SUMMARY

Industrial policy is once again in vogue in public policy circles around the world. Yet it is crucial to ensure coherence between place-based innovation and EU industrial policy. For doing so, this contribution proposes a new approach to sustainable, resilient and secure development in the EU.

Underlying the proposed approach is recognition that past attempts at goal-based policymaking, including the European Green Deal, have overlooked key trade-offs – such as those involving socioeconomic and territorial impacts. This in turn has sowed discontent and significantly polarised public opinion, with non-metropolitan areas witnessing a rise in anti-EU sentiment.

It is argued here that mono-dimensional approaches to industrial development (e.g. decarbonisation pathways) are unlikely to deliver prosperity and well-being, which are the EU's ultimate goals. Instead, a multidimensional approach aimed at addressing the key trade-offs is much more suitable.

This contribution to the special CEPS series 'The Path to 2030' outlines a backcasting, mission-oriented and foresight-inspired approach. It encourages the EU to fully embrace economic complexity when looking at its geography and that of the rest of the world.

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INTRODUCTION: THE RISE AND FALL OF EU INDUSTRIAL POLICY (AS WE KNOW IT)

Over the past five years, industrial policy has made a vibrant comeback into the vocabulary of public policy around the world, including in the EU. This has happened after years in which the term 'industrial policy' had been considered virtually *taboo*, incompatible with the almost-uncontested primacy of market forces against top-down, winner-picking approaches. This trend has partly been due to recognition of the limits of the market mechanism for delivering on goals other than pure market efficiency, including social and environmental goals, and more generally the production of public goods.

THE RISE OF GOAL-BASED POLICY

The once-dominant approach to public policy, which contemplated intervention only in the presence of well-demonstrated market failures, was gradually replaced (though not without strong resistance) by a growing emphasis on goal-based policy. Poster children of this *nouvelle vague* include the global agreement on Sustainable Development Goals in 2015 and the rise of decade-long goal-based agendas in the EU (e.g. the Lisbon Strategy and Europe 2020). They were also visible in the growing dissatisfaction with unconstrained, purely profit-motivated business conduct (embodied by 'shareholder capitalism'). This shift hit a milestone with the US Business Roundtable's statement on corporate purpose in August 2019 and was accompanied by the rise of alternative metrics of performance, including environmental, social and governance indicators.

A recent IMF Working Paper documents the rise of industrial policy in the narrative and policy actions of governments around the world, especially over the past decade. A collection of short papers, by authors such as Joseph Stiglitz, Dani Rodrik and Mariana Mazzucato, authoritatively comments on the rise of an innovative approach (sometimes termed 'new industrial policy') as a result of decades of disappointing experiments with neoliberalist policy paradigms. The emerging approach, at least in this literature stream, concerns an industrial policy that provides directionality to innovation, uses public funding and leverages conditionalities to catalyse innovation towards desired goals.

In a separate, yet compatible workstream, authors such as Ricardo Hausmann have championed new approaches to industrial policy based on economic complexity, technology relatedness and comparative advantage. This workstream emphasises the need to granularly map and then leverage place-based innovation as a critical aspect of successful industrial policies.

Today, perhaps the most evident real-life incarnation of this new approach is the US Inflation Reduction Act, which incorporates conditionalities related to the localisation of cleantech supply chains, but also to the creation of good jobs. It is also apparent in the commitment by the new UK Labour government to be 'mission-driven' in its overall approach.

THE EU GREEN DEAL AND THE RETURN OF COMPETITIVENESS

At the EU level, a culminating moment of the resurgence of industrial policy, though not entirely aligned with the new approach outlined above, was the launch of the Green Deal in late 2019. Presented as Europe's growth strategy, the Green Deal was coupled with a redefinition of the European economy centred on 14 main industrial ecosystems and the launch of transition pathways for each of these ecosystems.

This approach, concentrating on decarbonisation and green growth, did not fully stand the test of time and quickly faced challenges. Some of these challenges were somewhat exogenous to the Green Deal, such as the Covid-19 pandemic. The Russian invasion of Ukraine and the ensuing tensions in energy markets led the EU to launch initiatives such as RePowerEU, aimed at saving energy, diversifying energy supplies and producing clean energy. Also, the deterioration of the multilateral order and the rising competition between the US and China led to fiercer global competition mostly through industrial policy measures, in an escalation of initiatives that the EU was largely unable to replicate due to lack of competences and fiscal capacity. The EU had a rude awakening to the fact that its goal to become the world's green investment hub was not easy (if at all possible) to achieve.

This is only part of the story, however. The Green Deal gradually lost momentum also due to inherent design problems under the hood. At least two of them are worth mentioning here. First, rather than integrating social sustainability and economic prosperity considerations into its scope and ambition, the Green Deal 'divided' the SDGs (Sustainable Development Goals) and adopted a stripped-down version focused mostly on climate goals. This was problematic as the SDGs had been presented from the beginning as 'integrated and indivisible'.

Furthermore, owing to the lack of EU competence in certain areas (e.g. health and social policy), the Green Deal ended up ignoring the trade-offs that a green transition inevitably entails, including an impact on jobs, the role of technology and consequences for EU competitiveness. Such trade-offs became even more evident with the shocks that followed the launch of the Green Deal, and eventually almost dealt a fatal blow to the whole agenda.

Second, the Green Deal did not fully consider the territorial impacts of the decarbonisation agenda. Among the different factors that make the 'geography of discontent' extremely relevant for the Green Deal is the relevance of proximity to renewable energy sources, which changes the geography of supply chains (Hausmann 2020). Another factor is the concentration of talent, capital and infrastructure in specific hubs needed for advanced production, especially for digital technologies requiring significant hardware support, such as generative AI and quantum computing. Attention on territorial impacts was limited to the 'just transition' narrative. But this took the form of very geographically concentrated, *ex post* compensation measures for those local communities that would be most affected by the phasing out of coal plants (Sabato et al. 2023; Crespy and Munta, 2023; Akgüç et al. 2022).

As a result, towards the end of Commission President Ursula von der Leyen's first mandate, the EU saw its industrial policy approach lose momentum. Demonstrations by farmers and truck drivers in the streets of Brussels and other European capitals continued throughout the first half of 2024. Together with the anti-climate, populist rhetoric in many Member States in the campaign for the European Parliament elections in June, they echo in a shifting political narrative in EU institutions.

A returning emphasis on a cost-efficiency logic was already seen in von der Leyen's 2023 State of the Union speech. The mandate given to Mario Draghi for a report on European 'competitiveness' likewise signalled a departure from a more integrated, goal-based approach to Europe's future agenda. And indeed, the Draghi report ended up placing competitiveness (however vaguely defined) at the forefront of the EU agenda. Goals such as decarbonisation, social cohesion and even territorial, place-based development are considered useful add-ons to the extent that they can contribute to a more competitive Europe. Alongside competitiveness, other policy goals, mostly security-related, have taken a front seat in the EU narrative on industrial policy.

'PLACES' AS LOCI OF INNOVATION AND INDUSTRIAL TRANSFORMATION

As the scope and ambition of industrial policies become better coordinated and multidimensional, countries around the world are realising that standardised solutions for growth and industrial transformation are not going to be fit for purpose.

INDUSTRIAL POLICY BY OTHER GLOBAL POWERS

China, for example, has adopted extremely centralised measures for industrial policy, such as, inter alia, its Indigenous Innovation programme and 'Made in China 2025'. But as early as 2007 it also realised the need for ad hoc high-tech zones, centred around cities. In 2010 it adopted a policy on National Industrial Relocation Demonstration Zones aimed,

among others, at mitigating the climate impacts of China's rampant industrialisation. In 2016 it set up National Pilot Zones for Ecological Conservation at the provincial level. Since then, the adoption of experimental governance approaches in China seems to have somewhat slowed down. Yet, emphasis on local development conditions seems to have survived in enhanced attention on creating localised ecosystems where talent, capital and infrastructure can lead to a thriving economic performance.

In the US, the Biden-Harris administration has embraced place-based innovation, departing from exclusive reliance on horizontal, one-sized-fits-all schemes of industrial policy. In particular, the 'Investing in America' agenda earmarked USD 80 billion for 'place-based industrial policy'. In that context, the White House announced funding for 31 new place-based innovation zones through its Tech Hubs programme, authorised by the CHIPS and Science Act and led by the Economic Development Administration (EDA) within the US Department of Commerce.

Importantly, the Biden-Harris administration has adopted a whole-of-government approach. For instance, the EDA has partnered with the National Science Foundation (NSF) to facilitate investment in place-based innovation and to align and coordinate benefits and resources – avoiding duplication especially if a given region has received both an NSF Engine award and a Tech Hubs designation. The US Department of Labor partners with the NSF Regional Innovation Engines programme to advance shared Good Jobs Principles. Their efforts promote job quality, worker empowerment and equal employment opportunity standards through Regional Innovation Engines to spur inclusive economic growth.

Similar coordination mechanisms are envisaged between the NSF and the US Department of Energy, the Environmental Protection Agency, the Department of Housing and Urban Development, the Advanced Research Projects Agency for Health (ARPA-H), the Department of Transportation's Advanced Research Projects Agency-Infrastructure (ARPA-I), the Small Businesses Administration and many more. Recent evidence in E2 and a report by the Environmental Protection Network confirm that industrial policy efforts by the Biden-Harris administration have created a significant number of good jobs, including in less developed areas of the US.

A SHIFTING EU AGENDA

The EU itself has a rather consolidated tradition of place-based policy, first with ad hoc policies on industry clusters and then with smart specialisation policies from the early 2010s onwards (Foray et al. 2011; Foray et al. 2018). During the past decade, the Research and Innovation Smart Specialisation (RIS3) has gradually been implemented as *ex ante* conditionality within the 2014–20 cohesion policy and its 2021–27 successor.

The underlying idea is that regions should seek to develop according to their peculiar local conditions and competitive advantage, rather than pursuing a standardised growth path. Importantly, this approach focuses on the specifics of the regions themselves, not on how each region could contribute to an integrated, effective vision for industrial transformation in the EU.

During the first von der Leyen Commission, smart specialisation was further tweaked to incorporate sustainability (from S3 to S4), leading to an overall broad incorporation of the SDGs in the design and implementation of RIS3 strategies. This, as mentioned, somehow clashed with a centralised approach to industrial policy that did not fully match the breadth, scope and indivisibility of the SDGs.

Moreover, as the agenda of the EU and its related 'North Star' kept shifting, regional and cohesion policies remained anchored to a concept that found no easy reference at the centralised EU level. All in all, it can be said that the momentum for S4 policies has gradually waned during the past few years, despite admirable work done by the EU institutions in refining and disseminating a vast toolkit for local authorities to assess their frontier and develop their actions accordingly.

As discussed extensively in the literature (on, inter alia, the 'policy transfer of smart specialisation'), the implementation of S3/S4 strategies has been further hampered by a variety of factors, including cultural, institutional and governance-related ones (see Radosevic et al. 2017; Molica 2024). Among these, a few stand out:

- limited understanding of technological specialisation at the local level;
- the imposition of a 'policy transfer' logic that often disregards vast divergences in institutional culture and in local economic and business dynamics;
- the lack of full consideration of the structural preconditions for industrial development at the local level, including factors related to infrastructure, skills and administrative/institutional capacity; and
- reliance on the self-assessment of regions for industrial priorities, which in many cases encourages self-referential behaviour and agenda capture by stakeholders (per se hard to translate into a deeply transformative agenda).

As a result, evidence of technological convergence across regions over the past two decades is weak at best. These inherent challenges have been further exacerbated by limiting factors in the EU's multilevel governance, leading to important short-circuits in the transmission mechanisms that link the overall EU agenda to industrial policy, and between the latter and place-based industrial transformation.

OBSTACLES TO THE EFFECTIVE POLYCENTRIC GOVERNANCE OF INDUSTRIAL TRANSFORMATION IN THE EU

The need to reconsider the scope and governance of EU innovation and industrial policies to better embed place-based innovation, as mentioned, is rooted in socioeconomic, geopolitical and technological factors. The past 5 years have seen a shift in the overall EU narrative and goals, towards security and resilience. At the same time, decarbonisation pathways for industry require increased proximity to renewable energy sources. Meanwhile, the technological revolution forces the concentration of research and innovation in hubs, often corresponding to large or medium-sized cities, where infrastructure, talent, institutions and the investor community can find a suitable ecosystem. When putting together these aspects, it is possible to draw the contours of possible future reforms, which would lead to a more coordinated and coherent agenda for industrial transformation in the EU. All the same, several hurdles stand in the way.

For a start, the growing emphasis of the EU agenda on security may exacerbate the lack of consistency in multilevel EU governance. While security should in principle be intended as an intermediate objective, people's and planetary well-being should be seen as ultimate goals. In practice, the security imperative will dominate the political landscape of the EU in the coming years, taking on alternative interpretations. For instance, 'economic' security is close to the concept of resilience and the reduction of economic dependencies on other countries or single sources of supply, while 'comprehensive' security includes the need to invest in EU defence.

Security is also chiefly related to resilience, as the ability of the EU to thrive despite moments of crisis or unforeseen global shocks is also, inter alia, connected to its ability to reorient its activities and sources of supply whenever a key input or value chain link becomes unavailable or is weaponised by non-EU countries. Emphasis on technological sovereignty in the mandate of the newly designated Executive Vice-President Henna Virkkunen confirms that reducing dependencies is considered an ally of long-term competitiveness.

Here, a central problem is the historical lack of a security and defence component in relevant domains of EU policy, including research and innovation (R&I), industrial policy and cohesion policy. The lack of EU competences in this domain has reverberated in a lack of osmosis between defence efforts at the national level and a broader security-oriented innovation and industrial policy in the EU.

At the EU level, the R&I policy framework has only partly pursued the goal of territorial specialisation. This means that, even if it fully incorporated the security dimension, EU R&I policy would not be able to do this by mapping what can and should be achieved, or

where across EU regions. In most cases EU R&I framework programmes try to boost collaboration across universities in different regions of Europe, without prioritising the creation of suitable local hubs where all preconditions for competitive, sustainable and responsible industrial transformation are met. This is true in particular for Research and Innovation Actions and for Coordination and Support Actions in Horizon Europe (and previous programmes).

But also for larger schemes such as partnerships or missions, a logic aimed at achieving a balanced geographical representation has often prevailed over a reasoned approach to technological specialisation and frontier in the specific domain at hand. That being stated, specific initiatives like the Mission on Adaptation to Climate Change have built bridges with other existing initiatives that target the local dimension. Among them is the Joint Research Centre's Playbook for Regional Innovation (PRI), to try to help local authorities navigate the complex thicket of emerging policy approaches and tools, as well as existing EU supporting instruments.

EU policies on industrial transformation have typically ignored the trade-offs associated with the twin transition, particularly resilience and good jobs. The Industry 4.0 paradigm has proven to be hardly suitable for a comprehensive, whole-of-government strategy aimed at promoting long-term well-being. Rather, it focuses on the deepening of digital technologies in industry, with limited attention given to environmental and employment impacts (Renda 2021; ESIR 2023).

The hope is that, in the next European Commission, a clearer stance will be taken towards an Industry 5.0 paradigm, which postulates that industrial transformation should be human-centric, resilient and sustainable. This would be a very important step towards a more coherent set of policies for sustainable industrial transformation, as well as an easier and more effective link with cohesion and regional smart specialisation policies.

Since 2019, EU industrial policy has been rebuilt around the notion of industrial ecosystems, and (from 2021) the launch of transition pathways jointly laid out by existing stakeholders in a collective process. Such transition pathways, however, have taken too long to kickstart. In addition, they have typically been established in an incremental, incumbent-driven way. This in turn reduces their potential to trigger the systemic transformation that European industrial sectors need to embrace competitiveness and sustainability over time.

Moreover, transition pathways that have already seen the light (e.g. in energy-intensive industries, construction, mobility, the chemical industry and tourism) do not seem to have fully incorporated fundamental parts of the emerging EU agenda. These include security and resilience; the creation of good jobs; territorial impacts, i.e. the possible

mapping of existing specialisations; the identification of hubs and interrelations between them; and the consequent redesign and diversification of EU supply chains. In a nutshell, existing EU industrial policy is hardly wired for a multilevel industrial-transformation strategy in the EU.

Industrial transformation requires a careful analysis of the potential for each region of Europe to contribute to an integrated pan-European economy in the future. This in turn requires at least three actions in the coming months:

- **embracing economic complexity** by building an ongoing observatory of European specialisation that incorporates framework conditions for industrial development and transformation. This should cover infrastructure; R&I capabilities (publications and patents); skills, logistics and mobility; technological relatedness with other European regions; and specific future areas in which the region could usefully specialise (see Balland et al. 2019; Barbero et al. 2024).
- **engaging in horizon scanning** to help anticipate which technological developments could give rise to opportunities for each European region in the future (be this as part of global or more European value chains) and to chart potential pathways for each region's specialisation and skills creation. The identification of general-purpose and strategic emerging technologies in new initiatives such as the Strategic Technologies for Europe Platform should now be complemented by further analysis. More specifically, it is crucial to identify who, in Europe and beyond, possesses the necessary skills, infrastructure, knowledge, talent and institutional capacity to deliver on those technologies and related, derivative solutions in the near future. There is a need to pinpoint the regions that, with sufficient investment, could get there in the medium term; and
- **developing policies to enhance the diffusion of technological innovation**. Even if the new EU priorities were reflected in R&I programmes, the EU would still face a lack of innovation uptake due to the absence of a clear vision for the EU's industrial transformation and the identification of regions that could evolve into 'makers' in a given innovation space or remain 'takers' while specialising in other areas. In this respect, the fact that Europe has more of a diffusion problem than an innovation problem has been known for years, and was the subject of important work also within the European Commission (RISE Group 2018; 2019). Today, the scope of this work should be expanded to include, among the preconditions for suitable uptake of innovation, more refined indicators of administrative capacity and new forms of infrastructure (e.g. data governance and stewardship, AI and compute).

Both the R&I and the industrial policies of the EU have remained, over time, relatively uncoordinated with cohesion policy, as mentioned earlier. The need to better coordinate Horizon Europe and cohesion policy has been the subject of dedicated initiatives by the European Commission, yet the link could be significantly strengthened (see Radosevic, Foray and Renda 2023). For industrial policy, the same applies to the links between industrial transition pathways and cohesion policy. This should include enhanced attention on regional industrial policy in the European Semester and the country-specific recommendations, as well as on the priorities set for smart specialisation. In many respects, it is possible to state that the 'new industrial policy' approach, which the EU could more wholeheartedly embrace, is indeed a smart specialisation policy (though different from the current S3/S4 paradigm).

The relaunch of the Green Deal by the new von der Leyen Commission should be accompanied by a broadening of the scope (and the related modelling) to incorporate an Industry 5.0 approach, as well as a better understanding of the geography of discontent. This should enable it to better reflect the substantial socioeconomic, territorial and security trade-offs that have emerged from implementing Europe's 'growth strategy'. The challenges Europe faces in the coming years cannot, unfortunately, be approached one by one. This will entail, among other things:

- revamping and prioritising, within Europe's better regulation toolbox, the adoption of multi-criteria analysis that reflects outstanding trade-offs and incorporates a deeper understanding of the distributional impacts of EU regulations and spending measures, besides other impacts (e.g. on competitiveness),
- further integrating foresight with better regulation, in a way that enables an alternative futures logic into the analysis of the prospective impacts of (clusters of) EU regulations,
- continually monitoring the alignment between the EU *acquis* and spending initiatives with Europe's overarching and intermediate goals, and
- specifying a framework for mission-driven, experimental governance towards set goals at various levels of government in the EU.

Europe should update its cohesion policy by giving it a territorial security dimension. Cohesion policy has been described as the EU's 'secret weapon', with a view to this crucial policy domain – typically used to facilitate convergence between leading and lagging regions in the EU – being given a more territorial, security-oriented twist. Security, in this respect, should be intended in its social, economic and geopolitical dimensions. Place-based industrial transformation should then be incorporated into cohesion policy by directing policy and spending measures towards specialisations that can enable specific

regions to achieve higher levels of security. The public goods nature of the latter goal would also mean that the EU as a whole would benefit from enhanced social, economic and geopolitical security in each of its regions (i.e. the EU is typically as secure as its weakest link).

POLICY RECOMMENDATIONS FOR CHARTING A NEW PATH FORWARD

If all eight of the obstacles listed above are to be overcome, EU institutions will need to play a major role in the reform of the policy cycle for industrial change. This section contains an attempt at designing a new policy cycle for sustainable, resilient and human-centric industrial transformation in the EU. It seeks to embed in the new EU policy cycle emerging, innovative policy approaches as described above. As summarised in Table 1, they include the following features:

- **goal-based rather than purely growth-based**. The complexity of, and interplay between, intermediate policy goals such as resilience/economic security, competitiveness, territorial cohesion and decarbonisation warrants an orientation towards pursuing a plurality of goals and decision-making tools that account for possible trade-offs. The 'superposition' and 'entanglement' of policy impacts in this respect has inspired a recent talk, in which I referred to new frontiers in public policy in the era of complex choices as the dawn of 'quantum policymaking';
- **mission-oriented rather than prescriptive and unidirectional.** This implies a rather new approach to polycentric governance in the EU, with less prescriptive indications to local and regional communities, yet at the same time directionality provided to all levels of government, to contribute to a cohesive plan for Europe's sustainable industrial transformation. At the moment, smart specialisation serves the goal of enabling local development. In the future it will also have to pursue a consistent set of local contributions to a more integrated, resilient, sustainable, fair and competitive EU;
- **evidence- and foresight-informed, rather than one-size-fits-all.** Modelling based on economic complexity can shed light on the potential future trajectory of each and every part of EU territory (i.e. as noted by the group on combining regional strengths to tackle the innovation divide). At the same time, this approach would need to be complemented by the requisite foresight and horizon scanning, as well as the identification of domains and technologies where a European specialisation is needed. That is not because of pre-existing specialisation, but due to the need to boost economic security and technological sovereignty (e.g. on general-purpose technologies such as AI, or quantum);

- **linked to polycentric rather than single-level governance**. The interplay between multilevel governance and transnational governance, including by non-state actors, leads to configuring the EU as a polycentric governance structure. This has consequences for developing a coherent innovation ecosystem, which is at the same time decentralised to reflect local specialisations and centrally orchestrated to leverage economies of scale and scope. In particular, poly-centricity is deeply linked to the interplay between public and private actors in local innovation ecosystems and to the ability of future EU policymakers to trigger enhanced cooperation and collaboration among innovation hubs, which very often are located in a limited number of EU cities;
- **whole-of-government rather than siloed**. This implies that a common approach towards industrial transformation is shared across institutions and levels of government, and clearly and systematically permeates each spending instrument the EU deploys in support of industrial transformation, from structural funds to Horizon Europe/Framework Programme 10 (FP10), to InvestEU; and
- **agile and experimental**. The Draghi report also emphasises the need for policy experimentation, provided that it is sufficiently coordinated and leads to policy learning across regions in Europe. The work done by the Joint Research Centre on the PRI and particularly on policy experimentation should now be brought back to the EU level, to be given a layer of central coordination and mutual learning.

Table 1. Recommended approaches in EU industrial policy

Old approach	New approach	Recommended policy reforms
Growth-based, prescriptive	Goal-based, mission-driven	• All EU policies are reoriented towards a coherent set of intermediate, integrated and indivisible goals (R&I FP10, industrial pathways, net-zero industry action plan, Green Deal, etc.). • Changes are made to the better regulation agenda to monitor the alignment of entire policy domains with the specified economic, social, environmental and political/security goals. • The European economy is mapped at NUTS2 level to identify technological specialisation, relatedness and the

		future possibility frontier, and pathways for industrial systemic transformation are outlined for each ecosystem and European region. • Systemic transformation pathways are incorporated beyond general and sectoral (e.g. chips) industrial policies to embrace cohesion policies, the European Semester, skills policies, etc.
Evidence-based	Evidence- and foresight-based	• Medium-term policies and goal-setting are inspired by accurate stocktaking and modelling, including resilience to possible shocks and the preparation of response plans in the event of massive disruptions. • Foresight is fully integrated with the better regulation agenda: the scenarios adopted as baselines for the assessment of the incremental impacts of select policy options are specified as alternative futures, not as extrapolation of the present. • Industrial transition pathways (possibly renamed systemic industrial transformation pathways) are outlined with specific attention to their resilience to possible alternative future scenarios, including likely, but also plausible future evolution of the ecosystem in terms of technology, geopolitics and geo-economics. • Foresight becomes a multilevel exercise possibly aided by advance computing and AI, in which each region of the EU is given a frontier towards which it should try to progress, also

		with the help of targeted cohesion policy measures. This multilevel foresight is provided with the participation of stakeholders from the affected regions.
Subsidiarity-inspired smart specialisation	Polycentric smart specialisation	• Cohesion and structural funds, recovery and resilience funds (or their successor) and the European Semester provide substantive directionality to regional reforms, including on skills, R&I and industrial support measures. • Regions are given goals to achieve through funding, including socioeconomic, environmental and territorial security-related goals. They are left relatively free to choose how to achieve those goals, including a degree of experimental governance and portfolio management (in the spirit of mission-oriented policymaking). Compared with a purely subsidiarity-inspired approach, in this case goals are made consistent with the overall EU vision for industrial transformation, as well as the modelling of the evolution of industrial ecosystems across the EU in the medium term. • Rather than a voluntary set of initiatives, the PRI Playbook becomes part of negotiations for the implementation of smart specialisation initiatives aimed at achieving frontiers jointly determined and consistent with EU-level industrial policy. • The EU, national, regional and municipal levels are jointly involved in a coordinated exercise aimed at the

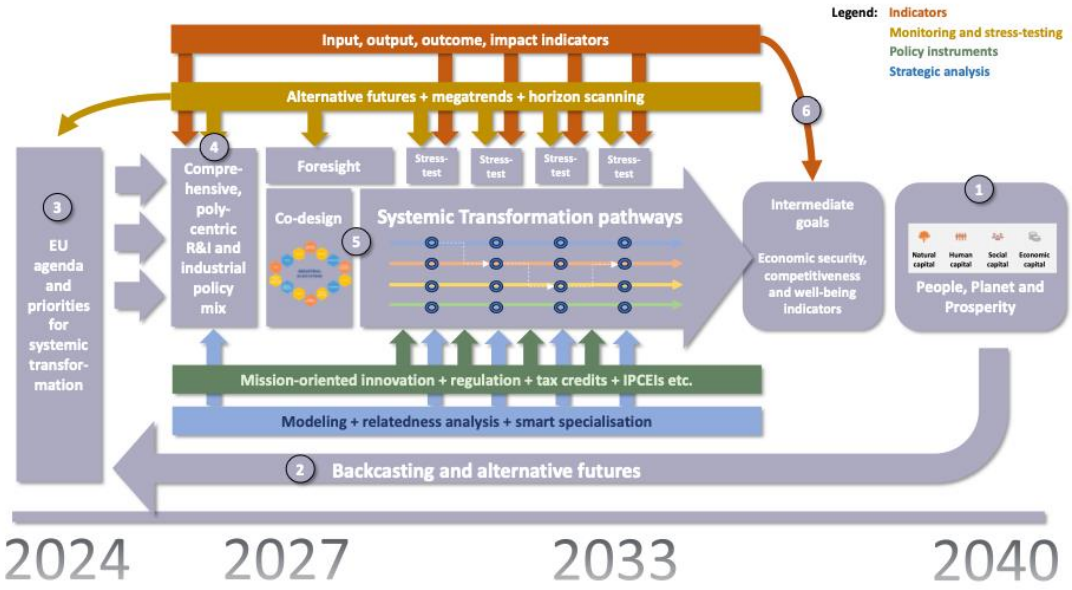
		security, sustainability and competitiveness of the EU, inspired by a true 'leaving no one behind' mission.
Siloed	Whole-of-government	• Besides incorporating foresight, the better regulation agenda also specifically models trade-offs as well as territorial impacts. It plans accordingly to prevent the combination of policies implemented in the European Commission's Annual Work Programme from neglecting particular regions, generating or exacerbating possible discontent. • The same is done through *ex post* fitness checks and resilience stress-testing of entire policy domains, carried out in the context of a multilevel initiative on the systemic transformation of European industrial ecosystems. • An Industry 5.0 approach is embedded in all policies of the EU, including the Green Deal, the Agenda for Skills and Jobs, digital policies including AI, etc. • Framework conditions for the uptake of innovation and embracing systemic industrial transformation are made a cross-cutting priority in EU programmes and policies (e.g. in NextGenerationEU or its successor). Such conditions may include broadband connectivity, digitisation of public services, reduction of unnecessary administrative burdens, availability of skills support and upgrade services, digital innovation hubs, the availability of compute

		(where needed) and data stewardship programmes.
Linear/Waterfall	Experimental/Agile	• Regional authorities involved in a pan-European industrial transformation plan should be given the possibility to experiment with alternative pathways to reach the goals jointly set with the EU level. This may entail deciding together on possible options in the PRI, such as sandboxes, testbeds, pilots and other experimental governance approaches aimed at testing specific solutions that may prove effective with respect to the set goals. • Embedding foresight in R&I, the Green Deal and systemic industrial transformation policies to enable meaningful place-based innovation implies that policies implemented at the local level should also be course-corrected whenever a given shock (or a combination of shocks) emerges. This, in turn, requires that the choice among alternative pathways at the regional level reflects a degree of resilience to possible shocks, also as a function of territorial security.

Source: Author's own elaboration.

Figure 1 below shows a representation of the resulting integrated policy cycle, which reproduces recent work on EU industrial policy. As shown, looking at number 1 on the right-hand side of the picture, a key starting point for defining an integrated policy is setting a broad set of long-term goals aligned with people, the planet and prosperity. This entails, for example, subjective well-being and the intergenerational preservation of the four types of capital.

Figure 1. A backcasting approach to linking place-based innovation with industrial policy



Source: Renda, A. (2024), What North Star for EU industrial policy.

In line with this broad-brush agenda, which is consistent with Article 3 TEU as well as with the SDGs, EU institutions should then set the intermediate goals that are most likely to achieve the said final objective. These should include socioeconomic, environmental and security-related goals that will impose the specific blend of goal-based policy to be pursued during the next 5 years (and possibly embedded in the next Multiannual Financial Framework). This should lead to backcasting, in the form of mission-driven policies specified at all levels of government, and accompanied by indicators that help keep track of goal attainment over time.

Systemic transformation pathways should be informed by an integrated, goal-based approach to relevant EU policies, from R&I to net-zero policies, to cohesion policy. The need to course-correct over time should be incorporated in the selection of a portfolio approach to each policy domain, and accompanied by experimental, goal-based governance at the regional and local levels. Some of the suggestions in the Draghi report, e.g. the competitiveness action plans or the set-up of ARPA-style entities in research and innovation policy, could usefully be adapted to fit this coherent scheme. The advantage would be that they would become less mono-dimensional (aiming at long-term well-being, rather than only at competitiveness) and more wary of territorial and social impacts.

A precondition for this whole exercise is the launch of a granular mapping of technological specialisation and framework conditions throughout the territory of the EU, and an

understanding of path dependencies as key to industrial specialisation. This should allow for a co-creation approach aimed at leveraging the capabilities built at the regional level and integrating those capabilities into consistent and flexible pathways for the coming years – all the way through to the end of the next Multiannual Financial Framework and the following one.

CONCLUSIONS

EU industrial policy may have risen and fallen over the years, but it has not necessarily fallen backwards. It is up to the newly appointed EU policymakers to address the problems that have emerged from implementation of the Green Deal and to bring more coherence and directionality into all EU policies.

In this respect, the Draghi report offers gravitas and a sense of urgency that could and should be leveraged by launching an ambitious new agenda, centred around industrial transformation and also place-based innovation and experimentation (aspects that Draghi could have emphasised more). It should be oriented towards sustainability, resilience and security. Without a coordinated effort in this direction, Europe may not be able to achieve the responsiveness and dynamism needed to catch up with other global powers, which have massively relied on industrial policy using a broader and more powerful set of policy tools and spending capacity.

This contribution has specifically looked at enhancing coherence between place-based innovation and industrial policy. Yet it also proposes a broader lens through which to look at the future approach of EU institutions towards sustainable, resilient and secure European development.

Underlying the proposed approach is the recognition that mono-dimensional approaches to industrial development (e.g. decarbonisation pathways) are unlikely to deliver prosperity and well-being, which stand as the ultimate goals of the EU. A multidimensional approach aimed at addressing key trade-offs from a comprehensive perspective on EU policy is much more suitable to such an enterprise. Inevitably, this is likely to make things more complex for EU policymakers. That is why this contribution suggests, in line with what has been authoritatively advocated, that the EU fully embraces economic complexity when looking at its geography and that of the rest of the world.

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