POLICY STUDY
May 2026

# PLACE-BASED INDUSTRIAL POLICY

## PLACES, PEOPLE AND POWER IN EUROPEAN INDUSTRIAL POLICY

*Theo Cox, Frederick Harry Pitts, Ed Atkins, Gerard Rinse Oosterwijk*

PROGRESS

FEPS
FOUNDATION FOR EUROPEAN PROGRESSIVE STUDIES

Policy Study published in May 2026 by

FEPS
FOUNDATION FOR EUROPEAN PROGRESSIVE STUDIES

**FOUNDATION FOR EUROPEAN PROGRESSIVE STUDIES (FEPS)**

Avenue des Arts 46
1000 Brussels (Belgium)
www.feps-europe.eu
@FEPS_Europe

**IN PARTNERSHIP WITH**

PROGRESS

**PROGRESS**

New Derwent House, 69-73 Theobolds Road
WC1X 8TA, London (United Kingdom)
https://www.progressonline.org.uk/
@progbrit

This Policy Study was produced with the financial support of the European Parliament. It does not represent the view of the European Parliament.


Project coordinator: Luis Sáez Jiménez
Language editor: Rosalyne Cowie
Layout: Downtown
Cover image: shutterstock.com/g/Hugo1989

Suggested citation:
Cox, T., Pitts, F.H., Atkins, E. et al. (2026) “Place-based industrial policy: places, people and power in European industrial policy”. Policy Study, Foundation for European Progressive Studies.

**ISBN: 978-2-39076-071-9**
**KBR deposit number: D/2026/15396./22**

# ACKNOWLEDGEMENTS

The research team would like to thank Aleksi Neuvonen and Lyyli Salovaara for their assistance with stakeholder engagement and analysis for the Pori case study.

# TABLE OF CONTENTS

# EXECUTIVE SUMMARY

This policy study argues for an industrial strategy that balances national and supranational economic competitiveness and security while supporting democratic legitimacy and regional benefits. In doing so, we draw on four case studies to present a framework of how industrial policy can be reconciled with a broader project of local renewal and placemaking. Such an approach will benefit many, pointing towards a distinctly European way of doing industrial strategy that serves local and international ends.

Industrial policy has re-emerged as a strategic instrument in the EU and the UK, initially for economic growth but increasingly for safeguarding democracy, security and resilience in an era of geopolitical turbulence. This shift reflects overlapping political imperatives: defending democracy against authoritarian threats; rebuilding strategic autonomy amid the collapse of the free trade order; accelerating decarbonisation; and addressing the regional inequalities, often caused by uneven industrial change historically, that fuel political disaffection.

In this context, we are animated by the central research question of how place-based industrial policy (PBIP) might be designed to align national strategic priorities with local economic renewal and placemaking. In this sense, we adopt a language of "placemaking" to highlight a set of policy interventions focused on improving living standards, local infrastructure and supporting community cohesion alongside increasing incomes at the local level. This feeds into a broader PBIP as an economic strategy that foregrounds macro-interventions in the socio-economic, cultural and institutional characteristics of the regions and communities that are experiencing change.

In focusing on such a place-based approach, we identify a series of cross-cutting themes via an analysis of four cases (Table 1): Saxony, Germany; Pori, Finland; and Port Talbot and Cornwall in the UK. Drawing on qualitative methods (interviews, roundtable events and document analysis), the analytical thread connecting our cases is that of change, uncertainty and crisis; on one hand, we seek to illuminate how effective policy can ensure local resilience in the face of macro-level instability. And on the other, how its absence highlights the rough edges of industrial policy change.

Taken together, these cases signal how the attendance to place-based dynamics might better equip governments to effectively utilise industrial policy to achieve the broad range of often competing goals presented by a world in flux. Against this backdrop, we distil a series of thematic learnings from the place-mediated interactions of macro- and micro-dynamics, as well as how effective industrial policymaking can help both localities and regions navigate a changing world.

**Strategic autonomy and geopolitical realignment:** industrial capacity is now inseparable from national security. Cornwall's critical minerals illustrate both opportunity and risk: tin, lithium and tungsten reserves could underpin UK resilience, yet without investment in areas like midstream processing, Cornwall risks repeating the "resource paradox" – extracting without maximising value. Saxony's semiconductor ecosystem demonstrates that true autonomy requires end-to-end capabilities – fabrication, R&D and skilled labour – built through decades of patient investment. Both cases underscore a key dilemma: whether to pursue costly full-spectrum independence or pragmatic resilience through partnerships.

**Climate transition and just transition politics:** decarbonisation creates tensions between environmental goals and local economic security. Port Talbot exemplifies failure: the rapid closure of blast furnaces and the transition to electric arc technology, imposed without genuine local or union involvement, eroded trust and fuelled populist narratives portraying climate policy as a "jobs killer". By contrast, Pori shows how climate imperatives can drive renewal when embedded in proactive, place-based strategies – anticipatory zoning for offshore wind, early circular economy planning and reinvestment of municipal assets. Success depends on treating environmental quality as a competitive advantage and coupling decarbonisation with tangible improvements in local quality of life.

**Prosperity and political legitimacy:** industrial policy is now a democratic imperative. Aggregate growth metrics are insufficient; success must be felt locally through good jobs, housing and public services. Port Talbot's reactive crisis management contrasts with Pori's holistic approach to liveability and Cornwall's effort to frame mining revival as a source of pride and contribution. Absent of such narratives and governance structures, industrial transitions risk becoming politically toxic.

**Governance and institutional capacity:** governance emerges as decisive. Port Talbot suffered from exclusionary, centralised decision-making, while Pori leveraged fiscal autonomy and institutional architecture – municipal innovation agencies, joint education-industry bodies and informal coordination – to sustain long-term strategies. Saxony illustrates a hybrid model: initial central investment followed by empowered regional institutions and cross-party consensus. Effective governance requires balancing central oversight with local autonomy, fostering "institutional thickness" and insulating strategy from short-term politics.

**Resilience and uncertainty:** the cases reveal two resilience models: Saxony's deep specialisation and ecosystem depth versus Pori's disciplined diversification across complementary sectors. Port Talbot lacked both, leaving it brittle. Cornwall's future hinges on combining mineral extraction with midstream processing and related industries.

## Cross-cutting recommendations

### Recommendations for the EU

**Align industrial and cohesion policy:** industrial policy must work to address regional inequalities by targeting those places "left behind" by previous economic changes and aligning with EU cohesion objectives. Funding criteria should address both economic and social enablers – skills, housing and quality of life – essential for industrial success.

**Reform state-aid rules:** drawing on lessons from Pori and Saxony, we recommend comprehensive state-aid reform to enable stronger state-led strategic investment. These cases imply that both simplification and integration of funding should be explored to improve outcomes. To simplify, state aid should be consolidated into a single, cohesive framework with common criteria and conditionalities, clearly aligned with an explicit EU industrial strategy rather than scattered objectives. Among other things, this will allow local governments to access beneficial support more easily.

A simplified framework must carry consistent social and environmental conditionalities with rigorous reporting on holistic indicators beyond standard economic measures. This helps capture the spectrum of outcomes that are important for place-specific success, while acting as a safeguard against unproductive support. Finally, extending provisions for claw-backs and socialisation of upsides to reward successful public entrepreneurialism demonstrated in both case-study regions.

The identified importance of integrating industrial policy into wider place-based regeneration strategies leads us to recommend piloting integrated state-aid packages that bundle industrial investments with hard infrastructure, social support and skills development, coupled with capacity-building support to ensure accessibility for resource-

constrained actors. Finally, on financing, we follow the Letta report in advocating for the EU to mandate that member states allocate portions of national state aid toward place-based EU industrial strategy, leveraging strategic value chains to build resilience while supporting left-behind regions.

## Recommendations for the UK

**Strengthen institutional foundations:** effective PBIP requires balancing strong national direction with meaningful local autonomy. Devolution should empower local actors to act strategically based on their situational judgement, and sustain long-term commitments, while fostering "institutional thickness" – dense networks of public, private and educational institutions. A practical step is a convening fund to support collaborative projects and make certain public funding conditional on evidence of such coordination.

**Work with industrial genotypes and manage transitions:** policy must build on existing industrial strengths rather than forcing regions into narrow growth-sector frameworks. Foundational industries such as metals and minerals remain critical to national security and should receive equitable support. Local growth plans should assess transition readiness, identifying realistic pathways for diversification and investing proactively before legacy sectors decline.

## Joint EU-UK recommendations

**Strategically utilise NATO spending:** the cases highlight that successful PBIPs require extensive and ongoing investment, alongside the development of supporting local infrastructures. Given the financial constraints faced by both the EU and UK, capitalising on existing defence spending obligations is a strategic way to fund investments that create beneficial economic spillovers and support local regeneration. This might include evaluating dual-use investments through both their economic and defence contributions, and using the 1.5% resilience spending carveout to create placemaking co-benefits.

**Advance geoeconomic alignment:** the cases highlight the balancing act between resilience through onshoring and efficiency through offshoring. They also highlight potential complementarities in EU and UK assets, for example, between Cornwall's minerals and Saxony's refining and technology infrastructure. Given the constraints faced by both partners, closer strategic alignment appears a promising way of navigating tensions and capitalising on synergies. Agreements – such as a UK-EU Critical Minerals Pact – can exploit complementarities between UK resource endowments and EU processing expertise highlighted in the microcosms of our cases. A joint working group on "Greater Europe's Industrial Future" should articulate a shared vision, connecting supranational strategy to national and local outcomes.

A renewed industrial strategy provides an effective route to support and ensure European and national interests in a multi-polar world experiencing a state of polycrisis. Yet such efforts must also be holistically integrated into a wider project of local renewal and placemaking. Our research into place-based dynamics highlights that, for all the grand strategic posturing and often genuinely positive flagship pieces of legislation, Europe's future will be decided by implementation. Experimentalism, not inertia, must be central, learning from global examples but adapting to Europe's territorial realities.

**Table 1. Summary of findings and recommendations by case study.**

| A. KEY FINDINGS FOR EACH CASE STUDY | | | | |
|---|---|---|---|---|
| | **CS1: Silicon Saxony (Germany)** | **CS2: Multi-sector transformation (Pori, Finland)** | **CS3: Steel transition (Port Talbot, UK)** | **CS4: Critical minerals (Cornwall, UK)** |
| **Main findings** | 30-year cumulative ecosystem (anchor firms + ~600 SMEs + Fraunhofer R&D); cross-party consensus & admin continuity.<br>EU Chips Act: intra-EU competition & slow execution highlight need for central budget & faster procedures | Proactive multi-sector diversification (metals, circular economy, robotics, offshore wind, defence).<br>Municipal fiscal autonomy + institutional thickness; climate treated as opportunity via placemaking | Reactive, crisis-driven; Welsh government & unions excluded; near-zero retraining uptake; replacement jobs lower-paid.<br>Governance failure – not climate policy – enabled "jobs killer" narrative | Tin, lithium & tungsten strategically vital; resource paradox risk without midstream investment.<br>Binding constraints: grid, planning, feudal mineral rights, skills; NWF stakes a step forward but still reactive |
| **Resilience model** | Deep specialisation + ecosystem depth = within-sector adaptation | Disciplined diversification into complementary sectors = portfolio resilience | Shallow dependence, no ecosystem, no diversification = maximum brittleness | Cluster but development rests on midstream |
| **B. DERIVED RECOMMENDATIONS – AND SUPPORTING EVIDENCE FROM EACH CASE STUDY** | | | | |
| **Recommendation** | **CS1: Silicon Saxony** | **CS2: Pori** | **CS3: Port Talbot** | **CS4: Cornwall** |
| **EU: Better alignment of industrial & cohesion policy**<br>Add spatial criteria to EU funding; align S3 with EU strategic objectives; holistic funding criteria (skills, housing, liveability); target left-behind regions | ERDF deployment proves aligned regional + industrial funding works; Chips Act intra-EU competition shows the cost of misalignment | Aligning local strengths with EU funding priorities as they crystallised = key to Pori's success | Fragmented, siloed support worsened outcomes = direct case for holistic alignment | Peripheralised geography excluded by city-region focus of devolution; frameworks must fit place |
| **EU: Reform state-aid rules**<br>Simplify into single framework with common criteria; pilot bundled aid packages (industrial + infrastructure + skills + social); social/environmental conditionalities & clawbacks; mandate member-state contributions to EU place-based strategy | Slow, complex EU funding vs. faster Asian rivals = case for streamlined central budget and upside-sharing | Proactive municipal steering and bundled local investment demonstrate what enabled state-aid reform could achieve | Siloed, poorly sequenced funding at Port Talbot = blueprint for what bundled packages must prevent | Minerals as critical industry/infrastructure; integrated bundles (grid, planning, skills, social) needed to unlock investment |

| | | | | |
|---|---|---|---|---|
| **UK: Institutional foundations for success**<br>Balance national direction with local devolution; incentivise institutional thickness via convening funds; condition some public funding on cross-sector collaboration | Central seed investment -> empowered regional institutions + admin continuity = the model to replicate | Fiscal autonomy + public-private-academic networks + informal coordination = durable long-term strategy | Centralised bilateral deals without local/union voice = legitimacy failure and political backlash | Cornwall as test case for adapting political economy of devolution to peripheralized rural geographies |
| **UK: Work with industrial genotypes; couple sunrise & sunset transitions**<br>Avoid IS-8 tunnel vision; support foundational industries; require transition readiness assessments in local growth plans; invest in new economic bases before legacy sectors decline | Built on pre-existing GDR semiconductor base: genotype developed not invented | Port + heavy industry + cheap energy = asset-based realism; each investment layers on previous ones | No proactive diversification + misaligned retraining = workers left with no viable alternatives | Minerals + marine + energy + defence + telecoms etc = genuine genotype; strategic positioning requires joined-up approach |
| **Joint: Capitalise on NATO 5% commitments**<br>Direct defence/resilience spending to dual-use industrial investments; use product space framework; leverage 1.5% resilience spending for enabling infrastructure (grids, transport, climate adaptation) | ESRA cooperation model; chip + dual-use investment alignment essential | Defence cluster (Patria) = path from industrial base to dual use; battery metals support dual-use goals | Celtic Sea wind + supply chains = dual-use infrastructure; green steel benefits from aligned procurement | Tungsten + defence ship repair link to NATO; energy & satellite/telecoms connectivity = resilience infrastructure |
| **Joint: UK-EU geoeconomic alignment**<br>Establish joint EU-UK industrial working group; prioritise Critical Minerals MoU (modelled on EU-Norway); develop sectoral bilateral agreements as pilots | Cooperation not competition is viable; Saxony chip expertise relevant to EU AI strategy | Pori minerals processing fills UK midstream gap; Pori-Cornwall = concrete bilateral opportunity | Misaligned UK-EU green industrial policy worsened outcomes; aligned EAF support could have changed trajectory | Cornwall tin, tungsten & lithium = direct EU defence/chip supply; Critical Minerals MoU is priority bilateral step |

# 1. INTRODUCTION

Amidst profound geopolitical and economic shifts – including Russia's renewed invasion of Ukraine, the shock of Trumponomics, a dismantling of the free trade order and the urgent demands of decarbonisation – industrial policy has decisively returned to the centre of European policy debates. As well as sectors like defence and critical raw materials, the semiconductor sector exemplifies these challenges: the European Chips Act aims to double global market share, yet early results show structural weaknesses that demand deeper integration of industrial, technological and diplomatic strategies.[1]

This resurgence in industrial policy occurs against a backdrop of economic stagnation and political disaffection, felt most acutely in peripheralised, so-called "left-behind" regions. The central argument of this policy study is a call for better-integrated national and supranational industrial policy with a wider programme of local renewal and placemaking. In a world of increasing geopolitical tensions and political polarisation, success can no longer be measured by narrow metrics like gross value added (GVA) or job creation alone. Instead, policy interventions must attend to creating not only good jobs but also better lives and – by deterring and defending us from the threats that face us – in some cases, the capacity to live at all – thereby securing the democratic support necessary for long-term economic transformation.

We are animated by the central research question of how place-based industrial policy (PBIP) might be designed to align national strategic priorities with local economic renewal and placemaking. By comparing four cases across the UK and EU, with PBIP in some places (Dresden, Germany, and Pori, Finland), its absence in others (Port Talbot, Wales, UK) and promise elsewhere (Cornwall, UK). Across these case studies, industrial policy interacts with the characteristics of place, socioeconomic history, a sense of community and institutions.

Through these case studies, we develop a framework for how PBIP can align national strategic objectives with interventions that support local and regional economic renewal. This requires a governance model that combines place-based mechanisms with central funding and accelerated processes of innovation and experimentation. Doing so would allow for more coherent industrial strategies that go beyond the metrics of jobs created and value added and support broader priorities of community cohesion, regional growth and institutional trust.

Failing to act risks political oblivion. The past four decades have seen industrial change reshape the economic landscape in an uneven way, creating profound political consequences. The material impacts of a decline of manufacturing and industrial sectors take shape at the local level. They are experienced acutely by workers, families and communities living at the sharp end of macro-economic change. As numerous studies of "geographies of discontent" have found, regions experiencing long-term economic decline are more likely to see declining trust in institutions, increased support for insurgent political movements and, with it, the electoral decline of traditional, incumbent political parties.[2]

Within this context, a better positioning of industrial policy is necessary. Locating future industrial interventions within broader approaches focused on regional economic growth, local renewal and placemaking will not only allow economic transformation but also support new democratic legitimacy in regions impacted by previous transitions.

## PBIP: A review of the literature

A key level of analysis and governance that is often overlooked in connecting these challenges is place.

- **By place,** we refer to the municipalities and regions where industrial policy is put to the test, where investments are made and stewarded based on particular local characteristics and where the social impacts of industrial policy first begin to show (or not).

- **By placemaking,** we mean a set of policy interventions focused on improving living standards, raising incomes and supporting community cohesion at the local level. Such interventions might be focused on infrastructure, employment, institutions or cultural heritage. All function to support the community living there and, in many places, encourage new investment and arrivals.

- **By PBIP,** we refer to an economic strategy that foregrounds macro-interventions in the socio-economic, cultural and institutional characteristics of the regions and communities that are experiencing change.

PBIP differs from traditional industrial policy through its recognition that interventions must be tailored to the places and regions where they are implemented. Rather than assuming a "one-size-fits-all" approach, place-based policies pay attention to the capabilities and constraints of particular regions, towns and cities, and communities. This may be seen in skills profiles, infrastructures or resources.

Any serious discussion of industrial policy must begin with the recognition that economic activity is fundamentally spatial. Places are not simply interchangeable economic units but unique political and social locations. Questions of local political economy, identity and culture shape both what interventions are politically feasible and how they are implemented in practice.[3] Sub-national state capacity, including administrative capability, technical expertise and freedom from corruption, varies considerably[4] and moderates policy effectiveness.[5] The "institutional thickness" of a region – understood as comprising a strong, local institutional presence; high levels of interaction between local organisations; a structure of domination and/or patterns of coalition; and a mutual awareness of being involved in a common enterprise – can be as important as physical infrastructure in determining development potential.[6]

Space also mediates firm dynamics in key ways. Marshall's concept of agglomeration economies identifies three key mechanisms through which geographic concentration generates productivity advantages: labour market pooling, which allows both firms and workers to find better matches; input sharing, whereby specialised suppliers can achieve economies of scale; and knowledge spillovers, as proximity facilitates the exchange of ideas and tacit knowledge.[7] Subsequent work on clusters demonstrates how geographic concentration can create self-reinforcing competitive advantages in particular industries.[8]

However, the same forces that create agglomeration benefits can also generate persistent spatial inequalities. Path dependency, whereby past industrial structures shape future development trajectories, means that places can become locked into particular economic configurations.[9] For example, many post-industrial regions that were once centres of manufacturing may lack the skills base, infrastructure and institutional capacity to transition to new economic activities, even as other locations thrive. These dynamics embody what have been dubbed "regional economic resilience" challenges, where some places prove far better able to adapt to economic shocks than others.[10]

Industrial policy for large and place-based interventions is often justified in terms of market failure; however, local manifestations of market failure present their own unique challenges. For example, spatial development faces particular coordination failures, as firms' location decisions generate externalities – both positive through agglomeration benefits and negative through congestion – that individual actors do not internalise.[11] Similarly, while

information asymmetries are commonly referred to in the industrial policy literature, they are heightened in spatial contexts, as potential investors may lack knowledge about the "soft externalities" of interdependencies, rules, conventions and institutions that shape regional investment environments.[12]

Place-based interventions can address the regional inequalities that have widened substantially in many advanced economies, generating a geography of discontent that carries profound political consequences.[13] The limits of place-blind policies, which focus on supporting individuals regardless of location or improving factor mobility, have become increasingly apparent. Labour mobility, whilst theoretically efficient, can hollow out declining regions, weakening their social fabric and political power, often causing backlash at the national ballot box.[14] By the same token, significant in-migration can place excessive pressure on housing and services in destination regions, worsening conditions for especially the more vulnerable existing residents.[15] However despite the ill effects of migration, it must also be acknowledged that a place is not just somewhere people live for work, but somewhere people belong and have deep ties to, making it inappropriate to expect them to move from one place to another for economic reasons alone, even under optimal circumstances.[16] It is for this reason that PBIP is often advocated as a means of redressing geographic inequalities and driving regional renewal.[17]

PBIP thus serves a dual purpose: using place-specific assets to support broader national objectives; and supporting disadvantaged regions. PBIP has historically focused primarily on the latter; however, in the current climate, the former is growing in significance, with a growing recognition that, when they are empowered and autonomous enough, local and regional actors can themselves be drivers of industrial policy. Recent literature notes the added value of local mediation for successful industrial policy, supplementing top-down strategic direction with bottom-up experimentation guided by local knowledge.[18]

This tension between these two purposes runs throughout the literature, as strategically optimal investment sites at the macro level are often precisely those that already possess key advantages in skills, infrastructure and agglomeration benefits, rendering them in less need of support from the perspective of regional equity.[19] And even highly positive macro-level evidence on the impacts of place-based R&D investment in the USA during World War II finds that these effects were almost entirely driven by already innovative regions, casting doubt on the ability of place-based industrial investments to meet both objectives of national innovation and local renewal simultaneously.[20]

A place-based approach further highlights how competition between policy priorities not only occurs across different geographies but is, itself, mediated by them. While industrial policy fulfils national objectives, it takes shape in places and communities. It is here that policy decisions are felt by workers, their families and communities, and where economics shapes the everyday fabric of space and of lives. This raises questions of democratic legitimacy and participation: whose vision of local economic development should prevail, and through what processes should this be determined?[21]

In this policy study, we actively engage with these complexities. Any industrial policy does not take shape on a blank canvas. Previous economic transitions linked to trade liberalisation and deindustrialisation prompt uneven geographies of costs and benefits and, later, institutional trust. Political dynamics and regional histories also define and mediate tensions that policy interventions have to navigate. This context provides an opportunity to assess PBIP through both its presence and absence, success and failure, and how different place-based dimensions identified in academic work might take shape in practice.

## This policy study

This policy study presents four cases that should inform future PBIP across the EU and UK. These cases are Dresden in Germany; Pori in Finland; and Port Talbot, South Wales, and Cornwall, both in the UK. They are not presented as exemplars or as cautionary tales but, instead, as illuminating the nuances of how different places and regions are experiencing industrial restructuring and change.

Taken together, they highlight the new terrain on which PBIP must take shape and act: one that is informed by decarbonisation agendas, the need to secure domestic supply chains, the emergence of new governance mechanisms, and the difficult presents and futures for many regions at the economic periphery.

Our four case studies cut across different geographical scales. Two are cities (Dresden and Pori), one a small town (Port Talbot) and another a region (Cornwall). This selection was made to reflect a central theme of the work: the mediation of policy objectives across different levels of governance. Despite the differences in scale, there are important similarities across the cases: for example, Dresden and Cornwall have similar populations of over half a million people. These different case studies illustrate the importance of path dependency in terms of what local industrial strategy may be able to achieve, with each case study's present and future being built on its economic history. In addition, they all highlight the tensions between national strategic objectives and local institutional capacity in shaping how effective PBIP might be.

Our research designs differ across our case studies, including roundtable discussions with key stakeholders (Dresden, Cornwall, Pori) and analysis of primary and secondary documents (Port Talbot, Dresden, Cornwall, Pori). Key stakeholders and sources of information include local and regional government, national policymakers, business leaders, trade unions, local academic experts, and civil society and think tanks.

The central argument of this policy study is that to mediate and articulate the global, national and local levels – from geopolitics to populist discontent – industrial strategy must be more holistically integrated into a wider project of local renewal and placemaking. In democratic systems, industrial policy choices cannot solely be driven by national objectives, or understood in terms of narrow metrics, but must be an engine for a wider-reaching set of objectives. Not only does such an approach align with the political imperative of improving increasingly hard lives, but it is also essential to the success of industrial strategy itself. At the macro level, it is required to maintain the democratic buy-in needed to carry out long-term economic transformation, while at the micro level attracting and maintaining skilled workers is as much a matter of offering a decent place to live as it is the opportunity of good employment.

This policy study is part of a collaborative project between the Foundation for European Progressive Studies, Progress and Demos Helsinki, which seeks to generate insights for British and EU industrial strategy through the application of a place-based lens. The project has seen us conduct four case studies split across the UK (South Wales and Cornwall) and the EU (Saxony, Germany, and Pori, Finland). Insights were gathered by means of desk-based research and roundtable discussions with those closest to the action in these places, whose unattributed input informs the case studies presented here.

The first two are framed against the British policy landscape, while the last two are framed in terms of their own national and then EU policy contexts. In what follows, we present each case study across four sections: national context; sectoral context; local context; lessons for future industrial policy; and conclusions. This is followed by a conclusion gathering key lessons, which policymakers might derive from diverse, place-based experiences of industrial policy implementation in an age of geopolitical and geoeconomic upheaval, as well as the implications for EU governance more broadly.

# 2. CASE STUDY 1: SILICON SAXONY IN DRESDEN, GERMANY

## The EU context

The EU faces urgent questions about how to strengthen its semiconductor sector against global competition, supply-chain vulnerabilities and shifting geopolitical realities. A recent OECD analysis underlines that the global semiconductor value chain is characterised by significant concentration of critical inputs and dependencies.[23] The report finds that the entire value chain relies heavily on a small number of specialised suppliers and that trade dependencies within this chain have more than doubled since 2012, with a few economies dominating. For the digital transition, and especially the development of cutting-edge technology like artificial intelligence (AI), microchips are an essential resource. However, despite having a European company like ASML as a critical part of the semiconductor value chain, with a near-monopolistic position as the sole supplier of extreme ultraviolet lithography machines needed to produce advanced microchips, Europe relies heavily on imports for these chips, which are produced outside of the EU.

In 2021, with the EU's existing microchip production sites operating at full capacity, it recorded a €20 billion trade deficit in microchips.[24] Moreover, this leaves European industry and society vulnerable in an increasingly turbulent geopolitical environment. This is why, spurred by disruptions in chip supply during the COVID-19 pandemic, the European Commission proposed the Chips Act in 2022, which entered into force in July 2023, to expand the EU's semiconductor industry.[25]

For the EU, the Chips Act is a landmark in its new industrial policy approach, as it supports not only research and innovation, as the EU has traditionally done, but also semiconductor chip production. The latter is a welcome feature, as the EU has been lagging in integrating its cutting-edge R&D results from universities and research institutes into industrial production applications. The Chips Act aims to double production capacity from about 9% in 2019 to 20% of the global microchip market by 2030.[26]

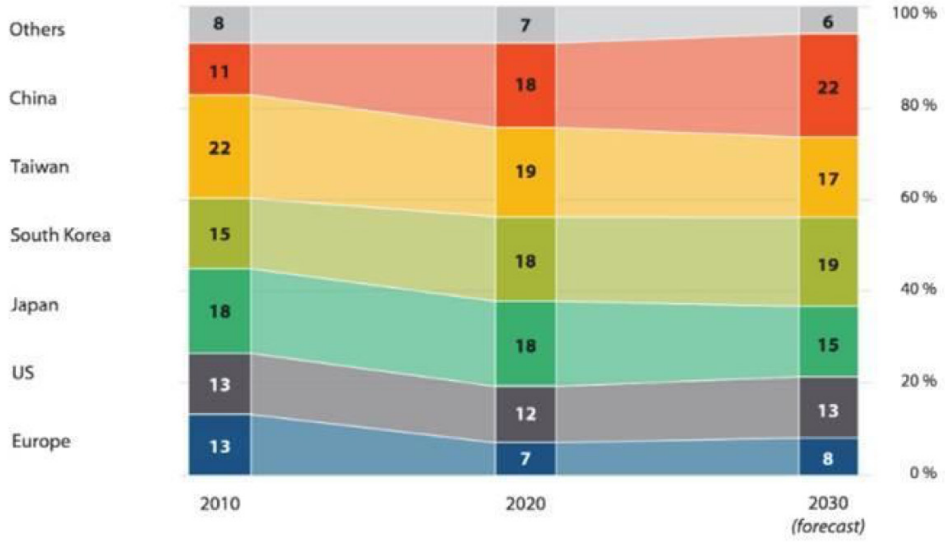
Concretely, three pillars make up the Chips Act. The first and foremost pillar is the "Chips for Europe Initiative", which includes the €2 billion chips fund, design platforms and pilot lines to support large-scale technological capacity building and innovation in the microchip sector.[27] A second pillar that provides a framework to incentivise public and private investments in manufacturing facilities that are granted the status of "integrated production facility" or "open EU foundry" status and will ensure the security of supply and resilience of the Union's semiconductor sector, thereby enabling the €43 billion to be invested by 2030.[28] Furthermore, a final third pillar introduces coordination mechanisms through a European Semiconductor Board that will monitor developments in the sector; provide solutions in a crisis; and serve as the key platform for coordination between the Commission, member states and stakeholders.[29]

## The sectoral context

First results make it questionable if this is sufficient to close the gap for the EU and create a competitive European microchip sector. According to a special report by the European Court of Auditors on the strategy for microchips, evaluating the progress in its implementation, the Chips Act is very unlikely to be sufficient to achieve the objective of 20% global market share.[30] Forecasts are that, despite these efforts, the European market share is stable below 10% of the worldwide market share (Figure 1). With the presentation of the Commission Work Programme for 2026, it became clear that the

European Commission was also recognising the AI Act's lacklustre performance, moving its review from the third quarter to the first quarter of 2026, and announced proposals to update the Act.[31]

**Figure 1. Share of global chip capacity by region in 2010-2030.**




**Note:** all values shown in 200-mm wafer size equivalents; excludes capacity below 5,000 wafer starts per month or those below 200 mm. This reflects the capacity of modern semiconductor manufacturing facilities, where wafer diameter is greater than or equal to 200 mm.
**Source:** European Court of Auditors.

This makes an assessment of the policy options for the EU, member states and regional governments in supporting a microchip ecosystem an extremely timely topic. With Europe's Digital Decade at the halfway point, we can expect policy adjustments to refine the approach and get results back on track for 2030. To make swift progress, we need to leverage the strengths of the existing microchip industry and learn from European hubs that can compete in this global market.

Despite the Europe's declining global semiconductor market share over the past decades, Europe has some structurally critical competitive advantages, among them several geographically concentrated innovation clusters. The four main existing microchip hubs that currently make up the core of the EU's semiconductor ecosystem are Dresden (Silicon Saxony, Germany), Eindhoven (Netherlands), Leuven (DSP Valley, Belgium) and Grenoble (France).[32] Each of these clusters has distinctive specialisations and strengths.

Silicon Saxony hosts Europe's largest microelectronics trade association, encompassing firms such as GlobalFoundries (AMD), Infineon, Siltronic, ZMD and AMTC, and is currently attracting significant new fabrication investments from Intel, Infineon and GlobalFoundries.

In the Netherlands, Eindhoven's High Tech Campus and related ecosystem host ASML, a multinational corporation that develops and manufactures photolithography machines used to make microchips and provides chip makers with one-of-a-kind hardware and software. The cluster accounts for nearly a quarter of total national R&D expenditure and almost half of all corporate R&D in

the Netherlands, making it a central locus of high-technology component and equipment development.

DSP Valley, in Leuven, Belgium, integrates activities in life sciences, nanotechnology, mechatronics, intelligent systems and cleantech, supported by dense linkages between firms and research institutions. Meanwhile, Grenoble's *"pôle de compétitivité"* cluster in France specialises in microelectronics, nanotechnologies and design software, combining firms, research laboratories and educational institutions to promote regional innovation synergies.

These hubs illustrate how Europe's semiconductor industry continues to rely on regionalised networks of research-intensive production and collaborative innovation to sustain competitiveness in the global value chain.[33]

## The local context

To trace the regional and policy dynamics of the EU's leading microchip hub, we organised a stakeholder meeting in Dresden, the heart of "Silicon Saxony", to provide detailed insights into the historical roots, current strengths and future policy needs of this microchip ecosystem. Below we distil those discussions, presenting lessons from Saxony's experience and offering policy implications for European industrial strategy.

The microelectronics sector in Saxony has deep roots extending back over 60 years. Established in 1961 under the German Democratic Republic (GDR), semiconductor activity benefited from centrally directed, PBIP. By 1989, when the Berlin Wall fell, approximately 25,000 people were employed in the sector, many of them highly skilled, despite a technological lag behind global competitors. Reunification caused dislocation, but it also created opportunities: laid-off engineers and technicians founded new companies between 1990 and 1994, often building directly on their previous expertise.

Political decisions of the new and unified German Bundesrepublik in the 1990s were pivotal. Authorities attracted Siemens and AMD to invest in Dresden by offering subsidies; streamlined permit procedures; and access to an existing, skilled, yet affordable workforce in the region. The research institutions were strengthened, with multiple Fraunhofer institutes, one of Europe's leading organisations for applied research, establishing a presence in Saxony, and universities becoming embedded in the microchip ecosystem.[34] These circumstances and choices, coupled with consistent political attention from Saxony's leadership, laid the foundations for the long-term resilience of its microchip ecosystem.

The stakeholders we consulted all emphasised that continuity in government support has been crucial. Saxony's ministers-presidents across parties since 1990 have maintained a strong personal interest in microelectronics, supporting reindustrialisation and ensuring that the administration developed deep expertise in semiconductor permitting and project management from the side of the public authorities. This continuity in the public service, combined with the know-how of policymakers, is an important element for attracting international investors to choose Saxony over other locations to make their investments. Some of the leading microchip companies like Global Foundries[35] and TSMC[36] decided to open semiconductor plants in the Dresden area worth billions of euros in investments, with financial incentives from the EU Chips Act. Because of the experience within the public authorities in Saxony, the development of these projects and building of production plants was completed ahead of schedule, a rarity in Europe.

At the same time, "fortune" has also played a role in key moments when companies were making their decisions on where to expand microchip production. For example, just when producer Infineon considered expanding in Malaysia, regional vulnerabilities in Southeast Asia were increasing. It was again Saxony's regional government, through timely lobbying, that capitalised on this, by convincing the company to make further investment in their Dresden plant instead. Similarly, Saxony had some fortune in the 300-mm wafer fab microchip becoming the global standard. The world's first 300-mm wafer fab microchip was pioneered in Dresden,

establishing early leadership and creating spillover effects for suppliers. These moments of serendipity reinforced Saxony's position as an international hub.

Several elements make up this strong ecosystem of semiconductor producers. Today, Silicon Saxony comprises large anchor firms like Infineon, GlobalFoundries, Bosch and TSMC, as well as about 600 SMEs from all areas of the microelectronics and ICT sectors, plus world-class research institutions.[37] Its universities, including one of Germany's 11 "excellence universities", attract international talent needed to fill vacancies at these firms. The aforementioned Fraunhofer institutes support advanced manufacturing and packaging technologies, with pilot lines that are linked to the European Chips Act. The ecosystem benefits from proximity, cooperation and a mature administrative infrastructure.

Notably, the cluster developed not only manufacturing capacity but also globally leading processes, ensuring that suppliers gained knowledge transferable worldwide in the global market. One notable example being the development of the 300 mm wafter around the turn of the century, for which Siemens partnered up with Motorola and another 50 companies from the region in an R&D project that received considerable subsidies from the federal government, which carried some of the risks involved. This cooperative approach, to be at the forefront of innovation, is part of the explanation for why Silicon Saxony has maintained its competitiveness and resilience through cyclical downturns, despite challenges such as the 2009 bankruptcy of Qimonda, the world's second-largest DRAM memory company, which at the time caused large-scale redundancies.[38]

**One example of the biggest semiconductor projects being developed in Dresden**

Silicon Saxony recently welcomed the European Semiconductor Manufacturing Company (ESMC) GmbH as one of its members. EMSC is a landmark joint venture established to construct and operate a 300-mm semiconductor fabrication facility ("fab") in Dresden. It is a project by world leader in microchips Taiwan Semiconductor Manufacturing Company (TSMC), which owns 70%, but developed in cooperation with the European companies Bosch, Infineon and NXP, all holding 10% equity stakes in the project. The total investment amounts to €10 billion and is supported by the EU Chips Act and German federal government. The production capacity will be 40,000 300-mm wafers per month (when fully operational), representing almost 0.5% of the global market in these microchips. The building of the plant started in August 2024 and it is expected to be fully operational by the end of 2027. The new microchip factory will generate approximately 2,000 direct, high-tech jobs.

The success of Silicon Saxony, with one third of all European produced microchips coming from this region, has not gone unnoticed. With currently five semiconductor fabs and 113,000 $m^2$ clean-room area, it hosts a significant part of the EU chips production capacity. It is forecasted that by 2030, Saxony will have 100,000 people working in the semiconductor sector.[39] No wonder delegations from other German regions, such as Baden-Württemberg, as well as international delegations from Asia, have examined Saxony to learn its "success secrets". The stakeholders at the roundtable cautioned that ecosystems cannot simply be built overnight. The three decades of cumulative development, combined with historical legacies, quantum leaps in technology and political perseverance, underpinned Dresden's success. While investment in R&D, attraction of anchor firms and fostering of SMEs can be replicated, the "marathon run" of ecosystem building cannot be shortened by money alone. Cooperation between regions – rather than competition – may therefore be the more viable strategy for the EU and a European microchip industrial policy.

The EU's Chips Act of 2022 built on earlier European initiatives, like the Horizon Europe R&D programme, but also the exemption of Important Projects of Common European Interest from state-aid rules, allowing member states to subsidise companies that enable breakthrough innovation in microelectronics, and the Digital Europe Programme with funding of €8.1 billion for which a part was allocated to the Chips for Europe Initiative under the Chips Act.[40]

Stakeholders acknowledged that the Chips Act has so far delivered mixed results. Positive elements of the Act include its focus on and resources for the microchip sector. Still, they criticised it for persistent delays in execution and the complexity of the funding programmes, resulting in a slow pace of implementation. Comparisons were drawn with Asia, where industrial policy moves more rapidly to add production capacity. In the case of Saxony, the EU cohesion policy funds it has received since reunification, such as the European Regional Development Fund, have been deployed effectively for innovation and high-tech research and development.[41] Highlighting the importance of aligning regional structural policies with sectoral industrial strategies.

The Chips Act's three pillars – R&D, industrial capacity and supply-chain monitoring – remain unevenly implemented, according to the stakeholders at the roundtable. Since industrial capacity is driven more by member state subsidies than by coordinated EU action, this leads to intra-European competition and an uneven playing field based on the financial firepower of the member states. When considering the architecture of a Chips Act 2.0, they stressed the need for a centralised EU budget, faster grant procedures, and greater alignment across member states.

## Lessons for future industrial strategy

Stakeholders noted that the USA, the EU and Japan have adopted divergent strategies. The USA prioritises bringing manufacturing home, with its Chips and Science Act of 2022, a law that invests approximately $280 billion to boost semiconductor manufacturing, and now the more aggressive trade strategy under the Trump administration, forcing companies to reshore production to the USA. At the same time, Japan has opted to create a national champion, with the creation in 2022 of a new company called Rapidus, which is a partnership between major Japanese companies like Toyota and Sony and is supported by significant government funding of $65 billion, to revive its semiconductor industry and reduce reliance on foreign suppliers.[42] The EU, by contrast, aims to reach 20% global market share without a clear consensus on whether to build indigenous champions or attract foreign firms. The absence of a European chipmaker that could be the equivalent of ASML, the global leader in chip-making equipment, was highlighted as a potential missed opportunity.

This divergence raises fundamental policy questions: should the EU aim for resilience through partial self-sufficiency, or strive for full-spectrum independence at great expense? Stakeholders stressed that subsidies are indispensable in the current global "race," but spending this money

efficiently in the EU is constrained by a lack of workforce capacity, scarce land availability and insufficient administrative readiness, along with lengthy bureaucratic procedures, which constrain the swift expansion of the EU's chipmaking capacity.

Moreover, industrial policy must be coupled with diplomacy: the EU remains excluded from key global initiatives in microchip development, such as the US-led "Chip 4" alliance. Officially called the US-East Asia Semiconductor Supply Chain Resilience Working Group, this is a partnership between the USA, Taiwan, Japan and South Korea to form a consortium to diversify the supply chain for semiconductors, but the EU and its member states were omitted when this initiative was set up by the Biden administration in 2022.[43]

Having the right capacity for microchips has become an integral part of the global AI race. In this regard, the EU has announced plans to build several AI "gigafactories". The European Commission's ambitions to build massive graphics processing unit (GPU) factories appear disconnected from the EU's lack of chip design and manufacturing capacity in this area, raising doubts about the feasibility. Japan's attempt to establish a domestic AI chip industry illustrates both the scale of investment required and the risks involved. With the American company Nvidia holding a near-monopoly in the market for AI and data centre GPUs, with over 90% market share, cultivating EU AI capacity might mean subsidising this specific chip provider. And this approach carries additional risks, since the USA has been limiting exports of these chips to China under the Biden administration, only to have the Trump administration later repeal those restrictions.[44] A recent bipartisan bill that passed the US Senate would give American companies priority access to Nvidia and AMD microchips to favour domestic AI development. With the tense transatlantic trade relationship under the current US administration, the EU should be cautious when relying solely on US imports of the most powerful microchips needed for AI to run.

Similarly, stakeholders underscored that semiconductors were only one segment of a broader value chain encompassing critical minerals, electronics and downstream industries like automotive and aerospace. As this policy study highlights, policy coherence across these layers is currently lacking in the EU policy mix. Without integrating strategies for critical minerals, digital infrastructure and defence sovereignty, the semiconductor policy under the Chips Act 2.0 risks being ineffective.

As one of the leading nations in chip production, stakeholders pointed to Taiwan's approach. Key elements include Taiwan's Science Parks – with integrated infrastructure and services, and a one-stop shop for all government administration matters – host, among others, TSMC, the world's largest dedicated semiconductor foundry.[45] There is a limit to what the EU can replicate of this example due to spatial and institutional constraints. Nevertheless, the comparison underscores the importance of scale, administrative efficiency and coordination. The EU's answer may lie in strengthening regional alliances, such as the European Semiconductor Regions Alliance (ESRA), which now includes 35 regions. ESRA provides a platform to advocate for regional needs at the EU level and to share expertise across ecosystems.

## Conclusions

With the EU's approach missing its target to catch up in the global semiconductor production market, we looked for answers in the leading hub for microchip production. Several lessons can be taken from the roundtable in Dresden of stakeholders active in Silicon Saxony for EU policy and specifically the review of the Chips Act:

1. It is important to invest in ecosystems, not only factories: success in this high-tech sector depends on R&D, education, SMEs and efficient administration, not only on subsidies for anchor firms.

2. To ensure political consistency: long-term leadership commitment from all levels of

government is essential to sustain industrial clusters.

3. Find a balance between resilience and efficiency: the EU should aim for sufficient capacity to withstand crises but avoid inefficient duplication of strategies that other global players have deployed.

4. We need to strengthen EU-level coordination: the Chips Act 2.0 should provide centralised funding for EU players, faster funding/granting procedures and stronger integration of member state strategies, like the German federal government's efforts in this regard.

5. Integrate semiconductor policy into the broader Eurostack approach: strategies for European tech sovereignty, AI development, critical minerals and defence sovereignty must align with semiconductor policy to have an impact.

6. To leverage pan-European regional cooperation: alliances like ESRA demonstrate how regional strengths can complement one another, and a European microchip strategy should play into these strengths.

All in all, the example of Silicon Saxony illustrates what is possible for an EU region to excel in a field when history, political will, research excellence and industry align. Its lessons suggest that the EU's path forward lies not in replicating Taiwan or the USA, but in cultivating resilient, interconnected ecosystems across its regions and ensuring that industrial, diplomatic and technological strategies work in tandem. The EU Chips Act 2.0 should take this into account.

# 3. CASE STUDY 2: MULTI-SECTOR TRANSFORMATION IN PORI, FINLAND

Pori is a city and city region in Southwest Finland and capital of the Satakunta region. Having historically been known for its port and heavy industries, nowadays, the Pori region is home to central clusters in battery and electronic metals, circular economy and automation, robotics, and (increasingly) AI for industrial applications.

Aside from this, the region produces 40% of Finland's energy, not only through a nearby nuclear plant but notably through significant and increasing offshore wind capacity. These foundations have led to a focus on building out new sectors in the local economy, such as defence and the production of green hydrogen and ammonia.

This case study examines three interconnected mechanisms that distinguish Pori's approach to industrial strategy: proactive positioning through municipal powers (zoning, institutional creation); strategic opportunism (timing interventions to align with national and EU priorities as these crystallise); and institutional coordination across public, academic and private actors. We assess success not merely through output growth but through resilience (capacity to maintain economic relevance despite demographic headwinds), while noting that over the long term the non-economic elements of attractiveness may prove just as central.

The case study was developed through a combination of secondary methods – in the form of desk research and document analysis – and a semi-structured workshop with 12 stakeholders across local government, trade unions, business, civil society and academia to provide primary data.

While elements of Pori's strategy represent a generalisable model for mid-sized industrial cities, elements of its apparent success depend on non-replicable advantages, such as cheap energy and port infrastructure. A central learning thus becomes to take an asset-based approach to industrial strategy, going with the grain of existing assets and capabilities based on a realistic assessment, rather than aspiring for dramatic transformations in line with the cutting-edge economic vision of the day. While this is not a call to jettison radical ambition from PBIP entirely, it is a call to resist the siren song of political and technological trends; policy choices should be made on the basis of fit with the local area, not simply based on abstract assessments of the "next big thing". For example, it is simply not possible for every area in the EU to become an advanced AI or biotech outpost, however intense the fervour around these sectors overall.

## Finland's approach to the twin transition

Across our four case studies, Pori stands apart in a broad, multisectoral approach to its industrial policy.

Its robotics and automation cluster, being one of the oldest parts of its industrial revitalisation, reflects a long-standing focus in Finland to position itself as a leader in engineering, technology and digital. Finland's expertise in these sectors developed by necessity, as an economy structured significantly around heavy industry saw spiking labour costs and wider challenges to competitiveness from abroad.[46] And while Finland's place at the cutting edge of digital innovation has slipped since Nokia fell from primacy, the vastness of the firm has incubated both talent and ambition to advance and apply digital tools. In 2020, Finland laid out a "digital decade" strategy to advance societal digitalisation by 2030, notably meeting many of its goals ahead of time.[47]

Similarly longstanding has been Finland's national focus on defence given its land border with Russia;

however, the sector has seen significant economic growth in the years following the war with Ukraine.[48]

Finland is one of the leading European locations for clean energy, having almost entirely decarbonised its domestic grid and now possessing some of the cheapest electricity in Europe. It has more widely sought to position itself as a leader in the green economy, having adopted some of the world's most ambitious climate targets and the world's first circular economy programme in 2016 and most ambitious circular economy programme in 2021.[49] Finland's cheap and abundant clean energy, and positioning in the green economy, have meant that green hydrogen and ammonia have been identified nationally as priorities where Finland could develop leadership, as laid out in a 2023 strategic resolution by the government.[50] Finland aims to provide 10% of the EU's green hydrogen by 2030, with state-owned network operator Gasgrid Finland drawing on EU support, to push the development of cross-border infrastructure.

## The local context

Pori's coastal location meant it traditionally operated a heavy industry and sea-trade hub. However, this old industrial model was shaken significantly during Finland's early 1990s economic crisis. During the period, a combination of factors – including slowing international economy and rising European interest rates, declining Finnish terms of trade and competitiveness through currency appreciation, and the negative trade shock from the collapse of the USSR – led to the bursting of a credit-driven market bubble; the central bank's decision to use high interest rates to defend the currency then plunged Finland further into deep economic depression.[51]

Pori's energy and capital investment intensive economy, which had revolved significantly around trade with the USSR, was hit hard. This triggered a local rethinking of the future economic engine of the region, during a time where the nation at large was similarly forced to explore alternative growth models.

This period marked the start of what we term the adaptive resilience of the Pori and wider Satakunta region, a posture towards industrial policy that persists to this day. Through the concept of adaptive resilience, we seek to describe how Pori proactively and responsively (re-)shaped the foundations of its local economic resilience as external conditions shifted; resilience building here was not a matter of investing deeply to strengthen a central object to withstand a changing context, as in Saxony, or trusting that resilience would be created not through state action but the evolving provision of the market – as lay behind the UK decision not to support industry in South Wales, but investing widely based on strategic judgements of change to enhance flexibility. The roots of resilience, and the approach to building it, are fundamentally distinct.

The region aligned with the new government consensus on the need to focus on intangible investment and establish regionally differentiated economic clusters. This is where one of the foundational pillars of Pori's modern economy, the automation and robotics industry, really took root. Pori elected to build on its industrial capacities (or "industrial genotype", as one local stakeholder referred to it) while focusing on modernising and expanding its complexity. Rather than attempting to compete with Helsinki or Tampere as an ICT hub, the strategy accepted Pori's limitations and focused on applying advanced technologies to existing industrial strengths. This is reflected in the 2001 regional technology strategy "Satakunta – applier of the latest technology" (*Satakunta – uusimman teknologian soveltaja*),[52] and in the humble approach to industrial investment taken by key decisionmakers engaged even today. Whilst there was recognition through our discussions that the city could attract forward-looking businesses and provide a supportive environment for their operations, there was also honest acknowledgement of limitations in terms of contributing substantially to the creation of entirely new innovations or technologies. Pori has a rather limited scale of higher education programs: it lacks a fully-fledged research university; the presence of international, innovation-driven companies is not very large, meaning it is not likely to become a fast-growing, cutting-edge metropolitan region. Instead,

the Pori case should be taken as evidence of how localities, through a combination of more modest ambition and strategic alignment with national and EU priorities, can establish decent economic foundations to be improved upon and stave off the decline that has characterised many industrial heartlands in the age of globalisation.

One of Pori's most significant responses to the crisis was identifying that modernising its economy would require the presence of strong academic institutions. The Satakunta University of Applied Sciences (SAMK) was established initially on a trial basis in 1992 before being made permanent and extended, with its main campus in Pori. SAMK would go on to act as a key node in the burgeoning robotics and automation cluster in the Pori region, and since January 2012, SAMK has been run by Satakunta University of Applied Sciences Ltd, which is owned by both municipalities and organisations of trade and industry. This ownership structure matters: joint municipal-industry governance is helpful in ensuring SAMK's curriculum can be responsive to employer needs, while public stakes prevent capture by individual firms. Such a structure may help solve coordination problems common in applied education, where firms underinvest in training due to poaching risks, while purely public institutions struggle to track industry skill requirements.

Local decisionmakers nonetheless realised that a technical university alone would not fulfil all local needs for attracting talent and boosting modern industries. To resolve this in the face of the cost and difficulty of establishing a university from scratch, the region worked with the University of Turku and Tampere University to establish the University Consortium of Pori (UCPori) in 2004 as a "filial centre" hosting units from these more established universities. This model allowed Pori to import high-level academic capabilities without the massive overhead of a new administration. This approach reduced the financial and reputational risk for Pori: if the experiment failed, the municipality avoided being locked into expensive, underutilised infrastructure, while the parent universities could withdraw without major losses. This risk-sharing arrangement was shrewd for a city still recovering from an economic crisis.

Municipally owned firms have also played significant roles in stewarding industrial policy. Prizztech Ltd has existed since 1989 as a not-for-profit business development, research and project management company owned by municipalities in the Satakunta region. While the organisation itself was established before the crisis, rather than in response to it, it played a key role in connecting the private and public economic development priorities, acting as a semi-autonomous steward of regional innovation activities to ensure these remained consistent and responsive, despite shifting political contexts. Prizztech's municipal ownership but independent governance likely helped insulate it from short-term political pressures while maintaining democratic accountability. Structures such as these are useful in helping multi-year strategies (which industrial transformation must always be) to survive electoral cycles, while providing a stable coordinating anchor for the wider local ecosystem to benefit from longer-term EU and similar projects. Similarly, the Port of Pori is a municipally owned entity, which has shown persistent ambition in collaborating with other actors to secure joint investments to ensure that one of Pori's primary assets continues to act as a valuable pull factor for wider industry.[53]

### Establishment of robotics and automation capacity

Pori's industrial focus meant that automation and robotics capacity was long present in the region, and proactively developing this into a broader cluster also incorporating digital and AI, in line with national industrial priorities for cluster-based development, was a natural decision. One notable process underpinning this was the "Morning Coffee for Automation Industry" hosted by SAMK, which, having started to ensure that education was tailored to industry needs, developed into a central convening hub for industry and other local stakeholders.

This informal format is notable: Demos Helsinki's own work on "humble governance" emphasises the importance of forming initial "thin consensus" around framework goals, requiring upfront discussions to be more open-ended and exploratory rather than being structured around assumed priorities and objectives.[54] A more informal setting likely facilitated a more organic problem-identification and exploration process, as well as fostering greater trust and open communication.

This initial structure seeded R&D activities through research projects funded by diverse sources, including EU funds, with R&D eventually being institutionalised into a dedicated local research centre housed within SAMK.[55] Arguably, the culmination of these efforts can be seen in the Robocoast cluster, established in 2014 as a European Digital Innovation Hub (EDIH); the cluster spans across Finland and other EU partners, and today contains 14 core competence centres (including SAMK), more than approximately 85,000 higher education students, almost 9,000 experts in research and development, and more than 7,650 industrial enterprises in cluster regions.[56] Prizztech Ltd, the regional innovation body, coordinates the entire cluster, highlighting the deep national expertise that could be developed through the region.

By positioning the participating firms and labs as a "Living Lab" environment, Robocoast allows companies to validate technologies, such as using hyperspectral cameras for quality control in animal by-products, before committing capital. The model works because it provides a platform to test and validate innovations before full roll-out: companies pay modest fees for access; academic partners gain real-world research problems; and public funding covers core infrastructure. This reduces the capital barrier that typically prevents SMEs from adopting advanced digital and technology solutions. Robocoast summarises the wider regional approach as a "testbed for application," leveraging partner industries as a sandbox for robotics and cybersecurity.

## Green and circular economy

Again through interrogating its prior industrial and geographic assets, Pori identified an opportunity to expand into green industries. Offshore wind is an informative example, with Pori deciding to bet significantly on this area of development even before the technologies to operate wind turbines in its frozen seas was fully proven. It did this by conducting advanced zoning and environmental impact assessments (EIAs) for the surrounding sea areas, using these municipal powers to create an attractive and ready-to-go site for investment. Pre-zoning eliminated regulatory uncertainty and associated holding costs for developers, while completed EIAs transferred environmental risk from private investors to the public balance sheet. For energy projects with decade-long payback periods, this regulatory certainty likely proved decisive in investment decisions. The city positioned itself to host an initial pilot in 2010, culminating in the completion of Finland's first offshore wind farm in 2017. Since then a significant extension project has been committed to; notably, investors have continued with a full-scale expansion of 40 additional turbines, despite constraints and uncertainties around an initial €30 million government grant rendering a planned pilot unworkable. This indicates that Pori, through its initial positioning, managed to engineer a tipping point in its offshore wind generation, where the economics have become sufficient to drive investment without the need for additional industrial policy support.[57]

Notably, its abundant clean energy capacity has combined with its longstanding industrial base to make Pori a central area for Finland's rapidly greening specialist metals industry. This industry provides over 100,000 local jobs,[58] and the municipality continues to attract pilots for cutting-edge, electricity-intensive investments as the sector pursues decarbonisation.[59]

The public administration similarly used effective zoning to proactively pursue development of another cluster around the circular economy and recycling. Again given the longstanding base of often high-waste industrial processes, and the

high energy intensity of many recycling processes, this expansion was a natural fit for Pori's existing capacities and assets. Much of this cluster is housed in the Peittoo Circular Economy Park, where existing past industrial experience was combined with pre-zoning to create an attractive site for industrial recycling investments. Planning started in 2015, with Prizztech doing in-house consultancy on the project.[60] This date is significant, as it was a year prior to the national government producing Finland's circular economy road map, which was a world first upon its release in 2016.[61] This timing illustrates strategic opportunism at work: by monitoring national policy development processes and beginning local implementation before formal policy release, Pori positioned itself as the obvious pilot location when funding materialised.

The administration has continued to develop this base, recently capitalising on its green energy production to secure significant investment in a carbon-neutral factory to recover the critical mineral vanadium from steelmaking waste. This investment, which secured over €48 million in support from Business Finland,[62] seeks to close the loop of pre-existing industrial processes, aligning closely with the EU's Critical Raw Materials Act, positioning the city as a guarantor of European strategic autonomy in battery materials. Pori was chosen due to its strong logistics and skills base,[63] showing how historic investment and proactivity by the city and Port of Pori have created the foundations for future success.

Pori is committed to doubling down on its green industrial leadership, with its initial investments having unlocked downstream opportunities in further national and EU priority industries of green hydrogen and ammonia production. The former of these is also essential to decarbonised steelmaking, showing strong foresight in building synergistic capacities in support of its existing industrial base. The city has secured multiple feasibility studies and LOIs to explore green hydrogen production in the area.[64]

Local stakeholders engaged through the research highlighted the administration's strategic sale of a 49% stake in the municipal energy company, Pori Energia, to a Swedish investor to this industrial ambition. Capital from the sale was reinvested in financial markets and development funds, with their returns creating liquidity for the municipality to responsively shape and encourage private investment. This posture once more evidences Pori's mixture of proactivity and reactivity, positioning itself in advance to capitalise on shifting priorities and new investments in future industries.

## Defence industry

Defence investment is another example of Pori's approach to industrial strategy, although it also highlights potential pitfalls. Defence firm FORCIT has agreed to invest €200 million to build a TNT production facility in the extended city region.[65] Once completed, the Pori plant will become only the second TNT production site in the EU, alongside an existing facility in Poland. The site also creates the potential for another overlapping and synergistic industrial cluster to complement the others, with connections to its AI and robotics capabilities in terms of defence technology and cybersecurity, and raw materials through its chemicals and metals cluster. This approach again highlights the strengths in Pori's strategy. On one hand, it leveraged its location and existing infrastructural assets, such as its port, to *reactively* capitalise on the renewed focus on sovereign defence capabilities, benefitting from the incentives created by an advanced contract to FORCIT from the national government. On the other hand, its additive, sideways approach to industrial expansion demonstrates a strategic sense of building resilience through distinct but complementary economic activities, creating the potential for enhanced skill, knowledge and resource exchange within the local economy.

That said, the story is not all positive. Pori appears to have again attempted to use a proactive and entrepreneurial approach to permitting to expedite investment, providing a simpler placement permit rather than fully zoning the target investment area (a far more time-consuming and costly process). However, this approach has run into trouble: the

Finnish Safety and Chemicals Agency has since raised concerns that the rushed approach to permitting may jeopardise the ability of the project to secure the legally required chemical safety permit for it to proceed.[66] While the final outcome remains uncertain, this controversy exposes the risks of Pori's aggressive use of municipal discretion. The same entrepreneurial approach to regulation that accelerated offshore wind development becomes problematic when applied to hazardous materials without adequate safety consultation. This raises questions about balancing entrepreneurial risk taking with prudence and whether Pori's past success has bred overconfidence. The incident suggests limits to how far such regulatory de-risking models can be pushed.

### Placemaking as an industrial strategy

A final noteworthy element of Pori's approach is the longstanding recognition by local decisionmakers that a successful industrial strategy will require it to make itself an attractive place to live. In the modern economy, capital follows talent and talent, in turn, follows not only professional but also lifestyle opportunities. Given this, Pori has emphasised local regeneration as a key part of its wider industrial strategy. Evidence of this approach can be seen as far back as 2002, when Pori created one of Finland's first National Urban Parks, and more recently, its strategic use of the 2017 extension of the SAMK campus to revitalise the town centre and increase demand for local businesses.[67]

When discussing the latest push for industrial investment, local stakeholders expressed significant concerns about the impacts of development on their communities, alongside a clear recognition of the importance of capturing value locally. There was a notable emphasis on nature preservation, even as wider economic and sustainability objectives were pursued. Whilst more general concerns around obstructionism existed, there was widespread consensus that accounting for nature should not fall into this category. A view thus emerged of economic value needing to be balanced against other forms of social and natural value, with the proper regeneration of place being the connective tissue between all three. Decisionmakers acknowledged that industrial investments alone would not reverse declining demographic trends in Pori; this required a broader value proposition to attract and retain skilled workers, resulting in both aesthetic investments, such as the town centre regeneration, and attention to key infrastructure and services, such as schools.

## Lessons for future industrial strategy

Empirical evidence suggests that Pori's industrial pivot has successfully decoupled the local economy from an increasingly struggling national economy. While Pori's GVA at basic prices shows growth of 76.7% since 2000, it trails behind the national nominal average of 100.2%; this represents a robust performance for a city that has experienced below average population growth, and certainly not benefited from the population surges seen in the national capital of Helsinki.[69] That Pori has nearly doubled its total output, while maintaining a stable population base, suggests a profound increase in the complexity and value density of its local industrial activity. When framed against the 1990s crisis, which threatened a permanent hollowing out of the local economy, the current data points to a successful preservation of Pori's status as a regional engine.

The structural success of this strategy is best evaluated through Pori's relative economic weight. While the city's share of national GVA saw a marginal adjustment from 2.24% in 2000 to 1.97% in 2023, this figure represents a significant achievement in staving off the regional divergence typical of post-industrial economies. In a period where national growth was heavily concentrated in the service-oriented capital region, Pori's ability to maintain approximately 2% of Finland's GVA validates its role as a resilient industrial anchor. Crucially, as Pori accounts for only 1.48% of the national population, its 1.97% GVA contribution yields a per-capita productivity rate 33% higher than the national average.

Nevertheless, the fairly static population indicates a more ambiguous picture.

Pori has preserved its industrial output and increased productivity, but failed to convert this into broader attractiveness as a destination for working-age migrants. This suggests the strategy succeeded at its primary defensive goal (preventing decline) but fell short of more ambitious transformation. Thus, the continued prioritisation of placemaking we heard in recent stakeholder engagements feels apt.

## Conclusions

The Pori case demonstrates that mid-sized industrial cities can maintain economic relevance without becoming innovation frontiers, provided they adopt a posture of strategic opportunism combined with institutional continuity. Several lessons emerge for policymakers.

1. Use municipal powers proactively to de-risk private investment, but do not overextend; some level of public entrepreneurialism is good, but needless risks should not be taken for limited rewards.

2. Ensure anticipatory alignment between place-based strategies and wider national and European objectives, so that local ambitions can benefit from higher-tier priorities and funding frameworks.

3. Build formal institutional architecture for long-term coordination, and invest in low-cost informal enablers of "institutional thickness", recognising that both hard structures and soft relational capital are necessary for durable governance.

4. Go "with the grain" of local assets and accept limitations when formulating strategy, rather than pursuing transformations that are disconnected from the existing economic geography.

5. Treat placemaking as industrial infrastructure, understanding that the quality of the built and social environment is a determinant of economic attractiveness, and thus competitiveness, not merely an amenity concern.

6. Pursue disciplined diversification within complementary sectors, broadening the economic base for resilience while not sacrificing strategic coherence.

From the perspective of EU-level policy, Pori successfully leveraged EU funds and aligned with EU priorities, but this created potential dependency on continued commitment. EU institutions should recognise that successful place-based industrial strategy requires long-term certainty; frequent pivots in priority sectors undermine the patient capital accumulation cities like Pori depend upon. Ensuring EU funding can be a stabilising force through national turbulence, and providing supporting capital to the enablers of industrial policy success, as well as industrial investments themselves, will be essential.

From the perspective of national governments, Finland's approach of encouraging regionally differentiated clusters whilst maintaining consistent national priorities created conditions for Pori's success. National governments should resist the centralising impulse to concentrate investment in capitals, or to fixate on only developing those industries recognised as cutting edge and in fashion at the time, but instead develop frameworks that allow regions to specialise based on existing capabilities. However, this requires investing in the institutional capacity of local governments through matched funding, technical assistance and the facilitation of knowledge exchange between regions.

The Pori case suggests the goal for many industrial cities should be resilient adequacy rather than dynamic transformation. Through strategic opportunism, institutional coordination and a realistic assessment of comparative advantages, mid-sized industrial cities can maintain their role as regional economic anchors whilst gradually increasing the complexity and sustainability of their industrial base.

# 4. CASE STUDY 3: STEEL IN PORT TALBOT, SOUTH WALES, UK

Port Talbot is a town in South Wales, UK, historically home to one of Europe's largest integrated steelworks. After prolonged financial pressures and policy uncertainty, the site stopped producing primary steel and closed its blast furnaces in September 2024. This was part of a transition of activities to low-emission electric arc furnaces planned for the late-2020s. This transition has involved extensive redundancies, affecting workers at the site and across regional supply chains.

While other cases in this policy study focus on cities or regions, we analyse Port Talbot primarily through a focus on the past, present and future of the steelworks. The site has historically been the dominant employer and economic institution in the region, shaping employment, working lives, regional politics and local identity for generations. It is presented here as an example of the significance of a primary employer as a pivot upon which PBIP can take shape and as an example of how corporate decisions can often have an impact across local and regional scales.

In contrast to the previous cases of Dresden and Pori, the story of Port Talbot is primarily about a lack of strategy, and in the end, absence and loss. While the previous cases highlight anticipatory, coordinated responses, Port Talbot is notable for the absence of identifiable PBIPs. Intervention took place at the national level and remained mostly reactive and focused on mitigating impacts, rather than longer-term regional economic strategy.

## The sectoral context

The steel sector represents a core dilemma for many European governments, simultaneously embodying concerns around economic competitiveness, industrial productivity and global emissions.

Today, the UK steel industry is at a crossroads. It is struggling for economic viability, while being a sector of significant value in the UK, sitting at the apex of multiple supply chains of strategic importance, including the expansion of nuclear energy, transportation and automotive manufacturing. National government priorities are dependent on steel. The promised rapid expansion of wind energy would likely require close to 25 million tonnes of steel over the next 25 years.[72] Aims to turn the UK into a "defence industrial superpower" are also dependent on secure supply chains of steel to manufacture ships, vehicles, aircraft and other military equipment.

The sector is also a target for decarbonisation, being responsible for some 2.2% of national greenhouse gas emissions.[73] The transition to low-carbon steel involves moving away from the use of coal as a fuel to produce heat and raw material (coke, produced from coal, is used to extract iron from iron oxide ore) in blast furnaces.

The low-emission alternative, the electric arc furnace, instead uses electricity to produce heat and recycles scrap metal as its raw material. This removes the need for iron ore processing and eliminates the need for coal. Yet, whilst there has been investment in this transition in many European countries (such as Sweden, Germany and Spain), the UK has been slow to do so. While EU member states have expanded their "clean steel" pipeline, with 15 new projects in planning or development between 2021 and 2023, the UK has only added one new project in the same time frame.[74] The UK government is now playing catch up – both financially and strategically – with the recently announced £2.5 billion to "green" steel in the new National Wealth Fund announced in March 2025.

This case study shows how the potentially positive story of the industrial decarbonisation of steel

in the UK plays out on a canvas characterised by industrial precarity driven by reactive government policy, pressure from cheap imports driven by global overproduction in China, high electricity costs, and increased logistic and material costs post-Brexit.

The sector has consistently called for government action and support to continue steelmaking, despite the facilities themselves being loss-making. Between 2013 and 2023, some £800 million was made available to subsidise high energy costs.[74] Yet, such action remains short-term crisis management, rather than a longer-term industrial strategy, and the recent history of steel is one of plant closures, industrial precarity and job loss. Numerous steelworks have closed and job numbers in the sector have declined from some 320,000 workers in 1971 to 33,700 in 2023, plus 42,000 in supply chains.[76]

## The local context

The vulnerability of the UK steel sector is especially visible in the town of Port Talbot in South Wales. The modern history of Port Talbot is a story of steel. The facility, which dates back to 1947 but has been owned by Tata Steel since 2007, dominates the landscape of the town.

The sector was a beneficiary of the post-war, state-led industrial strategy, with steel quickly becoming symbolic of the region's central role in British industrial identity. As the primary local employer, the steelworks represented a social contract between community and industry, providing thousands of secure, unionised jobs. At its height, the steelworks employed over 20,000 people in a multi-generational workforce.[77] At the end of 2025, it only employed 2,000 workers.[78]

As with other heavy industries, the steel sector struggled from the tail end of the 20th century and underwent restructuring. In 2007, Indian conglomerate Tata Steel bought the Corus Group (itself formed in 1999 by the merger of British and Dutch steel interests), which had owned Port Talbot along with other UK steelworks (and one in the Netherlands). In the process, it moved from being the 56th to fifth largest producer of steel in the world (at that time).[79]

Less than a decade later, in 2016, Tata first threatened to close the Port Talbot site works, citing the fact it was losing £1 million per day through being undercut by "imports of Chinese steel, high energy costs and weak demand" as the reason.[80]

The global overproduction of steel reached 600 million tonnes in 2024, largely driven by expansive, state-supported production in China (producing a reported 1 billion tonnes of steel a year).[81] The result is a global glut of cheap steel, depressing UK steel prices and eroding the profitability of those remaining steel plants, all of which increased the precarity of steel-working jobs.

UK steel sector competitiveness is further undercut by higher electricity prices than in many other comparable countries. In 2025, UK Steel reported British manufacturers paying up to 25% more for electricity than their counterparts in France and Germany.[82] Steel manufacturing is energy intensive and, as a result, high electricity costs reduce operating margins, undermine potential investment and place extensive operational strain on steelworks in the UK.

To support the industry, the Conservative government (2010-2024) offered loans at a commercial rate, along with support for pension restructuring. Some additional financial viability was found in the decision to keep the plant running through a proposed merger of Tata Steel Europe with the German ThyssenKrupp. However, this was vetoed by the European Commission on anti-trust grounds. At the time of writing, ThyssenKrupp is reported to be considering selling its steel division, the second largest in Europe, to a different Indian steelmaker, Jindal Steel. This is a sign of how persistent and widespread the issues facing Port Talbot have been across our continent.[83]

In 2023, Tata Steel again threatened to close the Port Talbot works. The logic of the decision remained the same as in 2016, but with additional reasons linked to national climate policy. The plant in Port Talbot

was responsible for 2% of the UK's total emissions through its blast furnaces and, as a result, was liable for carbon taxes through the UK Emissions Trading Scheme introduced in January 2021. Tata Steel has reported paying £70-80 million a year through this scheme.[84]

In light of Tata Steel's announcement, the Conservative government signed a "green steel" proposal with Tata Steel, investing £500 million of public money (matched by £750 million from Tata). Rather than closing entirely, the Tata Steel plant in Port Talbot has changed its processes and infrastructure to produce new green steel using electric arc furnaces that use recycled steel and, as a result, require less energy and produce less emissions. This investment means that 5,000 jobs remain at the site, a positive result but one that means Port Talbot no longer has the capacity to produce its own steel. When the electric arc furnace comes online in 2028, it will use recycled steel only. Currently, this is achieved using imported steel from India and the Netherlands.[85]

This plan agreed that one blast furnace would remain open as the electric arc technology was built. However, in April 2024, Tata Steel announced that it would transition operations at Port Talbot to the use of electric arc furnace technologies faster than had been previously anticipated. After seven months of consultation with trade unions, it was announced that the blast furnaces at the site would close by the end of September 2024. This was driven by large and growing financial losses at Tata Steel: pre-tax losses in March 2024 came to £1.12 billion, four times higher than the previous year.[86]

In September 2024, Tata Steel signed a Grant Funding Agreement with the new Labour Party government, providing enhanced support for the transition to the electric arc furnaces. This affirmed the previous £500 million commitment of government funding and accepted the accelerated closure of the blast furnaces. It also provided £100 million of new funding for economic interventions in the community to be overseen by a transition board, including senior members of the UK and Welsh governments, the local authority and MP, Tata Steel, trade unions, and local business leaders.

Within this new agreement, the transition of the Port Talbot steelworks became embedded within the government's broader national green industrial strategy. The green steel transition remained but increased financial support and dedicated funding to support workers and the broader community strengthened the transition itself.

The transition promised to reduce CO2 emissions at the site by close to 5 million tonnes a year.[87] As the two blast furnaces closed down in July and September 2024, respectively, an estimated 2,500 jobs were lost.[88] An additional 300 jobs would remain but be phased down by 2027.

It is difficult to overstate the importance of the Tata steelworks to the economy of Port Talbot and the surrounding region. The steelworks was a significant source of high-wage employment in the region. Levels of educational qualifications in the town are lower than the national average: 30.4% of the working population in 2024 were educated to level 4 qualifications,[89] compared to 44% in Wales and 47.2% in the UK.[90] In this context, the steelworks offered well-paid, good work for many, regardless of education or skills profile. Wages at the facility were some 36% higher than the regional average,[91] and median wages in Port Talbot as a whole (£32,800 in 2022) were some of the highest in Wales, second only to the capital, Cardiff.[92] This contrasts heavily with the surrounding area, where many communities – themselves left in the wake of coal pit closures in the 1980s – have far lower wages.[93]

The steelworks also acted as a fulcrum for the broader regional economy – stimulating supply chains and subsidiary industries and with workers spending their wages in local businesses. Closure has far-reaching consequences with an estimated 2,820 indirect jobs at risk, including those in the retail, hospitality, transport, manufacturing, utilities and construction sectors.

Post-closure, the local economy saw positive outcomes as ex-workers spent redundancy

payments and government transition grants were paid.[94] New businesses were set up and the air became cleaner. Yet this short-term boost is fading at the time of writing. Port Talbot provides an instructive case study for PBIP, but it is one that is ongoing. The real impacts of this transition remain to be seen.

In policy terms, this transition of Port Talbot's steelworks to electric arc furnaces represents a relative success. Without government action, the plant would have likely closed entirely. Yet the closure of the blast furnaces at Port Talbot represents a complex moment for industrial policy in the UK. Despite being driven by global overproduction and high electricity costs, the plight of steelworkers has been deliberately positioned by the populist right in an anti-net-zero political narrative.[95]

It is within this context that national policies for emissions reduction and a move to the "green economy" collide with tensions regarding local economic security, saving some jobs but leading to the loss of others.

## Lessons for future industrial strategy

The transition from blast furnaces to electric arc facilities at Port Talbot represented an important test case of industrial transformation and emissions reduction. The speed (and acceleration) of change highlights an important disconnect between corporate-led transitions motivated by cost efficiencies and global flows and the slow transitions as state mechanisms turn to adapt – with successive governments having to quickly pivot to enable Tata Steel's decision.

For many in Port Talbot, government policy around the Tata steelworks closure represented an abandonment. Closure overlapped with climate ambitions and as a result successive governments were seen to be prioritising emissions targets over the livelihoods and identity of the local community.

Much of this grievance stems from a lack of proactive diversification of the regional economy away from steel manufacturing. Despite many warnings of volatility in the UK steel sector, Port Talbot's economy did not develop new capabilities or witness new investment in similar industries. Much of this was down to an absence of national industrial policy frameworks that encouraged diversification and a continued reliance upon Tata Steel shutting down potential alternatives.[96]

The absence of a national framework is exacerbated by the lack of powers and business linkages at a more local level found in the Saxony and Pori case studies. National government did not act, though it had the power to. Local government was powerless.

Industrial policy, climate ambition and politics collided in the closure of Port Talbot steelworks. Community anger at this should not be seen as a parochial outcry or backlash to climate policy, but instead, as highlighting their frustration at being excluded from decision-making. The experience of Port Talbot highlights the absence of PBIP, with interventions designed and implemented through central government at Westminster. The devolved Welsh government does not hold decision-making powers over industrial policy, and as a result, the majority of decisions to support Tata Steel and Port Talbot's steelworkers were made at the national level.

Decision-making in this case underscores long-standing tensions in the devolution of powers between the UK national government and the Welsh government.[97] While the Welsh devolved government holds some responsibilities around economic development and skills, critical levers for managing industrial policy – such as energy policy, decarbonisation and state investment – remain controlled by Westminster. As a result, Port Talbot's transition was primarily negotiated through bilateral discussions between Tata Steel and the UK's national government. This centralisation of decision-making created a structural barrier to democratic legitimacy in the transition of Port Talbot. The Conservative Party in government often adopted a "muscular unionism" approach to economic issues in devolved nations by working independently in Westminster to introduce new policies. The Welsh government was often frozen out of these decisions. In 2023, the Welsh Economy Minister only found out about

talks between Tata Steel and Kemi Badenoch, the Conservative politician and then UK Secretary of State for Business and Trade, through a news broadcast – rather than directly from his counterpart.[98]

Trade unions were also absent from decision-making and were not involved in government negotiations with Tata Steel.[99] This occurred despite the 2023 Social Partnerships Act, which makes public bodies work with trade unions (and other groups) to ensure inclusive policymaking on public procurement and achieving wellbeing goals. Rather than seeking to block the move to electric arc technologies, trade unions lobbied for a hybrid model. Both Community Union and the GMB had endorsed an alternative plan that maintained at least one blast furnace during the transition to the electric arc systems. This multi-union plan advocated for a phased transition over ten years – to ensure production continued and a supply chain for electric arc steelmaking could be secured (in terms of both sourcing scrap steel and markets for its products). In addition, Unite developed its own *Workers' Plan* for Port Talbot – that highlighted the potential for regional industrial policy to create new supply chains, downstream facilities and infrastructure.

These union-led proposals exemplify how national industrial strategy might come to integrate both geostrategy (protecting steel supply chains) and local employment and support. However, all these union-led plans were rejected as financially unviable and, with the government focused on securing Tata Steel's support for the electric arc agreement, running counter to boosting the company's confidence in the future of steel in the UK.

An important narrative – both in Port Talbot and the trade union movement – is that the 2024 agreement with Tata Steel was "too little, too late". Whilst the policies introduced by Tata Steel and the Tata Transition Board represent some remedy to the jobs lost, they only go so far without previous policies to stimulate new industries and employers in the region. Jobs on offer to many in Port Talbot do not represent clear replacements for those lost. Local job adverts are often in lower-paid, lower-skilled but socially valuable sectors, such as health and social care.

A lack of proactive industrial policy in Port Talbot contrasts with central government action to protect jobs at another steelworks in Scunthorpe, North-East England. In April 2025, British Steel (owned by Chinese multinational Jingye) announced plans to close the two blast furnaces at Scunthorpe steelworks, with a loss of 2,700 jobs. The UK government responded quickly, recalling parliament and enacting the Steel Industry (Special Measures) Act. This granted emergency powers to prevent the closure and ensure the furnaces remained in operation. Across these political discussions, government figures presented Scunthorpe's steel as vital to national infrastructure and security. For many in Port Talbot, this reinforced a sense of unfairness in transition: whilst Welsh jobs were lost at Tata Steel, English steelworkers were shielded.

In the case of Port Talbot, the shape of industrial strategy and restructuring was intricately linked to the pace of Tata Steel's decision-making. This is evident in the policies introduced in the wake of closure. Whilst some packages supported the diversification of the local economy away from a reliance on the steelworks, place-based policies focused on providing workers with skills and training opportunities to boost employability in different sectors. This included direct grants to workers looking to become self-employed or develop new business ideas, and those looking to complete training courses to find new work. An additional scheme from Tata Steel supported affected workers to enrol on paid training programmes. This follows a thread of previous policy using re- or up-skilling or business support programmes to support workers in the wake of industrial change. It makes sense in the case of Port Talbot, where the workforce at Port Talbot has grown younger in recent years, with the average age of workers at the site falling from 53 to 32.[100] These characteristics create an important imperative in policies introduced in the wake of the closure of Tata Steel's blast furnaces: how to support workers made redundant in finding new work and, where necessary, develop the skills and capacities needed to succeed in that transition.

However, in Port Talbot, these schemes have encountered challenges. There has been limited take up of Tata Steel's re-training scheme – in February 2025, it was reported that only three workers had applied for the scheme.[101] It is understood that this low level of sign-up was due to the political optics of these re-skilling schemes, which focused on IT or numeracy skills, rather than providing a pathway into the skills required to work in the regional economy. Many workers also decided to take a redundancy payment and turn to early retirement (if possible) or self-employment. A lack of access to these skills courses is also likely to blame: in February 2025, a company providing training to dozens of affected workers itself closed down, due to funding insecurity.

Where retraining and skills offers are effective, such as those offered by the union community from a hub it has established in the local shopping centre, there is concern among those providing the service that many of the jobs – particularly those related to the former steel industry (such as welding for maintenance) – people are being steered towards are out of the area, and in some cases out of the country.

New jobs are promised regionally by the Celtic Freeport announced in November 2024. This scheme, encompassing both Port Talbot and Milford Haven to the west, will dedicate £8.4 billion of investment to support growth in renewables, hydrogen production and green steel sectors – pledging the creation of some 11,500 jobs. This Freeport will also be a key hub for the emergence of the Celtic Sea (the area of the Atlantic Ocean that is found south of Ireland, southwest of Wales and west of Cornwall) as a central site in the expansion of floating offshore wind energy. In June 2025, seabed leases for 3 GW of floating wind infrastructure were issued to Equinor and Gwynt Glas, with construction to stimulate jobs both directly and across regional supply chains, as well as increased regional demand for steel.[102]

However, there remains a disconnect in the timelines for many of these promises of a new green regional economy. Many roles to be created at the Celtic Sea Freeport are promised to be available by 2030, but it may not reach its full employment potential until 2050. Similarly, there remain uncertainties in just how many jobs might be created by the floating offshore wind sector – and where these jobs might be located. Such promises – stretching to 2030 and 2050 – create an important temporal gap, within which communities bear the costs of transition but remain untouched by the tangible benefits.

## Conclusions

The transition to electric arc furnaces at Port Talbot is rooted in long-running and structural pressures affecting the steel sector in the UK, rather than climate policy exclusively. Yet, it has valuable lessons for how to manage national strategic objectives of decarbonisation and place-based approaches that support communities.

Firstly, the story of Port Talbot highlights a key challenge for place-based industrial strategy: how do we navigate the different paces of industrial decline, on one hand, and the arrival of new investments and jobs, on the other? The accelerated timeline of the closure of the blast furnaces has dramatically outpaced the potential arrival of new green investment and jobs. The result is a gulf: the community of Port Talbot now faces an uncertain future, waiting for the investment that it has been promised.

Secondly, these competing timelines illuminate the need for central decision-making to be supported by a place-based approach. One significant missed opportunity is found in the recommendations of the Green Jobs Taskforce, published in 2023 that argued that high-emissions sectors should prepare "just transition agreements", which outline how workers will be supported, which skills will be provided and which sectors workers will be transitioned into. The experience of Tata Steel workers at Port Talbot is a stark illustration of the consequences when such agreements are not implemented, reinforcing that industrial transition cannot succeed without simultaneously securing local livelihoods, democratic legitimacy and national strategic interests.

This case is notable for its absence of PBIP. However, it highlights the important space for such an approach. A more pro-active approach to managing this transition might have linked domestic demand for steel with energy-pricing reform at the national level with regional supply-chain coordination, economic diversification and the support of workers affected ahead of redundancy rather than after. Such a place-based, systems-led approach would allow more equitable outcomes and address how the plight of steelworks at Port Talbot has become part of a critique of decarbonisation.[103]

Thirdly, the absence of trade unions, devolved government and local voices in decision-making was a missed opportunity to co-design a transition that aligned nationally strategic, local-regional economic and global climate goals. The barriers posed by centralised governance raise an important question – how do we support industrial transitions whilst ensuring local consent and democratic legitimacy? It will be highly difficult for Europe to replicate the top-down industrial policies adopted in China and USA and, as a result, Port Talbot represents a cautionary tale for the need for joined up decision-making and the risks of political backlash.

Central government interventions in Port Talbot have not plugged the gap left by the steelworks as it was. The end result of fewer jobs and lower pay feeds into a political narrative in which climate policy is positioned as a jobs killer. This comes from a regularly used narrative to dismiss environmental regulations but takes on a new form in the wake of Port Talbot. Reform UK has proposed reopening the blast furnaces as part of a broader narrative of re-industrialising Wales, which also includes reopening coal mines closed over 40 years ago. This is part of a wider effort to win votes in the post-industrial heartlands of the UK: areas that will, like workers in Port Talbot, look to climate policies to understand what jobs will be created and for whom. Such narratives thrive where transitions are perceived to be imposed without care or consultation.

Future interventions in Port Talbot – or similar towns facing change – must include proactive and early co-design of interventions with unions and local authorities. PBIP frameworks must integrate just transition agreements, link support to local employment outcomes, and more clearly align policy timelines of opportunity and job growth with those of redundancy and loss.

# 5. CASE STUDY 4: CRITICAL MINERALS IN CORNWALL, UK

A narrow peninsular local authority in the far southwest of Great Britain with a historical status as a separate nation and home to its own national minority people with their own language, Cornwall plays a powerful role in both the psyche and the security of the country as a whole. Cornwall's economy is often romanticised as a coastal idyll of picturesque but depopulated fishing villages and holiday retreats, but its story is fundamentally industrial – a tale of early dynamism followed by premature deindustrialisation and persistent peripheralisation.[104] This industrial side of its identity is rising once again.

Historically, Cornwall was a mining powerhouse. By the 19th century it was a global leader in tin and copper extraction, underpinned by mining expertise and engineering prowess. Towns such as Redruth and Camborne thrived, supported by extensive infrastructure including foundries, rail links and ports. Yet Cornwall's industrial boom predated the labour and social reforms of later industrialisation, meaning wealth was often extracted without the productive relations in place to institutionalise working-class power locally. When overseas discoveries and falling prices undercut Cornish producers in the late 1800s, thousands emigrated, inspiring the saying that wherever there is a hole in the ground, there will be a Cornishman at the bottom of it. Cornwall lost over a third of its population and only regained its mid-19th-century population by the 1970s.

Present-day Cornwall bears the imprint of this trajectory. Traditional industries such as marine, fishing and farming persist but employ far fewer people than in the past, while the closure of the last tin mine in 1998 retains strong emotional resonance. Since the early 20th century, tourism has become a major employer, though one characterised by low-paid, seasonal and part-time work, shared with other service sector occupations providing care, leisure and pleasure to visitors, retirees and wealthy in-migrants.

This has entrenched a cycle of low productivity, low incomes and constrained life chances. Housing affordability is a serious issue, with demand from retirees and urban incomers pushing locals out of the market and making it difficult for young people to stay. Combined with underdeveloped infrastructure resulting from premature deindustrialisation, this creates barriers to the emergence of a modern economy. Deficits such as limited power grid capacity obstruct new industrial activity.

Yet Cornwall retains distinctive assets for renewal linked to sustainability and security. Its southwestern peninsula juts into the Atlantic, positioning it as a strategic location geographically and geopolitically. Hard-rock geology rich in minerals, deep-water ports such as Falmouth, proximity to defence investment centred on nearby Plymouth, and significant sites including intelligence installations and satellite stations give Cornwall an outsized strategic role. Abundant wind, wave, solar and geothermal resources further position it at the core of emerging offshore wind and renewable energy developments.

In short, Cornwall's economic story is thus one of rich industrial heritage, prolonged adjustment and persistent structural weakness, but also of latent strengths that exemplify what is at stake in PBIP.

## The national context

This case study takes Cornwall as a potential and emerging test of the UK Labour government's "securonomics" approach to industrial strategy – defined here as a policy agenda that combines the pursuit of economic security and national security.[105] While still too early to extract definitive lessons about implementation, the region's critical

minerals endowments in tin, lithium and tungsten make it a revealing site in which to observe how a security-orientated industrial strategy might translate from national strategy to local delivery.

To ground the discussion in concrete practice, we convened a roundtable of regional MPs, national policymakers and industry representatives in Westminster, London. Their unattributed contributions – on issues from delivery to democratic consent – are woven through the sections that follow, shaping how the argument unfolds and where emphasis is placed.[106] This is supported by insights garnered from ongoing research and engagement with the sector and the case-study site.

The case is not only economic but political. Reconnecting with the securonomicsagenda that Labour developed in opposition, with its productivist stress on rebuilding the industrial base, matters both for national resilience and for the renewal of consent in places that deindustrialisation has written out of the country's story. Critical minerals epitomise this opportunity – something seemingly registered by the Chancellor, who recently celebrated tens of millions of pounds of investment, through the National Wealth Fund, in British firms through which the government has taken a stake in two innovative companies at the forefront of mining revival.

The tin, lithium and tungsten present in the granite bedrock are seen as critical to the country's security and sustainability. Cumulatively, this globally significant reserve of mineral wealth represents a breadbasket of the georesources of the future, with applications in everything that powers and protects the country from energy infrastructure to defence technology. There is also considerable potential for resources like tungsten – pivotal to advanced manufacturing and defence production, but mostly supplied by geopolitical rivals like China and Russia – to play a key part in trade deals with allies like the USA.

Meanwhile, the intrinsic connection between geology and geography means that the mining revival epitomises the possibilities of PBIP. The presence of resources forged deep in the Earth's past means that these industries are tied intrinsically to the places that host them. For the peripheralised working-class rural locations where these resources tend to be, past and future combine to create a new narrative of reindustrialisation focused on a productive contribution to the country as a whole, rather than a narrative of deindustrialisation based on seeking redistributive acts of charity from the state. The prize is a new generation of local young people getting skilled jobs – from fitter to geologist – that occupy a strategically important position in global and national value chains, with all of the industrial power, prestige, pay and purpose that follow. The sector is expected to produce hundreds of jobs at each plant and thousands of jobs overall, with a strong multiplier effect from the supply chains and contractors that will support particular phases and projects.

## The sectoral context

The Labour government's new Critical Minerals Strategy sits at the intersection of several of the policy initiatives set out above.[107] The previous government's Critical Minerals Strategy – the UK's first – was published in 2022.[108] With supply-chain insecurity having been exposed by the COVID-19 pandemic, tensions with China and the full-scale Russian invasion of Ukraine, the document made the stakes clear. It set the scene for increasing recognition of the importance of metals and materials – but did so ultimately from a perspective of managing global risk rather than comprehensively repositioning Britain's economy.

In the early stages of the Labour government, critical minerals were similarly viewed through the prism of international trade and global development rather than domestic production.[109] And, indeed, the first iteration of the Modern Industrial Strategy was silent on the domestic implications of critical minerals production.[110]

As a consequence of the substantial weight of consultation responses received on the initial Green Paper, the revised version recognised the existence of critical mineral clusters in every corner of the

UK, from Aberdeen and Belfast to South Wales and Cornwall – and, crucially, their capacity to generate high-wage, high-skilled jobs in working-class communities. Most significantly, the strategy also carved out space for minerals, metals and other materials through a new definition of "foundational industries" that underpinned the more exclusive eight growth-driving sectors that anchored the original iteration of the strategy.

The Clean Energy Industries Sector Plan released alongside the Industrial Strategy gave a starring role to critical minerals insofar as domestic production and processing of lithium and nickel is seen to be crucial to reducing the reliance on overseas supplies for battery technologies.[111] With recent news about the US-China scramble for resource supremacy, there is nonetheless still a pervasive tendency to see critical minerals as something sourced from overseas principally to support greater sustainability – support for a revival of domestic mining being something of an afterthought. The timing of the new critical minerals strategy – launched to coincide with the recent COP summit – suggested some superficial continuity with this approach.

But the new strategy – "Vision 2035" – marks the kind of substantial step change in positioning that "securonomics" once signalled. Building on the identification of critical minerals as a "foundational industry" in the final iteration of the Modern Industrial Strategy, the strategy is more discriminating in articulating the purpose to which critical minerals must be put.[112]

The new strategy strengthens support for sovereign capability in the domestic production and processing of georesources in the UK – with an ambitious target that 10% of national demand be met domestically and commitments on stockpiling for defence. It pitches the sector's promise as being as much about national security as environmental sustainability, and promotes the possibility that it can provide opportunity to places seeking to escape decades of post-industrial decline.[113]

The centrality of critical minerals to decarbonisation, the digital transition and defence innovation means that the country cannot do without them. But the requirement to account for geopolitical, ethical and ecological risk in securing supply means that the UK and its allies must source them from closer to home. And the UK's world-leading reserves of certain minerals are geologically fixed in places where it is politically and economically impossible to pass up the opportunity for the pay, power and prestige associated with reindustrialisation.

Roundtable participants reinforced three points crucial to the implementation of this strategy in practice, which will of course be a continuing process. Firstly, delivery is the test of securonomics, translating strategy into investable projects, enduring jobs and improvements in everyday life for communities hosting industrial activity. Secondly, extraction-only models see value realised elsewhere and remain dependent on volatile commodity cycles, and any strategy must thus focus on the midstream of processing and production. Thirdly, industrial strategy is never merely technocratic: it is a political project, a story of contribution and pride that must be made tangible in place if it is to command sustained consent.

However, we also heard how, taking Cornwall as an example, there are substantial barriers to be overcome to reindustrialise based on critical minerals extraction – from infrastructure to skills. The key underpinning weakness is that resource economies like Cornwall face a legacy of early onset industrialisation followed by early onset deindustrialisation. This leaves a level of underdevelopment of infrastructure in terms of grid connectivity, energy and transportation. Meanwhile, the rural location of these sites and lack of local authority capacity create challenges around the planning process. For example, the domestic system of minerals rights ownership represents an untimely legacy of feudal social and economic relations holding back Cornwall's capacity to reattain the industrial modernity taken from it over the course of the protracted decline of the long 20th century.[114]

## The local context

Participants in the roundtable considered Cornwall's past of cutting-edge industrial modernity, still present in pockets of its business base – for instance, marine/maritime, energy and space. Importantly, the peripheralised and peninsular geographical position that Cornwall occupies endows it with a range of natural advantages that mean, relative to size, it has a very high concentration of industries and infrastructures critical to the future security of the country as a whole – clear skies facilitating space and satellite installations, deep waters supporting defence ship repair and wave power, and an extensive coastline marked by offshore wind potential and longstanding undersea-cable landing points. However, in spite of this nascent industrial and infrastructural ecosystem, today, Cornwall's economy is largely dominated by services that provide for an aging population shaped by significant inward migration and tourism; the types of jobs and enterprises this tends to produce do not provide a durable basis for good growth or good work.

It is against this backdrop that the mining revival inspires such hope. Cornwall's granite landmass is home to globally significant concentrations of tin, lithium and tungsten each with digital, green and defence applications – the basis for what the Critical Minerals Strategy calls an "industrial renaissance". The election of an unprecedented four Labour MPs in July 2024 has seen a tremendous political effort to promote the pivotal contribution Cornwall can make to the country's resilience, rewarded in the starring role the strategy grants what the MP Perran Moon calls the "Cornish Celtic Tiger".[115]

Whilst china clay has continued production, local extraction of metals and minerals finally succumbed to a long and protracted decline in 1998, with the closure of Cornwall's last operational hard-rock mine at the iconic South Crofty. Today, however, the globalisation that saw world-leading reserves of tin left in the ground has gone into reverse, making the plans of owners Cornish Metals to restart mining on site newly viable. The new strategy presents tin as a "growth mineral", committing to further work to fill the so-called "midstream" of smelting and refining capacity so that more of the value chain can be captured within the UK's borders by supplying a processed and thus higher price product.

Marshalling an array of policy interventions that show willingness to put money where the government's mouth is, the new strategy surpasses the previous focus on exploration by pledging to scale up domestic production, processing and stockpiling of minerals. For instance, lithium – the prime mover of which in Cornwall is the company Cornish Lithium – now has an explicit domestic production target to be reached by 2035, with the strategy committing to greater integration of domestic extraction and national battery and e-vehicle production projects.

Cornwall also has strategically important reserves of tungsten, a resource for which supply is largely controlled by geopolitical rivals and the fortunes of which historically rose and fell with the threat of war and conflict. Local companies like Cornwall Resources are set to see significant international interest as the struggle intensifies to stockpile tungsten for use in arms and advanced manufacturing. Setting out plans to stockpile for the purposes of our own defence, the strategy's expansive definition of "growth minerals" commits to unlocking finance and other support for tungsten producers to ensure the UK's sovereign supply is prioritised.

In all these ways, the minerals sector is both strategically vital and subject to speculative dynamics, and so given the centrality of security, it is welcome that the new strategy positions the state to safeguard supply through a more activist industrial policy. Both Cornish Metals and Cornish Lithium have seen the government take a multi-million stake in their operations through the National Wealth Fund.

The ambitions of the scheme have been somewhat dialled back when compared with the bold promises about strings attached made in opposition. Nonetheless, such investments represent a tentative step towards the interventionism that increasingly defines the governance of sovereign supply of resources among allies and rivals alike. The National Security Strategy names critical

minerals as one of the areas where other states are using national champions to compete for control over the future of science and technology.[116] It remains to be seen whether the UK can support, and in some cases subsidise, national champions of its own, and the £50 million committed in the Critical Minerals Strategy needs to pick winners to avoid being spread too thinly. However, the strategy undoubtedly represents a step forward.

However, Cornwall's case shows that the legacies of early industrialisation followed by early deindustrialisation are not easily wished away. Roundtable contributors repeatedly returned to place-specific barriers that determine whether geological advantage translates into a durable ecosystem. Energy is the most immediate. The region's ability to land offshore wind counts for little if grid capacity and connection timing act as a brake. Policy recognition of electricity cost as a competitiveness issue is welcome, but in Cornwall the binding constraint is frequently availability, not just price. Participants argued for anticipatory investment in the grid and guaranteed connection windows for strategically designated sites to give projects bankability.

As captured in previous work for FEPS and Progressive Britain, planning is the second barrier.[117] Government proposes wider use of Nationally Significant Infrastructure Project designation to accelerate nationally important industrial sites; Cornish Lithium has already benefitted from strategic treatment.[118] As security and resilience logics expand, what was previously classed as private sector development is increasingly viewed as critical infrastructure that should be eligible for treatment consistent with defence spending. The governments 10-Year Infrastructure Plan aims to make the pipeline more coherent and coordinated.[119] Legitimacy requires that speed is matched with transparent baselines, mitigation and credible community benefit. A deeper and more intractable barrier to modernisation is the system of mineral rights ownership through which feudal land relations are maintained, making the UK an outlier globally in the role the state takes in exploitation of natural resources. [120]

Skills and the "right to stay" constitute the third, reinforcing the findings of a recent briefing from the Critical Minerals Challenge Centre.[121] The peninsula penalty – distance, housing costs and transport – deters retention and in-migration of skilled workers. Place quality is a productivity variable: housing, public services and amenities are enabling conditions for recruitment, retention and progression. The Skills England agenda to reinvigorate technical education where sectors require it most is essential, with engineering a cross-cutting pillar and specialist capabilities (geometallurgy, hydrometallurgy, process control) requiring granular attention.[122] A sector workforce strategy for clean energy is forthcoming; the case for explicitly including foundational industries like metals and materials is strong.

The final aspect is the intersection between geography and governance. Many mineral geographies are rural and peripheral; they do not fit neatly within city-region models anchoring much public investment. Locally in Cornwall, this investment will sit alongside more place-based forms of support. The government has been slow to recognise Cornwall's specificity in its policy provisions. Cornwall is a corner of Britain, the polity of which is historically based on a national minority people, making it an ill fit with the existing geographies of mayoral devolution. But its coastal and geological character means that it also home to a concentration of strategic assets and critical infrastructure relative to its size that is probably unprecedented in these islands. This spans not only mineral wealth but sun, waves and wind for our energy supply, clear skies for space and satellite innovation, and telecommunications installations and undersea cables.

The contribution that Cornwall can make to the future security of Britain as a whole has, at the time of writing, finally been recognised and buttressed by a bespoke devolution deal, enabling access to various policy and funding levers, and the creation of the Kernow Industrial Growth Fund, announced at the budget and geared towards unlocking the local opportunities of reindustrialisation. The Industrial Strategy's Strategic Sites Accelerator and emerging

Industrial Strategy Zones – with Cornwall earmarked – are designed to unlock grid capacity, planning approvals and cluster collaboration across energy, planning, innovation and skills.

For participants in the roundtable, Cornwall represented a proof of concept for whether a security-oriented industrial strategy could achieve three things simultaneously: building sovereign capacity in parts of the value chain where global dependence is most constraining; anchoring value locally, translating geological advantage into good jobs, visible amenities and a renewed civic compact; and sustaining democratic legitimacy, especially in places susceptible to populist narratives that present climate and security agendas as threats rather than opportunities. It is worth noting, in this respect, that Reform is widely seen as the most likely party to win the two leading constituencies for critical minerals in Cornwall: Camborne & Redruth and St Austell & Newquay.

## Lessons for future industrial strategy

Several more general and broader lessons emerge from the case-study research.

Firstly, it is imperative for PBIP to build up locally and nationally grounded value chains that include multiple complementary stages where benefits can be accessed by workers, businesses and communities. This would co-locate selected processing, refining and precursor steps where feasible. This is in the interests of national security and sovereignty in the case of resources like tin, lithium and tungsten given their role in defence, electronics and battery value chains.

Secondly, a range of planning and infrastructural issues must be addressed to unleash the industrial power of places. Strategic designations of projects can smooth progress through planning barriers, but energy infrastructure is arguably the bigger obstacle. The availability of cheap energy is a key strategic enabler of PBIP. The combination of innovations like industrial strategy zones with anticipatory grid investment and accelerated connections would unlock both minerals extraction and the development of the midstream. Without this, promising projects could still stall, regardless of the economic and geopolitical opportunities presented by the revival of the mining sector.

Thirdly, to support the "place-based" aspect of industrial transformation, it is necessary to build skills pipelines that make the "right to stay" for local people – especially younger workers – real. Reindustrialisation demands that local young people can access the right workforce development routes that lead to progression in sectors of the future like critical minerals. It is also important to recognise that workforce and skills are developed in context, with housing and transport not optional add-ons but central to economic growth and productivity in peripheralised places like Cornwall.[123] They must thus be treated as part of the industrial policy package rather than delegated to separate silos.

Fourthly, against fiscal headwinds, there is a continuing need to recommit to the use of public investment tools to crowd in patient capital tethered to the national interest. The capital intensity and cyclicality of critical minerals may warrant the state taking a keener role in supporting supply, but any support must be conditioned on social partnership, local value capture and skills commitments. Pulling procurement levers available to government in areas like defence can signal long-horizon demand for domestically processed inputs, creating a better context for investment – as long as the latter is managed in line with an awareness of national security risks and opportunities. The state in the past has at times acted as buyer, investor and convenor, enabling internationally competitive firms. The strategic nature of materials that feed defence, digital and decarbonisation requires interventions that mitigate the most destabilising effects of commodity swings without creating open-ended subsidy dependence.

Fifth is that governance is key, and that this needs to operate at different scales – place is not just an immediate locality but also the nation as a whole. This requires pragmatism on devolution and centralisation. Where scale and risk demand it,

functional centralisation can mobilise national tools at speed; where place-specificity is decisive, bespoke funds and cluster-oriented instruments should be the focus of interventions. Cornwall's experience cautions against a cookie-cutter insistence on overarching frameworks for devolution where they do not fit, but, at the same time, it illustrates that the power of a place will be defined in line with the prerogatives of the national state. Within this broader question of governance, industrial policy must never lose sight of consent. Industrial strategy is not just technocratic; it is a political project. People need to see how their work contributes to national security and shared prosperity; they need to see near-term gains – skilled jobs, infrastructure, local supply chain – while larger investments come to fruition. Absent a politics of contribution and pride, the vacuum is filled by actors ready with simpler stories and shorter fuses – such as the siren calls of right-wing populists adept at laying claim to the narrative of reindustrialisation and ready and waiting for social democrats to fail in realising its promise.

At the time of finalising this text, some of the complexities inherent in ensuring the UK's critical minerals sovereignty via Cornwall's industrial revival are becoming clear. Geothermal Engineering Ltd has celebrated commencing the generation of energy and production of lithium from the hot waters in the hard rock beneath Cornwall's soil; the eventual outcome of structural funding provided decades ago.[124] Cornish Metals, meanwhile, has received an expression of intent to acquire a stake from a US state investment bank keen to strengthen American resource security – the potential for accelerated growth seeing share prices increase but concerns emerge about the local and national value to be retained as part of any deal.[125] Imerys British Lithium has paused its lithium operation to retrench efforts to another plant in France, where, given the UK government has pumped millions into its close competitor, Cornish Lithium, there may be better supporting pillars of policy and financing available.[126] These three very different developments together reveal how the UK is caught between the competing sovereignties of other states whilst simultaneously attempting to impose its own upon the production and supply of critical minerals. The lesson from the varying prospects at play is that the state must step up to safeguard security and sovereignty – and the only way to do so is through the places where resources are located.

# 6. ANALYSIS OF LESSONS LEARNED

The contemporary return of industrial policy is distinctive not simply in its scale but in its purpose. Industrial policy now serves multiple, overlapping objectives that extend far beyond the traditional developmentalist goal of economic growth. The threats posed to liberal democracy by the military and geopolitical projects of aggressive authoritarianisms, the dismantling of the free trade order, the imperatives of decarbonisation, the vulnerabilities exposed in critical technology supply chains by recent crises, and the political fractures evident in "left behind" regions have combined to make industrial policy a strategic tool for safeguarding democracy, defence and resilience in an era where politics overdetermines economics and security overdetermines prosperity.

The central focus of this work is an examination of PBIPs under conditions of change, uncertainty and crisis; on one hand, it seeks to illuminate how effective policy can ensure local resilience in the face of macro-level instability. And on the other, how attendance to place-based dynamics might better equip governments to effectively utilise industrial policy to achieve the broad range of often competing goals presented by a world in flux. In highlighting how macro-level dynamics can cascade into quite different local impacts, and identifying critical factors of successful and failed place-based intervention, the following analysis serves to identify common lessons for how to navigate a chaotic world at both the local and (supra)national levels.

## Geopolitical realignment and strategic autonomy

The post-Cold War assumption that greater global openness and connectedness would bring about permanent peace and harmony has fundamentally collapsed, making industrial capacity a matter of national security and vice versa. The pursuit of resilience against existential threat via greater strategic autonomy now justifies policy interventions and state investments that pure economic efficiency would not – in some respects representing a rehabilitation of the import substitution logic that fell out of fashion with the neoliberal turn. Yet, as we have already seen, the cases presented above reveal fundamental questions about the practical implications of this incipient post-neoliberal turn in economic governance and industrial policy.

Cornwall and Saxony offer contrasting perspectives. Cornwall's tin, lithium and tungsten reserves position it as a breadbasket for the mineral resources strategic to future security and prosperity, yet the capacity to re-attain lost industrial modernity is held back by outdated planning and infrastructure and shortages in skills and the socioeconomic foundations that support their development. Without additional investments to move it up the value chain, Cornwall risks repeating the "resource paradox": extracting resources but not retaining their value locally, with minerals shipped abroad whilst the region captures only extraction-phase employment and limited value. Realising the ambitions of the government's Critical Mineral Strategy in this regard would deliver macroeconomic benefits to the UK through reduced import dependence whilst providing Cornwall high-value employment and the industrial ecosystem depth – in other words, fulfilling the promise of Labour's securonomics in action.

Saxony, meanwhile, demonstrates that genuine strategic autonomy requires end-to-end capabilities. The ecosystem encompasses not just fabrication but R&D through Fraunhofer institutes, specialised equipment manufacturers, materials suppliers, design houses and a deep pool of process engineers. This depth emerged through three decades of cumulative, patient investment but also demonstrates the formidable resources and timeframes genuine strategic autonomy demands.

The question facing Cornwall, and UK industrial policy more broadly, is whether sufficient economic firepower exists to develop midstream capacity competitively, or whether a more modest goal of securing the early end of the value chain whilst processing occurs in allied nations represents more realistic strategic autonomy. Saxony poses a similar question to Europe with regard to chips: the choice between costly onshoring of all capabilities versus building adequate resilience through specialisation and partnership. The distinction between strategic autonomy (maintaining capabilities, even at some economic cost) and economic nationalism (protection for its own sake) must be carefully navigated. Ultimately the uncertain defence and geopolitical context will require retention of some flexibility in being able to balance protection and collaboration according to circumstances.

### Climate transition and just transition politics

The transition to electric arc furnaces at Port Talbot is rooted in long-running and structural pressures affecting the steel sector in the UK, rather than climate policy exclusively. Yet it holds important lessons for reconciling national objectives of decarbonisation with place-based approaches to support communities facing change. In Port Talbot, Tata Steel's blast furnace closure, and rushed intervention to transition to electric arc technology, proved politically corrosive when enacted through exclusionary governance that froze out devolved authorities and trade unions. The result fuelled populist narratives framing climate policy as a "jobs killer" orchestrated by distant elites. Critically, Port Talbot's closure was driven by the steelworks' lack of profitability in the face of global competitive pressures. Yet the timing amid rising climate ambitions allowed it to be weaponised politically as an example of climate concerns trumping working-class livelihoods. This mischaracterisation was enabled by the slow pace at which the government grasped the necessity of foregrounding national and economic security in the support given to certain sectors – that created a vacuum of trust and legitimacy. The contrast with Scunthorpe (another steel town receiving different policy responses) exacerbated feelings of being overlooked, demonstrating that policymakers must consider places not in isolation but in relation to one another, lest they fuel those political tendencies readier to articulate the varied sources of regional discontent in ways that disfigure what might otherwise represent a democratic imperative for place-based industrial transformation.

Pori offers an alternative model, showing how climate imperatives can become the foundation for proactive industrial strategy rather than a source of defensive reaction. The municipality positioned itself to capture emerging green opportunities through concrete anticipatory actions: conducting zoning and environmental assessments for offshore wind before the technology for frozen seas was fully proven, beginning circular economy planning before Finland's national road map was formally launched, and strategically selling a stake in its municipal energy company to provide liquidity to support further green industrial investments. Critically, Pori treated environmental quality as an asset rather than a constraint, embedding nature considerations within its approach to industrial strategy, demonstrating an understanding that national climate objectives, local environmentalism and social sustainability must all run together to achieve success. This stands in contrast to Port Talbot's narrow focus on the steelworks themselves rather than the wider social fabric, and the wider UK policy discourses pitting green imperatives against economic development.

The contrast between Port Talbot and Pori suggests that successful climate-aligned industrial policy requires three elements at the local level: early positioning to capture emerging opportunities rather than reactive crisis management, treating environmental quality as a component of competitive advantage rather than merely a regulatory burden, and embedding transitions within broader place-based strategies that maintain social legitimacy through tangible quality-of-life improvements. Climate imperatives can drive industrial renewal, but only when governance structures enable proactive adaptation rather than forcing defensive reactions

to external pressures. At the national level, it must be acknowledged that Pori has benefited from a policy environment where climate action is overall far less politicised. However, successive Finnish administrations have done an effective job of tying economic ambitions, and security of supply considerations, to sustainability policy, again providing potential lessons for the UK. Against the backdrop of global upheaval, there is some evidence that a subtle shift in the conversation from "sustainability" to "security" has helped strengthen and advance green development as part and parcel of a wider reset – including digital and defence – in Cornwall, and this might be taken up elsewhere.

## Prosperity and political legitimacy

Economic stagnation, widening regional inequalities and political disaffection concentrated in "left behind" regions have made industrial policy a matter of democratic survival, not just economic development. Success measured by aggregate GDP growth or national competitiveness metrics is insufficient if it does not translate into tangible improvements in people's lives in the places where they actually live; it is also incumbent on social democrats to be able to tell convincing stories about the future of places and the people who belong to and identify with them.

Port Talbot also represents an example of failure on this front. Overwhelming dependence on the steelworks saw no proactive diversification strategy whilst the works remained viable. When crisis came, the response was reactive and fragmented, with government lacking an overarching strategic compass for how to navigate the needs of security and prosperity nationally and locally. Support packages and retraining schemes subsequently felt imposed rather than co-designed. Workers and communities experienced the transition as something done to them, not with them, breeding resentment that will make future interventions harder. The retraining schemes saw disappointingly low uptake, possibly because they required relocation or pivoting to sectors too distant from steelmaking capabilities. This made the "support" largely notional and underscores the extent of path dependency in place-based transformations.

Pori exemplifies an approach oriented toward "good jobs" and "better lives." The municipality attracts industrial investment whilst pursuing a vision for broader based liveability in the form of amenities, housing, cultural facilities and public services. The local "industrial genotype" (a culture comfortable with industrial activity) facilitates acceptance, but this is paired with pragmatic, grounded self-conception. Pori does not aspire to world leadership but to providing decent livelihoods and quality of life. This modesty enables flexibility to pursue diverse opportunities, rather than getting locked into potentially unachievable grand visions. While population statistics create an ambiguous picture of how successful Pori has managed to be in this endeavour thus far, the fact it remains prominent as a consideration of local leaders is important in itself.

Also calling upon a strong and supportive "industrial genotype" of its own, Cornwall's case foregrounds questions of identity and meaning. Whilst ultimately driven by the geopolitical reshaping of the global and national economy, the revival of mining carries symbolic weight beyond economic impact. The sense of collective effort and goodwill that is enabling development in this domain shows that reindustrialisation must return not only growth and productivity gains but also be communicated within an overarching political vernacular of pride in place and the re-dignification of work and economic life. If investment delivers macroeconomic benefits without returning Cornwall's sense of place and worth, it will struggle to secure local support and realise political dividends to the social democratic politicians who have played a leading role in connecting local aspirations with those of a reforming Labour government. The parliamentary roundtable examining Cornwall's potential emphasised that success in PBIP in this context depends on embedding local benefit and empowering local communities, not just technical delivery.

Whilst there will always have to be a balance with the national interest, especially where industrial

development is pivotal to defence or security, the political tenability of industrial strategy depends on its visible local returns. Success cannot be measured by aggregate metrics alone; it requires measuring progress through quality-of-life indicators: job quality; wage levels; working conditions; housing affordability; public services; and community amenities. It demands honest engagement with distributional questions, both within regions (where gentrification can displace existing residents, even as aggregate prosperity grows) and between regions (where zero-sum competition generates grievances that undermine national solidarity). These are the conditions under which industrial policy earns, and sustains, democratic consent.

## Governance structures and their consequences

Governance emerges as perhaps the most critical factor mediating policy success or failure. By governance, we mean the institutional arrangements, decision-making authority and stakeholder relationships through which industrial strategy is designed, resourced and implemented. The cases reveal that governance failures and successes operate across three distinct but interacting dimensions: vertical authority – how power and fiscal capacity are distributed across national, regional and local tiers; horizontal coordination – how public bodies, firms, universities and unions are aligned toward shared strategic goals; and democratic voice – whether those affected by industrial transitions have a genuine influence over them, rather than receiving consultation as window-dressing. Taken together, these dimensions are perhaps the most critical factor mediating policy success or failure, and the cases reveal starkly divergent models with profoundly different consequences.

Port Talbot exemplifies failure across all three dimensions, but the most visible is the failure of democratic voice. Despite thousands of job losses and the effective end of primary steelmaking, the process marginalised devolved Welsh authorities and consulted but did not genuinely empower trade unions. Even in the absence of a strong government sense of direction to bring the corporate owners to heel, this bred a transition experienced as imposed and illegitimate, resentment that risks poisoning future interventions and empowering the populist right. Tripartite structures involving state, capital and labour as equal partners are not simply normatively appealing but functionally necessary: they provide the legitimacy and buy-in required for transformations that inevitably create losers alongside winners, promoting power as a means to reshape the playing field on which differential outcomes are decided, rather than redistribution after the fact.

The vertical authority dimension of Port Talbot's governance failure is equally significant and distinct from the question of democratic voice; the centralised character of UK governance exacerbated democratic failures. Whilst national security imperatives driving industrial development show that a strong central interest can be a motivating force, where the strategic direction of government is confused or lacking, there is a need for local actors to be empowered to pick up the baton. However, under the Westminster model, sub-national authorities lack fiscal autonomy, institutional capacity or political authority to drive industrial strategy independently. They remain supplicants for central government funding, vulnerable to shifting Whitehall priorities and Treasury constraints that often lack a strong political conviction to defy orthodoxy in line with the way the world is changing. Port Talbot became a site of reactive crisis management precisely because no empowered local or regional institution had the authority and resources to pursue long-term industrial strategy in the vacuum left by government vacillation and distraction.

Pori's success is best understood as a triumph of horizontal coordination, underpinned by fiscal autonomy. The municipality's ability to sell assets generated resources for independent action rather than a dependence on central transfers. This provided both the means and incentive to pursue cumulative capability building. Local government had genuine "skin in the game," with its fiscal health tied to local economic success. However, most municipalities lack assets to monetise. This suggests the need for

differentiated support mechanisms accounting for varying local fiscal capacity, or leveraging alternative financing innovations such as municipal bonds, regional investment funds or European structural instruments.

Three institutional mechanisms gave this fiscal foundation its horizontal coordination capacity. Firstly, semi-autonomous bodies like Prizztech (the municipally owned innovation agency) and the Port of Pori insulated industrial strategy from short-term political pressures whilst maintaining democratic accountability, allowing multi-year strategies to survive electoral cycles. Secondly, joint municipal-industry ownership of the technical university (SAMK) resolved a classic coordination problem where firms underinvest in training due to poaching risks whilst purely public institutions struggle to track industry skill requirements. Thirdly, informal coordination mechanisms like the Morning Coffee for Automation Industry created space for more adaptive alignment, problem-solving and cooperation that may have been more stifled by formal governance structures, particularly for SMEs, where transaction costs of formal partnerships prove prohibitive. Together, these mechanisms addressed the horizontal coordination problem at three levels: strategic investment; skills supply; and peer-to-peer knowledge exchange.

This layered architecture is what enabled Pori's strategic opportunism: the ability to actively monitor national and EU policy narratives, identify emerging priorities, and pre-position investment opportunities ahead of policy crystallisation. This is distinct from pure reactive opportunism; it requires strategic foresight and institutional sophistication to identify emerging priorities and pre-position investment opportunities ahead of policy crystallisation. This same foresight shows up in the government prioritisation of placemaking as integral to industrial policy, rightly recognising that attracting and retaining skilled workers is likely to be the major ceiling on Pori's developmental ambitions.

Saxony illustrates a sequenced model of vertical authority: centralised investment first, devolved institutional capacity second. The region's initial semiconductor capacity derived from highly centralised GDR-era investments and post-unification federal support, not purely local initiative. However, what distinguished Saxony's trajectory was the subsequent devolution of authority and capacity to empowered sub-national institutions capable of maintaining strategic consistency across three decades and multiple political cycles. The state government possessed both authority and capacity to pursue semiconductor development as a long-term regional strategy. Cross-party political consensus that microelectronics represented a strategic priority insulated industrial policy from routine partisan contestation. The Fraunhofer institutes (parastatal research organisations with stable core funding) provided institutional continuity and technical expertise transcending electoral cycles. This sequencing of central investment to establish direction, followed by devolution to institutions with genuine authority and resources, is part of what distinguishes Saxony from Port Talbot. For this latter, central direction was absent but devolved powers were inadequate as compensation.

This suggests successful governance may require sequencing: initial centralised investment to build capacity and establish strategic direction, followed by devolution to regional institutions with sufficient authority, resources and technical expertise to maintain long-term commitment. The embedded autonomy literature captures this balance: state capacity to set strategic direction and enforce discipline, combined with embeddedness in local economic networks providing knowledge, legitimacy and adaptability. This balance of tendencies of centralisation and devolution will become increasingly important as a stronger sense of national interest shapes industrial development.

However, the literature cautions that the same "skin in the game", which enables long-term commitment, can create perverse incentives. Local and regional administrations deeply invested in particular industries may be unable to make difficult decisions to abandon support for firms or sectors clearly lacking viable or strategic futures. This can lead to zombie firm dynamics, which have been found to have taken root Chinese regions;[127] it can also be

seen in the reticence of local authorities in places like Cornwall to spell out the areas of the service sector that may need to make way for a higher-productivity industrial revival. The balance required is enough centralised oversight to enforce discipline and ensure alignment with broader strategic objectives, but enough sub-national autonomy to provide continuity, local knowledge and adaptation to place-specific circumstances.

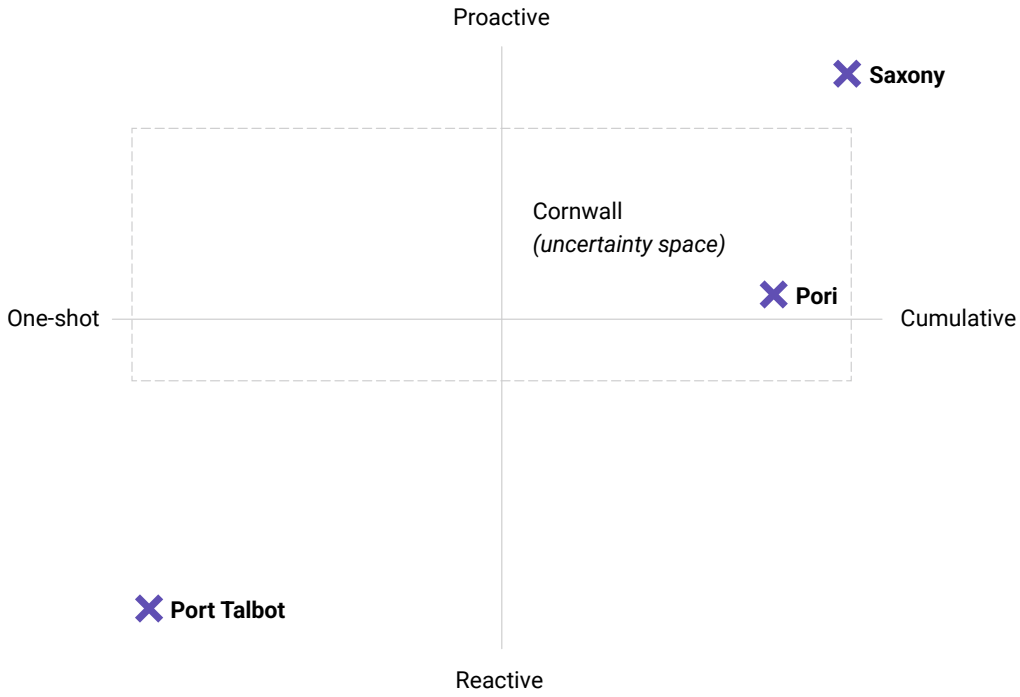
Multi-level governance coordination emerges as a persistent challenge. The Chips Act's fragmented implementation (with member states pursuing competing national strategies, inadequate coordination of funding streams and bureaucratic delays) demonstrates the difficulty of aligning local, national and supranational priorities across all three governance dimensions. Cornwall illustrates this challenge with particular clarity in the UK context. The critical minerals strategy shows the potential enabling capacity of a strong central steer that recognises the contribution particular places can make to national security and prosperity, providing support to them on the basis of strength rather than need and power rather than poverty. But a central steer alone cannot substitute for the vertical, horizontal and democratic governance architecture Cornwall will need to translate geological advantage into durable industrial development.

The governance lesson from these cases is not that any single model is universally superior, but that the three dimensions of vertical authority, horizontal coordination and democratic voice must each be attended to and must be aligned with one another. Structures must match the specific challenges and contexts of PBIP and its role in mediating local, national and global risks and threats. What appears essential across successful cases is some combination of vertical devolution with genuine fiscal capacity and institutional authority, enabling long-term strategic commitment; institutional capacity for horizontal coordination to design and implement complex interventions, resolving collective action problems that neither markets nor purely public institutions can address alone; mechanisms for stakeholder participation that provide democratic voice rather than performative consultation; and insulation from short-term political pressures whilst remaining democratically accountable. A further interaction effect runs through all the cases: where one dimension is weak, it tends to undermine the others. Horizontal coordination without fiscal autonomy collapses when central funding shifts, democratic voice without vertical devolution becomes window-dressing and vertical authority without horizontal coordination produces the kind of top-down imposition that Port Talbot so painfully demonstrated.

### Proactivity and cumulativeness of industrial policy

The case studies can be mapped according to how proactive industrial policy has been versus reactive responses to near-term pressures, and whether it has cumulatively built up over time versus resulted from one-shot intervention proves powerfully predictive of outcomes (Figure 2).

**Figure 2. Map of proactive industrial policy versus reactive responses to near-term pressures, and cumulative build-up of policy versus one-shot intervention.**




Saxony represents the extreme of proactivity and cumulativeness: a long-term bet on microchips as the core focus, built over three decades through consistent strategic vision. The payoff has been genuine global competitiveness and resilience. When individual firms or technologies have faltered, ecosystem depth has enabled adaptation rather than collapse.

Port Talbot represents the opposite extreme: total lack of foresight meant highly reactive policymaking with a flurry of crisis-response interventions but no long-term strategy to develop the town as an industrial hub around and, if necessary, beyond steel as a strategic priority. The absence of cumulative investment in broader industrial capabilities left the region profoundly vulnerable. There was no related ecosystem to fall back on; no deep process specialisation that could be redeployed; no proactive diversification building in parallel.

Pori occupies a middle ground: cumulative building of a diverse local economy through attracting strategic investments, but with strategic opportunism that capitalises on policy priorities as they emerge (such as circular economy, defence and green hydrogen). This combines proactive positioning with tactical flexibility to capture opportunities as these crystallise into funded programmes. The approach requires sufficient institutional capacity to distinguish signal from noise in policy development processes and enough authority to act rapidly on policy intelligence. This strategic responsiveness to opportunities, combined with enough proactiveness to steer systematic capability building, represents a balance between Saxony's grand strategic vision and Port Talbot's crisis-driven improvisation. The trade-off is that Pori is unlikely to achieve world-leading position in any single sector, but diversification provides resilience and cumulative approaches mean each new investment builds on rather than displacing previous ones.

Cornwall's position on these dimensions remains to be seen. While renewed attention to critical minerals is reactive (at least compared to farsighted early

investments of geopolitical rivals), it remains unclear whether public investment will flow, and capacity will be built, at the pace and scale required to get ahead of geopolitical and technological trajectories and uncertainties, or if it will get stuck on the rocks of skills shortages and infrastructural barriers as a rushed response to a vulnerability realised too late in the day to make a difference. Much depends on the ability to cumulatively build on natural assets to move up the value chain through not just the extraction of minerals but their processing, refining and recycling for use in a range of applications across green, digital and defence. Ultimately, any industrial policy directed towards this sector is bound to be place-based because of the geological specificity of the resources; what will determine success is the alignment of national prerogatives and provisions of funding and support with local contribution and socioeconomic content.

However, this analysis must be tempered by the recognition of profound path dependency visible in all cases. Saxony's success represents 30 years of painstaking development built on pre-existing capabilities implemented by the GDR before unification. Cornwall and Pori both depend significantly on deeply physical attributes of their places: mineral deposits in Cornwall's case, with a historical muscle memory of industrial modernity associated with mining's past; and a deep-water port and industrial tradition in Pori. These are not capabilities conjured from nothing but latent assets with associated "industrial genotypes" that policy can either develop or squander.

Port Talbot offers a sobering counterpoint, where path dependency has proved a huge hindrance. The low uptake of retraining schemes offered by Tata could plausibly be interpreted as (in part) being due to the offerings feeling too much of a leap for workers who had spent entire careers as steelmakers. While there is no doubt that a wide array of support was offered, the idea of entrepreneurship grants, in particular, feels quite dissonant to the likely lived realities of many recently redundant workers. Dependency on existing skills, identities and social networks cannot be wished away or rapidly transformed through policy intervention alone, and as demonstrated in Cornwall and Pori, there is a need to go with the grain of the existing industrial genotype, rather than against it.

This suggests building futures around existing attributes and showing humility around what is possible. Not everywhere can be a high-technology cluster or house hyper-globally competitive leading firms. While possible in theory and history to develop these from the ground up at pace (as in South Korea and China), this has usually required extreme, well-executed exertions of state control and substantial investment. Neither the UK nor EU appears willing or able to muster these in the present moment, mandating a more strategic and humble approach to what is possible and where.

This is not the same as purely comparative advantage arguments suggesting places should accept their current economic position. Some places may have latent attributes to exploit, and there may be reasons beyond competitiveness (sovereignty, resilience, social cohesion) to pursue industrial policy even where pure economic efficiency would not justify it. Cornwall's mineral deposits are genuine strategic assets that security considerations may justify developing even at some economic cost. However, working with the grain means playing to strengths as they exist in reality, not as policymakers might wish, and this means foregrounding places and the people and resources they have at their disposal, as the starting point of industrial policy rather than an optional add-on.

## Economic resilience: Specialisation versus diversification

Pori and Saxony offer two diverging models for resilience, illuminating a crucial strategic choice: whether to pursue deep specialisation in particular sectors or broader diversification across multiple industries.

Saxony's world-leading process expertise and dense ecosystem of related firms enabled an effective response to sudden shifts. When the DRAM manufacturer folded, ecosystem depth meant

capabilities could be redeployed and the region capitalised on concerns about Malaysian supply-chain concentration to attract new investment from firms seeking to diversify production locations. This demonstrates that specialisation, if deep enough and accompanied by a rich ecosystem of related firms and capabilities, can generate resilience through adaptability within the sector. The region did not need to diversify beyond semiconductors to weather shocks; depth of expertise meant it could pivot across different applications, technologies and firms within the sector.

Pori built resilience through disciplined diversification. The key distinction is that Pori's sectors are complementary rather than merely scattered: robotics and automation serve heavy industry; a circular economy processes industrial waste; green hydrogen supports steel decarbonisation; renewables and port infrastructure enable all of the above. Each new sector integrates with existing capabilities rather than representing disconnected bets. This reduces knowledge spillover losses and allows skill bases to evolve incrementally rather than requiring wholesale transformation. Even if some firms or sectors encounter trouble, effects on the wider economy are limited. The industrial base spans multiple sectors (traditional port industries, paper and pulp, energy, emerging green technologies), reducing dependence on any single industry's fortunes. This accepts that individual sectors will face cycles of growth and decline, but ensures the regional economy as a whole maintains stability through portfolio effects. The trade-off is that Pori is unlikely to achieve a world-leading position in any single sector, as Saxony has achieved. The strategy prioritises resilience and stable employment over global competitive leadership.

Port Talbot failed on both counts. The steelworks were the sole prop of the local economy without a wider related ecosystem or deep process specialisation (compared to the world at large) that would have otherwise enabled it to weather economic storms. The region achieved neither depth of specialisation to foster sectoral adaptation (as in Saxony pivoting across different semiconductor applications and firms) nor breadth of diversification to cushion sectoral decline (as in Pori's multi-sector strategy). This represents dependency without world-leading capability. When steelmaking became uneconomical, there was nothing to fall back on: no related industries to absorb displaced workers; no deep expertise to redeploy to new applications; no diversified economic base to provide alternative employment.

Cornwall must decide on some combination of deepening and diversifying to ensure resilience into the future. While political demand for domestic mineral resources will likely grow, it remains unclear what this looks like given the British state's lack of economic firepower to match US offtake agreements and price floors. Today, Cornwall is unlikely to be dependent on a single sector, as it was in the heyday of mining, the decline of which was the death knell of its industrial modernity. Its peninsular geography being strategically pivotal to the British Isles as a whole, the combination of critical industries and infrastructures present in Cornwall – from undersea cables and defence ship repair to spaceports and offshore wind sites – means that critical minerals will be part of a unique ecosystem relative to size. For the sake of the nation, as much as the immediate locality, policies (like the recently announced Kernow Industrial Growth Fund) must be geared towards making this ecosystem as resilient as possible. This might involve developing midstream processing capabilities, R&D linkages, skills pipelines providing depth of expertise and diversification into related industries (such as defence and advanced manufacturing), leveraging Cornwall's assets whilst reducing dependency on extraction alone.

PBIP must consciously address resilience, but this can be achieved through different routes, depending on the scale, resources and existing capabilities of the place in question. Deep specialisation with rich ecosystems offers one path; broad diversification offers another. What is untenable is shallow dependence: relying on a single sector without either the depth to adapt within it or the breadth to survive its decline. The appropriate choice depends on the scale of the region (smaller places may lack room to diversify meaningfully), its existing capabilities

(specialisation builds on depth that already exists or can realistically be developed) and the resources available for industrial policy support (building world-leading ecosystems requires sustained, patient investment that may not be available).

## Industrial policy under radical uncertainty

Resilience must also be considered in the context of an increasingly uncertain world. Industrial policy aims to strategically change the structure of the national economy. However, the central difficulty of the present moment is that this occurs against a backdrop of radical structural change in the global economy, the outlines of the outcome being somewhat discernible but with still much to play for. Policymakers must make big, structural changes, which take time and are hard to reverse, whilst being highly responsive to a volatile environment that has not yet settled into a new equilibrium.

As well as showing some of the perils of wishful thinking, which a world of peace and harmony would mean that Western economies could get away with avoiding the priorities of industrial policy, the cases demonstrate that PBIP cannot be geared simply towards how the world is now or even how it is predicted to be. Policy must be clear-sighted in terms of both caution and ambition, baking in measures that ensure it is not derailed by unforeseen shocks likely to await in the future. Saxony's ecosystem depth provided adaptability when specific firms or technologies failed. Pori's diversification meant that shocks to individual sectors did not devastate the whole economy. As a result of the optimism bias of British policymaking – now rudely interrupted by reality – Port Talbot's brittleness (both in terms of single-sector dependence and lack of either deep capabilities or broad alternatives) meant it had no buffer against change.

This suggests that PBIP in the current era requires "strategic hedging": making commitments to particular sectors or capabilities whilst building in flexibility and resilience to cope with inevitable disruptions that will come. This is distinct from the more stable environment of the post-war decades when the Asian Tigers pursued their industrial strategies. Then, trade was expanding, technological trajectories were more predictable and the geopolitical environment was structured by a relatively stable bipolar Cold War order. Today's policymakers face the challenge of combining strategic conviction with epistemic humility about what the future holds.

The collapse of the free trade order and rising protectionism mean that export-orientated strategies face greater uncertainty. Silicon Saxony's global competitiveness remains valuable, but the EU Chips Act reflects the recognition that strategic autonomy (the ability to produce semiconductors domestically even if less efficiently than Asian competitors) has become a priority justifying some economic cost. Cornwall's critical minerals represent strategic assets not because UK extraction is necessarily cost-competitive with imports, but because supply security and resilience against geostrategic disruption have become paramount concerns, and holding at least some of the cards in a pack gives a strategic advantage when competitors hold others. This marks a shift from the idealised model of export-orientated industrial policy as the simple "winning formula" that some development economics literature prescribed.

Climate imperatives introduce further uncertainty. Decarbonisation trajectories remain contested and technologically uncertain. Which green technologies will succeed? How quickly will transitions occur? What sectors will face stranded assets? Port Talbot experienced how economic pressures and inadequate, future-looking engagement with the realities of transition can accelerate change beyond regions' adaptive capacity. Cornwall's position in green technology supply chains depends in part on technologies (batteries, renewable energy) with market trajectories that remain uncertain and policy-dependent, shaped largely by a geopolitical closing of the order of global openness that characterised the recent past. Pori's strategically responsive approach (pursuing green hydrogen and circular economy investments, as these become policy priorities) represents one way of navigating this uncertainty, maintaining flexibility to adjust as technologies and policies evolve.

PBIP must combine strategic commitments with adaptive capacity. Some version of Saxony's depth or Pori's diversification appears necessary. Places need either specialisation deep enough to enable adaptation within sectors as circumstances change, or diversification broad enough to cushion sector-specific shocks. Pure strategic vision without flexibility risks betting on trajectories that prove wrong; pure opportunism without cumulative investment risks achieving neither depth nor breadth. The challenge is maintaining strategic direction whilst building in the resilience to cope with the volatility that characterises the present moment.

This is not an argument for abandoning industrial policy in the face of uncertainty. Rather, it calls for designing interventions that acknowledge uncertainty and build in adaptive capacity. This means prioritising investments that provide optionality: skills that transfer across applications; infrastructure that serves multiple uses; research capacity that can pivot across technologies. It counsels against lock-in to specific firms or technologies in favour of ecosystem depth that can adapt. And it demands governance structures capable of learning and adjustment rather than rigid adherence to predetermined plans.

# 7. CONCLUSION AND RECOMMENDATIONS

Industrial policy discourse is often conducted at a high level, discussing global challenges and objectives with high levels of economic abstraction. In line with the increasing importance of control and production of physical resources in defining contemporary power, a place-based lens returns us to the material realities of what makes for a successful, or failed, industrial policy. It is in distinct geographies, and alongside the stakeholders occupying and stewarding them, that industrial policies come to fruition (or not), and this is especially the case in an unravelling order where assets like metals, minerals, materials and microchips matter more than ever. Port Talbot, Cornwall, Saxony and Pori all highlight different lessons; however, on their basis, a number of recommendations can be made to both EU and UK decisionmakers.

## EU recommendations

### Better alignment between industrial and cohesion policy

The cases show the need for place-based regeneration to underpin industrial policy. At the same time, evidence shows that industrial policy investments can end up targeting wealthier regions.[128] Greater attention to the spatial elements of industrial strategy is needed, requiring more alignment with DG Regio; spatial criteria added to EU funding; and analysis of local and regional strengths to identify high-untapped-potential regions for projects of common, EU strategic interest (as recognised in locations such as the Iberian Peninsula for green industry). This should be aided by a single, integrated and simplified industrial strategy.

Similarly, cohesion policy needs to ensure that local strengths better support EU objectives. This means better measures to align local strategies (e.g., S3 revision) with EU strategic objectives, and more involvement of EU industrial policy actors, such as DG GROW, in the (re)design of cohesion policy. Funding criteria should be made more holistic to address the intertwinement of economic and non-economic conditions (attractiveness of place, living standards) to industrial policy success. Major funded projects should address both, and say how, being held to this through conditionalities.

We acknowledge that any talk of increasing the central alignment of cohesion policy is likely controversial, and that this recommendation risks being interpreted as supporting the recent paradigm of "hyper-Lisbonisation" defined by the dilution of cohesion policy to provide reactionary crisis support and enable response to short-term EU priorities. Instead, we advocate strong, central strategic guidance, which enmeshes the goal of regional equality with what we deem to be mutually supportive European objectives, especially around resilience and decarbonisation. Rather than furthering the drift away from a territorially focused cohesion policy, we advocate that this territorial lens is recognised as central to ensuring that other objectives are met. After all, a resilient Europe must almost by definition be a more equal one.

### Reform state-aid rules

State-aid reform is important if the EU is going to be a player in the new era of state capitalism. Pori and Saxony demonstrate the importance of enabling public authorities to proactively steer industrialisation. However, valid concerns exist around the potential to exacerbate the gap between those states with deeper pockets and those without.

On governance, we note that state-aid frameworks are an area where the simplification agenda could pay real dividends. **State aid should be integrated**

**into a single, cohesive and simplified framework with common allocation criteria, conditionality systems and so on that is clearly aligned with a single and explicit industrial strategy (rather than the scattered set of industrial objectives and directing principles the EU currently utilises)**; this would help ensure alignment with higher-level objectives while also improving accessibility for smaller firms and countries.

The cases have shown the importance of considering place-based industrial regeneration integratively, and avoiding the fragmentation seen for example in Port Talbot. To reflect this, the **Commission should pilot integrated state-aid packages for place-based industrial development.** Unlike existing EU instruments, which tend to operate in silos, with Cohesion Funds, Just Transition Fund allocations, and Horizon or InvestEU facilities – each carrying separate application processes, eligibility criteria and reporting timelines – these packages would enable a single, bundled application for a set of mutually reinforcing investments that are explicitly linked to a coherent local industrial strategy. These bundles should cover four core investment categories:

1. productive industrial investment, including capital support for manufacturing facilities, clean energy capacity and advanced technology deployment;

2. enabling hard infrastructure, such as grid reinforcement and connection capacity, low-carbon transport links, and digital connectivity;

3. workforce and skills investment, including retraining programmes, apprenticeship schemes and further education provision aligned to the target industrial sectors; and

4. social infrastructure, such as housing, childcare and community facilities required to support an expanded local workforce and sustain the broader social fabric of communities undergoing structural transition.

This integrated approach would avoid the coordination failures seen at Port Talbot, where the absence of bundled support meant workforce transition, supply-chain adaptation and community investment were addressed through separate, poorly sequenced funding streams rather than as components of a single managed process. To avoid bundled applications being out of reach for resource- or capacity-constrained European actors, such a pilot should be coupled with in-house technical assistance and capacity-building support – including dedicated Commission or national contact points – to lower barriers to participation for smaller member states, regions and municipalities.

A simplified framework should **carry consistent and ambitious social and environmental conditionalities.** These should be specified at the point of award and tied to measurable, time-bound outcomes. On the social side, this should include minimum local employment thresholds (e.g., a defined share of net new jobs filled by residents of the target locality or region), requirements for collective bargaining coverage or equivalent wage-floor protections, and community benefit obligations such as investment in local supply chains and social infrastructure. On the environmental side, conditionalities should include decarbonisation milestones tied to sectoral transition pathways, for instance, phased reductions in emissions intensity benchmarked against EU net-zero trajectories. They should also include requirements to meet or exceed relevant environmental standards on biodiversity, water and waste. Conditionalities should be structured as binding requirements rather than aspirational targets, with staged disbursement of funding tied to verified delivery against agreed milestones. The framework should also carry rigorous, ongoing reporting of key metrics to ensure accountability. Reporting should be standardised across all packages to enable cross-regional comparison and aggregate EU-level monitoring. Metrics should be defined ex ante and should cover not only economic indicators like GVA and labour productivity, but also employment quality measures (including wage levels, contract security and workforce diversity), local business formation and supply-chain development, carbon emissions and progress against decarbonisation milestones, and broader social sustainability indicators to better capture nuances, as seen in Pori's mixed record

regarding economic resilience but population stagnation. Where outcomes fall materially short of agreed targets, the framework should provide for clawback mechanisms or the suspension of future tranches, ensuring accountability without undermining the long-term planning horizons that industrial transformation requires.

As well as monitoring and learning from what works, conditionalities and reporting requirements should act as a bulwark against the zombie firms and other forms of unproductive public support, which are always risked when expanding the possibilities for intervention in markets. Given such safeguards, the framework should also **carry over and extend CISAF provisions for claw-backs and socialisation of upsides, to also move beyond the narrow understanding of proportionality to enable states to take bigger bets in sectors of high strategic importance (and be rewarded more extensively when these pay off).** In different ways, both Pori and Saxony have demonstrated the benefits of correctly leveraged entrepreneurialism by local governments, and the logic should extend nationally also.

On financing, **we recommend the EU follow the Letta report in mandating member states allocate some portion of national state aid to a place-based EU industrial strategy, looking to use the development of important European value chains to both build continental resilience and competitiveness while supporting the regeneration of left-behind regions.** While we acknowledge the political economy of this makes it less likely, it is still worth advocating that the EU capitalise on the softened taboo around joint EU borrowing from the Ukraine loan to borrow for productive investment in line with the Draghi report's recommendations.

## UK recommendations

### Focus on the institutional foundations for success

The cases demonstrate that successful PBIP requires balancing long-term centralised direction in line with the national interest with meaningful local devolution and levelling up, including the consideration of which institutional actors can and should play a role.

At the intersection of the Labour government's devolution and industrial strategy agendas, Cornwall represents a potential test case for how the basic framework of devolved strategic authorities, as the principal mediating structure of financial and policy support, can be adapted to meet the realities on the ground and foster effective collaboration and partnership in both the national and local interests.

At the same time, it must be recognised that simply devolving some level of strategic autonomy to lower levels of government does not in itself guarantee benefits and can weaken overall coherence in pursuing national industrial strategies. In implementing the industrial strategy, the government should consider specifically what it is about a devolved approach that is desirable.

The cases highlight three benefits of place-based devolution of power and voice for the overall success of national industrial policy:

1. devolving agency allows a level of more responsive and experimental actions by those local governments that are more able, agile and ambitious, which can support a more experimentalist approach to industrial policy at large;

2. local decisionmakers possess "'skin in the game", which allows them, when sufficiently empowered, to maintain the long-run commitment required for success; and

3. local government is better positioned to generate the "institutional thickness" required for a successful, joined up approach to place-based industrial strategy – which feeds into both the economic and political possibilities of success at the national level.

The first two of these benefits can be addressed by further specification of how the industrial strategy should operate, and the basic trajectory of devolution already underway, combined with adequate mechanisms of coordination and learning between national and local government. Thus, we focus our core recommendation on proactively incentivising the production of institutional thickness. This could involve, for example, a small "convening fund", which could be used at a low threshold by local public, private and education institutions to fund open-ended, exploratory convening activities with requirements to develop into collaborative projects. Through sticks, this could involve making certain elements of public funding – for example, to local government, universities or business grants – conditional on evidence of such convening activities.

### Work with the grain of industrial genotypes, strategically coupling sunrise and sunset transitions

A recurring theme of all our case studies is the need to work with the grain of the industrial genotype of places, rather than against it. This may require government, in some cases, to avoid becoming sucked into tunnel vision regarding the eight growth sectors set out in the modern industrial strategy – the so-called IS-8.

For many reasons, IS-8 sectors are not going to be well-suited to every region, especially those in need of wider local economic regeneration. It is welcome that industrial strategy references other sectors, including foundational sectors and wider sectors in the economy, but there is still a risk of creating perverse incentives for all places to contort themselves into the IS-8 framework where it does not fit, or to focus exclusively on attracting IS-8 investment rather than on more bread-and-butter determinants of productivity, which could be within local grasp.

Government should add clarity and detail to how support for non-IS-8 sectors will be delivered, and work with localities to align promising non-IS-8 industrial potentials with wider strategic objectives effectively. Ultimately, in places like Cornwall and South Wales, this does mean working from the ground upwards and recognising the validity of foundational industries, like metals and minerals, in underpinning the success of the IS-8 and levelling the playing field for the financial and policy support that will flow into these sectors.

A related point here is how to take places along the path of transition in a sustainable and politically successful way. The Port Talbot case demonstrated lack of foresight around transition dynamics. While Pori's approach was not undertaken with the coupling of declining old industries with new ones in mind, its approach shows proactivity in targeting more future-proof investments nonetheless linked to its "industrial genotype".

We therefore recommend complementary guidance is issued around local growth plans for places, to require local governments to explicitly consider the "transition readiness" of their local economies. Where transition will be required, places must identify promising pathways to diversification and economic evolution based on existing place-based assets, as opposed to wishful thinking and gambles on futures that may or may not arrive. Based on this analysis, localities should be supported to proactively invest in these new economic bases to build resilience before existing industries are sunsetted by policy or made uncompetitive by economics.

## Joint UK-EU recommendations

### Capitalise on the opportunity of 5% NATO commitments

A key lesson from the case studies is that industrial policy success requires highly sustained and quite expansive support, extending far beyond limited support for specific firms over short timeframes. The current global context also requires such policy to meet multiple goals simultaneously, particularly aligning defence and resilience with the twin transitions, global competitiveness and local living standards. **Given fiscal constraints, governments**

**must use all the tools they have available to ensure they can provide sufficient and wide-ranging enough support.**

Here, **pre-existing commitments of NATO countries to spend 5% of GDP on defence could offer opportunities to align defence strategies with wider objectives for place-based regeneration.** This is money already committed and so will not add extra burden, which is important. While we know defence spending itself (however necessary it may be) is not the best driver of employment or wider living standards, **investments in domestically produced dual-use technologies could be promising.** Following the principle of disciplined diversification, which worked effectively in Pori, **the use of tools such as the product space framework[130] could be used to ensure investments in defence/dual-use are made in a maximally strategic manner.** Similarly, the 1.5% resilience spending contained within the overall commitment can be strategically leveraged to also support key enablers of industrial policy success, both structurally and democratically. This means critical national infrastructure, such as electricity grids, transport networks and climate adaptation measures, which help industry directly but also improve felt, local experiences of living standards, as highlighted in Pori and Cornwall.

### Articulate and implement a forward-looking strategy for UK-EU geoeconomic alignment

Any talk of greater UK-EU alignment should balance aspiration with humility and realism. Brexit created genuine structural barriers to UK-EU industrial cooperation. However, the case studies reveal specific complementarities that could form the basis for pragmatic sectoral agreements.

For example, Cornwall's tin, tungsten and lithium could prove highly valuable to European defence and chip industries increasingly worried about supply-chain security, while European areas such as Saxony and Pori hold significant expertise in mineral processing and metals recovery. While more focused research is needed to verify the opportunities presented by particular UK-EU constellations, even our small selection of case studies demonstrate where grounds for productive bilateral trade and investment agreements can be struck between the UK and European partners without single-market membership, which could potentially act as pilots for expanded agreements over time if successful. The case studies highlight high value in prioritising a specific UK-EU critical minerals agreement, similar to the EU's MoU with Norway.

A final learning is an extrapolation from our learnings in place to the national and continental levels: the case studies showed that success came from a clear-eyed and realistic understanding of place-based assets and limitations (Pori) and long-term and directional strategic foresight and follow through (Saxony), while particular failure lay in naively waiting and being forced by external forces into reactionary measures (Port Talbot). We argue that the same lessons apply to the UK and Europe today.

Recent US activity, culminating in the National Security Strategy, should leave both the EU and UK under no illusion that they are being left in the cold, and if they are to avoid being crushed between East and West, they must band together. Increasing alignment on regulation and standards show a promising direction of travel, but dialogue and agreement should continue and progress to a more strategic level to understand, plan for and execute what a realistic shared place in a changing world order could be for a UK-EU bloc.

Realism is important, as Pori well highlights: neither is going to "win" any conception of the AI race; the EU's semiconductor targets are likely to be out of reach; and many green industries have already been lost to China. Similarly wages and wider (geo) economic firepower will never be enough to keep up with the USA. But this is not to say a UK-EU alliance is helpless by any means. There is world-leading expertise in a number of economic sectors, as well as political-economic systems that can still act as strong drivers of societal resilience, if the improvements that electorates clearly desire can be made.

What is needed is a joint articulation at the level of vision, narrative and strategy, which can connect this supranational relationship to national strategies and place-based outcomes. To this end, we recommend establishing a joint EU-UK working group on “Greater Europe’s Industrial Future” to analyse and articulate an aligned, strategic position to connect dots across industrial strategies, and carry out recommendations to ensure that local, national and European outcomes can be mutually supportive across borders.

# ENDNOTES

1 "European Chips Act". European Commission.

2 Ejrnæs, A., M. D. Jensen, D. Schraff et al. (2024) "Introduction: Regional inequality and political discontent in Europe". *Journal of European Public Policy,* 6(31): 1465-1493. DOI: 10.1080/13501763.2024.2333850; Schraff, D. and J. Pontusson (2024) "Falling behind whom? Economic geographies of right-wing populism in Europe". *Journal of European Public Policy*, 6(31): 1591-1619. DOI: 10.1080/13501763.2023.2278647

3 See, for example: Flanagan, K., E. Uyarra and I. Wanzenböck (2023) "Towards a problem-oriented regional industrial policy: possibilities for public intervention in framing, valuation and market formation". *Regional Studies,* 6(57): 998-1010. DOI: 10.1080/00343404.2021.2016680

4 Charron, N., L. Dijkstra and V. Lapuente (2014) "Regional governance matters: Quality of government within European Union member states". *Regional Studies,* 1(48): 68-90. DOI: 10.1080/00343404.2013.770141

5 Rodríguez-Pose, A. and E. Garcilazo (2015) "Quality of government and the returns of investment: Examining the impact of cohesion expenditure in European regions". *Regional Studies,* 8(49): 1274-1290. DOI: 10.1080/00343404.2015.1007933

6 Zukauskaite, E., M. Trippl and M. Plechero (2017) "Institutional thickness revisited". *Economic Geography*, 4(93): 325-345. DOI: 10.1080/00130095.2017.1331703

7 Marshall, A. (1890) *Principles of Economics, Book IV* (London: Macmillan and Co.), Chapter X.

8 Porter, M. E. (1990) *The Competitive Advantage of Nations* (New York: Free Press).

9 Grabher, G. (1993) "The weakness of strong ties: The lock-in of regional development in the Ruhr area", in G. Grabher (ed.) *The Embedded Firm: On the Socioeconomics of Industrial Networks* (London: Routledge), pp. 255-277.

10 Martin, R., P. Sunley (2015) "On the notion of regional economic resilience: Conceptualization and explanation". *Journal of Economic Geography,* 1(15): 1-42. DOI: 10.1093/jeg/lbu015

11 Duranton, G. and D. Puga (2004) "Micro-foundations of urban agglomeration economies", in ed. J. V. Henderson and J.-F. Thisse (eds) *Handbook of Regional and Urban Economics, Vol. 4* (Amsterdam: Elsevier), p. 2067.

12 Storper, M. (1997) *The Regional World: Territorial Development in a Global Economy* (New York: Guilford Press).13

13 Ejrnæs, A., M. D. Jensen, D. Schraff et al. (2024) "Introduction: Regional inequality and political discontent in Europe".

14 Rodríguez-Pose, A. (2018) "The revenge of the places that don't matter (and what to do about it)". *Cambridge Journal of Regions, Economy and Society,* 1(11): 189-209. DOI: 10.1093/cjres/rsx024

15 Moretti, E. (2012) *The New Geography of Jobs* (Boston: Houghton Mifflin Harcourt).

16 Tomaney, J. (2013) "Parochialism – a defence". *Progress in Human Geography,* 5(37): 658-672. DOI: 10.1177/0309132512471235

17 Iammarino, S., A. Rodríguez-Pose and M. Storper (2018) "Regional inequality in Europe: evidence, theory and policy implications". *Journal of Economic Geography,* 19(2): 273-298. DOI: 10.1093/jeg/lby021

18 Chen, K., Q. Meng, Y. Sun et al. (2024) "How does industrial policy experimentation influence innovation performance? A case of made in China 2025". *Humanities and Social Sciences Communications,* 11: 40. DOI: 10.1057/s41599-023-02497-x

19 Bailey, D., C. N. Pitelis and P. R. Tomlinson (2023) "Place-based industrial and regional strategy – levelling the playing field". *Regional Studies,* 6(57): 977-983. DOI: 10.1080/00343404.2023.2168260

20 Gross, D. P. and B. N. Sampat (2023) "America, jump-started: World War II R&D and the takeoff of the US innovation system". *American Economic Review,* 12(113): 3323-3356. DOI: 10.1257/aer.20221365

21 Pike, A., A. Rodríguez-Pose and J. Tomaney (2017) *Local and Regional Development. 2nd ed.* (London: Routledge).

22 Work in Port Talbot has, at times, encountered difficulties in getting access to key stakeholders. Due to this remaining a contentious transition for many in the area at the time of writing, and colleagues working in the area reporting on the community showing signs of research fatigue, we did not pursue qualitative data collection in this case.

23 Kleinhans, J.-P., M. A. Nieves, S. R. Sancho et al. (2025) "Mapping the semiconductor value chain: Working towards identifying dependencies and vulnerabilities". OECD Science, Technology and Industry Policy Papers No. 182. OECD Publishing, June.

24 "Commission staff working document: A Chips Act for Europe". SWD(2022) 147 final. European Commission, 11 May 2022.

25 "European Chips Act". European Commission. 26

26 Varas, A., R. Varadarajan, J. Goodrich et al. (2020) "Government incentives and US competitiveness in semiconductor manufacturing". Semiconductor Industry Association, September, p. 7 (exhibit 2).

27 "European Chips Act: The chips for Europe initiative". European Commission.

28 "European Chips Act: Security of supply and resilience". European Commission.

29 "European Chips Act: Monitoring and crisis response". European Commission.

30 "Special report 12/2025: The EU's strategy for microchips – Reasonable progress in its implementation but the Chips Act is very unlikely to be sufficient to reach the overly ambitious Digital Decade target". European Court of Auditors, 28 April 2025.

31 Henning, M. (2025) "Commission confirms Chips Act update for beginning of 2026". *Euractiv,* 21 October.

32 Johnston, A. and R. Huggins (2023) "Europe's semiconductor industry at a crossroads: Industrial policy and regional clusters". *European Urban and Regional Studies,* 3(30): 207-213. DOI: 10.1177/09697764231165199

33 Ibid.

34 For an overview of all Frauenhofer institutes currently based in Dresden, see: "Excellent research in Dresden". Frauenhofer.

35 "GlobalFoundries plans billion-euro investment to expand chip manufacturing in Germany". Global Foundries, 28 October 2025.

36 "10,000 million euros: Semiconductor manufacturer TSMC invests in Dresden". Business Saxony, August 2023.

37 For more information on the Silicon Saxony members, see: "One network – many competencies". Silicon Saxony.

38 For more background on Qimonda and the 2009 bankruptcy, see: "Qimonda". Wikipedia.

39 Silicon Saxony reports on the job growth in the sector, see: "Silicon Saxony: Magnet for skilled workers". Silicon Saxony, 11 June 2024.

40 "Horizon Europe". European Commission; "State aid: Commission adopts revised state aid rules on Important Projects of Common European Interest". Press release. European Commission, 25 November 2021; "The Digital Europe Programme". European Commission.

41 See, for example: "Operational programme 'Saxony-Anhalt'". European Commission. For the 2007-2013 programming period of the European Regional Development Fund (EDRF), innovation, research and development was made the first priority with 25.6% of ERDF funding.

42 YOICHIRO Hiroi, Y. (2022) "Japan's new chipmaker seeks to break free from 'lost decade'". Nikkei Asia, 12 November.

43 "Meet the Chip 4 Alliance". Cadence System Analysis. 44

44 Horowitz, M. C. (2025) "What to know about the new U.S. AI diffusion policy and export controls". Council on Foreign Relations, 13 January.

45 Fulco, M. (2019) "What are Taiwan's Science Parks?" Amcham Taiwan, 21 March. 47

46 "Report: Finland's robotics industry addresses global manufacturing issue". HowToRobot, 1 November 2023.

47 "Digital economy: Finland country commercial guide". International Trade Administration, 24 September 2025.

48 "Finnish defence industry growing strongly, investors eyeing dual-use products in particular". Tesi, 24 September 2024; "Defence, Resilience and Security in Europe". Dealroom.co, 12 February 2025.

49 "https://demoshelsinki.fi/finland-most-ambitious-circular-economy-program/. Demos Helsinki, 19 March 2021.

50 "Government Resolution TEM/2023/14". Ministry of Economic Affairs and Employment.

51 Kiander, J. "The great depression of Finland 1990-1993: Causes and consequences". Labour Institute for Economic Research.

52 Sjöholm, H. (ed.) (2001) "Satakunta – Uusimman teknologian soveltaja" ["Regional technology strategy for the Satakunta region"]. Employment and Economic Development Centre for Satakunta, Tekes, the National Technology Agency & Regional Council for Satakunta.

53 "The development agreement keeps Tahkoluoto at the forefront of the clean transition". Business Pori, 4 April 2024; "Cooperation between the ports of Pori and Raahe drives the development of offshore wind power in Finland". Porin Merituuli Keskus, 9 April 2025.

54 Annala, M., J. Leppänen, S. Mertsola et al. "Humble government: How to realize ambitious reforms prudently". Government's Analysis, Assessment and Research Activities.

55 Kosonen, K.-J. (2005) "Strengthening the research and educational basis for regional development in less-favored regions". Massachusetts Institute of Technology, March.

56 "Robocoast EDIH – expertise in industrial renewal". Robocoast.

57 "Positive tipping points". Global Tipping Points.

58 "Diverse industry". Business Pori.

59 "Metso opens DRI Smelting Furnace pilot facility in Pori, Finland". Press release. Metso, 25 October 2024. 60

60 "LIFE Integrated Projects 2015 – C1a". Pori.

61 "Circular economy roadmapping". European Circular Economy Stakeholder Platform.

62 "Investment aid promotes economic growth and supports the achievement of climate goals". Press release. Business Finland, 14 November 2025.63

63 "Novana Oy is planning a EUR 400 million investment in Pori – Business Finland's EUR 48.7 million support is essential to the realisation of Europe's first vanadium plant". Novana, 14 November 2025

64 "Significant investment in the production of green hydrogen and renewable Finnish gas planned for the Kaanaa district of Pori". Ren Gas, 4 May 2022; Habibic, A. (2024) "Green North Energy's new plants target Finland's self-sufficiency in ammonia production". Offshore Energy, 27 March.

65 "The planning of the new TNT production facility in Noormarkku, Pori is progressing". Business Pori, 31 March 2025.

66 Laakso, A. (2025) "Rushing the TNT plant to Pori caused a zoning dilemma – could jeopardise the permits for the factory, which is needed by the 'entire Western world'". yle, 4 June.

67 "Citycon to begin construction of a new campus for SAMK - Satakunta University of Applied Sciences in Pori, Finland". Press release, Citycon, 15 December 2014. 68

68 "Income and production by area, annually by area, transaction, industry, sector, year and information". PxWeb, Tilastokeskus.

69 "Key figures on population by area, information and year". PxWeb, Tilastokeskus.

70 "Income and production by area, annually by area, transaction, industry, sector, year and information". PxWeb. 71

71 "Key figures on population by area, information and year". PxWeb,73

72 "Closed consultation: The steel strategy: The plan for steel". UK Department of Business & Trade. UK Government, 16 February 2025.

73 Jozepa, L. (2025) "UK steel industry: Statistics and policy". Research Briefing CBP 7317. House of Commons Library; Taggart, E. (2024) "'Britain is playing catch-up': Inside the race for clean steel". *The Times,* 16 October.

74 "Europe steels the deal". Energy & Climate Intelligence Unit, 6 March 2023.

75 "Steel industry: Contribution to the UK Economy". House of Commons, Westminster Hall Debate, Vol 726, 25 January 2023.

76 Pylas, P. (2024) "Steelworkers at the UK's largest production plant vote to strike over job losses". AP News, 11 April; Keep, M., M. Ward and I. Jozepa (2023) "Contribution of the steel industry to the UK economy". Debate Pack. House of Commons Library, 23 January; UK Steel. (2024) "UK steel key statistics guide 2024 showcases the sector's significant economic contribution but highlights key challenges". UK Steel, 31 May; Jozepa, L. (2025) "UK steel industry: Statistics and policy". Research Briefing CBP 7317. House of Commons Library, 11 April.

77 Pylas, P. (2024) "Steelworkers at the UK's largest production plant vote to strike over job losses".

78 Beuret, N. (2025) "Port Talbot, one year on: Steelworks closure shows why public is losing trust in net zero". *The Conversation,* 29 September.

79 "Corus accepts £4.3bn Tata offer". *BBC News,* 20 October 2006.

80 Ruddick, H. and H. Stewart (2016) "Tata Steel to sell off entire British business". *The Guardian*, 30 March.

81 Foster P., A. Hancock and A. Williams (2025) "UK seeks 'steel alliance' with US and EU to tackle Chinese oversupply". *Financial Times,* 27 October.

82 "New report: UK industrial electricity still uncompetitive, steel industry sets out plan to fix it". UK Steel, 15 September 2025.

83 https://www.reuters.com/business/thyssenkrupp-weighs-phased-sale-tkse-jindal-steel-international-sources-say-2026-01-07/

84 "Green steel future: Our plan to transform the UK business". Tata Steel.

85 Pfeifer, S. and J. Pickard (2025) "Tata Steel warns its exports are at risk under UK-US trade pact". *Financial Times,* 6 June.

86 Pfeifer, S. (2024) "Tata Steel UK losses jump fourfold". *Financial Times*, 4 December.

87 "Tata Steel will proceed with its £1.25 billion investment to build a state-of-the-art electric arc furnace in Port Talbot". Press release. Tata Steel, 25 April 2024.

88 Piggot, P. and C. Aitken (2024) "Port Talbot: Tata's Steel 2,800 job cuts are 'devastating'". BBC News, 19 January; Evans, F. (2024) "Port Talbot steelworks: Tata workers left stranded, say campaigners". *BBC News,* 20 January.

89 See Nomis data on the Neath Port Talbot local authority area.

90 Broadly speaking, a level 4 qualification is completed after school (post-16) and equivalent to the first year of a university degree. Data on Port Talbot taken from Nomis.

91 Jolly, J. (2023) "Welsh steelworks at breaking point over the cost of cleaning up its act". *The Guardian,* 15 July; Minio-Paluello, M. (2023) "Green steel deal must not axe thousands of jobs". TUC, 8 September.

92 "A workers' plan for Port Talbot". Unite the Union, November 2023.

93 Ibid.

94 James, S. (2026) "The unintended consequences of decarbonising steelworks". *The Conversation,* 25 February.

95 Beuret, N. (2025) "Port Talbot, one year on: Steelworks closure shows why public is losing trust in net zero".

96 Jozepa, I. (2025). UK steel industry: Statistics and policy". House of Commons Library, 11 April.

97 Rossiter, J. (2023) "IWA Analysis: Tata Steel Port Talbot – a lesson in how not to deliver a just and fair transition". IWA, 21 September.

98 Ibid.

99 Rossiter, J. (2023) "IWA Analysis: Tata Steel Port Talbot – a lesson in how not to deliver a just and fair transition".100

100 "Steel industry: Contribution to the UK Economy". House of Commons. 101

101 Shipton, M. (2025) "Claims only three Tata Steel workers have applied for much-heralded retraining scheme". Nation Cymru, 28 February.

102 "New frontier for UK offshore wind with leading developers set to deliver new generation of floating windfarms". Press release. The Crown Estate, 19 June 2025.

103 James, S. (2026) "The unintended consequences of decarbonising steelworks".

104 Willett, J., M. Williams, L. Akerman et al. (2025) "Peripheralization and economic development: A multi-causal approach". *European Planning Studies,* 4(33): 471-490.105

105 Pitts, F. H. (2024) "Securonomics, the Mais lecture and critical minerals in Cornwall". Renewal, 22 March.

106 Pitts, F. H. (2025) "The forthcoming critical minerals strategy: A test case in securonomics?" Policy Brief. Critical Minerals Challenge Centre, November.

107 "Vision 2035: UK Critical Minerals Strategy". Policy paper. Department for Business & Trade. HM Government, 22 November 2025.

108 "Resilience for the future: The UK's critical minerals strategy". Department for Business, Energy & Industrial Strategy Policy paper. HM Government, July 2022.

109 Lammy, D. (2024) "The Kew lecture: Foreign Secretary's speech on the climate crisis". Foreign, Commonwealth & Development Office. HM Government, 17 September.

110 "Invest 2035: The UK's modern industrial strategy". Department for Business & Trade. HM Government, 2025.

111 "Clean energy industries: Sector plan". Department for Business & Trade. HM Government, June 2025.

112 "Invest 2035: The UK's modern industrial strategy". Department for Business & Trade.

113 Pitts, F. H. (2025) "The Chancellor sees critical minerals are a case study in securonomics". Progress, 30 July.

114 "UK mineral ownership". MineralsUK.

115 Trewhela, L. (2025) "New dawn rising for Cornwall as the Cornish Celtic Tiger is unleashed". Cornwall Live, 3 December.

116 "National security strategy 2025: Security for the British people in a dangerous world". Cabinet Office. HM Government, 24 June 2025.

117 Pitts, F. H. (2024) "Securonomics, the Mais lecture and critical minerals in Cornwall".

118 "The Trelavour lithium project: Project information". Planning Inspectorate, 31 July 2025.

119 "UK infrastructure: A 10 year strategy". Policy paper, CP 1344. HM Treasury, June 2025.

120 "UK mineral ownership". MineralsUK.

121 Pettit, C., K. Bogus, J. Willett et al. (2025) "UK green skills agenda". Briefing note. Critical Minerals Challenge Centre, May.

122 Department for Education (2025) Skills England priorities for 2025 to 2026. HM Government (June 2025). https://www.gov.uk/government/organisations/skills-england

123 Willett, J., M. Williams, L. Akerman et al. (2025) "Peripheralization and economic development: A multi-causal approach".

124 Morris, S. (2026) "'Magic beneath the surface': Pioneering geothermal plant launched in Cornwall". *The Guardian,* 26 February.

125 Rees, G. (2026) "'Drill, baby, drill': How Donald Trump is bringing hope back to a Cornish mining community". *The Telegraph,* 9 March.

126 "Lithium mining project on hold amid funding issues". *BBC News,* 20 February 2026.

127 Lam, W. R., A. Schipke, Y. Tan et al. (2017) "Resolving China's zombies: Tackling debt and raising productivity". Working paper no. 17/232. IMF Working Papers, 27 November.

128 Bailey, D., C. N. Pitelis and P. R. Tomlinson (2023) "Place-based industrial and regional strategy – levelling the playing field".

129 Molica, F., A. de Renzis and S. Bourdin (2025) "From Lisbonisation to hyper-Lisbonisation: The long goodbye to EU cohesion policy's original goals". *Regional Studies,* 1(59): 2540361. DOI: 10.1080/00343404.2025.2540361

130 Schetter, U., D. Diodato, E. Protzer et al. (2024) "From products to capabilities: Constructing a genotypic product space". Faculty working paper. Growth Lab.

# ABOUT THE AUTHORS, FEPS & PARTNERS

# ABOUT THE AUTHORS

## THEO COX

Theo Cox wrote this report in his capacity as a Senior Expert for the Finnish think-tank Demos Helsinki. He has since transitioned to a new role as the Senior Strategist for the Strategic Climate Risks Initiative, a think-and-do tank that builds tools and capabilities to navigate the new climate reality. He specialises in the interplay of systemic environmental, economic and geopolitical risks.

## FREDERICK HARRY PITTS

Frederick Harry Pitts is Head of Humanities & Social Sciences on the University of Exeter's Cornwall Campus in his hometown of Penryn, and an Associate Professor in Political Economy & the Future of Work. He is Deputy Director of the Centre for the Public Understanding of Defence & Security and a Co-Investigator of the UKRI Critical Minerals Challenge Centre and ESRC Centre for Sociodigital Futures.

## ED ATKINS

Ed Atkins is an Associate Professor in Political Geography at the University of Bristol. His work explores the contested character of environmental and energy policy and politics, with a particular focus on how energy transitions will restructure regional economies and patterns of employment.

## GERARD RINSE OOSTERWIJK

Gerard Rinse Oosterwijk is political advisor to Alex Agius Saliba MEP, Vice President of the S&D Group on the Digital Europe Agenda. He is also FEPS Expert Consultant and was FEPS Policy Analyst on Digital. Gerard has served as political secretary of Vooruit in the Brussels Parliament, as well as a policy advisor in the European Parliament. His private sector experience includes roles as operational manager and marketeer at ING Bank. Recently, he has been setting up digital initiatives to promote a public space on the Internet. Gerard holds a master's in European social policy from the London School of Economics and a LLM in Private Law from Leiden University.

## ABOUT THE FOUNDATION FOR EUROPEAN PROGRESSIVE STUDIES (FEPS)

FEPS is the European progressive political foundation and the think tank of the progressive political family at EU level. Our mission is to develop innovative research, policy advice, training and debates to inspire and inform progressive politics and policies across Europe.

FEPS
FOUNDATION FOR EUROPEAN
PROGRESSIVE STUDIES

Avenue des Arts 46
1000 Brussels, Belgium
info@feps-europe.eu
www.feps-europe.eu
@FEPS_Europe

## ABOUT PROGRESS

Progress is the platform for policymaking, political education and imaginative thinking to rebuild Labour and the nation. Rooted in the Labour Party, they are dedicated to national renewal through the intellectual revitalisation of the UK centre-left.

PROGRESS

New Derwent House, 69-73 Theobolds Road
WC1X 8TA, London (United Kingdom)
office@progressonline.org.uk
https://www.progressonline.org.uk/
@progbrit

This policy study argues for an industrial strategy that balances national and supranational economic competitiveness and security while supporting democratic legitimacy and regional benefits. In doing so, we draw on four case studies to present a framework of how industrial policy can be reconciled with a broader project of local renewal and placemaking. Such an approach will benefit many, pointing towards a distinctly European way of doing industrial strategy that serves local and international ends.

Industrial policy has re-emerged as a strategic instrument in the EU and the UK, initially for economic growth but increasingly for safeguarding democracy, security and resilience in an era of geopolitical turbulence. This shift reflects overlapping political imperatives: defending democracy against authoritarian threats; rebuilding strategic autonomy amid the collapse of the free trade order; accelerating decarbonisation; and addressing the regional inequalities, often caused by uneven industrial change historically, that fuel political disaffection.

In this context, we are animated by the central research question of how place-based industrial policy (PBIP) might be designed to align national strategic priorities with local economic renewal and placemaking. In this sense, we adopt a language of "placemaking" to highlight a set of policy interventions focused on improving living standards, local infrastructure and supporting community cohesion alongside increasing incomes at the local level. This feeds into a broader PBIP as an economic strategy that foregrounds macro-interventions in the socio-economic, cultural and institutional characteristics of the regions and communities that are experiencing change.

POLICY STUDY PUBLISHED IN MAY 2026 BY:

PROGRESS

FEPS
FOUNDATION FOR EUROPEAN
PROGRESSIVE STUDIES



ISBN: 978-2-39076-071-9
KBR deposit number: D/2026/15396./22