sectors and the hundreds of thousands of men and women who devote themselves to our land, and has also **made people aware of the need to defend “their” agriculture⁽¹⁾**.

We believe that the health crisis and the uncertainty that will ensue are **a unique opportunity to redesign the model of the agricultural sectors and the position of farmers.**

The COVID-19 crisis has revealed the difficulties that farmers have faced for a long time. In addition to the economic weaknesses linked to health, there are structural weaknesses which have long been ignored.

Today, farming is facing profound and global changes: ecological, with the fight against climate change and natural hazards; demographic, with a constantly growing global population which implies being able to find more sustainable production methods; and food, with new eating habits and consumer demands, summed up as “eat less and better”.

These new challenges add to our previous difficulties and weaknesses. In recent decades, the agricultural world has been impacted by many crises, such as the one of 2015-2016 which affected all dairy and livestock sectors. In France, the lack of competitiveness of agriculture is often referenced in the face of international competition, marked in particular by demand from the Asian market and competition from companies in northern Europe, as well as the price war led by supermarkets on farming cooperatives and the agri-food industry, which is worsening difficulties in the sector. These changes are embodied, on the one hand, by the low profitability of farms, many of which depend on subsidies; and on the other hand by undersized and under-capitalized farms which prevent the investment needed to implement health standards and, lastly, by unequal sharing of added-value between the links in the chain of value.

This situation links to the profession’s demographic challenges. The many warnings given by farmers did not prevent the disappearance of half of farms in France in a 15-year period. Within the next 10 years, nearly half of farmers will retire. This development is reinforced by agribashing and the sense of abandonment and isolation felt by farmers. There is also a high-level of dependency on foreign labor, with 400,000 seasonal workers from abroad each year harvesting fruit and vegetables.

Lastly, the system itself suffers from a lack of regulation and high complexity at the local, national and European levels. **These different elements put into question the food autonomy of the country and the sustainability of the agricultural system.**

The health crisis has highlighted the system’s structural weaknesses. It has also accelerated the change of paradigm by demonstrating players’ resilience and giving rise to operational responses to today’s and tomorrow’s challenges.

⁽¹⁾ Survey conducted on 14 April, 93% of respondents considered that agricultural independence should be “the main post-Covid political priority”

Some solutions were quickly found. As such, the health crisis appears to have **accelerated supply chain changes** (acceleration of direct sales and short supply circuits), which have helped to use up stocks of French farming production in supermarkets.

Furthermore, while relations between retailers and cooperatives have long been marked by disagreements over prices, during the crisis, retailers have favored using up stocks of French and local production. In the trajectory of the Egalim law, which aims to improve farmers' pay, the health crisis has played a role in accelerating good practice, **with the development of a partnership-based relationship**.

Agribashing has been replaced with "Eat French" to support national farmers in the face of the closure of restaurants and canteens, preventing them from using up their stock. The crisis has therefore accelerated the recognition of a profound and growing expectation, which began a few years ago, for better quality food. **"Eat French" has potential**, as the Minister for Agriculture, Didier Guillaume, emphasised on 13 May 2020, calling for "food and agricultural patriotism". Lastly, in the absence of the 400,000 foreign seasonal workers to harvest fruits and vegetables, over 300,000 French people have volunteered **through the "working hands for your plate" platform to help farmers in the fields**. Although these applications result in only 15,000 contracted missions, the crisis has shown that it is possible to find trained local labor.

Our experience shows that, in supporting the government and public and private decision-makers, we have five growth areas to build a sustainable system on: federate, coordinate, modernize, become sustainable and add value.

Government and its relays could support the development of a competitive local sector and contribute to **federating the most effective players to create champions** in each sector able to expand

internationally and gain market share, in compliance with international free trade agreements. On the other hand, the temptation to achieve food self-sufficiency and to withdraw into oneself would not hold up for long due to compelling export needs in some sectors⁽²⁾.

The farming system could also be **better coordinated** in terms of financing, in order to ensure the future of cooperatives, family businesses and SMEs on the one hand, and to minimize the acquisition of shares in investment funds that are demanding in terms of profitability and also in terms of their investment horizon, on the other.

Tomorrow's farming will be resolutely modernized thanks to funding and wider dissemination of the biggest innovations, notably in terms of **digitalization, automation and robotization which are opening up new fields of transformation**.

The 2020 annual report of the Court of Audit identified over 2020 yet unused data sets, which could become policy tools. Furthermore, Etatab has seized upon this subject with the development of the [CartoBio solution](#), a digital tool to monitor plots of land farmed according to organic practices.

Other use cases illustrate this deep-rooted trend. Rica Granja, a Portuguese food manufacturing firm, has embarked on an [ambitious project](#) based on Artificial Intelligence and machine learning to control and classify eggs depending on their quality: 1.8 million eggs are thus upgraded every year. The agritech sector is currently on the rise, and many start-ups are proposing decision support tools to facilitate the everyday life of farmers and players in the sector. This is the case, for example, of Greenback, the first farmland rating agency.

⁽²⁾ Spirits, cereals, dairy sector

These innovations should also **facilitate a transition towards more sustainable farming** through the massive reduction of the use of chemical products and the implementation of new production techniques to preserve soils and biodiversity. John Deere, manufacturer of farm machinery, presented an “enhanced” tractor at the CES 2020, which would make it possible to use 80% less crop protection products for an equivalent area, thanks to embedded cameras coupled with AI. In parallel, regional agricultural chambers are developing support to implement practices inspired by agronomy.

Lastly, there is also the matter of **nurturing and protecting** workers better in the agricultural sector, starting with the farmer, **the pillar of the system, who can re-examine the meaning of their commitment and find room for maneuver to develop both personally and professionally**: reform of the status of seasonal workers, improve balance in the distribution of value for the benefit of farmers, and product legibility, traceability and transparency.

We are convinced that the COVID-19 crisis can generate **profound reflection in the restructuring of these sectors and the agricultural models to come**; discussions that Capgemini Invent teams would like to fully integrate.

Federate, coordinate, modernize, become sustainable and add value are the five areas in which the transformation of agricultural models will be based. Public and private decision-makers are **the players that will invent tomorrow’s models and make it possible to reinforce food safety** by following this saying by Richelieu, particularly relevant in the current crisis:

“We must not fear everything, but we must prepare for everything”.

Thanks to the co-authors Marion Cagnard, Nour Chamseddine, Nicolas Pellan Armano, Emeric Colliot, Maxime Gouin, and Basile Chevalet.





THE DAY AFTER

MORE THAN MOORE, GREENER MOORE

One of the pleasures of lockdown is that it has allowed some of us to reconnect with the mathematical exercises of secondary year school students.

In the same way as geometry in space, the explanation of exponential functions has been one of these bittersweet memories reminding us that our brain loses agility with age. A famous mathematician (A Barlett) described this deadlock:

“The greatest shortcoming of the human race is our inability to understand the exponential function.”

The form of an exponential function has no equivalent in the visible world. Let’s say that it has the form of a skateboard ramp, or the two ascending curves in the Eiffel Tower. A long slide towards infinity. We are losing our natural bearings. None of the applications of exponential functions in physics can be seen by the naked eye.

The characteristic of an exponential trajectory is to surprise our predictions. It quickly catches up with us, even when we run. To sum up, it outflanks us. That is what Moore’s law is about, and it has been driving the evolution of digital technologies since the mid-1960s.

Moore’s law, metronome of the day before

The semi-conductor sector has followed a step-by-step path of exponential progress since an Intel engineer, Gordon Moore, mentioned it for the [first time in 1965](#). With hindsight, the formulation of this law has stabilized in a simple formula: on average, due to miniaturization, the number of transistors stored in microprocessors doubles every [18 months](#).

Moore’s law is not a law. It does not respond to any sort of natural or irremediable physical force. And there is nothing magical about it. It has been the manifestation of a particularly rich and long-lasting technological deposit, silicon (sand) and its properties to control current. These properties were first put to good use in transistors (invented in 1947), then in integrated circuits grouping together several transistors (1958),

then in more sophisticated chips – microprocessors (1971). In increments, for 70 years, the semi-conductor industry has always been able to put more transistors in chips, or reduce their size, or to improve their layout.

Moore’s law became part of our lives. It changed our consumption habits through the rapid obsolescence of our radios, our TVs, our computers, our telephones, etc. It took nearly 50 years to equip most households with a telephone. Internet and mobile telephones were adopted by the majority of households within less than 15 years. Since 2007, the deployment of smartphones has taken half the time.

Moore’s law makes us dizzy. Can you tell me, for example, in view of its exponential trajectory (doubling every six months), by which factor the storage capacities of microprocessors have multiplied over a decade? More! Sixty-four of course.

Moore’s law has outrun us. In 1996, the American federal authorities built a supercomputer, ASCI Red, to have the fastest machine in the world, at a cost of \$55 million. My son’s game console today has superior capacities to this super machine.

Not only has Moore’s law outrun us, it has also taken away industrial empires. It was the bankruptcy of Kodak in 2012, and the difficulties of musical production or of BlackBerry.

Moore’s law has even worn out our units of measure. The metric system had to be revised in 1991 to reflect the growth of Internet Protocol traffic⁽¹⁾. A new revision will soon have to take place because the prefixes created in 1991 have already been used up.

With Moore’s law, digital technology has become a lifeblood common to all technologies, and Moore’s law is the speed of propagation of this lifeblood. This accelerated growth has strong similarities with previous revolutions of general-purpose technologies. Like electricity or the railways in the past, digital is devouring the world. It is transforming everything it touches to such an extent that we could extend the famous phrase uttered by Marc Andreessen in 2011 to “Digital is eating the world”.

⁽¹⁾ The prefixes indicating quantities stopped at yotta, i.e. 10 to the power of 24. At the 19th conference on weights and measures, they were expanded. We are now in the age of “zettabytes”. Cisco estimates that global IP traffic reached 1.3 zettabytes in 2016.

Moore's law has found new growth relays. Microprocessors can turn off power. This gives them the ability to transmit a binary signal. 0 or 1. The characteristic signal of digital information. This signal has gradually been extended to all forms of information. Its encoding in the form of bytes, which we call digitization, has made it possible to considerably widen the field. Images, sounds, words, locations in space, languages, etc., all this information has found its benchmark. As Intel says:

Moore's law has become the "metronome of the modern world".

From More than Moore to greener Moore

We are convinced that a central question will give structure to the day after. As the accelerator of progress is being pressed like never before, whose foot is on the pedal?

One thing is sure. The semi-conductor industry will continue to be a strategic element of this. But it will not only be because of silicon technologies. For this industry, Moore's "law" is passing. Its deposit will soon be depleted. The companies in this industry (Intel, Samsung, Texas instrument, Toshiba, etc.) have continuously sought to postpone this deadline, which they call "The Wall". In an unprecedented act, the companies even grouped together in the early 1990s to form a federation, the International Technology Roadmap for Semi-Conductors (IRTS), tasked with tracking each one's progress. This federation defines strategic orientations and guides research. For example, it accompanied the birth of 3D transistors. This strategy has paid off⁽²⁾.

The physical limit of silicon chips is now close. A size of two to three nanometres per transistor is considered to be the impassable horizon for the industry. It will be reached in around 2022. Long before then, the industry will face the rising costs of drawings (photolithography) which implies increased miniaturization. After 50 years of good and loyal services, Gordon Moore is therefore getting ready to make way for his replacement. He recognized it nine years ago at a conference. At the time, he admitted that the explanatory power of his law would be eroded in around... 2017. We have therefore gone beyond it.

In 2017, precisely, Intel decided to postpone the transition to 10 nm transistors. This decision undoubtedly spelled the end of Moore's law. In March, in a white paper, the semi-conductor consortium (IRTS) recorded that Moore's law was dead. The title was bold: "[More than Moore.](#)"

What will "More than Moore" be? In the strict field of semi-conductors, the possibilities today are numerous and exploratory.

They massively depend on the progress of Artificial Intelligence. The network effect specific to these technologies is a recent extension of Moore's law in the data economy. When a data platform increases its ability to reproduce the world's information, its explanatory power grows more quickly than the simple effect of the increase of the connected data. The Israeli company, Waze, for example, developed a road navigation and information application thanks to GPS data. This company operates in a very competitive market. It had the great idea of using maps developed by its own users. Navigation takes place in real time and the traffic situation is taken into account. Users can report an accident, roadworks, a hazard, congestion or a speed camera at any time. This type of application is demanding in terms of use. It is of little interest if 10% of drivers use it. But it becomes extremely powerful if more than a majority of the population uses it. The issue is similar today with contact tracing applications, such as StopCovid, which we have developed in France. The size of the network alone allows for exponential growth.

Strategies are also being put in place to redesign chips in the period of AI by optimizing architectures. Nvidia is particularly known for its research on processors specialized in AI. The company's new Ampere A100 GPU architecture, announced in May 2020 is dedicated to machine learning and to HPC markets. It is the largest chip ever made in a 7 nm semi-conductor process. This new-generation chip will make it possible to decentralize computing power (edge computing).

Other solutions are being explored, such as the production of neuromorphic processors (which reproduce the brain's functioning). Last year, Intel announced it had produced a computer with 8 million neurons. Another possible solution is the use of carbon nanotubes to overcome the limits of silicon,

⁽²⁾ See in particular for the 2000s, Michael Kanellos, "Moore's Law to roll for another Decade", CNET

and a recent technological breakthrough allows us to produce such transistors by using the standard equipment of a factory dedicated to traditional chips.

We believe that the ecological dimension must be at the heart of the choices that will be made. An ecological revolution has become necessary. Making an electronic chip needs a considerable quantity of raw materials. The “ecological backpack” of a chip, i.e. the quantity of raw materials required to make it, is 20 kgs, for a chip weighing 0.09 g! Mobile telephones are on average replaced every 18 months. PCs are replaced every three years. On American soil, 3.2 million tonnes of electronic waste is generated each year. A study recently published in the [Nature magazine](#) shows that there are ecological solutions, such as cellulose nanofibres, “*wooden chips*” .

However, no [convincing alternative](#) to silicon seems to be emerging. But alternatives to the digital signal are possible. Quantum computers are central to these strategies. Since last year, there has been a clear acceleration of progress in the matter (some would say “exponential”) by AWS with “Braket”, its Quantum as a Service offer; Google and its 54-qubit Sycamore quantum processor; Microsoft and its Azure Quantum service; or IBM, which is selling the first quantum computer “for everyone”, the Q System 1. These projects not only challenge our ability to imagine what is going on, but let’s admit it, our ability to understand it. In October last year, Google announced it had achieved “quantum supremacy” which, to put it simply, is the moment when quantum power makes it possible to perform operations that are not possible with a conventional computer (not within a reasonable time, at least), and for which, in theory, the number of qubits required must exceed 50. Even if the targeted use case during the Google experience arouses scepticism for generalized use, this display of power leads us to imagine how we can multiply the possibilities of transmitting information within the framework of quantum machine learning processes.

We are at a turning point. And it was precisely at this turning point that the US President made the decision, on 15 May, to cut the chains of global semi-conductor production. This decision may appear trivial, but it isn’t. It consists of subjecting all semi-conductor sales to the Chinese company Huawei to federal authorization, with extra-territorial effect. To access the American market or to incorporate American technologies, companies cannot trade with the Asian leader.

This decision could have the paradoxical effect of marginalizing American companies at a time when they need to adhere more than ever to the technological frontier. It will especially prevent Moore’s law from continuing its trajectory.

So fundamental in the transformation of our everyday lives, yet barely present in our discussions, the debate on the future of semi-conductors is the sign of a period that has lost its grip on the future. On account of running after technological progress that has never ceased to gain speed, a form of technical autonomy has been established. The day after means no longer letting it advance by itself, regardless of its economic, social and environmental challenges, and to take back control of it. A bit like how we’re taking back control of our children’s schoolwork.

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THE DAY AFTER

RETHINKING BUSINESS

Navigating through a crisis means finding the perspective and resources that will make it possible to transform the obstacle into an opportunity

Being a leader requires the use of discernment and outlook. And it demands the ability to question the business model and to assemble without discouragement the strengths available in order to adjust and keep on course in the long-term, regardless of the disturbances that arise. Thus, the COVID-19 crisis is leading us to think positively about companies and the profound meaning of their action in society after the pandemic.

To develop or reinforce their resilient and responsible character, tomorrow's companies must reflect on their rationale more than ever and learn to reform some of their operating modes: rethink their customer relations, governance model, the role and position of employees and create new forms of cooperation with partners and suppliers.

Customer-centric: trust, loyalty, digitalization

One of the lessons of the crisis is that businesses that resist best are those that can adjust rapidly to customer changes.

Managers must **revisit their customer relations by setting up a better-structured system to listen to and anticipate needs, by multiplying multi-channel contacts, to adapt the offers and carry out a customer portfolio review through a more targeted value analysis.** For example, to better anticipate consumer behavior, a major specialist retailer has set up a system to analyze social media thanks to artificial intelligence to adapt its products, services, and communication with customers.

Putting the customer back at the center of operations over the entire chain is a priority. During the crisis, one services company reviewed its call centers by introducing the video channel upstream more systematically, thus improving the conditions of trust and simplifying request order processes downstream.

The thorough renewal of a **more personalized and touchless** customer experience involves an **acceleration of digital technologies** by offering smoother experiences and reducing the customer's effort at digital points of contact. [Recent surveys](#) by Capgemini show that the pandemic has been a catalyst for the adoption of touchless interfaces – 77% of consumers intend to increase their use of these technologies – and that the rate of use of online sales will [increase by 30%](#) by the end of 2020⁽²⁾.

An ability to make quick decisions to adapt the business model

The matter of governance and decision-making is crucial for companies faced with unprecedented situations.

Managers have to adapt their stance and introduce **faster** decision-making processes to **adjust to disruptions, make quick decisions and stay on course.** This requires aligning one's management team in advance to the company's values (fairness, solidarity, trust, etc.) and mission. Deliberations are then focused first on means and impact analysis with a **short-loop decision-making process.**

A retail company has implemented a two-level system of systematic feedback that aims to allow adjustments to be made, if necessary:

- Feedback from the management team regarding choices made via shorter and more targeted processes, on subjects such as employee involvement, sales dynamics, financial impacts, etc.;
- Feedback from the field via "sensors" making it possible to relay the perception and to rapidly assess the performance efficiency of the decision (implementation methods, appropriation).

Management dashboards must also move from a retrospective approach, based on predefined information or historical analyses, to a **resolutely forward-looking approach, based on detecting weaknesses, trends, sensitivity, and [scenario analysis](#).** Work must be carried out on analyzing

⁽¹⁾ Capgemini Research Institute, Consumer Behavior Survey, April 4–8, 2020, N=11,281 consumers

⁽²⁾ <https://www.capgemini.com/fr-fr/etudes/covid-19-experience-client-sans-contact/>

information that may at first glance be irrational, to detect any potential for crises early on. This involves more open questioning on variables that are not usually considered, or converging ideas and hunches, real-time management cockpits. Data must be a facilitator: link and trace existing information, enrich and exploit it using increasingly mature digital technologies.

The manager's decision-making requires not only the use of rational criteria but also **intuition and creative flair** to innovate, adapt the business model at the right time and be increasingly competitive. Anticipate without rushing: **success is being one step ahead**. Lastly, decisions are not made alone. The task of managers is to combine all the company's assets to **stimulate collective intelligence: human capital** must, therefore, be put back at the center of the company.

Position employees in a different role in tomorrow's company

To make the most of this human capital and stimulate **emulation** and **lasting collective intelligence**, a significant development is required in employees' positioning. Employees must no longer consider themselves as passive players in their company, nor be considered **purely as a labor resource**.

Companies must motivate and give their driving forces the means to share and achieve their ideas and innovation opportunities to develop their business.

The first key factor of the success of this participatory innovation approach is to have **support** at the highest level and **managers who are convinced and who lead** this approach.

The second key factor for the success and sustainability of this new operating model is to have a **decision-making process and participatory digital platform** which secure the achievement of the innovations given priority and which communicate the results achieved. This engages employees in the development of their company and moves them towards a **new positioning as a driving force for innovations**.

The COVID-19 crisis has also brought major change to [working methods](#) that we thought were unchangeable. The working methods imposed by the pandemic have forced employees and managers to quickly adjust, to use new tools, new methods of collaboration, socialization, and management to offset the lack of proximity and social relations. In the post-COVID world, it is impossible to return to the old model as if nothing has changed. New paradigms of skilfully balanced work are emerging.

Companies must guarantee their employees a balance between:

- **Face-to-face** situations to re-establish solid social links between colleagues, reinforce the feeling of belonging to a community of interest joined together in adversity.
- ... And **home working**, while ensuring a clear division between personal and professional life.

In order to make this transition successful, companies must, more than before, rally their employees around strong values, those that prevailed before COVID-19 and undoubtedly add others resulting from this new participatory innovation.

The ecosystem

The crisis has also shown multiple vulnerabilities in companies' chain of value (disruptions inflows, extended lead times, or dependence on a supplier). Companies must rely on a new **ecosystem made up of partners and suppliers**. This will make it possible to share the burden of innovation, the success of a product, and the associated risks throughout the value and supply chains.

This new portfolio of partners must be diversified and relocated to make it possible to respond to **new industrial and logistics challenges: flexibility and resilience**. Companies will achieve this new balance between partners by responding to the combined optimization of their cost structure and their degree of resilience.

This includes a systematic analysis of [points of vulnerability](#) and dependence in relation to a single supplier or a single region. For example, we may have to entrust partners in Europe with manufacturing processes that did not appear to be strategic, but which now clearly are by adding resilience to the prism of economic performance, particularly in the event of transport limitations.

The future ecosystem of companies' partners will probably depend on a more local network of SMEs. This reconfiguration will allow these SMEs to become champions or specialists, giving them access to market segments with better margins or higher volumes, thus encouraging their development and their innovation capacities at the local level.

The implementation of this new ecosystem of partners can also be supported by **digital transformation and more agile approaches**, facilitating collaboration between people in the company and its partners, to maneuver quickly. It also involves supporting the development and training of these new partners by sector and by implementing innovative and simplified funding mechanisms.

Companies have a very wide field of opportunities to remodel their customer relations, their governance, to change the way they interact with their employees and their external ecosystem. However, they have to be prepared to discard some old certainties and adopt a stance of humility to anticipate the most exceptional crises by combining transparency and managerial courage.

According to Darwin's theory, the one that survives is not the strongest, but the one that can adapt to change with vision and audacity.

The challenge for managers is how to transform their businesses by redesigning the relationship with their customers at the center of their operations, using agile levers as a catalyst for resilience and sustainability, and seizing the opportunities offered by the advanced analysis of data.

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THE DAY AFTER

MOBILITY

COVID-19 has shaken the world of mobility: the ban on travelling more than a kilometre, the social distancing, challenging the mass transit model, the implementation of tactical urbanism, growth in home working, etc.

While the lockdown has gone hand-in-hand with the sharp decline in mobility, where towns have seen a [50 to 90% reduction](#) in travel, the end of the lockdown period is seeing a very gradual return to mobility. This is unlike anything we have known until now, as illustrated by the capitalization of Zoom, which has surpassed that of the [top seven airlines](#) combined. There are many opportunities, such as citizens' proposals for the climate convention (speed limited to 110 kph on motorways, reduced VAT on trains, home working, zero-interest loans for clean vehicles, the end of domestic flights, etc.). Will the crisis accelerate our move towards sustainable mobility?

Reduced mobility?

With the lockdown, companies all over the world have organized themselves to minimize their employees' journeys to work, to encourage home working as much as possible, to implement team rotation systems, etc. The need for mobility has been drastically reduced. Some companies now want to anchor these new habits in the [long-term, like PSA](#) which intends to make home working the norm. Social distancing on public transport and in workplaces also raises the matter of smoothing peak periods; for example, France Mobilité is campaigning on this to stagger arrivals at work.

Restoring mobility is also marked by the movement to relocate journeys. A study of posts on social media carried out by Bloom over the lockdown period reveals a change in individual aspirations and the desire for a new form of urban life, focused on residents and their personal sphere. Our journeys – private and professional – will become shorter with the development of local third places.

More individual mobility?

Mainly due to social distancing, mass transit lost 70% of its capacity in the initial weeks of the lockdown.

Mass transit is the backbone of public transport in cities. But passengers are now worried about using these forms of transport, which they consider to be dangerous: how to reassure them on the issues of hygiene and overcrowding on trains, buses

and underground lines? In May, the RATP set up a crowdsourcing system making it possible to identify the levels of use on Parisian transport services, taking inspiration from from real-time travel App Waze.

Travel companions offered by MaaS (Mobility as a Service) platforms meet the need for personalized door-to-door mobility by proposing, in real-time, multi-modal journeys that are compatible with social distancing: use of bikes, less busy transport lines.

One of the most common responses to the fear of proximity in public transport is to use one's own vehicle: solo or car-pooling with friends or family. In March, 66% of Chinese people stated an intent to give precedence to driving their car for their daily trips, compared to 34% pre-crisis⁽¹⁾.

However, this solution is going in the opposite direction to that taken by many territories and actors of mobility and the environment just before the COVID-19 crisis: reducing solo car journeys and the use of individual combustion vehicles to help reduce our environmental impact.

More sustainable mobility?

France has made the aid granted to Air France conditional upon the stoppage of flights from Paris to towns that are accessible via TGV high-speed train in under two hours 30 minutes. The French Government thus seized the opportunity to enrol the air sector in the sustainable mobility movement. This ban should be extended to all airlines to avoid replacement by low-cost companies and to secure the switch to the TGV. In the longer term, all European short-haul flights could switch to TGV and the night train, which is coming back into favor, notably under the impetus of Austria.

Renewed interest for individual cars is also an opportunity to promote the electric vehicle. Citroën launched its electric micro-vehicle that does not require a licence in France, the AMI, marketing it at FNAC stores to target young. Investors confirm this scenario: Tesla has just become the leading car manufacturer in terms of market capitalization and promises in particular a revolutionary battery to break the price gap.

The driverless shuttle could also be a good candidate, with an on-demand service that minimizes social interaction.

⁽¹⁾ Source: IPSOS survey, March 2020

This solution is also an opportunity for transporting goods and urban logistics. In a world where travelling and traffic are reduced, lanes reserved for electric vehicles could be introduced, similar to those for car-pooling vehicles.

More active mobility?

In line with this aspiration for individual means of transport, with the end of lockdown we are also seeing that active forms of mobility, and cycling, are on a roll! In May, 58% of company fleet managers anticipated an increase in the use of bicycles for home-to-work journeys⁽²⁾. In May 2020, bicycle traffic in Paris was [greater than 50%](#) compared to the traffic recorded in May 2019. Many local authorities reacted quickly during lockdown to implement tactical urbanism, for example with temporary cycling lanes, which are currently experiencing great success in towns that have implemented them correctly. This success is supported by public financial aid (subsidy to buy an electric bike, allocation of 50 euros to have one's bike serviced or for a cycling school, etc.). The challenge now is to make them last.

More supportive mobility?

With our mobility disrupted, now is the time to rethink it collectively. Several individual, private or public initiatives have been launched, but the matter of the cost of investment needed to change vehicles, infrastructure, habits, etc. comes up time and again.

The transport sector will benefit from record support and a recovery plan: 15 billion euros for the aeronautics sector, 5 billion euros for Renault, 50 million euros for road transport. However, it is unfortunate that these envelopes are mainly for the air and automotive sectors rather than for public transport, as [commented by Thierry Mallet](#), President of the Public Transport Union.

⁽²⁾ Source: *Global fleet & mobility research by nexus communication, May 2020*

It is also necessary to invest in sustainable transport. But for greater efficiency, these investments should be pooled among the stakeholders – private or public – in particular to create joint ownership, just as La Fabrique des Mobilités has achieved.

Every business can contribute to this in two ways with regard to its rationale: encourage employee behavior and contribute its skills in a partnership approach. We are currently experiencing this with the Mon Compte Mobilité project that we are conducting with the support of the French Ministry for the Ecological and Inclusive Transition. This general interest project, inspired by the Compte Personnel de Formation, aims to merge the mobility rights provided to citizens by companies and local authorities on the one hand, and mobility offers to promote sustainable mobility and reduce solo car journeys on the other. It is co-funded by public and private players. This mobility account approach could be extended in a “pay-as-you-go” approach to fund mobility by the least sustainable modes of transport and thus successfully achieve what did not work in the world before (environment tax, urban tolls, etc.).

The challenge is therefore to launch several projects to build common ground on the various aspects of mobility to ensure that the day after can finally shift to sustainable mobility.

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