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Europe in the run up to the election: Agenda 2024-2029

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The Quest for a Future-Proof EU Industrial Policy

Confidence as key to a competitive net-zero economy

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The next European Commission will face the huge challenge of maintaining the competitiveness of a rapidly decarbonizing European Industry, while steering Europe past the threatening cliffs of an increasingly volatile geoeconomic landscape. It will only pass this test if it finds the courage to set clear priorities, and to streamline the increasingly complex regulatory body to a few really effective instruments. In doing so, it must give up its paternalistic attitude and rediscover confidence in entrepreneurs, consumers and market forces as the fundaments of European prosperity.

Highlights:

- Investments into climate-friendly industrial technologies are impeded by serious incentive barriers justifying a targeted policy approach. To these belong the importance of learning effects, coordination problems in the formation of new supply chains and the presence of uninsurable risks.
- Coping with these barriers requires policy makers to put traditional interventionist logic aside. Existing regulation needs to be thoroughly reviewed concerning its incentive effects, governed by the overarching goal of maintaining competitiveness and strategic autonomy for a vulnerable European industry on the path to decarbonization.
- Key policy measures are the targeted decarbonization support through CCfDs, the promotion of green lead markets, incentives to intensify R&D cooperation, efforts to extend the pool of talent and the establishment of strategic trade partnerships with third countries.

Preamble

Europe is facing a time of historical upheaval, a time of internal and external threats to peace and freedom, with great opportunities as well as risks from new technologies, and a time beset by the consequences of climate change and its impact on prosperity and justice. Today's Europe is the result of its eventful history, its experiences and the lessons it has learned from its scientific and cultural achievements, from its civilisational accomplishments, as well as from war, suffering and crisis. The legacy of the past has also given us a promise for the future: human dignity and freedom are inviolable. Today - in the face of major upheavals that will decide the fate and future of Europe - the question once again arises as to what solutions Europe can find to the troubles of the present and the challenges of the future. Can it preserve peace and freedom, defend its sovereignty and security, and increase prosperity and justice?

With this series of articles, the cep Network would like to draw attention to pressing issues and developments which go beyond day-to-day politics and regulation and will be of crucial importance for the EU in the run-up to a significant and game-changing European election. We aim to ask the key questions, shed light on their strategic context and provide some political answers.

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1 EU goals and global framework: In search of new comparative advantages

The presentation of the European Green Deal by Commission President von der Leyen on 11 December 2019 marked the beginning of a new era in EU climate and industrial policy.[1] The ambitious goal of establishing a climate-neutral EU economy by 2050 was combined with an economic policy agenda focused on green growth, including just transition mechanisms for EU regions threatened by structural change. One core element of the implementation was the European Green Deal Investment Plan, which included new EU financing instruments for the green transformation (InvestEU, Just Transition Mechanism). A total of 1 trillion euros in sustainable investments are to be mobilized in the period 2021-2030, financed from private and public sources.[2] The second core element was a large number of new regulatory initiatives to accelerate the reduction of emissions and the achievement of other societal goals (circularity, pollution, biodiversity), spreading across all sectors of the EU economy.

While this was in itself ambitious enough, it unexpectedly turned out to coincide with a perfect geoeconomic thunderstorm, sometimes belittled as “polycrisis”. By 2022, the EU saw itself confronted with the economic consequences of a new war waged upon its direct neighbour, while still trying to manage economic recovery from the COVID-crisis and coping with an increased frequency of supply chain disruptions starting already before 2020. While working hard to keep the Green Deal alive under these tough conditions, the EU lost track of the fundamental long-term changes buried under this chain of spectacular events. **Despite all the apparent backlashes, the world was - and still is - in the midst of creating a new global division of labour.** It is no longer based on the distribution of capital or fossil resources, but based on the distribution of renewable energy potential, mostly solar and wind power. Europe needs to find its place in this new era. The task is not simply to passively detect future comparative advantages. Instead, it needs to actively develop them in a way that secures Europe a sufficient share of the value added brought by the global supply chains of the future. Leaving the economic perspective aside, this a crucial prerequisite for maintaining a free and democratic society in the long term.

The starting point of any policy strategy must be the formulation of a concise set of goals. In the case of the European industry, it can be briefly described as this: Following a timely path towards climate neutrality, while preserving both global competitiveness and a sufficient degree of supply chain autonomy throughout the process. Based on this precondition, transformation barriers and instruments will be identified.

2 Challenges: New sources of market failure and uninsurable risks

2.1 Need for action

The transition to low-emission technologies represents more than just a business issue. It confronts investors with the challenge of making decisions about capital commitment over the next twenty years in an extremely uncertain technological and regulatory environment, with an existing capital stock far from being fully depreciated. In view of the ambitious political requirements imposed on all industrial sectors, these decisions are not made sequentially, but simultaneously. The uncertainty therefore

[1] European Commission (2019). The European Green Deal. Communication from the Commission to the European Parliament, the Council, the Economic and Social Committee and the Committee of the Regions. COM(2019) 640 final.

[2] European Commission (2020). Sustainable Europe Investment Plan – European Green Deal Investment Plan. Communication from the Commission to the European Parliament, the Council, the Eco-nomic and Social Committee and the Committee of the Regions. COM(2020) 21 final.

extends to the reactions of other market players and partners along existing supply chains. The transformation is not just a matter of replacing individual technologies in existing production routes. **The new requirements imposed on materials, energy use and distribution networks by the technology switch require a redesign of entire supply chains**. And any such redesign must satisfy the restrictions imposed by the EU's recent desire for more strategic autonomy, reflecting a growing preference for economic security.

From a liberal perspective, this could initially be seen as a purely private investor problem. After all, long-term investment decisions are always associated with uncertainty. Differences in the ability of investors to make forward-looking decisions on the basis of sound market information are part of the natural selection mechanism on markets. The fact that certain industries due to their initial conditions (e.g. differences in CO_2 intensity, substitution possibilities, global competitive pressure) are more affected by transformation pressure than others provides also not sufficient motivation for a discriminatory support policy. Such an endeavor could rather be diagnosed as an attempt to hold back the forces of structural change and delay the path towards new comparative advantages.

However, the ongoing transformation exhibits some characteristics that do justify targeted support. Three factors are of vital importance across technology fields.

1. Expected learning externalities and spillovers

The switch to low-emission production technologies does not only imply a static exchange of input requirements. **In many cases, it also represents a bet on technological development**. Many young climate-friendly technologies have not yet reached their peak of technological readiness. This means that by upscaling and using capacities, previously untapped cost reduction potential can be realized in the future. This will gradually improve their competitiveness towards fossil alternative. Technologies of artificial carbon removal are one example that has recently come into focus.[3] Fundamentally, the prospect of such learning effects is a positive signal. However, it is also a source of market failure with respect to investment decisions. **This is because industry-wide learning effects, insofar they do not manifest themselves in patentable knowledge, are a collective good**. The externality consists in the fact that investors in individual plants do not consider the positive knowledge effects from their accumulated experience for the market as a whole. The result is insufficient investment activity in comparison with the socially optimal learning path. This externality cannot be eliminated by the incentive effects of European emissions trading. Firstly, it does nothing to mitigate the lack of cost competitiveness of young technologies on global markets, especially in competition with third countries that rely on upscaled fossil technologies. Secondly, homogeneous CO_2 pricing in emissions trading does not eliminate the cost disadvantages of young but high-potential technologies compared to already mature climate-friendly technologies. Therefore, there is a need for support instruments that complement emissions trading, without undermining its general effectiveness.

2. Coordination externalities in supply chain organization

As argued above, the transformation does not only affect industry operations, but also sets new requirements for the organization of whole supply chains. In extreme cases, this can imply a complete switch of transport and distribution technologies, like, for instance, the turn towards renewable hydrogen or bio-methane as industrial energy sources. Under these conditions, the buildup of production capacities can only be profitable if both investments in the necessary transport infrastructure (e.g. new hydrogen pipelines) and in application technologies (e.g. hydrogen-based

[3] Wolf, A. N. (2024). Paving the way for a European carbon market. cepInput No.1/2024.

direct reduction of steel) keep pace with capacity development. As the relevant decision-makers are typically disintegrated, the design of these new supply chains is the outcome of several decentralized decisions, governed by different business agendas and regulatory incentives. Normally, markets would act as effective coordination devices for decentralized actors by sending price signals. However, this presupposes the existence of market institutions for the goods concerned. And these in turn require a functioning distribution infrastructure, as this is the only way to create the trade necessary to reveal the costs and preferences for the new climate-friendly technologies. Decision-making therefore takes place at a stage prior to future market processes. This renders capacity planning very difficult for industrial decision-makers.

Actors on the user side and in network operation face the same kind of uncertainty. Their capacity planning is based on assumptions about the development of production capacities, whose implementation they themselves cannot control. This systemic uncertainty has a direct effect on the return to present investments. It generates downside risks that not only reduce expected revenues, but also increase the cost of capital via risk-dependent interest rates. The first-mover advantage, which is a frequent characteristic of emerging markets, is thus reversed. **The result is a three-sided chicken-and-egg problem between investments in production, distribution, and use**. As these components are interdependent in their development, there is a natural tendency towards a wait-and-see attitude on all sides. As pointed out by Rodrick, this can be termed a negative coordination externality, as single investment decisions impose effects on the structure of whole supply chains without involving any immediate compensation flow.[4] The task of regulators is to set effective signals that create confidence on the side of all supply chain actors, thus replacing decentralized coordination by a central impulse. If properly designed, this is not undermining the role of markets, but ensures their timely buildup.

3. Uninsurable transformation risks

An important factor in calculating the return on investments in low-emission technologies is the CO_2 price. By switching to production methods with lower CO_2 intensity, companies save costs associated with emission certificates. This applies regardless of whether emission allowances were purchased at an auction, acquired on the secondary market or allocated to companies free of charge. Even in the case of certificates received free of charge, the sale option always represents a revenue potential and thus defines the opportunity costs per tonne of CO_2 emissions caused. Assumptions about the future development of the CO_2 price in the EU's Emissions Trading Scheme (EU-ETS) therefore have a significant influence on the investment calculation in two ways: first with regard to the average expected returns and second with regard to the return volatility. The latter factor affects the investment risk and thus the capital costs to be borne on the market. In principle, it is the task of futures markets to mitigate such price risks through offsetting long-term contracts. In the area of ETS certificates, corresponding products (futures, put/call options) have also been established in standardized forms. However, the time horizon of these contracts is limited to days and months, in exceptional cases to a few years. The industry's transformation decisions, on the other hand, are accompanied by a capital commitment over a period of fifteen, twenty or even more years.

A key reason for the insufficiency of futures contracts is the politically induced risk. The CO_2 price that is set in the EU ETS is not determined purely technologically by the companies' abatement costs, but is also a result of the politically set framework conditions, in particular with regard to the development of the emissions cap and the future design of accompanying stabilization mechanisms

[4] Rodrik, D. (2004). Industrial policy for the twenty-first century. John F. Kennedy School of Government Working Paper Series rwp04–047.

(market stability reserve). The organization into trading periods provides medium-term, but not long-term certainty about the regulatory path. There is also the risk of future discretionary regulatory intervention in the event of unexpected price developments or crisis situations. Such a price risk, which is dependent on many parameters and is massively influenced by social and macroeconomic factors, is difficult for market players to manage. And even if private hedging partners for these risks were to be found, the high premia they would expect in terms of market returns would themselves constitute a major cost obstacle for the investing industry.

2.2 Traditional policy approaches and their limitations

The public debate on industrial policy largely oscillates between two extremes. On the one side are proponents of a "whatever-it-takes" mentality, who view the success of the transformation essentially as a function of the amount of taxpayers' money diverted into the industrial sector. On the other end, there are purists who see the task of shaping the climate-neutral transformation as being essentially completed with the introduction of the emissions trading scheme. Our previous discussion of the challenges has already made clear that neither view can lead to success. Emissions trading is effective in minimizing static abatement costs, but on its own provides no answer to the dynamic uncertainties and externalities associated with technological change. However, the classic industrial policy approach of artificially strengthening the competitiveness of an industry by distorting the true cost balance is also not promising under the current conditions. For many products essential for the transformation, Europe lacks the necessary weight on the global markets.

For example, an attempt to pursue a policy of import substitution through trade restrictions in global markets characterized by a strong concentration of supply (e.g. critical raw materials) would be associated with incalculable supply risks. And unconditional monetary support to domestic industries would also not be apt to strengthen their long-term competitiveness. There is a serious risk that the bulk of public funds will flow into precisely those industrial segments where Europe's natural cost disadvantages will be greatest under the future conditions of a reorganized global economy. This would not only constitute an abuse of taxpayers' money, but also threaten to delay or, in the worst case, prevent the structural change that is necessary to maintain Europe's overall competitiveness. Another obstacle to an autonomous industrial policy is the lack of knowledge among policy-makers. This applies in particular to technological dynamics. For these reasons, **taking over entrepreneurial tasks by predefining technology paths should not be the task of the EU.**

Against this backdrop, the discussion about a future European sovereignty fund (or other forms of centralized accumulation of member states' money) can only be viewed as an attempt of distraction by lobbyist forces. Establishing another central fund would not only further increase the patchwork and overlapping of existent financing channels, raising information needs and complexity for supported companies. The debate on a central coordination of public transformation support centrally also distracts from answering the really crucial question: how to design a suitable and consistent set of policy instruments.

2.3 Requirements for policy instruments

To define requirements for future-proof policy measures, it is important to escape the idea of regulation being positioned on a one-dimensional scale between more or less intervention. The previous discussion has made it clear that such a view is rather a barrier to understanding the dynamics behind the formation of new markets and supply chains for climate-friendly technologies. Instead, it

seems appropriate to consider basic economic principles when evaluating policy instruments. Measures should be judged based on their expected effectiveness and efficiency. In this context, **the effectiveness of measured can be defined as their expected contribution to the set of goals postulated**. Instruments must be coherent in terms of the economic incentives they set and be focused on the same goals. In this case, the benchmark is the main goal of the transformation: remaining on the path towards climate neutrality while maintaining the competitiveness of Europe's industry and its strategic scope for action. From an economic perspective, such a target can be viewed as a dynamic optimization problem under side constraints. The effectiveness of the instruments must be evaluated both in terms of their influence on the indicator to optimize (i.e. contribution to the speed of transformation) and their compliance with the ancillary conditions (i.e. maintaining competitiveness and avoiding one-sided dependencies).

The efficiency of measures can be defined as the relation between their effectiveness and the cost of their implementation. This involves the resources required by both the public administration (monitoring) and the private actors concerned (compliance). In this respect, calls for the EU to improve have rightly intensified. This is not just a question of unnecessary transaction costs. In the long term, a narrow regulatory corset also hinders creativity and innovation in finding new ways to achieve the same goals. Hence, not only the administrative burden of regulatory compliance must be reduced. Regulation must also be monitored if it offers sufficient leeway to firms and households in choosing the way to comply with policy goals.

3 Solutions: Lean measures for a balanced transformation

3.1 Strategic priorities

To reduce regulatory complexity and to facilitate policy monitoring, the EU should streamline its toolbox of support measures. Recent EU regulatory proposals, in particular the Net Zero Industry Act[5] and the Critical Raw Materials Act[6], demonstrate an increasing awareness of the importance of strategic prioritization. At the same time, however, the Critical Raw Materials Act is a good example of how the desire for a strategic focus can result in a long list of areas to be prioritized (in this case: strategic raw materials) and an almost unmanageable and very heterogeneous catalog of measures, thanks to the success of lobbying activities. To curb the influence of vested interests at least to some degree, the EU must have the courage to define and communicate clear priorities for the management of the green transformation. This has to take place at a level superior to specific regulations or directives. Below we make some suggestions for sensible priorities.

Priority I: Regulatory cooperation over regulatory competition

The possibility of intra-EU policy competition (e.g. in tax matters), and the autonomy of Member States to design their industrial infrastructure (e.g. sources of energy supply) should remain part of the EU's guiding principles. In the area of specific industrial policies, however, national approaches should be contained where they endanger the success of the transformation as a whole, i.e. the path to a

5 European Commission (2023d). Proposal for a Regulation of the European Parliament and of the Council on establishing a framework of measures for strengthening Europe's net-zero technology products manufacturing ecosystem (Net Zero Industry Act) (COM(2023) 161 final).

6 European Commission (2023). Proposal for a Regulation of the European Parliament and of the Council establishing a framework for ensuring a secure and sustainable supply of critical raw materials and amending Regulations (EU) 168/2013, (EU) 2018/858, 2018/1724 and (EU) 2019/1020 (COM(2023) 160 final).

competitive climate-neutral industry. This is not just about ensuring the full implementation of EU laws by the Member States. It is also about the will to cooperate voluntarily in policy areas that are (partly) still a domain of Member States. This concerns, for instance, cooperation in the expansion of electricity transmission grids and the development of a new Europe-wide transport infrastructures for renewable hydrogen and CO_2. Joint funding efforts via the Important Projects of Common European Interest (IPCEI) instrument are an important impetus for common infrastructure development. Moreover, functioning pan-European markets also require a harmonization of technical framework conditions and revenue models for the operation of such new critical infrastructure.

Priority II: Streamlining of funding channels over maximizing support coverage

Before new public funds and funding instruments for the green transformation are launched, both traditional (regional funds) and newly established funding opportunities under the umbrella of the Green Deal should be critically examined with regard to their focus and coherence with the goals of the transformation. In this respect, the Critical Raw Materials Act and the Net Zero Industry Act are sensible approaches, as they provide for the streamlining of existing funds for strategically important projects. In view of the long list of strategically important raw materials and technologies, however, such streamlining must be carried out even more consistently and finely graduated in the future. This contributes to the transparency of funding policy and improves political monitoring options. It also helps to curb the catering of special interests with individual funds.

Priority III: Eliminating general innovation barriers over mission-oriented thinking

The increasing political influence of a certain school of innovation economics has contributed to the notion of innovation as the result of a large, well-planned effort, largely organized under the patronage of state-owned institutions.[7] Coordinated use of private and public research resources is undoubtedly important for increasing the chances of groundbreaking inventions. However, the backbone of industrial productivity is the diversity of continuous and decentral innovation activity. Moreover, the final step of innovation, the commercialization and upscaling of inventions, often fails not because of a lack of knowledge capital. Instead, it is factors such as insufficient access to venture capital, bureaucratic hurdles for start-ups and an increasing shortage of qualified specialists that hinder the translation of new knowledge into viable business models.[8] In addition to intensifying public R&D support, a smart innovation policy should focus on overcoming these general barriers. This will ensure that, beyond political showcase projects, clever minds can establish themselves on the market with their own ideas, creating the conditions for creative destruction in the Schumpeterian sense. At the same time, there remains a justification for technology-specific R&D-funding when significant knowledge spillovers can be expected. However, governments must always recognize the danger of a technological lock-in.

Priority IV: Transparency in risk-taking over "feel-good" communication

The political debate on the costs of transformation has so far largely been held on the basis of mean values estimated from today's perspective. In contrast, the uncertainty associated with such figures is rarely discussed. This applies in particular to regulatory, geopolitical and technological risks (see Section 3). The first type of risk can in principle be directly reduced by policy-makers through a policy

7 Mazzucato, M. (2011). The entrepreneurial state. Soundings 49, 131–143.

8 Küsters, A., Meister, A., Poli, E., Warhem, V. & Wolf, A. (2023). Catalyzing the EU's Green Industrial Transformation – A Survey of the Cleantech Startups Environment in Germany, France and Italy. cepInput No.5/2023.

that is consistent over time and clearly aligned with the communicated goals. However, given the limited length of election periods, this promise of consistency can itself only be temporary. In the case of the two remaining risks, the political scope for risk reduction is fundamentally restricted (geopolitical) or virtually non-existent (technological). The ability of policies to contain risks is therefore limited in any case. Instead of simply spreading optimism as a strategy of political marketing, good transformation policy should clearly communicate the existence of such risks and persistently monitor their extent. When choosing support instruments, it is also necessary to ensure that these unavoidable risks are distributed fairly between interest groups. Neither the community of taxpayers nor individual industries or groups of households should be disproportionately burdened. Not least, this is a precondition for the public acceptance of transformation policies.

3.2 Key groups of policy instruments

Based on the identified challenges und priorities we highlight some key groups of EU instruments for supporting the transformation. These are neither conceptually new nor are they only alone sufficient to reach the EU policy goals. But we believe that their widespread and simultaneous implementation could assist the EU decisively in overcoming the transformation challenges, without putting the necessary structural change and the functioning of the internal market at risk.

Instrument I: Auction-based Carbon-Contracts-for-Difference (CCfDs)

The idea behind CCfDs is to let the state step in as an alternative hedging partner for uninsurable risks related to CO_2 pricing. Their economic design resembles a forward contract on emission certificates. A fixed CO_2 price is agreed as part of a contract between a private industry player investing in low-emission technologies and the state, which is valid for a predefined term. If the certificate price on the EU-ETS is below this level, the private player benefits; if it is above this level, the state benefits. Unlike in the case of standard forward contracts, however, the benefits are not only realized in the form of payments at the end of the contract. Instead, periodically recurring payments are made between the contracting parties over the term of the contract, corresponding to the difference between the contract price and the market price at the time. If market prices for CO_2 rise over time, the private player can therefore expect a net gain from the contract in the early phase and the state a net gain in the later phase.[9]

This is the main difference to traditional capital and operating cost subsidies: CCfDs offer an inherent repayment mechanism for subsidies. This avoids the creation of windfall profits and can reduce the long term burden on the state budget. As this mechanism is linked to market developments, it does not represent a risk from the private player's perspective: Repayments are only due if a favorable price trend reduces the need for subsidies. As a result, the economic value of the CO_2 emissions saved by the investment is secured for the investor. The security gained in investment returns is reflected in falling capital costs, causing an increase in the net present value of the technology investment.

Depending on their structure, CCfDs can provide further incentives that go beyond the pure insurance aspect. For example, one option is a model that fully offsets the current difference in total costs between conventional and low-emission technologies. To this end, the contractually agreed CO_2 price is not based on the current or expected future market price level for CO_2, but is set at a level just

[9] Richstein, J. (2017). Project-Based Carbon Contracts: A Way to Finance Innovative Low-Carbon Investments (No. 1714). DIW Berlin, German Institute for Economic Research.

sufficient to compensate for the higher operating and capital costs. If such a so-called "green premium" is included, the CCfD becomes an instrument for offsetting technologically induced differences in production costs. Such an arrangement has two advantages. Firstly, it defines a single economic incentive lever for overcoming various forms of investment barriers. Secondly, this incentive lever is well-targeted because it directly addresses the fundamental goal of transformation policy: the reduction of greenhouse gas emissions. The greater the CO_2-saving effect of an investment, the higher the value of the safeguard and thus the support effect of the CCfD.

Instrument II: Green lead markets

The voluntary certification of products manufactured by means of green technologies can send out important market signals. However, certification systems alone are unlikely to provide the necessary impetus for investment activity at the speed required by the climate targets. This is because the level of investment in green technologies requires clear sales forecasts. This applies in particular to technologies where strong economies of scale require early scaling. For this reason, various ideas have been expressed about supplementing certification with government purchase targets. Public procurement offers such a lever. For instance, the expected contribution to climate neutrality can be defined as a binding quality criterion with a certain minimum weighting for the awarding of public contracts. At the European level, this is the approach chosen by the EU in its Net-Zero Industry Act.[10] However, it remains uncertain what factual relevance such a criterion will have in the practical award decision, particularly in relation to the contract price. Other proposals are therefore aimed at a quota regulation. Over a certain period of time, a minimum proportion of products certified as low-emission must be taken into account in the awarding of public contracts. This results in a clearly defined sales potential. In order to further expand this potential in line with the ambitious targets, it is worth discussing whether corresponding quotas should also be extended to procurement in the private sector.

The direct effect of such a quota system is an artificial market segmentation. Products that are homogeneous in terms of their usage characteristics are differentiated into conventional and "green" submarkets according to their form of production. The aim is to enforce a green premium in the form of a price difference between the two submarkets. This occurs because the users of green technologies are protected from the pricing power of conventional technologies by the quota requirement. There is no possibility of substitution from the perspective of buyers. On competitively organized sub-markets, a price difference equal to the cost gap between green and conventional technologies should settle as a stable situation in the medium term, if all arbitrage possibilities are exploited. The advantages of such decentral market forces are obvious. State actors do not need to know the actual cost difference, as it is revealed by the market itself. Changes in their level over time (e.g. as a result of electricity price trends) do not require regulatory correction, as they are balanced out by adjustments to the price difference between market segments (as a result of suppliers entering and leaving the market). Moreover, such a support mechanism does not require additional monetary support.

[10] European Commission (2023). Proposal for a Regulation of the European Parliament and of the Council on establishing a framework of measures for strengthening Europe’s net-zero technology products manufacturing ecosystem (Net Zero Industry Act) (COM(2023) 161 final).

Instrument III: Public support of R&D cooperation

Mastering the technological complexity of climate-friendly production processes and their social side effects requires continuous exchange. A policy that promotes the formation of stable cooperation networks can contribute to the robustness of domestic value chains and even increase the capacity for innovation. This is not just about promoting cooperation between private actors. Many low-emission technologies are of a cross-cutting nature and require profound knowledge from various channels. Hence, cooperation in research always has several dimensions. It includes cooperation between clusters in different regions and Member States as well as cooperation between institutions (companies, private research institutions, universities) and disciplines (natural sciences, engineering, mathematics, etc.).

In view of the tough global competition for the next wave of green technologies, Europe should join forces and tap into cooperation potential in all dimensions. Therefore, an important task of EU R&D policies is to stimulate research cooperation at all levels. Against this background, the targeted promotion of problem-oriented, interdisciplinary and international research via the EU research framework program Horizon Europe is the right approach.[11] In the future, however, it should be accompanied even more strongly by evaluation measures. These should not be limited to immediate research outcomes (e.g. patenting measures) but should encompass all stages of the innovation chain up to the successful upscaling of new business solutions resulting from R&D projects.

Moreover, given the existing bottlenecks in access to risk capital necessary for the commercialization of successful research, public innovation support should not be limited to the research phase, but accompany innovators in their first steps of market penetration. Dedicated venture capital funds organized in the form of Public-Private-Partnerships can help to bridge the “valley-of-death” between invention and market uptake. Their investment policy should cohere with the EU’s strategic goals, but otherwise be subject to autonomous management.

Instrument IV: A new campaign to extend the European talent pool

Shortages in the supply of young talent and experienced professionals for implementing net zero technologies must be overcome in a targeted manner. An important step is the expansion of university study programs that are closely tailored to the knowledge needs of these technologies. Specialized master’s degree programs that involve an intensive exchange with local manufacturing companies can lay the foundation for regional "talent factories", overcoming the problems of finding the right matches. Shortages in the supply of young talent and experienced professionals must be overcome in a targeted manner. Specialized master’s degree programs that involve an intensive exchange with local manufacturing companies can lay the foundation for regional "talent factories", overcoming matching problems and providing companies with a reliable flow of highly qualified workers. At the same time, support for upskilling and reskilling of the existing workforce needs to be expanded. Specialized training centers that focus on scarce skills can reduce the overall costs of retraining associated with structural change. It makes sense to organize these centers as public-private partnerships, to cope with the risk of underinvestment on the company side (role of positive externalities). In addition, this gives regions an influence on training content and enables them to create better coherence with the regional economic development strategy. For the recruitment of skilled workers from non-EU countries, global recruitment campaigns are needed that convey the advantages of working and living in the EU. In the

[11] European Commission (2021). Horizon Europe – The EU Research and innovation program 2021-2027. Presentation.

future, these should culminate in greater harmonization of high-skilled immigration policies, including common support programs for organizing the move to Europe.

Instrument V: Strategic trade and supply partnerships with likeminded third countries

Visions of autarky can do nothing about the role of global markets and their changing rules. **If Europe wants to regain lost influence, it must not dwarf itself by striving for a new form of splendid isolation, but must look for strong partners**. Strategic partnerships with likeminded countries are a key to autonomy. This applies to climate clubs as well as resources and technologies. This involves a deepening of trade, investment and regulatory cooperation with established partners, but also the creation of new ties with third countries of strategic potential as raw materials supplier and/or market destination.

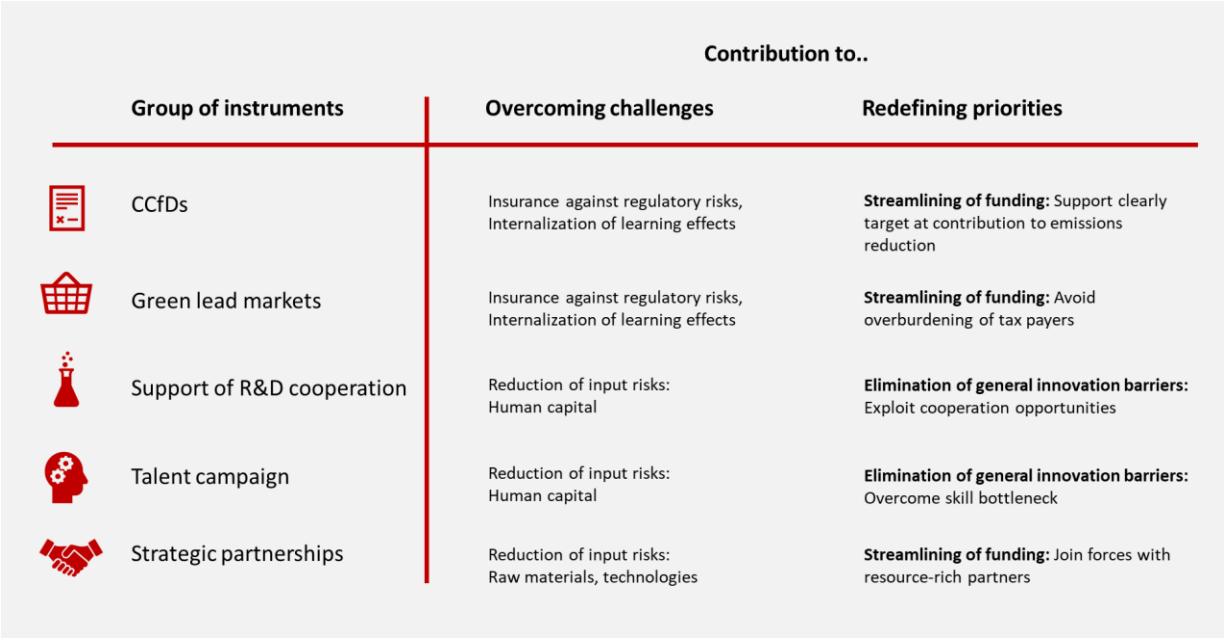
A prerequisite is a common vision of a club good, a good that is exclusively shared among club members. The benefits from this jointly provided club good can be differentiated into a direct and an indirect long-term effect. The direct effect is to contribute to the hedging against existing supply chain risks on global markets. From the perspective of resource-processing industries, this implies a reduction in price and supply risks in the procurement of critical, imported resources. From the perspective of the upstream stage, it implies a reduction in price and sales risks. However, the resource partnerships envisaged by the EU are not limited to the creation of supply channels. A long-term indirect benefit results from resource pooling. By pooling capital for the expansion of complementary production capacities, the partners strive to realize macroeconomic productivity gains from vertical specialization. In the case of infant technologies, there is also the prospect of cost reductions through scaling. By jointly investing in the expansion of the transportation infrastructure (transport of goods, energy, information), the partners contribute to the reduction of overhead costs across processes. By sharing existing knowledge, they increase the speed of adoption of new technologies. By building joint R&D capacities, they strengthen the innovative capacity of the partners involved. By engaging in regulatory cooperation, they can lower administrative inefficiencies and reduce trade costs.[12]

However, strategic partnerships can only bring the hoped-for stability in resource access if, from the perspective of all parties involved, the benefits of maintaining them permanently exceed the costs of the partnership. To build stable long-term resource partnerships with developing and emerging countries, the EU must offer them the perspective to upgrade their position within joint supply chains to more knowledge- intensive downstream activities. Gradual, conditional trade integration and intensive cooperation in the (further) development of standards are appropriate means of achieving this. In its cooperation policy, Europe must succeed in the balancing act of initiating regulatory convergence without exposing itself to the accusation of paternalism. If it succeeds, Europe will possess a valuable asset in its political and economic competition with China.

In sum, when applied in a non-discriminatory way, these instruments are well suited to complement each other by addressing both supply- and demand-side barriers to the transformation. At the same time, they contribute to a more balanced distribution of the associated risks. Figure 1 summarizes their merits with regard to the existing challenges and defined priorities.

[12] Wolf, A. (2023c). Strategic resource partnerships. cepInput No.4/2023.

Figure 1: Proposed groups of instruments and their essential roles



Source: own representation

4 Conclusion

Under the given conditions, any sound industrial policy must start with one confession: decarbonizing the European industry will be a costly endeavour. When imposing a new constraint like the green transformation on a running system, one cannot expect that the system will show a better long-term performance than without the constraint. Instead, it is the job of current industrial policies to ensure that at least it will not end up be a much worse one. For this, the necessary concepts and instruments are largely developed. What is missing at the European level is primarily strategic focus, and the courage to put confidence in entrepreneurs, consumers and markets back in the centre of policy-making.

As part of the cep publication series on the future of the EU, this cepInput tries to bring clarity to the confusing and ideology-driven debate on EU industrial transformation policies. It briefly highlights specific sources of market failures justifying a special regulatory take on the green transformation. It defines general and pragmatic requirements for support instruments. It proposes priorities for the industrial policy of the next Commission. Finally, it presents a catalogue of five market-oriented instruments, operating complementary in their contribution to achieving a competitive climate-neutral European industry. These are targeted decarbonization support through CCfDs, the promotion of green lead markets, incentives to intensify R&D cooperation, efforts to extend the pool of talent and the establishment of strategic partnerships with third countries.

It remains to be seen if the new Commission will possess the will and necessary strength to maintain the current ambitious agenda, especially in the likely case of a drastically changing parliamentary landscape. Either way, the process of industrial transformation has reached a state close to irreversibility, at least for the foreseeable future. In the medium term, with the necessary investments into climate-friendly technologies largely being made, the task of managing their (wanted and unwanted) societal implications will have to become the major political priority.

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