

identifying
and
changing
paradigms
before it's
too late

the **7** errors
in the game
of sustain-
ability

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The transmedia project involving this booklet is inspired by the game theory, which, according to The Concise Encyclopedia of Economics, is the science of strategy itself. "It attempts to determine mathematically and logically the actions that 'players' should take to secure the best outcomes for themselves... The games all share the common feature of interdependence. That is, the outcome for each participant depends on the choices of all." In my opinion, if we want to boost the odds for success, our quest for sustainability should be seen as a game.

Walter Longo
São Paulo, Brazil - November 2011

The year is 2019 and the three **3**

Moirai are watching TV. The ten years time that the UN Conference on Climate Change in Copenhagen established as our deadline to reverse the tendency of global warming – or at least to keep the increase of the planet’s average temperature below 2°C – has passed.

Leading scientists in that field announce, “Governments, companies and consumers failed equally in playing their parts and now it might be too late. But we will keep on trying”.

The three deities responsible for Man’s fate have distinct reactions. Clotho, who spins the thread of life, and Lachesis, who weaves and wraps them one by one, are paralyzed. But Atropos sharpens her scissors. She anticipates that she will need to cut them all and must fulfill her role. It is a matter of time.

When it comes to survival, there is no better narrative resource than these three characters from the Greek mythology – the three weavers of Fate. So much that imagining the responses described above is enough for the reader to ask himself or herself the following questions:

1. Do you think that, by 2019, we will really have failed to reverse the tendency of global warming?

2. Is that due to the fact that the climate change is not perceived as something really serious?

3. Is the problem in the infeasibility of the socioeconomic changes proposed as solutions?

If you have answered “yes” to the three questions, I invite you to read this booklet, which, in respect of the urgency of the theme, was printed with the purpose of anticipating a transmedia project I am currently working on.

4 Many organizations and people have been making huge efforts to be more and more sustainable: they recycle their waste, they save water and electricity, they prioritize the acquisition of “green” inputs and they invest in initiatives to promote biodiversity. They try and strive, but they don’t get anywhere.

Don’t you sense the same powerlessness within your company? If you are honest, your answer will be affirmative, just like mine is. As much as our intentions are the best possible, most of our efforts have been innocuous, as if everything we do became greenwash in face of the real dimension of the problem.

My thesis is that we are making seven major mistakes in our quest for sustainability. I will share them with you in the following pages and I daresay that, if we do not change our approach to the issue, the Moira Atropos might really sharpen her scissors and turning the metaphorical death of the planet into a reality some decades from now.

error #1 **5**

TO SAY THAT THE SOLUTION TO THE GLOBAL WARMING DEPENDS ON REEDUCATING PEOPLE AND COMPANIES, SO THAT THEY CAN LIMIT THEIR ENVIRONMENTAL IMPACT.

The reasoning behind this is that people must consume less and companies must produce less, thus reducing their carbon footprint, the so-called water footprint and so on. If we can teach them to do that, then we will solve the whole problem we got ourselves into.

First of all, if we want to be honest, no quick solution will come out of acquiring new and ever so radical habits by seven billion people, which is the Earth's population, especially when they belong to very diverse social, economic and cultural contexts. The fact that the new habits imply a decrease in their standard of living

and their income only increases the odds for failure in implementing this change.

While it is unlikely that, for instance, all people reduce their time in the shower, one of the few moments of relaxation in their tiring day, it is virtually impossible to expect that an electricity company asks the population to save energy. It would be like seeing Apple recommending that people should not buy iPhone. Do you really believe in the feasibility of such transformation among the companies?

6 The only way to solve the environmental problem that we face is through innovation, whether technological or behavioral one. I pay attention, for instance, to the futurist Ray Kurzweil, founder of Singularity University, one of the most important “future factories” today, located in the Silicon Valley, California. He believes that the prices of the technology capabilities will fall so much, and so fast, that by halfway through this century all the environmental threats might be addressed with the help of these means, from the energy-related issues to the food ones, from the ones that involve biodiversity to water. If we count today both the polluted and the salt water, there is a surplus of water for us to take long showers; therefore, in case the technologies for depolluting and desalinating water become extremely accessible, this puzzle is solved.

Now consider a scenario where Kurzweil is wrong. Well, there’s a lot of action in other future factories that build the future. Take, for instance, the Rocky Mountain Institute (RMI), located in the heart of the Rocky Mountains of Colorado. Its huge solar panels grant it an enviable monthly energy bill – only 5 American dollars!

RMI’s leader, physicist Amory Lovins, foresees the replacing of the business of selling goods with the service flow concept – that is, instead of selling light bulbs, the companies will sell lighting, which would create a natural capitalism with minimal waste. Manufactured products would follow the same logic; Lovins invented Hy-

percar, a fuel-hybrid vehicle, made with carbon fiber, that is lighter and more resistant than steel, inexpensive and easy to be made.

And what to say about the internet, that has already been immensely and imperceptibly reducing the impacts of Man in nature? Do you remember, for instance, when a person had to go to several dealerships before choosing which car he or she would buy? Can you imagine how much carbon such consumer used to emit? Now, all this pre-research is made in the home computer, simply by pressing keys.

I won't miss the chance to instigate: for you, is the internet mostly a technological or a behavioral innovation? I choose the second option. If we really think about it, the so much boasted digital revolution consists, above all, of a human revolution made possible through digital tools. I change my process of choosing my next car, my next apartment or even a book. That proves the power of the behavioral innovation, something that has nothing to do with new, restrictive and archaic habits of production and consumption, but with doing differently what everybody does the same way.

A trivial example of behavioral innovation can be found in a group of people who have lunch at an alternative time. Or in a restaurateur who reduces the prices on his menu at alternative times, provided it is his initiative. In São Paulo, it is already legendary the difficulty to get a table in a restaurant from midday to 3 pm; even more common is seeing the place completely empty between the lunch rush and the beginning of dinner time. In other words, we have a big, expensive structure that places us all in a line during six hours of the day and that rests idle, gathering dust, in the remaining 18 hours. So here comes the question and it won't go away so soon: wouldn't a demand or an offer that takes advantage of such idle capacity be amazingly disruptive?

These types of innovation, either technological or behavioral, haven't even begun yet.

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error #2

TO SUMMON UP THE PLANET'S INHABITANTS TO DECENTRALIZE AND REORGANIZE IN SMALLER CITIES, WITH THE ARGUMENT THAT THE MEGALOPOLIS IS THE BIGGEST VILLAIN WHEN IT COMES TO CLIMATE ISSUES.

Whoever watches the news and hear the statements by the political and environmental leaders has no doubt: big cities are the bad guys in this climate western movie, among other reasons, because most part of the carbon emissions which cause the greenhouse effect comes from their typically chaotic traffic. The perception of guilt is signalized by the government's incentive, yet still discreet, to redistribute the population in smaller cities and also because the "dream of a country house" is again appealing, as shown in a study by Gislene Silva based on the means of communication.

What if I say that we should do exactly the opposite, concentrating even more of the planet's inhabitants in megacities? That

today's big cities are dysfunctional is unquestionable. That they contribute to the poor health and life quality of their inhabitants, too. Contrary to the common sense, however, such qualities are not intrinsic to big cities. Almost every argument contrary to the urban areas with high population densities is true in our everyday reality, but it is questionable in its essence.

Although the idea is controversial, I do not address it without solid grounds. The big cities were considered responsible for the environmental problems mostly, and maybe unconsciously, because of a discovery made by the Swiss scientist Max Kleiber in the early 20th Century. He mathematically proved that the bigger a living organism, the slower its metabolism. Thus, a dolphin is faster than a whale, and an elephant moves much slower than a flea - an idea that is so popularized that has been applied, metaphorically, to "honorary" living organisms, like cities and companies.

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Who does not take it for granted that a start-up (flea) is much more agile than a corporation (elephant)? So, the same way, a slow metabolism makes up for the perfect explanation for the slow-moving traffic seen in living, superorganisms like São Paulo, Rio de Janeiro, London or New York.

The thing is the explanation is perfect, but insufficient. The red alert to the argument comes from the biologist Geoffrey West, who already presided the Santa Fe Institute, one of the most important think tanks in the US, next to the Rocky Mountain Institute and Singularity University, and also CalTech, MIT MediaLab, Long Now Foundation and Institute for the Future. In West's investigation, Kleiber's logic was confronted by a small but relevant detail: the bigger the city, the more innovative it is. West even measured the innovation in products and services and concluded that a city with 5 million inhabitants is, in average, three times more creative than a city with 100,000 people.

This phenomenon pointed by West has received the attention of many scholars, like Parag Khanna, who was recently in Brazil, and the biologist Stuart Kauffman, who has developed the very interesting Adjacent Possible Theory. In the parallel with the human brain that he drew, we might understand it better: if our neurons (the approximate 100 billions that we have) did not connect with others around it in synapses (and these with others, successively), they would be useless. It is the network of neural connections, estimated in 100 trillions, that generates thought. The adjacent possible is, in layman's terms, what a neuron borrows from the neuron next to it when they connect. The bigger the adjacent possible, the more sophisticated the thought.

In a large city, the possibility of connections is evidently bigger. How many connections do you make in a crowded metropolitan train coming home from work? What about in an airport hall? 10 The connection does not depend on talking to other people; it is enough to hear their conversation, see different images, all this triggers the synapses. Crowded places can be uncomfortable, but they are deeply stimulating for the human brain. And if the city has a diversity of cultures, races, creeds and habits, even more innovative triggers it will pull within our minds.

One of the competitive disadvantages of the Muslim nations and even of some European countries is exactly their homogenous culture, which reduces the adjacent possible. Countries like the United States and Brazil, on the other hand, which are extremely heterogeneous, have an amplified adjacent possible – sometimes we seem to forget that the Brazilian society is highly innovative, for example in the organization of good old Carnival; what happens is that our creativity and boldness are punished by an institutional Gordian knot which goes from religion to tax laws.

The big cities have a collection of accumulated information that expands the human thinking and increases the probability of

innovation. This has a name: extelligence. Each and every one of us has intelligence, but one can say that chimpanzees and dolphins also have it to a certain extent. What really sets us apart from the animals is the extelligence, the set of accumulated information.

There was a time when extelligence was concentrated in the clergy, as one can read in Umberto Eco's *The Name of the Rose*; the rest of the population just worked, ate and slept. Such extelligence was extended to the nobles some 300 years ago; 100 years ago, it was accessible to rich people in general, whether people holding titles of nobility or the bourgeois. Thirty years ago, it was available to everyone living in large urban centers and, around five years ago, with the internet, it greatly amplified - today, anyone in the world can boost up his or her intelligence with the extelligence contained in the Library of Congress in Washington.

Internet, particularly, with its social networks, also generates the adjacent possible, but it is far from reproducing, or even substituting, the ability to stimulate synapses that exists in a megalopolis. The so needed innovations to solve the climate challenge still depend on the great urban concentrations. Population decentralization, on the other hand, tends to have more natural areas suffering the impact of Man. I invite you to ponder: does it make any sense? Wouldn't it be better to preserve beaches, forests, rivers and their resources making them holiday destinations rather than permanent homes?

Let's not forget, however, that a big city has a big impact on the environment. And we know that no vehicle rotation restriction program really addresses the problem. Therefore I say, what we need is a rotation of lives instead of cars. Let's go back to the word "innovation". Do you remember the restaurant's cheaper menu in unusual opening hours that I talked about?

TO ASSUME THAT THE CURRENT BUILDINGS SHOULD BE BLAMED AND THAT WE ARE IN NEED OF NEW AND MORE ENVIRONMENTALLY FRIENDLY STRUCTURES.

In order to alleviate the stressing daily life in big cities and reduce their environmental impact, governments usually propose more public transportation - on biofuels -, institute the vehicle rotation program and educational fines to their users, as well as build more avenues and bridges with environmentally correct materials. Such measures have had no beneficial effect. London and New York both have some of the best public transport systems in the world and they issue fines, but the traffic is still maddening in those cities.

What's aggravating is that such vision transforms the traffic in a class struggle - the socioeconomic elites, who own most

of the cars, are pointed out as the main culprits, while all classes, from rich to poor, equally suffer with the traffic, for the loss of productivity, the increase of violence due to stress and the opportunities the traffic jams offer to criminals and the health threat, since traffic hinders, for instance, the immediate medical assistance in case of emergencies.

The traffic constitutes the circulatory system of the living superorganism which is the megalopolis. And when the circulatory system has a problem, the whole body is submitted to efficiency reductions or collapses. We need to see the traffic as a manifestation of a disease that affects all the organs of this living being, compromising its functions, and then cure these organs.

But the cure of the sick organs does not involve amplifying the road and public transportation infrastructure of the cities; such idea sounds even more absurd. If the infrastructure is insufficient for the current needs, it tends to be more than enough for our needs 20 years from now. Why? That's simple. The installed capacity is totally consumed from four to six hours a day and rests idle in the 18 to 20 remaining hours. There is a complete waste of the infrastructure, because the habits and hours of all the inhabitants are strictly the same. Suffice it to say that 10 million people in São Paulo go out to work or study at the same hour and direction, and then go back home together. Between those, it's eight hours of almost empty buses and subway cars.

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Here is my mea culpa. Reviewing my appointments for the week, I see that I have called a dozen meetings and that at least seven of them could have been done without people traveling, but at a distance through video conference, Skype, Viber, or even a simple, archaic phone call.

What made me face huge traffic jams that result in a big waste of time? I have identified three sets of reasons why we have this unsound inclination to move our body to other places:

1. The lack of inexpensive, reliable digital infrastructure on the two ends of the dialogue. The good news is the technology for that is already available, it is just not properly implemented in the workplaces.

2. The inexperience with meetings at a distance, which calls for a new attitude. It is a matter of culture and posture, whether presenting or behaving while video conferencing.

3. The difficulty of Man in breaking paradigms. We all think about what it is, not about what it could be, because repeating behavior gives us safety and mental comfort.

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How can we overcome such limiting conditions that make us generate more and more traffic, terribly hampering our life and increasing our carbon footprint? With innovation. And, in this case, the most important innovation must come from the governments, who need to go back to governing and really take out the job of guiding society. In São Paulo, the City Hall has been able to change many behaviors with laws, since it prohibited outdoor billboards in order to reduce visual pollution, banned smoking in closed public areas and made the use of seat belts mandatory. Isn't that true? This has even disavowed the popular saying; laws are taken seriously in Brazil, as long as they make sense.

A good part of the governmental innovations necessary to reinvent the traffic in the megalopolis should not even require legal prohibitions; mere economic incentives might be enough. We must remember, for instance, that a video conference equipment is surcharged as a luxury product, when it could be exempt from taxes. A reduced tax on online purchases should also contribute to the reduction of traffic, as well as a less expensive property tax for people who live less than 3 kilometers (2 miles) away from work.

The list of possibilities is endless; try making your own. Mine include toll discounts after midnight, cheaper airport fares for red-

eye flights, schools creating alternative vacation months, which would also lead to a better use of the tourism potential, breaking the logic of the high seasons of January, February and July.

All this is innovation; all this increases sustainability. Does it entail complex planning? Yes – just think about coordinating the vacations of parents and children. But it is feasible, mainly because of the technologies we have available today. In this new context, remote working will be more and more important. Not that the on-site working should be totally abolished; it is crucial to create bonds; but, if the presence in the office was considered complementary, this would greatly facilitate all these changes.

People say that technology and sustainability are incompatible, that they exclude each other. This is a fallacy, and a very dangerous one, because instead of bringing the solution nearer, it further pushes it away. The truth is the exact opposite: it is precisely technology that has the best chances to make the planet sustainable.

error #4

TO ARGUE THAT WE MUST REDUCE PRODUCTION AND CONSUMPTION, THAT IS, ESTABLISH A LOWER PERFORMANCE BASELINE FOR ECONOMY AND BUSINESS.

Now the lower middle class can travel by airplane. But they are making them do it with a heavy conscience, because planes pollute the planet. An unconscious order determines that they should restrict their travels and not consume. I don't know about you, but I think it's senseless and cruel to say that "the party is over" for the guests who have just arrived. In a global perspective, many are the newcomers to the party - think about the emerging countries of the new acronym BRICS, that is, Brazil, Russia, India, China and South Africa.

The real ecological quest can not and should not include avoiding consumption - and, consequently, reducing production -, but

to encourage a new way of consuming, in a more intelligent and accountable way, one that takes into consideration the results of this action. To restrict people's access to consumption and comfort in the name of sustainability is a historical injustice. And a total nonsense. We already have the technology that induces a more responsible consumption, which is, for instance, in the refrigerators that consume less energy and the electric cars.

By the way, did you see what the private enterprise is doing in Paris? They have made electric cars available in strategic points, ones that can be rented for a limited period of time and then left at a predefined location. It is the union of technological innovation with behavioral innovation: they cost cheaper than a taxi cab fare or than having your own car, but are more comfortable than the public transport; and they pollute less. The solution is not the Parisian stop moving, but moving in a more intelligent way.

It is an indisputable fact that companies depend on permanent business growth to maintain themselves and generate jobs. Economies in general depend on consumption, so much that when there is a recession, the governments tend to create mechanisms to encourage consumption.

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The approach to consumption requires more intelligence, responsibility and consistency. For instance, today governments usually encourage consumption during a recession and restrict it when the economy accelerates, but, even if it makes sense in the economic vision, it is schizophrenic in a behavioral perspective. We need to receive unique and coherent orientations signaling in one and single direction, leading us to an intelligent consumerism.

In short, the world should start having an ecological conscience through evolution, not restriction. Through improving life quality and comfort, not by continuously losing all of that. This is the only way such a change can be accomplished.

TO BELIEVE THAT ALL THE POSSIBLE INNOVATIONS TO REVERSE THE CLIMATE PROBLEM HAVE ALREADY BEEN DEVELOPED.

Under the prevailing logic, even if we implement in large scale all the possible innovations, not even so the environmental problems that we face will be solved. Do you agree with that vision? I don't.

The pro-sustainability innovation hasn't even started yet, not the technological nor the behavioral one. Remember what I wrote about a more intelligent use of the existing infrastructure, which can be stimulated with tax incentives that can lead to what I have dubbed "a rotation of lives here".

Imagine the effect of operating different businesses in different, alternative hours, under the influence of tax incentives: bank agencies that would open only in the afternoon or at night, stores

that would not open before 11 am, offices working in three shifts, just like factories, restaurants serving food in alternative times and so on.

In all these cases, it would be fundamental to revise the labor laws, to abolish the extra payment for the night shift and other strict rules that guide the employer-employee relation today. It is about time to stop seeing this as an exploration of labor by the capital and understand it as sustainability politics. It is something feasible though, if our rulers wish to do it.

As to technological innovations, we haven't gotten even close to developing all the possible solutions. Did you know that computers "evolve" and solve problems by themselves? Evolutionary computing produce, for instance, highly functional designs that human beings couldn't even have dreamed of. A Robotics team at Cornell University in the US applied this evolutionary technique to a project of robots with new movement capabilities, for instance, and the result was a triangular body with nine paws, six of them always touching the ground, allowing optimized movements on rugged terrain, since the robot reorganizes itself automatically when it's about to fall.

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Another technology that sounds crazy for the common sense is in the computing models that identify "emergent phenomena" - these are the properties or processes of a system that cannot be reduced to the properties or processes of its consisting parts. If the scientists themselves are not sure of the reasons why these phenomena happen, how can we say that understanding and ultimately managing it will not contribute with the climate challenge?

These technologies are not futuristic utopia; they are already been applied to electronics, biology, psychology, chemistry and so on. I'm positive: the confluence of genetics, nanotechnology and robotics, or the GNR revolution as Singularity University's Ray Kurzweil call it, will change the world far beyond our imagination.

TO SUPPOSE THAT STOP WASTING AND START RECYCLING EVERYTHING IN LARGE SCALE WILL BE ENOUGH TO SORT OUT THE WHOLE PROBLEM.

Allow me to almost commit a sin here, or at least to utter a blasphemy, but replacing plastic bags in the supermarket for green bags or printing on recycled paper are something close to a joke. Not only for the lack of rigor in the concept of sustainability involved in these two cases, where the production of the sustainable option embeds, in general, processes with elements that are much less sustainable. Also because it hardly scratches the climate challenge, which has gigantic dimensions - nor it would if adopted in the whole world.

Concepts like waste and recycling are poorly defined by our society and are absolutely peripheral in their present understand-

ing. Wasting, in my opinion, is killing dozens of innovators every day, because they don't have access to education and information nor the chance to show their work. Fortunately, this problem has been alleviated by the internet and by the megacities. The proof is an 11-year old girl called Tavi Gevinson, with a great talent for fashion design, who became worldwide famous in 2008 via her blog. On the other hand, the great recycling to be done is not of garbage – which mitigates the problem, but does not solve it –, but of ideas. Yes, being sustainable is to recycle ideas. Do you want a great example? Let's take Santa Rita High School, in the US, to remain in the sphere of education. To guarantee the quality of its teaching, it recycled an idea: the students do their homework together, at school, and have classes at a distance, alone at home. The total opposite of today's logic. The school realized that it is when they discuss the homework with each other that they really learn. The same can be said about the method of charging by the doctors. We in the western world could recycle our ideas on the matter with the Chinese and start charging patients when they are healthy, not when they get sick, since the mission of the physicians is to promote health.

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I congratulate the people who avoid wasting and go out of their way to recycle, and I don't deny that the efforts everyone has made to reeducate himself or herself are commendable; I just think that we can be much more effective if focused on what can really solve the problem. I insist and repeat: the focus should be on innovation.

TO TRUST THE PRESENT DIAGNOSIS (BEYOND A REASONABLE DOUBT) TO BE ACCURATE AND THAT ALL THE DRIVERS AND VILLAINS OF SUSTAINABILITY ARE CORRECTLY IDENTIFIED.

I am sure that the present diagnosis is wrong and that the biggest villain has walked around undetected: it is the present mental model, the paradigm.

We keep on saying that a subway system with more lines in the big cities would be the solution to all problems, but it just re-distributes the traffic jams - since people need to go from the station to their work or home. We keep on saying that it is better to end with the big, ineffective cities, when they are the source of innovation par excellence, and innovation is our best bet to make the planet survive. We insist, the more "conscious" among us, on

taking quick showers and recycling waste, when that is far from even starting to solve the problem.

We are just like those circus elephants that are tied to a pole when they are cubs, and when they become adults, they keep on submitting to the frail rope for they believe they cannot break it. We yield to imaginary poles, even with the profusion of proof on the contrary. If you don't like to be compared to an elephant, the mirror can also be a frog and its social poikilothermism. Inside a pan sitting on fire, the frog boils and dies because it fails to notice that the water temperature is increasing and it needs to jump out of it.

The moment is privileged for us to change the paradigms. We are living a tesarac, as I have said. This word, coined by author Shel Silverstein, designates a kind of fold in history, where social, cultural, economical paradigms are destroyed, and others take their place. While the tesarac occurs, society plummets in chaos and confusion, until a new order restores it. The Renaissance and the Industrial Revolution are two examples of previous tesaracs, a period when all paradigms are questioned.

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We can also recover, through this transformation, the helm of our lives. Did you notice that more and more we are going out to work and staying home to have fun? The available technology allows us to invert this regrettable trend and start working and studying at home and going out to have fun.

A new paradigm of sustainability is the optimized utilization of all resources, avoiding waste, which implies the maximum use of the resources of the existing infrastructure, without needing to do anything else. Only the technological and behavioral innovations, of lives rotating, can, effectively, protect the planet and all of us.

I am not a biologist, a physicist or an economist.

Neither am I a politician like Al Gore, who brought forth the theme of sustainability with his “An Inconvenient Truth” and won a Nobel Prize in the process. I am an advertising man and, maybe because of that, I might be taken for someone who wishes to maintain a consuming status quo. At least I am a mentor for strategy and innovation working for the Newcomm Group, which includes Young & Rubicam, Energy and Wunderman, among other agencies. That is, I am actually an evangelist, as I was called by the HSM Management magazine, who is someone that envisions the future and gets people (and resources) ready to deal with it.

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But even if I didn't have to think about and design the future, as my job description reads, something that I do day and night, I would consider myself in the right to share these provocative ideas with you. For two reasons: first because I am Brazilian, born and raised in an extremely creative and adaptable society, which could be (but unfortunately is not) one of the leaders in these changes that the world needs so much. The second and most important reason is that, above all, I am a citizen who has grandchildren, and I am concerned about their future.

In fact, I even think about my granddaughters' granddaughters and wonder what kind of fairy tale they would hear in a society that would have reduced production and consumption because it followed the recommendations of the United Nations' Conference on Climate Change. Will it be the story of the sad princess who can't have a pretty dress to wear for the ball, nor an elegant chariot, or even a ball and a castle where she could dance with the prince at? If so, the Moirai will have been transformed into wicked witches. ■