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**LAURENCE B MUSSIO AND
PAUL SAMSON** EXPLORE HOW
THE LEDGER HAS PROVEN
MORE SOVEREIGN AND
POWERFUL THAN THE SWORD

MONEY IN TRANSITION.
DIGITALISATION IS RESHAPING
HOW FINANCIAL MARKETS
OPERATE, SAYS **CHRISTINE
LAGARDE**

RICHARD BALDWIN
DISCUSSES AN EMERGENT
GLOBAL TRADING ORDER
REPLACING THE OLD
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Creole Bldg, Rodney Village, Rodney Bay, Gros-Islet, St. Lucia, West Indies.

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A eulogy for capitalism

It is perhaps fitting to begin with a clear definition. Capitalism is an economic system predicated upon the private ownership of the means of production—factories, land, machinery, and raw materials—wherein goods and services are produced chiefly for profit. Prices, output, and distribution are determined primarily through the interplay of competition within relatively free markets. Its animating principles include secure property rights, the profit motive, the accumulation and redeployment of capital, wage labour, and a restless spirit of innovation spurred by market incentives.

Broadly speaking, two variants have predominated in the postwar era. The Anglo-American model, often styled as a liberal market economy, emphasises flexibility, entrepreneurial risk-taking, and rapid creative destruction. By contrast, the continental European social market model has prioritised social cohesion, lower inequality, and the maintenance of high living standards across broader sections of society. Each has its virtues and its pathologies: the former can generate extraordinary dynamism but also sharper disparities; the latter has often delivered greater stability at the cost of sclerotic labour markets, higher structural unemployment, and a more cautious approach to technological advance.

Few achievements of the late twentieth century were more remarkable than the multilateral trading order formalised by the establishment of the World Trade Organization in 1995. It presided over the most sustained and comprehensive liberalisation of global commerce in modern history—an expansion of economic possibility that should command our lasting gratitude. Yet, as the old adage has it, one generation plants the tree, the next enjoys its shade, and the third forgets that trees need tending. Between 2015 and 2023, the number of protectionist measures worldwide more than quadrupled. The liberal international economic order, once seemingly inexorable, is now under sustained assault. The WTO itself stands in urgent need of fundamental reform. It appears institutionally ill-equipped either to carry forward the next wave of liberalisation or even to defend the hard-won gains of the past. Across the globe, the map of economic activity is being redrawn with deliberate state intervention. Governments increasingly seek to direct capital flows, set technological standards, and shield strategic industries from foreign competition. The result is a more fragmented and contested economic landscape in which the rules of engagement are shifting more rapidly than multilateral institutions can accommodate.

What is most disquieting is that many of these institutions—and the political elites who staff them—appear to have lost sight of capitalism's most profound historical achievement: its unparalleled capacity to lift entire societies from poverty on a scale never before witnessed. Despite the endless rhetoric of 'innovation' and 'strategic autonomy', large parts of the European Union and the United Kingdom sometimes give the impression of being governed by latter-day Luddites, more concerned with preserving existing social settlements than with unleashing the productive forces that might sustain them. This intellectual and political retreat is particularly ill-timed. Europe confronts an acute energy crisis, accelerating deindustrialisation, and the sobering prospect that today's younger generations may be the first in centuries to inherit lower living standards than their parents. In such circumstances, a failure of historical memory is not merely academic; it is potentially ruinous.

There remains, however, a brighter horizon. The United States has once again placed technological innovation at the centre of its national endeavour. In fields as diverse as artificial intelligence, digital currencies, space exploration, and advanced robotics, American dynamism continues to reshape the frontiers of the possible. Those nations willing to engage with, rather than merely fear, this wave of creative destruction stand to reap substantial rewards. The central challenge for statesmen and policymakers in the coming decade will be to reconcile the legitimate imperative of safeguarding critical domestic capabilities with the openness and international cooperation that have been the true wellsprings of modern prosperity. Capitalism does not require romanticisation, but nor can it be casually discarded. Its historical record suggests that, managed with wisdom and tempered by prudent institutions, it remains the most powerful engine yet devised for the improvement of the human condition. To forget that would be not merely an economic error, but a profound historical one. ■

PHOENIX MULTIMEDIA
NR35 1PU
United Kingdom

worldcommercereview.com

Email: info@worldcommercereview.com



PUBLISHER
Tom Forster

EDITOR
Cassandra Evans

EDITORIAL
Karen Ferns

PRODUCTION
Michael Day

CIRCULATION
Andrew Kilby

SALES DIRECTOR
David Willocks

SALES TEAM
David Thompson
John Mayes

DESIGN AND PRODUCTION
West Riding Media Solutions

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6 How the ledger controls monetary sovereignty and global power

Laurence B Mussio and Paul Samson explore how the ledger has proven more sovereign and powerful than the sword. In today's era of digital currencies and evolving geopolitics around payment systems, they illuminate how global power will continue to rest with those who control the ledger

8 Money in transition

Digitalisation is reshaping how financial markets operate, says Christine Lagarde. For Europe, this is above all an opportunity to deepen integration, strengthen autonomy and anchor innovation in trusted public money across markets and payments

10 Reciprocal sovereignty: a third constitutional tradition for Europe

The central constitutional question for Europe is how sovereign democracies can govern common goods together without creating a sovereign European state. Hans Gersbach proposes reciprocal sovereignty as an answer

14 Closing the innovation gap

To secure the benefits of an EU-wide incorporation regime an EU Inc. plan for a common company regime should become more targeted and be underpinned by better system infrastructure, Fiona M Scott Morton and Reinhilde Veugelers argue

18 Can AI make cutlery?

Andrew Bailey highlights how UK economic growth has slowed since the Financial Crisis. He examines AI and suggests gains may take time, depend on complementary innovation, and bring uncertain effects on jobs, making investment in skills essential

24 Strengthening operational resilience for the age of AI

Europe faces unprecedented geopolitical and economic challenges, including high dependencies on external providers for energy, technology, security, and financial infrastructure. Frank Elderson argues reducing these dependencies is essential for safeguarding the European way of life





30



42



46

28 **AI challenges how businesses operate**
AI is challenging how businesses operate. Jonathan Sharp says that organisations must rethink how decisions are made, not just who makes them, but how they are triggered, validated and executed to ensure a successful implementation strategy

30 **Reconfiguring Europe in a fractured global economy**
The dramatic developments unfolding globally, spanning wars, geopolitical shifts, and trade disruptions, have caught Europe off balance. Marco Buti, Giancarlo Corsetti and Anna Peychev discuss the 2026 Florence Report and urge the EU to replace its broken 'reduced responsibility model' with a New European Social Contract integrating defence, finance, and the supply of public goods

36 **Challenging inequalities**
Across developed countries there is a growing perception that social progress has stalled. Paul Johnson, James Banks, Tim Besley, Richard Blundell, Angus Deaton, Robert Joyce, and Debra Satz argue that stronger economic growth, more dynamic labour markets, and policies that help opportunities take root are essential to tackling inequalities

42 **From World War Trade to domino regionalism**
Donald Trump's 2025 tariffs were disruptive in the

deepest sense. Richard Baldwin argues that while the old trading order was destroyed, a growing share of global commerce is drawn into existing regional trade arrangements, producing an emergent global trading order

46 **How to get the green and the deal**
Europe is recalibrating its industrial policy in response to external challenges. Maive Rute, Frank Vandermeeren and Anca Dumitrescu investigate the goals of this recalibrated approach and the key components for success

52 **Preparing Europe for digital finance**
Technology has the potential to change how finance works. Piero Cipollone considers the redesigning of the financial system around new digital technologies and how making the right policy choices may reduce costs and improve how capital is allocated across the economy

56 **The global financial powerhouses: from Wall Street to offshore havens**
The global economy is facing unprecedented geopolitical and economic challenges. Paul Stirling provides an in-depth analysis of International Finance Centres, which remain indispensable engines of the global economy



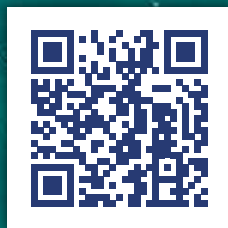
52



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How the ledger controls monetary sovereignty and global power



Laurence B Mussio is the co-founder and Chair of the Long Run Institute, a fellow of the Royal Historical Society of the UK and special advisor to the CEO of BMO Financial Group. Paul Samson is president of the Centre for International Governance Innovation (CIGI)

Earlier this year representatives of America's largest banks sat across from their crypto counterparts at a White House summit convened to break the impasse over the stalled CLARITY Act. The banks demanded a blanket prohibition on paying yield to stablecoin holders.

The crypto firms pushed back. No deal was struck, and the bill languished in the Senate. The meeting laid bare a question far older than blockchain: who controls the ledger - and therefore, who controls power?

The disruptions of the evolving global economy reach well beyond supply chains and currency hedging - to the ledger itself, the substrate upon which the financial architecture rests. With new technology and geopolitical reconfiguration underway, the next phase of the world's payment and settlement order is in play.

Stablecoins, tokenized assets, and central bank digital currencies now consume the waking hours of central bankers on every continent. The questions may appear technical. The stakes are existential. History has shown, again and again, that it is the ledger, not the sword, that has proven most sovereign.

Ledgers are old. They are older than banking, older than coinage, older than the alphabet itself. Sumerian merchants pressed reeds into wet clay to record obligations four millennia before Christ; the marks dried in the Mesopotamian sun and became, in that drying, the first permanent claims on the future. Parchment succeeded clay. Leather-bound codices succeeded parchment.

And in Florence, in 1397, Giovanni di Bicci de' Medici founded the bank whose mastery of double-entry bookkeeping - the systematic inscription of debits and credits, assets and liabilities - made it indispensable to popes, princes, and the papacy's wars. The Medici ledger was mnemonic capital in its purest form: accumulated records that compounded trust and projected authority across time. But Florence was not alone.

Neighbouring Siena established the Monte dei Paschi - the state as banker, deploying public capital for public ends. Two models, born a day's ride apart, prefiguring a contest now waged in code.

SWIFT's establishment in 1973 appeared to render the contest moot. Here was a network cooperative, technical, and serenely apolitical. Until it was not. When the United States severed Iranian banks from SWIFT in 2012 and imposed the same exile on Russia after the invasion of Ukraine - no trade settlements, no correspondent banking, no participation in the machinery of global commerce - the lesson landed with



force. Payment systems are instruments of coercion. Power belongs to those who control the ledger.

Today, virtually all countries are exploring digital currency. The contest that matters is triangular: the United States, China, and the European Union.

Washington moved first, and with characteristic audacity. President Trump banned a retail digital dollar by executive order, then signed the GENIUS Act in July 2025, bringing the stablecoin industry under federal regulation. Why build a government currency when you can conscript an existing one?

The Act requires issuers to hold massive reserves in US cash and short-duration Treasuries - quietly transforming the sector into a top-fifteen holder of government debt. It compels them to freeze or 'burn' tokens at law enforcement's direction: the sanctions weapon, now privatized, now woven into every digital wallet on earth.

Yet that clash reveals a fissure within the strategy. The CLARITY Act - meant to complete the architecture - has stalled because banks and crypto firms cannot agree on whether stablecoins

"A nation that does not command its own digital payment architecture will discover, too late, that it has surrendered its monetary sovereignty. And sovereignty, once ceded, is seldom recovered"

may bear interest. Banks fear deposit flight. Crypto firms call it protectionism. Having conscripted private money, Washington discovers its conscripts have interests of their own.

Beijing drew the opposite conclusion. If the dollar system can be turned against you, build parallel rails. The digital yuan subordinates the private platforms that had dominated Chinese retail payments, returning them to state oversight. Abroad, it anchors wholesale settlement networks beyond SWIFT's reach.

By late 2025, cumulative e-CNY transactions had reached 2.3 trillion dollars. Saudi Arabia is settling oil on these rails. On January 1, 2026, Beijing began paying interest on e-CNY balances - the very instrument Washington's banks are fighting to deny their own stablecoin sector.

And the rest? The European Central Bank agonises over whether citizens may be trusted with a few thousand digital euros. The Bank of England proposes capping holdings at twenty thousand pounds per person. The architecture is defensive - designed not for projection but for the prevention of deposit flight. The heirs of the Florentine bankers have concluded the ledger is too dangerous to open.

From Sumerian clay to Californian blockchain, whoever controls the inscription of value controls power. The ledger is mnemonic capital - a reservoir of recorded obligation that compounds authority across time.

Washington has conscripted the stablecoin sector but cannot yet govern its creation. Beijing is building a monetary architecture that owes nothing to the dollar. Brussels and London, capping holdings to shield their banks, have hobbled their creations before birth.

The arithmetic is merciless. Stablecoin transfers settle in seconds for fractions of a cent. Senders will take the faster, cheaper rail - every time, without sentiment, without ceremony. Sovereignty bleeds out through a thousand daily transactions. These are strategic choices with generational consequences.

A nation that does not command its own digital payment architecture will discover, too late, that it has surrendered its monetary sovereignty. And sovereignty, once ceded, is seldom recovered. ■





Money in transition

Christine Lagarde is the President of the European Central Bank

Eight centuries ago, the fairs of Champagne were where Europe settled its accounts. Held throughout the year, they drew merchants from the cloth towns of Flanders to the banking city-states of Italy who came to clear their debts against one another on paper rather than carting silver across the continent. Bills written all over Europe were timed to come due at these fairs, to be reckoned together, so that great sums changed hands with barely a coin in sight. For a time, a divided Europe settled its accounts as one.

Since then, Europe has advanced enormously towards integrated settlement, above all with the euro and the systems that underpin it. But the challenges never stop, and Champagne shows what is at stake if they go unanswered. As tolls rose and new sea routes opened the merchants drifted away, and Europe's first common market faded into memory.

Today, we face two new challenges at once. Technology is rewriting how money is exchanged and trades can be settled, most of all through tokenisation. And geopolitics has turned the ownership of financial infrastructure into an instrument of power, so that sovereignty now matters where once it did not.

Real as these challenges are, for Europe they are above all an opportunity. In our capital markets, they offer the chance to tackle the fragmentation that has held us back for decades, and in our retail payments, the chance to open the field to operators working right across Europe, and to more competition.

In the Eurosystem, we are pursuing a comprehensive strategy to seize this opportunity. It starts with wholesale markets. Today, a single crossborder transaction passes through a chain of separate record-keepers, each holding its own ledger, creating high transaction costs and reinforcing home bias. 32 central securities depositories keep these records across our Union. The United States has two.

Tokenisation offers a way past this. On a shared ledger, ownership is recorded once and payment changes hands in the same instant as securities do, with the terms of settlement written into the instrument itself. We have been trying for decades to weave our national systems into one. Now we can build a new layer that is complete from the start.

But the technology settles nothing on its own. Without a credible, risk-free asset to settle in, tokenised finance will splinter into private islands and fail to reach escape velocity from its current sandbox status.

The market has told us as much. We brought together more than 60 participants from across the industry, and their message was clear: they will not commit to issuing digital assets at scale until they can settle in central bank money.

Nothing else is trusted and accepted by all, and nothing else can expand and contract with the market's needs so that liquidity is there when the system most needs it. A token that is backed euro-for-euro can never do that.

So we are answering the call. Already in the course of this year, our Pontes project will settle tokenised transactions in central bank money. And our Appia project reaches further still. With the market, it is drawing the blueprint for a single European market in tokenised finance and putting Europe at the frontier of this new technology.

The next dimension is retail payments, and the role of central bank money within them. The only public money we can hold



today is cash, our ultimate claim on the central bank, and our connection to it. The Eurosystem is committed to preserving cash, with a new series of euro banknotes on the way. But as more of daily life moves online, Europeans risk losing that connection altogether. The digital euro carries it forward, a euro issued by the ECB and available to all.

The digital euro does more than preserve what we have. It is also a chance to end a dependence we have lived with for too long. Europe has no pan-European card scheme of its own, and most of what people tap and swipe runs on networks we do not own. International schemes account for more than 60% of card payments, and 13 out of 21 euro area countries have no national card scheme.

European schemes have never reached pan-European scale because they are caught in a vicious circle: no merchant adopts what few customers use, and no customer uses what few merchants accept.

The digital euro breaks that circle. Because of its legal tender status, it must be accepted everywhere. This would give Europe, at last, a payment instrument that works across the whole Union. And because its technical standards are open, any provider can build on them and reach across Europe from the start. For the first time, European players could compete on equal terms.

The final dimension is crossborder payments. Sending money abroad is still slow and costly, routed through long chains of correspondent banks. US dollar-denominated stablecoins are positioning themselves to move into that gap, promising to be faster and often cheaper than the current system.

It remains to be seen whether the promise will be kept once end-to-end costs are factored in and compliance standards are brought up to those of regulated providers. But the gap is there and the case for action is clear. The G20 has recognised as much, putting crossborder payments at the centre of its own reform roadmap.

“Technology is rewriting how money is exchanged and trades can be settled, most of all through tokenisation. And geopolitics has turned the ownership of financial infrastructure into an instrument of power, so that sovereignty now matters where once it did not”

The Eurosystem is acting here, too. By interlinking our instant payment system, TIPS, with others, we are letting European payments reach across the world. A link to India’s UPI, the largest instant payment system in the world, is now being built, while connections to the Nexus Global Payments network in South-East Asia, and to Switzerland’s SIC IP system, are in advanced stages of analysis. The aim is simple: that Europeans can transfer money to a growing list of countries around the world in seconds, on rails of their own.

Which brings me to the largest prize of all. The euro’s international role has long been held back by the same fragmentation that limits us at home: markets that are too shallow, infrastructure that is too divided. Put our own house in order, and that begins to change. A deep and integrated market, anchored in trusted public money, is the path to a currency the world will want to use.

The Eurosystem is doing its part. But we cannot deliver this vision for Europe alone. We need the market to invest in the technology and to agree on shared standards. With Appia, we are building them together so that tokenised networks connect to each other, rather than remaining siloed.

And we need governments to provide legal certainty through a common framework for digital assets. National regimes are already multiplying, and unless we establish that framework first, we will rebuild in law the fragmentation that technology is currently dissolving.

Eight centuries ago, a divided Europe settled its accounts as one. But this did not last. What we have built since then – a single currency settled on shared rails – is extraordinary. The challenge is to carry it into the tokenised age, so that the new technology extends our single settlement rather than fragmenting it. This time, we can keep it. ■

This article is based on the opening speech at the ECB conference on ‘Money in transition: digitalisation and innovation in payments’, Frankfurt am Main, 15 June 2026.



Reciprocal sovereignty: a third constitutional tradition for Europe

Hans Gersbach is Professor of Macroeconomics: Innovation and Policy at Eth Zurich, and Co-Director at the Kof Swiss Economic Institute

Europe faces a growing constitutional paradox. Many of the challenges that increasingly determine its future, including security, technological competitiveness, energy resilience, climate adaptation, financial stability, and strategic autonomy, are European in scale. Yet democratic legitimacy remains rooted primarily in national political communities.

The origins of this challenge became visible during the euro crisis. Member states retained fiscal sovereignty, yet excessive borrowing by one country could create substantial risks for others. National fiscal decisions generated crossborder liabilities without corresponding crossborder democratic representation. Countries potentially exposed to the consequences of fiscal imprudence often lacked any meaningful voice in the decisions that created such risks.

The traditional debate on European integration offers two responses. One is federation: the transfer of substantial authority to a European political centre and the development of a common European political identity. The other is intergovernmentalism: cooperation among sovereign states while preserving national autonomy. Neither option appears fully adequate.

A federation capable of exercising broad fiscal and political authority lacks sufficient democratic support. Pure intergovernmentalism often struggles to provide the European public goods upon which Europe's prosperity, security, and geopolitical relevance increasingly depend (Bakker *et al* 2024, Buti and Messori 2024, Draghi 2024).

Recent proposals for common investments in defence, energy infrastructure, innovation, and strategic autonomy highlight the same problem (Buti *et al* 2023, Beetsma *et al* 2024, Janse *et al* 2025). If sovereign democracies are asked to share risks, financing responsibilities, and strategic commitments, through which democratic institutions can such obligations be authorised and monitored? This column argues that answering this question requires a new constitutional principle: reciprocal sovereignty.

Reciprocal sovereignty

The modern concept of sovereignty emerged as a principle of

independence. Political communities were sovereign because they exercised ultimate authority within their own jurisdiction and remained free from external domination. This conception remains central to democratic self-government.

Yet European integration has transformed the conditions under which sovereignty is exercised. Decisions taken in one democracy increasingly affect citizens and governments in others. Financial instability, energy vulnerabilities, technological dependencies, and security threats rarely



respect national borders. The central constitutional question is therefore no longer simply how independence can be preserved, but how interdependence can be governed democratically.

Reciprocal sovereignty begins with this observation. We define it as follows:

Reciprocal sovereignty is the principle that democratic peoples remain sovereign not because they act independently of one another, but because they possess the democratic authority to enter and sustain relations of mutual responsibility.

Reciprocal sovereignty can be understood as a further development of European supranational constitutionalism. In its Maastricht Judgement, the German Federal Constitutional Court described the EU as a *Staatenverbund*, emphasising that democratic legitimacy derives from the member states and their citizens. Reciprocal sovereignty builds on this insight but introduces an additional dimension. The legitimacy of shared European action depends not only on dual authorisation but also on reciprocal responsibility among democracies.

One way to understand the constitutional development of Europe is through three stages. Classical theories of

“The central question for Europe is therefore not whether sovereignty should be transferred or preserved. It is whether sovereignty can be reimagined. Reciprocal sovereignty offers one answer”

sovereignty emphasised independence. Post-sovereign and pluralist approaches emphasised the sharing and diffusion of authority (MacCormick 1999, Weiler 1999). Reciprocal sovereignty proposes a third step: the institutionalisation of shared responsibility among sovereign democracies.

This distinguishes reciprocal sovereignty from both federalism and constitutional pluralism. Federalism seeks to align authority and legitimacy through a common sovereign. Constitutional pluralism focuses on the coexistence of multiple sources of authority. Reciprocal sovereignty addresses a different question: how sovereign democracies can become mutually responsible while remaining sovereign.



Its central claim is straightforward. Whenever sovereign decisions generate significant crossborder risks, obligations, or liabilities, democratic legitimacy requires institutions through which the democracies exposed to such consequences can participate in authorising the commitments that create them.

Reciprocal authorisation is therefore justified only where sovereign decisions create substantial and foreseeable liabilities for other democracies. Such participation should be understood as a constitutional right available to affected democracies rather than as a mandatory obligation to intervene in the affairs of others.

Reciprocity concerns the availability of democratic authorisation rights when substantial crossborder liabilities arise, not a duty of symmetric intervention.

Sovereignty is therefore not abandoned but reinterpreted. Rather than defining sovereignty primarily as freedom from others, reciprocal sovereignty defines it as the democratic capacity to govern interdependence.

The principle can be summarised in a simple proposition:

- No European responsibility without reciprocal sovereignty.

Europe can provide common goods only if sovereign democracies possess institutions through which shared responsibilities can be jointly authorised, financed, and monitored.

The democratic triple knot

The 'democratic triple knot' represents one institutional embodiment of reciprocal sovereignty. It originated in proposals developed during the euro crisis to reconcile fiscal interdependence with democratic legitimacy (Gersbach 2011).

The underlying problem was simple. Fiscal decisions remained national, while their consequences increasingly became European. Countries exposed to the risks generated by another country's fiscal decisions often lacked any meaningful role in authorising those decisions.

The broader constitutional significance extends far beyond fiscal policy. Whenever decisions in one democracy create substantial risks, liabilities, or obligations for others, democratic legitimacy requires institutions through which the affected democracies can participate in authorising such commitments.

The triple knot consists of three mutually reinforcing elements.

- Joint financing. Countries participating in common European projects share financing responsibilities. Common goods require common commitments. Joint financing transforms cooperation from aspiration into obligation and constitutionalises solidarity.
- Reciprocal authorisation. Countries exposed to common risks participate in decisions that create those risks. No risk-

sharing without co-decision. Democratic authorisation therefore extends beyond purely national boundaries while remaining anchored in elected institutions.

- Mutual accountability. Countries benefiting from common commitments accept common monitoring, evaluation, and transparency requirements. Accountability emerges horizontally among democracies rather than hierarchically through a superior authority.

Together, these three elements link responsibility, authorisation, and accountability. The triple knot therefore does more than improve governance. It constitutionalises reciprocity by ensuring that common commitments remain democratically sustainable.

More broadly, recent work on democratic innovation argues that democratic systems must continuously adapt to new collective challenges (Gersbach 2009, 2024, Britz and Gersbach 2026, Landemore 2020). Reciprocal sovereignty provides the constitutional principle; the triple knot provides one mechanism through which that principle can operate. It can thus be understood as a constitutional technology for governing democratic interdependence.

Reciprocal parliamentary approval: an illustration

One possible institutional embodiment of reciprocal sovereignty is reciprocal parliamentary approval. Fiscal policy provides a useful illustration. In this domain, reciprocal parliamentary approval would require the consent of parliaments in selected partner countries whenever a national budget or debt level exceeds agreed thresholds and thereby creates significant potential liabilities for others.

Consider the example of France wishing to run large deficits while Germany strongly objects. Under reciprocal sovereignty, a possible practical implementation of reciprocal parliamentary approval could be as follows: if agreed deficit or debt thresholds are exceeded, the French budget could require approval by a predefined group of partner parliaments selected according to rules agreed ex ante, in particular including Germany.

France would then have three options: remain below the threshold, persuade the partner parliaments that exceptional circumstances justify the deviation, or revise the budget if approval is denied. Sovereignty is not abolished, but the exercise of sovereignty becomes conditional when decisions generate significant crossborder risks.

This logic does not depend on symmetric interests. If France does not care about Germany's fiscal decisions, the mechanism still operates; but France does not need to do anything, as reciprocal parliamentary approval is only a right, not a duty. Member states accept ex ante that decisions creating substantial crossborder liabilities require reciprocal democratic authorisation.

The same reasoning applies to areas involving common-good problems and asymmetric situations more generally. If country A takes a decision that significantly affects country B,

while decisions taken by B have little effect on A, reciprocal sovereignty gives B a procedural voice in A's decision. Authorisation rights follow the direction of responsibility and exposure rather than the symmetry of influence.

This also clarifies how reciprocal sovereignty differs from existing EU fiscal rules. Fiscal rules are primarily technocratic instruments based on numerical limits, monitoring, and sanctions, whose enforcement has often proven politically difficult. Reciprocal sovereignty addresses a different constitutional question: who should have the right to authorise decisions that may impose risks on others? The focus shifts from rule enforcement to democratic co-decision.

We have illustrated reciprocal parliamentary approval for fiscal policy. More generally, the same constitutional logic could be adapted to other domains in which national decisions generate substantial risks, liabilities, or obligations for partner democracies when common goods are provided.

Reciprocal parliamentary approval would ensure that risk-sharing or burden-sharing and democratic authorisation remain institutionally connected. The principle can be summarised as follows: no shared liability without shared authorisation.

Conclusion

Europe's future depends increasingly on its capacity to provide common goods. Yet common goods require common

responsibilities, and common responsibilities require democratic legitimacy.

Reciprocal sovereignty offers one constitutional framework for addressing this challenge. It suggests that sovereign democracies remain sovereign not despite interdependence, but through their capacity to govern it collectively. The democratic triple knot provides one institutional mechanism through which this principle can be realised.

In Vivien Schmidt's terminology, Europe must combine input, output, and throughput legitimacy (Schmidt 2013). Reciprocal sovereignty can be understood as an attempt to strengthen the throughput dimension of European democracy by creating procedures through which sovereign democracies jointly authorise, finance, and monitor common commitments.

The central question for Europe is therefore not whether sovereignty should be transferred or preserved. It is whether sovereignty can be reimagined. Reciprocal sovereignty offers one answer. If successful, Europe may become the first political order founded not on sovereign independence alone, but on reciprocal responsibility among sovereign democracies. Its guiding propositions can be stated simply:

- No shared liability without shared authorisation.
- No European responsibility without reciprocal sovereignty. ■

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Editors' note: A longer version of this column, titled "Reciprocal Sovereignty: A Third Constitutional Tradition for Europe. Resilience through Shared Responsibility among Sovereign Democracies" (Gersbach 2026), is available upon request. This article was originally published on VoxEU.org.



Closing the innovation gap



Fiona M Scott Morton and Reinhilde Veugelers are Senior Fellows at Bruegel

On 18 March, the European Commission proposed a European Union-wide incorporation regime, dubbed 'EU Inc.' (European Commission 2026). Conceived as a central element of the Commission's competitiveness strategy¹, EU Inc. seeks to close the EU's innovation gap with the United States and China by simplifying the rules on how companies are founded and scaled-up within the bloc.

Reactions to EU Inc. have argued that the proposal waters down the original ambition for a so-called 28th regime, as advocated by, among others, the 2024 Draghi report on competitiveness by former Italian prime minister Mario Draghi (Draghi 2024). In particular, the Commission proposal would extend the EU incorporation regime to all companies across the single market, rather than innovative startups and scalers (Enriques *et al* 2026).

The Commission counters that such a stipulation would create an *"administrative burden to demonstrate compliance"* and *"complications when companies no longer meet the definition"*, undermining efficiency gains from the regime (European Commission 2026). Instead, it expects companies to make their own judgements about whether to opt in.

The question then is whether EU Inc. as proposed is sufficiently targeted to induce self-selected participation by the pivotal innovative scalers, and what changes can be made to build on the real strengths of the proposal and address its shortcomings.

Promising elements

The proposal begins well by setting out EU Inc. as a regulation, or law with uniform effect across the EU, rather than a directive, which would require implementation in conformity with minimum standards in each EU country. Ensuring that companies incorporating under EU Inc. can do so in the same way and are recognised in exactly the same way across EU countries, is fundamental to effectively reducing operating costs across the EU.

The proposal also explicitly prohibits EU governments from imposing additional legal barriers, such as requirements for notarial deeds for new shares or other practises that discriminate against the operations of EU Inc. companies.

The proposal has other strong elements. The regime's main procedural and administrative architecture would involve fully digital incorporation via a central EU interface, the application of a 'once-only' principle to digital submissions of company information, a 'fast-track' 48-hour company formation procedure, at least if EU Inc. contract templates are used², and reduced application costs of €100. All this will make incorporation easier and faster and will have broad appeal, especially to startups and scalers that lack the time, resources or experience to deal with burdensome bureaucracy.

An EU-wide regime for employee stock options will also make the proposal attractive to innovative companies. The proposal's requirement that all countries tax equity at sale will allow these firms to attract and retain key people (Scott Morton and Veugelers 2025).

The zero minimum capital requirement³ is also particularly attractive for innovative startups, which may be founded by people of ordinary means and are likely to be worth little at take-off. Other good elements are digital procedures for increasing capital and issuing and transferring of shares. Simple and standardised contracts and templates for investing in these firms will be critical to attracting capital.

Finally, the insolvency procedures under the regulation would be designed to be attractive to innovative, high-risk projects. The Commission proposes a liquidation and insolvency process for EU Inc. companies in line with the digital 'once-only' principle. Interestingly, the proposal sets out a simplified insolvency process reserved for *"innovative startups"*.

This provokes the question that if identifying innovative startups (to be done via delegated acts, or additional rules adopted by the European Commission, during the implementation process) is possible for the purposes of bankruptcy, why can't such rules be applied for the regime as a whole?

The problems of an open-to-all regime

The decision to open the regime to all companies, rather than targeting innovative scalers specifically, is a serious flaw.

First, it will hugely complicate negotiations on the finalisation of the legislation. If there is disagreement, as has been the

case with past efforts on incorporation regimes (see Box 1 in Scott Morton and Veugelers 2025), the EU might remain stuck with existing, restrictive rules, or with a text that will be a compromise to suit different stakeholders and that waters down the provisions that matter most for innovative fast-growing companies. In addition, allowing all companies to register means the administration of EU Inc. will need to have enough capacity to avoid being overburdened by off-target applications.

Second, while an open-to-all regime would lower administrative burdens for any business operating across Europe, that was not the original purpose of the idea of a 28th regime. EU Inc. is intended primarily to promote the creation and expansion of innovative startups by removing bureaucratic and administrative barriers, helping the EU economy benefit from the growth such firms create (European Commission 2026).

Such a proposal is needed because very few European companies are in this category and Europe urgently needs more. Focusing narrowly on innovative startups with the potential for fast growth would thus address a critical growth constraint for the EU, while sidestepping what would otherwise be unsurmountable opposition to harmonisation of corporate rules for all.

EU Inc. as proposed risks generating compromises that will not address the specific barriers faced by innovative companies when they incorporate, scale up and exit. For instance, the template for incorporation may neglect typical issues of importance for innovative companies and their financiers, such as multiple share classes, preferred equity, vesting or anti-dilution clauses. As such issues are critical for innovative scalars and their financiers, this may exclude them from the speed and low-fee advantages of a general template.

For innovative startups, acquisition is a common exit mode, often involving merger review. The status quo of inconsistent and fragmented treatment by national competition policy authorities of potential 'killer acquisitions' is a specific barrier for innovative ventures and their financiers.

This can be addressed by placing the job of review of acquisitions involving EU Inc. firms into the hands of the European Commission, which has the perspective and skills to evaluate them (Scott Morton and Veugelers 2025).

On the exercising of employee share options, a provision that would exclude those who hold more than 25 percent of the voting rights and impose a 24-month waiting period makes EU Inc. significantly less attractive in terms of attracting and motivating the key people behind innovative startups with fast growth potential.

Targeting innovative scalars is essential

The Commission's justification for an open-to-all regime – to avoid the difficulties of defining innovative companies and the administrative burdens of demonstrating compliance with this definition and establishing when companies no longer meet it – overstates the problem, for two reasons.

“Establishing an EU-wide incorporation regime should be an iterative process, with milestones defined and checked and adjustments implemented when needed”

First, the problem that definitions might be wildly misplaced arises only when they are overly specific and applied mechanically without discretion⁴. This risk can be significantly reduced if the definition is based on information that allows some degree of interpretation.

For example, the innovative growth potential of startups could be assessed based on their business plans: is the proposal innovative, does it include crossborder growth plans, is the firm searching for risk-capital to scale up? The bar for existing firms to game this system could be set high simply by requiring already-incorporated companies to shut down before they can re-incorporate within the EU Inc. regime.

Second, the burden of identifying candidates that are not innovative, or that would not benefit from crossborder incorporation, can be reduced by targeting the regime's rules to the distinctive needs of the group it is supposed to benefit. The design itself would then do most of the filtering.

This approach would require careful tailoring of rules to ensure they appeal to target firms while being much less attractive to non-targeted firms. Lastly, if some less-innovative firms incorporate under EU Inc., this does not cause any harm, so the review should be constructed to minimise false negatives.

Enhancing the EU single interface

The modest ambition of EU Inc. is most prominent in the minimalist design of the EU single digital interface, the proposal's chief tool to reduce administrative burdens.

The EU Inc. digital interface will be built on the existing Business Registers Interconnection System⁵, which connects all member states' business registers. This system will be extended to allow the digital registration of EU Inc. companies, but will otherwise remain limited to managing registrations and organising the transfer of information between different EU countries. This is clearly an insufficient scope.

Another problem is that the expansion of the system depends on member-state, rather than EU-level, investment and thus is likely to be under-resourced. A poor system will constrain the capacity and functionality of the interface and severely limit its agility.

The question of how to design EU Inc. templates well enough to address critical bottlenecks for innovative scalars is delegated entirely to future implementing acts. In Scott



Morton and Veugelers (2025), we argued that an EU single digital interface – we call it Hub0 – must be active beyond registration to reduce legal uncertainty and costs not only at incorporation, but also during growth.

To aid growth, an improved EU single interface could provide tools for comparison of tax rules and labour regulations in all EU countries, allowing innovative companies to make better-informed choices about where to locate their activities. The current proposal includes no provision of information, nor any comparison tool.

The Commission proposal is also silent on how the EU single interface could support enforcement of the non-discrimination aspect of the regime. However, tasking the interface with some of these enforcement activities of the EU Inc. regime would be useful.

For example, the interface can work as a one-stop-shop for filing of cases by EU Inc. companies facing discriminatory regulations or procurement. It could also serve as a first-instance mediator, before escalating disputes to a dedicated EU-wide fast-track court system, specialised in EU Inc. matters.

The bottom line: a flawed proposal that can be fixed

Overall, while EU Inc. aims address the EU's shortfall in innovative growth, it's for-all design and inconsistent approach to corporate rule harmonisation makes it

insufficiently focused to be useful to the firms it is targeting. With political negotiations and idiosyncratic member-state implementation likely to throw up further stumbling blocks, it is essential that the proposal be improved now.

Two main fixes are needed:

1. The proposal should make the targeting of innovative startups and scalers explicit, introduce a sufficiently flexible screening mechanism to identify them and make the design of the EU Inc. regulation more targeted to them (Scott Morton and Veugelers 2025).
2. The EU single interface must be improved by committing the necessary capacity at EU and member-state level, to truly centralise the incorporation and growth process, while making the platform the first stop for dispute resolution and hosting information and comparisons that innovative starters and scalers need to locate employees, comply with labour regulations and pay taxes.

Establishing an EU-wide incorporation regime should be an iterative process, with milestones defined and checked and adjustments implemented when needed. Regular independent evaluations should assess whether it is on track to reach its goals of boosting EU growth, innovation and competitiveness.



This evaluation should not simply count the number of companies incorporated or the average savings made in reducing their administrative burdens⁶, but must define and measure how many innovative startups are being

created as EU Inc. companies, and how many of these are able to successfully scale up across the EU and the gains in competitiveness and catching up in EU innovation and growth they bring. ■

Endnotes

1. See European Commission, 'Competitiveness compass'.
2. This fast-track, template-based incorporation would skip judicial or notarial checks. For non-template incorporation, formation of an EU Inc. company would still be "subject to preventive administrative, judicial or notarial control".
3. This contrasts with the option of incorporation as a European company in the *Societas Europaea* (SE) regime, established by the EU in 2004. As establishing an SE requires minimum capital €120,000, most SEs are large companies with only a very limited uptake by innovative startups. On SEs, see European Commission, 'Setting up a European Company (SE)'.
4. See the EC Recommendation of 18.3.2026 on the definition of innovative enterprises, which specifies a minimum level of R&D expenditures as a share of costs (10%) or sales (10 percent). Innovative scaleups are innovative enterprises with an annual turnover or balance sheet of more than €10 million, and which must have increased the number of its employees or revenues by 20% in the last two years, and either employs fewer than 750 persons or is not publicly listed.
5. See European Commission, 'Business Registers Interconnection System'.
6. The EU Inc. proposal sets a target of creating about 300,000 EU Inc. firms over 10 years and generating savings of between €328 million and €440 million from reducing administrative burdens (European Commission 2026).

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Can AI make cutlery?

Andrew Bailey is the Governor of the Bank of England

Let me start with a few key facts on growth. For around fifteen years before the Financial Crisis (1990-2006), the average annual rate of growth of potential supply in the UK economy was around 2.8%. Productivity contributed 2.4pp and labour supply 0.4pp. For the roughly fifteen years since the Financial Crisis, the potential growth rate has fallen to 1.3% pa, of which productivity contributed 0.4pp and labour supply 0.8pp. The comparable figures for actual growth – the growth of demand – are 2.4% and 1.3%.

This has had a direct effect on living standards. In the UK, between 1990 and the Financial Crisis, the average annual growth rate of national income per head was 2.0%, whereas post-Crisis it has been 0.6%.

What are the longer-run causes of growth in an economy? The list is quite long: physical capital accumulation; technological progress; human capital, including education and skills; trade; financial development; markets and competition; infrastructure; and institutional development, both public and private.

Theories of growth are often associated with two famous economists of the past, Adam Smith and Joseph Schumpeter. The terms Smithian and Schumpeterian growth are used, with a focus on trade and technology respectively.

Adam Smith used the pin factory to show that specialisation in production (the division of labour) leads to higher levels of productivity and hence growth. This was shaped by the size of the market served – the bigger the better. Trade expands markets, which enables productivity and the economy to grow by more.

Joseph Schumpeter wrote during the first half of the 20th century. He is known as the father of creative destruction, namely that capitalism is defined by waves of innovation, where new innovations and technologies replace older ones, and create new sources of growth in doing so¹.

Smithian and Schumpeterian growth are sometimes set up as competing explanations. This is not at all the case. They are complements².

Before coming to an example of innovation, let me say something about institutions, as a cause of economic growth.

Institutions are important for economies and for growth, for instance because they define and operate property rights. But, they differ a lot across economies.

One of the very big questions in the story of economic growth is why did Europe, and particularly Britain, industrialise first – how come we won the race? One view is that European institutions developed in a way that broke down family and clan-based societies (something the authors argue did not happen for a long time in China). There was an important contribution here from trade organisations and corporations.

It was from this institutional development that laws evolved, political stability was enhanced, and economic innovation and trade flourished. These overlapping social networks helped the sharing of ideas and knowledge. Master, today the Cutler's Company is still doing this³.

Creative destruction involves innovation and obsolescence. Let me give an example close to the history of Sheffield. Henry Bessemer's convertor made cheap molten steel a reality. Schumpeter had a flourishing turn of phrase. He described Bessemer as a real genius of the entrepreneurial kind, with a vision of the possibilities for cheap steel.

Bessemer came to metallurgy, which by his own account at the start he did not understand at all, due to his interest in developing artillery shells⁴. His original experiment succeeded, but using a non-phosphoric iron ore. Subsequently, he had to solve why it didn't work with phosphoric ones. Then, he had to confront the reality that hardly anyone wanted to buy a licence from him to use the idea.

On this point, Schumpeter raised himself to full rhetorical flourish. I will quote:

"Bessemer now took the line, much more consciously and according to reasoned plan than entrepreneurs do as a rule, of going straight into the citadel of the enemy, to Sheffield, in order to produce and undersell.

There, steel that was good, though not as yet very cheap (and here Schumpeter adds a footnote that it was not very cheap especially for other producers who had to pay for the licence from Bessemer, and it wasn't very cheap anyway because his productive apparatus was not the ideal of rationality),

but eventually it saw the light of the market (from 1858) and was a financial success from the first”⁵.

Creative destruction had its way. Now, I don’t want to rain on Bessemer’s parade. It was a very important technological advance because the product – steel – was used across the economy. But it was not what is now known as General Purpose Technology, or GPT for short.

A GPT is a technology (as distinct from a product like steel) with broad, economy-wide applicability that improves over time and enables complementary innovations across many sectors of the economy. To be clear, this use of GPT is not the same as Chat-GPT, where GPT stands for Generative Pre-trained Transformer.

GPTs have driven the cycles of technology-led growth, the heart of creative destruction. How many such cycles have we had? I would say the following qualify: the steam engine; the internal combustion engine; chemistry and the transformation of substances; electricity; and information processing and the internet.

I am going to go back now to the question, what has caused the slowdown in growth over the last fifteen years or so? There are quite a few candidates, and they are not mutually exclusive. Three possibilities are: the legacy of the financial crisis; the coincidence of bad shocks (COVID, the war in Ukraine caused by Russia; the latest outbreak in the Gulf); and the growing effect of declining population growth.

All of these are candidates and may have a role. But we should go back to Schumpeter, and to technology as a cause of growth. Three questions are relevant here. What is it about GPTs that causes growth cycles to end? Are there gaps between the cycles? And is this a reasonable explanation of what has gone over the last fifteen years or so?

What causes GPTs to end? We are talking here about their contribution to growth, not their prevalence. The internet is everywhere, but as it has become so, it is natural that its contribution to growth will diminish. You can only get so much of it – honestly.

Are there gaps between cycles? Yes. We have seen this in the past, and they have been perceived as challenging periods. Economic historians have debated whether late Victorian Britain failed because other countries caught up with faster growth. I agree with those who say that it didn’t fail, but it did need to reinvent itself⁶. One reason for such gaps is that it takes time to cook up the next technology.

Is this a reasonable explanation of the last fifteen years or so? Yes, I would argue. One clue is the declining contribution of productivity growth. The obvious next question is what is the next General Purpose Technology? It’s most likely to be Artificial Intelligence, though I would add AI operating with robotics.

This brings me to what may be the hardest question – how do we define AI? Bear with me – I do not claim to be an expert

“History shows that there is no single story on the relationship between major technology changes, economic growth, employment and living standards. However, shifts in the structure of the economy and employment are inherent to a technology-driven system of economic growth”

in this field⁷. As humans we are intelligent to the extent that our actions are expected to achieve our objectives. Machines are assumed not to have objectives of their own – they are a means of us furthering our objectives.

But we are often uncertain how to achieve our objectives. The critical feature of the human brain is that it can adapt to uncertainty. This is inductive thinking. It is distinct from deductive thinking, where we follow a pre-set rule. Where does AI fit into this?

One step forward is to create machines that are able to process vastly more information more quickly than we can (eg. process the whole of the internet). This is not doing anything we cannot do in principle, but in practice it is doing things we cannot do. But this is still fixed learning – fixed in the sense of the stock of information.

As humans we learn from experience – it’s part of our inductive processing. This is where so-called Reinforcement Learning comes into AI. Here the machine learns through experience using trial and error. It takes actions, receives feedback, and adjusts its behaviour based on what worked and what did not. It is still applying general principles, but in doing so it is applying judgement based on its own learning. This creates a form of tacit knowledge.

It applies general principles, while it also incorporates knowledge and judgement from its own learning. The model is thus growing. You can see now that this is where the questions start to arise – is it really still set up to achieve our objectives or is it moving on itself and, in ways that may or may not be consistent with our intentions?

But what is relevant is how it operationalises all of this. Let’s imagine we are Henry Bessemer. He had a finding – the initial experiment in London. He had to think through the constraints and opportunities of using it. Then, construct a plan to put it to work. Then he had to validate the steps in that plan (if only because his annoying banker may have asked for this). And then, he could get going and put the plan to work.





AI with Reinforcement Learning could get us much further through that sequence of steps with much less time spent, cost and human intervention, hence the productivity gains and its would-be status as a particularly potent GPT.

Can AI make cutlery? I did not take the question literally because I am of the generation that grew up watching Blue Peter in its early days. You may remember one of their familiar comments – “Don’t try this at home”. Instead, I asked four different AI programmes the question – “Can AI make cutlery?” They came back with basically the same answer⁸. Here’s one; which is representative:

“Yes, AI can help make cutlery, but usually as part of a manufacturing system, not by itself. It can assist with design, automate production, inspect quality, and optimise packing and maintenance.”

So, AI can improve the productivity of cutlery production and is probably already doing so.

This brings me to the last part of my remarks. When are we going to get the growth from AI? I am going to take this in two parts. First, what are the characteristics of GPT innovation which can guide us to an answer? And second, what can go wrong, - well, I’m a central banker, so we have to do this bit.

GPTs are enabling technologies – they spread across economies and make other things happen. The first invention often triggers a sequence of secondary innovations which spread its reach⁹. But, in most GPTs to date it has taken time for the main effects to come through.

It took eight decades from James Watt’s first steam engine to the major growth contribution of steam power showing up in the mid-nineteenth century. Likewise, while Thomas Edison opened his first power station in New York in 1882, it was a further four decades before there was a meaningful boost to productivity growth. More recently, the economist Robert Solow made a famous comment in 1987 that: “You can see the computer age everywhere but in the productivity statistics” which became known as the Solow Paradox¹⁰.

But this may not be such a paradox, for several reasons. First, the initial invention typically doesn’t get there on its own – complementary changes need to come along, and this takes time. Second, it is arguable that productivity may slow down in the early phases, because it is the experimenting phase. We may well be there on AI – I certainly am. Third, there may well be more measurement error in the early phases.

We are not very good at measuring new things – recently the national statisticians have been working on how to value and measure data – which have a utility that has grown rapidly. And, we have to calculate to what extent GPT innovation increases the obsolescence of the old stuff that we used and how we should measure that.

One more point on why change can take time. An initial intervention which is not followed immediately by complementary further innovation can actually lead to the

expansion of the old ways of doing things. In Sheffield, the early stages of nineteenth innovation actually led to the growth of the traditional craft-based domestic industry.

We can try to map all of this into what might happen with AI. The invention – innovation cycle may well have shortened, and maybe drastically so. Today, the life expectancy of a new model release is around three to four months. But, even so, that does not tell us how rapidly AI will shift the productivity numbers.

AI may well ride to the rescue, but how quickly it will arrive in the productivity numbers is an open question. Really meaningful gains to productivity tend to come from wholly new products and activities, not so much from automating our existing tasks, and that tends to require further complementary innovations.

There is a saying which is probably misattributed to the science fiction writer Arthur C Clarke, that innovation is overrated in the short run and underrated in the long run. With AI, I think the innovation cycle is much shorter, but it may well still be somewhat longer before it contributes substantially to growth.

So, what can possibly go wrong? Schumpeter's view of industrialisation and living standards was, rather simply, that in the end everyone came out ahead. Niccolo Machiavelli never exactly wrote that the end justifies the means, but Schumpeter's argument heads in that direction¹¹.

A major issue here is what GPT innovation does for employment? The answer from history is not clear-cut. It depends on the form of the innovation and its impact. On one view, there are four main channels for the impact on employment¹².

- A displacement effect, where AI will replace people in tasks it can do more cheaply or efficiently. Chatbots replacing customer service agents would be an example (whatever you think of them).
- A reinstatement effect – it creates new tasks where people are still needed. An example of this would be data scientists.
- A productivity effect – AI makes firms more productive, costs fall, output expands, and as the automation is partial, this increases the demand for labour. As with the reinstatement effect, the productivity effect expands the use of labour. An example of this would be AI helping doctors to analyse scans faster, more patients get treated and more doctors are needed.
- AI mostly replaces labour, and the share of profits increases relative to wages, employment can fall, but wages for certain skills can rise. This can increase

demand for some highly skilled workers who manage AI systems.

The outcome in terms of employment therefore depends on which of these forces dominates, and the sequence by which they take effect. History isn't a great help here. The first Industrial Revolution is usually dated from around the 1780s. While productivity growth did increase, real wages stagnated until the 1840s.

In this period, the wages of traditional skilled labour fell, and there was an increase in unskilled labour in factories, including child labour. The Luddites – machine destroyers – were a reaction to that and were active at times in this area. This period is also known as the Engels Pause.

Friedrich Engels was closely associated with Karl Marx, and it was from this that Marx formulated much of his view on the dynamics of industrialisation and the eventual dictatorship of the proletariat. He was wrong, but it took time for that to become clear¹⁴.

In contrast, mass factory production following electrification led to a more rapid increase in the demand for skilled labour and real wages and a fall in income inequality. The pattern of growth and income distribution was different.

The ICT and internet cycle coincided with a period of relatively low unemployment by historical standards. In the UK, the wage share of national income was relatively constant, while in the US it declined.

The mix of skills in demand changed, and there was a growth of industrial production more broadly around the world. Offshoring rose, and there was strong growth in productivity in most parts of the world.

I would pull a few key points out here. First, history shows that there is no single story on the relationship between major technology changes, economic growth, employment and living standards. However, shifts in the structure of the economy and employment are inherent to a technology-driven system of economic growth.

Second, the four-part framework is a good way to think about the employment effects of AI. The answer is not pre-determined, and it depends on choices we make – there is a dynamic element to the spread of GPTs.

It is though a critical issue in the future of our economy. The impact of AI may well also be on different types of jobs from previous waves of GPT change. It may well impact more skilled jobs, and so-called entry level jobs.

I will end with one point – if there is one thing we can do which unambiguously will help on the employment question it is to invest in education and skills in AI. ■

Endnotes

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Strengthening operational resilience for the age of AI

Frank Elderson is a Member of the Executive Board and Vice-Chair of the Supervisory Board of the European Central Bank

Europe is facing a set of unprecedented challenges. The geopolitical environment is becoming increasingly fragmented. Europe remains overly dependent on external providers for energy, technology, security and key financial infrastructures such as payment systems and capital markets. Reducing these dependencies is no longer a choice, but a necessity to safeguard the European way of life.

Ensuring that our future is not determined elsewhere demands investment on an unprecedented scale. Consider that the green, digital and defence transitions will require an additional €1.2 trillion of spending per year between now and 2031¹. No single actor, no single sector and no single country can meet these challenges alone.

As fiscal space tightens, much of Europe's investment needs will have to come from private investment, with capital markets playing a pivotal role. In a bank-based financial system like Europe's, strong, competitive and resilient banks are even more indispensable than they are elsewhere.

They sustain the flow of finance to businesses, households and the broader real economy. It is therefore no surprise that the competitiveness of European banks has moved to the heart of the policy debate².

Yet the competitiveness of the banking sector is not solely determined by capital, market integration, scale or regulation. It also hinges on whether banks can continue to serve their clients and provide critical services when disruption strikes. That is why today I will focus on operational resilience.

Resilience goes far beyond capital

When some people hear supervisors speak about resilience, they immediately think of financial resilience. However, in a world of more frequent, sophisticated and disruptive cyber incidents, technology failures and growing dependencies on third parties, a bank can be well capitalised and highly liquid and yet still unable to operate.

A striking example of the importance of non-financial resilience is the ransomware attack that hit the New York branch of the Industrial and Commercial Bank of China in 2023 – the largest bank in the world by assets. Despite the bank's financial strength, the incident disrupted the settlement of

trades in the US Treasury market, one of the most systemically important markets globally. The bank had to rely on manual workarounds – including reportedly dispatching a courier with a USB stick across downtown Manhattan – to meet its obligations.

Another example is the CrowdStrike incident in 2024, when systems using a major operating platform crashed and displayed the 'blue screen of death'. The disruption affected firms across sectors, including financial services.

At the same time, the threat environment is evolving rapidly with the rise of AI. One telling example involved criminals using AI-generated identities to create thousands of fake customers in order to obtain loans, causing millions in losses for the bank concerned.

We have also seen an increase in the number of cyberattacks reported by banks under our supervision in recent years³. All these examples illustrate a fundamental point: a bank can have ample capital and liquidity but still face severe operational issues, or even fail, if it lacks preparedness and robust contingency planning for operational shocks. Today, resilience is not only about absorbing losses, but also about maintaining critical services – even under severe operational stress⁴.

This imperative to maintain operational resilience is all the more critical in banking – a sector built on trust in which cybersecurity failures can have profoundly damaging consequences.

Operational resilience firmly on the agenda of banks and supervisors

The good news is that banks and supervisors are not starting from scratch. Over the past decade, cyberattacks on critical infrastructure – including energy and telecommunications providers, as well as banks – have become more frequent, more targeted and more sophisticated⁵.

Although cyberattacks are occurring everywhere, every day and at any time, and while notable incidents have affected financial services, we have not yet seen such events escalate into widespread disruption or threaten the viability of a major bank⁶. This is not a coincidence.

The fact that financial services are among the sectors best prepared to deal with cyberattacks reflects years of capacity building in banks: in defence, detection and incident response and reporting. Moreover, governance arrangements have improved and there is a greater awareness of cyber risks, particularly among banks' management bodies⁷.

Importantly, banks' efforts have evolved in tandem with a stronger and sustained supervisory focus. Operational resilience and cyber risk have been a priority for European banking supervision for several years⁸, during which we have worked closely with banks in both ongoing and on-site supervision.

For example, in 2024 we conducted a cyber resilience stress test on 109 banks, 28 of which underwent a more thorough assessment of their ability to respond to, and recover from, a severe but plausible cybersecurity incident.

While the exercise confirmed that banks have frameworks in place to respond to and recover from severe cyber incidents, it also highlighted areas for improvement for certain banks. Since then, almost three-quarters of our findings identified by the stress test have been addressed, with banks notably strengthening their cyber resilience.

The Digital Operational Resilience Act (DORA), which entered into force last year, provides a regulatory framework that requires banks to foster a culture of continuous improvement in IT and cyber risk management. It has also enhanced the oversight of critical third-party providers, such as cloud service providers⁹.

In addition, DORA gave supervisors the task of testing whether a financial institution can detect, respond to and recover from sophisticated attacks that mirror real-world threats, thereby providing a more systemic and enforceable framework for resilience¹⁰.

Taken together, these efforts have raised the cost and complexity of successful attacks, effectively pushing up the 'price of admission' and prompting many threat actors to target less well-prepared sectors instead. There is, however, no room for complacency.

Advancements in AI are reshaping the threat landscape, fundamentally altering the balance and asymmetry between defenders and adversaries. Put bluntly, if ensuring operational resilience was already critical a few years ago, it certainly is today – amid a rapidly evolving threat landscape shaped by frontier AI models.

Artificial intelligence: a structural shift in the cyber threat landscape

AI adoption is already widespread among Europe's significant banks. Our annual data collection on banks' use of innovative technologies shows that more than 85% of banks under European banking supervision use artificial intelligence.

Used responsibly, AI can help banks strengthen their operations, improve risk management and enhance

"Europe is facing enormous financing needs to boost its autonomy. We must finance the transition to a cleaner economy, strengthen our collective defence, build the industries of the digital age and support societies that are growing older. To do so, we need strong and competitive banks"

IT security. But AI also vastly improves the capabilities available to malicious actors. Until very recently, launching a sophisticated cyberattack required deep technical expertise, extensive reconnaissance and coding, and often weeks – or even months – of trial and error. Not anymore.

A new generation of large-scale AI models is emerging, with increasingly advanced cybersecurity capabilities. If these tools become more widely accessible, they could enable a much broader range of malicious actors to carry out complex attacks with greater speed and precision.

Our current understanding is that tools of this kind are not simply another incremental improvement; they are a structural shift in the economics of cyber risk. Tools like Mythos appear to be significantly more advanced than existing tools in three important ways.

First, they can discover and exploit vulnerabilities at a speed and scale far beyond what we have seen before. Second, they can combine seemingly minor vulnerabilities into serious attacks. And third, they can help reverse-engineer patches into exploitable vulnerabilities and, again, do so at unprecedented speed.

Together, these characteristics suggest that the 'price of admission' will fall. The marginal cost of identifying and exploiting vulnerabilities in IT systems will decline, possibly by orders of magnitude. Cyberattacks that previously required significant expertise, time and resources may in future be achieved more quickly, at scale, and by a much broader set of potentially malicious actors.

Current evidence suggests that these models may be effective not only against environments with weak levels of defence but also against standards that were once previously considered state of the art.

The direction of travel is unmistakable: the speed, scale and accessibility of advanced cyber capabilities are increasing, and the time available to defenders is shrinking. Banks therefore need to prepare more quickly, more effectively and

more consistently across the sector. In musical terms, *andante* may have previously been good enough, but now we need to move to *presto*.

The pivotal role of management bodies in addressing this strategic challenge

Most importantly, the challenges posed by new generations of AI models should not be viewed solely as a cybersecurity issue – they are a firm-wide strategic challenge with potential implications for banks' safety and soundness.

It is therefore essential that banks' management bodies take clear ownership of the issue, ensuring that resources and tools are commensurate with its scale. This approach is vital to close cyber resilience gaps, enable timely patching and maintain strong cyber hygiene.

Moreover, the critical infrastructure on which banks depend – including cloud providers, telecommunications networks, payment systems and electricity and water supplies – could also become targets. As a result, scenarios that were once considered tail risks may become more likely, such as vulnerabilities in a single, widely used infrastructure quickly escalating into disruption across an entire sector, with knock-on effects on banks' ability to operate.

This makes it all the more important to both strengthen the oversight and monitoring of third-party dependencies and enhance information sharing across the financial system. Given that many of these threats are similar in nature, the timely exchange of information on vulnerabilities, incidents

and mitigation measures is a cornerstone of collective resilience.

Considering that some banks' preparedness is still weak this is also where we, as supervisors, have a role to play. The SSM will use its system-wide perspective to support institutions by pointing out areas of attention and good practices, which could prove particularly beneficial for smaller banks with less sophisticated IT environments¹¹.

In this spirit, we brought together supervised banks to discuss the implications of frontier AI models for banks' resilience and the practical actions needed in response. As a next step we will send a so-called 'dear CEO letter' to all banks in which we aim to ask banks to take proactive measures to ensure the continued robustness and security of their systems in the face of these transformative challenges and will follow up with individual banks in a targeted manner.

Our aim is straightforward: to ensure that banks take the necessary steps now, before these technologies are more widely used by threat actors.

Strengthening operational resilience requires investment

Operational resilience is not a stand-alone issue that is separate from the current debate on banking sector competitiveness. It is part of the foundational elements that shape banks' competitiveness.

If banks are unable to maintain their customers' trust by providing a reliable service, their ability to compete in an

Endnotes

1. Bouabdallah, O et al (2025), "Time to be strategic: how public money could power Europe's green, digital and defence transitions", *The ECB Blog*, ECB, 25 July.
2. The ECB has actively contributed to this debate, including through its recent response to the European Commission's consultation on banking sector competitiveness; see ECB (2026), *Eurosystem response to the EU Commission's targeted consultation on the competitiveness of the EU banking sector*, April. For more details on the importance of overcoming fragmentation to boost competitiveness, see Elderson, F (2026), "Boosting prosperity through deeper integration", keynote speech at the conference "Financing Europe: a new era of strategic investment", Brussels, 12 May.
3. The number of cyber incidents reported by banks to the ECB rose sharply up to the end of 2024. The data for 2025 is not directly comparable because the incident reporting thresholds were changed following the entry into force of the EU's Digital Operational Resilience Act (DORA). As a result of DORA, the ECB now receives ICT (non-cyber but operational) incident reports as well as ICT cyber incident reports. However, the latter are smaller in number than before because the reporting thresholds differ from those under the ECB's former cyber incident reporting framework.
4. In practice, this means being able to prevent, withstand, respond to, recover and learn from operational shocks. The Basel Committee on Banking Supervision defines operational resilience as follows: "the ability of a bank to deliver critical operations through disruption. This ability enables a bank to identify and protect itself from threats and potential failures, respond and adapt to, as well as recover and learn from disruptive events in order to minimise their impact on the delivery of critical operations through disruption. In considering its operational resilience, a bank should assume that disruptions will occur, and take into account its overall risk appetite and tolerance for disruption." See paragraph 11 of the Basel Committee's principles for operational resilience.
5. See Tuominen, A (2025), "Improving banks' resilience to hybrid threats", speech at the conference "The Current Hybrid Threat Environment and Financial Stability", jointly organised by Commerzbank and the European Centre of Excellence for Countering Hybrid Threats, Frankfurt, 18 November; Klaus, B and Wendelborn, J (2025), "Cyber threats to financial stability in a complex geopolitical landscape", *Financial Stability Review*, ECB, May. At a global level, finance and insurance companies rank approximately fourth among the top ten industries affected by cyberattacks in volume terms, jointly with the educational services industry, and below the public administration, healthcare and technology industries; see the University of Maryland's CISSM Cyber Events Database. In the European financial sector as a whole, banks are by far the entities experiencing the greatest number of cyberattacks. See European Union Agency for Cybersecurity (2025), *ENISA threat landscape: finance sector*, February.
6. Some incidents have disrupted payment channels, delayed customer services and, in a few cases, caused notable financial losses. But none has threatened

increasingly digitalised financial system will be undermined. Ensuring operational resilience is therefore not only a safeguard – it is also key to remaining competitive, both today and in the years ahead.

Strengthening operational resilience requires multi-year investment in people, systems and governance. In short, it is not a quick fix, it is a moving target which calls for continuous effort and ongoing improvement. Banks should therefore give careful consideration to bolstering operational resilience in their investment strategies. The currently strong bank profitability provides an opportunity to continue investing.

At the same time, the banking sector's defensive capabilities are not evenly distributed, leaving parts of the system more exposed than others. While some larger banks have a size advantage when it comes to having the IT budgets that match the scale of the task, this may admittedly be more difficult for small and medium-sized banks.

This is, however, no reason for inaction. In a diverse banking system, where banks of different sizes and business models thrive and support the real economy, all banks must be able to ensure a sufficient level of operational resilience.

This point is particularly important at a time in which further embracing proportionality in supervision and regulation has become a topical issue in the debate. There are undoubtedly areas where a more proportionate approach is worth pursuing¹². Such enhanced proportionality, however, cannot come at a cost of prudent risk management.

Conclusion

Europe is facing enormous financing needs to boost its autonomy. We must finance the transition to a cleaner economy, strengthen our collective defence, build the industries of the digital age and support societies that are growing older.

To do so, we need strong and competitive banks. But banks can only play their role if they are resilient, including to operational threats.

Frontier AI models are changing the cyber threat landscape. They are lowering barriers for attackers, increasing the speed of exploitation and exposing weaknesses that were too often tolerated for too long.

This is not about creating a sense of alarm, but rather a sense of urgency

Because we cannot afford to be complacent. Our message as supervisors is simple: act early, invest decisively now, and do not wait for the next incident to reveal where your vulnerabilities lie.

Such a proactive approach will contribute to a thriving, diverse banking system that is capable of supporting the real economy through the digital, green and defence transitions.

A resilient and thriving banking system is not simply a nice to have. It will be imperative to tackle the challenges we are facing both today and in the years ahead. ■

the viability of a major bank or produced a systemic shock.

7. Some 86% of CROs cite cybersecurity and technology risk as a top priority for the next 12 months, whereas only 62% cite credit risk. Institute of International Finance (2026), Annual EY/IIIF Global Bank Risk Management Survey – Shifting priorities: CRO agendas in a time of uncertainty and innovation, IIIF, 24 February.

8. In addition to working with banks on their own preparedness, starting in 2023 the SSM organized cyber dry-runs to test our own preparedness to respond to large-scale cyber incidents. The simulations focused on detection, escalation, information sharing, and coordination capabilities during a systemic crisis, possibly when the ECB's and the NCAs own ICT systems are also affected. This kind of activity is key for improving our own operational resilience, strengthening contingency plans and identifying areas where cooperation should be improved.

9. This is essential because banks increasingly rely on external providers for some critical functions that are difficult or impossible to replace, thereby exposing them to cascading effects from cyber incidents in the supply chain, even if they themselves have not been directly targeted.

10. Threat-led penetration testing (TLPT) under the EU's Digital Operational Resilience Act (DORA).

11. Good practices do not describe or establish new regulatory requirements and have no legally binding effect. This means that a bank may be fully compliant with the applicable legal framework without implementing any of the good practices pointed by the ECB, provided that it follows other practices that are more appropriate to its particular risk profile, business model and circumstances.

12. Even if proportionality is already embedded in the European regulatory and supervisory approach, we see room to embrace it further. The small and non-complex institutions (SNCl) regime, is the natural starting point, while maintaining the Single Rulebook, which ensures the risk-based nature of the prudential framework is retained for all banks. One could consider, for example, increasing the scope of eligible small banks through an increase of the €5 billion threshold of the SNCl regime as well as extending the scope of the simplified rules. Any simpler regime for smaller banks also needs to be accompanied by a credible, flexible and efficient crisis management framework for these institutions: See Elderson, F (2026), "Boosting prosperity through deeper integration", keynote speech at the conference "Financing Europe: a new era of strategic investment", Brussels, 12 May; and ECB (2026), Eurosystem response to the EU Commission's targeted consultation on the competitiveness of the EU banking sector, April.

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AI challenges how businesses operate

Jonathan Sharp is CEO of Britannic Technologies

A I is challenging how businesses operate, as it becomes a strategic, core element of the operating model rather than a tactical add-on. Yet many businesses are not structurally or culturally ready, struggling to keep pace with the accelerating pace of technology and its demands. The challenges are not with the technology itself but with the requirements surrounding it, such as ownership and decision-making for the AI project.

Rethinking operations

AI forces businesses to rethink their entire operating models, challenging existing hierarchies, accountability structures, and decision-making processes. It produces enormous amounts of data, and it is critical that this data is acted upon to improve workflows across the organisation and enhance the customer and employee experience.

However, this is where a gap lies that isn't capitalised upon. Deloitte recently revealed that 64% of businesses consider AI and decision-making important to success, but only 5% believe they are leading the way. This stat makes it clear that

businesses must consolidate their operating models for true transformation.

Start with a strategy

Businesses need to go back to basics and ascertain why they need AI, what challenges they want to address, what areas they are trying to improve, and what their success criteria are. If businesses don't take the time to answer these vital questions, they risk their AI project failing. Start with clear objectives so you can design and develop the AI solution around them.

AI requires a different mindset and way of thinking. To connect people, processes and data, you need to devise strategies, decision-making and systems that are integrated. You also need to ensure that you meet compliance and regulatory requirements to protect your corporate data as intellectual property.

From insight to action

It is vital that businesses interpret the intelligence garnered



from AI data and turn those insights into action, so they succeed. It is surprising how many businesses have this data and intelligence but don't utilise or act upon it, often because they are unsure what decisions need to be taken and who owns the project.

So, it may sit in a dashboard, pile up, and go unused. This is where design matters most, not the technology itself, but the operational layer around it, because data without action is just noise.

Put a name on it

Decide who owns the project and who is accountable so you can unlock the intelligence and make a difference. Break down the entire process by asking questions such as - Who will decide which challenges we are going to address? What improvements do we want to make? Who will interpret the data? What will trigger an action? What will the action be? Who owns the follow-through?

This is where AI quietly forces a redesign of how organisations operate; it breaks down the idea that insight sits in one place and action sits somewhere else, requiring clarity on ownership, accountability and decision-making.

Reassigning and rethinking roles

AI is already changing how decisions flow through organisations by pushing decision-making further down the organisation, to where data insights are generated. This naturally challenges traditional hierarchies, and the role of middle management is changing from control to interpretation, orchestration, and turning insights into action.

In many cases, this requires reskilling and, in some instances, redesigning roles entirely. The value is no longer in producing reports but in interpreting them and acting on them quickly.

"The real opportunity is not AI itself, but when insight turns into intelligence and is acted upon. This is where the difference will be made"

Reassigning decision-making

Many organisations are rushing to deploy AI before they are structurally ready. AI demands agility and speed, shortening decision cycles. This means organisations must rethink how decisions are made in the first place, not just who makes them, but how they are triggered, validated and executed.

Increasingly, AI agents become part of that structure, raising new questions. What decisions are automated? What needs human oversight? Where is the escalation path when something goes wrong? This is where governance becomes critical, not as a control mechanism but as an enabler of trust and speed.

Trust in

You need to trust in the data, processes, people and AI. But the trust is not passive and needs to be designed accordingly. Deloitte revealed that employees who trust the AI agents they work with are 10 times more likely to see agents as creating critical value. This demonstrates the importance of getting the design right.

Measure and evaluate

AI is not a one-time deployment but a continuous cycle of measurement, evaluation and refinement. Ask the question why from the off-set and what for? Is it improving customer experience? Is it increasing efficiency? Is it changing outcomes? If not, why not? And what needs to change?

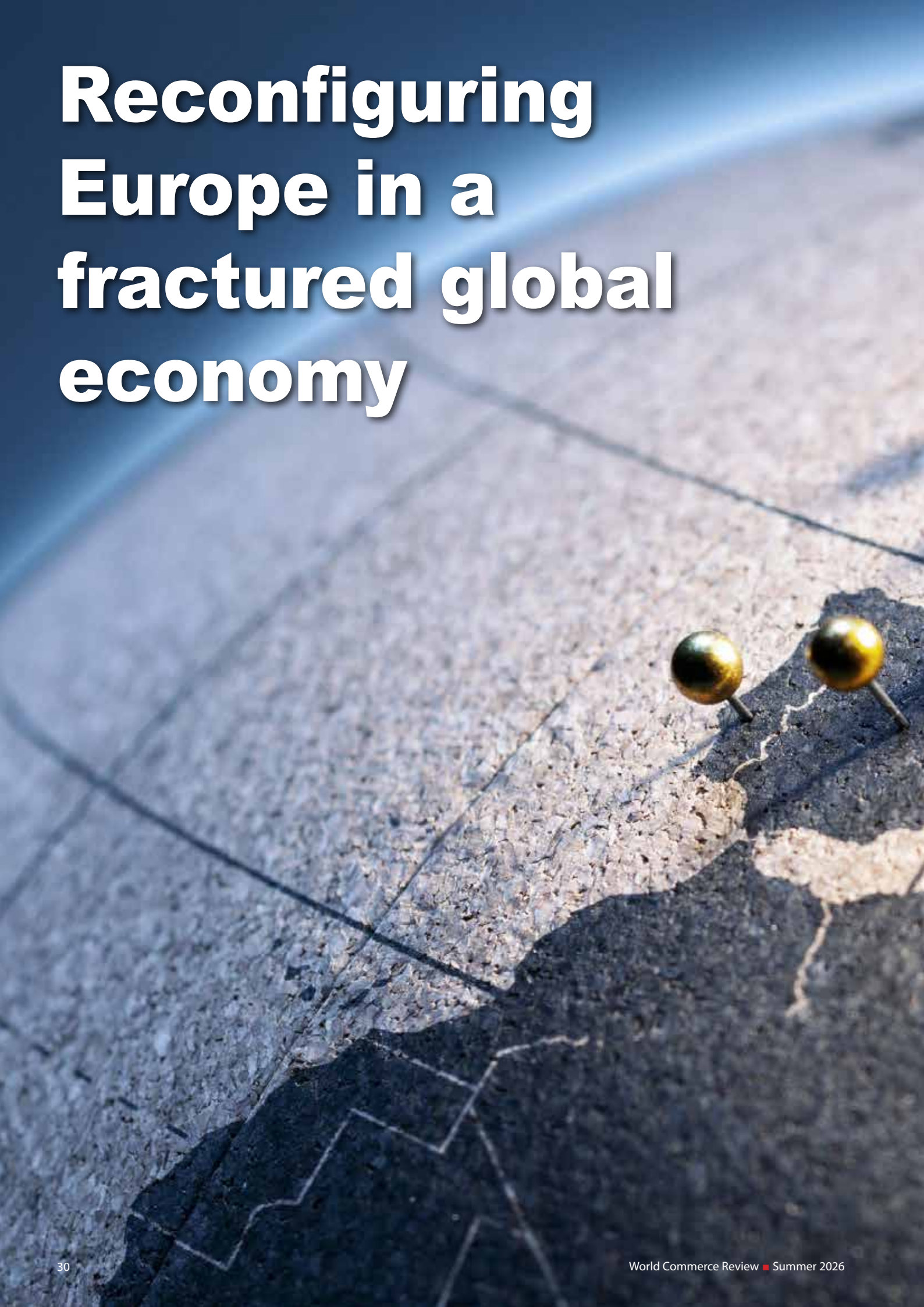
AI for transformation

Businesses need to rethink their operating models and devise new AI strategies to ensure successful transformation. It is not as simple as deploying AI and assuming that, now they have the technology, it will be a success. They have to take the time to rethink ownership, decision-making, and accountability. They need to move from historical hierarchies and siloed working to joined-up thinking for people, processes, and data.

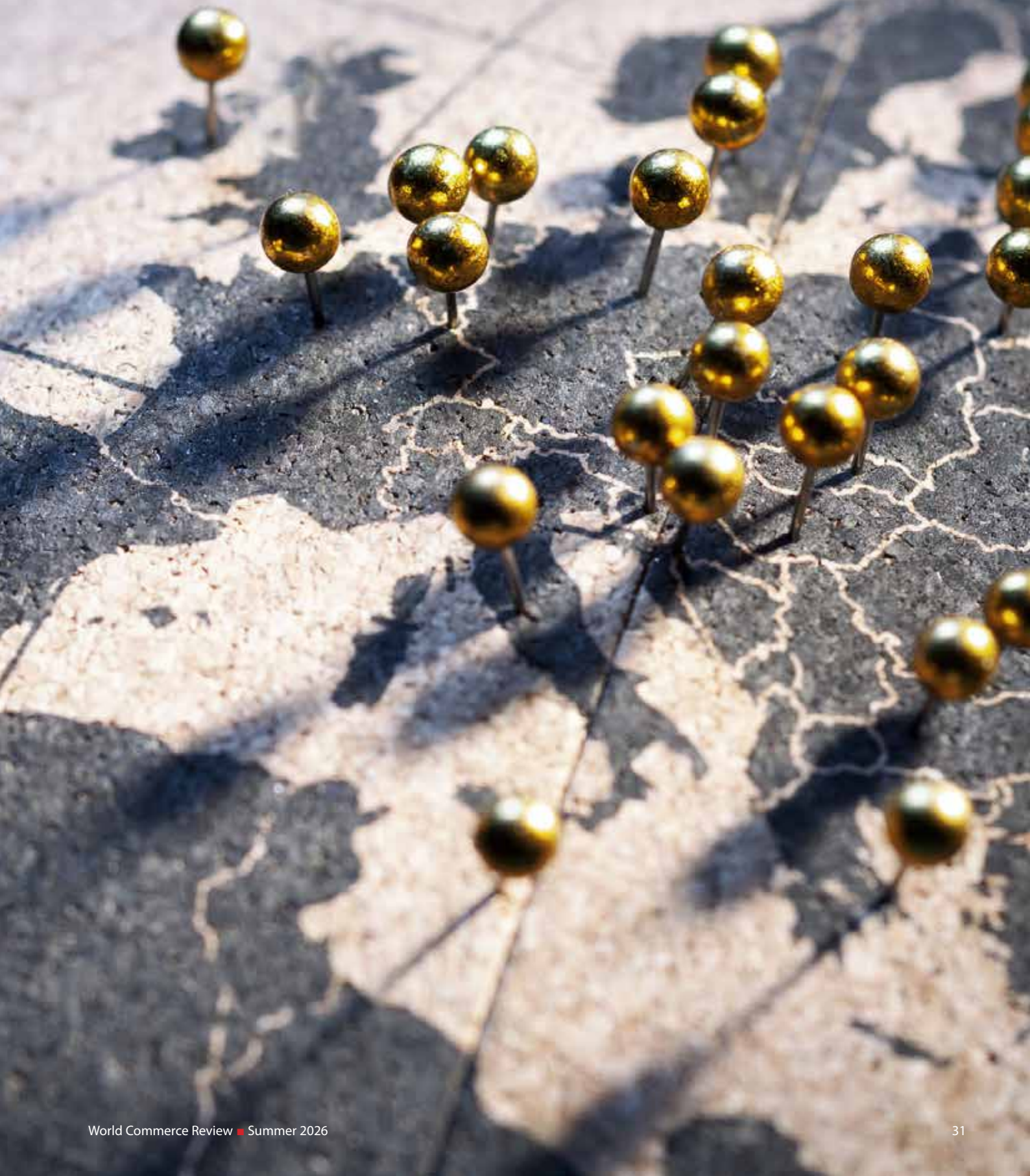
It must also be viewed as an evolutionary core element of the business, not a one-off project, because real transformation only comes when you build capability step by step, learning as you go and evolving the organisation as confidence and knowledge build. The real opportunity is not AI itself, but when insight turns into intelligence and is acted upon. This is where the difference will be made. ■



Reconfiguring Europe in a fractured global economy



The dramatic developments unfolding globally, spanning wars, geopolitical shifts, and trade disruptions, have caught Europe off balance. Marco Buti, Giancarlo Corsetti and Anna Peychev discuss the 2026 Florence Report and urge the EU to replace its broken 'reduced responsibility model' with a New European Social Contract integrating defence, finance, and the supply of public goods



There is little doubt that the international order is at a point of rupture (Gensler *et al* 2025, Obstfeld 2025, Papakonstantinou and Pisani 2024). The dramatic developments unfolding globally, spanning wars, geopolitical shifts, and trade disruptions, have caught Europe – both the EU and its member states – off balance.

Where the current evolution will eventually settle is as yet uncertain. It is already clear, however, that this upheaval has dismantled the external governance and institutional framework that underpinned the EU's policy agenda, institutional design, and economic development, leaving what we have termed Europe's 'reduced responsibility model' (RRM) entirely dysfunctional.

The *Florence Report* (Buti *et al* 2026) – the flagship initiative of the EMU Lab at the Robert Schuman Centre for Advanced Studies at the European University Institute – explores how Europe can navigate this fundamentally changed world order. It discusses the roots and dimensions of fragmentation and examines how these developments constrain policy space for action at both the national and the EU governance levels.

Pursuing a pragmatic way forward, the report re-examines established governance frameworks to articulate a coherent policy agenda to get over the RRM towards a more independent and secure Europe.

The end of the reduced responsibility model

For decades, the EU operated under a 'reduced responsibility model' – member states could under-invest in common defence by relying on US protection, count on the vast American market to pursue export-led growth strategies, and anchor financial stability to US-led hegemonic governance of international law and trade institutions.

To be clear, European integration was first and foremost led by strong internal political drivers, but the international context at the time allowed member states to progress with the Union project by bypassing 'full responsibility' in key areas. United Europe's remarkable achievements all suffered from the same 'hold-back' diagnosis.

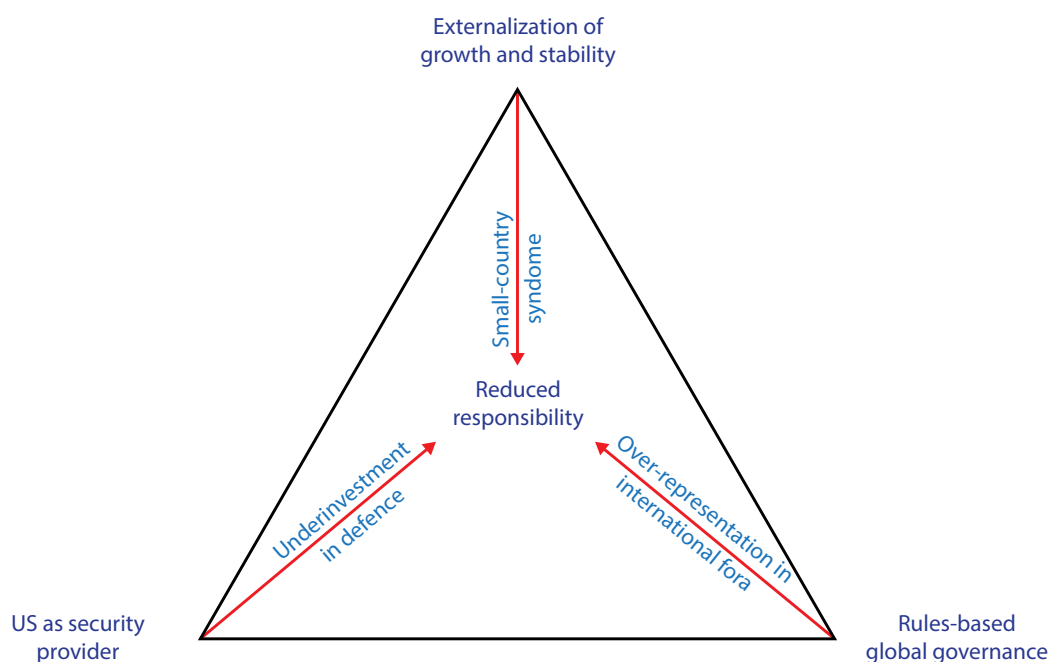
Europe embraced the Single Market project, but never completed a common strategy to secure the efficiency and resilience of own infrastructure, telecommunication, or energy networks. It launched the euro, pretending that the unmatched independence of the ECB, the Stability and Growth Pact, and the no bail-out clause would guarantee a resilient financial and macroeconomic framework to deliver on the promise of shared prosperity.

Fractured by open geopolitical rivalry and strategic competition, the global environment is no longer conducive to the EU's reduced responsibility model. Neutral commons such as energy, finance, and climate have been explicitly weaponised, turning public goods into public bads. What the EU counted on as pillars of cooperation and stability are now being used against it.

Although we are still in uncharted waters, it is already evident the breakdown of the status quo is structural: the external conditions that sustained Europe's development have largely disappeared and are unlikely to materialise again in the same constellation that allowed the RRM to flourish in the first place.

Beneath its apparent and surprising resilience, the global economy faces a high risk of collapse, triggered either by war or by financial shocks, originating with overextended private credit or a potential AI bubble burst.

Figure 1. Europe's reduced responsibility model



“Beneath its apparent and surprising resilience, the global economy faces a high risk of collapse, triggered either by war or by financial shocks, originating with overextended private credit or a potential AI bubble burst”

The current situation is truly exceptional: the collapse of the RRM is a silent crisis eroding the very fundamentals that Europe long based its progress upon. These dynamics are not easily discerned and the EU’s conventional crisis-management model based on ad hoc reactive measures will not suffice in handling them.

Instead, the Union must embrace a different approach in kind: the wholesale and accelerated implementation of a shared and cohesive strategy to stabilise its very foundations.

Four priors

There are four core convictions guiding the analysis in the *Florence Report*. First, while boosting growth and competitiveness is essential, that is not an end in itself. Rather, it is a means to sustaining Europe’s social model in the face of ageing, climate change, and geopolitical pressures, and therefore requires broad political consensus from inception to implementation.

Second, we believe that the European social model should be understood not as a constraint on economic dynamism, but as a source of stability and a potential enabler of innovation. Properly designed social policies can reconcile labour market flexibility with social sustainability.

We reject the defeatist narrative of a weak Europe and argue instead that the EU’s foundations – democratic values, rule of law, and regulated markets – constitute a distinct and underappreciated form of power that positions Europe as a

global leader in sustaining the rules-based international order that is essential for the survival and functioning of modern democracies.

Finally, despite the political limits to federalisation, the EU can still capture the benefits from economies of scale through targeted joint action on common projects. Delivering tangible gains for citizens through shared action may, in turn, reshape political preferences and create virtuous feedback effects that gradually ease domestic and EU-level constraints.

A three-pronged policy agenda

Delivering a new model for European independence and security involves a fundamental shift in perspective: the Union is not as a constraint on national policy space, but a creator of it. By trading a degree of formal sovereignty for collective security and prosperity – especially in areas such as climate transition, common defence, and large-scale digital infrastructure – member states can secure goods that no single nation can provide effectively on its own and gain a level of global relevance that is otherwise beyond individual reach.

This approach also underpins the successful implementation of the *Florence Report*’s three-pronged policy agenda: strengthening multilateralism through multipolar global alliances in line with European values, creating a genuine Savings and Investment Union to boost competitiveness and innovation, and reorienting the EU budget towards the provision of European public goods.

Table 1. Response to the crisis of the reduced responsibility model

Different paths	Intergovernmental approach	Renewal community method
Defence and security	Reliance on higher national spending and ad-hoc coalitions for limited issues.	Creation of a defence union and a single market for defence.
Growth and stability	Retreat into neo-mercantilism, national industrial policies, and fragmented financial systems.	Development of a central fiscal capacity, a safe asset, and strengthening the euro’s international role.
Global governance	Network of bilateral national agreements with third parties.	Unified push for a new multipolar system.

In light of recent experience and existing legal constraints, further progress on this shared endeavour will likely emerge from initiatives driven by shifting coalitions of willing member states. The central task is to structure these efforts to enable broader participation over time and avoid devolving into an EU à la carte – a collection fragmented projects that weaken the EU's institutional unity.

The fundamental challenge to delivering on this course of action is not a lack of inherent power, but the need to overcome self-defeatism and what can be described as a 'fragmentation trap' – a short-termism in policy behaviour driven by national political narratives which frame shared sovereignty as a zero-sum game even if further integration would demonstrably raise welfare across all member states. That is why overcoming the now dysfunctional RRM requires the creation of an institutional setting attuned to remedying these biases.

Most crucially on the path ahead, the EU must confront the fundamental issues plaguing its productivity. But rather than simply playing catch-up with the US or China, Europe should exploit its dynamic comparative advantage by boosting its own technological trajectories combining innovation with efficiency, equity, and sustainability.

A New European Social Contract

The collapse of the external conditions underpinning Europe's reduced responsibility model has exposed structural weaknesses, eroded policy space, and amplified divergence amongst member states. Fragmentation – both internal and external – now constrains Europe's ability to take much-needed action causing a direct threat to European prosperity.

Overcoming this dynamic will depend on re-establishing a political and institutional own capacity for collective action, anchored in a renewed European social contract. Central to this vision is the concept of 'insurance-based solidarity' championed by the late Jurgen Habermas: because no member state can reliably predict its future exposure to

shocks, all have an interest in arrangements that allow risks and costs to be shared over time.

This 'veil of ignorance' reinforces the case for collective mechanisms that go beyond narrow national calculations. Solidarity then becomes forward-looking: it is justified not by permanent transfers, but by the expectation that all may at different times benefit from common support.

By extension, the New European Social Contract is not just an economic arrangement, but a political project of mutual recognition and responsibility. Mutual trust is the 'intertemporal glue' of this arrangement, allowing countries to sustain cooperation over time by recognising that the benefits of this shared insurance may not be immediate, but will materialise across different moments and circumstances.

There is also a fundamental political asset that should not be overlooked in this regard: public support for European integration and a stronger EU remains robust, even in traditionally sceptical countries. Capitalising on this approval could help ease political constraints and address the Union's current challenges; failing to do so risks eroding it.

By embracing foresight and insurance-based solidarity, the Union can demonstrate to its citizens and the world that it is both ready and capable of taking its destiny into its own hands. The *Florence Report* provides the intellectual case for a New European Social Contract, asserting that a Union that is stronger than the sum of its parts is the only viable option for navigating a world where old alliances and certainties have vanished.

Turning away from the full responsibility that comes with building a stable multipolar world, realising the Saving and Investment Union, and stepping up the supply of European public goods is not an option anymore. The external and internal dimensions of a stronger Europe are inextricably linked in a single whole. ■

ABOUT THE AUTHORS

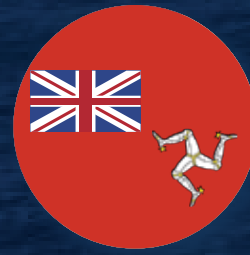
Marco Buti is the Tommaso Padoa-Schioppa Chair of Economic and Monetary Integration, Giancarlo Corsetti is the Pierre Werner Chair and Joint Professor, Department of Economics and Robert Schuman Centre for Advanced Studies, and Anna Peychev is a Research Fellow at the Robert Schuman Centre for Advanced Studies, all at the European University Institute.

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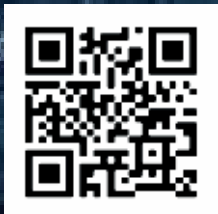
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Challenging inequalities



A person is standing on a large, cylindrical wooden stump. They are looking upwards towards a vast, cloudy sky. The ground is a dark, textured surface. The overall mood is contemplative and aspirational.

Across developed countries there is a growing perception that social progress has stalled. Paul Johnson, James Banks, Tim Besley, Richard Blundell, Angus Deaton, Robert Joyce, and Debra Satz argue that stronger economic growth, more dynamic labour markets, and policies that help opportunities take root are essential to tackling inequalities

Across the UK and other developed countries, there is a growing perception that social progress has stalled. Public concern about inequality has risen, along with broader anxieties related to the rise of populism, declining trust in institutions, climate inaction and demographic pressures (see Benson *et al* 2024, for example, for evidence from the UK).

Many of these broad concerns can themselves be connected directly back to economic, social, political, or geographical inequalities. In a cross-national analysis of 92 countries over the period 1995-2020, Rau and Stokes (2024) provide robust statistical evidence that economic inequality is strongly associated with the erosion of democratic norms and institutions.

In a new book (Johnson *et al* 2026), based on work from the IFS Deaton Review: *Inequalities in the 21st Century*, we emphasise that material inequality cannot be understood or addressed in isolation. People care not only about income but also about the sources of income, the availability of meaningful work and progression in the labour market for themselves and their children, and the strength of their communities. Although redistribution through taxes and benefits matters, it cannot replace an economy that provides good jobs – secure, well paid dignified jobs with opportunity for career progression.

While headline measures of disposable income inequality have remained relatively stable, deeper structural forces – including stagnant real earnings, weak progression for low-educated workers, declining training and regional divergence – pose persistent challenges.

High inequality combined with prolonged economic stagnation since the global financial crisis of 2007-09 has been particularly corrosive. It has made life harder for those at the bottom of the earnings and skills distribution where incomes have stopped growing, and at the same time given greater advantages to those with access to wealth as inheritances and intergenerational transfers become increasingly important determinants of life chances.

This has widened social, cultural, and political divides, especially between the highly educated and the rest, fuelling a narrative of an out of touch elite and undermining democratic legitimacy.

Social mobility has slowed: the circumstances into which people are born increasingly shape their opportunities. Structural economic changes – deindustrialisation, the shift to services and the concentration of high skill work in specific regions – have produced stark geographical divides between thriving places (notably London) and ‘left behind’ areas.

Inequality as a multidimensional dynamic process

We argue that in the face of these forces, inequality should be analysed as a multidimensional dynamic process not a unidimensional outcome. A full understanding must capture its evolution across the lifecycle, the interaction of family background, education and labour market trajectories, the role of firms and productivity, regional disparities, and the

intergenerational transmission of advantage. It must also acknowledge how inequalities in health and disability can mirror and magnify these economic and social inequalities.

Using this framework, we focus on five core principles for thinking about inequality:

Inequalities of opportunity and outcome are intertwined

Highly unequal outcomes will inevitably generate unequal opportunities for the next generation. Education alone cannot eliminate these links as its effects depend on family background, labour market structures, and geography.

Income redistribution is necessary but insufficient

Cash transfers cannot repair relational harms – such as stigma, loss of autonomy, or the collapse of meaningful work – nor can they fully compensate communities damaged by economic change. Strong labour markets with skill development, effective industrial policy and good infrastructure and public services are essential.

Major economic policies must consider distribution

The disruptions from trade liberalisation, migration, climate policy, and macroeconomic stabilisation have adverse side-effects that too often have been ignored, producing long term social and political damage that later fuels populism and protectionism.

Initially fair market processes can still lead to extreme and unfair inequalities

Technological change, globalisation, and agglomeration create large ‘winner takes most’ outcomes that can undermine competition, entrench market power, reduce social mobility, and distort political influence.

Growth is essential

The UK’s unprecedented post 2008 stagnation has intensified intergenerational inequality, made wealth more important than income, reduced mobility, and undermined the fiscal capacity needed to support welfare services.

Redistribution and predistribution

While redistribution through taxes and benefits can in principle keep the lid on cross-sectional inequality of disposable income, it has become clear that redistribution alone cannot resolve deeper structural problems. Economic change – globalisation, technological progress, demographic shifts, climate transition – requires proactive shaping rather than passive compensation.

A central theme is the importance of what some commentators have called ‘predistribution’: designing labour markets, education systems, public services, and economic institutions so that harmful inequalities are reduced *before* taxes and transfers intervene.

Within this agenda, we identify three overarching areas of particular challenge in the UK:

- The first is wealth and housing. Rising wealth and soaring housing costs have entrenched inequalities

“Only by integrating distributional concerns into political and economic decision-making and rebuilding broad democratic coalitions can governments address the inequalities that threaten social cohesion and long-term prosperity”

between generations and between renters and owners. Homeownership has declined sharply for the young, increasing the influence of inheritance and parental wealth.

- The second is geography. Spatial divides limit national productivity and restrict opportunities for those outside prosperous regions.
- Finally, health inequalities reflect the cumulative impact of social and economic disadvantages. Large and growing gaps in life expectancy illustrate the profound human consequences of inequality.

Refocusing policy responses

Without taking a stance on the minutiae of specific policy recommendations, we believe that there are some core areas where substantive debate is needed in order to refocus and redirect policy. The issues are complex and interrelated, and the policy choices are tough – if there were easy wins or low hanging fruit in any of these areas, it would be uncontroversial to implement them already. Real commitment requires confronting difficult trade offs and acting across multiple fronts.

Skills and human capital

A first set of policy discussions should relate to skills and human capital. The education system is vital, and it can be improved. It does not do enough to counteract the deep influence of family background, wealth, geography, and labour market structures. The way in which home environments and parental behaviours support children's development and how family background and parental choices interact with the schooling and university system need careful consideration. But even then, too much expectation can be loaded on this system.

The GCSEs to A-levels to higher education pathway in England results in a system that is relatively high-stakes (internationally speaking) with little in the way of second chances. Simply expanding higher education alone may widen inequalities if better off groups benefit more from such changes.

The pathway for those who do not succeed academically at age 16 and age 18 is complex, poorly resourced, and in need of reform. The existing system needs to be supplemented by more extensive attention and support for further education, along with a continued emphasis on applied skills and training-based qualifications that match with new technologies.

Firm-based qualification training at successful local workplaces, coupled with the development of social skills

can significantly improve wage growth. Integrating training support with in-work benefits for parents could help to sustain attachment while promoting human capital accumulation.

Place-based policies and regional productivity

A second set of discussions is needed in the area of place-based policies and regional productivity. Geographically, the UK has developed an unusually extreme regional divide. High skill jobs cluster in London and the South East, benefiting from powerful agglomeration effects.

But a country the size of the UK should have at least two or three other successfully agglomerated areas to attain its full productive potential. As Figure 1 shows, in terms of GDP per worker, the UK regions have steadily fallen further behind not just London but also the EU average.

‘Educational flight’ can drain talent from poorer regions, but housing costs restrict mobility, especially for young people without family wealth. Thus, the consequences of the UK's economic geography are harmful to both social mobility and productivity. When disadvantage across multiple dimensions of inequality come together, the market is unable to overcome the negative agglomeration.

No single policy intervention is likely to work. What is needed is a new industrial strategy that addresses the structural roots of regional inequalities – improving regional economic ecosystems, developing and retaining the right skills, nurturing local innovation, attracting productive firms beyond London, and reforming housing and transport infrastructures.

Place-based policies that attract innovative firms and support skill complementarities are therefore central to addressing inequality. Simply connecting places to London and the South East more efficiently, encouraging productivity and innovation in these successful regions and dealing with left-behind areas through redistribution is insufficient. Productivity in the regions beyond London needs to be supported by regional and interregional infrastructures, but this is hindered because UK governance is unusually centralised. Insufficient devolution hinders local capacity to promote growth.

Wealth and housing

Third, there is no escaping the increased importance of wealth and housing. Arguments for and against new wealth taxes should not distract from other broader issues. Existing taxes that are based on property values are poorly designed and out of date. Inheritance taxes could also play more of a role; in a public finance sense, they effectively insure new

Figure 1. UK regional GDP per worker relative to European mean, 1960-2010



Source: Allen (2024).

generations from inequalities arising from ‘accidents of birth’ – that is, being born into rich versus poor families.

Even the role of planning regulations in driving house prices and housing market dynamics would be in scope for the debate here. But regional housing markets, regional labour markets and educational and social mobility are all interconnected. None of these three areas of policy debate can happen in isolation.

A renewed social consensus

More generally, however, and well beyond these three specific areas, addressing inequality requires more than policy tinkering: it demands a renewed social consensus on inclusive

growth, opportunity, fairness and shared responsibility. For our democracies to respond to the challenges that we mention, we surely need to have our politics engage with citizens’ concerns and that could mean strengthening voice.

How to do this is not easy. Radical solutions (by UK standards) of greater decentralisation of power regionally and moving towards proportional representation are things that should arguably be part of this conversation, although they are not a silver bullet when one starts to think through the detail. But only by integrating distributional concerns into political and economic decision-making and rebuilding broad democratic coalitions can governments address the inequalities that threaten social cohesion and long-term prosperity. ■

ABOUT THE AUTHORS

Paul Johnson is Provost of The Queen’s College, University of Oxford, and former director of the Institute for Fiscal Studies, James Banks is Professor of Economics at the University of Manchester and Senior Research Fellow at the IFS, Tim Besley is School Professor of Economics and Political Science and the W Arthur Lewis Professor of Development Economics at the London School of Economics and Political Science, Richard Blundell is the David Ricardo Professor of Political Economy at University College London and Co-Director of the ESRC Centre for the Microeconomic Analysis of Public Policy at IFS, Angus Deaton is the Dwight D Eisenhower Professor of International Affairs, Emeritus, Professor of Economics and International Affairs, Emeritus, and Senior Scholar at Princeton University, Robert Joyce is a Director at Alma Economics and a leading expert in applied microeconomics, impact evaluation, and tax and welfare policy, and Debra Satz is the Vernon R and Lysbeth Warren Anderson Dean of the School of Humanities and Sciences at Stanford University, where she is also the Marta Sutton Weeks Professor of Ethics in Society and Professor of Philosophy.

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Appendix

The IFS Deaton Review

The IFS Deaton Review of Inequalities was run by the Institute for Fiscal Studies (IFS) over the period 2019-25. Chaired by economics Nobel laureate Sir Angus Deaton and funded by the Nuffield Foundation, the Review brought together a multidisciplinary panel of leading scholars – from economics, philosophy, sociology, epidemiology, public health and demography – seeking to understand the causes, consequences and moral relevance of inequalities.

Given the scale and complexity of the challenge, the panel commissioned 144 authors to produce 74 scholarly papers, published in *Oxford Open Economics* in 2024 (Deaton et al 2024) and freely available online. These evidence papers and commentaries provide a valuable resource to all those seeking to understand specific aspects or dimensions of inequality.

In the second phase of the review, a subset of the panel co-authored a volume synthesising the overarching themes that emerged from the full panel's deliberations and discussions, providing an integrated framework for understanding inequality across domains. Following the Review, an IFS briefing paper sets out some reactions and recommendations with specific relevance to issues in the UK debate (Adam et al 2026).

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From World War Trade to domino regionalism

Richard Baldwin is Professor of International Economics at the IMD Business School, Lausanne

If tariffs were missiles, 2 April 2025 would be remembered as the day a world war began. That was the day Donald Trump hit almost every nation on earth with tariffs, presenting them as retribution: “... *foreign scavengers have torn apart our once-beautiful American dream. ... but it is not going to happen anymore.*”

Hours later, Beijing hit every nation with export controls on inputs that are critical to advanced manufacturing. The largest importer weaponised imports. The largest exporter weaponised exports. Trade was twisted from opportunity to vulnerability. That was how World War Trade started.

Trade wars on this scale can spread. This one did not. While America and China escalated, nations which together account for 75% of world trade chose restraint. The conflict was contained.

But containment did not save the old system. Once the system’s American architect turned arsonist, the old rules-based order was torched. The real question is: what replaces the old order?

Domino regionalism

Canadian Prime Minister Mark Carney shared his answer at Davos in January 2026: “*In a world of great power rivalry, the countries in between have a choice – compete with each other for favour, or combine to create a third path...*” The third path, he suggested, is to bridge existing regional trade agreements (RTAs).

It is an appealing vision with one big problem: who would lead? Carney pointed to ‘middle powers’. But how do you get diverse nations to lead a complex effort? It would be like herding cats at feeding time. Is there any other way? As it turns out, yes. Regional economic integration has self-organised in the past (WTO 2011). The mechanism is called the domino theory of regionalism (Baldwin 1993, 1997)¹.

When countries form an RTA, they lower barriers among themselves. Trade inside the bloc is favoured, but outside exporters face discrimination. That discrimination politically activates the disadvantaged exporters to push their governments to join.



If a new country does join, a cumulative dynamic kicks in. The benefits of joining and the costs of staying out both rise as the bloc expands. More dominoes can fall, and the dynamic repeats. The same logic can be framed in Newtonian terms. Regionalism creates its own gravity. The larger the bloc, the stronger the pull. The logic results in self-organising regionalism.

This is a key insight: if regionalism rebuilds the world trading order, as I believe it will, it will do so on autopilot. No cat herding. No cat herder. The bridge building is being driven by something akin to Adam Smith's invisible hand. And we can already see this dynamic at work.



“The old order will not return. The cathedral is not being restored. In its place, a new system is taking shape: a solar system of interconnected, rules-based regional hubs”

Nations seeking to diversify exposure to the US and China are signing RTAs at an accelerated pace. New initiatives have been launched. Stalled negotiations have been revived and concluded. The EU, for example, has signed many RTAs in 2025 and 2026 that widen and deepen its trade links.

This includes large ones like EU-Mercosur and EU-India, each of which covers trade flows of more than \$100 billion. But it's not just Europe. The domino effect is visible across all the continents. So where is this heading?

An emergent world trading order

The pre-2025 trading system was centred on the US. Think of it as a cathedral: a single structure designed and maintained by American leadership. The architect burnt down the cathedral. What replaces it looks very different.

The cathedral's single hub is being replaced by a multi-hub trading system shaped by domino regionalism. In my view, the EU and Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) are likely to be the key hubs.

Each hub has its own rules and partners, but the two are already beginning to align. In November 2025 they set up the EU-CPTPP Trade and Investment Dialogue (DFAT 2025).

This emergent order has an important property. The key hubs have worked well for years, do not involve the trade giants, and have survived World War Trade in fine form. Coherence is maintained, without a hegemon, by members who share an interest in rules-based trade.

There is a risk of fragmentation, but there is a countervailing force. Firms operating across borders have strong incentives to maintain interoperability. Supply chains do not respect geopolitical boundaries. That commercial pressure will push the emerging system toward coherence.

This process is unfolding in three distinct modes of regional integration.

Some existing trade agreements go far beyond tariffs. These 'deep' arrangements include rules on services, investment, intellectual property, and regulatory alignment. They are the backbone of modern supply chains. The largest are the EU and the CPTPP.

The EU's trade is vast. About 20% of world trade takes place within the bloc. This makes it a huge pool of rules-based trade, a haven of trade predictability. As its network of agreements expands, so does its gravitational pull. Even outside firms increasingly operate under EU-aligned standards.

Other agreements are shallower. They focus mainly on tariffs and customs procedures. The Association of South-East Asian Nations (ASEAN) is one. Its rulebook is lighter than the EUs, but it covers critical elements of Asian supply chains. Since 2025, it has deepened and is in talks to sign new arrangements with partners such as Canada.

A third pattern is bilateral web-building. Countries such as the UK, India, and Gulf states have been actively expanding their networks of agreements.

Taken together, these three modes are reconstructing the global trading system. Deep agreements consolidate the

rules that underpin complex trade. Shallow blocs widen the reach of tariff preferences and common disciplines. Bilateral agreements connect the system's different parts.

Concluding remarks

Donald Trump's 2025 tariffs were disruptive in the deepest sense. By raising barriers on almost everything from almost everywhere, he broke rules and trade commitments that had anchored the global system since World War II. It was as if the referee had walked off the field, leaving the players to fend for themselves. But the players did not walk away.

Countries still valued the prosperity and predictability that rules-based trade had delivered for decades. Instead of abandoning the system, they adapted. Governments defended openness, built defences against coercion, and signed new trade agreements. In effect, they began to self-referee.

No global conference rebuilt the system. Countries acting in their own interests widened and deepened existing pools of predictable commerce. Through domino regionalism, this process has become self-reinforcing.

The old order will not return. The cathedral is not being restored. In its place, a new system is taking shape: a solar system of interconnected, rules-based regional hubs. ■

Endnote

1. The original theory contribution is Baldwin (1993, 1997). Empirical evidence is reviewed in WTO (2011) with the key papers being Baier and Bergstrand (2004), Egger and Larch (2008), and Chen and Joshi (2010). Historical examples of the domino effect abound. In the 1990s, regionalism spread rapidly in the Western Hemisphere triggered by the announcement of a US-Mexico free trade agreement (FTA). In the 2000s, an Asian domino effect was triggered by China and ASEAN announcing plans to negotiate a free trade agreement. Similar domino effect happened during the various EU enlargements.

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Editor's note: This column presents the author's recent CEPR eBook, 'World War Trade: Conflict, Containment, and the Emergent World Trading System,' which is downloadable for free here. This article was originally published on VoxEU.org.



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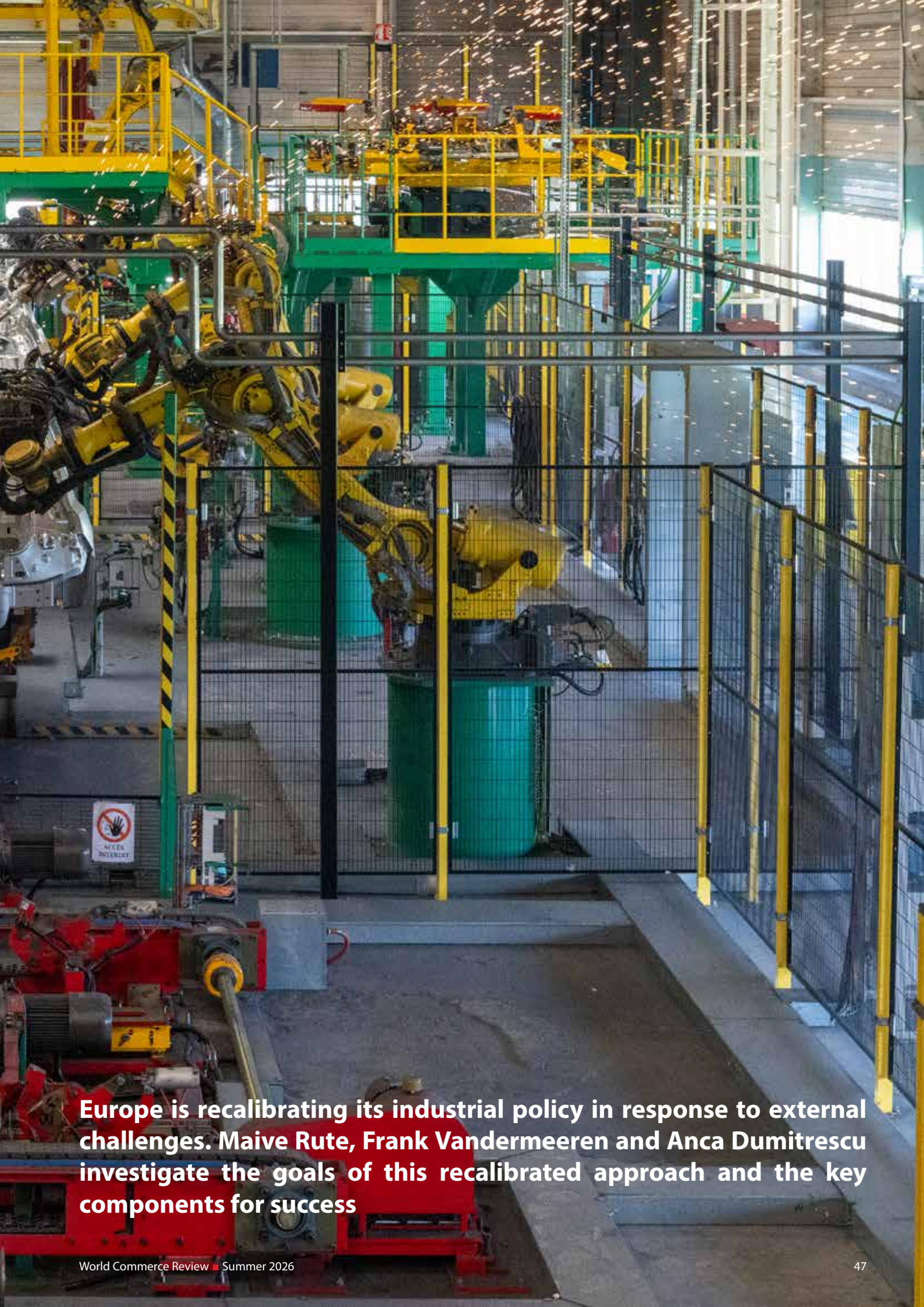
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How to get the green and the deal





Europe is recalibrating its industrial policy in response to external challenges. Maive Rute, Frank Vandermeeren and Anca Dumitrescu investigate the goals of this recalibrated approach and the key components for success

European industry is navigating a global economy where the notion of a fair playing field is increasingly out of reach, driven by aggressive industrial strategies by third countries and a stagnant multilateral trading system. EU firms face formidable challenges, including China's state-driven overcapacities and protectionist US tariffs.

While a focus on framework conditions and reliance on market forces once appeared sufficient, it is now increasingly clear that this model no longer delivers. Europe is therefore recalibrating its industrial policy – not just as a reaction to external pressures, but as an opportunity to address its economic security risks while at the same time moving beyond its middle-technology trap.

Our research (Rute *et al* 2025) investigates such a recalibrated approach, its goals and key components to drive its success. It is informed by the authors' practical experience in industrial policy design and implementation since 2020 and draws also on expertise from DG GROW's fellowship programme¹.

Objectives of a recalibrated industrial policy

A recalibrated industrial policy should aim to achieve objectives that previous approaches failed to deliver – or overlooked altogether.

It should, first, align climate, competitiveness, and security as mutually reinforcing goals. Historically, this trilemma has been poorly managed (Renda 2024). Europe's past energy choices prioritised efficiency over security of supply, while cost-driven offshoring weakened resilience in sectors like medical supplies. Industry also warned that decarbonisation timelines outpaced the measures needed to safeguard competitiveness and resilience.

Industrial policy should recast these apparent tensions as complementarities, prioritising measures that generate co-benefits (Kivimaa 2025). Where full alignment is not possible, policy must manage trade-offs explicitly and prioritise the most urgent needs: acute (economic) security risks may justify short-term losses in efficiency or narrowly targeted deviations from decarbonisation pathways.

Second, it should drive the upgrading of Europe's industrial base. Traditional strongholds are slipping as Europe underperforms in industries of tomorrow, even for domains it dominated yesterday. The EU's current lag in transforming the automotive sector toward connected, autonomous and electrified vehicles is a telling example (Garcia-Calvo 2025).

Past experiences, such as the collapse of European solar manufacturing and the decline of mass-market shipbuilding in Europe, show how quickly leadership can be lost. Policy should guide capabilities to areas with robust or nascent demand where the EU has the strongest chances of success.

Third, industrial policy should build strategic leverage. Europe has an innovation edge in several critical technologies like renewable energy and advanced manufacturing. It also retains major strengths in commercial production, as the world's largest exporter. Strategic autonomy is not only

about reducing dependencies, but also about using Europe's strengths to build resilient, mutually beneficial critical value chains with like-minded partners.

Therefore, industrial policy should do more than plug vulnerabilities: it should leverage industrial leadership and support EU firms in occupying hard-to-replace positions in international supply chains. Japan offers a useful example: its economic security strategy explicitly seeks to foster the *indispensability* of its firms, for example in semiconductor materials and robotics.

Key components for success

Aligned direction, agile execution

The EU's industrial policy functions across multiple layers, with crucial elements such as taxation and consumer incentives primarily managed at national or regional levels. Limited alignment can be a major drag (Bertram *et al* 2024): each member state may focus on the segments that fit its immediate interests, leading to duplication and unexploited scale at the European level.

If the goal is to create competitive European value chains, EU and national industrial policies need to work more in unison rather than in parallel. A practical approach is exemplified by the Important Projects of Common European Interest, where member states are required to demonstrate EU-added value. This criterion could be strengthened by making EU co-funding dependent on such demonstrated added value, as outlined in the proposed European Competitiveness Fund.

While deeper alignment is key, ineffective industrial policies often do not come from a lack of strategy, but rather poor execution (Rodríguez-Pose 2025). In particular, a reconfigured industrial policy – less reliant on framework conditions and more on active orchestration – requires stronger institutional capacities for industrial policy at both EU and national/regional levels (Karo 2026), with attention to the following three aspects.

- The ability to put in place swift strategic investments and act on early warnings. The EU's vaccine strategy provides a good example. Conversely, the Commission's list of critical raw materials, already in place since 2011, only led to more systematic action in 2023 through the Critical Raw Materials Act.
- The capacity to rapidly scale what works and wind down what does not. The ability to terminate underperforming policies in particular is too often overlooked in Europe.
- The use of more 'embedded autonomy' models that build on co-decision-making between public and private actors, bringing the agility that industrial policy often lacks through real-time feedback loops and empowered programme teams.

Competition and directionality as complementary forces

The Single Market is historically built on a competition-centric logic, with preference for horizontal rules and a belief that internal rivalry, by itself, would drive competitiveness

“There is growing recognition of the potential role of industrial policy in economic transformation. Our research points to the need for Europe to increasingly rely on more directional and centrally designed strategies that enable more decisive action in strategic areas”

and structural transformation. That model has delivered important gains.

But in an international environment shaped by persistent market distortions and in an economy that needs to undergo profound industrial transformation, competition alone is no longer sufficient. In some sectors, particularly those with high fixed costs, strong uncertainty, and winner-takes-all dynamics requiring rapid scaling of infant industries, excessive fragmentation can itself become a handicap.

China’s approach of sequencing intense domestic competition followed by selective state backing may offer a useful contrast: while firms first compete vigorously at home to show their fitness – largely protected from foreign competition – the most successful ones then receive backing to become global champions.

Europe is also constrained by a persistent ‘picking winners’ taboo, as if public intervention necessarily means backing a single firm or substituting market discipline with political discretion. Europe’s own history shows that well-designed interventions can create new industrial capabilities. Airbus, Galileo and the EU’s vaccine strategy all illustrate how policy can shape markets rather than merely react to them.

The lesson is not that governments can identify future champions in advance, but that they can create the conditions under which promising technologies are able to scale. In markets characterised by uncertainty and large upfront costs, waiting for the market to self-organise can mean waiting too long.

A reconfigured EU industrial policy should therefore combine bottom-up competition with greater directionality. The aim is not to replace markets, but to use public policy more deliberately where markets underdeliver. That means preserving competitive pressure, while steering industries toward clearly defined strategic priorities.

Directionality can be made credible through enforceable conditions that tie public support to verifiable EU objectives. It is therefore not the opposite of competition but a framework that allows competition to serve Europe’s strategic interests and help European firms reach global scale.

The Single Market as Europe’s home turf for industrial scaling

The Single Market should serve as a more robust ‘home base’ where EU firms can become indispensable global players.

To achieve this, the Single Market needs to evolve in several ways.

First, it should better protect infant industries and enable them to scale in Europe rather than abroad. Today, Europe is often more of a shopping floor than a launchpad for its most promising innovators. Successful industrial policies typically include stronger infant-industry protection than Europe currently exhibits. Temporary protection for strategic sectors coupled with performance discipline can provide the space for firms to accumulate capabilities – Korea’s industrial policy in the 1960s–1980s is a classic example.

In addition, research and innovation policies must do more to bring innovations into markets. While EU and national programmes generate strong scientific output, their commercial outcomes often remain untapped. Programmes can also be risk-averse and success-driven, while breakthroughs require bold bets and tolerance for failure (Fuest *et al* 2024).

The proposed new Horizon Europe programme aims to address this, including through moon-shot projects that aim to boost the EU’s strategic autonomy with projects going from research to deployment in areas like fusion energy, automated transport, and quantum.

Second, the Single Market should provide greater demand certainty for EU firms to create a strong business case, addressing a long-standing bottleneck in critical sectors such as cleantech. Supply-side measures alone such as subsidies are insufficient; firms also need credible early demand to amortise large upfront costs and attract investors (Crisuolo 2024).

Government-led demand can give a first-mover advantage; yet, the EU has historically lagged behind China and the US in using public procurement and large-scale programmes to stimulate early demand in strategic sectors. The proposed Industrial Accelerator Act marks a step forward, introducing targeted and proportionate ‘Made in EU’ and low-carbon requirements in public procurement and support schemes to boost demand in energy-intensive industries, the automotive value chain, and cleantech.

Third, the Single Market should regain its attractiveness for foreign direct investment (FDI), while ensuring greater value added of foreign investments. Europe has in recent years lost ground to the US as the leading destination for FDI, propelled by much larger and more predictable industrial incentives.



It is crucial, however, that FDI contributes meaningfully to upgrading the EU economy rather than merely satisfying European demand. The proposed Industrial Accelerator Act introduces conditions for large investments in sectors such as batteries and critical raw materials, to ensure that FDI strengthens EU supply chains, promotes technology transfer, and supports quality job creation.

Finally, the Single Market needs to be underpinned by a financing framework to nurture infant industries and position EU firms in strategic value chains. This framework should adopt a full-cycle approach, from R&D to scaling up

and, ultimately, global leadership. To achieve this, Europe needs to make better use of its deep pools of private savings and large banking and insurance sectors to finance strategic industries.

In addition, existing EU funding instruments are criticised for being fragmented, rigid, and insufficiently focused on strategic priorities. An effective industrial funding model pools investment at scale, focuses on strategic priorities, supports the full innovation lifecycle, and operates under a single rulebook. The Commission proposal for a European Competitiveness Fund embodies many of these principles.

Figure 1. Europe’s current industrial policy landscape



Source: Authors’ elaborations.



Conclusion

There is growing recognition of the potential role of industrial policy in economic transformation (Juhász *et al* 2023). Our research points to the need for Europe to increasingly rely on more directional and centrally designed strategies that enable more decisive action in strategic areas (Figure 1).

Recalibration does not mean abandoning the strengths of the old model. Europe should continue to leverage its decentralised strengths, where grassroots competition and

bottom-up innovation fuel much of the Single Market's vitality.

Rather, it calls for a more coherent policy framework – one that combines stronger 'Team Europe' directionality in strategic areas with competitive, well-functioning markets and complementary national and regional strategies anchored in local strengths. ■

ABOUT THE AUTHORS

Maive Rute is Deputy Director-General, DG GROW, Frank Vandermeeren is Team Leader, Chief Economist Team, at DG GROW, and Anca Dumitrescu is a Member of the Chief Economist Team, at DG GROW, European Commission.

Endnote

1. Without implying the validation by these fellows of the paper.

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Authors' note: The opinions expressed are those of the authors only and should not be considered as representative of the European Commission's official position. This article was originally published on VoxEU.org.



Preparing Europe for digital finance

Piero Cipollone is a Member of the Executive Board of the European Central Bank

Over the past few years, tokenised capital markets in Europe have moved from exploration to production. According to recent estimates by the Association for Financial Markets in Europe, European issuers have placed close to €4 billion in fixed-income instruments based on distributed ledger technology (DLT) since 2021, including the first digital sovereign debt issuances by EU member states¹.

This comprises the Eurosystem's 2024 exploratory work, in which participants across nine jurisdictions conducted transactions worth roughly €1.6 billion, including in trials that involved real settlements in central bank money and experiments that tested new use cases through mock transactions.

Tokenisation is the process of issuing or representing assets in the form of digital tokens², which are typically recorded on DLT networks. Tokenisation does not only enable 'all or nothing' settlement, where the cash leg and the securities leg of a transaction are executed simultaneously. It also allows the full life cycle of a transaction – issuance, trading, settlement and custody – to take place within a single digital environment. Moreover, smart contracts make it possible to automate processes from coupon payments to compliance.

Europe has already put in place the regulatory foundations for this new ecosystem. With the Markets in Crypto-Assets Regulation (MiCA) and the DLT Pilot Regime, it is among the first jurisdictions to establish a continent-wide framework for tokenised assets. The market momentum is real, and Europe is well placed to lead.

But two main obstacles are preventing scale. The first is platform fragmentation. Multiple DLT networks operate in parallel without synchronisation or transferability of assets between those networks. This fragments liquidity and increases integration costs.

The second is the absence of a common, trusted on-chain settlement asset for transactions on DLT networks. Without tokenised central bank money, a seller of a tokenised security may receive payment in an asset they are not comfortable holding – one exposed to price volatility or credit risk – which limits the market's ability to scale³.

These challenges can be solved. And the potential of tokenisation for Europe is significant: more efficient and more innovative financial markets, and the prospect of genuine crossborder integration that has long eluded Europe's fragmented capital markets.

Against this backdrop, I will focus on what Europe needs to get right to seize this opportunity. And I will outline how the Eurosystem's initiatives, in particular the Appia roadmap we published on 11 March⁴, can help provide a blueprint for a future-ready European digital asset ecosystem.

In my view, three conditions must be met. First, a safe settlement anchor that enables scale and innovation. Second, a genuine public-private partnership. And third, a legal framework that matches the technological ambition.

A safe settlement anchor that enables scale and innovation
Let me start with the first condition. Our exploratory work in 2024 – the most comprehensive of its kind globally, with 50 trials and experiments across nine jurisdictions – revealed clear market demand for central bank money settlement⁵.

The reason is straightforward. Central bank money is the safest and most liquid settlement asset. It does not carry any credit or liquidity risk and thus serves as the monetary anchor for the financial system. International standards for financial market infrastructures require settlement to be conducted in central bank money where practical and available⁶. As tokenised markets grow, this anchor must be available on the new technology.

Without it, tokenised markets will struggle to develop at the speed and scale that Europe needs. Private settlement assets – whether tokenised deposits or stablecoins – will play a role as commercial bank money does today in traditional finance. But they require a trusted public anchor to function effectively across the whole tokenised financial market.

Tokenised central bank money will provide the settlement bridge that makes a private settlement asset convertible to another – enabling, for instance, tokenised deposits to be transferred between banks or stablecoins to be settled in fiat currency directly on DLT. This will allow private innovation to scale with confidence.

That confidence cannot rest on private settlement assets alone. Research shows that even fiat-backed stablecoins – by far the least volatile type of stablecoin – rarely trade exactly at par, even during calm market conditions⁷. And the sub-optimal yet plausible alternative – a single dominant platform and stablecoin with broad network effects – would have different but equally serious consequences for Europe’s monetary sovereignty⁸.

The findings of our exploratory work⁹ informed the Eurosystem’s strategy to bring central bank money onto DLT. Pontes will provide this anchor in the near term: it will be launched in the third quarter of this year. It bridges market DLT platforms and our existing TARGET Services, enabling a participant buying a tokenised asset to settle in central bank money.

And we will further enhance it over time. Here are a few examples: settlement finality on the Eurosystem DLT, 24/7 operation, use of smart contracts on Eurosystem DLT, and additional features shaped by market needs and analytical work for Appia.

Appia sets out the longer-term vision for a European tokenised financial ecosystem. Through a combination of analytical and practical work, it aims to deliver a blueprint by 2028 in cooperation with all relevant stakeholders.

The themes we will tackle with Appia are organised around six building blocks – they range from technical standards and interoperability to collateral management, crossborder connectivity and the legal and regulatory foundations.

A key design question is whether that ecosystem will rest on a single European shared ledger – a network functioning as a shared utility where multiple parties compete on services – or on multiple interconnected networks that provide redundancy and foster competition at the infrastructure level. These configurations could also be combined. Appia will assess them against the Eurosystem’s objectives¹⁰ under different technological and market conditions, taking into account the broader economic, regulatory and geopolitical environment.

Pontes and Appia are not separate initiatives. They form a single strategy. The design of Pontes will be shaped by Appia’s long-term vision as this comes into sharper focus. This is a two-way street: Appia analysis feeds into Pontes enhancements on a staggered basis and operational lessons from Pontes will influence Appia’s architecture. Eventually, Pontes will evolve into a core component of the Appia ecosystem.

A genuine public-private partnership

The second condition is a partnership between the public and private sectors, which has been key to the development of Europe’s payment infrastructure thus far.

The Eurosystem’s role is to ensure that the most trusted settlement asset is available at all times and keeps pace with the latest technologies. But the services, liquidity and business models that will make tokenised markets valuable must

“Three conditions must be met. First, a safe settlement anchor that enables scale and innovation. Second, a genuine public-private partnership. And third, a legal framework that matches the technological ambition”

come from the market itself. In other words, the underlying infrastructure needs to be designed with the market’s needs at its core.

This is the approach we have taken to developing our strategy from the outset. Our exploratory work in 2024 took the form of a large-scale public-private exercise: 64 participants from across the industry came together to test interoperability solutions and identify the demand for programmability and automation, telling us in concrete, operational terms what form central bank money settlement on DLT should take. Their feedback directly shaped the design of Pontes.

Similarly, the Eurosystem’s decision to accept DLT-based assets as eligible collateral for credit operations – starting in March 2026 with assets issued in central securities depositories – came in response to a clear market signal about what tokenised markets need in order to scale¹¹.

Appia takes this approach a step further. It has been designed from the ground up as a joint endeavour with market participants, public sector partners and academia. Allow me to illustrate exactly why this matters.

One of the building blocks of Appia focuses on asset interoperability and standards, ensuring that tokenised assets can be transferred across different DLT platforms using compatible data formats and smart contract standards. The Eurosystem can take on a convening role in determining the direction of travel and in developing the standards.

But ensuring that they are adopted and work in practice across different business models and legal frameworks will require the active involvement of market infrastructure operators, banks, custodians and technology providers. Otherwise, we risk setting standards that exist on paper but are not applied in practice.

This is also why we published the Appia roadmap earlier this month. It is an open invitation to stakeholders to contribute to the work for each building block.

We welcome industry initiatives like that of Euroclear, Clearstream and DTCC on digital asset securities interoperability, which they presented in a recently published white paper¹². The approach outlined in this white paper aligns very well with the Appia roadmap.



More broadly, we encourage and welcome the views of the entire industry. The public consultation we have launched alongside the roadmap provides a structured and inclusive way for all stakeholders to offer their feedback and help shape the vision for Appia. Timely, transparent communication is a precondition for the market to invest and innovate with confidence.

A legal framework to match the technological ambition

The third condition is a legal framework that matches the technological ambition. Technology alone cannot address the legal fragmentation that lies at the root of the challenges facing Europe's capital markets.

Distributed ledger technology cannot harmonise corporate law across 27 member states, reconcile divergent securities regulations or override national insolvency regimes that treat the same asset differently depending on where it is held.

Over time, the combination of platforms based on DLT and of tokenised central bank money can help reduce post-trade fragmentation and deliver significant efficiency gains. But for capital markets to truly integrate, there is no substitute for legislative work.

The Appia roadmap has been designed with this in mind. The fifth building block is dedicated not only to assessing gaps

in the current legal and regulatory framework, but also to ensuring the safety and resilience of the new ecosystem as a whole – identifying the harmonisation needed to support an integrated European payments and capital markets ecosystem.

The European Commission's proposals to extend and enhance the DLT Pilot Regime and the 28th regime for corporate law are important and welcome developments. But it might be worth reflecting on whether these steps are sufficient or if we need a dedicated EU legal framework that enables tokenised assets to be issued, held and transferred seamlessly across the EU. Otherwise, we run the risk of building advanced settlement infrastructure on a patchwork of regulations, leaving us unable to fully reap the benefits.

Conclusion

Europe is building real momentum in tokenised finance. Market activity is expanding, the regulatory framework is taking shape and the central bank is moving at pace to provide the settlement anchor this new ecosystem needs.

At the same time, the obstacles to scaling a European digital asset ecosystem are real. Global competition is intensifying, and the window in which Europe's early advantages can be turned into lasting leadership will not remain open indefinitely.



With Pontes and the Appia roadmap, the Eurosystem has laid the groundwork for what is in its remit. But this is a collective endeavour. Engagement of market participants and legislators is needed to explore how technological ambition can be met with legal ambition.

Europe succeeded in building a single currency. It can also build a single digital financial market to stand alongside it. The foundations are in place. Now we must seize the moment. ■

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The global financial powerhouses: from Wall Street to offshore havens



The global economy is facing unprecedented geopolitical and economic challenges. Paul Stirling provides an in-depth analysis of International Finance Centres, which remain indispensable engines of the global economy

In an era of geopolitical tension, rapid technological disruption, and shifting capital flows, international financial centres (IFCs) remain the indispensable engines of the global economy. These hubs channel trillions in cross-border investment, foster innovation in fintech and AI, and provide sophisticated risk management tools. Yet they face constant pressure—from regulatory crackdowns and transparency demands to competition from rising regional players and the accelerating pace of digital transformation.

According to the Global Financial Centres Index 39¹ (GFCI 39), published by Z/Yen in March 2026, the landscape shows remarkable stability at the top alongside dynamic shifts lower down. New York retains the crown, followed closely by London, Hong Kong, and Singapore.

Dubai has surged to 7th place—its highest ranking ever—while Tokyo re-enters the top 10. San Francisco holds 5th, with Shanghai (6th) and Shenzhen (9th) underscoring Asia's strength. Overall ratings declined modestly across most centres amid global uncertainties, but connectivity, innovation, and regulatory predictability increasingly drive competitiveness.

This article examines the ecosystem from dominant global centres to dynamic regional hubs and specialised offshore jurisdictions. We analyse their respective strengths and weaknesses, incorporate executive perspectives from key players, and explore how offshore finance continues to thrive amid scrutiny, evolving from traditional tax planning toward compliance, innovation, and specialised services.

The enduring NY-London axis

New York and London form the traditional backbone of global finance, often referred to as the NY-LON axis. Together, they dominate wholesale markets, capital raising, derivatives, foreign exchange, and innovation, handling a disproportionate share of global transactions despite multipolar pressures.

New York (Wall Street) stands unrivalled in capital market depth. Home to the NYSE and Nasdaq, it benefits from the US dollar's reserve currency status, unparalleled liquidity in Treasuries and equities, and deep synergies with Silicon Valley's tech ecosystem. Institutional investors, private equity giants like Blackstone and KKR, and hedge funds cluster here, drawn by a robust legal framework (common law) and regulatory oversight from the SEC and Federal Reserve.

Strengths include unmatched scale—US equity markets represent roughly 40-50% of global market capitalisation in many metrics—talent attraction from Ivy League universities, and a culture of risk-taking that fuels disruptive innovation. Private equity and venture capital deployment remain world leading.

However, challenges are significant: exorbitant real estate and living costs in Manhattan, heavy regulatory burdens (Dodd-Frank, evolving SEC rules on climate disclosure and crypto), political polarisation, and vulnerability to US domestic policy shifts or global shocks like interest rate volatility.

London maintains its position as Europe's premier international hub despite Brexit. It leads in foreign exchange (daily turnover often exceeding \$2 trillion pre-adjustments), derivatives, insurance (via Lloyd's of London), and crossborder banking. English common law, time-zone advantages (bridging Asia and the Americas), and a multilingual talent pool from the Commonwealth provide enduring edges.

The City and Canary Wharf continue attracting fintech innovators through the FCA's regulatory sandbox, which has supported hundreds of trials in payments, crypto, and AI-driven services.

Post-Brexit frictions persist, including reduced EU passporting rights, talent mobility hurdles, and some relocation of euro-clearing business. High operational costs and competition from Frankfurt, Paris, and Dublin add pressure. Yet London's adaptability—evident in its fintech leadership and green finance initiatives—keeps it resilient.

Professor Michael Mainelli, Chairman of Z/Yen, notes the concentration at the top: *"The significant gap in ratings between the leading four centres and the rest implies there is no paradox of increasing concentration on fewer safe centres during a period of increasing deglobalisation."*

Asia's rising powerhouses

Hong Kong (3rd) serves as a critical bridge between China and Western markets, excelling in IPOs, RMB internationalisation, and stock connect schemes. Its low-tax regime, common law system, and deep liquidity in equities and bonds are core strengths.

However, US-China tensions, the National Security Law, and capital flow restrictions introduce uncertainty. Hong Kong has responded with fintech and wealth management pushes, maintaining strong connectivity.

Singapore (4th) emphasises stability, wealth management, and fintech. Pro-business policies, world-class infrastructure, political predictability, and strict regulation make it a preferred treasury and asset management hub for Southeast Asia and beyond. It punches above its weight in sustainable finance and digital assets.

Limitations include a small domestic market and reliance on expatriate talent, though initiatives like the MAS sandbox mitigate this. Singapore's rise reflects Asia's broader shift toward multipolarity.

Regional contenders: Dubai's meteoric rise and others

Regional centres gain ground in a multipolar world. Dubai, via the Dubai International Financial Centre (DIFC), climbed to 7th globally in GFCI 39.

HE Essa Kazim, Governor of DIFC, commented: *"Dubai's remarkable progress in the Global Financial Centres Index is an outstanding milestone that highlights the Emirate's ambitious vision and expanding influence on the international financial stage. Anchored by DIFC's world-class infrastructure and forward-*







“International financial centres, including their vital offshore components, continue to underpin global prosperity. While challenges from geopolitics, regulation, and technology persist, their adaptability suggests a resilient future”

looking regulatory environment, we continue to strengthen Dubai’s position as the region’s leading global financial hub.”

Pros include zero-tax zones, 100% foreign ownership, modern infrastructure, and a strategic location. Growth in Islamic finance, fintech, hedge funds, and family offices is robust, backed by the D33 agenda targeting top 4 status by 2033. Challenges are regional risks, expat talent dependence, and maturing regulation.

Other contenders include Frankfurt (eurozone banking, green finance), Shanghai/Shenzhen (China’s domestic depth with capital controls), Mumbai’s GIFT City (India’s emerging hub), and rising spots like Astana or Johannesburg.

Offshore finance: specialisation and scrutiny

Offshore financial centres (OFCs) primarily serve non-residents, offering tax neutrality, asset protection, and flexible structures. They manage tens of trillions in global hedge funds, captive insurance, private wealth, and special purpose vehicles—assets estimated in the \$13 trillion+ range for offshore financial wealth alone in recent analyses, with broader fund and corporate structures far larger. Modern OFCs emphasise compliance, innovation, and specialisation while meeting OECD, FATF, and EU standards.

The Cayman Islands leads in hedge funds and structured finance. With no direct taxes and English common law, it hosts the majority of global hedge funds and private funds (over 30,000 entities, with assets under management exceeding \$8-10 trillion in recent estimates). Regulation by CIMA is sophisticated, and recent tokenisation rules enhance its digital edge.

British Virgin Islands (BVI) excels in company formation (hundreds of thousands of active entities), fintech, and digital assets. *“BVI has a long track-record of promoting digital innovation and leveraging the full power of digital capability... Initiatives like the fintech sandbox are helping to stimulate innovation... The ability to embrace digital innovation will be crucial to a sustainable, post-pandemic economic recovery,”* BVI Finance has highlighted. BVI’s Incubator Fund and progressive virtual asset guidance support startups while maintaining compliance via systems like BOSSs.

Guernsey strengthens its role in private wealth, trusts, funds, and sustainable finance. As a leading international finance centre, it offers specialist expertise in green and natural capital funds, channelling billions into climate projects. Its stable regulatory environment, proximity to Europe, and focus

on substance make it attractive for family offices and ESG-aligned structures. Guernsey Finance promotes innovation across private equity, insurance, and pensions, with strong UK linkages (eg. significant capital flows supporting UK infrastructure).

Bermuda dominates insurance, reinsurance, and fintech. The Bermuda Fintech Advisory Board captures its approach: *“Companies who are looking for a world class jurisdiction with a forward-thinking government that welcomes entrepreneurs... can find in Bermuda the jurisdiction that can make that idea a business reality.”* Its Digital Asset Business Act (DABA), sandbox licensing, and Currency Standard Initiative position it at the cutting edge of digital assets, insurtech, and on-chain innovation, building on its re/insurance legacy.

Switzerland (Zurich/Geneva) upholds private banking excellence and neutrality, adapting to CRS/AEOI while excelling in wealth protection and asset management. Luxembourg leads EU fund domiciliation (UCITS/AIFs) with passporting advantages.

General advantages of offshore finance:

- Optimised tax planning and earnings retention for legitimate structures.
- Superior asset protection from creditors, litigation, and political risks.
- Privacy within robust compliance frameworks (beneficial ownership registers).
- Regulatory efficiency and specialist expertise (eg. BVI companies for holding structures, Bermuda captives for insurance, Guernsey trusts).
- Diversification, innovation in digital assets/sustainable finance, and access to global networks.

Drawbacks:

- Reputational risks and de-risking by some onshore banks.
- Elevated compliance/maintenance costs (FATCA, CRS, economic substance rules).
- Ongoing transparency pressures and blacklisting threats.
- Potential for misuse (though AML/CFT regimes have



strengthened significantly).

- Complexity requiring expert advice.

Offshore finance has evolved dramatically since 2008 and the Panama Papers. Centres like Cayman, BVI, Guernsey, and Bermuda now largely meet or exceed international benchmarks on transparency while preserving efficiencies. Offshore assets have grown substantially as focus shifts to regulatory arbitrage, service excellence, and technology. Hybrid onshore-offshore strategies often yield optimal outcomes.

Technology, sustainability, and the future outlook

AI-driven trading, tokenisation, blockchain, and confidential computing reshape competition. Main centres dominate high-frequency and institutional flows, while OFCs adapt nimbly (eg. Cayman tokenisation, Bermuda's on-chain ambitions, BVI sandboxes). Sustainable finance grows critical—Guernsey's Green Fund regime and Bermuda's ESG frameworks exemplify leadership.

GFCI data underscores the rising importance of the Global Innovation Index, government effectiveness, cybersecurity,

and human capital. For businesses/investors, they need to adopt hybrid models, diversify jurisdictions, monitor AI/blockchain/sustainable opportunities, and prioritise substance.

Policymakers should foster innovation alongside transparency to reduce systemic risks. Centres must invest in talent, infrastructure, and partnerships (eg. Cayman-London-Singapore-Dubai links).

In conclusion, international financial centres, including vital offshore components, underpin global prosperity. Challenges from geopolitics, regulation, and technology persist, but adaptability—exemplified by Dubai's ascent, BVI's fintech push, Bermuda's insurtech/digital leadership, Guernsey's sustainable wealth expertise, and the enduring NY-London-Asia axis—suggests a resilient future. Those who innovate, connect, and balance efficiency with responsibility will thrive toward 2030 and beyond. ■

ABOUT THE AUTHOR

Paul Stirling is an independent writer, specialising in global trade and finance.

Figure 1. Comparative pros and cons: choosing the right hub

CENTRE TYPE	KEY STRENGTHS	NOTABLE WEAKNESSES	IDEAL FOR
Main global (NY/London)	Liquidity, innovation, market depth	High costs, regulatory burden, volatility	Capital raising, trading, fintech scaling
Regional (eg. Dubai)	Tax incentives, location, growth momentum	Geopolitical exposure, talent transience	Diversification, ME/Asia bridging, Islamic finance
Offshore (Cayman, Swiss, Lux)	Tax neutrality, asset protection, specialisation	Scrutiny, compliance costs, stigma	Funds domiciliation, wealth structuring, holding companies

Endnote

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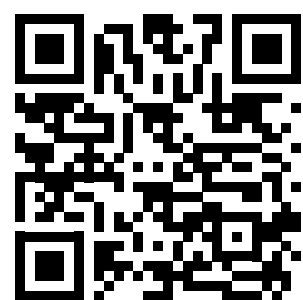


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