November 9, 2019

President's forum

"Beyond AI: How Neurosciences and Biology will Change our World and how Leaders Should get Prepared for it."

Good morning and thank you very much for welcoming me today, it is a great honor and a great pleasure to share with you some elements of what our future looks like and how we all have to prepare for it.

Beyond Digital

Before we go into “Beyond AI” I would like to speak to you about “Beyond Digital”.
It might be strange to talk about "beyond digital," while so many companies are struggling to put in place their digital transformation. However, my point is that if any company only is only focused on its digital transformation, whatever important it might be, it may miss some critical new events that will happen in the future.

It's time to realize that:

- Digital, or computerization and adaptation to a world with the Internet, smartphones, GPS, APIs, screen interfaces, etc. is the “new normal”, like electricity. Electricity is everywhere but nobody speaks about it.
- Digital is no longer a factor of sustainable strategic differentiation. If you have not yet started your digital transformation, it is too late.
- Digital is now in an implementation phase, a transformation phase, and not a decisive strategic phase.

And especially it is time to realize that the digital era has dehumanized the human relationship

- The fundamental value of the digital era, since the invention of computers, has been to drastically decrease the transaction cost (for instance you order on Amazon in one minute instead of losing time to go to a shop) and the access costs (for instance accessing information or services). But at the same time, it has increased the intensity of our lives, the productivity of workers, the work pressure. This last one is often even leading to cognitive overload. Indeed, since we can do things faster, we tend to put many more activities within the same time frame and to end up exhausted. The number of burn-out at work has increased within the last few years. Digital intensity is a significant cause.
- But digital has also created a paradox. The reduction of transaction costs has primarily diminished the distances between people. But the result is that in some cases there are no more human contacts at all. For instance, between clients and suppliers, between people at work, even between friends and family members!
- And finally, the Digital era has reduced the autonomy of decision, the autonomy of agents, the usefulness of human contacts. Today in many cases, one has the feeling to serve the computer rather than be helped by it. Machines lead the process in many instances in which the operator has no more freedom and can't "overwrite" anymore.

o Some examples

- An airport check-in kiosk or a digital police officer at border, or an electronic cashier in a supermarket are useful for saving costs, but do they indeed accelerate the process? Do they satisfy the user?
- Virtual meetings are very convenient and cost-saving, but do they also convey humanity, non-verbal signals?

All these elements explain why we have to go Beyond Digital, why digital has become the new normal. Digital is like electricity; we don't even talk about electricity as a factor of progress or change, while in reality, new electricity innovations are changing our world as much as digital. We don't talk about it because it is "normal." Electricity is within all the elements of our lives.

Digital is now in every element of our lives; it is our new normal, let's use it everywhere but let's look at the next issues.

That much for beyond digital. But why do I also say we have to go Beyond AI?

Why "also" beyond AI?

Some would say that AI is an extension of “digital”. Yes in a sense, because it relies on digital tools, on computers. But saying that AI is digital would be the same as saying that digital was electricity because computers use electricity.

AI is fundamentally different from digital in several ways.

First, you were used with computers to see exact results coming out of the computation of exact data. Computers gave us a correct world where additions were accurate; Excel models were precise; APIs were connecting systems and data accurately. We could rely on it, save for a few bugs or a few errors in data entry.

This accuracy and the trust we could have in it is why digital was such a transaction cost reduction factor and, therefore, a labor replacement factor. The accountant did not have to "add" anymore, the physicist could do massive calculations in a few hours instead of a few days. Errors were rare.

But AI is not exact; it is a fantastic approximation machine, a tremendous prediction machine, but not an accurate tool. It can

indicate that a radiography may be showing cancer at 93 %, a picture showing a Siamese cat at 95%. It can translate a text in another language at a relatively low but acceptable level of quality. It can accept your dictation of a short message with a relative acceptability. It can guide an autonomous car in more and more situations, but not all, far from it.

None of AI actions is 100% reliable. And even if you increase the number of data on which it works, the machine learning process it uses, the statistical and probabilistic algorithms it relies on, it will never be exact.

In other words, and this is where its beauty is: AI is a fabulous help to humans for evaluating things, making decisions, thinking, translating…but it is just a help, it does not replace humans.

Applied artificial intelligence is a considerable enrichment, continuous, and looking almost limitless. Indeed, AI is an incredibly powerful tool, but it is only a tool.

AI enriches our capabilities; it will allow considerable progress in health management, climate management, agriculture, marketing, social policies, education, and many other fields.

And even, to take a mundane example, every taxi driver today or any hotel receptionist can speak all the languages of his clients thanks to Google translate. Is this not an enrichment?!

In short, while computerization was a significant cost reducer thanks to transaction costs reduction, AI is a considerable value enhancer.

AI is, therefore, here to stay and to change our world. Like with the digital transformation, we have to understand that it will very soon also be part of our "new normal." It will be a differentiating factor,

but the competitive advantage will come more from how companies use it and why it is used (its purpose).

And let's remember. AI is not "intelligent" at all; calling it this way is a journalist treat but not a scientific one. It has no conscience, no feeling for bad or good, no proudness in beating a world chess master or a world Go champion (it does not even know it has beaten the world champion!). It only has lines of programming done by humans. It relies on vast quantities of data for recognizing a cat where a toddler needs to see one for identifying them all.

AI will change the world of work in many ways; it will enhance the skills of many professions by helping them work or decide faster or better. It will become the companion of many at work in the same way as our smartphone voice recognition system is progressively becoming our companion.

However, and without entering too deeply into the treacherous field of AI perverse effects, it will also help define for each of us a doppelganger (I.e., a digital double). This digital double will allow marketers or authorities to see and track our behaviors better than we can (you don't remember where you were last week today at this hour? Don't worry, ask Google). It will even predict our behavior. Let me give a few examples. Amazon says they know what you are buying next before you do. A bank can predict that an employee is preparing a fraud. A telephone company can predict when a customer wants to switch provider. A company knows when an employee is preparing to leave.

AI, because it is not exact, because it relies on algorithms designed by humans who may be biased, and because it relies on an enormous quantity of data that can itself be biased, will also be prone to significant errors, to substantial biases. For instance, recruitment AI software today are often biased against women; autonomous

vehicles AI is terrible at seeing people of color. Biases will be the new plague of AI.

But, as I said, AI is here to stay and is also becoming a new normal. So, then, why do I say that we have to go beyond AI? Because new forces are also coming that will change our world at least as much as AI.

Beyond AI: Neurosciences

Let’s start with Neurosciences.

Applied neuroscience will be a very different driver of change than AI but, surprisingly, comparable to AI or to digital or electricity as far as the magnitude of their impact is concerned.

Let's first remind everybody of what neuroscience is:

It is, first of all, a science working at a better understanding of how our brain works and namely:

- How it is cheated constantly by its environment, the works of Daniel Kahneman and Richard Thaler, two Nobel prizes, on the decision biases this implies is just flabbergasting.
- how it deals with emotions and changes in our body, we all know that we don't make the same decisions if the physical conditions in which we are do change like to be hungry or tired or in pain.
- how it continually learns and sometimes forgets, we all know how we learn and forget foreign languages
- How it can be modified and changed if we want to. We know that we can learn to ride a bicycle, to play the piano, to speak another language IF we wish to and take the time.

This science is developing very fast, and every week we discover new ways to understand or to change our brains. Also, more and more people are aware of what we can do with our brains and how to understand better it's functioning. It includes technics like meditation, technologies like brain scan or brain wave readers, and an incredible number of brain tests. The field is enormous. The applications of this science will soon be part of our daily life.

Thanks to neurosciences, significant changes are to be expected on several fields:

- Learning: We all know that sitting for hours in a room, often in rooms without windows, with a professor standing and teaching, is not the best way to learn, by far. And every Learning and Development officer knows that most of the learning delivered in those circumstances is not acquired. Neurosciences help us to understand why, to understand how our brain learns, why its attention span is limited, and then, therefore, how we can help it gain new skills, hard and soft. For instance, why and how to use video games or to use collective exercises. In short, our brain learns when you surprise it, generally with fun elements, when it is difficult (but not too much) and when you propose to it a large variety of exercises. Most of today's learning experiences are not fun, not diverse, and not enough complicated. Neurosciences will help us to change that. Learning and Development officers, get ready!

- Capacity for attention:
    - In China already, there are experiments around primary school children, equipped with brainwave monitors, aiming at seeing if they are concentrated or not at any time during the day.
    - Last month, Qantas, experimenting the first-ever 19.5 hours direct flight between New York and Sydney equipped pilots and test passengers with brain wave

readers. They wanted to see if such a long trip could have detrimental effects on their attention or concentration capabilities.
    - Technically this could already be used in corporations if you want to follow the attention level or the burn out risks within your employees.

- Decision making:
  We are full of decision and judgment biases. Thanks to Neuroscience, we can ourselves be more aware of our own decision biases, but others can help us to spot them. Tomorrow you will see people in meetings, while a decision is being made, use words like:
    - "Are we sure we are not falling into the Sunflower bias? (this bias is the one appearing when all follow the boss because he is the boss)
    - Or groupthink bias? (this bias appears when a group builds in itself a sort of echo chamber where all become convinced that an idea is the best, just because they have been arguing about it and working on it for a long time)
    - Or halo bias? (the halo bias suggests that because somebody is a recognized authority in one field, he can be right on another field)
    - Or the survivor bias? (for instance, when somebody has been a successful leader in one company facing a difficult situation, and we infer that he can be a successful leader everywhere).
    - These are just examples; there are hundreds of biases that have been identified and are documented currently.

  No one can identify all of one's own decision biases. However, collectively, we can be much better because we don't have the same biases and because it is easier to see the prejudices of others than one's own biases. The collective dimension of decision making will be drastically improved when all

participants in meetings will be able to confront their readings on decision biases. This is one of the advantages of collective decision thinking. We will still need leaders to take the final decision and endorse the accountability of a decision. However, we can hope that decisions will be much more thought through when the findings of the neuroscience on biases will be better disseminated in the managerial population.

- Leadership style and development:

Obviously, since decision making will be challenged, so will leadership. The authoritarian leader, who knows everything better than anybody else, who is not modest, who is always the father of success and never of failure, will have difficulties to survive in an environment where the consciousness about his or her sources of influence will be more apparent to more and more people.

- NUDGE and influence:

Neurosciences help us to understand how some decisions can be biased, we just saw it. But therefore it can help us also to know how we can bias the choices of others. In gentle terms, this is called nudge; in less kind words, it is called manipulation. The possibility to influence will be used in marketing, in politics, in people management, in communication, and information management.

  - On the right side, a nudge is, for instance, used for helping people to have a healthier life by inducing them to eat better or to exercise more or to slow down their car where children are playing.
  - On the wrong side, a piece of fake news with a cute cat picture is nothing else than the usage of neurosciences' nudge. The fake news title, or the association of an image of a cat with a title, creates an emotion if possible a strong one, this emotion reduces our critical sense and we tend to believe the fake news and to retweet it.

- Physical environment and mobility:
    - Neurosciences help currently considerably to improve the work environment. We know now, scientifically, that spending the whole day sitting in a windowless room, or without fractal shapes, like plants, or in a noisy environment, or with polluted air, harms seriously one's performances.
    - Similarly, it is becoming clear that new behaviors of mobility, like staying at home rather than coming to the office, has negative implications on the social life of employees and their creativity. One of the first measures taken by Melissa Myers when she took over the helm at the ailing Yahoo was to stop teleworking because she wanted to reinfuse creativity in the organization. If people don’t mix, they don’t create.

The most important lesson we have to take out of the early neurosciences works is that:

- Awareness of the cognitive biases by everyone will have to become a regular thought pattern (as psychology was in its time but now more profoundly and scientifically).
- The use of cognitive biases will require high vigilance in the positive (training, nudge) and in the negative (manipulation, evaluation)
- The collective wisdom towards individual and collective cognitive biases and ethical biases can be a means of progress
- And finally that the understanding that this science has the power to modify many of our current habits of management.

Now, let’s take a look at biology.

Beyond AI: Biology

Applied biology is another significant change our society will go through within the next two decades.

First, let's remember that the globally most significant technological disruption in the XXth century was not telephone, nuclear energy, airplanes, or the Internet. It was Biology: without vaccines and antibiotics and cancer treatments, we would not be close to 8 billion on this planet, and a large part of today's audience would just never be born. As an implication, we would not have the huge issues we have with pollution, climate change, or migrations.

What biology will do to us in this century is quite different but will have similar impacts. I am not going to go through all the effects one can foresee when one looks at this science but just through a limited number of significant changes.
In very short, the Biology of the XXth century led mostly to quantitative changes in demography, the biology of the XXIst century will lead mostly to qualitative changes for a lot of living species.

We understand much better the DNA structures of living organisms, from plants to animals and humans.

And we can analyze it better by the day.

And we can modify it in a more and more powerful way by the day, for instance, by removing some genes we don't like and replacing them with others via various techniques, the most famous one being CRISPR Cas 9.

What will this imply? Let’s try a laundry list:

First, on DNA analysis and modification:

- We will have new plants and new animals. The Genetically Modified Organisms (GMOs) of today against which so many people complain will pale compared with what we already can see, and which is just a beginning like:
    - Modified pigs for our food or for organ transplants to humans
    - Modified cows so that their milk is much closer to human milk
    - New genealogy analysis for all living organisms.
- We will have new illness analysis and treatments for humans for many genetic related illnesses
- We will have new treatment with humans as an indirect target: for instance, if we modify the DNA of female mosquitos so that they can't carry the Zika or the Deng fever virus, we could save millions of lives.
- It can go further, and we will be able to select or modify human genomes in embryos to give them enhanced capabilities like resistance to virus or physical strength or blue eyes. Let's not underestimate these evolutions. Trials are forbidden in most parts of the world, but we know some changes will be possible and happen in the future. Already a Chinese scientist has modified babies to make them AIDS resistant. I tested this concept with my students at Sciences Po. They were between 23 and 30. I asked them if they would use some genetic modification techniques for the children they would have in ten years. Half of them were very interested in their babies to become stronger, better looking, more intelligent individuals. The other half first reacted very negatively but then was wondering what would happen IF the first half would modify their children and they would not. Wouldn't their "natural" children be disadvantaged in the labor and the mating market?
- There are even works by the US army to modify some soldier's DNA to make them more resistant to pain or radiation (Fortunately, this is still science fiction)

- Less science fiction but still very experimental, some researchers are working hard to find if some genetic traits out of DNA could explain some behavioral features. They work on things like political orientation, and, why not, tomorrow, some tendencies for procrastination, creativity, or punctuality. AS you can see biology will open the door to many impostors; let's be careful. And let's not believe it is easy to be careful. How many companies in the past used zodiac signs or graphology to screen candidates? These techniques were not scientific but have been largely used.

The second important impact of Genetics is with epigenetics.

Epigenetics is the way some substances do modify some genes, creating mutations, and sometimes creating cancers or other illnesses. These substances can be found in the air, in smokes, in asbestos, in tobacco, in perfumes and cosmetics, in agrochemicals, and many other products. The whole debate on endocrine disruptors is mostly an epigenetics debate.

Today the only proof we have that a substance is creating cancers, for instance, like the Glyphosate, is a statistical one: you find more cancers among people who have been exposed to the material than in the rest of the population. Tomorrow this will change drastically with the progress of genetics. It will be possible to show how a molecule modifies one or several genes and therefore causes dangerous mutations. As you can see, the proof will be very different, not anymore statistical but scientific and specific.
To give you an example of how it works, think of bees. All larvae of bees are the same, but depending on how you feed them, with or without royal jelly, they will develop into a worker bee (1 cm long and living six months) or into a queen (5 cm long and living six years). The food provided to the larvae allows (or not) one gene to be activated and the larvae to develop into a worker or a queen!

The implications for our society will be considerable; let's look at a few:

- Different food will appear.
- Fewer illnesses, more treatments will be possible, personalization of treatments will become extreme.
- Some enhanced humans will be born within the next two decades

But also:

- Multiple new inequalities and injustices will be revealed. Because treatments will not be available to all and because of our disparities in front of life, i.e., our sensibilities to illnesses depending on our DNA will become more transparent, more visible. Just think about how insurance companies will consider your DNA in the future. Or how an employer could select employees on their characteristics, of health or of behavior, that could appear out of their DNA analysis.
- Companies will face many legal issues about their responsibilities because of their products. Lawyers will have a lot of work.
- Many ethical issues will arise as on when to use, or not, new treatments or to create or not, new products.
- Many ecological risks will appear since, when you modify an organism, e.g., a mosquito or an embryo, you don't know precisely what the consequences might be in the long term for the specie or for the adjacent species. If a modification actually provokes unexpected modifications or if a modification jumps species, nobody knows what could happen.
- Further costs will emerge for corporations in all cases where they will choose to cover the charges of some treatments with their insurance policies. Don't laugh; this is a serious issue; already today, some corporations' insurances cover the cost of oocytes congelation, why not tomorrow genetic treatment for individuals or their families?

- We will see the emergence of new national economic players depending on the national regulations and the economic investments. Today China is investing more and takes more ethical risks than other major powers.
- We will also possibly see the emergence of new corporate players, on top of pharmaceutical companies, like Google, for instance, leading already some researches in these fields.

Beyond AI: Social Changes

As you can imagine, these technologies will have profound impacts on our society.

But our society is also already changing drastically currently because of the recent technology changes, in particular, the digital revolution, the smartphone revolution, and the social network revolution. The world of tomorrow and the leaders of tomorrow will have to cope with several changes taking already place in today's world. Let's underline a few that are posing increasing challenges to any leader and for which we have only see the beginning of the sea changes to come.

- First, the relation to information and expertise. The rise of fake news does not only show the way some individuals or parties, try to be using the Internet and the social networks, in particular, to distribute fake information. It underlines a more fundamental phenomenon: we are collectively losing part of our critical sense, we are prone to contest the value of scientific experts, we tend to become more naïve. It is not really new, but thanks to social networks, it takes a new dimension and creates a world where the credibility of any authority has to be continuously regained and where everyone has to be ever more careful in accepting the information he gets.

- Second, the tripadvisorisation. What I mean by this word is the fact that we are all evaluated every day, in every forum, by everybody. We don't have one big brother in front of us but millions of little brothers. The implications are that we become more cautious about what we communicate about ourselves. At the same time, we are more and more transparent thanks to all the data existing on us with or without our consent. This transparency applies to individuals and obviously to companies. It has become challenging to hide anything, and, worse than that, things that may appear without importance today could become politically incorrect in a few years and backfire on us. It will lead to some new behaviors and new issues.
    - Among the behavior will be the rise of *social network shyness* where people will hesitate to communicate and speak about their opinions. Last year at Sciences Po, I asked my students to publish their idea on where the post-digital is leading us, as a final 3000 signs paper, on any public media they would chose like Medium, Slate, LinkedIn, Facebook. Half of the students refused by saying, "I don't know how my opinion of today could be interpreted in 20 years, and I don't want to take the risk".
    - Among the issues, we will see several new information asymmetries appear. Some players will know more than others. Just think of what it means for you if your insurer, Google, or your employer knows more about your health risk than you do?
- Third, the social sensitivity to the physical and social environment (climate as well as pollution) will lead to a "CSR 2.0". Larry Finck, the head of Black Rock Capital, asking its CEOS to be socially responsible or Greta Thunberg asking politicians to be ecologically responsible, are two facets of the same coin. We are in a world where society will ask for the real responsibility of individuals and companies related to their actions for the environment and the climate. In other words, a company does not belong to its shareholders only anymore but

is becoming a social good with social responsibility towards many stakeholders.

- Fourth, we will see the emergence of new human proximities and a new quest for the meaning of life. Many individuals are asking themselves what the meaning of their life is, and in particular of their working life. They want to be closer to nature, to other people, to the physical work of their hands, to their values. Again, this is not new. However, the magnitude of these expectations has led many individuals to ask for more meaning of their work, for different employer's value propositions or even has led some to leave their jobs at large companies to start more meaningful lives. All companies are confronted with this.

As a result of these new social trends, corporations will have to be politically correct, ethically correct, social network correct, and ecologically correct. A major program!

Which impact on leadership?

What should leaders consider for reacting and adapting to all these technological and social forces? Nobody has a complete answer, but some tracks can be identified. Let me outline three.

1 -The first implication is strategic. Include these technological and social changes in corporate strategy, not only in communication and not only in operations[1]

Use any of the new technologies to see how they can enhance the value delivered to any stakeholder, rather than see how they can reduce costs. As I said, these changes are profoundly different in nature from what happened in the last 60 years with the arrival of

[1] On these notions see the excellent report by MIT and BCG: Winning with AI, October 15th, 2019

computers and digital innovations. These years saw incredible possibilities to reduce costs and to increase shareholder values. But now two things are happening.

- First, the increase in shareholder value is not the only priority for corporations; they have to serve better also other stakeholders, from consumers to employees to the society around them.
- Second and most important for our purpose, the new forces may allow reducing costs, but they mostly allow to increase the value provided.

In other words, they challenge leadership's strategy thinking at several levels:

- Looking at business models or operations improvements or cost reductions is certainly not enough in this new world. On the contrary, revisiting or even reinventing the business model, and the corporate strategy is a must. These forces should be used to create a competitive advantage.
  Some start-ups do it; all companies should revisit their business models. Another way to say this, especially when the offers from providers using these technologies, and AI, in particular, become so large is: "Let's take as a priority the problems you are trying to solve and, only then, see how you can use some tools to solve them." Do not just use tools because they are new and modern.

  I am often scared by how companies adopt AI tools just because it looks beautiful and contemporary, especially in the HR or marketing fields.
  In many cases not only are these tools not useful, but they may even be detrimental. For instance, an AI-based recruitment system is often so biased that it is counterproductive.
  Or a chatbot based marketing tool may also provide a very wrong and dehumanized user interface while users are, in reality, wanting more human contact.

- How to revisit communication is another strategic point for leaders because one should not communicate on the technologies it uses but on the additional benefits it brings. Many statements sound bullshitty when they say things like: "For your benefit, we are now using an AI interface tool, and from now on, you will not be able to contact us otherwise, our AI assistant will handle all your calls."
- Leaders will have to invest in their own talents, the core strategic resource, and not rely too much on outsourcing. Outsourcing is great when you reduce costs, not necessarily when you want to increase the value provided, and particularly if this increase in value is a strategic asset.

2 – The second implication for leadership is organizational. Understand that if our organizations are also impacted, they are simultaneously potentially a crucial factor of success if you can change it accordingly

First, your organization is Impacted

All parts of organizations are challenged when strong forces shift the business model, the strategy, or the social model. Structures may not be adequate anymore; systems may become dysfunctional in a new environment; culture elements may become counterproductive.

As an example, trust in the manager's skills is currently declining! As was shown by a recent study by Oracle and Future Workplace, 64 % of employees would trust a robot more than their manager!

However, at the same time, employees believe that their bosses understand better their feelings and are more able to coach them than robots.

It underlines the way individuals want new systems, maybe new structures, and indeed a new relationship to authority and

management with managers who may have to be less technical and more human.

Second, your organization is also a factor of success and differentiation at least on two fronts

- For attracting the best talents. Talent attraction is already a major issue for all ambitious companies. We see it in particular with AI, where the fight for finding good data workers is very tough. The same will happen for the other technologies. Attracting them will require more than money or titles. You may have to think like Roche, the pharmaceutical company, who, in Silicon Valley, looks for data talents with a big billboard on highway 101 saying, "Join the effort to help kill cancer"! This is a social message expected by the generation having the talent.
- Also, your organization is your best tool for providing the new value you have decided to offer to clients and society. Your organization has to be adequate.

Easy to say, but What does it mean to change the organization? We cannot cover the whole spectrum of organization change management here but let me give you a few concrete examples of what it may mean today.

First example on corporate Structures and systems (these elements that are the backbone of an organization, like its silos structure, its computer infrastructure)

If you want to use the new tools for value creation, who should be in charge of it? For example, would you give AI to IT? It would mean giving a value generator opportunity to a cost reduction artist. In many cases, it will not be the right choice.
CIOs are great at outsourcing, improving processes, **reducing costs**, and less at finding opportunities for **new value creation**.

If you have a CDO, Chief Digital Officer, it might be already a better choice even if, in many cases, the CDO was mostly marketing oriented for providing old values in new bottles.
Maybe you will need to create an CAIO Chief Artificial Intelligence Officer or a Chief Neurosciences Officer.

Second example on Culture

Leaders have to become "translators" of technologies; today AI, tomorrow all the others, as well as of social movements. They have to instill a way of thinking oriented towards finding new opportunities for value. This notion of "translation" is crucially important. Since new forces, technological or social, will only be new sources of value if the organization's people understand what they mean, how they will be used, why they can become a competitive advantage, why they require to change habits, systems, values. The role of the "leader-translator" is just central.

In short, on organization, the work organization of tomorrow is neither a baby-foot and infantilization based organization, nor a Prussian army model of authority-based organization, but it will have to be simultaneously:

- People-oriented because people are the strategic differentiating factor
- Client-oriented because they justify the existence of any company
- Result-oriented (but not in the simple sense of TRS, but in the one of CSR 2,0) because the new results are the raison d'être of a company in the XXIst century.

Companies that will have hacked their organization rigidities will be attractive again.

They will have however to solve a paradox, almost schizophrenic because they will at the same time:

- Have to treat employees as autonomous dynamic and creative entities
- AND to use ever more control and performance measuring tools being increasingly at their disposal.

3 – The third implication for leadership is about creating the "CSR 2.0" ethical organization

The old CSR, which was mostly a compliance game with a few rules and a communication game with the annual report, is not sufficient anymore. Employees want more responsibility from the firm they work for. They want consistency between the stated mission and the real activity to be stronger. Stakeholders, local authorities, or NGOs in particular, want companies to be genuine contributors to society and the environment.

Furthermore, the expectations for ethics are increasing very fast among all stakeholders.

This all means a new CSR has to emerge.

This new CSR will include in particular:

- An ethical dimension on how the company considers the use of technology, from the data management it contains to the usages made out of it. It may have the form of an ethics committee but not necessarily.
- An ecological dimension on how the company is playing a role on climate change as well as on pollution issues and even, more and more, as on species diversity.
- A justice dimanes.How a company handles the new inequalities and the new injustices that may come out of these new technologies, in particular:
    - how it avoids creating discriminations of any sort
    - but also how one handles the increasing social inequalities emerging out of the new economic distinctions on the

labor market. The one between skills, mostly hard skills that are in high demand and look overpaid vs. others. How should the wages evolve? And in particular how to value more the soft human skills and many manual skills that are currently undervalued socially.

- It is all the more difficult because the new technologies and social evolution are letting emerge new inequalities or injustices, as for examples:
    - Information asymmetry is becoming "normal."
    - IA and its biases, in particular its databases biases, will be omnipresent
    - Neurosciences will de facto outline "natural" differences in our brains that could become differentiating factors
    - And biology is by nature a reservoir of injustices since we are not equal in front of our biological differences

Besides, the new CSR will even go a bit further and require applying what is now called "the **ethics by design"** concept for the products and the processes. It includes in particular:

- Conceiving products and operations right from the start with an ethical dimension (possibly with an ethicist onboard)
- Being careful not to give AI the role of an expert over the man

As a reminder here on a few practical ethical issues:

- It is not because an AI gives a recommendation that it has to be followed. A bank advisor can provide a credit for a customer event if the AI advises to the contrary. A judge has to remain humanly independent of any AI-assisted justice. A surgeon has to keep the last decision on his acts, not the AI assistant.
- It is not because Neurosciences allows to influence that it has to be used to manipulate
- It is not because biology allows many new possibilities that they should all be pursued.
- Sometimes the leader's role will be to say NO.

And, as a conclusion to this ethic dimension, may I recommend to read or to re-read Hannah Arendt, one of the most influential philosophers of the XXth century. She invented the concept of "ordinary evil," i.e., the fact that we can all, because we follow the system without thinking, become "evil."
The leader of today has to develop his capabilities to think further than just following the classic path of more growth for more profits.

Conclusion and final words

I will stop here, reminding you that I am only trying to help all of us to have a more unobstructed view of what the future reserves for us, all of us.

The future is uncertain; everybody says so, and it is true, but it is only partially true.

Some events may be brutal and largely unpredictable, either because of their timing or their magnitude, like a financial crisis. But many trends are not unpredictable, and most of what I described today will happen in a way or another, tomorrow or after tomorrow, quickly or slowly, but it will happen.
It was possible to forecast the future impact of vaccines, of automobiles, of electricity, of nuclear energy, even if it was only roughly.

It is possible to predict the future of AI, of Neurosciences, of Biology and social evolutions, as well as of climate change, even if only roughly.

I will be glad to take questions before we enter into the round table time.

Thank you very much.