European Commission

Research and Innovation

ESIR

Policy Pressure Points

Independent Expert Report

Policy Pressure Points

European Commission
Directorate-General for Research and Innovation
Directorate G — Common Policy Centre
Unit G.1 — Common R&I Strategy and Foresight Service
Contact Ramona Samson
Email Ramona.Samson@ec.europa.eu
RTD-PUBLICATIONS@ec.europa.eu
European Commission
B-1049 Brussels

Manuscript completed in September 2025

PDF ISBN 978-92-68-28050-8 doi: 10.2777/6668715 KI-01-25-126-EN-N

Luxembourg: Publications Office of the European Union, 2025

EUROPEAN COMMISSION

Policy Pressure Points

Katherine Richardson (ESIR Chair)
Andrea Renda (ESIR Vice-Chair)
Sylvia Schwaag Serger
Rainer Walz
Dunja Potočnik
Paweł Świeboda
Epaminondas Christophilopoulos
Pierre-Alexandre Balland
Heather Grabbe
Bianca Muntean
María Luisa Castaño Marín
Marzenna Weresa
Floor Alkemade
Kirsten Dunlop
Jon Simonsson

2025 Directorate-General for Research and Innovation

Table of contents

POLICY PRESSURE POINTS: ABSTRACT

The paper proposes a new approach to policymaking in the EU, introducing the concept of "policy acupuncture" or "pressure points" to address the complex and interconnected challenges facing Europe. it argues that by identifying and acting on these high-leverage points, the EU can unlock systemic change and achieve greater impact and presents ten policy pressure point interventions to enable Europe's twin green and digital transitions, increase competitiveness, and build resilience.

INTRODUCTION

Reorienting policy making in complex, entangled times

At this moment of profound interlocking crises, Europe stands at an inflection point – one that calls not for incremental policy adjustments, but for systemic recalibration. The world around us has shifted into a new operating environment: one defined by polycrisis, hyper-connectivity, and deep uncertainty. Climate breakdown, geopolitical fragmentation and polarisation, rising inequality, technological disruption, and ecological degradation are not isolated events but interconnected system failures, creating a landscape of volatility, urgency, and opportunity. It is a world behaving less like a predictable machine, and more like a quantum system: entangled, emergent, and exquisitely sensitive to how, when, and where we intervene.

In this environment, Europe's conventional policymaking tools are increasingly being tested. Linear plans unravel in the face of exponential risks. Silos fracture under the weight of converging crises. As Europe embarks on the design of its next Framework Programme and addresses key concerns about security, unity and competitiveness, there is a growing need to complement standard policy approaches with more integrated and adaptive strategies that match the depth and speed of the transformations underway and required. Shifting focus from 'sustainability' to 'security' points invokes a reframe of known concepts: can we be secure if we are not acting to ensure renewable food, water, energy and material sources? The imperative for faster decarbonisation and the haunting spectre of greater resilience needed in all aspects of economy, infrastructure and society place immense pressure on policy makers, businesses and communities to reorient not just what needs to be done, and what to invest in, but how.

Precisely in this moment, Europe possesses an opportunity: to evolve its governance mindset from linear planning and control (and allowing policymaking to stay fragmented across multiple levels of governance and policy domains), to skilfully influencing societal and economic systems at their points of highest leverage and actively investing in relational dynamics. ESIR has argued consistently for a systemic approach to European policymaking that recognizes planetary boundaries, internalises relevant costs while reaping benefits from synergies, and brings greater coherence across policy domains, and to the management of short-term concerns in light of long-term interests and outcomes. We see an opportunity for Europe to operate an alternative model to that promoted by the current US administration under President Trump, one that values well-being, health, non-ideological education, political stability, impartial professionals in charge of institutions that have a public service ethos, and rule of law.

With this paper, we propose an approach to rethinking policymaking in the European Commission to introduce a notion of policy acupuncture or pressure points and system

leverage points, framed within a broader notion of quantum policymaking. Our proposal is that policymaking itself in this context must operate with quantum characteristics, which is to say:

- Working with system interdependencies, not against them.
- Shaping probabilities, not predicting exact outcomes.
- Designing interventions that are agile, self-correcting, sensitive to timing and placement and able to cascade, amplify, and accelerate change.

We believe this would offer a powerful lens through which to reorient policy interventions to engage effectively with the complexity of the current context and achieve system wide effects to increase EU competitiveness and leadership, turning a moment of unprecedented change into one of significant opportunity.

A strategic framework for policy pressure points in the European Commission

In quantum systems, the relationship between cause and effect is non-linear and probabilistic. Actions taken in one part of the system can have ripple effects elsewhere, in ways that cannot be fully predicted in advance. The same is true in Europe's interlinked socio-economic and ecological systems. Policy choices in energy, for example, reverberate through industrial competitiveness, social cohesion, security, other environmental challenges, and even Europe's global standing.

Thinking in terms of acupuncture or pressure points in policymaking embodies this philosophy. Rather than aiming for comprehensive control, it focuses on precision interventions at critical nodes of the system. These are places where small, well-calibrated actions can release blockages, create positive feedback loops, and unlock cascading changes across multiple domains. Importantly, this approach accepts — as quantum thinking does — that the effects of interventions will not always be fully predictable. Therefore, it privileges experimentation, iterative learning, and adaptive governance over rigid planning.

Acupuncture, like system change, is the practice of diagnosing and acting upon precise points that can unblock flows, restore balance, and trigger healing across the whole body. Applied to policy, this metaphor invites a shift from broad, generalised interventions to highly strategic, well-informed actions in critical leverage points of Europe's socio-economic, ecological, and institutional fabric. In systems thinking, Donella Meadows taught us that not all interventions are equal: some, like adjusting parameters, yield marginal improvements, while others—such as shifting goals or paradigms—can transform the system entirely.

For Europe, which faces the double imperative of navigating polycrisis and explosive geopolitical shifts while staying on course to achieve twin green and digital transitions, this approach is not optional: it is essential. Europe must see its challenges not as discrete issues (energy, health, migration, security) but as an integrated whole. Policies aimed at, for instance, accelerating the circular economy are also security policies, climate policies, and social cohesion strategies. If a policy acupuncture point approach were to be applied systematically to the next chapter of European policy making, it would suggest looking for and investing coordinated effort in deploying these high-leverage interventions.

For the European Commission (and ideally Member State governments), this would mean moving beyond fragmented and often inconsistent policymaking towards an integrated, leverage-focused approach. Rather than treating climate, industrial policy, fiscal frameworks, and social cohesion as separate files, the Commission can identify systemic acupuncture points where interventions align and reinforce one another, making the most of scarce resources and building anti-fragility at a critical time. For example, redesigning fiscal or public

procurement rules to reward green investments is not merely a budgetary adjustment—it is a deep leverage point that reshapes incentives across national economies, catalyses green industrial transformation, and strengthens Europe's collective resilience.

As Donella Meadows observed, deeper leverage points—such as changing the mindset or paradigm out of which the system arises—hold the greatest transformative potential. For Europe, this could mean shifting from a paradigm of economic efficiency at all costs to one of resilience, regeneration, and wellbeing. Policies that embed these goals—such as recognising the economy's dependence on thriving natural systems, valuing intergenerational justice in decision-making or reconceptualizing security as a cross-cutting principle underpinning economic, technological, environmental, and geopolitical policies—act as acupuncture for Europe's socio-economic fabric, reorienting flows of capital, innovation, and societal effort towards long-term flourishing.

Acupuncture is not random poking; it is an art of diagnosis and continuous feedback. For the Commission, this suggests cultivating much more dynamic sensing systems—listening deeply to early signals of stress or opportunity within member states and communities and adjusting interventions responsively. Policymaking would benefit from an iterative approach: designing policy pilots as "insertions of needles," monitoring the systemic response, and adjusting placements to enhance efficacy over time. This echoes the Commission's move towards mission-oriented policy and portfolio approaches but takes it further into a logic of systemic feedback loops rather than static programme design.

Moreover, acupuncture operates on the principle that the body has innate capacities for healing once blockages are released. Analogously, the role of the Commission is not to control every process but to unblock systemic potential—removing regulatory frictions, enabling flows of finance, knowledge, and innovation, and empowering actors at all levels of society to become active participants in transformation. This means embracing subsidiarity not as abdication of responsibility but as activation of distributed agency across Europe.

Crucially, both acupuncture and quantum systems thinking emphasise continuous sensing and feedback and a high awareness of timing and sequencing. The Commission must therefore become an agile, reflexive institution, capable of listening deeply to systemic signals and adjusting its "needle placements" as Europe's landscape evolves. Likewise, the timing of needle insertion is as crucial as its placement. Europe must prioritise not just where to act, but when. Policy windows open and close rapidly in a volatile world. The acupuncture approach equips Europe with a repertoire of strategic, well-timed interventions that can make the difference between drifting and steering through crisis. This will require new capabilities: advanced data ecosystems, participatory foresight, and closer collaboration with cities, regions, businesses, and civil society to detect where tensions are building, or opportunities are emerging.

In this way, the European Commission becomes less an architect of over-determined policy structures and more a practitioner of dynamic system stewardship. By acting at the right leverage points—legal frameworks, incentive structures, flows of knowledge and capital, conditionalities and, ultimately, guiding paradigms—the Commission can release Europe's latent capacity for renewal and collective action. Critically, this approach embraces the complexity of the polycrisis rather than fearing it. By mapping and acting on leverage points, Europe can use the energy of crisis as fuel for transformation. What might seem like policy "pressure points" become, in fact, pathways to resilience—unblocking Europe's creativity, re-aligning fragmented efforts, repatterning social and economic systems, unlocking capacity to regenerate Europe's industrial base, restore ecological health, and rebuild trust between institutions and citizens.

Ten Policy Pressure Point Interventions for the Next Framework Period

Since 2020, ESIR has published a number of policy briefs recommending strategic interventions to enable Europe to rise to the challenge of polycrisis through a deliberate investment in transformation. From more systemic and agile approaches to Research and Innovation policy, to core principles for sustainable reindustrialisation and just transition in the form of Industry 5.0, and widening notions of competitiveness, these recommendations have continued to draw attention to the importance of acting intentionally and decisively to balance the interdependent needs of people, planet and prosperity. In the current context, making a careful choice of targeted interventions to unlock larger order impacts has never been more essential.

In what follows, **we propose ten policy 'pressure point' interventions**, based on systemic leverage point thinking and Europe's pressing challenges, drawing on the accumulated learnings from the current Framework programme and previous Commission mandate. In each area, Europe faces both vulnerabilities and profound opportunities. With precision policy, these can become powerful levers of transformation. For each, we propose actionable and specific policy interventions that exemplify how Europe can rewire its institutional reflexes for short and long-term resilience and competitiveness and seize the significant leadership opportunity that the current context offers.

1. **Redefining Economic Value: Towards a Wellbeing Economy**

Shift Europe's economic paradigm from GDP growth to human and ecological flourishing, embedding wellbeing indicators at the heart of policy and investment decisions.

2. **Resource Productivity: Making Efficiency Europe's Competitive Edge**

Transform Europe's resource use to dramatically increase efficiency, reduce dependencies, and align competitiveness with planetary boundaries.

3. **Enabling Finance for Innovation Excellence at Scale**

Mobilise bold, risk-tolerant European financing to power breakthrough innovation, scale-up potential, and industrial leadership.

4. **Talent, Brain Drain, and Migration: Building Europe's Innovation Magnetism**

Make Europe the global destination for top talent through agile visa regimes, competitive incentives, and a revitalised tech brand.

5. **Multi-Level Governance: Activating Europe's Distributed Strength**

Turn Europe's multi-level governance into a strategic asset, empowering regions and cities as co-owners of systemic transformation.

6. **Bold Visioning and Shared Narratives: Building Europe's Cognitive Immunity**

Cultivate shared European narratives to foster unity, legitimacy, and public trust in Europe's transformative ambitions.

7. **Data Sovereignty and Infrastructural Autonomy: Europe's Digital Backbone**

Secure Europe's data infrastructure and governance to ensure digital autonomy, trusted innovation, and systemic resilience.

8. **Policy Coherence for Technological Convergence**

Align fragmented policies to unlock synergies between converging technologies, accelerating Europe's mission-driven innovation ecosystems.

9. **Expanding Time Horizons: Institutionalising Long-Term Thinking**

Embed long-range foresight and intergenerational responsibility into Europe's policy frameworks to future-proof prosperity**.**

10. Trusted International Partnerships for Systemic Resilience

Build deep, symbiotic global partnerships to reduce vulnerabilities, share risks, and co-create solutions for systemic resilience.

TEN POLICY PRESSURE POINT INTERVENTIONS FOR THE NEXT FRAMEWORK PERIOD

1. Redefining Economic Value and Success: Towards a Wellbeing Economy

It is clear that the dominant, neo-liberal economic paradigm — rooted in assumptions of perpetual growth, market efficiency, and human rationality — is increasingly misaligned with the realities of the 21st century and is at the end of its viability. It treats the economy as an isolated system, largely detached from ecological limits and social foundations, prioritising GDP growth over the wellbeing of people and the planet. As a model, it externalises environmental degradation and social inequalities, treating them as peripheral concerns rather than systemic failures. It assumes that technological innovation and market forces alone can solve complex crises like climate change, biodiversity loss, and rising inequality, while neglecting the role of power imbalances, structural dependencies, and cultural narratives that shape economic outcomes. As a result, it reinforces short-termism in policymaking, undermines democratic accountability, and erodes the resilience of societies facing interconnected shocks. Without a fundamental rethink towards an economy designed for regeneration, equity, and long-term stewardship, the dominant paradigm risks driving deeper into ecological overshoot, social fragmentation and conflict. Europe has a choice in the coming decade: to show leadership in adopting a new paradigm as the basis for a sustainable and just society or continue to try to pursue an uneasy balance between a failing economic model and a faltering social contract.

The question is: what succeeds in replacing neo-liberal economics and its definitions of value and prosperity? What is the much-needed alternative to maximising competitive advantage, efficiency and unlimited growth? And who has the means to bring that to life at scale? Our assessment is that Europe is in a position to embrace a deep paradigmatic shift at the core of its policy and politics to unlock competitive sustainability across the board by reimagining the foundations of economic measurement and definitions of value. The European Commission could choose to set Europe on the path towards becoming a ‘well-being economy’ over the next decade as one of the most impactful systemic interventions possible to achieve both security – in the form of positive peace – and competitiveness.

A “wellbeing economy” places human and ecological flourishing at the heart of policy and practice rather than focusing narrowly on growth and GDP. It aims not just to grow economic output but to increase societal health, resilience, and equity while remaining within planetary boundaries. This entails rethinking how we measure success in order to capture social and environmental values that traditional measures (like GDP) overlook. The simplest way to achieve this is to focus on alternative indicators to measure societal progress and wellbeing beyond traditional economic metrics like GDP. Taking a provisioning systems approach to this (e.g. focusing on energy, food, built environment and mobility) would enable Europe to recognise the interconnection of ecological, technological, institutional, and social components that work together to transform natural resources to meet human needs while respecting planetary boundaries.

1.1 International precedents

Internationally, various models provide inspiration. The main characteristic of the approaches attempted so far is that they introduce composite indicators that take into account different dimensions of wellbeing:

The **Human Development Index** (HDI)[1] created by the United Nations is now the most used progress indicator for developing economies. It is a geometric means of normalised indices across three dimensions – life expectancy, average years of schooling and gross national income per capita – which emphasises people and their capabilities in assessing a country's development.

The **OECD Better Life Index**[2] suggested by OECD (2011) focuses on 11 dimensions of wellbeing: Housing, Income, Jobs, Community, Education, Environment, Civic engagement, Health, Life satisfaction, Safety and Work-life balance.

Various think tanks and NGOs have suggested approaches to address the same issue. For example, the **Genuine Progress Indicator** (GPI) incorporates social and environmental factors not captured by GDP, such as the costs of pollution, crime, and income inequality, while the **Happy Planet Index (HPI)** developed by the UK's New Economic Foundation,[3] combines three elements – life expectancy, wellbeing and ecological footprint – to show how efficiently people in different countries are using environmental resources to lead long, happy lives.

These indexes have been constructed to aggregate many factors into a single number that depicts the general state of affairs. The cost-of-living index, for example, combines the cost of food and other consumer goods in a standard market basket to show how prices are changing.

Tools like the State of the Future Index (SOFI) are now emerging that are pioneering future-oriented methodologies that go beyond retrospective analysis.[4] SOFI combines multiple variables to forecast potential trajectories, enabling proactive policymaking that anticipates future wellbeing trends. The intent of the SOFI is to combine variables that indicate whether future conditions seem to be getting better or worse, to form an overall indicator of the state of the future. The SOFI is similar to other indexes in that it combines many variables into a single measure, but it differs in several important respects:

- Most indexes are concerned with the present or past. The SOFI includes past data but, in addition, is **designed to measure the promise of the future** with a sound foresight approach.
- The SOFI is longitudinal and is designed to track and project change over time. While a SOFI contains variables that might also appear in a hypothetical Quality of Life Index, it contains many others as well and it focuses on the future state of the variables.
- In addition, the SOFI is unique as it allows experts to assign specific weights for the different variables, while a broader group of experts evaluate, through a Trend Impact Analysis, the future prospects of each variable.

1.2 European precedents

Encouragingly, the European Union has already taken several significant steps to bring the wellbeing economy to life, recognizing the need to move beyond GDP as the primary measure of progress. In 2019, the Council of the European Union endorsed the concept of the Economy of Wellbeing, recognising the mutually reinforcing nature of wellbeing and economic growth and placing people and their wellbeing at the centre of its policy and

[1] https://hdr.undp.org/data-center/human-development-index#/indicies/HDI
[2] https://www.oecdbetterlifeindex.org/#/11111111111
[3] https://happyplanetindex.org
[4] https://millennium-project.org/state-of-the-future-index/

decision-making.[5] Yet, the shift remains incomplete. To operationalise the concept, Europe will need to mainstream alternative indicators across all EU policy domains — from Research & Innovation (R&I) strategies to fiscal governance.

To fill the policy research gap in the assessment of the progress towards sustainable development, DG Research and Innovation (DG R&I) developed the **Transitions Performance Index (TPI)**[6], a composite index aiming to measure the EU's progress towards sustainable and just development. In developing its approach, DG R&I consulted other dashboards and scoreboards that influenced the Commission's thinking.

In the same effort to bridge the gap between setting ambitious EU-wide sustainability goals and effectively putting them into practice by using new, evidence-based policy tools to monitor countries' progress, **DG R&I** enlisted Vitosha Research EOOD (part of CSD Group) to propose an integrated framework for evaluating European countries' well-being, drawing on diverse indicators and data sources—covering socio-economic development, environmental protection, and good governance. The study, released in 2023[7], proposes two alternative scenarios to measure well-being. The ambitious 'Beyond GDP' scenario includes 5 indicators, representative of five broader categories:

- **Economic Development:** Real Gross domestic product (GDP) per capita,
- **Climate Neutrality:** Gross greenhouse gas emissions (tonnes per capita),
- **Health:** Air quality
- **Human Capital:** In-work-at-risk-of-poverty rate (% population),
- **Governance that Delivers:** Life satisfaction.

In 2019, the Joint Research Council (JRC) studied different approaches to assess countries and regional strengths through new holistic lens.[8] According to the JRC study, many existing indicators provide sector specific information that only partially captures the situation and are now being re-examined, taking into account the changing needs. For instance, the Human Development Index, which was proposed in 1990s, has recognised own limitations and is undergoing a review with the aim to include more of aspects of human development. The study proposed a combination of quantitative and qualitative approaches:

- **Interdisciplinary composite index building**: Composite indicators would provide a quantitative and measurable overview of the country level performance based on predefined indicators that are selected in line with the new economic thinking.
- **Horizon scanning and trend impact analyses**: as developed by the Millennium Project research team, suggesting multiple levels of differentiated research methodologies[9], like those introduced in the State of the Future Index.

---

[5] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52019XG1126(06)&rid=5&t

[6] https://research-and-innovation.ec.europa.eu/strategy/support-policy-making/support-national-research-and-innovation-policy-making/transitions-performance-index-tpi_en

[7] https://op.europa.eu/en/publication-detail/-/publication/23d96689-b720-11ed-8912-01aa75ed71a1/language-en

[8] https://publications.europa.eu/resource/cellar/14e84ada-fad0-11e9-8c1f-01aa75ed71a1.0001.01/DOC_1?t

[9] https://millennium-project.org/publications-2/futures-research-methodology-version-3-0-2/

All the above approaches incorporate different levels of complexity and impact. Some require the coordination of various stakeholders, increasing the level of complexity and final success. However, by mainstreaming indicators like these, Europe can structurally reorient towards policies that not only generate economic returns but sustain life, dignity, and resilience over the long term.

Case Study: The benefits of addressing multiple challenges synergistically

Substantial reduction in socio-economic costs can emerge by addressing societal challenges together rather than in isolation from one another, i.e. by applying system rather than "silo" thinking. An illustrative example is Denmark's approach to solving environmental challenges associated with land use. Denmark is seeking to reduce territorial greenhouse gas emission reduction by 70% in 2030 vis a vis 1990, and to achieve CO_2 neutrality between 2045 and 2050. Over 60% of land area is used for agriculture and this sector is on track to become the country's largest domestic emitter of greenhouse gases. At the same time, Denmark lags behind EU's nature protection goals: The EU water quality directive stimulates that all coastal marine waters should be in *good ecological status* by 2027 but only 5 of the 109 coastal areas around Denmark are today designated as having achieved that status owing primarily to eutrophication caused by nutrient runoff from land. Only about 15% of the country's land area can be said to be under some form of protection, while the EU goal is 30%. Clearly, the country faces future changes in land use patterns.

When considering the future potential for capturing CO_2 via reforestation, Denmark's government-appointed Climate Council in 2024 recognized that planting trees for as a form of climate mitigation could be done on any land area, while the protection of biodiversity and water resources was most effective at specific geographic locations. The Council therefore attempted to construct a future land use map for Denmark where the three objectives of climate mitigation, water quality protection, and nature protection were addressed simultaneously. Their economic analyses showed considerable socioeconomic savings by considering these three challenges together. (Klimarådet, 2024. Danmarks fremtidige arealanvendelse | Klimarådet)

Subsequently, a government established "tripart" consisting of representatives of Industry, the trade organization for farming, and the Danish Nature Conservation Society hammered out a draft agreement for regulation aimed at addressing these three environmental challenges. The plan was adopted by Parliament and a new ministry (Ministry for the Green Partnership) established devoted to achieving the negotiated goals for land use reform. It is too early in the process to assess the success of this initiative in achieving the identified policy goals. However, this novel attempt to harvest synergies by addressing multiple societal challenges simultaneously serves as a promising precedent for the establishment policy

1.3 Policy Acupuncture Recommendations

- **Institutionalise a "Beyond GDP Wellbeing Scoreboard"** as a legally binding element of Member States' National Reform Programmes, integrating indicators like SOFI to shape EU-wide recommendations and conditionalities. Establish a legally binding framework that mandates Member States to integrate wellbeing indicators into their National Reform Programs; European Commission and European Council to use this scoreboard to shape country-specific recommendations and track progress more holistically.
- **Link EU funding allocations to wellbeing outcomes**, ensuring that Structural Funds, Horizon Europe (plus future R&I funding), and NextGenerationEU direct resources towards improvements in air quality, emissions reduction, and poverty alleviation. The EU should allocate a portion of EU structural funds based on

demonstrable gains in key wellbeing indicators (e.g., decreased emissions per capita, improved air quality, reduced poverty levels).

- **Embed wellbeing impact evaluations across Horizon Europe clusters**, requiring applicants to demonstrate positive societal and ecological outcomes alongside technological innovation. R&I funding should directly support the well-being economy and related innovations, for example through:
    - Dedicated funding on projects focused on R&I projects that demonstrably enhance societal wellbeing and climate neutrality and nature protection/restoration.
    - Introduction of Wellbeing Impact Evaluation: projects must demonstrate how their outcomes will enhance human and ecological wellbeing (e.g., improved life satisfaction, lower emissions per capita). This criterion could be applied to relevant R&I clusters (e.g., “Health,” “Climate, Energy and Mobility,” “Culture, Creativity and Inclusive Society”) so that wellbeing is systematically considered across thematic areas.
    - Support for Wellbeing-Focused Research Infrastructures
- **Mobilise public and private sector alignment**, mandating transparency in corporate reporting on wellbeing indicators, and incentivising private investment in wellbeing-enhancing initiatives.
- **Establish a dedicated "Wellbeing Transition Grants" programme**, supporting local authorities and R&I stakeholders in developing wellbeing-centred projects, with robust monitoring using TPI and composite indicators. This could be used to incentivise local governments and R&I projects to focus on climate-neutral technologies, social innovation, and inclusive economic models. Such a program should incorporate robust monitoring and reporting, possibly integrating tools like the Transitions Performance Index (TPI) and other composite indicators to verify progress.

2. Resource Productivity: Securing Europe's Economic Future and Future Security

For Europe, resource productivity is the key issue that unites the competitiveness, economic security and climate agendas. Greater efficiency in use of resources (materials, water and land) is vital for a resource-poor continent that needs to ensure its economic security and strategic autonomy. This is not only about efficiency in the generation and use of energy, but also other non-renewable resources – from materials for industry to water and land – and finite natural resources including photosynthetic products and biodiversity that underpin Europe's bioeconomy and food systems. Europe's outsized per capita resource consumption, compounded by dependency on volatile imports, makes it acutely vulnerable to price shocks, supply disruptions, and geopolitical leverage. Our current dependency on resource imports – what Mario Draghi called the "commodity supply model" in his 2024 report – is already recognised as an economic security risk, but in future it will become unsustainable for European firms' competitiveness and for European citizens on a continent that is warming at twice the global average and already experiencing climate impacts.

Our second policy pressure point intervention therefore – which similarly entails a profound paradigmatic shift for European policy and economy – has to do with promoting significantly greater resource productivity and at the same time lower demand for resources and materials. This is not merely an environmental concern — it is the nexus of Europe's industrial, climate, and security strategies. Resource demand and use efficiency need to be in focus across the entire European economy and in European ways of living.

In global trade and business, supply chains are subject to disruptions from trade wars, but also climate impacts such as extreme weather events and loss of water supply. Traditional strategies focusing on supply diversification are no longer sufficient. Absolute shortages and long-term scarcity looms, compounded by climate impacts and environmental degradation. So public policy needs to work 'upstream' to address the demand side: consumer and business expectations with regards to materials and resources, so as to reduce absolute consumption and create the enabling conditions to get the most out of all the resources that are already in our economy and that Europe will import in future.

In terms of global sustainability, planetary boundaries are hard constraints that cannot be negotiated away by humans. The rate of resource extraction from nature is already driving human activity well beyond several of the safe operating limits (Richardson et al. 2023). Europeans have a special responsibility because our resource consumption per capita is so much higher than other continents (the average annual materials consumption in Europe is three times that of Africa per capital, although the US consumes 5 times more than Africa every year).

There is an important distinction between 'resources' as they are traditionally defined in economic terms (i.e. the immediate raw materials used for production), and the global resources upon which we all depend for stable conditions for life and economic activity. Many (but not all) of the resources used in production can be substituted with other materials and, thereby, are relatively easy to deal with in traditional economics. However, this is clearly not the case for the global common resources such as a stable climate, biodiverse environments and regional hydrological cycles that produce fresh water.

A further distinction is that, for the state of the Earth system as a whole (i.e. global environmental conditions) whether lithium (or any other metal) buried underground or incorporated in a battery makes no difference. But whether carbon is in a non-reactive form underground or in a reactive oxidised form in the atmosphere, by contrast, makes a huge difference. Therefore, the use of materials comes in different forms in terms of costs to the global environment. This issue needs global governance that is now in very short supply. The

differential impacts of resource use reinforce the need for differentiated policy instruments. Europe must treat its natural capital as critical infrastructure, subject to governance and efficiency mandates akin to energy systems.

Research and innovation policies will need to consider both the short-term and long-term competitiveness of European firms, given the likely changes in the availability and prices of imported resources resulting from climate impacts and geopolitical disruptions. The EU has many reasons to encourage R&I for resource productivity and increase funding for it at EU level, in particular to create relevant metrics for resource productivity and embed them in accounting and policy frameworks; develop relevant technologies for resource-efficient products and services and expand their adoption; develop policies for efficient provisioning systems by different levels of government that optimise for resource efficiency (housing, mobility, energy, food).

Furthermore, efficient resource use will increasingly be an important factor for economic competitiveness geopolitically, as the actions of both the US and China demonstrate. Despite Trump's denial of all things climate, his approach to both Greenland and the Ukraine demonstrate a recognition of the importance of access to resources. Data is readily available concerning China's investment in renewable and sustainable energy and in access to critical raw materials in Africa. It is worth noting that the only area in the world that is experiencing an increase in forested area is Asia, possibly due to reforestation efforts by China (Richardson et al., 2023; supplementary methods). Resource productivity will therefore become Europe's not-so-hidden competitive edge and activating that will require treating materials and ecosystems as strategic assets — not commodities.

2.1 Policy Acupuncture Recommendations

- **Set binding resource productivity targets**, incorporated into the forthcoming Circular Economy Action Plan, Competitiveness Compass, and Draghi report implementation. Review EU policies for competitiveness and implementation of the Draghi report recommendations on labour and capital productivity, as well as policies for competitiveness and economy security, to ensure that demonstration of resource productivity is required.
- **Deploy a European Resource Dashboard**, enabling real-time tracking of material, energy, water, and ecosystem productivity across Member States.
- **Incorporate resource efficiency criteria into all Horizon Europe R&I funding calls**, making it a standard metric for project evaluation: incentives, directives and measures of success.
- **Harness EU taxonomy and public procurement**, scaling demand for resource-efficient products and services across Europe's internal market.
- **Launch EU-led international partnerships on resource governance**, positioning Europe as a pioneer in managing planetary boundaries and advancing sustainable competitiveness.

3. Enabling Finance for Innovation Agility and Excellence at Scale

The defining characteristic of the current and future context is not stability, but flux. Europe is navigating an increasingly turbulent geopolitical, technological, and ecological environment. In a world of radical uncertainty, the ability to adapt dynamically and learn through experience and experimentation becomes a form of systemic intelligence. This points to innovation – developed and deployed systematically to create dynamic capabilities. To achieve that, Europe needs to accelerate innovation and the process of creative destruction

to enable increased competitiveness. Being attractive long-term to talent as well as financing are the two most fundamental dimensions in order to respond to the pace of crises, opportunities, and disruptions. Enabling a vibrant and long-term innovation ecosystem is crucial for both dimensions. Europe's underpowered innovation finance ecosystem continues to impede its competitiveness. Venture capital remains fragmented and risk-averse; promising start-ups struggle to scale without adequate late-stage funding; and models for patient capital — like Denmark's corporate foundations or Sweden's Saminvest — remain underutilised.

The third policy pressure point intervention we therefore recommend entails strengthened, agile European financing for start-ups and scale-ups, innovation activities and research. Europe needs layered and structured policy solutions spanning the short, medium, and long term to cultivate a mature, risk-tolerant financing ecosystem. Leveraging existing and successful national policy initiatives to a European level is a rapid way to achieve this and would strengthen the build-up of a more joint market for financing.

The following examples serve as a starting point to identify and disseminate policy initiatives to build larger European talent pool and financing capability. The examples are categorised as long-term, medium-term and short-term, depending how rapidly they could affect the strengthening of the European innovation ecosystems. They should be viewed as samples of "acupuncture policy insertions" that address the challenges Europe has in mobilising risk-prone finance, in comparison with the US and Asia. A broader deployment of the following types of policies may foster a more conducive European ecosystem for both financing as well as attracting and cultivating talent.

3.1 Long-term impact – simplifying formation of company foundations

Corporate foundations can play a role in strengthening a country's economic security by increasing the possibility of retaining company ownership within the country and contributing long-term funding to important sectors such as education, research, innovation and culture. This can create a more stable financial base and reduce dependence on external financial sources. By funding research and development, corporate foundations can promote technological development and innovation that strengthen a country's competitiveness and economic security. In some countries, business foundations have considerable financial importance and often combine a business purpose, ie. To be owners of companies and large groups that conduct commercial activities on market terms, with philanthropic goals. Legislation on charitable foundations/trusts differs greatly around the world and few countries have codified civil and tax legislation for this purpose. In some European countries such as Denmark, Sweden, the Netherlands and Luxembourg, business foundations have a great economic significance.

A foundation is a legal entity which, unlike limited companies or associations, has neither owners nor members but is owned by its purpose. As a rule, the foundation has been set up to act as trustee for a financial asset. Business foundation have a pivotal role in some countries to provide both long-term stability for key national corporations as well as providing financial means for a multitude of areas. Simplifying the emergence of business foundations can create advantages such as strengthened national ownership of key companies; increased private funding of research, innovation and culture (nationally and regionally); and strengthened competitiveness and increased financial security.

3.2 Medium term impact – strengthening the venture-capital ecosystem

Venture capital (VC) plays a crucial role in fostering entrepreneurship, driving innovation and transforming research findings into products and services. It is a vital engine for economic growth and progress, enabling startups to more rapidly transform ideas into successful businesses. Startups often require significant funding to develop their products, scale

operations, and enter new markets. VC funding is often directed towards startups with high growth potential and innovative ideas, a focus which help drive technological advancements and disrupt traditional industries. Beyond funding, venture capitalists may bring valuable industry expertise, strategic guidance to startups as well as networks of contacts, including potential customers, partners and other investors.

Case Study: Corporate Foundations in Denmark

Denmark stands out as an interesting example. There are approximately 1,400 commercial foundations in Denmark. The largest of the Danish business foundations control, through a majority of the votes, a very large share of the dominant companies in Denmark such as Carlsberg, A.P. Møller Mærsk and Novo Nordisk. Business foundations in Denmark accounting for more than 70 percent of the market capitalization and approximately 50 percent of total Danish research and development. Together, the business foundations and the foundation-controlled companies spend almost 24 billion Danish kroner on R&D grants and initiatives corresponding to approximately Danish limited companies, they are regulated by a special foundation authority and must meet several governance requirements. A guiding principle in Danish foundation law has been neutrality between companies and foundations in the sense that it should be equally attractive to do business in both forms. From 1985, the supervision of business foundations was transferred to the Danish Business Authority. Over the years, the Danish Business Authority has proven to understand the foundations' needs and wishes to have their business objectives changed in order for the foundations to remain competitive.

The US VC market is significantly larger and more mature than the European and has a higher growth rate, driven by a stronger culture of entrepreneurship and innovation. The EU VC market is growing steadily, is more fragmented with various countries having their own VC ecosystems. Growing the venture capital business more rapidly in the EU can bring numerous benefits such as fostering innovation, economic growth, and global competitiveness.

The EU can draw valuable lessons from the Swedish state initiative Saminvest to enhance its venture capital ecosystem. Saminvest is a Swedish state-owned venture capital company that plays a important role in enhancing the financial ecosystem for innovative companies. Saminvest often acts as an anchor investor in new VC funds, which helps attract additional private capital. By investing in funds that target high-growth potential companies, it enables more innovative businesses to receive the necessary capital to scale. Saminvest also collaborates with business angel investment programs and incubators to provide early-stage funding and support to startups. This helps bridge the gap between initial funding and larger venture capital investments.

The EU could help member states implement similar policies to encourage the formation of new VC funds and support the development of a robust ecosystems. The Swedish model of combining public funds with private investment can be replicated in the EU to leverage public resources and attract private capital, thereby enhancing the overall funding available for startups.

3.3 Short term – strengthening stock-option schemes for startups

Start-ups and entrepreneurs are dependent on attracting talent to enable rapid company growth. Paying high salaries to attractive talents may be very challenging in an early stage of

company build up. Other means of more future oriented compensation schemes are there for important. One such model, pivotal for the success of US start-ups, are attractive stock-option schemes.

In the US employee stock options help attract the best talent to small startups with limited financial means, but with high potential, enabling startups to recruit persons needed to succeed early on. In Europe, employee ownership is less common and the level of complexity in financing for start-ups is higher with different regulations and tax incentives. As a result, the EU significantly trails the US in providing favourable equity compensation frameworks. In some European countries (such as Belgium), stock options are even subject to high taxation rates *immediately upon grant* rather than upon sale. Although the EU is actively working to improve its equity compensation landscape, challenges remain and substantially diminish the EU attractiveness to potential employees and startups.

There are considerable differences in employee ownership between the US and Europe. European employees own less of the startups they work for than US employees. In Europe stock options are executive-biased while in the US ownership is more consistent across the workforce. A more proactive approach to employee ownership is key in creating successful European startups competing with in particular US firms. Harmonizing and simplifying equity taxation policies across the EU, taxing stock options only upon realization at competitive rates, would significantly enhance the attractiveness of the European tech ecosystem, particularly in strategic sectors such as artificial intelligence, quantum computing, and biotechnology. An AI or software startup requires more technical know-how, and such employees are at a premium and more likely to require stock options. Employee ownership correlates to how deeply technical a startup is.

Stock options are especially important to hire and retain top talent. Today, there is wide variation in national policy across Europe. Several countries have implemented successful legislation for stock-option programs, creating favourable environments for startups and innovative companies. The Baltic nations are often cited as the most startup-friendly countries due to their favourable stock option schemes. France has reformed its stock option policies to be more competitive, making it easier for startups to attract and retain talent. The UK has also made significant strides in reforming its stock option rules, ensuring they are competitive with other leading startup ecosystems. Israel is known for its robust startup ecosystem, and its stock option policies are designed to support early-stage companies.

Mobilising capital at the right scale, and with significantly greater agility and risk appetite is essential for Europe to transform its promising start-up landscape and research capability into a globally competitive innovation powerhouse.

3.5 Policy Acupuncture Recommendations

Simplify and promote the creation of corporate foundations, following Denmark's model, to anchor long-term financing for innovation and national competitiveness.

Deploy EU anchor investments into new VC funds, modelled after Sweden's Saminvest, to attract private co-financing.

Harmonise employee stock option frameworks, ensuring they function as effective talent incentives across the EU, fostering a sense of ownership, and aligning employees' interests with startups' long-term success.

Accelerate the Capital Markets Union, deepening financial integration and improving liquidity for European scale-ups.

Establish a European Deep Tech Growth Fund, dedicated to scaling innovations in climate technologies, biotech, and digital sovereignty sectors.

Develop structured exit pathways for European start-ups, ensuring scale-up potential remains within European ecosystems.

4. Talent, Brain Drain, and Migration: Europe's Innovation Imperative

The outflow of talent from Europe, particularly in deep tech sectors, represents both an immediate threat and a long-term systemic risk. Europe's innovation capacity has been haemorrhaging to ecosystems with more agile financing, higher remuneration, and more favourable conditions for start-up growth — especially the United States, although that may change over the next years if the Trump Administration continues to attack the scientific establishment. Europe has a golden opportunity in to seize this moment and reverse the trend. The numbers are stark: European AI start-ups raised just $9 billion in 2024, while US counterparts secured ten times more. Salary gaps are dramatic, with engineers in Silicon Valley earning nearly four times as much as their peers in Paris. While Europe's lower operational costs are an underappreciated advantage, they are insufficient alone to reverse the trend. At its core, the problem is structural. Europe's fragmented markets, complex visa regimes, rigid employment laws, and less favourable equity compensation frameworks have created systemic disincentives for innovators. However, Europe's quality of life, cultural richness, growing tech hubs — from Paris to Stockholm — and steady commitment to climate action, offer significant potential for competitive repositioning.

Addressing the transatlantic brain drain, characterized by highly skilled professionals migrating from the European Union (EU) to the United States (US) and increasingly other continents, **is our fourth policy pressure point with the objective of increasing European competitiveness, closing widening skills' gaps in areas that are critical to enabling transformation and compensating for a rapidly ageing population.** Approximately 11% of successful US technology startups have at least one European founder, compared to only 6% of European tech companies with US founders, highlighting the one-sided nature of talent flow (Atomico, State of European Tech Report 2024). This talent exodus significantly hampers Europe's capacity for innovation and economic expansion. Notably, companies like Spotify and Klarna have increasingly shifted operations and growth strategies toward the US market, underscoring the pull of the US ecosystem.

A substantial driver of this talent drain is the **significant salary disparity between European and US tech hubs**. European tech salaries in the most advanced fields are significantly lower than their US counterparts. For example, senior software engineers in Paris earn approximately $77,000 annually compared to around $298,000 in Silicon Valley, revealing a dramatic income gap (Glassdoor, 2024). Furthermore, startup funding in the US remains orders of magnitude higher than in Europe. In 2024, European Startups in AI raised around $9 billion, while US ones managed to raise 10 times more (AI World). This creates not only financial incentives but also faster career progression and richer opportunities for professional development. Although Europe's cities generally feature lower living costs compared to US tech hubs like San Francisco or New York, this advantage does not sufficiently compensate for disparities in disposable income and wealth-building potential (OECD, 2023).

Europe's quality of life and social security system, while often cited as attractors, may have limited impact on talent retention since migrants tend to remain mobile after relocating, suggesting a need for strategies beyond initial attraction. Additionally, the "varieties of capitalism" literature reveals that Europe's more stigmatizing attitude toward entrepreneurial failure creates barriers for founders seeking investment for new ventures after previous unsuccessful attempts, potentially hampering its entrepreneurial ecosystem.

Addressing this brain drain demands structural solutions. Europe's lag in successfully commercializing digital products and its limited global presence in technology remain the core issues. Reports from Mario Draghi, Enrico Letta, and earlier ESIR contributions have emphasized the urgency of robust, long-term Research and Innovation (R&I) policies. The

EU must foster investments in strategic technologies, innovation hubs, deep-tech initiatives and systems thinking literacy to prevent a talent "death spiral" and build sustainable competitive advantages in technology and innovation.

Despite the challenges, **Europe's lower operational costs present a substantial competitive advantage that can be leveraged** to attract global tech companies. Notably, OpenAI and Hugging Face recently established significant offices in Paris, citing access to highly skilled talent at lower overall costs as primary motivators. Europe's message should be clear: it offers world-class talent at substantially lower costs, enabling companies to stretch resources further and accelerate innovation cycles.

Immediate actions include implementing ambitious incentives such as **EU-wide tax breaks** for companies hiring elite tech talent, inspired by successful initiatives like the Netherlands' 30% ruling. Additionally, dual-career support programs can significantly enhance Europe's attractiveness to international professionals by facilitating seamless integration for families relocating alongside talented individuals. These strategies would make Europe substantially more appealing in the highly competitive global tech market.

A bigger issue is that **current visa procedures in Europe remain complex and fragmented**, significantly deterring global tech talent from relocating. To compete effectively with streamlined US visa programs such as the H-1B and O-1, the EU should rapidly introduce a unified and simplified "**EU Tech Visa**." Such a visa would grant tech professionals seamless mobility across all member states, removing administrative friction and enhancing Europe's global appeal. The introduction of a pan-European visa program is urgently required to attract global innovators and professionals in technology sectors critical to Europe's strategic growth.

Another major limitation comes down to equity compensation. With risks should come rewards, and **stock options** are key for attracting and retaining talent in technology-driven industries, as has already been identified (see preceding section). **Furthermore, many EU member states maintain rigid employment regulations that were developed for an industrial world.** But they now impede the flexibility required by dynamic tech industries. Simplifying hiring and termination processes, reducing administrative burdens, and introducing flexible work arrangements are critical steps toward aligning EU labour laws with the needs of the digital economy. Such reforms would dramatically enhance the EU's competitiveness and agility in rapidly evolving technology landscapes.

Finally, an issue that is not often discussed is branding. Europe's tech reputation lags significantly behind reality. Europe must actively build a stronger brand as a leading global tech and social innovation destination. Emphasizing emerging tech hubs like Amsterdam, Berlin, Paris, and Stockholm, promoting Europe's exceptional quality of life, cultural richness, and work-life balance, and showcasing Europe's robust infrastructure and innovation ecosystems are essential steps. The US has captured the tech talent narrative despite this being far from accurate. In the current geopolitical context, European qualities – academic freedom, relative political stability, non-ideological education for children and students – should be foregrounded to attract and retain talent of all ages. We must counter constant EU-bashing and deliberately build Europe's tech brand to reflect its true innovation capabilities. It is not merely a cheaper alternative but an equal, and in some fields more advanced location for tech talent to thrive, innovate, and lead.

Europe's tech brain drain to the US is a complex yet addressable challenge. In fact, the current political climate under Donald Trump's leadership offers a unique opportunity for the EU to become a global talent magnet. We have the political will, now we just need actions so that the EU can effectively retain, attract, and cultivate world-class talent in the most critical sectors.

4.1 Policy Acupuncture Recommendations

Launch an EU "Tech Talent Visa", creating seamless, pan-European mobility for high-skill professionals.

Harmonise equity compensation rules, ensuring stock options are taxed upon realisation, not issuance, and offer competitive rates across Member States.

Implement EU-wide tax incentives for strategic tech hires, replicating successful models like the Dutch 30% ruling.

Modernise labour law for high-growth sectors, introducing flexible contracts and streamlined hiring processes for start-ups and scale-ups.

Accelerate Europe's tech brand repositioning, deploying a coordinated communication strategy to promote European tech hubs and cultural advantages.

Support dual-career programmes for talent migration, improving the integration of relocating families and enhancing ecosystem stickiness.

5. Multi-Level Governance: Activating Europe's Distributed Strength and Capacity for Transformation

If there is a single lesson from the polycrisis of the past years, it is this: centralised command-and-control structures, far removed from the realities and opportunities on the ground, are insufficient to manage the complexity and velocity of today's systemic challenges. Whether facing pandemics, energy shocks, climate impacts, or technological disruption, Europe's resilience has repeatedly hinged not on Brussels alone, but on the distributed capacities of its cities, regions, businesses, and communities. ESIR has consistently argued that this is not accidental — it is systemic — and should become a cornerstone of Europe's innovation policy architecture. In the current environment, as national governments struggle with polarisation and populist voices, persistent action on issues of climate, nature and just transition at the level of cities and regions offers the best chance Europe has to reshape its economy and achieve the ambitious targets set out in the European Green Deal, fully recover from the COVID-19 crisis, enhance European competitiveness, and strengthen resilience.

Multi-level governance within a stronger single market is Europe's latent strength. It is an enabling infrastructure for agility, responsiveness, and locally anchored innovation. Yet, it remains underdeveloped and unevenly mobilised. While the EU has made strides in embedding place-based approaches, notably through Smart Specialisation Strategies and cohesion policy instruments, governance between the EU level, Member States, and regions still operates in fragmented silos. Critical insights from local experimentation often fail to flow upward to inform EU-wide policymaking. Likewise, EU strategic objectives do not always cascade effectively to regional realities, where implementation must ultimately succeed.

For this reason, we recommend as a fifth policy pressure point, concerted investment in adaptive, multi-level governance — governance that learns, evolves, and responds dynamically to emerging signals — **as an essential ingredient to enable Europe's twin green and digital transitions**. Multi-level governance is not just about subsidiarity; it is about cultivating a living, breathing system of governance that integrates top-down directionality with bottom-up intelligence and ownership. It means acknowledging that solutions to Europe's challenges will be as diverse as its regions — but that coherence and mutual reinforcement between levels of action are critical.

This requires a policy-enabled move from project-based experimentation to systemic institutionalisation of multi-level governance. Europe excels at pilots and prototypes but struggles to embed these lessons into durable governance routines. Harnessing local and regional expertise and responsibility, means creating structured feedback loops between local innovations and EU policymaking cycles – through the institutionalisation of policy labs and sandboxes – in order to ensure that place-based learning informs European Commission strategy in real time.

In doing so, it is important that Europe minimise the risk of 'devolution without capacity'. Decentralisation is meaningless if subnational actors lack the resources, authority, or skills to act effectively. Investment in local capacity-building, in systems leadership, foresight, and policy design, is essential to empower cities and regions as genuine co-owners of Europe's transitions, enabling cohesive and responsive policy implementation and collective decision-making across all EU levels.

Finally, multi-level governance must become a deliberate enabler of mission-oriented policy. Europe's Missions — on climate adaptation, healthy soils, cancer, and climate-neutral cities — rely inherently on coordination across governance levels. Missions demand a new mode of governance: collaborative, distributed, and iterative. They must be designed not as static programmes, but as dynamic platforms for collective action. To do so, there is a need to rethink the involvement of citizens, cities and regions in European policymaking, empowering

a multi-level governance structure. The role of cities and regions as implementing agents of policy should be strengthened in the design of policies and incentives in line with the subsidiarity principle. Social and citizen dialogues should be strengthened as an effective method to involve relevant stakeholders, as well as expanding experiments with increasing citizen participation and co-creation, for example, through citizen assemblies.

As argued by the Systems Transformation Hub, "Europe should prioritise unified regulations over directives, as a way of reducing cross-border barriers to trade and investment, and implement directional rather than prescriptive policy approaches",[10] aiming for a balanced and responsive regulatory environment that aligns market signals with policy objectives. This would reduce the regulatory burden and bureaucratic complexity of European policy that frustrate businesses and citizens in local contexts.[11] The STH proposes expanding the Emissions Trading System and, "reducing the number of allowances or introducing a similar system for natural resources, targeting one or multiple steps of the resource value chain. The proceeds would be used to support citizens and businesses to navigate the transition, develop new social, business, and technological solutions and models necessary for the transition."

By unlocking the full implementation power and capacity of Europe's regions and cities – not as passive recipients of policy but as laboratories of transformation, reservoirs of ingenuity, and first responders to systemic risks – Europe's multi-level governance can evolve from an administrative necessity into a strategic advantage. When properly enabled, subnational agents of change can become a distributed engine of resilience and renewal, future-proofing Europe's research and innovation systems and rewiring its governance architecture for the decades of transition ahead.

5.1 Policy Acupuncture Recommendations

Institutionalise structured co-governance in EU Missions. Require formalised governance frameworks that integrate EU institutions, Member States, regional authorities, and local actors as co-designers and co-implementers of mission objectives.

Develop a European Multi-Level Innovation Compact. Frame an EU-wide agreement setting shared principles for distributed governance of research and innovation, recognising regional leadership roles and establishing clear responsibilities across levels.

Create regional "Transformation Accelerators." Expand and formalise place-based platforms modelled on EIT Deep Demonstrations, bringing together public, private, and civic actors to co-create systemic solutions at the regional scale.

Mobilise Smart Specialisation as a systems leadership tool. Evolve S3 strategies from economic development planning to dynamic platforms for systemic transformation, embedding foresight, missions, and regenerative approaches.

Embed local feedback loops into EU policymaking. Design mechanisms to ensure lessons from regional and city-level experimentation directly inform the European Semester, Horizon Europe design, and EU industrial strategy.

---

[10] Systems Transformation Hub (2024), "Building a Secure and Thriving Europe: A Systems Approach to the 2024-2029 EU Strategic Agenda": https://cdn.prod.website-files.com/66784e9ddf36e901caefb84d/67a4c78944d6ce16a68c6620_STH%20Policy%20Brief%20N02.pdf

[11] See Cambridge Institute for Sustainability Leadership (2004), The Green Deal and Beyond: A Business Agenda for a Sustainable, Resilient and Competitive Europe - https://www.corporateleadersgroup.com/files/clg_europe_business_agenda.pdf

Invest in capacity-building for regional and local systems leadership. Fund training programmes in systems thinking, futures literacy, and adaptive policy design for local policymakers and innovation actors.

Establish an Observatory on Multi-Level Governance for Transformation. Monitor, analyse, and disseminate best practices in multi-level governance for research and innovation, fostering continuous learning and replication.

Accelerate interoperable policy frameworks across Member States. Promote alignment of regulatory standards and innovation incentives to enable cross-border regional innovation ecosystems.

6. Bold Visioning and Shared Narratives: Building Europe's Cognitive Immunity

In moments of profound transition, societies do not merely require material solutions — they need shared meaning. Europe today is facing not only technological acceleration and environmental limits but also a fragmentation of its cognitive landscape and ability to engage in collective societal reasoning. Disinformation, polarisation, and declining trust in institutions are eroding the shared sense of purpose and direction that is essential for collective action.

In complex systems characterised by entanglement and non-linearity – this quantum state of affairs – perception shapes reality. What people believe to be possible, desirable, or inevitable actively influences political choices and market behaviours, as we are seeing in the rise of populist politics, vying to capture and instrumentalise the prevailing sentiment of uncertainty and fear, fuelled by economic stagnation and rising inequality across many regions in Europe. These are not peripheral issues; they are systemic threats that compromise the effectiveness of all other policies, from green transition to digital sovereignty. Europe's "mental infrastructure" — the shared narratives and cognitive resilience of its citizens — has become a critical vulnerability. In such a context, narratives are not peripheral — they are central to policy effectiveness. Without coherent and trusted narratives, even the best-designed policies risk incoherence, misunderstanding, and public rejection.

Europe's vulnerability is particularly acute here. Our rich diversity of histories, languages, and identities is a strength but also creates fertile ground for narrative fragmentation. External actors, exploiting Europe's openness, weaponise this diversity to sow discord. Internally, a lack of compelling and unifying future visions leaves space for fear-driven populism, nostalgia, and fatalism to take root.

Yet this vulnerability can be turned into resilience. Europe's diversity also provides the raw material for pluralistic, shared narratives that reflect local identities while contributing to a common European story of renewal and purpose. **This requires a deliberate policy approach that constitutes our sixth policy pressure point: to treat narratives as a strategic asset, to invest in their cultivation, and to embed them into the very architecture of policymaking.**

In the fragmented information landscape of Europe today, the power of benefit-led narratives in particular — as articulated by Solitaire Townsend[12] — offers a critical pathway to rebuild public trust, unity, and identification with the European project. Rather than focusing on abstract institutional processes or fear-based messaging, benefit-led narratives centre the tangible, human-scale advantages of collective action: safer communities, better health, cleaner air, future-proof jobs, and a sense of belonging in a world of flux. For the European Commission, this means shifting from communicating policy outputs to **storytelling the lived benefits of European cooperation** — not as slogans, but as authentic, plural stories co-created with citizens across regions. Investment in narrative shaping is not cosmetic: it is a strategic infrastructure for cognitive resilience and democratic vitality. By embedding benefit-led storytelling in every major initiative — from the Green Deal to Europe's digital transition — and amplifying voices that can locally and credibly narrate Europe's value in daily life, Europe can reignite emotional connection and collective purpose. In doing so, Europe becomes not merely an institution, but a story people see themselves in, trust, and choose to carry forward. This will require sustained investment in public imagination, narrative shaping, and critical media literacy. It will also require active 'defensive' work in order to identify and remove disinformation, and re-contextualise polarising narratives.

[12] See: https://www.solitairetownsend.com/

A Europe that consciously builds its ‘cognitive immunity’ will be better equipped to navigate contested futures. Shared narratives foster trust in institutions, mobilise citizens for transformative missions, and create the cultural cohesion necessary for bold, long-term policies. In an era of systemic volatility, narratives act not just as communication tools but as infrastructures of meaning. Carefully curated, they turn uncertainty from a source of anxiety into a space for collective imagination. They shape legitimacy, trust, and societal resilience — they are a public good.

6.1 Policy Acupuncture Recommendations

- **Establish a European Narrative Observatory**. Tasked with mapping emerging narratives across Member States and globally, identifying risks of fragmentation, and amplifying constructive, future-oriented European stories.
- **Embed narrative foresight in policy design processes**. Require major EU initiatives (Green Deal, Digital Decade, Open Strategic Autonomy) to include narrative impact assessments, ensuring coherence between policy objectives and public narratives.
- **Invest in creative industries as narrative co-creators**. Expand Creative Europe and Horizon Europe Cluster 2 funding for artists, filmmakers, writers, and designers to engage with Europe’s transitions through cultural production.
- **Develop participatory "future literacy" platforms**. Engage citizens in co-creating desirable futures through dialogues, deliberative assemblies, and cultural fora, strengthening their agency in shaping Europe’s trajectory. Equip young Europeans with skills to imagine, critique, and co-create desirable futures by integrating futures literacy into education systems.
- **Support pluralistic public media ecosystems**. Reinforce the independence and sustainability of quality journalism and public broadcasters as pillars of trusted information flows.
- **Institutionalise narrative co-creation in Missions**. Ensure that each Horizon Europe Mission includes storytelling strategies and local narrative-building processes to mobilise place-based engagement.
- **Protect Europe’s cognitive commons from external interference**. Expand the scope of the Digital Services Act and EEAS counter-disinformation strategies to defend against foreign information manipulation targeting European societies.

7. Data Sovereignty and Infrastructural Autonomy: Europe's Digital Backbone

In an era of planetary crises, contested resources, and entangled economies, data has emerged not merely as a by-product of economic activity, but as the lifeblood of systemic resilience and strategic autonomy. Europe's sovereignty, competitiveness, and societal wellbeing are increasingly determined by who controls critical data infrastructures, how data flows are governed, and whether Europe's digital backbone serves public interest objectives rather than external dependencies.

Control over informational flows is a decisive leverage point – and constitutes our seventh recommended policy pressure point. Data is entangled with every policy domain — from health to energy, from mobility to climate action. Yet today, Europe remains overly reliant on external actors – particularly in the US – for cloud computing, edge services, and AI training datasets, creating deep systemic vulnerabilities. Such dependencies expose Europe to disruptions, data extractivism, and regulatory capture by foreign players that do not share Europe's human-centric values.

The research of GovLab[13] points to data collaboratives and trusted governance architectures as being essential for unlocking the public value of data while safeguarding rights and sovereignty. Europe has a unique opportunity to move beyond data protection as a defensive posture towards data collaboration as a public good, building infrastructures that enable trust, innovation, and participatory governance. By accelerating the development of federated, sovereign data spaces, Europe can preserve open markets while embedding autonomy, privacy, and security into its digital economy. These spaces must not be closed ecosystems but well-governed commons, enabling safe, equitable sharing of data to tackle shared challenges — from pandemic response to clean mobility, from industrial innovation to climate resilience.

Furthermore, Europe's data policy cannot stop at technical infrastructure. Embedding data literacy, civic participation, and ethical stewardship principles across these systems is essential for ensuring legitimacy and public trust. Data sovereignty is not simply a matter of technology or regulation — it is a societal contract. If Europe succeeds, it can offer the world a distinct, human-centric alternative to extractive digital capitalism: a European model of the digital transition, grounded in trust, rights, reciprocity, and shared value creation.

7.1 Policy Acupuncture Recommendations

- **Accelerate the development of federated European data spaces**. Prioritise health, mobility, green transition, and industrial data spaces under the EU Data Strategy. Co-design governance models with businesses, public institutions, and civil society to ensure participatory data stewardship.
- **Establish sovereign European cloud and edge computing capabilities**. Scale up Gaia-X and alternative initiatives to reduce dependence on non-European infrastructure providers. Incentivise open-source cloud solutions and interoperability standards to avoid vendor lock-in.
- **Operationalise trusted data collaboratives for public good**. Apply GovLab's models of data collaboratives in key sectors such as energy, mobility, and health. Provide legal, technical, and funding support for multi-stakeholder data sharing arrangements that balance innovation with privacy and fairness.

[13] https://thegovlab.org/

- **Embed data literacy and rights education across EU programmes**. Ensure citizens and businesses understand their data rights and opportunities under the Digital Services and Digital Markets Acts. Fund campaigns and educational tools for data empowerment at community level.
- **Include data sovereignty in all trade and tech agreements.** Embed data governance clauses in EU external relations to safeguard European standards globally. Build coalitions for trusted cross-border data flows with like-minded partners, promoting reciprocity and shared governance.
- **Incentivise trusted data intermediaries.** Support the emergence of organisations that enable secure, transparent data sharing aligned with European values. Establish a certification scheme for trusted data intermediaries to signal compliance and trustworthiness.
- **Create participatory governance bodies for data spaces**. Establish data councils or assemblies to provide oversight, ensure accountability, and align data uses with societal priorities. Use participatory governance frameworks to ensure inclusivity and legitimacy.
- **Invest in cross-border data infrastructure for European strategic autonomy.** Fund the development of secure, high-speed data infrastructure interconnections within Europe and with trusted partners. Embed resilience against cyber threats and geopolitical disruptions.
- **Monitor and audit Europe's data sovereignty progress.** Establish a European Data Sovereignty Dashboard to track progress on infrastructure autonomy, data flows, and ecosystem health. Integrate findings into the EU's annual Strategic Foresight Report.

8. Policy Coherence for Technological Convergence

Technological convergence is no longer a distant horizon - it is unfolding at remarkable speed. Artificial intelligence, quantum computing, synthetic biology, advanced materials, and next-generation energy systems are rapidly colliding and co-evolving. Their entanglement creates unprecedented opportunities for transformative solutions to Europe's deepest challenges: climate neutrality, health resilience, circular manufacturing, food security, and digital sovereignty.

Yet, Europe's policy architecture remains largely siloed. Regulations, funding streams, research priorities, and industrial strategies are still structured along traditional lines, treating technologies as discrete verticals rather than parts of a shared, dynamic system. As a result, innovators and investors face fragmented guidance, regulatory bottlenecks, and duplicated efforts. Worse, Europe risks missing the multiplier effects that arise when converging technologies reinforce one another - a failure that competitors are keen to exploit.

From a systems perspective, coherence is a defining feature of leverage. Technological convergence amplifies the need for policy coherence: aligning regulatory frameworks, harmonising funding mechanisms, and designing integrated talent strategies that anticipate hybrid skill sets (think: quantum-AI engineers, bio-data scientists, green software developers). Without coherence, convergence can quickly become chaos. With coherence, Europe can seize the opportunity to lead globally in orchestrating complex innovation ecosystems. In a moment of unprecedented reconfiguration of alliances and investments, **we propose that Europe seize this opportunity to exercise leadership through a determined integration of solutions. Hence the eighth policy pressure point: to proactively align technology relevant policies across domains in anticipation of technological convergence**. This would enable Europe to:

- Unlock integrated solutions at scale (e.g., AI-optimised green hydrogen systems).
- Shorten innovation-to-market pathways.
- Ensure that investments in one domain reinforce advances in another.
- Embed European values and standards in the next generation of multi-technology systems.

Coherence positions Europe as a trustworthy standard-setter in global markets increasingly shaped by interoperable, cross-sector solutions. By investing in this acupuncture point, Europe moves from fragmented ambition to integrated delivery. It creates the conditions for breakthrough solutions that no single technology, policy, or actor can achieve alone. This is Europe's chance to shape the next era of innovation ecosystems - with coherence, foresight, and purpose.

8.1 Policy Acupuncture Recommendations

- **Create a European Convergence Policy Board.** Institutionalise cross-DG coordination on converging technologies, ensuring alignment of regulation, funding, and industrial strategy. Include representation from industry alliances, research leaders, regional authorities, and civil society to reflect the ecosystem's complexity.
- **Embed convergence incentives in Horizon Europe.** Prioritise interdisciplinary R&I proposals that integrate AI, quantum, biotech, advanced materials, and clean technologies. Introduce bonus evaluation points for proposals that demonstrably create cross-technology synergies. Establish dedicated funding lines for consortia tackling convergence-driven challenges.

- **Develop an integrated European skills strategy for technological convergence.** Map emerging cross-technology competency needs and embed them into Erasmus+, Digital Europe Programme, and national education strategies. Promote hybrid educational pathways and interdisciplinary qualifications (e.g., bioinformatics for sustainable agriculture, quantum-enhanced AI for energy systems). Incentivise partnerships between universities, vocational institutes, and industry to build "convergence campuses."
- **Harmonise regulatory pathways for complex tech stacks.** Develop integrated regulatory guidance for innovators working at the intersection of multiple high-impact technologies. Create a "One-Stop-Shop" advisory service for convergence-driven ventures, modelled on successful innovation support structures. Pilot fast-track regulatory sandboxes for convergence projects addressing public missions.
- **Launch European Tech Convergence Missions.** Define grand challenge missions that explicitly require the integration of multiple technological domains. Examples: "Next-Generation Circular Manufacturing," "AI-Accelerated Green Energy Systems," "Health Security Through Converging Technologies." Mobilise public and private actors under a shared governance model to deliver mission outcomes.
- **Establish Convergence Foresight & Monitoring Unit.** Anticipate emerging convergence trends, map innovation ecosystems, and publish annual reports to inform policymakers, funders, and industry. Track progress on regulatory alignment and market deployment of convergence-based solutions.
- **Create EU Convergence Partnerships with trusted international allies.** Forge cooperation frameworks with like-minded regions (e.g., Canada, Japan, South Korea) to align standards, pool research, and secure interoperable solutions. Embed shared ethical frameworks and promote Europe's values in global tech convergence.
- **Design public-private sandboxes for convergence-driven innovation.** Fund testbeds where cross-sector startups, SMEs, corporates, and researchers can co-develop and de-risk integrated solutions. Enable real-world experimentation with support from regulators and local authorities.
- **Promote convergence narrative to unify Europe's innovation identity** Craft a . compelling, Europe-wide narrative around the power of convergence for societal benefit. Support communications campaigns and storytelling that humanise complex technology intersections and link them to everyday European life.

9. Time Frames of Reference: Embedding Long-Term Thinking

Europe's short political and policy cycles remain one of the most persistent obstacles to structural transformation. Economic growth metrics currently operate at very short time scales (>1 to ~5 years), whereas systemic risks — from resource scarcity to climate collapse — unfold over decades. Resource constraints will be slowly (but increasingly) influencing overall competitiveness and as there is no immediate price signal associated with resource scarcity, it is hard to adequately represent that in existing metrics. Without embedding longer-term thinking into the architecture of European policy, the necessary scale of investment and coordination will remain elusive. **Our ninth policy pressure point proposes interventions to extend Europe's policy horizons so that the Commission can cultivate the foresight necessary for durable competitiveness and regenerative prosperity.**

This need for longer timescales runs up against a fundamental problem that representative democracy has short cycles. Climate action requires consistent measures over decades, with continuity of policy to guide both public and private investment on a large scale. Yet the democratic electoral cycle rests on the premise that governments can change at each election, and therefore can change policies every four or five years. This tension between short-term democratic responsiveness and long-term policy continuity is well understood. Climate targets, such as net zero by 2050, create partial binding frames, but they remain vulnerable to political reversal and fail to capture the full spectrum of systemic risks, including resource depletion and demographic shifts. For businesses and investors, policy predictability is paramount. Without reliable signals, investment in renewable energy, circular materials, or biodiversity restoration remains risk-laden.

Effective climate action requires consistent policies, which requires governments to stick to the approaches of their predecessors – yet this is fundamentally contested in a concept of democracy that is about rival parties competing for power on the basis of different policies and approaches to problems. Businesses need predictable policies and clear guidance from the government in order to invest in renewable energy and other key means of reducing carbon emissions and destruction of nature. If governments swing back and forth on climate policies from one election to the next, that disincentivises investment.

Demonstrating long-term thinking is also vital to sustain the EU's own legitimacy with the next generations. If the EU is seen historically as having failed to tackle climate change and environmental degradation early and effectively enough to prevent major impacts on the European continent and elsewhere in the world, then the Union's legitimacy will be much reduced with the generations who are under the age of 30 and who will be most affected by it.

Since the 2015 Paris Agreement of the UN Conference of Parties (COP), many national governments have set binding targets for climate emissions, including commitments to reach net zero emissions by 2050 or later dates, even enshrined in law. Those targets create a moral bind on future governments, and they have the power to create a legal footing for cases that will require governments to do more. However, they are increasingly contested. Learning from climate governance, Europe would do well to apply the same long-range discipline to resource use, wellbeing targets, and industrial policy.

One approach would be to insist upon parallel economic and resource metrics. Another – which is complementary to the first – would be to set goals for increased resource use efficiency (as we do for climate). Parallel metrics — combining immediate economic indicators with long-term resource efficiency goals — could provide a stable navigational chart across political cycles and a competitively attractive, steady context for business, especially over the next years. Precedents such as the intergenerational fairness criteria applied to citizens' assemblies convened by the City of Lisbon for city level policies or the

Welsh Law of Generations might provide inspiration, both in terms of metrics and with regards to associated governance frameworks.[14]

9.1 Policy Acupuncture Recommendations

- **Embed "dual-track" metrics into all major EU policy frameworks**, combining near-term economic data with long-term planetary health and resource use indicators.
- **Institutionalise foresight exercises**, ensuring Horizon Scanning and Trend Impact Analyses are mandatory inputs for the EU Semester and Competitiveness Compass.
- **Establish EU "Future Generations Committees"**, tasked with auditing legislation and investment programmes for long-term sustainability and intergenerational justice.
- **Mandate public-private climate and resource pacts**, securing stable policy environments for investments with decades-long horizons.
- **Align industrial policy with 2050+ goals**, ensuring that public funds support projects contributing to long-term systemic resilience, not merely immediate competitiveness.

[14] On the framework used in City of Lisbon citizens' assemblies, see: chrome extension://efaidnbmnnnibpcajpcglclefindmkaj/https://soif.org.uk/app/uploads/2020/12/FrameworkforIGF_PilotReportDec2020.pdf; and: https://www.icaew.com/insights/viewpoints-on-the-news/2021/oct-2021/portugals-new-framework-for-intergenerational-fairness. On the Welsh Law of Generations See: https://www.gov.wales/well-being-future-generations-act-essentials-html

10. TRUSTED INTERNATIONAL PARTNERSHIPS FOR SYSTEMIC RESILIENCE

In an age of strategic uncertainty and rapid global reordering, Europe cannot — and should not — seek to stand alone. Yet neither can it afford to remain entangled in fragile or unbalanced dependencies. Europe's resilience will be built not through isolation but through a new architecture of trusted international partnerships, designed deliberately to reinforce its autonomy while embedding it in stable, mutually beneficial global ecosystems.

Our tenth policy pressure point recommendation is that Europe move beyond conventional and transactional alliances toward a more sophisticated architecture of trusted symbiotic partnerships internationally — relationships characterised by mutual benefit, co-evolution, and shared resilience. Symbiosis, by its very nature, acknowledges interdependence not as a weakness but as a strategic asset: Europe's security, prosperity, and ecological stability are intertwined with the fates of its neighbours and global partners. As a policy acupuncture point, investing in trusted symbiotic alliances means designing partnerships that go deeper than supply contracts or trade balances — partnerships that foster co-development of clean technologies, reciprocal investments in human capital, harmonised governance of the commons, and shared infrastructures for digital, climate, and health resilience. Building on the Italian Government's Piano Mattei – with an improved co-creation approach – and the Commission's Global Gateway initiative provides an early-stage framework for establishing such investments.

By embedding these partnerships in frameworks of trust, long-termism, and equitable value creation, Europe can reduce its exposure to coercive dependencies while extending its influence as a reliable convener of global stability. Such alliances will not only buffer Europe from external shocks, but also enhance its internal cohesion, reinforcing Europe's role as a constructive, balancing power in a volatile world. Symbiosis turns global entanglement from a risk into a strength — a living network of trusted relationships that collectively raise Europe's resilience threshold.

Symbiotic partnerships are not static agreements; they are living systems that must evolve and be tended over time. If Europe commits to this path, it can reposition itself not as a "middle power" trapped between great geopolitical poles, but as a "network power" — a convener, trusted bridge-builder, and architect of resilient international ecosystems. In an interdependent world, Europe's resilience is contingent on its external relationships. No region can build self-sufficiency in all critical materials, technologies, or supply chains. Yet not all interdependencies are created equal. Some entangle Europe in vulnerabilities, while others enhance its strategic autonomy.

Europe will benefit from partnerships and alliances that are open, interdependent, and continuously influenced by flows of information, materials, and ideas. Resilience will emerge from nurturing relationships that absorb shocks, diffuse risks, and enable flexibility in the face of volatility and buffering systemic shocks. Cultivating deep, multi-dimensional partnerships that blend economic cooperation, regulatory alignment, joint innovation, and shared stewardship of global commons — from climate to cyberspace to critical raw materials – will create the space for Europe's autonomy to flourish without isolationism, and for its values to shape the global future, rather than be shaped by it.

Current geopolitical turbulence has underscored both the necessity and the fragility of such partnerships. Russia's invasion of Ukraine revealed the risks of over-reliance on unstable energy partners. Global supply chain disruptions highlighted Europe's vulnerabilities in critical sectors such as semiconductors and green technology components. Simultaneously, the EU's leadership in climate diplomacy, digital governance, and human-centric technology standards has shown its potential to shape trusted international frameworks.

Moreover, the EU is well positioned to make more comprehensive offers of partnerships for sustainable development that are more attractive than the transactional approaches of the US or China. For example, with resource-rich countries, the EU can aim for more than trying to negotiate extraction of their minerals to moving partner countries up the value chain, and investing in their natural assets for the longer term. The transactional approach is the classic resource extraction model that is the opposite of symbiotic partnerships. Sustainable competitiveness is not about competition against all other economic actors but rather working with them to create sustainable supply chains that do not breach planetary boundaries.

Europe's policy approach to international partnerships should therefore move from defensive resilience to proactive system shaping — enabling Europe to withstand shocks and to navigate complexity with confidence and purpose. This means investing in partnerships as engines of co-creation with a focus on sharing and scaling values of sustainability, openness, and human dignity globally, enhancing Europe's voice in shaping the governance of shared spaces — from oceans to outer space, from data flows to biodiversity corridors.

10.1 Policy Acupuncture Recommendations

- **Operationalise Open Strategic Autonomy through Partnership Frameworks.** Frame all major EU external initiatives (Global Gateway, Green Partnerships, Trade Agreements) with explicit criteria for mutual value creation, shared risk mitigation, and co-development of capacities. Move from conceptual ambition to concrete bilateral and multilateral agreements that balance openness with resilience in trade, tech, and green industrial policies.
- **Advance Global Green Alliances**. Co-develop clean technologies, sustainable infrastructure, and regenerative supply chains with priority regions such as Africa, ASEAN, Mercosur, and the Mediterranean. Move beyond aid to co-ownership models in digital infrastructure, clean energy grids, green hydrogen corridors, and health security systems. Example: establish Africa-Europe Clean Tech Partnerships with joint innovation pipelines, local manufacturing, and skills development.
- **Secure Critical Materials Partnerships**. Embed long-term agreements for critical raw materials supply within wider partnership strategies, ensuring environmental and social standards are upheld. Codify and embed "symbiosis tests" in partnership design: e.g. Does this partnership build reciprocal resilience? Does it support shared ecological and human capital goals?
- **Lead on Global Commons Governance**. Champion rules-based governance of oceans, cyberspace, outer space, and biodiversity at international fora. Leverage the EU's normative power to shape fair and sustainable global standards. Co-lead governance frameworks for climate, ocean governance, biodiversity, space, and cyberspace. Pool resources with trusted partners for planetary-scale stewardship missions, e.g., climate monitoring constellations or biodiversity data platforms.
- **Develop Foresight Capacity in External Action**. Institutionalise foresight units within the EEAS and DG TRADE to anticipate risks and opportunities in global partnerships. Use scenario planning to stress-test Europe's external dependencies. Require all major EU external partnerships to include shared foresight exercises, horizon scanning, and crisis scenario planning. Example: build "Partnership Futures Cells" embedded in Global Gateway governance structures
- **Foster Regulatory Diplomacy for Trusted Tech Flows**. Harmonise standards with trusted partners to ensure secure and interoperable technology supply chains, especially in AI, cybersecurity, and data governance. Advance regulatory symbiosis by developing joint standards in future-oriented sectors: AI ethics, green hydrogen,

quantum tech, circular economy. Set up Joint Regulatory Councils with like-minded partners (e.g., Canada, Japan

- **Invest in People-to-People Diplomacy**. Expand Erasmus+, Horizon Europe mobility, and cultural exchange programmes with partner countries to build societal trust and shared innovation ecosystems. Negotiate bilateral and regional mobility frameworks for researchers, innovators, and green tech specialists, aligned with Europe's innovation and skills strategies.
- **Establish "Resilience Partnerships" with Strategic Regions.** Develop monitoring tools to assess the resilience and trustworthiness of Europe's global economic, technological, and environmental partnerships. Target partnerships not only for growth but for mutual risk buffering (climate adaptation, biodiversity corridors, food systems security, critical raw materials). Example: Pilot a EU–Latin America Resilience Corridor, blending renewable energy, climate resilience, and biodiversity investments.
- **Leverage EU External Investment Instruments for Co-Creation**. Direct EU investment facilities (EFSD+, European Investment Bank external lending) towards projects that create shared industrial ecosystems, not one-way dependencies. Prioritise local manufacturing, tech transfer, and capacity-building as part of all foreign direct investment packages.
- **Annual Partnership Resilience Review.** Institutionalise a yearly audit of Europe's strategic partnerships, assessing reciprocity, resilience, shared benefits, and evolving risks. Publish findings in the EU's Strategic Foresight Report to increase transparency and accountability.

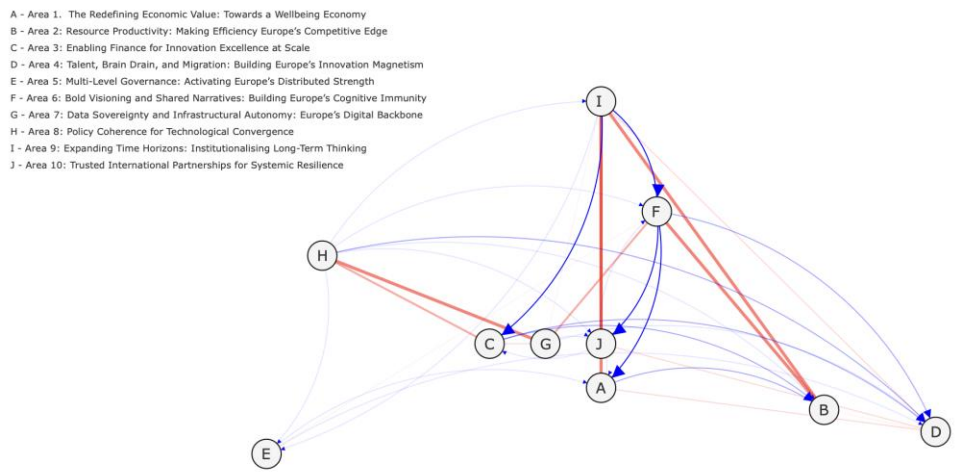
CONCLUSION: ACUPUNCTURE FOR SYSTEMIC IMPACT

Europe's systemic challenges are formidable — but not insurmountable. By identifying precise, high-impact policy pressure points and acting decisively, the European Commission can unleash regenerative flows of talent, capital, innovation, and wellbeing across the Union. This strategy does not call for doing everything at once but for focusing on the interventions that unlock the greatest system-wide impact.

Thinking in terms of acupuncture and leverage points makes sense because it aligns with the nature of the poly-crisis challenge. It equips policymakers not to be overwhelmed by complexity but to navigate it skilfully, with precision, humility, and transformative intent. And, in doing so, it offers Europe the best chance to lead the world, not just in crisis management, but in pioneering systemic regeneration. Both metaphors sharpen our focus on two critical realities: first, that systems are complex, non-linear, and resistant to blunt-force interventions. Second, that within these systems, there are pressure points—zones of disproportionate influence—where precise, intentional actions can unlock cascading effects across the whole.

Many of the pressure points identified in this paper are interconnected and can therefore be leveraged for combinatory effects, reinforcing and amplifying the outcomes of each intervention. Initiatives that introduce and reinforce a well-being economy, for example, are related to building cognitive immunity through benefit-led narratives; conversely, benefit-led narratives work well when paired with embedding well-being metrics in policy – as is evident in political realities where future generations have a representative, like the Welsh Future Generations Commissioner.[15] This aspect of working with policy pressure points could offer significant advantages, once activated through a learning-by-doing approach. In the figure below, we have made an initial mapping of potential relationships worthy of further analysis and trial implementation.

For the European Commission, this means recognising that the future of the Union will not be secured through fragmented policy action or bureaucratic inertia. Instead, identifying and



[15] See: https://futuregenerations.wales/

acting on these leverage points offers the chance to move from coping with crisis to strategically shaping the system, including:

- Reforming fiscal and state aid rules to prioritise green and social investments changes the financial "rules of the game," amplifying green industrialisation.
- Embedding well-being economies and climate justice in the overarching goals of the EU reframes what success looks like, catalysing cultural and institutional alignment.
- Mobilising place-based missions (cities, regions) decentralises power and activates local ingenuity, creating a pan-European web of transformation.

The acupuncture metaphor encourages the European Commission to become a strategic, sensitive practitioner of systemic change: diagnosing leverage points with precision, applying targeted interventions, embracing iterative learning, and unblocking Europe's capacity to self-organise towards resilience and regeneration. Especially in times of polycrisis, it offers a disciplined yet hopeful way to amplify impact amidst complexity and achieve not just adaptation, but the possibility of profound regeneration.

Europe requires not only foresight but policy agility: the capacity to sense emerging risks and opportunities early and adjust interventions in real time. Agility in this context means institutionalised responsiveness, supported by robust feedback loops, anticipatory capabilities, and the political and administrative flexibility to adjust course rapidly without descending into chaos. In the years ahead, Europe will operate in an environment of unprecedented uncertainty, non-linearity, and interdependence. By identifying Europe's systemic pressure points — from resource productivity to talent retention, from agile financing to multi-level governance — we can target interventions where they will cascade, amplify, and accelerate change. Like a skilled practitioner, Europe must combine technical expertise with intuitive system sensing, recognising not only where force is needed, but where gentle pressure and timing can unblock progress. This is not only a policy framework. It is a mindset shift — from control to choreography, from prediction to preparedness, from fragmentation to flow.

If Europe embraces this way of working, it can turn complexity from a liability into an advantage. Europe's diversity becomes distributed resilience. Its governance architecture becomes a system of living intelligence. Our values — of sustainability, democracy, and inclusion — become sources of systemic strength. In this quantum moment, Europe has a choice. To cling to linear tools in a non-linear world, or to pioneer a new craft of policymaking that matches the complexity of our age. This policy brief is an invitation to choose the latter. To embrace acupuncture points policymaking, not as an abstract theory, but as a practical compass for steering Europe through uncertainty toward a regenerative, competitive, and resilient future.

Matrix of Recommended Policy Pressure Points with Relevant EU Instruments and Policy Owners

Policy Pressure Point	Relevant EU Instruments & Frameworks	Policy Owners (Directorates, Bodies, Institutions)
1. Redefining Economic Value: Towards a Wellbeing Economy	- European Green Deal - NextGenEU - European Semester - Horizon Europe (Clusters 2 & 5) - Transitions Performance Index (TPI) - SOFI indicators - Better Regulation Toolbox	- DG ECFIN (Economic and Financial Affairs) - DG RTD (Research and Innovation) - DG EMPL (Employment) - European Council (endorsement) - Eurostat (indicators)
2. Resource Productivity: Efficiency as Europe's New Competitive Edge	- Circular Economy Action Plan - Horizon Europe (Cluster 5: Climate, Energy and Mobility) - Competitiveness of Enterprises and SMEs Programme (COSME) - European Industrial Strategy - EU Taxonomy Regulation - Critical Raw Materials Act	- DG GROW (Internal Market, Industry, Entrepreneurship and SMEs) - DG ENV (Environment) - DG RTD - DG CLIMA (Climate Action) - European Environment Agency (metrics)
3. Enabling Finance for Innovation Agility and Excellence at Scale	- InvestEU Programme - European Innovation Council (EIC) - Horizon Europe (EIC Pathfinder, Accelerator) - Capital Markets Union - European Investment Bank (EIB) instruments - European Investment Fund (EIF) - European Deep Tech Growth Fund (proposal)	- DG RTD - DG FISMA (Financial Stability, Financial Services and Capital Markets Union) - EIB Group (EIB & EIF) - DG GROW - European Innovation Council (EIC)
4. Talent, Brain Drain & Migration: Europe's Innovation Imperative	- Erasmus+ - Horizon Europe (Marie Skłodowska-Curie Actions) - Digital Europe Programme - EU Tech Talent Visa (proposal) - European Skills Agenda	- DG HOME (Migration and Home Affairs) - DG EMPL - DG EAC (Education and Culture) - DG RTD - European Labour Authority (ELA)

	- Pact for Skills	
5. Multi-Level Governance: Activating Europe's Distributed Strength	- Cohesion Policy - European Regional Development Fund (ERDF) - Smart Specialisation Strategies (S3) - Horizon Europe Missions - European Committee of the Regions (CoR) initiatives - Territorial Agenda 2030	- DG REGIO (Regional and Urban Policy) - DG RTD - Committee of the Regions (CoR) - European Semester Governance - Local & regional authorities
6. Shared Narratives: Building Europe's Cognitive Immunity	- Creative Europe Programme - Horizon Europe (Cluster 2: Culture, Creativity, and Inclusive Society) - Digital Services Act (for disinformation) - European Narrative Observatory (proposal) - European Democracy Action Plan	- DG CNECT (Communications Networks, Content and Technology) - DG RTD - EEAS (External Action Service - Stratcom) - DG JUST (Justice and Consumers) - DG EAC
7. Data Sovereignty and Infrastructural Autonomy	- European Data Strategy - Gaia-X initiative - Digital Europe Programme - Data Governance Act - Digital Services Act / Digital Markets Act - Horizon Europe (Clusters 4 & 5) - Connecting Europe Facility (CEF Digital)	- DG CNECT - DG RTD - DG GROW - ENISA (Cybersecurity Agency) - European Data Protection Supervisor (EDPS)
8. Policy Coherence for Technological Convergence	- Horizon Europe (cross-cluster synergies) - European Research Area (ERA) - Digital Europe Programme - Industrial Strategy for Europe - Convergence Policy Board (proposal) - EU Tech Convergence Missions (proposal)	- DG RTD - DG GROW - DG CNECT - European Innovation Council - Joint Research Centre (JRC)
9. Expanding Time Horizons: Institutionalising Long-Term Thinking	- EU Strategic Foresight Report - European Semester - EU Climate Law (2050 targets) - Fit for 55 Package - Horizon Europe (foresight exercises)	- DG CLIMA - Secretariat-General (Strategic Planning) - DG RTD - Joint Research Centre (JRC) - DG ECFIN

	- Competitiveness Council - Future Generations Committees (proposal)	
10. Trusted International Partnerships for Systemic Resilience	- Global Gateway - Open Strategic Autonomy frameworks - Horizon Europe International Cooperation - EU External Investment Plan (EFSD+) - Partnership Resilience Review (proposal) - Erasmus+, Horizon Europe (global mobility)	- DG TRADE - DG INTPA (International Partnerships) - EEAS - DG RTD (International Cooperation) - European External Investment Plan (EFSD+) governance bodies

GETTING IN TOUCH WITH THE EU

In person

All over the European Union there are hundreds of Europe Direct centres. You can find the address of the centre nearest you online (european-union.europa.eu/contact-eu/meet-us_en).

On the phone or in writing

Europe Direct is a service that answers your questions about the European Union.
You can contact this service:

- by freephone: 00 800 6 7 8 9 10 11 (certain operators may charge for these calls),
- at the following standard number: +32 22999696,
- via the following form: european-union.europa.eu/contact-eu/write-us_en.

FINDING INFORMATION ABOUT THE EU

Online

Information about the European Union in all the official languages of the EU is available on the Europa website (european-union.europa.eu).

EU publications

You can view or order EU publications at op.europa.eu/en/publications. Multiple copies of free publications can be obtained by contacting Europe Direct or your local documentation centre (european-union.europa.eu/contact-eu/meet-us_en).

EU law and related documents

For access to legal information from the EU, including all EU law since 1951 in all the official language versions, go to EUR-Lex (eur-lex.europa.eu).

EU open data

The portal data.europa.eu provides access to open datasets from the EU institutions, bodies and agencies. These can be downloaded and reused for free, for both commercial and non-commercial purposes. The portal also provides access to a wealth of datasets from European countries.

The paper proposes a new approach to policymaking in the EU, introducing the concept of "policy acupuncture" or "pressure points" to address the complex and interconnected challenges facing Europe. It argues that by identifying and acting on these high-leverage points, the EU can unlock systemic change and achieve greater impact and presents ten policy pressure point interventions to enable Europe's twin green and digital transitions, increase competitiveness, and build resilience.

Research and Innovation policy

Publications Office
of the European Union