

editorial

Let us begin with a few very simple facts, though the ongoing debate about the climate and the environment is actually extremely complex. First, we are experiencing a phase of global climate change – an occurrence the world has known in earlier ages – and it is having an alarming macroscopic impact, regardless of its causes. Whether or not those causes are induced by man (scientific evidence points to that being the case) and, above all, how much they are induced by man, might be a thorny question, but the fact remains that climate change is a global security issue. It is causing significant problems in terms of its material and human cost and is triggering obvious dilemmas with regard to its remedies. Between ideologues of a green revolution and pragmatists of energy transition, Aspenia is inclined to side with the latter school of thought: ambitious but with a clear understanding of the difficulties and limitations involved.

Second, the current energy mix is still dominated by fossil fuel sources and continues to be somewhat unbalanced despite the considerable increase in renewable sources. Indeed, the latter are growing fast after setting out from well below the 10% mark. However, the existing energy model does not allow for a reduction in emissions, which everyone agrees are harmful. A crucial role in this transitional phase is played by gas and by nuclear energy.

Third, the energy mix is changing in any case: the commonly accepted forecast today has it that renewable sources will account for over 60% of our energy requirement by 2050. Investments – a crucial pointer to current trends – are now distinctly higher in renewable sources than in fossil fuels. This transformation produces (and will continue to produce) major geopolitical consequences: the international power structure is going to change, especially if the oil states fail to diversify their economies.

Fourth, the key to speeding up this necessary transition lies in ensuring that it remains “business-friendly”. So it needs to be combined with more sustainable economic development and all the attendant trimmings (such as green bonds, a change in consumer habits, a more circular economy, and so forth).

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Energy and the economy, after all, have moved forward hand in hand since time immemorial.

Last but not least, policies for combating climate change have become an arena for ideological competition. They have an impact on society that needs to be governed if they are to garner sufficient grassroots support.

Let us look at the issue in greater detail. The energy transition is currently under way, albeit at a different pace in different countries and in different sectors. Its trajectory is clear enough and it will tend to consolidate over the coming decades. But political choices continue to divide. For the Europe that emerged from the last European election, “climate neutrality” is a priority: the European Commission’s new president, Ursula von der Leyen, has included a “Green Deal” in her agenda. The American presidency, of course, is on the other side of the divide: After denouncing the 2015 Paris Agreement, Donald Trump remains firmly in the camp of the “climate change skeptics”, while the United States has now become one of the world’s largest exporters of gas thanks to shale technology. So while climate change is a reality and the energy transition is indeed under way, the response from around the world

seems to take the shape of ambiguous political choices and equivocal economic signals. Various clean or sustainable technologies are now ready for dissemination in the marketplace, yet they continue to benefit from public incentives. Many companies are “greening up” their products, services and processes, yet consistent government policies are lacking, and choices are made on the basis of a more comprehensive calculation of the direction in which markets and consumers are moving. Europe aspires to be “green”, yet the consumption of coal is holding out in the very heart of our continent’s economy (one of the reasons being Germany’s rejection of nuclear energy). In short, we are looking at a mottled picture, with a transformation that is necessary but largely incomplete and too slow. A successful transition is going to require major investments, and that is going to have to cope with a series of obstacles. What is it going to take for the Green Deal to stand a chance of succeeding? There is a strongly political side to the “green issue”. The ideological aspect is not at all secondary: environmental sustainability (as we can see from the rise of new green parties in Europe) is playing a key role in the post-twentieth century clash of ideas. One feature shared by European green parties and American “Green New Dealers” is that strictly environmental goals tend to be combined with broader agendas for “reforming” contemporary capitalism. The aim is to use the environmental lever to trigger virtuous dynamics of economic efficiency (thanks to selective technological innovation), profit (through the creation of jobs), and sustainable growth, all via active government policies for the redistribution and “fair” management of costs involved. The premise (broadly optimistic, in our view) is that given a suitable regulatory framework, businesses – and indeed the average citizen – will play an active role in the transition process rather than one as a reluctant, passive target of government measures or manufacturers’ choices. A part of this mechanism is supposed to entail a greater use of positive incentives rather than penalties and

bans, due to the consideration that growing competition in high-sustainability sectors naturally creates economic opportunities. Indeed, early movers are bound to benefit in comparative terms from a competitive edge.

The political-cum-ideological dimension is also responsible for certain “radical” positions (such as that of Naomi Klein, who has always been anti-capitalist); these hope to see environmentalism and economic transformation combine to generate a new “social compact”. (See, for example “Changing the game: Why tackling environmental and economic problems must coincide”, in the June 7, 2019 Times Literary Supplement.)

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In short, the ultimate goal is not just zero-emission growth, it is also the struggle against inequality (including for a minimum wage and/or guaranteed jobs for all). Above all, it means open war on multinational corporations. That is where things start getting complicated, because if the transformation set in motion is to be successful, it needs the talents employed in the field of innovation. And it is going to have to be accompanied by flexible and pragmatic decisions precisely in order to ensure that it can attract sufficient support.

The problem – even broader than criticism of capitalism posing as environmentalism – is that there are numerous trade-offs. There are going to be heavy costs to sustain and thus to distribute before any benefits become tangible. Furthermore, a series of dilemmas needs to be addressed with greater awareness. For example, in the race to resolve harmful emissions, no government agency or regulator knows in advance or with precision exactly what technology is going to be ready first. (For instance, while electric automobiles are being developed, it remains advisable to continue working on hydrogen as an energy source.) If they did, international investors would be focusing on that specific sector and its output would require no government incentives. But given that this is not the case, public (or public-private) funding has to be diversified rather than focused; and that, in turn, entails a thinning out of

resources to allow the market to experiment with various alternative solutions, some of which are bound to fail completely.

In a nutshell, we cannot expect governments (or any international organization) to use public money with surgical precision to back the technological “champions” in sectors that are out there in the forefront of sustainability. And what’s more, we know from experience that basic research (which is crucial for innovation) needs long-term funding without any guarantee of commercial success at the end of the process. In many ways, we are going to have move forward on a trial-and-error basis.

A second example might be that investment in multiannual large-scale green conversion projects almost always requires large corporations, yet that is at odds with the desire to curb (not to say to actively combat) oligopolies and to share out profits (rather than concentrating them). But safeguarding competition can hamper innovation, which demands massive financial resources. So a combination of large corporations and more flexible (and often more creative) companies is likely to be needed. This state of affairs will also benefit competitive and dynamic technology markets as the driving force behind structural transformation.

In conclusion, we would be well advised to steer clear of green revolutions peddled as a transition to frugality and possibly even to “de-growth” because the point is not to return to some kind of mythical pre-industrial bucolic age; it is rather to look ahead with all the tools available to us.



As this edition of Aspenia demonstrates, the environmental transition is a complex process involving many levels and many players. It can be successful

on three crucial conditions: the first is primarily economic, the second is political and third is chiefly social.

The first condition is that the green agenda must involve the world of business and manufacturing in full. Basically, the new “green wave” will be far more powerful if it succeeds in working with business rather than against it. That is the only way in which we will be able to develop the technical solutions we need at an acceptable cost. The “Watch” that opens this issue reveals the economic rationality of properly devised environmental policies.

Second, concern for and sensitivity towards the environment must not be used as tools for launching radical (and thoroughly political) attacks on twenty-first century capitalism. In the long run, that is likely to discredit the genuine environmental agenda. Sustainability and fairness are connected but they do not overlap; forcing them to do so would mean confusing and diluting goals, policy choices and tools for action.

The third condition is social in nature. Consumer habits must change because they obviously play a crucial role in the transition process. That is happening, but with certain unwanted side effects and trends that need to be closely monitored. Social compensation policies are probably required to facilitate the energy transition. A study put together by the Fondazione Enel, for instance, reaches the conclusion that the European Union will achieve major economic benefits from the electrification planned over the coming years (also because it is a tool for decarbonization); but the study also explains that the impact on certain sectors of industry and on certain types of workers is going to demand specific measures, such as financial instruments to encourage innovation or support for those social classes that bear the brunt of the upheaval.



The debate about the pros and cons of artificial intelligence is also ongoing, and also extremely complex. This issue of Aspenia takes a look at the geopolitical as well as economic consequences of developments in the world of artificial intelligence, and comes to the conclusion that great human intelligence is called for if we are going to benefit from the opportunities, while containing the ensuing risks. The technological race, with its geopolitical, economic, social and ethical aspects, is actually turning into a war of nerves – very human, but very irrational.

What is prevailing for the time being is the disruptive impact of a technological revolution that is producing increasingly sophisticated algorithms and fueling the mechanisms of machine learning with a huge flow of data. Machines learning independently, without any need for human intervention, represent a revolution: benefits in the economic, medical and scientific fields are guaranteed, but so are political and social challenges. Put as simply as possible, the optimists point to the potential benefits of singularity – machines that can think like, or better than, people – while the pessimists highlight its risks for contemporary democracy and individual liberty. In our view, it is indeed a revolution – one we must certainly not block, but that we must equally certainly regulate: artificial intelligence steered by human intelligence, without giving in to technophobia.

The peculiarity of many of today's new technologies is that they have a direct impact both on global balances (between countries and between nongovernment entities) and on people's daily lives. Primarily, artificial intelligence has a strong geopolitical significance inasmuch as it is one of the crucial elements in the new international competition and, in particular, in the creeping hi-tech cold war between the United States and its challenger, China. Washington is clearly in the lead for the time being, also because it can tap into more talented people and it can benefit from the thrust of private enterprise. But

China is investing far more in terms of government resources and it has a decidedly larger mass of data (the fuel of machine learning) at its fingertips. The final outcome of the showdown between “digital authoritarianism” and “liberal democracy” is anything but a foregone conclusion.

At the same time, artificial intelligence is bound to have a game-changing influence on the way people consume, work and even think. This is a combination that has been seen before in history, with previous technological revolutions and ground-breaking scientific discoveries; the difference lies in the rapidity and in the all-pervasive nature of what is happening in the twenty-first century.

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Users/consumers are attracted by opportunities for connection, rapid knowledge and socialization, but the fact of the matter is that they themselves produce the raw material for big data without paying too much heed to the consequences. Given this situation, there is a growing danger that we may be seeing new kinds of digital authoritarianism. As Yuval Noah Harari writes (in his book “Twenty-one lessons for the twenty-first century”), information technology revolutions are still in their infancy, and so the extent to which they really do lie at the bottom of today’s crisis in liberalism is debatable. But the danger is that the rule of the algorithm may jeopardize the very notion of individual freedom.



Businesses, for their part, adopt new technologies for competitive purposes and, in some cases, launch new services or products that simply did not exist before. The presence of digital networks in production processes is one of the basic tools in implementing industrial renewal and in achieving market

growth. From personal life to business and even to political systems, we are bound to constantly interact with the huge data flows of the digital revolution, and that triggers chain effects whose impact it is still difficult to gauge. For the liberal market economy as a political system, the dynamics involved are ambiguous: open societies enjoy a comparative advantage in the creativity sphere, but they are inevitably more exposed to the risks of hyperconnection. Democracies are founded on discussion, on debate among equally legitimate opinions, and on pragmatic experimentation; it is thus obvious that they suffer acutely from the manipulation of data and of information. Algorithms applied to social media and to the major platforms do not just express correlations but also opinions (for instance, about what can rightfully be disseminated and how, and with what limitations). The criteria adopted to make those choices are of crucial importance for democratic life.

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This is what has triggered the current debate on the ethical monitoring of algorithms. And that debate conceals a subtle challenge: how can we manage the thrust of big data toward conformism in order to safeguard the option to dissent as a common asset or vital ingredient of our democratic systems? This, because if algorithms rely on big data to identify prevailing trends – using the strength of the majority in various ways and manipulating individual preferences – it is of crucial importance that minority rights be safeguarded. The danger is that we may end up seeing marginal or minority viewpoints drowning in a flood of “gaussian” and homogeneous opinions.

A further challenge – this, too, extremely sensitive for the survival of democratic societies – concerns the impact of artificial intelligence on labor and on inequality. Today’s technological revolution may further widen the gap between wealthy and less wealthy societies. But the outcome is not obvious, because technologies also act as a lever for “leapfrogging” over entire phases of development. Furthermore, the practical adoption of robots and algorithms

demands a strong local presence and the ability to understand diversities. Therefore, it is possible that these technologies' global impact may not lead to worse inequality after all.

As the businessman Kai-Fu Lee explains, the real risk is an increase across the board in inequality between those who are capable of using artificial intelligence (thanks to their culture and to their specialist knowledge) and those who are competing with robots and algorithms on the job market. The former are the beneficiaries of an ongoing revolution while the latter are its potential victims or, in any case, passive players who, at best, can only adapt to this brave new world. To cite Yuval Noah Harari again, growing sectors of the world's population are going to find it tougher to fight against irrelevancy and sidelining than against the exploitation typical of the last century.

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As we have seen above, this pessimistic view is countered by more optimistic interpretations. While there can be no doubt that the technological revolution will destroy more jobs than it creates, it may yet be possible to reorganize the work schedule in a more functional manner thanks – among other things – to an increase in productivity. Perhaps life with robots will actually become more human.



The European approach appears to make for more advanced and sophisticated solutions (to safeguard the citizen-consumer's rights) than policies based solely on business thinking. The Old World seems to be pioneering an approach that others may well embrace sooner or later. The European regulation on data protection – which went into effect May 2018 – is a step in that direction; it lays the groundwork for a kind of technological “soft power” and

compensates for meager investments in digital technology by strengthening the international ethical and legal framework. It is impossible to predict the extent to which Europe's businesses can benefit from this: for now, Europe is clearly lagging behind in the sphere of artificial intelligence, in respect both of the technologies it has developed and of pooled resources to allay the social impact of digital innovation.

Between the thrust of business and regulatory goals, ethical dilemmas and political conundrums, international competition and national security, it is obvious that the management of artificial intelligence is also going to demand an increase in creative thinking, in the ability to envision solutions outside the box. To what extent are human intelligence and artificial intelligence going to prove capable of merging with one another?

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