

**GENDER GAP**  
Measuring Inequality

**LLMs**  
Thinking with Machines

**INTERVIEWS**  
Tabellini, Mokyry, Cartabia

**GENTRIFICATION**  
From Milan To London

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BOCCONI UNIVERSITY, KNOWLEDGE THAT MATTERS

ISSUE 1 - 2026



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## Building Bocconi's Future, Together



A strategic plan is never just a document. It is a collective statement of responsibility. It defines where we want to go, but above all who we are willing to become in order to get there. [The Bocconi Strategic Plan 2026–2030](#), presented at the end of January, is rooted in this belief: the future of the University cannot be designed from the top down—it must be built together. We are living through a period of profound transformation. Artificial Intelligence is reshaping how we learn, work, and make decisions. Demographic change is altering the relationship between generations and opportunities. Geopolitical tensions and global competition for talent are putting unprecedented pressure on knowledge institutions. In this context, Bocconi cannot simply adapt. It must help shape change, with rigor, responsibility, and openness.

The 2026–2030 Plan sets a clear direction: a Bocconi that is increasingly international and deeply European, grounded in the excellence of scientific research, centered on people, and committed to the responsible integration of technology. It envisions a university that invests in human capital, fosters social mobility, and embraces innovation without losing sight of critical judgment. A place where knowledge is not only produced, but shared and put at the service of society.

Yet no strategic plan comes to life on its own. Its success depends on a broad and diverse community: faculty and researchers, students and staff, alumni, institutional and corporate partners. Each has a vital role to play. Those who teach and conduct research, by pushing the boundaries of knowledge. Students, by bringing energy, ambition, and new questions. Staff, by turning vision into daily practice. And alumni, by keeping the link between the University and the world alive, carrying Bocconi's values and method wherever they go.

This Plan is an explicit invitation to participate. It does not ask for a formal endorsement, but for genuine commitment. Because the future of Bocconi is not something that will simply happen to us—it is something that will be shaped by the everyday choices of each of us. And this is exactly where we choose to begin.

*Francesco Billari, Rector*

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numero 844 del 31/10/05

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# Why Europe and China Took Different Paths

*In Two Paths to Prosperity, Joel Mokyr and Guido Tabellini explain how forms of cooperation, institutions, and knowledge set the destinies of Europe and China on a diverging course long before the Industrial Revolution. A comparison that helps make sense of today's economic and geopolitical tensions*

by Barbara Orlando



**T**he core idea is as simple as it is unsettling: Europe and China did not become different by chance, but because for a thousand years they learned to cooperate in opposite ways. On one side, a society built on guilds, autonomous cities, and perennially competing centers of power; on the other, a civilization organized around clans and a centralized state capable of guaranteeing order and continuity. This divergence in "social infrastructures" determined, in the long run, who innovated, who accumulated knowledge, and who developed inclusive institutions—and who instead privileged stability

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Prize in  
Economic  
Sciences*

and control.

In *Two Paths to Prosperity* (the Italian edition is published by EGEA), Avner Greif, Joel Mokyr, and Guido Tabellini reconstruct a thousand years of compared history to show that the great divide between the West and China did not originate with the Industrial Revolution, but much earlier, when culture, social morality, and everyday forms of cooperation began to diverge. "Political institutions do not emerge in a vacuum: they reflect the way in which a society has learned to cooperate and settle conflicts," explains Guido Tabellini. It is precisely in these deep differences that institutional

evolutions—hard to correct in the short run—are rooted.

The book refers to the present day too. As Joel Mokyr observes, “Modern innovation is not the outcome of a stroke of genius, but of an environment that allows ideas to compete and to survive even when they annoy the powerful.” Hence the image of a Europe that is structurally open but fragile, and of a China capable of administrative efficiency and rapid growth, yet marked by political rigidities with deep historical roots.

This interview with Joel Mokyr and Guido Tabellini aims to clarify the implications of this idea and to reflect on what remains today of those two historical paths so far apart.

**The book shows that Europe and China followed very different institutional and cultural trajectories for a thousand years. What was the historical puzzle you really wanted to address when you began writing it, and why was it important to do so now?**

**GUIDO TABELLINI.** The puzzle was to understand why two civilizations that were both sophisticated, rich in human capital, and endowed with a long tradition of statehood ended up producing such different political institutions and opposite long-term outcomes. We wanted to shift the focus away from too-simple explanations—such as geography or isolated historical shocks—and toward less obvious factors: the way societies organize cooperation and settle conflicts. This matters today because we live in a world where the confrontation between institutional models is back to center stage, and without a long-term historical perspective we risk misunderstanding the true roots of that confrontation.

**JOEL MOKYR.** For me, the puzzle was why modern innovation—the cumulative, systematic kind that leads to the Industrial Revolution—emerged in Europe and not in China, which for centuries had been technologically advanced. The book shows that this was not about individual geniuses or random events, but about an institutional and cultural environment that makes the production and diffusion of knowledge possible. It is a timely question because today all countries try to “build” innovation yet often underestimate how deeply it depends on underlying social conditions.

**You argue that divergence did not originate in politics per se, but in social structure: clans in China, guilds in Europe. Why did this basic difference generate two opposite state-building models?**

**TABELLINI.** Because political institutions do not emerge in a vacuum: they mirror forms of cooperation already present in society. In China,

cooperation took place mainly within clans, based on kinship ties, hierarchy, and ascriptive moral obligations. This reduced the need for impersonal rules and political representation. In Europe, by contrast, cooperation occurred among unrelated individuals, within guilds organized around specific purposes. This created demand for formal rules, rights, shared procedures, and mechanisms to constrain power. The European state developed as an extension and generalization of these practices; the Chinese state was grafted onto social structures that already ensured order without political inclusion.

## EUROPEAN FRAGILITY IS NOTHING NEW: THE QUESTION IS WHETHER TODAY IT CAN STILL BE TURNED INTO ADAPTATION

**Guido Tabellini**

**Many interpret European history as a sequence of wars that strengthened the state. In the book you argue that wars were not enough: a society capable of negotiation was also required. Where do we see today the legacy of that negotiating capacity, and where is it faltering?**

**TABELLINI.** Wars strengthened the state only where organized social actors existed with whom rulers could negotiate: autonomous cities, assemblies, intermediate bodies. In Europe, sovereigns had to grant rights and representation in exchange for tax. This legacy is visible in the rule of law, separation of powers, and systems of representation. Today, however, these mechanisms are under pressure: when generalized trust declines and intermediate institutions weaken, the ability to manage complex conflicts through compromise also declines.

**If imperial China prospered for centuries with stable autocratic institutions, what makes you say that representative democracy is still a competitive advantage rather than a drag in a fast-moving world?**

**TABELLINI.** The book does not claim that there is a universally superior model. Imperial China worked well in a context where stability and control of a vast, relatively homogeneous agrarian society were the priority. But when innovation, economic complexity, and rapid adaptation become central, the limits of a closed system become apparent. Democracies are slow and conflict-prone, but they embed mechanisms of learning and error correction. Over the long run, this capacity for adaptation has been an advantage, not an obstacle.

**You argue that the Industrial Revolution was possible because Europe produced and protected elites capable of innovation. If you had to identify the moment or mechanism when this “knowledge infrastructure” truly shifted gear, what would it be?**

**MOKYR.** There is no single moment, but a cumulative process that accelerates between the seventeenth and eighteenth centuries. The key mechanism is the formation of a European knowledge community: universities, scientific academies, scholarly societies that shared common norms, recognized merit, and allowed ideas to circulate across political borders. This infrastructure was not state-run—and that is precisely the point. Knowledge could survive even when it came into conflict with political power.

**One of the sharpest contrasts in the book is between European intellectual competition and Chinese state control over education. Today China invests massively in research: can a hierarchical system generate radical innovation, or does this remain a structural limit?**

**MOKYR.** Hierarchical systems can generate incremental innovation and mobilize resources on a large scale, but they struggle to produce radical, unforeseen innovation. Frontier innovation requires tolerance for error, dissent, and competition among ideas. Over the long run, state control over knowledge tends to favor what is useful to power, not what challenges it. This was a historical limit of imperial China and could re-emerge today as well.

**You argue that Europe innovated because it was not afraid to challenge authority. Looking at today’s regulated science and political pressure on research, can we be sure that Europe still enjoys that freedom?**

**MOKYR.** It is not guaranteed. Intellectual freedom is not an irreversible achievement. The book shows that innovation thrives only when there is genuine competition among ideas and when knowledge producers do not depend on a single

center of power. If research becomes excessively regulated or politically steered, European societies too risk losing one of their fundamental historical advantages.

**The book suggests that elite incentives mattered more than many structural variables. Who are today’s elites shaping the next cycle of global divergence?**

**TABELLINI.** Today the decisive elites are those who control access to knowledge, technology, and global markets. Institutions function when they manage to align the incentives of these elites with collective interest. When that alignment breaks down, even formally inclusive systems can produce stagnation.

## WHEN KNOWLEDGE DEPENDS ON A SINGLE CENTER OF POWER, RADICAL INNOVATION BECOMES UNLIKELY

**Joel Mokyr**

**MOKYR.** I would add that cognitive elites matter most: scientists, engineers, innovative entrepreneurs. The issue is not only who they are, but whether they operate in an environment that rewards discovery rather than conformity.

**Looking at your findings, what risk do you see as most pressing today: that Europe loses its ability to cooperate among strangers, or that China reproduces a growth model it can no longer sustain?**

**TABELLINI.** Europe’s main risk is that its political fragmentation—once a strength—now leaves it vulnerable to larger and more aggressive powers.

**MOKYR.** China’s risk is the opposite: extraordinary organizational capacity that struggles to renew its institutional foundations. In the long run, both risks are serious.



**THE BOOK.** *Two Paths to Prosperity* (Princeton University Press; Italian edition published by EGEA) is the result of more than twenty years of work by Avner Greif, Joel Mokyr, and Guido Tabellini. Through a thousand years of comparative history, the book reconstructs the deep reasons behind the divergence between Europe and China, going beyond explanations based on geography, resources, or isolated events. At the core of the analysis are forms of social cooperation: guilds and inclusive institutions in Europe, clans and centralized bureaucracy in China. From these differences stem opposing trajectories in political development, knowledge production, and innovation. A work of economic history that speaks directly to the great challenges of the present.



# The Credits Race



by **Ezio Renda**

*A Bocconi study examining 15 biodiversity credit schemes worldwide depicts a fast-growing sector that remains fragmented and without harmonized standards. Credit prices vary widely, from \$7,000 to \$68,000 per hectare annually. As Edoardo Croci observes, the market holds considerable promise, but its maturation will depend on the adoption of common rules and standardized credit frameworks*

**B**iodiversity credits are considered the most promising programs for raising private capital for nature conservation. However, the results show that prices are highly variable, and standards and measurement methodologies are very heterogeneous across different schemes: the first comparative study of 15 active credit schemes around the world reveals the picture of a rapidly expanding sector, though still lacking the basic rules to ensure integrity and large-scale investment. This is what emerges from the paper *Biodiversity credits schemes: a comparative analysis*, by Edoardo Croci, Benedetta Lucchitta, and Marta Cusa of Bocconi University.

## **A RAPIDLY GROWING MARKET IN NEED OF RULES AND CONTROLS**

Over the last three years, biodiversity credits have multiplied, with several projects already underway in countries such as Australia, Brazil, Colombia, India, and the United Kingdom, covering almost one million hectares. The idea is simple: to provide measurable remuneration for the conservation or restoration of nature through certificates attesting actual improvement in an ecosystem—from habitat restoration to species protection to the



**EDOARDO CROCI,**  
*Professor of practice,  
Department of Social  
and Political Science,  
Bocconi University;  
Director of the Sustainable  
Urban Regeneration Lab*

regeneration of degraded areas. Biodiversity credits are negotiable units that can be purchased by companies, not only to offset their impact, but also to contribute to nature-positive goals, i.e., to generate a net increase in natural capital.

But reality, the authors explain, is more complicated. "Our analysis shows a very high degree of heterogeneity among the schemes," notes Edoardo Croci, director of Bocconi's SUR Lab.

"Different names, metrics, and methodologies make the landscape extremely fragmented: without common standards, it is hard to assess the quality of credits and verify that they really generate an additional and measurable benefit for ecosystems."

The absence of shared rules also generates distorted market effects. The research documents an extremely wide range of prices, influenced not only by the variety of habitats and projects, but also by differences between schemes and calculation methods that allow for credible comparisons.

## **THE ISSUE OF CREDIBILITY: ADDITIONALITY, PERMANENCE, LEAKAGE**

Today, most of the 15 schemes compared are managed by private entities. Only three are public—in the United Kingdom, India, and Australia—and it is precisely these ones that have the most solid and stringent structures. But structural problems remain almost everywhere. The authors note that:

- only 10 schemes have clear additionality criteria, i.e., proof that the environmental benefit would not have occurred anyway;
- permanence is guaranteed

### **THE PAPER.**

Biodiversity credits schemes: a comparative analysis, by Edoardo Croci, Benedetta Lucchitta, Marta Cusa

by various means, from mandatory buffers (up to 30% of units issued) to legal contracts;

- the risk of leakage — improving an area by shifting damage elsewhere — is addressed inconsistently.

"We found that the minimum requirements for scientific robustness are still insufficient, especially with regard to biodiversity measurement metrics," explains Benedetta Lucchitta, a researcher at GREEN Bocconi. "There are several metrics and approaches available: we need to develop place-based methods capable of capturing the ecological specificities of territories; on the other hand, it is necessary for these same methods to produce evidence that is comparable with other systems, in order to ensure credibility, transparency, and consistency at global level."

## **A GLOBAL MAP MADE UP OF EXPERIMENTS**

The analysis also highlights marked geographical differences. Australia and Brazil, which alone account for almost 80% of projects, have become natural laboratories for developing nature-based financial instruments thanks to:

- strong pressure on ecosystems,
- regulatory frameworks already geared towards compensation and

## **WITHOUT COMMON STANDARDS, IT IS HARD TO ASSESS THE QUALITY OF CREDITS AND VERIFY THAT THEY REALLY GENERATE AN ADDITIONAL AND MEASURABLE BENEFIT FOR ECOSYSTEMS**

restoration,

- advanced technical supply chains for monitoring and verification.

The United Kingdom, the only country to introduce a mandatory market through the Biodiversity Net Gain mechanism, is the most structured case: high prices, a central registry, and a direct role for the state as a seller of "statutory credits". But even here, transparency of actual prices remains limited.

Transparency and governments: the two conditions for growth While potential demand from businesses is increasing—partly due to regulatory pressure from instruments such as TNFD and CSRD—the supply of quality credits remains insufficient.

According to the authors, there are two decisive factors for making this a credible market:

- Common standards on measurement metrics and integrity criteria;

- A stronger role for governments, both as regulators and as guarantors of credit quality.

"The risk is replicating the critical issues that have already emerged in the carbon market," summarizes Croci, "with rapid expansion but without sufficient controls on credit quality." Lucchitta adds, "Companies are interested, but they want certainties. Transparency on projects, involvement of local communities, and rigorous governance are prerequisites for attracting capital on a large scale."

## **NATURE AS AN ASSET TO BE PROTECTED**

The Bocconi paper shows that the potential of biodiversity credits is enormous: they can channel private capital towards ecosystem restoration at a time when the financing gap for nature exceeds \$700 billion per year. But without a robust framework, there is a risk of turning a historic opportunity into a new arena for greenwashing.

The final message is clear: before launching the market, we need to build its foundations. Only then can biodiversity credits become a credible tool for contributing to global nature conservation goals.

**THE LAB.** *The SUR Lab – Sustainable Urban Regeneration Lab at Bocconi University, directed by Edoardo Croci, develops and disseminates knowledge, methods, and best practices on sustainable urban regeneration and the value it creates for both the private sector and society. Powered by Hines, Intesa Sanpaolo, and Prelios, the Lab analyzes cities, real estate markets, finance, ESG standards, and stakeholder engagement through an interdisciplinary approach and strong international collaborations, including with Bocconi's GREEN Centre.*

# Nature and the Markets

*A Bocconi study shows that investors demand higher returns for commodities associated with greater pressure on ecosystems. Massimo Guidolin: "Biodiversity is now a financial risk in its own right"*

by **Ezio Renda**

**T**he loss of biodiversity is not only an environmental threat, but also a potentially significant factor for financial markets, potentially influencing commodity prices and returns. A new study published in the *Review of Finance*, authored by Massimo Guidolin and Manuela Pedio of Bocconi, documents the existence of a biodiversity risk premium: commodities with greater impacts on ecosystems have higher returns over time.

## **A PREMIUM FOR 'NATURE' RISK**

The main finding of the study is clear. Using highly granular data from the Joint Nature



**MASSIMO GUIDOLIN,**  
Full Professor, Department  
of Finance, Bocconi University

Conservation Committee (JNCC) on species losses per unit of cultivated land, the authors show that agricultural commodities with a higher impact on biodiversity — such as coffee, cocoa, oil palm, bananas, and rubber — achieve on average monthly returns between 20 and 60 basis points higher.

This means that the market is already incorporating the fact that these products are exposed to increasing risk: new regulations, consumer pressure, trade restrictions, traceability requirements. "Biodiversity is not just an ethical or reputational issue," summarizes Massimo Guidolin,

professor of finance at Bocconi. "It is a measurable financial risk that investors are beginning to price in. Higher returns reflect the fact that these assets are more vulnerable to the transition towards sustainable production models."

## THE IMMEDIATE REACTION AFTER THE KUNMING DECLARATION

Further validation of the main finding of the research is provided by the event study, which measures how commodities with a high impact on biodiversity reacted to the Kunming Declaration of October 2021. That declaration represented the first strong global political commitment to reduce nature loss by 2030. The results are clear:

- in the month following the declaration, commodities with greater exposure to transition risk recorded abnormal negative returns of as much as -3.6%;

- conversely, those less exposed to transition risk did not experience significant changes.

"This dynamic is consistent with repricing," explains Guidolin. "When a credible regulatory threat emerges, markets immediately reconsider the value of the most exposed products."

The placebo test on COP21 in Paris—which concerned climate but not biodiversity—confirms the picture: no effect was observed there, a sign that markets can tell the difference between climate risk and nature risk.

## AN IMPACT DIFFERENT FROM CLIMATE'S. AND MORE DIFFICULT TO MANAGE

One of the most significant scientific contributions of the paper is to demonstrate that biodiversity risk does not

# BIODIVERSITY IS LOCAL, NOT FUNGIBLE. THIS IS WHY THE TRANSITION RISK ON THESE ASSETS IS HARDER TO MANAGE

coincide with climate risk:

- variables related to total deforestation or CO<sub>2</sub> emissions do not explain returns as much as the intensity of species loss per hectare;
- commodities that emit a lot but do not affect biodiversity hotspots do not imply the same "risk premium."

The factors that measure how much commodity production affects species loss vary dramatically from country to country: in tropical regions, where ecosystems are richer and more fragile, the same converted hectare generates a much higher impact than in other areas of the world. It is precisely this strong heterogeneity—and the regulatory risk that comes with it—that the market has begun to price in. "Biodiversity is local, not fungible," Guidolin points out. "This is why the transition risk on these assets is harder to manage: compensating elsewhere is not enough, and the markets understand this."

## THE SURPRISE ON FUTURES

Guidolin and Pedio's study also

studies the agricultural futures market. Here, the biodiversity risk premium is not statistically or economically significant. But this is due to a technical reason, not because there is no risk. Futures, in fact, mainly reflect convenience yield and hedging balances, while biodiversity risk — as shown by the theoretical model — is mainly "offloaded" onto spot prices.

## BIODIVERSITY AS A SYSTEMIC RISK FACTOR

These results are confirmed when we look at systemic risk: using a composite indicator of global biodiversity (constructed by WWF-LPI and IUCN-RLI), the authors document that commodities most sensitive to biodiversity loss shocks

- earn more in the long term,
- generate an average annualized abnormal return of 5.4% in a long/short strategy.

This further supports the idea that nature risk is no longer an invisible externality: it is a market risk factor.

"Finance can no longer ignore biodiversity," concludes Guidolin. "Those with exposure to assets that depend on fragile ecosystems need to know that they are taking on a real risk, with a direct impact on long-term returns."

The paper's final message is quite evident: the ecological transition is not just about emissions and carbon pricing. Biodiversity is set to become the new frontier of regulation — and the market is anticipating this.

## THE PAPER.

The pricing of biodiversity risk in commodity markets, by Massimo Guidolin and Manuela Pedio

**[IMAGINARY CONVERSATIONS]**

# At the home of innovation

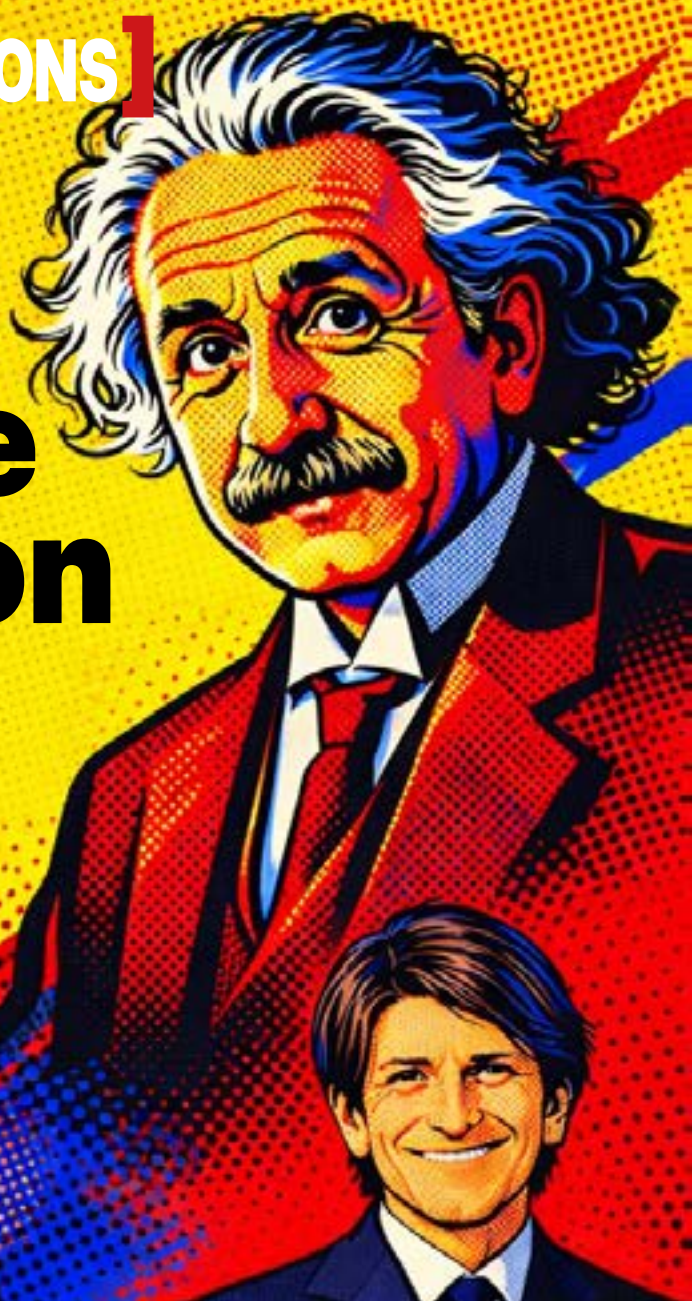
*Inspired by the book *A casa di Einstein (At Einstein's House)* by Gianmario Verona and Daniele Manca, this conversation brings together two contemporary voices with one of the key figures of modern science. It is a dialogue that crosses time and disciplines to bring innovation back to its deepest meaning: a collective, scientific, and institutional process, not a simple race towards the new.*

by **Barbara Orlando**



**GIANMARIO VERONA**,  
Fondazione Romeo ed Enrica  
Invernizzi Professor of Innovation  
Management at Bocconi University

**Daniele Manca**, Deputy Editor  
Corriere della Sera



**W**hat would Albert Einstein say today if he could see how we talk about innovation, technology, and the future? He would probably be struck by the speed with which transformations follow one another, but also by how lightly we often describe them. In the age of artificial intelligence and global competition, innovation has become a ubiquitous word, too often reduced to a slogan, an automatic promise of growth, or a synonym for technological novelty.

*A casa di Einstein* (At Einstein's House), the book by Gianmario Verona, holder of the Invernizzi Chair of Innovation Management at Bocconi University, and Daniele Manca, deputy editor-in-chief of Italy's leading newspaper *Corriere della Sera*, stems precisely from a rejection of this simplification. Through the figure of Einstein—scientist, public intellectual, citizen of the world—the book offers a deeper interpretation of innovation, understood as a long and cumulative process, rooted in science, institutions, and the social contexts that make it possible.

**The imaginary dialogue that follows is loosely based on the book. It is neither a summary nor a literal transposition, but an exercise: a three-way conversation that connects the past and the present to question our times. At its core is a question that is anything but rhetorical: are we still capable of creating the conditions for innovation, or do we merely**

## INNOVATION DOES NOT HAPPEN ON ITS OWN: IT TAKES SHAPE WITHIN AN ECOSYSTEM

Gianmario Verona

### chase after its most visible effects?

**GIANMARIO VERONA.** Today we talk about innovation as if it were a natural, almost automatic phenomenon. All it takes is new technology, a good idea, and change happens. But reality is more stubborn. Innovation does not happen on its own: it must be built, supported, and defended over time.

**ALBERT EINSTEIN.** It strikes me that you keep calling “innovation” what is often just acceleration. In my day, there was no shortage of new ideas. If anything, we lacked a context in which we could bring them to life. And without the right context, even the most powerful intuition remains sterile.

**DANIELE MANCA.** That's a key point. Today, speed dominates public debate, but we rarely ask ourselves what we are sacrificing along the way. Without structural investment in science, without solid institutions, we risk consuming the future instead of building it.

### The Solitary Genius Myth

**EINSTEIN.** Do you know what keeps amusing me? The idea of the isolated genius. No one really works alone. I myself needed universities, laboratories,

colleagues, even bureaucracy. Intellectual independence does not grow in a vacuum, but within structures that make it possible.

**VERONA.** Yet we continue to portray innovation as a sequence of individual heroes. It's a tempting, but misleading narrative. Innovations that truly transform economic systems are always the outcome of ecosystems: universities, businesses, public policies, patient capital.

**MANCA.** When these ecosystems weaken, the risk is clear. The technologies remain, but they lose their transformative capacity. Applications multiply, but progress does not.

### Science and Power: an Inevitable Relationship

**MANCA.** Then there is a topic that is making a strong comeback today: the relationship between science and power. For years, we pretended that science could be neutral, separate from politics. But that has never been the case.

**EINSTEIN.** Science is never neutral. It can choose to be complicit or critical. I learned early on that the silence of scientists is also a form of choice. And it is often the most dangerous one.

**VERONA.** Today, this is even more true. Major technological transformations are reshaping markets, work, and geopolitics. To think that innovation can be governed solely by the market is an illusion. Institutions matter. And collective decisions matter.

### Europe: Regulate or Build?

**MANCA.** In Europe, we are

## IT IS NEITHER A SLOGAN NOR A TREND: INNOVATION IS A COLLECTIVE RESPONSIBILITY

Daniele Manca

# IMAGINARY CONVERSATIONS

very good at regulating what others have already built. We are much less good at creating the conditions for those constructions to be built here. It is a paradox that we pay dearly for.

**VERONA.** Regulation is necessary, but not sufficient. Without an industrial and scientific vision, regulation risks becoming an alibi. Innovation needs time, mistakes, and investments that do not yield immediate returns.

**EINSTEIN.** The problem is not making mistakes. The problem is not allowing yourself to try again.

**EINSTEIN.** In the end, it all boils down to this: change does not mean doing new things, but thinking differently about what we have always done. And that is the hardest part.

## Are innovators born or made?

**VERONA.** This is accompanied by a big lie: that innovators are simply talented people. Entrepreneurs are natural born, we think. Like great sports champions. Like great musicians. But in the complex world we live in, this is no longer the case. You need to study hard

in the curves of music, science, and human history. In short, perhaps innovators are born, but they certainly have to become innovators.

## A Necessary Conclusion

**EINSTEIN.** Allow me to close with a quote that is often attributed to me, even though I did not say it quite like that. But the meaning still holds: we cannot expect things to change if we continue to do the same things.

**VERONA.** Today, that quote sounds less like an aphorism and more like a warning. Because change does not depend only on the technologies we develop, but on the conditions we are able to build around them.

**MANCA.** And this is where the question becomes inescapable. Not whether we will have new ideas or new discoveries—those will come anyway—but whether we are still capable of recognizing them, supporting them, and allowing them to mature.

**EINSTEIN.** Perhaps, then, the real question is not whether I would be born today. But whether, if I were born today, I would find the time, space, and freedom to become what I have been. A question that does not concern the past, but your present and future. And one that calls into question universities, institutions, businesses, and public policies. Because innovation is never just a matter of individual talent. It is, first and foremost, a collective choice.

## PEOPLE ARE NOT BORN INNOVATORS. THEY BECOME SO THROUGH STUDY AND WORK

Albert Einstein

A society that punishes risk stops innovating long before it realizes it.

### Asking the Right Questions

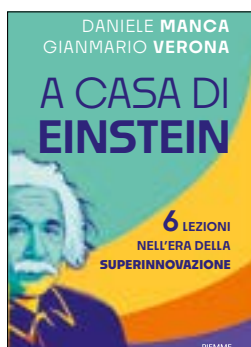
**VERONA.** Perhaps the point is not to ask ourselves what the next star technology will be, but whether we are building contexts capable of supporting it in the long term.

**MANCA.** Exactly. Innovation is not a topic for motivational conferences. It is a collective responsibility. It concerns schools, universities, finance, and industrial policy. It concerns the choices we make today that will have an impact in ten or twenty years.

and be determined.

**EINSTEIN.** True. In fact, I wasn't very good at school. Yes, I excelled at math, but I built my career step by step. And I worked patiently on my intuitions, studying and collaborating with great scientists and industrialists of my time. Self-sacrifice is perhaps what made me do what I became famous for.

**MANCA.** Let's not forget that you were a talented pianist and an excellent violinist. You certainly had talent, but you also worked on many other aspects. On method, discipline, teamwork. On solutions



**THE BOOK.** *A casa di Einstein. Sei lezioni nell'era della superinnovazione by Gianmario Verona and Daniele Manca (Piemme) offers a broad and detailed reflection on the meaning of innovation in the 21st century. Using Albert Einstein as a symbolic and historical guide, the book studies the deep connection between science, technology, institutions, and economics. A clear idea emerges: innovation is not the result of isolated insights or technological fads, but a cumulative process that requires long-term investment in knowledge, solid institutional contexts, and a strategic vision capable of bringing together market, research, and society. This book invites us to shift our focus from the "new" to the conditions that make the future possible.*



# PACT FUTURE

Costruire il **FUTURO** nell'era dell'**INTERDIPENDENZA**

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La terza edizione si articola in tre giornate – **PEOPLE, PURPOSE, PLANET** – ciascuna dedicata a una dimensione chiave per comprendere e affrontare le trasformazioni del nostro tempo, unite da un filo conduttore comune: **l'interdipendenza**

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**25 MARZO**  
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**24-25-26 MARZO**

Ore **15.00** | **Sala Dino Buzzati**  
Via Eugenio Balzan, 3, Milano

Ore **20.00** | **Aula Magna Università Bocconi**  
Via Guglielmo Röntgen, 1, Milano

# The Politicization of Sustainability

by Gennaro De Novellis

*ESG disclosure depends on a company's internal ideology and the political context of the territories in which it operates. When corporate values and the local political orientation are aligned, communication becomes stronger; when they diverge, it becomes more shakier*

In recent years, sustainability has become a central element of corporate communication. ESG reports have grown increasingly detailed, accompanying financial statements and responding to the demands of investors, regulators and public opinion. Yet not all companies communicate their environmental and social commitment with the same intensity. Even among



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firms operating in the same sector, with similar size or performance, significant differences emerge that cannot be explained solely by economic or regulatory factors.

It is within this context that my study "Does Politics Influence Environmental, Social, and Governance Disclosure? Empirical Evidence From US Listed Firms," together with Gianluca Moretti and Simone Terzani (University of Perugia), published in *Business Strategy and the Environment*, is situated. The research offers an original perspective: to fully understand firms' ESG disclosure choices, it is necessary to look beyond the numbers and consider the role of political ideology.

**THE KEY LIES IN POLITICAL IDEOLOGY**

The study examines a large

sample of US listed companies over the period 2013–2020 and starts from a fundamental distinction that is often overlooked: ESG performance and ESG disclosure are not the same thing. A firm may adopt advanced sustainability practices without communicating them extensively, or it may emphasize disclosure despite more modest results. The analysis therefore focuses not on what companies do, but on what they choose to report. A first key finding concerns firms' "internal" political orientation, measured through individual political donations made by employees.

Companies characterized by a more liberal culture tend to display higher levels of ESG disclosure. Greater sensitivity to environmental and social issues translates into more extensive communication, consistent with shared internal values and stakeholder expectations.

**WHEN FIRMS AND TERRITORIES ALIGN**

The most significant result emerges when the territorial context is taken into account. Firms do not operate in a vacuum, but within states characterized by different political orientations, which shape regulatory environments and social pressures. The study shows that companies with a liberal orientation disclose sustainability information more intensively when they are headquartered in politically liberal states. By contrast, the same firms tend to moderate

**THE PAPER.** Does Politics Influence Environmental, Social, and Governance Disclosure? Empirical Evidence From US Listed Firms, *by Gianluca Moretti, Simone Terzani, Gennaro De Novellis*

their ESG disclosure when operating in states with a conservative majority. In short, both internal values and external context matter. When corporate ideology and local political orientation are aligned, sustainability communication is stronger; when they diverge, disclosure strategies become more cautious and intermediate. Institutional context thus acts as either an amplifier or a constraint on transparency choices.

**IMPLICATIONS FOR INVESTORS AND POLICY MAKERS**

These findings help explain the growing polarization of the sustainability debate in the United States. ESG disclosure is not merely an informational tool, but also a response to political and social expectations that vary substantially across states. For investors, ESG data should not be interpreted uniformly, but read in light of the political and institutional context in which they are produced. For regulators, the study suggests that transparency policies are more effective when they take territorial differences into account. Ultimately, the research shows that sustainability does not speak a neutral language: to truly understand ESG reporting, it is necessary to look beneath the surface, where values, context and ideology continue to make a difference.

**FIRMS DO NOT OPERATE IN A VACUUM, BUT WITHIN STATES CHARACTERIZED BY DIFFERENT POLITICAL ORIENTATIONS**

## The New Oligopoly



*Pricing algorithms can generate collusive outcomes without companies entering into explicit anti-competitive agreements, thus putting traditional antitrust law under pressure and reopening the issue of oligopolistic dominance in digital markets*

In recent years, the term “algorithmic collusion” has become firmly established in competition law. It refers to a variety of scenarios in which pricing software — increasingly widespread in digital markets — contributes in various ways to the emergence of collusive outcomes. Behind the term there is a well-known fear: that algorithms make collusion easier, more rooted and more difficult to detect, undermining antitrust tools built on assumptions that may prove increasingly outdated for digital markets.

### **QUESTIONS OF COLLUSION**

Not all forms of algorithmic collusion, however, pose the same challenges. When algorithms merely facilitate or implement collusion devised

by humans — for example, by monitoring competitors’ prices or automating retaliatory mechanisms — EU antitrust law already has the necessary tools to intervene. In these cases, Article 101 of TFEU — which prohibits agreements and concerted practices between undertakings aimed at restricting competition, particularly through price coordination — applies without any particular force: the agreement or concerted practice remains attributable to the undertakings, and the use of technological tools may, if anything, be relevant for assessing the gravity of the infringement.

Similarly, even in cases of explicit collusion implemented by algorithms — in which pieces of software interact autonomously with each

other, giving rise to forms of market coordination that are functionally equivalent to a cartel — competition law is not devoid of answers. Through an evolutionary interpretation of the concept of “meeting of minds” (i.e. wills converging) and leveraging the principles of attribution of conduct to the company, it is possible to bring these phenomena within the scope of Article 101 of TFEU, even when coordination has not been planned in detail by human decision-makers.

## **WHEN ALGORITHMS CHANGE THE RULES OF THE GAME**

The real problematic issue, however, arises with reference to tacit collusion implemented by algorithms. In this case, software, acting autonomously and interdependently — that is, adapting its decisions to the moves made by competitors — achieves supracompetitive pricing outcomes without any kind of agreement, exchange of information or significant contact between the companies. This is, essentially, a form of oligopolistic interdependence mediated by technology. As is well known, tacit collusion — even when it engenders harmful effects for consumers — has traditionally remained outside the scope of Article 101 TFEU. And the same currently applies to algorithmic tacit collusion. Yet, this is precisely where algorithms are changing the rules of the game. Unlike human tacit collusion, algorithmic collusion can be more rapid, more pervasive, and more stable. Algorithms reduce strategic uncertainty, increase market transparency and enable

## **ALGORITHMS DO NOT BREAK COMPETITION RULES: THEY EXPLOIT THE BLIND SPOTS OF LAWS DESIGNED FOR MARKETS THAT NO LONGER EXIST**



**VALERIA CAFORIO**  
*PhD Fellow, Department of Legal Studies, Bocconi University*

forms of coordination even in contexts that lack the classic characteristics of oligopoly. In this sense, algorithmic collusion rehashes — and simultaneously transforms — the traditional “oligopoly problem,” extending it well beyond the boundaries within which antitrust law had sought to confine it.

## **LOOKING AT THE EFFECTS**

In the face of technological developments, simply noting the inapplicability of Article

101 TFEU risks creating a protection gap. Alongside traditional antitrust remedies designed to address the effects of tacit collusion — such as the extensive application of Article 101, the use of collective abuse of dominant market position or tools that control mergers — it then becomes necessary to consider complementary tools. From this perspective, a possible answer may come from the field of regulation. In particular, the idea of “visibility of outcomes” suggests shifting the focus from the identification of an agreement, or of direct or indirect contacts between companies — requirements that underpin the application of Article 101 TFEU and which are often absent in cases of tacit algorithmic collusion — to the observable effects produced by algorithms on the market itself. If companies benefit from the use of automated systems, they should also be held accountable for the outcomes such systems generate, regardless of whether the outcomes can be traced back to a form of coordination in the traditional sense. In sum, algorithmic collusion does not necessarily require rewriting competition law, but it does increasingly force a rethinking of the latter’s assumptions. In an economy governed by algorithms, the problem of oligopoly hasn’t disappeared: it has simply changed form.

## Thinking Through Machines



*LLMs are not just work assisting tools: they are becoming the environment through which we write, organize ideas and make decisions. Understanding how they work is the first step toward governing their effects*

by **Debora Nozza**

**A**t the start of a typical workday, writing tasks now take a different form. Emails are drafted faster. Report outlines take shape in a few steps. Notes from meetings are shorter and easier to share. Somewhere in the background, a large language model has assisted the process — not necessarily as a visible tool, but as a silent collaborator. Increasingly, we do not just work with these systems. We work through them.

### **HOW LLMS WORK**

Large Language Models, or LLMs, are a class of artificial intelligence systems designed to generate and process human language. They belong to the broader category of generative AI, technologies that can produce new content rather than simply classify or retrieve existing information.

Their development builds on decades of research in Natural Language Processing, a field that has evolved from rule-based systems to statistical models and, more recently, to data-driven neural architectures trained at scale. Large language models are trained on large collections of text, such as books, articles, websites and

**INCREASINGLY, WE DO NOT JUST WORK WITH LLMS. WE WORK THROUGH THEM**

# [LARGE LANGUAGE MODELS]

documents. During training, they learn to predict which word is likely to come next in a sequence. Through this process, they acquire a statistical representation of language, including common patterns, structures and associations. This allows them to generate fluent text, but it does not fully explain why recent systems are easy to use in everyday settings.

## HUMAN FEEDBACK

What moved large language models beyond earlier approaches was the use of human feedback. After the main training phase, people evaluate model outputs and indicate which answers work better. The model learns to repeat these preferred behaviors. As a result, recent LLMs are better at following instructions, responding to questions and interacting in a conversational way.

Because recent LLMs are easy to use and widely accessible, they are now integrated into many everyday language activities, such as writing, reading, summarizing, planning and studying. Their repeated use changes how cognitive work is carried out. Instead of starting from a blank page, people increasingly work through outlines, drafts and revisions suggested by the system. In this way, LLMs not only speed up tasks, they reshape how ideas are formed, organized and refined.

## THE BENEFITS

Recent studies provide early evidence of these effects. A study by MIT researchers



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on professional writing tasks shows that access to generative AI can increase productivity and improve output quality, especially for white-collar workers. The same study also finds a reduction in performance gaps, suggesting that language models may help less experienced workers reach higher baseline standards. In educational settings, a recent study published in a Nature journal reports that generative AI can support learning activities, while also reshaping how students approach writing, revision and feedback.

## THE ISSUES

Yet these benefits come with clear issues: generative AI is likely to affect people in different ways. An interdisciplinary study published in PNAS Nexus

shows that while generative AI can boost productivity, its benefits and risks are unevenly distributed across workers and sectors. Differences in roles, skills and access to technology shape who gains the most from AI-assisted work. This unevenness is also visible in adoption patterns. A large empirical study on the use of generative AI in Italy finds widespread adoption across everyday work and information tasks, alongside digital divides linked to uneven AI literacy. These divides intersect with existing inequalities, including gender. The differences matter because language models do not simply assist individuals in isolation. They shape shared ways of writing, explaining and organizing information. As their use spreads, the language they produce becomes more visible, more reusable and more influential. When language generation is automated at scale, the main risk is not only unequal access, but also increasing uniformity. LLMs tend to reproduce dominant linguistic norms, privileging widely represented styles, topics and perspectives. Minority languages, unconventional expressions and culturally specific forms of knowledge are therefore more likely to be marginalized or lost.

## THE CHALLENGE OF GOVERNING MODELS

As language increasingly functions as infrastructure, its governance becomes a collective concern. The challenge ahead is not whether we will use these models, but how we choose to shape them. The transition from a society that talks to machines to one that thinks through them has already begun. Understanding its implications is a first step toward steering this transformation responsibly.

**LLMS NOT ONLY SPEED UP TASKS, THEY RESHAPE HOW IDEAS ARE FORMED, ORGANIZED AND REFINED**

# More Math for a Smarter AI

*LLMs excel at language, but without mathematical optimization they cannot make reliable decisions. The new frontier of AI lies in integrating language models with formal rigor*

by Laura Sanità

Large language model-based AI systems have made extraordinary progress in recent years. They are exceptionally good at recognizing patterns, extracting structure from data and interpreting natural language. However, many real-world problems are not just about recognizing patterns; they are about making decisions under constraints, trade-offs and scarce resources. In these settings, plausibility is not enough: decisions must be feasible, reliable and often provably optimal.

## **MATHEMATICAL OPTIMIZATION AS A BASIS FOR RELIABLE DECISIONS**

Mathematical optimization methods, on the other hand, are explicitly designed for this purpose. Linear and integer programming models, for example, provide an effective way to formulate real-world decision problems in mathematical terms. Once this is done, mathematical solvers can compute solutions



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with provable guarantees. Mathematical programming is therefore a cornerstone of decision-making in industry. Solvers based on these tools are widely used in logistics, energy systems, manufacturing, finance

and technology to compute reliable optimal solutions. However, there is a technical bottleneck that often limits the broader adoption of mathematical optimization technologies.

## **THE BOTTLENECK OF MODELING**

The challenge lies in the modeling step, that is, formulating complex decision problems in the correct mathematical language so that optimization solvers can process them. More concretely, optimization solvers take as input a set of mathematical functions and constraints with a precise structure and compute optimal solutions. The user must first translate a real decision problem into this formal language. Recognizing which real-world problems can be expressed with this mathematical structure, and how to do so correctly, requires substantial expertise, mathematical insight and a deep understanding of both the application domain and the underlying tools.

## **LLMS AND OPTIMIZATION: THE NEW FRONTIER OF DECISION-MAKING AI**

This is where the landscape is now changing. Over the past few years, LLMs have become significantly better at interpreting problem

**JUST A FEW YEARS AGO, LLMS COULD ASSIST WITH INTUITION OR RESTATE PROBLEMS INFORMALLY. TODAY, THEY CAN PROPOSE DECISION VARIABLES**



descriptions and translating them into structured mathematical formulations. Just a few years ago, LLMs could assist with intuition or restate problems informally, but they struggled to produce correct, ready-to-use formulations for complex decision problems. Today, they can propose decision variables, objectives and constraints that are essentially solver-ready, refining formulations through interaction with human experts. When directly interacting with solvers, they can even identify and correct errors in their own formulations. Importantly, LLMs are not replacing mathematical optimization; they are learning how to use it.

This combination marks the next step in AI for real decision-making. LLMs contribute modeling, abstraction and interpretation, while optimization solvers contribute rigor, guarantees and reliability. The resulting AI agents do not merely act; they act optimally or near-optimally, with explainable and verifiable decision processes. The lesson extends naturally to AI agents more broadly. True agency does not come from pattern recognition alone, nor from heuristic decision-making without guarantees. It comes from the ability to translate goals into precise structured formulations and solve them using rigorous methods. LLMs are rapidly improving at the first step. Mathematical optimization continues to provide powerful tools for the second.

The future of reliable AI agents for decision-making lies in their combination. More math does not constrain AI; it empowers it.

# ChatGPT Is Not an Oracle

*Relying on LLMs as sources of truth is a dangerous shortcut: low-quality data, hallucinations, and structural compliance make a higher level of verification and oversight necessary compared to what applies to traditional media*

by Tanise Ceron

The other day, I overheard someone who is highly ranked in their professional career saying: "I didn't know how to answer that question because I didn't know what they meant by that term in that context, so I asked ChatGPT for clarification." Another day, my friend told me he wanted to change his dog's diet because he is getting old. He was planning to ask ChatGPT to calculate the proportions for the diet. He asked me what I thought about it. I didn't even have time to reply as he looked at my worried expression and continued, "Yes, then I can ask Claude or Deepseek to compare answers and estimate the accuracy." At that point, my worried face grew even more expressive, turning almost into despair.

These are only a few examples of

what I've heard or experienced in recent weeks: an expert relying on generated answers as the source of truth and a friend comparing different AI systems as an estimate for the accuracy of the generated information. Instinctively, my reaction is, "Absolutely not — please stop doing that now."

Then, my researcher reaction takes over and asks: Where are the papers that prove this is very problematic? And indeed, there's plenty of them. There's extensive research showing the problematic behavior of large language models (LLMs), the same language models that power chatbot interfaces such as ChatGPT, Claude and Deepseek.

## MISTAKES AND COMPLACENCY

For example, article citations

**ASKING LLMs TO BRAINSTORM IDEAS, EXPLAIN CONCEPTS OR RETRIEVE FACTS ARE CONSIDERED HIGH-RISK TASKS**

# [LARGE LANGUAGE MODELS]

generated by LLMs are often hallucinated or misplaced; summaries produced through retrieval-augmented generation (RAG) web searches may not accurately reflect the content of the original webpages; factual information can be fabricated; low-frequency knowledge in the training data is difficult for LLMs to learn; and LLMs exhibit sycophancy by agreeing with users even when the response is incorrect. This list of limitations is not exhaustive and continues to grow.

The so-called LLMs have mostly been trained with documents (webpages) crawled from the internet. The information that they learn is the information that is present in these webpages. The great majority of them actually come from blog posts and forums which have never been checked for accuracy or truthfulness before. Only a very small portion of the training data is considered "high-quality" as they come, for example, from accredited news outlets, Wikipedia pages, books and peer-reviewed articles. Moreover, even if LLMs are trained by different organizations, because these models are so greedy for data, their creators use as much data available from the internet as possible (filtered for harmful content). Consequently, LLMs created by different organizations end up having similar biases and respond to user queries in similar ways, as shown by previous studies. Going back to the story about my friend with the dog, this is enough evidence that if one



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model is wrong, another one will most likely be wrong as well — unless it has not been post-aligned with the correct information, which we have no way of knowing since most LLM chat interfaces available online such as ChatGPT and Claude are proprietary, so their training is unknown to us.

**THE LIMITS OF CHATBOTS**  
My point is not to stop using ChatGPT and other chat interfaces — they are language technologies that are here to stay, to help us be more creative, productive and efficient. However, there are two main differences between the more traditional sources and LLM-

powered chatbots. First, these tools digest and summarize information for us at a much higher degree than books, increasing their appeal because of their convenience and efficiency. After all, we humans like to make shortcuts to lower our cognitive load. Secondly, every interaction with LLMs is new and the same question can be answered in different ways if asked even with the same prompt (you can test it yourself). This means that the answers provided by these technologies have not been peer-reviewed or checked, nor have they undergone any editorial process or decision.

**RISKY BRAINSTORMING**  
That said, my main point is that we must be even more critical with these tools than when consuming information from traditional media. In practice, this means verifying generated content against authoritative sources rather than taking it at face value. This can be done in different ways depending on the task. Tasks such as paraphrasing or translating text are generally low-risk because the tool just transforms information we've already written, though the output should still be reviewed for potential misunderstandings. On the other hand, asking LLMs to brainstorm ideas, explain concepts or retrieve facts are considered high-risk tasks, as the resulting information may contain errors and misinformation due to hallucinations or simply because the LLM has learned incorrect information. Therefore, the truthfulness of the generated answers in high-risk tasks should be evaluated carefully and confirmed through other authoritative sources. I am aware that the process takes longer... but is reaching a post-truth reality a fair trade-off for being more "efficient"?

**THE MASTER.** From this current academic year, Bocconi University's Master of Science in Artificial Intelligence is strengthened with the new Turin Track. Alongside the Milan program, students spend part of their studies in Turin and complete an internship at AI4I, a center of excellence for AI and industrial impact. The track is supported by Fondazione Compagnia di San Paolo, with scholarships and tuition waivers of up to 100%.

# When Creating Means Describing

*With generative AI for images, there is a shift to the creative act. This change lowers barriers but risks compressing complexity, diversity and visual authorship*

by Chiara Plizzari

// A crowded city street at dusk, soft rain, cinematic lighting." And within seconds, the model will deliver unique images that match your input. Generative artificial intelligence is no longer confined to language. In recent years, models capable of producing realistic images and videos from text descriptions have rapidly entered professional and everyday workflows. What once required cameras, studios or advanced design skills can now be achieved in seconds through a short written textual prompt. A short description, sometimes a single sentence, is enough to produce a detailed visual result. Between intention and result, there is now a pause — brief, often unnoticed — in which the creator just... waits.



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## THE IMPORTANCE OF DESCRIPTION

This shift is not only technological; it is changing how we think about images, creativity and visual communication. To generate an image, one must first decide how to describe it. Choices about style, mood, context and perspective are made in language before anything is seen, shaping the range of possible outcomes in advance. This reorders the creative process. Instead of looking at an image and adjusting it step by step, creators write a description, generate several images and then choose the one that works best. Visual decisions that once emerged during production are now embedded in description. The moment of waiting becomes integral to the process: a short interval in which authorship is suspended and outcome is uncertain. Creativity unfolds not through continuous action, but through discrete acts of instruction through description followed by a small delay. This has clear practical advantages. Language is

**NOT EVERYTHING IS EASY TO DESCRIBE. LANGUAGE HAS ITS OWN INTRINSIC LIMITS, AND SOME IDEAS ARE VAGUE**

# [LARGE LANGUAGE MODELS]

accessible. Many people who cannot draw, take a high-quality picture or design can still describe what they want to see. Ideas that might have remained abstract can quickly be turned into images that support communication, learning or planning. In this sense, AI image generation lowers barriers and expands participation. The benefits of this transformation are already visible. Designers use generative images to explore ideas more quickly. Educators visualize abstract concepts for students. Marketing teams test visual directions before committing resources.

## **BUT COMPLEXITY IS HARD TO DESCRIBE**

At the same time, language brings its own limits. Not everything is easy to describe. Some ideas are vague, emotional or embodied. Some visual experiences resist clear naming. When images are generated through text, what can be easily described is more likely to appear, while what lacks words may remain unseen. Prompts often rely on shared references and familiar categories. As a result, generated images tend to follow recognizable patterns, and diversity

**TODAY, CREATION NO LONGER UNFOLDS BY MAKING, BUT THROUGH WORDING. ONCE THE PROMPT IS WRITTEN, THE HUMAN ROLE RECEDES — AND THE IMAGE TAKES SHAPE ELSEWHERE**

depends not only on the model, but on the language used to guide it. This shift helps explain the contrasting reactions to AI-generated images. For some, generative AI is a natural continuation of past technologies that expanded creative possibilities, increased productivity and lowered barriers to visual expression. From this perspective, it offers more people the ability to work with images, experiment with ideas and communicate visually without specialized skills.

## **ART BECOMES THE WORD**

For others, the same developments raise serious concerns. When images are generated quickly from language, creative labor can appear interchangeable,

styles can be reproduced without clear consent and visual production risks becoming more industrial. What is framed as efficiency and democratization can also feel like a loss of authorship, value and recognition for those whose work has shaped the visual languages these systems now reproduce. What is certain is that Ananda K. Coomaraswamy's claim — "It is by a word conceived in intellect that the artist, whether human or divine, works" — has acquired a new, technical resonance. Today, the word is not only the beginning of creation; it is almost the entirety of the human contribution. After it is written, the rest unfolds elsewhere. The artist types, submits and waits... and the image arrives.



**THE BOOK.** *We have moved from an era in which programming required years of study to a new reality where it is enough to describe what we want in our everyday language to see the code write itself. Francesco Maria De Collibus, in La macchina che si autoprogramma (The Machine That Programs Itself, Egea, 2025, 136 pp., €17, in Italian), guides us through this epoch-making transition: from Silicon Valley to European garages, from giants like GitHub Copilot to emerging startups such as Cursor and Replit, he shows how not only the profession of the programmer is being redefined, but also what it means today to create technology.*



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# Growing Old with the Market

*How founders capture and sustain market attention over time*

by Paola Cillo and Gaia Rubera

In entrepreneurial lore, founders are often portrayed as bold visionaries who shape markets through disruptive ideas and persuasive narratives. But markets are not passive audiences. Customers respond, reinterpret and shift their interests over time, and founders who fail to adapt risk losing attention, even when their ideas are strong. This insight motivates a recent study we co-authored, published in the *Academy of Management Journal*. In the paper, we ask a simple but underexplored question: how do founders attract market attention when their startup is young, and how do they keep it as the venture grows older?

**THE BLACK BOX OF ENTREPRENEURSHIP**  
Much of entrepreneurship

research focuses on the moment of founding, when opportunities are identified and ventures are launched, and on eventual outcomes, such as growth or failure. What happens in between is often treated as a black box. Yet, this “in-between” period is precisely when founders and markets interact, learn from each other and co-evolve. Our study takes a dynamic view of entrepreneurship. We conceptualize entrepreneurship as an ongoing, two-sided interaction between founders and the market, unfolding over

time. Founders act, markets respond and these responses, in turn, reshape founders’ subsequent actions.

## **TAKING ACTION THROUGH ARTIFACTS**

To study this process, we build on the entrepreneurial action literature and the design view of entrepreneurship, which emphasizes that founders act through artifacts — means through which imagined opportunities are made visible and testable in the world. We focus on three artifacts that capture different ways in which founders can influence,

**SUCCESSFUL FOUNDERS EVOLVE OVER TIME. ADAPTABILITY IS FUNDAMENTAL**

listen to or learn from the market:

- Leading the market discussion, by introducing new themes and frames that influence what the market talks about.
- Following the market discussion, by adapting founder communication to topics that are already gaining traction among customers.
- Introducing new products, material artifacts that embody the startup's evolving understanding of market needs.

To empirically test our theoretical framework, we analyze 1,529 US startups founded in 2014–2015. Using social media data, text analysis and time-series methods, we track how founders' communication and market discussions evolve quarter by quarter. We then relate these dynamics to market attention, measured through organic traffic to startups' websites, a strong indicator of visibility and future growth. This longitudinal approach allows us to move beyond snapshots and examine when different founder strategies are most effective.

Our results reveal a clear temporal pattern.

## **WHEN LEADING THE MARKET WORKS (AND WHEN IT DOESN'T)**

In the early stages, leading the market discussion pays off. Founders who successfully introduce new ways of framing problems and solutions attract more attention when their startup is still unknown. At this stage, standing out matters. Over time, however, this advantage fades. Once a startup has established an identity, repeatedly trying to redefine the conversation can



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confuse audiences or clash with established expectations. In contrast, following the market discussion becomes increasingly effective. Founders who listen carefully and adapt their communication to evolving market interests are better able to sustain attention. Finally, new product introductions matter, but with a delay. Launching new products does not immediately boost attention, but its impact grows over time, signaling learning, progress and responsiveness to customer needs.

## **FOUNDERS: FROM MARKET INFLUENCERS TO ATTENTIVE LISTENERS**

In short, founders seem to benefit from leading first, then listening and adapting, while gradually reinforcing their relevance through tangible products. These findings challenge the idea that successful entrepreneurship is only about shaping markets. Instead, they suggest that effective founders evolve over time: from market influencers to attentive listeners. This shift does not imply abandoning vision. Rather, it highlights the importance of adaptability: sustaining attention requires recognizing when to push new ideas and when to let the market guide the conversation.

For founders, the message is practical: capturing market attention is not a one-off achievement, but an ongoing challenge that requires changing gears as the venture matures. Like the John Lennon song that shares its name, Grow Old with Me is a story of evolution, empathy, and lasting connection: how great founders grow old with their markets. The best is yet to come!

**THE PAPER.** Grow Old with Me: The Temporal Dynamics of Founder–Market Interactions in Capturing Market Attention, by Paola Cillo, Gaia Rubera

# Solidarity Put to the Test

*From NextGenerationEU to European public goods, the European Union is experimenting with a new form of economic solidarity. Yet the absence of genuine political solidarity limits its ambition and credibility*

by Eleanor Spaventa

Solidarity as a value has always underpinned the European integration project — in fact it is in its very DNA. That said, it is undeniable that solidarity has acquired new relevance in recent years and especially after the Covid-19 pandemic: as it is widely known, the European Union adopted, comparatively swiftly, new instruments aimed at supporting the economic recovery of Member States after the severe disruptions caused by the pandemic. Amongst those, the most revolutionary is NextGenerationEU (NGEU): the EU issued bonds to then (re)distribute the proceeds

to Member States in both loans and, crucially, non-repayable grants. NGEU thus represents the first sizeable fiscal transfer from the European Union to its Member States, underpinned by solidarity between the EU — which issued the bonds and administered loan and grants — and its Member States; and between the Member States themselves, which accepted to guarantee the NGEU bonds. In this way, for instance and to simplify somewhat, the Dutch taxpayer accepted liability for sums that have been awarded to the Italian state, thus creating true cross-border solidarity between citizens.

**THE NGEU PROJECT REPRESENTS THE FIRST SIZEABLE FISCAL TRANSFER FROM THE EU TO ITS MEMBER STATES, CREATING TRUE CROSS-BORDER SOLIDARITY BETWEEN EUROPEAN**



## A PARADIGM SHIFT IN ADDRESSING COMMON CHALLENGES

But NGEU has also been the first step of a change of paradigm, which saw a progressive political acceptance that problems of a certain magnitude can be better addressed by the Union, and that, in order for solutions to be effective, a certain degree of solidarity might be required. This solidarity is justified not only having regard to our shared past and future, and to the existence of deeply intertwined economic and political interests.

The combination of new geopolitical challenges, the war in Ukraine, the ensuing energy crisis, the change in the US trade and foreign policy, all concur in providing a more solid justification for redistributive schemes: yet, redistribution can only be justified if there is a perceived benefit for society, for European citizenry, as a whole.

## EUROPEAN PUBLIC GOODS

After all, as long as the EU lacks meaningful extraction capacity to finance its own budget, it is the citizens that engage in solidarity across the confines of the Member States. Whilst we had already seen some transnational solidarity



### ELEANOR SPAVENTA

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through the operation of the free movement of workers and European Union citizenship provisions, NGEU is radically different in its ambition and scope. Based on this, we start seeing a lively debate about the need for the EU to deliver European public goods that, no matter where administered are of benefit for all European citizens. This is grounded in the belief that the level of interconnection among the different Member States justifies policies that are truly European in nature, such as measures to cushion citizens and industries from the energy crisis and achieve energetic autonomy (RePower EU), as well as measures to support and encourage Member

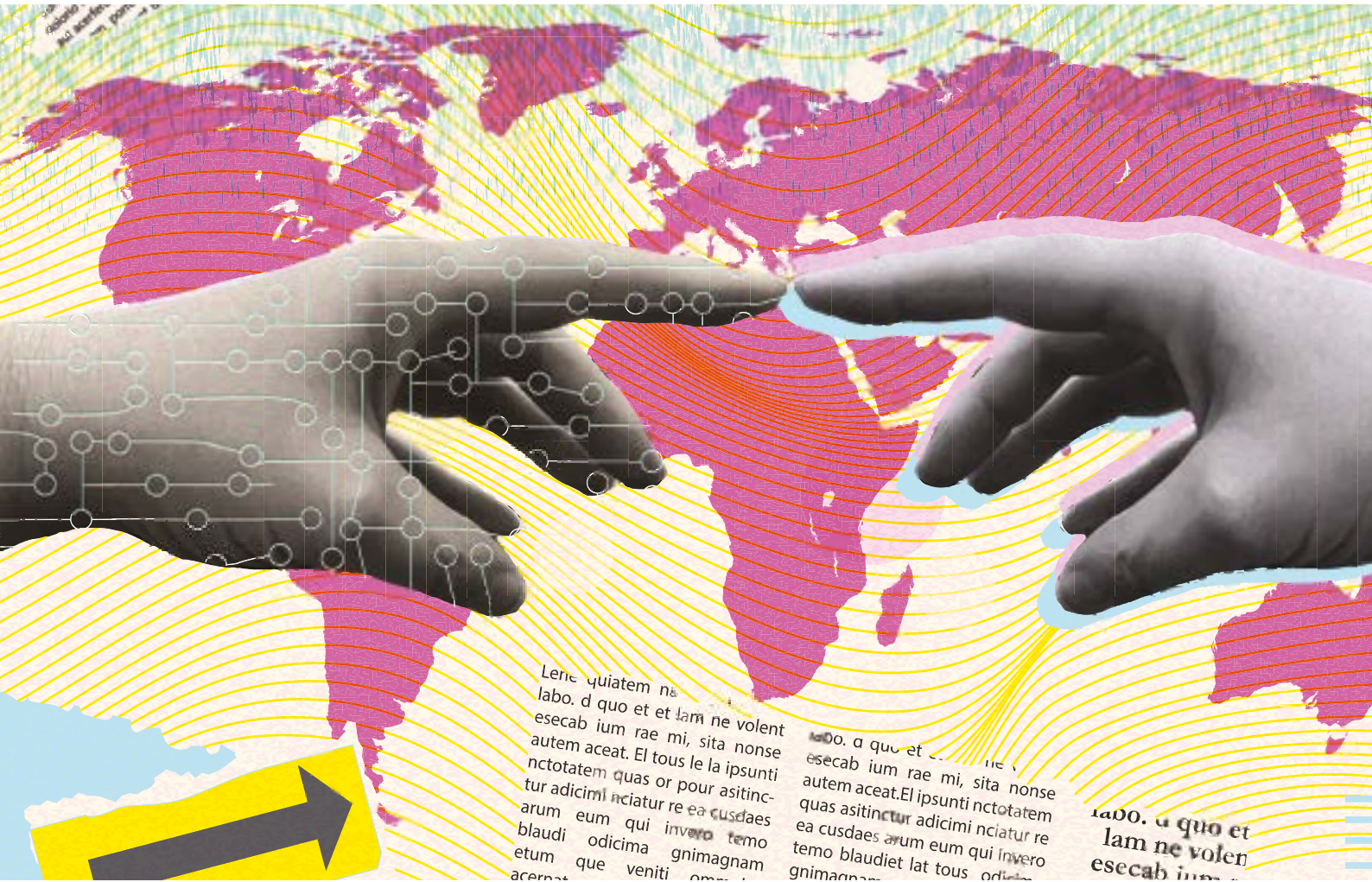
States to increase, integrate and coordinate their defense industries (SAFE as well as Readiness 2030).

## SOLIDARITY BEFORE THE COURT AND POLITICAL FRAGMENTATION

The “solidarity narrative” is becoming a powerful driver of the interpretation of the Court of Justice of the European Union: for instance, in April 2025 the Court clarified that Union citizenship is “one of the principal concrete expressions of solidarity which forms the very basis of the process of integration,” and that the principle of loyal cooperation means that Member States must refrain from enacting measures which might jeopardize the attainment of the EU’s objectives. This said, whereas a certain degree of economic solidarity has become more widely accepted and acceptable, political solidarity amongst Member States remains inconsistently attained and still driven by national(istic) considerations leading to a highly ineffective EU foreign policy: in this regard, contrast for instance the decision to issue bonds to finance a much needed loan to Ukraine, a decision which through legal gimmicks was adopted even though three Member States (Hungary, the Czech Republic and Slovakia) were opposed, to the lack of EU-wide solidarity towards the Kingdom of Denmark in relation to the territorial threats issued by the US administration in relation to Greenland. And this lack of political solidarity is weakening, perhaps beyond repair, the very *raison d’être* of the European Union — the international rules-based order.

**POLITICAL SOLIDARITY AMONGST MEMBER STATES REMAINS INCONSISTENTLY ATTAINED, WEAKENING THE VERY RAISON D’ÊTRE OF THE EUROPEAN UNION**

# The New Geography of Energy



*How the energy transition is reshaping European markets, competitiveness and economic power*

by Francesco Decarolis

**T**he energy transition is not only reshaping our sources of power; it is redrawing the economic map of Europe. The structure of energy markets is being rebuilt from the ground up — with carbon as a cost, renewables as the major source of power, and electrification as the target of a broad industrial and social transformation. This transformation is indeed not just technological; it is institutional, financial and deeply geopolitical. When the EU launched its

Emissions Trading System in 2005, it did not set electricity prices directly. But it changed the hierarchy of technologies generating electricity. By pricing carbon, it pushed carbon-emitting sources such as coal and oil up the cost curve and, over time, made renewables more attractive, translating climate ambition into real market behavior. So, if on the one hand, subsidies to renewables production incentivized their deployment, the price of carbon lowered

the appeal of investments in the thermal sources, especially the most polluting ones. Today, after two decades, the result of these movements is a profound shift: in Italy in 2024, solar and wind generation accounted for 36% of net installed capacity and, together with the other renewables, for 55% of net installed capacity from renewables.

## A NEW CHALLENGE

Yet this success has exposed a new challenge. The very markets that once rewarded efficiency now struggle to signal the right incentives for the transition. In 2024, Europe saw solar installations collapse by 90% after the record year before. The causes were not political, but structural: a shortage of available sites, grid bottlenecks, slow permitting, and volatile short-term prices that confuse rather than guide investment. The electricity auctions that once represented the triumph of market design now show negative prices and erratic spreads — symptoms of a system out of sync with its own goals.

At the macro level, the implications are equally striking. Using state of the art econometric tools, we can trace how a carbon price shock propagates through the economy. Prices rise, output falls, unemployment ticks up — but emissions decline. The mechanism works, yet the cost



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is real and uneven. Some sectors bear the burden more than others, depending on how deeply they are electrified. Industries that rely more on electricity show remarkable resilience: their investment declines are one-third those of fossil-intensive sectors, and they recover faster. Electrification, in this sense, is not just an environmental strategy — it is a competitiveness strategy. But the key to that resilience lies in the source of the electricity itself. Clean electrification, based on renewables, can shield economies from shocks, provided we redesign markets to support long-term investment. The core problem is temporal:

renewables require large upfront capital but face volatile revenues in short-term markets. Prices that swing from negative to triple digits cannot finance a solar plant. This is why long-term instruments are emerging as the backbone of the new energy order.

## THINKING LONG TERM

Two models dominate this landscape: Power Purchase Agreements (PPAs) and Contracts for Difference (CfDs). PPAs are private, long-term contracts between producers and corporate buyers — powerful tools that reveal the real value of renewable energy and mobilize private capital. CfDs, by contrast, are public contracts that stabilize prices through auctions, reducing financing costs but requiring careful design to avoid crowding out private deals. The future of the European market depends on how these two forms of contracting coexist — how public and private risk-sharing can be aligned rather than opposed.

## THE ROLE OF INSTITUTIONS

For Italy and Europe alike, this is an institutional frontier as much as a technological one. Reforming public procurement to integrate renewable PPAs, coordinating CfD auctions across borders, and using public guarantees wisely — not as subsidies, but as enablers of private investment — will determine whether the transition is efficient, fair and durable. Energy markets have always reflected our economic order. The challenge now is to make them express our collective ambitions: not only efficiency, but resilience and justice. Moving beyond prices means designing institutions that turn climate goals into stable incentives and ensuring that the energy map we are drawing today can sustain growth, innovation and hope for decades to come.

**WHEN THE EU LAUNCHED ITS EMISSIONS TRADING SYSTEM IN 2005, IT DID NOT SET ELECTRICITY PRICES DIRECTLY. BUT IT CHANGED THE HIERARCHY OF TECHNOLOGIES FOR ELECTRICITY GENERATION**

# Energy, Independence and Competitiveness

*Why the transition is a strategic choice and not just an environmental one*

by Sylvie Goulard

**B**eyond the imperative of preserving the planet, the energy transition is a strategic challenge that Europeans must urgently recognize. Firstly, energy — alongside defense and innovation — is key to independence. European countries that relied on cheap Russian gas learned this the hard way following the invasion of Ukraine in 2022. In this context, it is deeply concerning that, under the trade agreement signed with the United States in July 2025, the European Commission committed to purchasing oil, liquefied gas, and nuclear fuel worth \$750 billion over three years. Not only can the Commission not compel European companies to follow through, but the Trump administration explicitly stated that the agreement would “strengthen US energy dominance.” And earlier this year, the military intervention in Venezuela again highlighted the role of energy in America’s new foreign policy. President Trump made no secret of his interest in Venezuela’s vast oil reserves. Similar ambitions are evident in the push to control Greenland and Canada — territories rich in minerals, hydrocarbons and water. Meanwhile, China has secured privileged access to the rare earth minerals



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essential for the transition. After fierce price dumping, it now dominates the solar panel market and threatens Europe’s wind turbine industry.

## **WHAT DOES EUROPE WANT?**

With these new dependencies in mind, decarbonization and the shift to renewable energy are indispensable if Europeans wish to increase their strategic autonomy. But do they truly want to? The European project began in 1950 with the supranational pooling of coal and steel production. In 1957, Jean Monnet attached greater importance to the Euratom agreements than to the Treaty of Rome. Unfortunately, despite the 1973 oil shock, the common energy market stalled. Diversity in Europe’s energy mix is not necessarily a bad thing for collective resilience and competition,

**BEYOND THE IMPERATIVE OF PRESERVING THE PLANET, THE ENERGY TRANSITION IS A STRATEGIC CHALLENGE THAT EUROPEANS MUST URGENTLY RECOGNIZE. ENERGY IS KEY TO INDEPENDENCE**

which drives innovation. However, this diversity is less a conscious choice, grounded in a comprehensive vision, than a default situation. Major national decisions, such as Germany's nuclear phase-out, have been made unilaterally, even as valuable progress was made in renewables, particularly in Germany and Spain. It is worth noting that political or ideological antagonisms (pro- or anti-nuclear, pro- or anti-wind) pay little heed to the interconnections of national electricity grids. Everyone consumes what is available on the market at any given moment, without knowing where the power comes from...

#### **ENERGY: STRATEGIC FOR BUSINESSES**

Moreover, energy is a strategic factor in corporate competitiveness. According to Eurostat, in 2025, the average price for 100 kWh was €28.7, with significant variations: €38.4 in Germany, €32.9 in Italy, €26.6 in France, and €26.1 in Spain. The report "Much More Than a Market" by Enrico Letta rightly raises the issue of energy in a supposedly single market and makes various proposals regarding interconnections and hydrogen, for example. With the development of Artificial Intelligence — highly energy- and water-intensive — EU internal distortions are likely to weigh even more heavily in the future. Thus, not only do ecological imperatives urge us to accelerate the transition, but Europeans have every reason to work toward greater independence. Pitting transition against competitiveness is a strategic mistake and a short-sighted view.

# Reducing One Dependence Without Creating Another

*New European vulnerabilities amid renewables, technologies and global value chains*

by Gianmarco Ottaviano



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Europe's green transition is widely presented as a path toward greater energy security. By reducing reliance on fossil fuels and expanding renewable energy, the European Union aims to limit its exposure to external shocks and geopolitical pressure. After Russia's invasion of Ukraine exposed the risks of excessive dependence on a single supplier, this ambition has become both urgent and widely shared. Yet, as with globalization itself, the transition raises a familiar question: how to reduce vulnerability without simply reshaping it. The rapid exit from Russian pipeline gas has demonstrated Europe's capacity for adaptation under pressure. In the short term, American liquefied natural gas (LNG) has played a stabilizing and largely constructive role. US LNG helped Europe avoid shortages, calm markets, and maintain economic activity during an unprecedented energy shock. In this sense, it has been an essential component of Europe's energy security strategy and a tangible

expression of transatlantic cooperation.

## **EUROPEAN STRUCTURAL CHALLENGES**

At the same time, reliance on LNG highlights structural challenges that deserve attention. Liquefaction, transport and regasification make LNG inherently costlier than pipeline gas. As a result, European energy prices remain persistently higher than those of key competitors, particularly the United States itself. Over time, this price gap risks weighing on industrial competitiveness and investment, especially in energy-intensive sectors. Moreover, while the transatlantic partnership rests on shared values and longstanding alliances, energy policy in the United States inevitably reflects domestic priorities, regulatory choices, and political cycles. From a European perspective, diversification remains preferable to long-term reliance on any single external source, even a trusted one.

## **A TECHNOLOGICAL DEPENDENCE**

Renewable energy offers a more durable solution. Wind and solar are local resources: once installed, they reduce exposure to volatile global fuel markets and cannot be interrupted by closing a valve or redirecting a shipment. In

## **EUROPEAN ENERGY PRICES REMAIN PERSISTENTLY HIGHER THAN THOSE OF KEY COMPETITORS. THIS PRICE GAP RISKS WEIGHING ON INDUSTRIAL COMPETITIVENESS AND INVESTMENT, ESPECIALLY IN ENERGY-INTENSIVE SECTORS**

this sense, the green transition promises a structural break from the geopolitics of fossil fuels. But energy systems depend not only on resources, but also on technologies, industrial capacity, and critical raw materials. Here, Europe faces a different form of dependence. China holds a dominant position in the production of solar panels, batteries and the processing of rare earths and other critical inputs essential to clean energy technologies. This dominance reflects long-term investment and strategic industrial policy, but it also creates highly concentrated supply chains. Accelerating decarbonization by relying almost exclusively on imported technologies may achieve climate targets, yet it risks exposing Europe to new strategic vulnerabilities.

**OBJECTIVE: RESILIENCE**  
Against this backdrop, the

debate on Europe's energy mix has become more pragmatic. While national preferences continue to differ, there is a growing awareness that system stability, affordability and security matter alongside decarbonization. In this context, existing low-carbon generation capacity (whatever its source) can contribute to smoothing the transition and reducing pressure on gas markets, without altering the central role assigned to renewables. The policy challenge for Europe is therefore one of balance. The objective is neither self-sufficiency nor disengagement from global markets; it is resilience. Building domestic industrial capacity, diversifying suppliers, investing in recycling, maintaining flexibility in the energy mix, and strengthening partnerships with like-minded countries can all help reduce risk while preserving openness. European integration itself was born from a strategic insight: that shared control over coal and steel could transform vulnerability into stability and cooperation. The green transition calls for the same spirit. If guided by foresight rather than urgency alone, it can become not just a response to climate change, but a new chapter in Europe's long effort to align economic openness with strategic autonomy.

## **THE DEBATE ON EUROPE'S ENERGY MIX HAS BECOME MORE PRAGMATIC. THERE IS A GROWING AWARENESS THAT SYSTEM STABILITY, AFFORDABILITY AND SECURITY MATTER ALONGSIDE DECARBONIZATION**

# Micro-Turbines and Artificial Intelligence: Toward Distributed Energy

*Giuseppe Imburgia, a Bocconi Alumnus, tells about the startup he joined as General Manager. Thanks to micro-wind, it promises to revolutionize distributed energy production*

by Andrea Celauro

Wind power? It's increasingly central to renewable energy, compensating the vulnerabilities of solar. A sector that isn't just made up of large offshore turbine farms — perhaps the first image that comes to mind when talking about wind power — but also of small turbines designed for self-generation, known as micro-wind power. We discussed this with Giuseppe Imburgia, a Bocconi University alumnus and General Manager of GEVI, a startup making rapid strides toward scale-up (it recently closed a €2.7 million seed round). GEVI has designed a smart vertical wind turbine, specifically intended for captive consumption and capable of integrating

artificial intelligence and shared generation. Imburgia, who joined GEVI specifically to steer the delicate phase of market entry, discusses the technology behind the product, the growth prospects of the firm and the role of micro-wind power in the energy transition, including industrial opportunities and unresolved regulatory issues.

## **Let's start here. What role can wind power play in the energy transition?**

Wind power complements solar, both large-scale and micro-scale. Wind technologies are essential because they produce energy even at night and in the winter months, compensating for the limitations posed by photovoltaic systems. This reduces the need for storage and makes the system more efficient. With micro-wind power, production is for self-consumption, and therefore the return on investment depends on lower costs with respect to purchasing from the grid and the massive savings on battery storage.

## **So, does micro-wind power have great potential?**

Yes, especially because the electrical grid is not ready to handle the flows we'll have in the future, with the strong growth of renewables and electric mobility. Distributed solutions for captive consumption relieve the grid and, therefore, I believe, will be increasingly

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**GIUSEPPE IMBURGIA**  
General Manager of GEVI,  
Bocconi Alumnus



incentivized. The problem is that, until now, truly efficient and sustainable micro-wind technologies have been lacking. We are persuaded we have opened a blue ocean market.

### **What are the main challenges today?**

Bureaucracy and the regulatory framework. In Italy, there is no clear regulation for a 3kW turbine like ours, and each local authority applies different rules to authorize its installation. There is a range going from complex engineering certifications of supporting structures to free private installation. This creates uncertainty and slows down market growth. It's paradoxical, because GEVI is an entirely Italian business: the technology, the suppliers and the expertise are all Italian, yet today we see that we have only developed a small portion of the business in Italy.

### **What do you want from politicians?**

An updating of regulations and a more balanced vision of renewables. Today, incentives are almost exclusively focused on photovoltaic solar, but the energy transition

**WE NEED A REGULATORY UPDATE AND A MORE BALANCED APPROACH TO RENEWABLES. TODAY, INCENTIVES ARE ALMOST EXCLUSIVELY FOCUSED ON PHOTOVOLTAICS, BUT THE ENERGY TRANSITION REQUIRES A MIX OF WIND AND SOLAR**

requires the mix of the two technologies. Wind power, even small-scale and for self-consumption, can make a significant contribution if placed within a clear and coherent regulatory framework.

### **What kind of company is GEVI today?**

We're still a startup, but with scale-up ambitions. Today, we're entering the market with a technology that's ready for pre-series production. After announcing the investment round, we received over 650 commercial inquiries from around the world in less than two months. We have a so-called "happy problem": demand is exceeding our current production capacity. Now the main challenge is to

scale in an orderly manner, find industrial partners and maintain control of business growth.

### **Let's delve into the technology: what makes your wind turbine different?**

GEVI develops small-scale vertical wind turbines designed primarily for self-consumption. The main difference compared to traditional turbines is the use of artificial intelligence that orients the blades independently and continuously, based on wind conditions. Historically, vertical turbines have never caught on because they are less efficient than horizontal ones. We have overcome this limitation.

### **How?**

Thanks to a system that combines an advanced anemometer, which we have developed in-house, and machine learning algorithms. In practice, the turbine "reads" wind speed and direction in real time, and artificial intelligence calculates the optimal position of each blade instantaneously. This way, we maximize production in the active phase and reduce losses in the passive phase.

**DISTRIBUTED SOLUTIONS FOR SELF-CONSUMPTION RELIEVE THE GRID. UNTIL NOW, TRULY EFFICIENT AND SUSTAINABLE MICRO-WIND TECHNOLOGIES DIDN'T EXIST. WE ARE PERSUADED WE HAVE OPENED A BLUE OCEAN MARKET**



# When Markets Are No Longer Enough

*A study of 11 European electricity operators shows how digitalization, artificial intelligence and cross-sector collaborations are reshaping the future of the electrical sector. But bureaucracy, cultural inertia and outdated rules are slowing the industry's capacity for innovation*

by **Andrea Celauro**

Electricity grids are the backbone of the energy transition. As Europe accelerates decarbonization, Transmission System Operators (TSOs) find themselves at the center of a momentous change that requires new technologies, governance models and more open engagement with regulators. The study *How do electricity TSOs embrace innovation to future-proof their role in the energy transition?* by Andrea Biancardi of the SDA Bocconi School of Management and Iain Staffell of the Centre for Environmental Policy at Imperial College London, explains how these players are addressing the challenge. Published in the journal *Energy Strategy Reviews*, the paper provides an in-depth analysis of the innovation strategies of 11 European TSOs, aiming to understand how these organizations are rethinking their role in the era of energy transition.



**ANDREA BIANCARDI**  
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## INNOVATION MODELS

The study shows that more than half of operators adopt a centralized innovation model, with dedicated units or R&D departments defining priorities and lines of action. However, there is a growing trend toward hybrid or decentralized models, in which business units actively participate in project selection, helping to bridge the gap between strategy and operational needs. According to the authors, this evolution represents one of the best practices emerging, as it makes innovation “more real,” anchored to the concrete challenges coming from daily grid management. The priority areas for investment reflect the growing technical and digital complexity of the electricity system. “System Operation” — optimizing system functioning — is the most cited concept among the TSOs interviewed, followed by “Digitalization.” Big data and artificial intelligence (including generative AI) are emerging strongly, considered as cornerstones

**THE PAPER.** How do electricity TSOs embrace innovation to future-proof their role in the energy transition?, by Andrea Biancardi and Iain Staffell.

for predictive analytics, preventive maintenance and real-time management of energy flows. Digital twins, robotics, quantum computing and cybersecurity follow, while in the field of grid technology, Dynamic Line Rating (DLR) — which allows transmission capacity to be modulated according to weather conditions — and storage systems stand out.

## **COLLABORATION STRATEGIES**

To foster innovation, European TSOs are increasingly leveraging collaborations with startups, universities and other operators. Among the most notable examples are Equigy, an EU blockchain crowd-balancing platform, and the Centers of Excellence promoted by various operators: Terna's Mobility Lab, Elia's CoE for AI and Extended Reality, the National Grid AI CoE in the United Kingdom, and the partnership between RTE and the SuperGrid Institute in France. Alongside these tools, open innovation programs, incubators, accelerators and corporate venture capital funds are also emerging.

**TO ADDRESS THE CHALLENGES OF DECARBONIZATION, DIGITALIZATION AND ENERGY SECURITY, ELECTRICAL OPERATORS MUST FOCUS ON INNOVATION, MORE AGILE MODELS AND COLLABORATION WITH REGULATORS**

**THE TREND TOWARD HYBRID OR DECENTRALIZED MODELS REPRESENTS ONE OF THE BEST PRACTICES, AS IT MAKES INNOVATION 'MORE REAL,' I.E. ANCHORED IN CONCRETE NETWORK MANAGEMENT CHALLENGES**

## **CHALLENGES AND OBSTACLES**

However, critical issues remain. Regulatory constraints favor traditional CAPEX investments (in physical infrastructure) over more flexible and digital OPEX solutions, such as demand response or Non-Wire Alternatives (NWA). In the United States, the latter are more easily adopted and allow for improved grid efficiency without building new power lines, but in Europe they are struggling to take off due to a lack of incentives and a dearth of specialized regulation. Next to regulatory hurdles, the paper highlights cultural and organizational challenges. Nine out of eleven TSOs cite the difficulty of integrating new digital technologies, exacerbated by the lack

of specialized skills. The shortage of personnel skilled in digital and data analysis represents one of the main bottlenecks for the modernization of the sector.

## **FUTURE-PROOFING MANAGERS**

The study also proposes an agenda to future-proof TSOs. The recommendations include decentralizing innovation strategies, creating permanent laboratories and incubators, and increasing senior management commitment to the support of experimentation. Furthermore, updating the European regulatory framework is crucial, as it is still modeled on a centralized industrial context which is incompatible with today's digital and distributed networks.

"To address the challenges of decarbonization, digitalization and energy security," the authors conclude, "TSOs must integrate innovation into their core strategy, adopt more agile models and collaborate with regulators and industry partners. Only in this way can they ensure efficiency, resilience and sustainability in the long term."

# Ports, Energy, Industrial Power

*Why the energy transition requires maritime infrastructure*

by **Oliviero Baccelli**

The diversification of energy sources to achieve greater energy security and autonomy, along with the trend in decarbonization, have had a significant impact on the Italian port system. Indeed, these trends have emphasized the role of ports as essential energy hubs not only for traditional fossil fuel supply chains, but also for the import, production and distribution of new energy carriers (LNG, biomethane, hydrogen and derivatives, electricity from renewable sources) and for the development of new technologies in the sector, such as offshore energy and carbon capture and storage in underwater reservoirs.

## THE CENTRAL ROLE OF PORTS

The Italian energy system depends significantly on the

efficiency of national harbors, as 74.6% of energy resources are imported from abroad, compared to an EU average of 58%. At the same time, Italian ports heavily depend on energy traffic, considering that fossil fuels still account for nearly 40% of volumes handled. For example, 99.8% of crude oil and 100% of coal arrive by sea, although the latter is rapidly declining.

The energy transition also offers new strategic opportunities for ports, although challenges have clearly prevailed over the last decade. Indeed, the reconversion of refineries into bio-refineries (Gela and Venice) and the closure of nearly all coal-fired power plants located in ports have led to drastic reductions in traffic volumes, hence the need to manage complex conversions and remediation projects in specialized areas.



**OLIVIERO BACCELLI**  
*Transport Economist,  
Fellow of GREEN Bocconi*

## SEIZING NEW OPPORTUNITIES

It is thus urgent to support the ports reform proposals currently being discussed in Parliament with a national strategy that seizes the opportunities for the maritime port sector arising from decarbonization. It also involves leveraging initiatives to develop logistics for alternative energy sources (from electricity distribution directly from docks to ships and new energy sources based on hydrogen and its derivatives, to logistics hubs supporting the offshore wind energy supply chain), the production of new energy

**THE ENERGY TRANSITION IS TRANSFORMING PORTS INTO STRATEGIC ENERGY HUBS, NOT ONLY FOR TRADITIONAL FUELS BUT ALSO FOR NEW ENERGY SOURCES AND DECARBONIZATION TECHNOLOGIES**

sources (from photovoltaic parks to onshore wind turbines), as well as the development of new, more innovative supply chains, such as those related to carbon dioxide flows for carbon capture, usage and storage (CCUS).

### **A REGULATORY FRAMEWORK IN NEED OF MODERNIZATION**

Positive examples of new energy services in Italian harbors are still very limited, as implementing innovative strategies is particularly complex. A prime example of this is the onshore power supply network, which will be fully operational to support cruise shipping and container traffic in major ports by the end of 2026. This system involves replacing onboard engines with a direct connection to the electricity transmission grid when the ship is calling at a port. These developments have required 100% public investment (over €400 million for the main terminals alone) and ad hoc legislative support. Among the latter, changes to regulations governing the approval of new infrastructure were necessary to adapt them to the need for rapid completion, and a request for state aid eligibility (€570 million until 2033) as a service of general interest, in order to manage electrical supply directly at the docks, with third-party involvement and incentive pricing. The regulatory framework in this department is not yet complete, as regulatory guidelines for sustainable business models are still lacking.

In short, to harness new energy from ports, a governance model capable of steering strategic planning in new directions is also necessary. Who knows whether the new reform of Italian ports expected by the end of 2026 will be able to provide all this.

# A Resurgence for Natural Gas?

*Amid geopolitical shocks, liquefied natural gas and growing electricity demand*

by Michele Polo

Over the past five years, markets for energy have been determined by the intersection of decarbonization policies and the economic and geopolitical tensions affecting Europe and Italy. The development of renewable energy sources promoted by the European Commission has led to a steady increase in the stock of solar and wind power plants with a corresponding growing contribution of these power sources to electricity production (+150% in the 2019-2024 period), which constituted 47% of electricity generation in 2024. Coal and natural gas have seen a steady proportional decline, and contributed 29% of electricity generation in 2024. Natural gas for domestic use, while remaining the most important source of heating, declined by 21% in the five-year period from 2019 to 2024.

### **AFTER THE RUSSIAN INVASION**

The natural gas market was hit by a major shock with the Russian invasion of Ukraine in 2022 and the reduction in European imports from Russia, primarily by Germany and Italy, with the prospect of zero imports of Russian gas in the next two years. These



**MICHELE POLO**

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tensions were reflected in a rise in the price of natural gas, which in the summer of 2022 rose to more than 10 times the average price in the previous period. The sharp reduction in imports from Russia saw an increase in pipeline purchase of gas from Algeria, Azerbaijan and Norway, along with a steady growth in imports of liquefied natural gas (LNG). Unlike pipeline imports, LNG is transported by ship and is thus part of a global market. Italy has expanded its LNG terminals, increasing the weight of this energy source in the national economy, which also plays a very significant role in other countries, especially Spain.

## **IMPACT ON THE ELECTRICITY MARKET**

Tensions in the gas market during the 2022-2023 energy crisis also spilled into the electricity market, because gas-fired plants, despite their decreasing share over total energy production, in many stages are the marginal and most expensive technology thus determining the wholesale price for all other power producers. The exorbitant prices paid during this phase to the less costly plants, including renewables, have led to the capture of abnormal economic rents, triggering various measures to contain

**THE MASTER.** *The SDA Bocconi Master in Sustainability Management (MSM) is an intensive, one-year program (70 ECTS credits) that prepares to tackle sustainability from every angle – business, policy, and innovation.*

## **THE SHARP REDUCTION IN THE IMPORTS FROM RUSSIA DETERMINED A STEADY GROWTH IN LIQUEFIED NATURAL GAS IMPORTS, EXPOSING EUROPE TO DEPENDENCE ON THE UNITED STATES, CURRENTLY THE LARGEST SUPPLIER OF LNG**

prices across the EU, which however failed to eliminate the inflationary effect of gas on consumer electricity prices. This scenario leaves open a multitude of problems regarding both short-term developments and longer-term prospects. The reduction of the dependence on Russian gas has led to a growth in the share of liquefied natural gas, potentially exposing Europe to a similar dependence on the United States, currently the largest supplier of LNG. At the same time, because liquefied natural gas is a global market, Europe is exposed to the tensions and trends coming from other major economic areas around the world: an increase in gas consumption in Asian countries, for example, leads to an increase in the price of LNG that European countries have to pay for their imports.

## **A FUTURE OF LARGE CONSUMPTION**

Looking further ahead, numerous factors suggest significant growth in electricity consumption in the medium term. These include, for example, the replacement of fossil fuel heating by electricity and heat pumps. Similar substitution trends can be expected in many

industrial processes, with a shift from fossils to electricity. And, despite the uncertainties over the timetable set by the European Commission, the growth of electric mobility appears irreversible. Finally, there is the serious impact that data centers and server farms, including those linked to the development of artificial intelligence, are having on the demand for electricity, because of the electricity needed for operating and cooling these infrastructures.

## **A NEW DAWN FOR GAS?**

How will this growing demand for energy be met? Will it be driven by a steady development of renewable power generation, with fossil-fueled plants gradually declining in importance? And will the stronger role of renewables, characterized by discontinuity and non-programmability, require backup generation capacity entrusted to gas-fired plants, or will it benefit from new battery storage systems? And so, will gas, which at the final consumption stage is being abandoned in favor of electricity, find an unexpected resurgence due to the growth of the electricity supply? This is the crucial question that needs to be addressed today.

# Without Social Trust, the Green Transition Stalls

*Cristina Parenti, Executive VP of Communication & External Relations at Edison and Bocconi Alumna, explains why communicating about energy means being able to build consensus and facilitate cultural change*

by Camillo Papini

The future of all communication is oriented toward the personalization of content, language and media, but when it comes to communicating about the energy transition, building the conversation between consumers, companies, public institutions and private entities is the first priority. The reason? The fact that the energy transition is a change that encompasses technology, the environment and society, the economy and the whole culture. Many stakeholders are involved, and many topics and fields are touched upon. "It is, in fact, a profound cultural transformation. It means rethinking our lifestyle," says Cristina Parenti, Bocconi alumna and Executive VP of Communication & External

Relations at the Edison group. "When we talk about sustainable mobility, for example, the issue isn't just which means of transportation we choose, but how we rethink our habits, our lifestyle and our daily routines. It means asking ourselves whether we really need a car

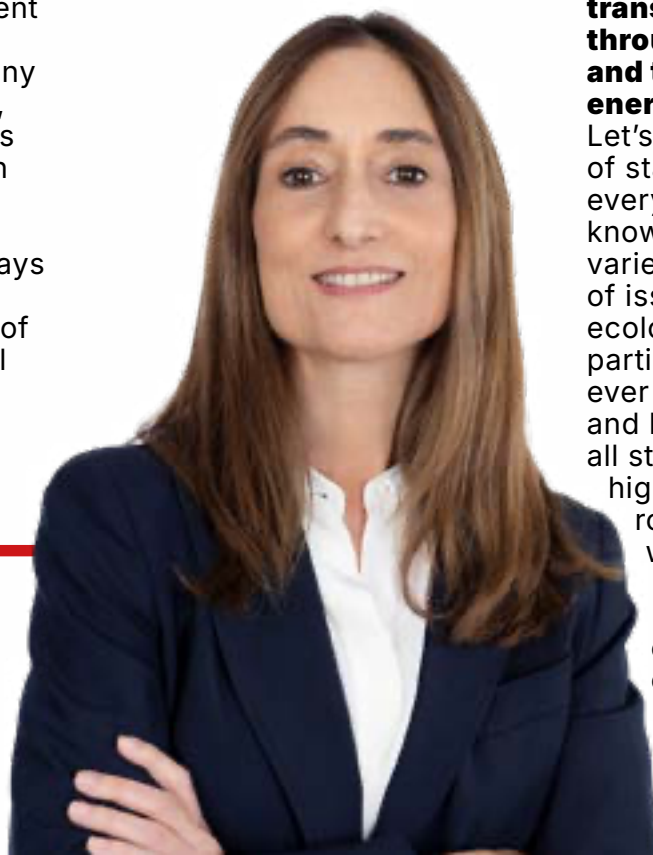
or whether we can walk, cycle or use public transportation." These daily choices are generating a new kind of awareness, according to Parenti. Younger generations have already made the cultural shift, but if everyone cultivates this mindset, the energy transition won't be seen as an obligation but will become a natural gesture.

**There is a collective dimension for the energy transition to be achieved through decarbonization and the optimization of energy consumption...**

Let's imagine an ecosystem of stakeholders in which everyone has different knowledge and needs. The variety and complexity of issues related to the ecological transition and, in particular, the need to foster ever greater awareness and knowledge among all stakeholders involved, highlight the strategic role of communication, which acts as a bridge between technological innovation and cultural evolution. To be effective, communication must translate complex concepts into clear

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**CRISTINA PARENTI**  
*Executive VP of communication & external relations at Edison, Bocconi Alumna*



## TO BE EFFECTIVE, COMMUNICATION FOR THE ENERGY TRANSITION MUST ENGAGE COMMUNITIES AND TRANSLATE COMPLEX CONCEPTS INTO CLEAR AND ACCESSIBLE MESSAGES

and accessible messages, tell stories that demonstrate the concrete benefits the transition brings to people and communities, and ensure consistency between words and action.

### How do digitalization and the proliferation of communication platforms help today?

Digitalization and the proliferation of platforms foster the production of customized content which is more effectively received, keeping in mind that it addresses both individuals and communities

of people with similar lifestyles, interests and types of behavior. Engaging diverse stakeholders in communication means creating spaces for dialogue, as well as information. Communication must be an interactive and inclusive conversation. Furthermore, it must not be forgotten that knowing whether and to what extent communication is effective requires that it be measured. Analyzing social communities, engagement levels, sentiment studies and stakeholder perception surveys are essential. With this in mind, the Edison-

CENSIS Observatory was established a few years ago to monitor the evolution of the awareness of the ecological transition among the Italian population.

### Looking to the near future, what are the main challenges for communication?

The most significant challenges and critical issues are misinformation, polarized debate and the difficulty of maintaining a high level of societal attention on the same issue, which is complex and long term. For all these reasons, it is essential to build credibility and trust in public debate, which must be inclusive and continuative. However, perhaps the most fascinating challenge is to accompany people, who are more ecologically aware today than ever before, toward the adoption of a new worldview. Talking about the ecological transition is the most important opportunity to discover what it actually means.

# Transition Is Not Linear

*Intermittency, accumulation and cannibalization of profits in the new energy system*

by **Iacopo Savelli**

The race to Net Zero is no longer a question of "if" or "when", but "how". Indeed, the costs of building renewables, particularly utility scale solar plants, has reached the point where they are often the cheapest form of electricity

THE RACE TO NET ZERO IS NO LONGER A QUESTION OF "IF" OR "WHEN", BUT "HOW". YET, THE ENERGY TRANSITION STILL REMAINS A COMPLEX JOURNEY

generation. Yet, the energy transition still remains a complex journey, and — as we move away from a fossil-fuel based system — novel challenges emerge. Some of them are physical. The sun does not always shine, and the wind does not always blow. This means that as we phase out dispatchable fossil fuel plants, we face the intermittency of renewables. To keep the lights on, we need flexible resources. Batteries are emerging as one essential solution for managing daily fluctuations. However, batteries have physical limits, particularly for durations longer than a day. To handle the so-called *Dunkelflaute* — periods where renewable generation drops for weeks — we need a combination of longer duration storage technologies (e.g. compressed air) and hydro and nuclear power, as well as novel clean technologies, such as hydrogen-based power plants. Perhaps the most underutilized resource is the people themselves. Demand-side response, i.e. engaging consumers to shift their energy usage, will be an essential source of flexibility. Yet, activating this at scale is difficult. It requires not just technology, but a fundamental shift in how people interact with the energy system, even though citizen energy communities are currently offering successful examples.



**IACOPO SAVELLI**  
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## THE CANNIBALIZATION OF PROFITS

Even if we solve the intermittency, we still face daunting economic challenges; one example is profit cannibalization. In simple terms, both renewables and batteries can be victims of their own success. When the sun is shining, solar power plants flood the grid with cheap power, driving wholesale prices near zero. This creates a phenomenon known as cannibalization. As more renewable capacity is added, the market price of that electricity drops. Analyses I conducted suggest that in

2030 a mere 10% increase in renewable capacity could reduce renewable profits by nearly 20%. This creates a dangerous feedback loop: the more we build, the harder it becomes to finance the next project.

To counter these risks, governments have introduced support schemes such as Contracts for Difference (CfDs) to guarantee revenue for renewable developers. While important, these schemes still suffer from a considerable lack of harmonization across Europe. Some countries use hourly reference prices; others use monthly averages. Some contracts last 15 years; others 20. This regulatory fragmentation may push investors to chase the subsidy, not the sunshine. Furthermore, some incentives still encourage a “produce-and-forget” mentality. If a generator is paid a guaranteed price regardless of market demand, they have no incentive to stop producing when the grid is congested or to build closer to demand centers.

## RETHINKING THE SYSTEM

We must also recognize that the very climate change that we want to fight will introduce profound shifts in solar irradiance, wind speeds and precipitation. These shifts will fundamentally alter generation potential and grid reliability, increasing the complexity of the energy models used to inform policymakers.

The energy transition is not just about building renewables, but it is about rethinking the whole energy system in a holistic and interdisciplinary approach to build effective and long-lasting solutions.

**AS MORE RENEWABLE CAPACITY IS ADDED, THE MARKET PRICE OF THAT ELECTRICITY DROPS — A PHENOMENON KNOWN AS PROFIT CANNIBALIZATION**



# The Cost of Feeling Green

What carbon credits reveal about actual consumer behavior

by Matthias Rodemeier

Voluntary carbon offsetting has become a common feature of consumer markets, from flights to online shopping. Yet a central question remains unanswered: when consumers choose to offset emissions, are they paying for actual climate mitigation, or primarily for the act of offsetting itself? What is the role of firms in shaping consumers' green preferences? My paper *Willingness to Pay for Carbon Mitigation: Field Evidence from the Market for Carbon Offsets* addresses these questions using a field experiment conducted with one of Germany's largest online grocery retailers. Carbon offsets were integrated directly into the checkout page, allowing customers to compensate for the emissions from their delivery by paying a small additional amount. The study observes more than 250,000 customers making real purchase decisions, without knowing they are part of an experiment.

## THE CONSUMER EXPERIMENT

The experimental design varies two dimensions independently and at random: the price of the carbon offset and the amount of carbon the offset compensates. This makes it possible to identify whether consumer demand for offsets responds to cost, to environmental impact, or to both. The first main result is stark. Consumers are sensitive to price reductions, but completely



**MATTHIAS RODEMEIER**  
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insensitive to increases in environmental impact. When the offset compensates more carbon for the same price, including up to four times as much, demand does not increase. This implies that while many consumers are willing to buy an offset, their revealed willingness to pay for the

carbon it mitigates is effectively zero. The behavior is consistent with economic theories of "warm glow", where people donate to feel good about themselves rather than to make a difference in the world.

## WHEN THE FIRM ALSO PARTICIPATES

This pattern changes once the online shop makes corporate participation in the offset program salient. In a separate treatment, customers are explicitly informed that the firm is sharing the cost of the offset, either by subsidizing the price or by matching the quantity of carbon compensated. Under this framing, demand becomes responsive not only to price but also to impact. Consumers are more likely to choose higher-impact offsets, indicating that they now value the amount of carbon mitigation delivered. Using this variation, the paper estimates an average willingness to pay about €16 per ton of CO<sub>2</sub> when the firm's contribution is made explicit. The evidence suggests that this

**WHAT IS THE ROLE OF FIRMS IN SHAPING CONSUMERS' GREEN PREFERENCES? WHEN CONSUMERS CHOOSE TO OFFSET EMISSIONS, ARE THEY PAYING FOR ACTUAL CLIMATE MITIGATION, OR PRIMARILY FOR AN ACT OF SELF-INDULGENCY?**

response reflects both fairness considerations — as consumers value cost sharing with the firm — and improved cognition, as corporate participation helps make an abstract concept like carbon mitigation more tangible.

**VOLUNTARY ACTION IS NOT ENOUGH**

However, even this higher revealed willingness to pay remains far below benchmark estimates of the Social Cost of Carbon, which recent studies place around \$185 per ton of CO<sub>2</sub>. The findings have clear implications: voluntary carbon markets, on their own, are unlikely to internalize more than a small fraction of climate externalities. For policymakers, the results reinforce the view that voluntary initiatives can complement but not substitute for mandatory carbon pricing and regulation.

**THE PAPER.**

Willingness to Pay for Carbon Mitigation: Field Evidence from the Market for Carbon Offsets, by Matthias Rodemeier

A complementary survey illustrates why observing true market behavior in the field is so important. When asked about their hypothetical willingness to pay in a survey, customers report an average willingness to pay €238 per ton. This is more than 1,000% higher than what they reveal through actual purchasing behavior in the field. The study provides rare field evidence on how consumers value carbon mitigation in real markets, and highlights the importance of corporate social responsibility in encouraging demand for sustainability.

# Without Finance, the Energy Transition Remains on Paper

*Valerio Micale, Associate Director of the Climate Policy Initiative and Bocconi Alumnus, explains the role and impact of financial institutions in greening the energy sector on the path to a Net Zero economy*

by Andrea Celauro

The role of financial institutions in the broader energy transition and the larger fight against climate change? Fundamental, as it is precisely through financial institutions — banks, insurance companies, asset managers and asset owners — that the investment game is played out regarding the financing of projects and the hedging of risks. Such investments, says Valerio Micale, Associate Director of the London office of the Climate Policy Initiative (CPI) and a Bocconi graduate from the Master in Environmental Economics and Management (MEMA), will have to multiply

globally if the Paris Agreements are to be met. Total investment in renewables has almost doubled, and capital spending in storage (batteries) and energy networks has grown fourfold.

**VALERIO MICALE**

*Associate Director of the Climate Policy Initiative, Bocconi Alumnus*



## INVESTMENTS FOR THE TRANSITION REACHED ALMOST \$2 TRILLION IN 2023 BETWEEN MITIGATION AND ADAPTATION: THERE IS THEREFORE STILL A SIGNIFICANT GAP COMPARED TO THE \$6 TRILLION NEEDED BY 2030

### What is the current state of investment in climate solutions, and what is the trend?

Investments for the energy transition reached nearly \$2 trillion in 2023, spanning from mitigation to adaptation. This leaves out a significant gap compared to the more than \$6 trillion needed by 2030 to attain investment targets. However, if current growth rates continue, annual flows could reach that level by that date. Of the \$1.8 trillion in investment for climate mitigation, the energy transition constitutes 45%, or approximately \$800 billion (and as much as 75%, or \$1.4 trillion, if the transport sector is also included).

### Does the energy sector play a central role in the transition to a greener economy?

Absolutely. In 2022, electricity and heat production accounted for approximately 44% of global energy-related CO2 emissions, according to the International Energy Agency. The energy transition generates positive spillover effects on the overall decarbonization process and

evolution towards a Net Zero economy. The data shows that, currently, progress in the energy transition has been primarily driven by private investment in renewable energy.

### Regarding financial flows, where are the largest gaps concentrated?

Gaps concern the industry's energy efficiency, due to the persistence of certain investment barriers, and then, in absolute terms, investment in renewables, which will need to rise from €800 billion to €1.3 trillion in the near future. There is an obvious gap that needs to be filled, especially in electricity grids and battery storage, where current investment levels must quadruple.

Another significant hurdle, which reveals something of the other side of the energy transition coin, is continued investment in new fossil fuel generation capacity. Even today, at least \$180 billion a year is still spent on new fossil fuel expansion projects. This is an aspect that is often neglected in discussions, but it is very important.

### In emerging countries, the cost of capital remains high. How to accelerate the transition in these economies?

Attracting international capital is crucial to prevent investment in new fossil fuel plants and the associated long-term lock-in effects. Investors from developed countries are needed. Institutional investors play a particularly important role, but they must balance risk management (in countries perceived as risky) with long-term returns. Multilateral development banks and climate funds can help in this regard, accelerating investment and promoting innovative forms of blended finance — finance in which public capital takes a subordinate position to private capital, thus cushioning investment risk and attracting private capital. Solutions of this kind include green bond funds, as well as debt and equity funds.

### And what contribution can policymakers make?

They have a key role in mobilizing financial institutions. In the European Union, where there are regulations on sustainable finance and legally established climate objectives, financial institutions are emerging with better performance across multiple green transition indicators. This stands out in comparison to other regions of the planet, such as the United States, where there is now strong opposition to Net Zero policies.



**THE BOOK.** In 2010, seventeen little-known chemical elements suddenly stepped into the global spotlight. Rare earths became in fact the focus of an unprecedented geopolitical crisis when China, which controls over 90 percent of global production, decided to drastically reduce exports. In *Terre rare* (Egea, 2025, 306 pp., €28.50, in Italian), Sophia Kalantzakos explores the historical roots of China's monopoly, the responses of the United States, Europe and Japan, and the implications for the planet's energy and technological transition.

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# [GENTRIFICATION]

## Milan: The Cultural Drive That Makes Neighborhoods Thrive

*A Bocconi study looks at twenty years of transformations in the city's cultural map: the northeast, northwest, and southwest are booming, while the center remains static. Culture does not start changes, but it accelerates them. Without rules, it may amplify exclusion*

by Diane Orze



# [GENTRIFICATION]

**A**t first, it is almost imperceptible: an art gallery appears in a side street, a small theater is reborn, a coworking space replaces an empty warehouse. Then come the outdoor seating areas, the developers, the glitzy renderings. And, eventually, the booming rents. It is in this subtle space, where creativity and the real estate market intersect, that the fate of entire Milanese neighborhoods is now being played out.

The first map of this interaction is provided by the study *Cultural investments and gentrification: An urban transformation study of the city of Milan between 2001 and 2021*, penned by Lorenzo Biferale (University of Chieti and Pescara), Paola Dubini (Bocconi) and a group of students from the master's degree course in Economics and Management in Arts, Culture, Media and Entertainment (ACME) at Bocconi. The work combines two decades of socio-economic data and almost 3,000 cultural organizations mapped by the MapMi project, providing a clear picture: Milan has not gentrified everywhere in the same way, instead following precise rules. And culture is often the seismograph, or the detonator, of these transformations.



**PAOLA DUBINI**  
*Associate Professor,  
Department of Management  
and Technology,  
Bocconi University*

## **THE GEOGRAPHY OF THE PUSH: THREE AXES THAT ARE HEATING UP AND TWO THAT REMAIN STATIC**

The new gentrification index gauged by the authors shows three areas of the city that have risen rapidly over the decade: the northeast, northwest, and southwest. Neighborhoods such as Lambrate, Quarto Oggiaro, Stephenson, Navigli, and Tortona are in the highest quartile of gentrification. These are the same areas where, since 2011, the largest share of new cultural openings has concentrated. The center, on the other hand, is another story: it appears as a huge "silent zone," not because it is not changing, but because it had already changed. At the opposite end of the spectrum, the agricultural belt to the south remains understandably impervious to major urban trends: low population density, few services, and little appeal to developers and investors. "Culture rarely initiates transformation, but it almost always amplifies it," explains Paola Dubini, professor of management, who co-designed the research. "When a new infrastructure—a subway line, a campus, a large real estate project—opens a gap, cultural offer follows and consolidates the change. And at that point, the dynamic tends to accelerate."

## **FOUR MILANS IN THE SAME CITY**

Combining the intensity of gentrification and new cultural investments, the study identifies four types of neighborhoods.

1. Cultural Catalysts: where cultural energy and socio-

**THE PAPER.** Cultural investments and gentrification: An urban transformation study of the city of Milan between 2001 and 2021, by Lorenzo Biferale and Paola Dubini

## **CITIES THAT WORK ARE THOSE THAT KNOW HOW TO MANAGE THE PACE OF CHANGE. TODAY MILAN IS BEING FORCED TO SUBMIT TO THAT PACE**

economic change progress together. This is the case in Lambrate, Tortona, and NoLo: places where coworking, artistic spaces, and new residents have rewritten balances and perceptions.

2. Cultural Precursors: neighborhoods where culture is fermenting but gentrification has not (yet) exploded. Isola and Sarpi fall into this category: very high cultural vitality, but limited social change for now.

3. Speculative Growth Areas: where prices rise even without culture. This is happening in areas such as Stephenson and QT8: the process is driven by real estate, infrastructure, and development strategies, with little cultural mediation.

4. Quiet Areas: hyper-gentrified center and suburbs that remain on the margins.

"The categories tell us something very simple: we cannot say that culture equals gentrification. It

is culture interacting with other forces," adds Lorenzo Biferale, a researcher at the University of Chieti and Pescara. "And when the interaction is unbalanced, culture risks becoming a multiplier of exclusion."

### **NOLO, TORTONA, LAMBRATE: WORKSHOPS IN A CITY THAT IS CHANGING TOO QUICKLY**

Actual examples help us understand.

In NoLo, the grassroots cultural boom of the last ten years—festivals, clubs, coworking spaces, associations—has generated considerable magnetism. But with the arrival of investors, the direction has changed: skyrocketing rents, growing tourist pressure, long-time residents under stress.

In Tortona, the metamorphosis began long ago: Design Week as a global brand, converted industrial spaces, real estate investments that have turned it into a 'creative district' –

with all the contradictions that come with that.

In Lambrate, the regeneration of the rail area paved the way, and culture jumped on board: galleries, studios, small institutions. The combination worked, but not for everyone.

### **URBAN POLICIES: THE POINT IS NOT TO BRING CULTURE, BUT TO BRING CULTURE WITH RULES**

The paper leaves little room for convenient interpretation: without targeted strategies, culture and the real estate market feed off each other, resulting in richer but less accessible neighborhoods.

The policy recommendations are clear:

- Regulation is needed, not just incentives: social housing, limits on real estate conversions, anti-eviction measures.

- Integrated planning is needed: culture, infrastructure, and urban welfare must move together.

- We need to distinguish between commercial culture and community culture: galleries and showrooms attract capital; social theaters, civic centers and bookstores attract communities.

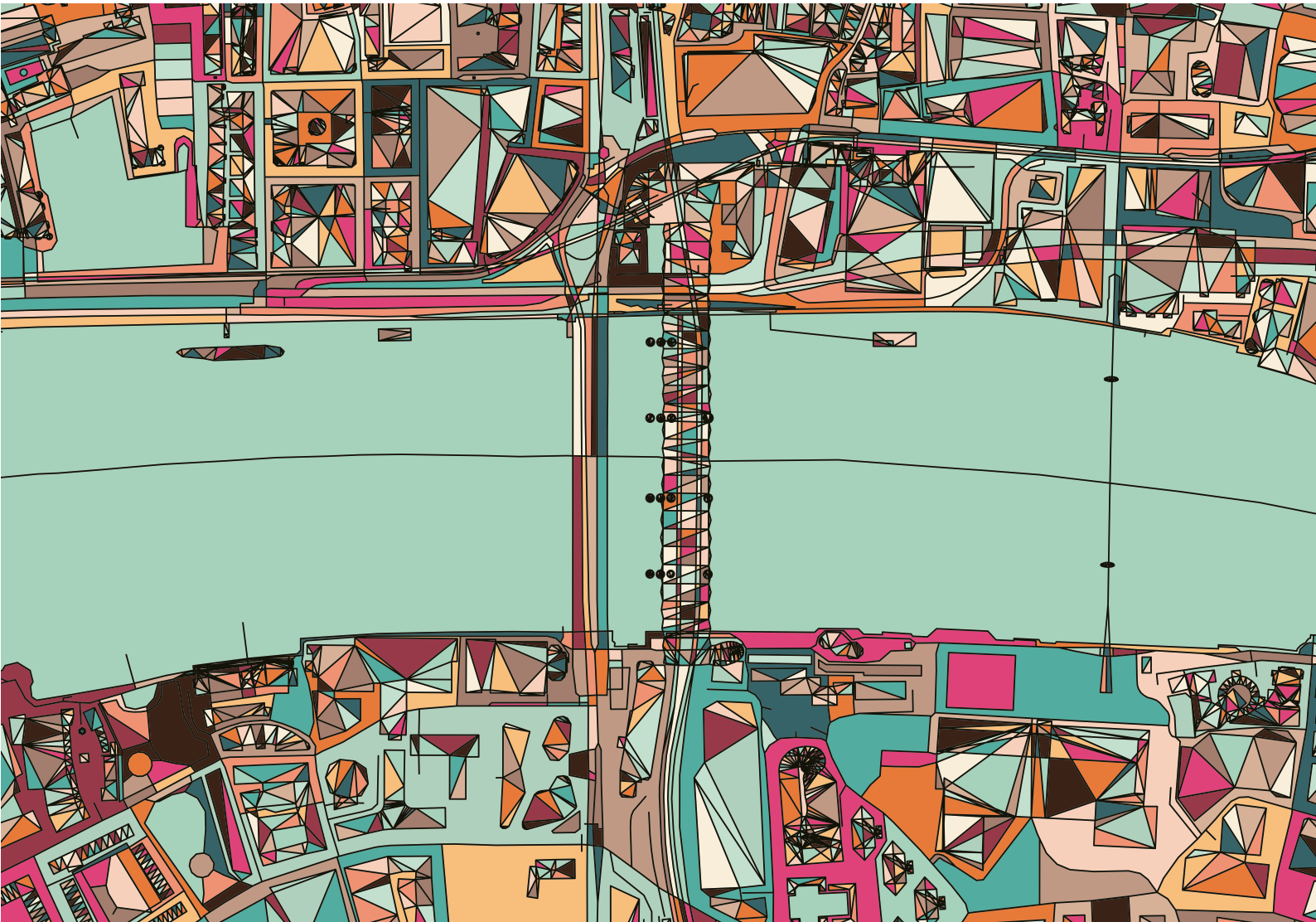
"Cities that work are those that know how to manage the pace of change. Milan today is being forced to that pace," concludes Dubini.

The issue, ultimately, is this: culture can make a neighborhood more vibrant, richer, and more beautiful.

But without adequate protections, it can also make it more exclusive.

Milan has reached a point of no return: it must continue to grow, yes, but it must decide for whom.

## **CULTURE DOES NOT EQUAL GENTRIFICATION. BUT WHEN INTERACTION WITH OTHER FORCES BECOMES UNBALANCED, CULTURE MAY BECOME A MULTIPLIER OF EXCLUSION**



# London: Startups, the Silent Engine Reshaping the City

*The first two decades of the 2000s, in one of the world's most dynamic entrepreneurial ecosystems, are a story of growth coupled with new social pressures. A Bocconi study shows how the emergence of innovative businesses can profoundly redefine the demographic, socio-economic, and commercial profile of neighborhoods. An energy that transforms, while simultaneously reshaping urban opportunities and vulnerabilities*

by Diane Orze

In London's East End, change has not been driven solely by large real estate projects or the arrival of a new underground line. It

has advanced quietly, almost imperceptibly: a coworking space opening in a former warehouse, a couple of digital startups renting a floor, a



# [GENTRIFICATION]

few young engineers or designers starting to stay in bars until late. The rest follows naturally. Within a few years, the faces, businesses, and even restaurant menus change. Above all, house prices change.

A new study by Luisa Gagliardi (Bocconi) and Olav Sorenson (UCLA), *Entrepreneurship and Gentrification*, shows that every startup that opens in a London neighborhood contributes, on average, to an increase of about 1.2 percentage points in housing prices over the following three years. This effect may seem modest, but since it accumulates, it is a strong factor redefining the social fabric of neighborhoods. And it does so in a different way from traditional gentrification: no longer driven by large developers or public investment, but by the spontaneous dynamics of the entrepreneurial ecosystem. "We are seeing a different form of gentrification: more spontaneous, less planned, and driven by the arrival of growth-oriented startups," explains Luisa Gagliardi, Assistant Professor of Management at Bocconi. "Their impact is rapid and far-reaching: they change the faces of those who live in the neighborhood, consumption models, and how much it costs to live there."

## HOW STARTUPS ARE TRANSFORMING THE URBAN FABRIC

The study is based on granular data on Greater London: 6,419 startups founded between 2001 and 2016, restaurant information from Tripadvisor, demographic data from the 2001–2011 censuses, and house prices from the



**LUISA GAGLIARDI**, Assistant Professor, Department of Management and Technology, Bocconi University

Land Registry. The units of observation are London wards, which often coincide with neighborhoods as perceived and recognized by residents themselves. The results show a pattern that is recognizable to anyone who has closely observed a neighborhood change. The first sign concerns who lives there. An increase in growth-oriented entrepreneurial activity—even if only by one standard deviation—rapidly changes the social composition of the

neighborhood. Between the 2001 Census and the 2011 Census, the proportion of residents employed in white-collar professions grew by 1.5 percentage points, while that of blue-collar workers fell by the same amount; the presence of residents with lower levels of education also decreased by 0.7 points. Such marked differences cannot be explained solely by the jobs created by new businesses. Rather, they indicate a deeper process of residential selection, fueled both by employment opportunities and by the neighborhood's overall increased attractiveness. As Gagliardi summarizes it, "Startups bring jobs, of course, but above all, they attract people who stay, consume, create, and end up redesigning neighborhoods." The second front of change can be seen in bars, restaurants, and shop windows. The arrival of young workers, often highly educated and with cosmopolitan tastes, is prompting business owners to quickly rethink their offerings or make room for new operators. The data clearly shows this: a one standard deviation increase in the number of start-ups increases the share of mid-to-high-end restaurants by 1.1% over the following three years, while ethnic and diverse cuisines increase by 2.7%. It is a change that residents perceive immediately, well before house prices begin to rise: the atmosphere changes, meeting places change, the daily experience of the neighborhood changes. It is a tangible, almost sensory sign of entrepreneurial gentrification already underway.

## THE PAPER.

*Entrepreneurship and Gentrification*, by Luisa Gagliardi and Olav Sorenson

**“STARTUPS BRING JOBS, OF COURSE, BUT ABOVE ALL, THEY ATTRACT PEOPLE WHO STAY, CONSUME, CREATE, AND END UP REDESIGNING NEIGHBORHOODS.”**

## **HOW THE ENTREPRENEURIAL ECOSYSTEM AFFECTS HOUSE PRICES**

The increase in housing prices stems from three intertwining self-perpetuating forces:

1. More jobs, closer to home. The presence of new businesses increases local employment: studies cited in the paper show that a 10-minute reduction in commuting time is worth around +4% in house prices.
2. More services and a more attractive urban environment. Higher-end restaurants, bars, and shops make the neighborhood more desirable for residents with greater spending power.
3. More attention and investment. The concentration of startups sends a clear signal to the market: this is a dynamic area. Investors and real estate operators follow suit, amplifying demand. The effect is surprisingly localized: price growth is concentrated in a neighborhood where startups are set up and quickly fades beyond its borders. And not all neighborhoods react in the same way: the impact is particularly strong in neighborhoods that were initially cheaper: in areas that were in the bottom 10% of house prices in 2001, the relationship between an increase in the number

of startups and real estate growth is nine times stronger than in more expensive areas. It is in the more affordable neighborhoods that change leaves stronger footprints.

## **WINNERS AND LOSERS IN A CHANGING CITY**

One of the most significant implications of the paper concerns the distribution of economic benefits: in neighborhoods affected by strong entrepreneurial gentrification, long-term residents are not always able to capture real estate gains. The areas where prices are rising the most are those with low levels of home ownership: in 2001, the average share of homeownership households was around 22%. In these neighborhoods, rents are rising rapidly and long-time residents, not being homeowners, are excluded from capital gains. “It is mainly landlords who benefit from the increase in real estate values,” notes Gagliardi. “Many residents have to leave their neighborhoods just as they become more livable.”

## **THE ENERGY THAT TRANSFORMS AND HOW TO MANAGE IT**

The study raises socio-economic implications that cannot be ignored: supporting startup ecosystems accelerates

urban growth, but at the same time intensifies housing pressures and can generate new forms of inequality. Evidence shows that growth-oriented entrepreneurship is a powerful driver of urban transformation, but it is far from neutral. This is why it is essential to understand not only how much growth it produces, but also how this growth is distributed and who benefits most from it. When costs and benefits are not distributed fairly, strong coordination with housing policies is needed, especially in neighborhoods where renters prevail, as well as tools to protect those who already lived in the neighborhood, to prevent regeneration from directly translating into social displacement. It is not a question of curbing growth, but of governing it in a fair and sustainable way. Excessive price increases are not only a mechanism of exclusion in the short term: they can stifle the next generation of entrepreneurs, making the very places where innovation was born inaccessible. The ‘gentrification of startups’ is a rapid and self-catalysing force, capable of bringing vitality, services and wealth. But without adequate policies, the very energy that renews neighborhoods can become a driving force for the expulsion of those who cannot sustain the new costs and new consumption, creating cities that are more dynamic, but also more fragile and divided. This fragility affects precisely what makes cities hubs of agglomeration: the diversity, openness, and inclusion that attract talent and allow them to fully express their innovative potential.

# The Limits of Transparency



*Disclosing discounts and rebates does not lower drug prices. Without incentive-based interventions, regulation risks reallocating costs rather than abating them*

by Nicola Maria Fiore

**W**hen people hear “drug prices,” they often picture a tug-of-war between patients and pharmaceutical companies. But in the United States, much of what you pay at the pharmacy counter is shaped by contracts you never see — negotiated not only by manufacturers and insurers, but by pharmacy benefit managers (PBMs), the intermediaries that design formularies and bargain over

[ **THE PAPER.**  
Can Drug Pricing Transparency Reduce Drug Costs?,  
by Nicola Maria Fiore ]

rebates. These rebates can be enormous, yet they are typically hidden from the public and even from some buyers. So it's not surprising that policymakers have rallied around a simple idea: if we make rebate flows visible, competition will improve and costs will fall.

## THE HIDDEN ROLE OF INTERMEDIARIES

That intuition is compelling. Transparency feels like a "light-touch" solution: don't set prices, just reveal information. In theory, once health plans can see what PBMs collect from manufacturers, they should be able to benchmark performance, renegotiate contracts and pass savings on to consumers. But markets don't always work like textbooks — especially when a few powerful intermediaries sit in the middle and can shift margins in ways outsiders don't observe.

In research using comprehensive administrative data from Medicare Part D, I study state laws adopted between 2019 and 2022 that required PBMs to disclose detailed rebate and fee information to health plans. These reforms created a natural experiment: the rules were introduced at different times across states, and they changed what was observable without directly regulating prices. That makes them a clean test of a big

question: does disclosure alone reduce what patients pay?

## THE EFFECT OF TRANSPARENCY

The answer is, mostly, no. After these laws took effect, premiums, deductibles and out-of-pocket payments in Medicare Part D remained essentially unchanged. The same is true for negotiated drug prices and the composition of formularies. In other words, more information did not translate into cheaper drugs or more generous insurance design — at least in this setting.

The most telling pattern appears across state borders. Many insurance contracts operate in multiple states, and when some states imposed transparency rules, costs in other, unaffected states rose for plans connected to the newly regulated markets. The implication is subtle but important: when regulation tightens one channel, intermediaries with national portfolios may respond by re-optimizing elsewhere. Transparency changed what could be monitored in one place — but not necessarily the overall incentives that determine what is paid.

## WHY DOES THIS MATTER?

First, it challenges a popular assumption in policy debates: that disclosure is an easy substitute for deeper reforms. Transparency can improve



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oversight, but it may not lower costs when bargaining power stays concentrated and when contracts allow profits to be preserved through other, less visible margins. Second, it highlights a practical risk of "partial" regulation in integrated markets: if rules differ across jurisdictions, firms may shift costs rather than eliminate them. For patients and taxpayers, that means a policy can look successful on paper — more reporting, more accountability — while leaving affordability unchanged.

In an era where "sunlight" is often presented as the best disinfectant, these findings are a reminder that information is not the same as competition. If we want lower drug spending, transparency may help us understand the system — but it may need to be paired with policies that change incentives, not just visibility.

**IN SOME MARKETS, TRANSPARENCY OF INFORMATION CAN IMPROVE OVERSIGHT, BUT IT CANNOT BE A SUBSTITUTE FOR DEEPER REFORMS**



# Countering the Trade-Off Myth

*Long-term evidence from Uruguay's "I Study and Work" program shows that working while studying improves employment outcomes and wages without undermining educational outcomes. This challenges the idea of an inevitable conflict between school and work*

**by Thomas Le Barbanchon**

**E**ntering the labor market is often a difficult step for young people. Across countries, youth unemployment rates are typically around three times higher than those of adults, and many young individuals remain NEET — not in education, employment or training. In Latin America, youth unemployment

reached about 14% in 2023, while nearly one in five young people were neither studying nor working. Although taking a job while in school may reduce time available for studying, it can also offer valuable work experience and an early connection to the formal labor market. Determining whether the benefits outweigh the costs

is therefore central to youth employment policy.

## THE STUDY AND WORK

Our recent research provides the first long-term causal evidence on this issue (see Ferrando, Katzkowicz, Le Barbanchon and Ubfal, 2025). We examine Uruguay's national Yo Estudio y Trabajo ("I Study and Work") program, which offers part-time, year-long formal jobs to students selected through a lottery, conditional on remaining enrolled in school. By following almost 90,000 applicants for seven years, the randomized design allows the program's effects to be credibly isolated — an unusually rigorous evaluation in this policy area. The results point to substantial and persistent improvements in labor market outcomes. Seven years after entering the program, participants earn approximately 11% more in formal employment than comparable applicants who were not selected. These gains reflect both higher employment rates — about four percentage points — and higher monthly wages, which are roughly 6% higher. Crucially, these benefits endure well beyond the program's duration, far beyond the two- or three-year follow-up periods typical of most job-training evaluations.

## THE EFFECTS ON EDUCATION

Importantly, we find no evidence that working while studying comes at the expense of education. If anything, participants complete slightly



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While the effects are strongest for men, they remain positive for women and for youth from more disadvantaged backgrounds.

## A PROGRAM THAT PAYS FOR ITSELF

From a public policy perspective, the program proves both effective and fiscally sound. Despite relatively high upfront costs, our cost-benefit analysis shows that the program pays for itself through increased tax revenues by the time participants reach their mid-40s. Its long-term return to public funds is comparable to that of some of the most successful early-childhood interventions, which is remarkable for a youth labor

# WELL-DESIGNED WORK-STUDY PROGRAMS CAN SIGNIFICANTLY IMPROVE YOUNG PEOPLE'S EMPLOYMENT PROSPECTS AND EARNINGS OVER THE LONG RUN

more schooling, with an average increase of about 0.27 years. Their probability of attending high school also rises for up to four years after program entry, over a period when the program's school enrollment condition is no longer binding. The initial requirement to remain enrolled appears to help young people successfully balance work and study in the long run, illustrating that the two activities may reinforce rather than undermine each other. The program's benefits also extend beyond initial job placements. Over time, participants transition into a wide range of industries, suggesting that the skills, habits and experience acquired are broadly valued by employers.

market policy. Overall, our findings show that well-designed work-study programs can meaningfully improve young people's employment prospects and earnings over the long run, while preserving — and even enhancing — their educational trajectories. In contexts where the transition from school to work is particularly uncertain, Uruguay's experience highlights that combining part-time work with continued schooling can generate durable benefits for both individuals and society. Similar approaches could yield lasting benefits elsewhere, provided they ensure job quality, close integration with education and strong employer involvement.

**THE PAPER.** The Lasting Effects of Working while in School: A Long-Term Follow-Up, by Mery Ferrando, Noemi Katzkowicz, Thomas Le Barbanchon and Diego Ubfal

# [GENDER GAP]



## Measuring Inequality

*Why environments, rules and contexts determine who can truly express their talent — even before entering the labor market*

by Paola Profeta

**N**o country in the world has yet achieved full gender equality. Italy is among the European countries where gender gaps remain particularly pronounced, especially in the labor market, where the female employment rate is only slightly above 50%. We have discussed at length the origins of these gaps, as well as potential solutions and policy

tools. Yet their persistence suggests that we are still overlooking a crucial dimension: the role played by the climate and environment in which economic and social dynamics are formed.

### **THE CULTURAL ROOTS OF THE GENDER DIVIDE**

A growing body of research shows that “masculine” contexts

in the workplace, characterized by excessive competition, aggressiveness and, in some cases, harassment, contribute to unequal outcomes and lower wellbeing. This evidence is now well established for the labor market. What is less often acknowledged is that the roots of these dynamics are laid much earlier. Context matters from a young age and is continuously

# [ GENDER GAP ]

reinforced by education systems, social norms and institutional settings.

## UNIVERSITIES AND STEM: WHEN THE ENVIRONMENT MAKES THE DIFFERENCE

Universities are a key part of this story. They are not merely places where students acquire technical skills; they are powerful environments in which identities, ambitions and self-confidence are shaped. This is also why the persistent under-representation of women in science, technology, engineering and mathematics (STEM) — as well as in quantitatively intensive fields such as economics and finance — should concern us all. In these programs, women are often a small minority, and this imbalance affects not only who enrolls, but also how students learn, interact and perform. Decades of research show that gender gaps in STEM are not primarily driven by differences in ability. Social expectations, stereotypes and peer effects play a decisive role. Male-dominated environments tend to foster high-pressure cultures in which traditional masculine norms, such as risk-taking, dominance and an excessive focus on “winning,” are rewarded. While these norms may favor a subset of students, they often undermine cooperation, increase anxiety and reduce overall learning efficiency.

## MORE BALANCED CLASS GROUPS, BETTER OUTCOMES

In a recent in-progress work,



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**THE LAB.** The AXA Research Lab on Gender Equality, promotes research in social sciences related to gender

my co-authors and I study these mechanisms using data from around 3,000 university students, whom we surveyed and followed throughout their academic careers. Exploiting the random assignment of students to classrooms, we are able to identify the causal effect of gender composition on the university climate and on academic outcomes. By combining administrative

records with survey data, we examine how the share of female classmates influences behaviors, perceptions, wellbeing and performance. The findings are clear. When the proportion of female students in a class increases, conformity to stereotypical masculine behaviors declines for both men and women. Classrooms become more cooperative, peer support increases and the emphasis on competitive signaling through grades weakens. At the same time, students experience significantly lower levels of anxiety. These are not marginal changes: even a modest increase in female representation leads to substantial improvements in the learning environment. Most importantly, these changes translate into better academic outcomes. Students in more gender-balanced classes perform better overall, complete more exams on time and are more likely to remain in the same field of study. The gains are shared by male and female students alike, with particularly strong effects in quantitative subjects. Reduced anxiety plays a key role in explaining these improvements, underscoring the importance of mental wellbeing for academic success. The conclusion is straightforward. Promoting gender balance in universities is not merely a question of fairness or representation. It is a concrete and effective policy lever to improve educational quality and to make better use of talent. In times of persistent gender gaps in the labor market and unequal participation in STEM disciplines, gender balance should be understood as a strategic investment. Better universities, stronger human capital and a more inclusive society depend on it.

**DECADES OF RESEARCH SHOW THAT GENDER GAPS IN STEM ARE NOT PRIMARILY DRIVEN BY DIFFERENCES IN ABILITY**



# Merit Is Not Enough

*In academic hiring, those who match the profile of evaluators tend to prevail: an invisible source of bias that hinders women and impoverishes research*

by **Alessandra Casarico**

In Italian academia, job candidacies are evaluated through lenses favoring those with research similarities with evaluators themselves, to the detriment of women. The selection of future faculty not only rewards the quality of research, but also responds — quietly but systematically — to an unstated requirement: disciplinary matching with committee members who decide who is chosen for a research position. This mechanism, in an environment still dominated by men, ends up producing predictable consequences: the merit of women matters, but it is not enough.

In the paper “Research Similarity and Women in Academia” (Piera Bello, Alessandra Casarico, Debora Nozza), currently being published in *The Economic Journal*, we surveyed all Italian tenure-track competitions in economics between 2014 and 2021, over 40,000 abstracts of publications by candidates and examiners, and used artificial intelligence techniques to measure the distance or similarity between research lines and methodologies of candidates and committee



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members. This is not a simple disciplinary label, but a metric capable of capturing academic interests, scientific language and research approaches. The question was straightforward: how important is thematic affinity in assessing merit?

**DO RESEARCH AFFINITIES MATTER?**

The answer is unequivocal: they matter! Candidates whose research interests are closer to those of committee members have a significantly higher probability of winning a job competition. In certain cases, this outweighs having publications in highly respected journals. Not because similarity indicates quality, but because we value more what we

recognize as close to our scientific identity: this is the self-image bias, which is widely documented in psychology. And this is where gender comes into play. Men and women do not differ in the average quality of their research, nor in the average degree of similarity with respect to search committees. However, men are more likely than not to have at least one committee member very similar to them, while women are not. As long as committees remain predominantly male, it is inevitable that female candidates will encounter fewer relevant “affinities.” A minor detail? No: a significant source of bias.

**GENDER BIAS**

When we include in the model candidate selection by means of a job interview — who is invited, who shows up — it clearly emerges that, for same level of CV, women have a lower probability of winning. And part of this gap is explained precisely by the lower probability of having that similarity peak which, as we show, is particularly rewarding in the evaluation process. The consequences go beyond inequity: they undermine the vitality of the economic discipline. A system that breeds on familiarity tends to replicate itself, discouraging diversity in scientific careers and narrowing the scope of issues posed by economics. At a time when research should expand its view, not narrow it, this is a cost we can ill afford.

**THE PAPER.**

*Research Similarity and Women in Academia,  
by Piera Bello,  
Alessandra Casarico,  
Debora Nozza*

# Rewarded for Past Performance, Not for Potential

*For inventions, women earn bonuses equal to men, but are left behind in career and salary advancements because potential is judged with double standards*

by Myriam Mariani

In the world of innovation, a patent is irrefutable proof of value that should guarantee recognition to its creator. However, analyzing data for male and female inventors reveals a more nuanced reality. Together with my colleague Karin Hoisl of the University of Mannheim, I conducted a study covering over 10,000 inventors in 22 countries. What we discovered reveals that there is a substantial difference between rewarding a past achievement and betting on a person's future potential. And such difference is correlated with



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the gender of the person who patented the invention. The data we were able to process show that, when it comes to a "one-off bonus," i.e. a cash prize rewarding a specific past

invention, there's no significant gender gap. For the same invention, women are just as likely as men, if not more likely, to receive that kind of bonus. The market, or rather, the company, willingly pays for what it's already gotten. It's a backward-looking calculation: value produced is then rewarded.

## THE PROBLEM IS THE SALARY GAP

The problem arises when we consider permanent rewards, namely salary increases and job promotions. Here, women are systematically disadvantaged. Even when producing inventions of equivalent quality, female inventors are 2.3% less likely than their male colleagues to see that success translate into career or salary advancements. This might seem like a small difference, but on a baseline probability of 6.9%, it represents a significant disadvantage, approximately 30%.

Why does this happen? Because raises or promotions aren't just rewards for a job well done; they represent bets on the future. They are "forward-looking" incentives that signal the company's belief in an employee's potential to generate value tomorrow, or have leadership skills (in research) in the future. And it's where gender disparity emerges, confirming the economic literature suggesting that men are often evaluated on the basis of their potential, while women are evaluated on their consolidated results. Signals coming from female performance are perceived as more "noisy," more difficult for executives to interpret, often due to gender stereotypes or the simple scarcity of female role models in top positions.

## THE CASE OF UNPLANNED INVENTIONS

However, there's one aspect of our research that offers a further perspective. We've isolated

**MEN ARE OFTEN EVALUATED ON THE BASIS OF THEIR POTENTIAL, WHILE WOMEN ON THEIR CONSOLIDATED RESULTS. THAT IS WHY MEN ARE MORE LIKELY TO OBTAIN PAY RAISES AND JOB PROMOTIONS**

**THE PAPER.** Patent rewards and the recognition of women's inventive performance and potential, by Karin Hoisl and Myriam Mariani

cases of “unplanned inventive activity,” that is, inventions born out of serendipity or sudden inspiration, not the result of structured research projects to which the inventor was assigned. Well, in these cases, the female disadvantage in permanent rewards disappears. This tells us that the problem arises, at least in part, from the process of selecting and allocating male and female inventors to research projects with different characteristics and potential. Women are likely assigned to (or self-select themselves for) less “visible” or risky projects, those that offer fewer springboards for career advancement. When the “project assignment” factor is missing, female talent is recognized as much as male talent.

**WHY LETTING POTENTIAL GO UNRECOGNIZED IS A WASTE**

If women get only one-off bonuses but no structural salary increases, the gender pay gap widens exponentially over time, since any future raise will be based on a lower base salary. Furthermore, failing to recognize potential means wasting human capital, thus risking demotivating and losing brilliant female inventors.

Transparency in bonuses, therefore, is not enough. It's necessary to critically examine the awarding of prizes for inventions and, above all, take a step back and examine the process of allocating people to ambitious research projects.

# It's Not Gender Holding Back International Growth

*In family companies, female CEOs make a difference only when governance becomes more open*

by Fabio Quarato and Domenico Cambrea

Do women at the top of family businesses make their companies less international? At first glance, the data would seem to suggest just that. But stopping at this preliminary conclusion would be a mistake. The key issue is not the CEO's gender, but rather the governance context in which strategic decisions are made. In an economy marked by geopolitical volatility, technological transition and new ESG pressures, internationalization — and exports in particular — often represents a key lever for the growth and resilience of family firms. Expanding into foreign markets allows for risk diversification, increased competitiveness and greater resilience in times of uncertainty. However, how this choice is pursued depends profoundly on the company's leadership and how the decision-making process is structured.

**FAMILY BUSINESS**

An analysis of over 2,000 medium-sized and large Italian family enterprises shows that, on average, companies led by female CEOs achieve lower export levels than those



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managed by male CEOs. A result that, if read superficially, risks fueling distorted interpretations of the contribution of female leadership. In reality, the data should be interpreted in light of the specific characteristics of family businesses and their strategic priorities.

Family companies do not pursue exclusively economic objectives. Alongside profitability, there are also non-financial goals such as maintaining control, generational



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continuity and the preservation of family identity and values. In this context, female CEOs — often characterized by a more relational leadership style, attentive to stability and cohesion — tend to be more aligned with these priorities. This leads to a more prudent approach to strategies perceived as risky for the family, including international expansion.

This does not mean that female CEOs are less capable, less ambitious or less growth-oriented. On the contrary, the findings suggest that they often operate in decision-making contexts strongly influenced

by the family logic, which can limit the strategic potential of leadership, regardless of gender.

### **WHAT HAPPENS WHEN GOVERNANCE CHANGES**

The picture changes radically when family companies embrace more inclusive governance mechanisms. The presence of independent directors and non-family shareholders alters the decision-making process, reduces the weight of the family logic and restores focus on growth and performance objectives. In these contexts, the contribution of female CEOs to the internationalization of the companies they manage not only emerges, but turns positive and fully visible.

Directors and shareholders external to the family introduce market-oriented vision, skills and pressures that act as a counterweight to the natural prudence of family businesses. Having “other voices at the table” favors more balanced decisions, reduces excessive caution and allows female CEOs to evaluate international opportunities more objectively. In other words, open governance acts as a catalyst, allowing female CEOs to fully express their strategic capabilities.

In summary, the data clearly shows that, with more open governance, family companies led by female CEOs significantly increase their propensity to

**THE PAPER.** Unlocking female CEOs' contribution to the internationalization of family-controlled firms, by *Alfredo D'Angelo, Fabio Quarato, Domenico Cambrea, Pasquale Latella*

export. This effect is particularly evident in more structured family firms, where the complexity of decision-making requires greater professionalism and where open capital or open boardrooms can make the difference between defending the status quo and growing internationally.

### **THUS FEMALE LEADERSHIP IS A STRATEGIC RESOURCE**

The message for entrepreneurs and boards of directors is clear: female leadership should not be evaluated in isolation, but in relation to governance structure. Appointing a female CEO without rethinking the governance structure risks limiting her potential, holding her responsible for something that actually depends on the company's decision-making structure. Conversely, investing in more open, competent and diverse boards allows female leadership to become a true enabler of international growth. Women CEOs do not represent a barrier to the internationalization of family businesses. They are a strategic resource that can generate value when embedded into governance systems capable of balancing tradition with openness, prudence with ambition, the interest of the family with the priorities of the market. Today the real challenge is not having to choose between family identity and international growth, but to select and build governance structures capable of reconciling them.

**WHEN FAMILY COMPANIES OPEN THEIR GOVERNANCE, THE CONTRIBUTION OF FEMALE CEOS TO BUSINESS INTERNATIONALIZATION BECOMES POSITIVE AND FULLY VISIBLE**

# Health as an Equality Infrastructure

*Healthcare services, reproductive rights and autonomy: why there can be no true gender equality without health policies*

by Aleksandra Torbica

United Nations Sustainable Development Goal 5 (SDG 5) aims to “achieve gender equality and empower all women and girls,” recognizing that equality is not merely a matter of formal rights, but the outcome of material, institutional and social conditions that enable women to effectively exercise their capabilities and freedoms. Within this framework, health and the health sector represent a structural, yet often underestimated, component of the architecture of SDG 5. Numerous targets of the goal, from universal access to sexual and reproductive health (5.6), to economic participation (5.4) and the reduction of gender-based violence (5.2), depend directly on the functioning of health systems.

## HEALTH AND GENDER EQUALITY: A BIDIRECTIONAL RELATIONSHIP

Traditionally, health has been interpreted as an outcome of gender equality: more equitable societies produce better health outcomes for women. This interpretation, however, is incomplete. A growing body of research



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shows that the relationship is bidirectional: access to appropriate health services, particularly in the areas of maternal, reproductive and sexual health, act as a primary determinant of gender equality, shaping opportunities for education, employment, decision-making autonomy and social participation throughout life.

## THE ROLE OF HEALTH SERVICES IN ACHIEVING SDG 5

This perspective underpins my recent narrative review together with Yuxi Wang (2024), which examines how improvements in maternal, reproductive and sexual health arising both from the overall strengthening of health services and from targeted interventions can contribute to achieving specific SDG 5 targets and, more broadly, to promoting gender equality. The review deliberately adopts a narrowly defined analytical scope, focusing exclusively on studies that assess the causal impact of health and health services on different dimensions of gender equality.

The reviewed literature analyzes how maternal, reproductive and sexual health influence gender equality across diverse contexts, highlighting both direct and indirect effects on labor market participation and education, with fertility decisions and women’s autonomy as central mechanisms. We show that these services generate benefits that extend beyond the clinical dimension, producing

## HEALTH SERVICES GENERATE BENEFITS THAT EXTEND BEYOND THE CLINICAL DIMENSION, PRODUCING “CO-BENEFITS” IN TERMS OF EMPOWERMENT, HUMAN CAPITAL AND THE REDUCTION OF STRUCTURAL INEQUALITIES

“co-benefits” in terms of empowerment, human capital and the reduction of structural inequalities, with differentiated patterns in developed and developing countries.

### **MATERNAL HEALTH AND REPRODUCTION: AUTONOMY, WORK AND EDUCATION**

In the case of maternal health, improvements in antenatal, childbirth and postnatal care contribute directly to target 5.1 by reducing extreme forms of inequality stemming from health risks that are disproportionately borne by women. In developing countries, reductions in maternal mortality and morbidity are a prerequisite for survival itself and for any meaningful possibility of economic and social participation. In high-income countries, where such risks are more limited, the quality and organization of services affect women’s ability to reconcile motherhood and work, influencing wage gaps and occupational segregation.

A central contribution to SDG 5 also emerges

from reproductive health services, which are directly linked to target 5.6 on the universal right to sexual and reproductive health. Access to modern contraception, family planning and safe abortion strengthens fertility autonomy, enabling women to decide whether, when and how many children to have. In developing countries, this translates into higher levels of education and economic participation, in developed countries, into lower opportunity costs of motherhood and improved long-term employment trajectories.

### **SEXUAL HEALTH, GENDER-BASED VIOLENCE AND INTEGRATED POLICIES**

Sexual health also contributes to the achievement of SDG 5, particularly target 5.2 on the elimination of gender-based

violence. Integrated services for prevention, counseling and victim support enhance personal safety and access to institutional protection. In low-income settings, such services can reduce exposure to stigma and violence; in high-income countries, they help make formal rights effective by narrowing the gap between legal norms and actual practices.

The review nonetheless highlights the need for more sophisticated evaluation approaches. Indicators commonly used to monitor SDG 5, such as female labor force participation, do not always reflect genuine progress in gender equality unless they are accompanied by measures of job quality and intersectional inequalities.

Although empirical evidence remains limited, collaboration between the health sector and other domains — such as education and justice — can further strengthen women’s bargaining power and autonomy. Fully integrating health into the SDG 5 agenda requires recognizing health systems as infrastructures of gender equality.

Consequently, investing in maternal, reproductive and sexual health services does not merely improve health outcomes; it creates the structural conditions for gender equality to be substantive, measurable and sustainable over time. This vision is essential to guide future priorities in the health sector and to support the global agenda for gender equality and sustainable development.

**THE PAPER.** Investigating the relationship between health and gender equality: What role do maternal, reproductive, and sexual health services play?, by Yuxi Wang and Aleksandra Torbica

# Multitasking Is No Superpower

*Careers, invisible burdens and speaking up for a sustainable work-life balance, in this interview with Milvia Sica, Head of HR Barclays Europe and Bocconi alumna*

by Camillo Papini

**M**ultitasking shouldn't be a constraint for anyone, especially not for working women, according to Milvia Sica, Head of HR Barclays Europe & EME. Cultivating one's professional career, supporting one's family (including parents) and simultaneously having one's personal dimension is not easy. To make this possible, there must be an opportunity to raise a hand and say: I need a different balance between workload and family commitments. Here's what the Bocconi alumna, who graduated

with a degree in Business Administration and is now an executive with 30 years of experience in international finance and the banking sector, has to say:

## **What is multitasking?**

One of the most common aspects of daily life today is having to do multiple things at once — multitasking — and one of the underexplored aspects of multitasking is that we often fail to realize how busy we are. A frenetic pace prevails. Even if working environments provide support,



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**MILVIA SICA**, Head of HR at Barclays Europe & EME and Bocconi alumna

we end up not using it. I myself realized in hindsight that I was so busy with a new corporate role and a delicate situation at home that I didn't even realize that help was already available to me. Multitasking, especially for women, can become a source of pride, in the galvanizing sense of managing to be able to do everything, when in reality, doing everything at once means fully dedicating yourself to nothing. You become unable to give your best, either to your family or to the office. There's no pride in constantly accelerating at full speed.

**Yet it's not easy to raise one's hand and ask for a new work-family balance within a company...**

But not raising your hand is shortsighted, and fails to consider the full potential that every female employee can express through a different schedule. The key is that every employee, especially women who often also have to manage household chores, must always have the means and opportunities to express their discontent. It's true, not all companies implement support policies, and some are stuck in a limbo with programs and projects that are more frequently announced than

**MULTITASKING, ESPECIALLY FOR WOMEN, CAN BECOME A SOURCE OF PRIDE, IN THE GALVANIZING SENSE OF MANAGING TO BE ABLE TO DO EVERYTHING, WHEN IN REALITY, DOING EVERYTHING AT ONCE MEANS FULLY DEDICATING YOURSELF TO NOTHING**

implemented. It's not just a matter of asking for part-time or remote working, but of promoting a culture of "speaking up" so that everyone can work with the flexibility and peace of mind needed to offer their best and achieve the company's expected results, especially during critical moments of a corporate transformation or during the implementation of a highly demanding project.

**Operationally, how do you cultivate a culture of speaking up?**

The goal is to create tools and procedures that make it easier and more practical to raise one's hand. In the more international and structured companies, these procedures have been in place for years. Being able to work in these organizations also confirms the importance

of academic qualifications, as they contribute to access, at least initially, to this type of company. In any case, a variety of tools can be activated, ranging from concern-raising channels for freely expressing concerns to engagement and surveillance procedures, which are based on surveys of the working environment, allowing issues to be identified and approaches and solutions to be discussed to improve the work-life balance.

**In short, there are numerous types of companies, but there isn't a shortage of tools suited to every situation?**

Exactly. To give another example, there's also the opportunity to use "skip-level" meetings between a team and the manager above your immediate direct supervisor to allow greater freedom of discussion. That said, we should start by encouraging more dialogue between employees and their direct managers, given that corporate wellbeing is now considered not simply an HR issue but rather a factor of cohesion in a well-functioning team.

**PROMOTE THE CULTURE OF SPEAKING UP, SO THAT EVERYONE CAN WORK WITH THE FLEXIBILITY AND PEACE OF MIND NEEDED TO OFFER THEIR BEST**





## It Takes Two to Tango

*Monetary policy is not a soliloquy where the ECB talks and the others listen. But an analysis of parliamentary hearings shows that EU politicians are exercising their oversight function poorly, guided by national and electoral interests rather than the mandate for price stability*

by Donato Masciandaro

**E**conomic analysis teaches us that a necessary, though not sufficient, condition for effective monetary policy is central bank transparency, which includes accountability for its policy actions. But transparency, like the tango, takes two to dance. For the European Central Bank (ECB) to be effectively accountable, politicians must successfully exercise their right and duty

to hold the Central Bank to account. The European Parliament must take a qualitative leap in its relations with the ECB. Questioning by MEPs should possess two qualities: competence and European sensitivity. So far, this hasn't been the case.

### **THE WRONG QUESTIONS**

An analysis of parliamentary hearings from 1999 to 2019 (Ferrara et al. 2022) shows

that parliamentarians failed to focus on the ECB's primary task — protecting monetary stability — and that their questions were verged on the economic predicament of their home country, not of the EU as a whole.

The study reconstructed the "voice" of EU politicians on accountability by examining the ECB hearings before MEPs in the so-called quarterly Monetary Dialogues. The study

# [CENTRAL BANKS]

is relevant for several reasons. First, as a supranational central bank, the ECB's performance is subject to scrutiny by politicians whose preferences vary not only according to political affiliation but also by country of origin. Therefore, not only ideology, but also the temporal dimension, as well as geography, may be relevant. Furthermore, the ECB has an institutional mandate that identifies price stability as the primary objective, subordinating the pursuit of other macroeconomic goals to it. These characteristics of the Frankfurt central bank's governance structure allow us to clearly assess whether politicians, in their interventions, emphasize the primary objective or secondary objectives. Quantitative analysis of the texts reveals at least two interesting and original findings.

## HOW POLITICIANS VIEW THE ECB'S ROLE

First, it demonstrates that how European parliamentarians look at the ECB's responsibilities are not consistent with its institutional mandate. Specifically, it emerges that members of the European Parliament do not always hold the Central Bank accountable for achieving the primary objective of price stability. At the same time, the same politicians appear convinced that the ECB is responsible for macroeconomic trends other than inflation. In other words,



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the request for explanations and justifications is not expressed with respect to what should be the primary compass of monetary policy action, which — it is important to remember — is the cornerstone of a central bank's independence.

Indeed, both economic analysis and history have shown that a necessary, though not sufficient, condition for effective monetary policy is that it be managed by a technical bureaucracy — the central bank — which is separate from incumbent governments. Otherwise, the risk is that “money printing” will be used shortsightedly by politicians in charge for ideological and/or electoral reasons, ultimately resulting in poor macroeconomic performance.

Secondly, it emerges that, during the period under review, the driving force behind the questions of MEPs was the unemployment differential in their constituencies. In other words, the higher the unemployment rate, the less attention was given to price stability by individual MEPs.

## QUESTIONS DICTATED BY ELECTORAL CONVENIENCE

In short: European politicians exhibit skewed behavior, holding the ECB to account for its actions not in accordance with its institutional mandate, but rather following the dictates of their own electoral convenience. It will be interesting to see whether the recent inflationary surge that has affected the Eurozone will be considered by Brussels politicians through the filters of ideological and territorial particularisms, or whether there will be a qualitative leap in their macroeconomic competence. As EU citizens, we must hope so.

**CENTRAL BANK INDEPENDENCE WORKS ONLY IF REGULATORS ASK THE RIGHT QUESTIONS. WHEN POLITICS CHASES VOTES, ACCOUNTABILITY TURNS HOLLOW**

[INNOVATION]

# The Invisible Infrastructure of Circular Fashion

*In the fashion industry, Artificial Intelligence is connected to design, traceability, supply chains and consumption models, making the transition to circularity possible. Its impact, however, depends on strategic integration, data quality and new forms of governance*

by **Francesca Romana Rinaldi**

**A** I is becoming the connective infrastructure that enables companies to design, produce, distribute and recover products in ways that are both economically competitive and environmentally responsible. This is one of the insights drawn from interviews with industry experts included in the SDA Bocconi Monitor for Circular Fashion 2025–2026. The most effective use of AI emerges when technology is embedded in a company's strategic core rather than treated as a series of experimental pilots. In fashion, generative AI is increasingly integrated into design processes, allowing for the simulation of materials, the prediction of environmental impacts and the optimization of durability and reparability.

## **FROM TRACEABILITY TO CONSUMER ENGAGEMENT**

Beyond fashion design, AI is also advancing the traceability agenda: by combining data analytics with blockchain and tagging technologies, fashion companies can now track



**FRANCESCA ROMANA RINALDI**, Director of *Monitor for Circular Fashion*, SDA Bocconi, School of Management

materials throughout the value chain and automate life-cycle assessments in compliance with emerging European regulations such as the Digital Product Passport. Finally, AI is enhancing consumer engagement by personalizing experiences in repair, resale and rental models, encouraging longer product lifespans and circular fashion consumption patterns. Specifically, the integration of AI into fashion resale is laying essential groundwork for the future of secondhand retail. AI enhances product discovery and streamlines the listing process for sellers, making resale platforms more efficient and user-friendly. It also boosts consumer engagement by dynamically adapting

product displays in real time and delivering personalized recommendations aligned with current trends. Through AI-driven personalization, resale platforms can better understand individual shopping behaviors and offer more relevant suggestions, strengthening connections with users.

AI already plays and will increasingly continue to play a crucial role in tracing and managing complex supply chains by minimizing waste and improving energy efficiency across the entire value chain. However, this transformation comes with both opportunities and challenges.

### **OBSTACLES, COMPETENCIES AND GOVERNANCE FOR SUSTAINABLE AI**

Several barriers continue to limit large-scale adoption. Data quality and fragmentation remain the most significant technical constraints. Many fashion companies lack integrated data systems, reducing the reliability of AI outputs. Cultural resistance is another major obstacle: creative professionals often perceive AI as a threat to artistic identity, while technical teams may struggle to communicate effectively with design and product functions. Economic factors also play a role. Integration costs remain high, and the return on

### **THE OBSERVATORY.**

*Monitor for Circular Fashion is a multi-stakeholder project involving leading companies in the fashion industry and players in its supply chain.*

investment is still uncertain for small and mid-sized enterprises. Ethical and environmental concerns add further complexity, including the high energy consumption of large-scale AI models and fears of job displacement. The effective implementation of AI for sustainability requires a new combination of capabilities and governance structures. Organizations must develop strong technical expertise in data science and machine learning, but these skills alone are not sufficient. They must be complemented by managerial and organizational competencies such as change management, design thinking and cross-functional coordination, as well as deep industry knowledge in areas including supply chains, materials science and life-cycle assessment. The diffusion of AI literacy across all organizational levels is also very important. Employees need not only technical training but also a clear understanding of ethical AI use, environmental implications and the alignment of AI initiatives with broader sustainability goals. When applied responsibly, AI does not replace human intelligence; it amplifies it. Used in this way, AI enables fashion companies to create long-term value while respecting both people and the planet.

## **THE EFFECTIVE IMPLEMENTATION OF AI FOR SUSTAINABILITY REQUIRES A NEW COMBINATION OF CAPABILITIES AND GOVERNANCE STRUCTURES**

**Tabellini, Mokyr e Greif  
svelano le radici della Grande Divergenza,  
mostrando come cultura, istituzioni  
e organizzazione sociale abbiano guidato  
lo sviluppo economico di Europa e Cina.**





# The Social Foundations of Europe

*The European welfare tradition links social rights, citizenship and political participation, identifying solidarity as a constitutive principle of the democratic order rather than a mere redistributive tool*

by **Graziella Romeo**

**T**he construction of the welfare state in Europe cannot be explained solely as the by-product of contingent political compromises or of redistributive policies pragmatically designed to manage periods of social instability. Rather, it is rooted

in a philosophical and legal tradition that conceives the political community as founded on bonds of solidarity and mutual responsibility. Within this cultural framework, social rights could emerge as legal claims intrinsically tied to citizenship, rather than benefits linked to

specific policy choices.

## **THE SOLIDARITY ROOTS OF THE EUROPEAN WELFARE STATE**

Since the 19th century, European constitutional history illustrates how critiques of liberal individualism and

contractualism supported an understanding of society as a web of social relations generating collective obligations as opposed to the political unity of self-sufficient individuals. Solidarist philosophy — in its French, German and Italian variants — played a decisive role in shaping this vision, advancing the idea of a political community in which solidarity arises from social interdependence. From this perspective, the state is not merely the guardian of negative liberties, but an actor responsible for creating the material conditions of equality.

## EUROPE AND THE UNITED STATES: TWO MODELS OF SOCIAL PROTECTION

In the United States, by contrast, the trajectory of political thought followed a different path, shaped largely by the predominance of individualist and classical liberal traditions. These approaches contributed to confining social protection to the realm of welfare policy, rather than constitutional law, and to the absence — at least at the federal level — of any project to constitutionalize social rights. The American welfare system thus developed primarily around the employment relationship or around narrowly targeted assistance to those in extreme need. The Supreme Court, moreover, has long been skeptical of the very idea that social rights might be judicially enforceable. In continental Europe, the



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**THE PAPER.** Social rights, solidarism, and the market society: Afterword to the Foreword by Nehal Bhuta, by Graziella Romeo; forthcoming 23-4 issue, *International Journal of Constitutional Law*

welfare state was instead legally structured around the recognition of enforceable social rights. Social benefits, labor protection and access to healthcare and education came to be understood as essential components of democratic citizenship. Post-war constitutions, more or less explicitly, translated this vision into subjective legal rights, reflecting an awareness of the close connection between social rights and effective participation in democratic

life. The meaningful exercise of political rights, including the right to vote, presupposes access to education, health and basic social security.

## A HISTORY OF CIVILIZATION NOT WITHOUT ITS DISTORTIONS

This does not mean that the European model has always represented an unambiguous civilizational achievement. Distortions do exist. Authoritarian regimes have, at times, instrumentalized social objectives for nationalist and totalitarian purposes, while in more recent decades welfare arrangements have occasionally degenerated into forms of assistentialism and clientelism. Yet alongside these distortions runs a distinct European democratic tradition in which solidarity is understood as an emancipatory principle, aimed at fostering social mobility, inclusion and participation. In this tradition, freedom and equality are not seen as opposing values, but as mutually reinforcing.

## HOW MUCH INEQUALITY CAN A DEMOCRACY TOLERATE?

Today, this legacy is under strain from the transformation of capitalism, the precarization of work, and the growing influence of market logics over civil and political life. This raises a fundamental question: how much inequality can a democratic society tolerate? The cultural tradition that shaped the European welfare state offers a clear answer: inequality must be counterbalanced by robust protection of social rights, which is integral to the very substance of constitutional democracy. Europe has thus imagined the foundations of political unity not on purely contractual grounds, but on the political meaning of solidarity.

**IN CONTINENTAL EUROPE, THE WELFARE STATE WAS LEGALLY STRUCTURED AROUND THE RECOGNITION OF ENFORCEABLE SOCIAL RIGHTS**

# Democracy and Its Limits

*Marta Cartabia explains why democratic power needs limits, so that constitutional courts are not an obstacle to but a guarantee of democracy, and why liberal democracies today are being silently hollowed out*

by **Barbara Orlando**



**D**emocracies usually don't collapse because of the shocks brought by authoritarian regimes or traumatic events. More often, they decay slowly, as they are hollowed out from within, when majority ruling is confused with absolute sovereignty, when constitutional limits are perceived as obstacles rather than guarantees, when disagreements between

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*Full Professor of Italian and European Constitutional Law, Bocconi University*

institutions and parties turn into mutual delegitimization. This observation informs *Custodi della democrazia (Guardians of Democracy. The Constitution, the Courts and the Boundaries of Politics, Egea, 2025)*, the new book by Marta Cartabia, constitutional jurist and Professor of Constitutional Law at Bocconi, formerly President of the Italian Constitutional Court and Justice



Minister. This book is not an academic monography, but an intervention in public debate which illustrates concrete cases, judicial decisions and institutional tensions to reveal a democracy under stress. The core of the argument is defending the role of constitutional courts as guardians of balance, because “democratic power must also be exercised within shared limits, if it is not to become arbitrary.” In the following interview, Cartabia clarifies the meaning of this custodianship, which does not mean the preservation of what already exists, but with active oversight of the quality of democratic life.

**When you speak of “guardianship of democracy”, you don’t seem to be referring to something that needs to be merely preserved. What does this role of guardian really mean today?**

It means watching over a kind of balance that needs to be continually pursued. Contemporary constitutional democracy is based on a balance between powers, which is being subjected to new tensions and challenges. In many countries around the world, a creeping erosion is underway: democracy is progressively weakened from within, and then, from time to time, striking events occur that shock us. We must prevent the risk of democracy silently fading into oblivion by countering the growing intolerance for rules, plurality and limits on executive power. We must rediscover the idea that engaging in debate with others is not a waste of time.

**What is the most obvious sign of this silent decay?**

The reduction of democracy to a mere electoral investiture of rulers. The people have voted, and therefore those in office can do anything they want: this is the recurring subtext. But this is a caricature of democracy and also a dangerous illusion. The post-World War II constitutions were created precisely to state the opposite: that there must also be limits to democratic power: “Sovereignty belongs to the people and is exercised in the forms and limits set by the Constitution.” This is how the Italian

**ABSENT LIMITS, ALSO  
DEMOCRATIC POWER BECOMES  
ARBITRARY**

## DEMOCRACY IS NOT SIMPLY MAJORITY VOTING

Constitution opens.

**This conflict emerges very concretely in the relationship between politics and the courts.**

Yes, and it emerges especially when the courts have to intervene on sensitive issues. I’m thinking, for example, of the rulings concerning electoral systems in Italy: interventions that reestablished a balance between governing and representation when that balance had been strained. In those moments, the courts are not acting as substitutes for political power, but rather to remind us that the rules of the game cannot be bent for the sake of partisan advantage.

**One of the most delicate areas is the legislative process.**

It is an emblematic example of what the courts can do, but also of the limits placed on their action. The systematic resort to decree legislation by Italian executive power, well beyond cases of necessity and urgency, has progressively shifted the focus of legislative production from Parliament to Government. The Constitutional Court has intervened several times to correct the most obvious distortions — from the reiteration of decrees to their inconsistency — but by itself it cannot reverse an established practice. Political will, as expressed by parliamentary chambers, is essential.

**You clearly show that courts always come after the fact.**

Exactly. Courts do not govern political processes; they react when limits are infringed. If Parliament accepts marginalization, no judicial ruling can restore its centrality. This is an uncomfortable but essential point: the protection of democracy cannot be delegated to a single institutional actor.

**Your book also forcefully addresses the issue of freedom of information.**

Because it is a precondition of democracy. It is not an ancillary right. Italian constitutional jurisprudence, since the first ruling of the Constitutional Court in 1956, has linked freedom of expression to the very possibility of a democratic life. And this thread runs



**THE BOOK.** *In Custodi della democrazia (Guardians of Democracy, Egea, 2025), Marta Cartabia addresses one of the most crucial questions of our time: what remains of democracy when the will of the majority is used to seek unrestrained power. Through a journey that intertwines constitutional history, the discussion of actual cases, and Italian and comparative jurisprudence, the volume shows how constitutional courts — born in reaction to the totalitarianism of the 20th century — still play a decisive role in preserving rights, pluralism and the separation of powers. A book intended not only for jurists, but for anyone who wants to understand why democracy is a fragile asset, requiring vigilance, responsibility and civic awareness.*

through decades of judicial decisions: from pluralism in radio and television broadcasting to the most recent cases on defamation and the citizens' right to accurate, verified and unintimidated information.

**Today, however, the problem is no longer just censorship, but disinformation.**

This is a new, extremely powerful challenge. Manipulation campaigns through social media can alter public debate and even electoral processes. The case of the 2024 Romanian presidential elections is emblematic: the Romanian Constitutional Court annulled the results of the first round of the presidential election due to external information interference. When a constitutional court makes such a decision, it treads a very thin and delicate line, but it highlights a very real problem that we cannot ignore.

**Is this a threshold that changes the role of the courts?**

The Romanian Constitutional Court acted on the basis of powers expressly granted to it by the Constitution. However, intervening in the electoral process is always a solution of last resort, requiring solid evidence, rigorous procedures and absolute independence. Courts must also respect the limits set to their powers. But the alternative — accepting the outcome of formally free but substantially manipulated elections — would have been even more corrosive to democracy.

**Here we return to the issue of limits, which you also address in a cultural context.**

Yes, the problem is not just institutional. We live in a political culture that struggles to accept limits, especially when they slow government action. Yet, limits are what prevent force from becoming arbitrary, power

## DEMOCRACY IS NOT PRESERVED, IT IS SAFEGUARDED

from becoming domination. Constitutional courts exist to uphold these principles, even when they are unpopular. Respecting a sense of limits is a matter of freedom.

**In this context, what sense does it make to talk about “collaborative constitutionalism”?**

When political power and the judiciary present themselves as rivals, the result is mutual attrition. Collaboration does not eliminate conflict, but brings it back into governable institutional forms. It is the only way to prevent tensions from tearing apart the democratic fabric.

**Your discussion does not seem to be addressed only to political insiders.**

It cannot be. The courts play an essential role, but if democracy is not lived in the minds of citizens, it is destined to decline. Rights, freedoms and guarantees are not irreversible acquisitions. They need to be reasserted day by day. Thinking that they will maintain themselves is one of the gravest errors of our time.

**If you had to point to a lesson that emerges from the analysis of actual constitutional cases, what would it be?**

That democracy is not defended by invoking democracy, but by practicing it, in all its richness of meaning. And that every constitutional shortcut — even when it seems more efficient — always comes at a cost, sooner or later.



# Hugs

by Paolo Tonato



*In the daily flow of classes, meetings and deadlines, the campus pauses for a moment. A hug in front of the glass walls, under the porticoes, in study rooms or along the corridors becomes a simple yet powerful gesture: recognizing one another, offering support, finding each other again. Amid movement, rain and background noise, something deeply human remains. Because relationships are what hold a community together.*



