BRIEFING

European Parliament

# Important projects of common European interest

## Boosting EU strategic value chains


## SUMMARY

Article 107(3)(b) of the Treaty on the Functioning of the European Union provides for the possibility of approving state aid for 'important projects of common European interest' (IPCEIs). These provisions have been used very rarely until recently. A specific framework enabling the creation of IPCEIs, originally only in the areas of research, development and innovation, and environmental protection has been in place for 15 years, yet only four such projects have been notified to and assessed by the Commission so far. The first two – in the area of infrastructure – were partially annulled by the Court of Justice, and the Commission opened in-depth investigations to examine their compatibility with State aid. One of those concluded that the aid was legal, the other is ongoing.

The next two were launched successfully in the areas of strategic value chains for microelectronics and batteries. After this rather modest start, there seems to be strong momentum to create more IPCEIs, including in the context of the debate on how to foster the emergence of 'European champions'. The marked political shift towards greater technological sovereignty and strategic autonomy within the EU has been given further impetus with the outbreak of the coronavirus pandemic, which disrupted global value chains and highlighted the case for a more self-sufficient EU model. IPCEIs may be useful tools for creating complex new value chains that have the potential to ensure the EU's long-term competitiveness and economic growth.

A growing number of governments, experts and organisations have been calling for the simplification of current rules to make IPCEIs more frequently and widely used. The European Parliament would also like to see the requirements for the IPCEIs streamlined to allow smaller industrial research projects also to acquire IPCEI status. In its 2021 work programme, the European Commission announced the revision of the current IPCEI framework planned for the fourth quarter of the year.


In this Briefing




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# Context

Important projects of common European interest (IPCEIs), a relatively unknown provision of EU State aid law, seem to be gaining support among a growing number of politicians and institutions. In the ambitious quest for achieving EU 'strategic autonomy', they may be useful tools for creating important value chains and increasing the competitiveness of the EU in the vital areas at the crossroads of industry, research and development and innovation (R&D&I). While the first two IPCEIs, both in the area of infrastructure, have been contested in the General Court of the Court of Justice of the EU (see 'Approved projects' below), the next two, in the strategic areas of microelectronics and battery value chains, seem to illustrate the point that pooling of knowledge and resources remains one of the EU's main added values. IPCEIs, while not a 'silver bullet', offer an interesting option for complex endeavours aimed at increasing the EU's technological sovereignty. The European Commission has highlighted that IPCEIs can play a key role in stimulating policies and actions crucial for the future economic growth of the EU. Accordingly, in March 2018 it established the Strategic Forum on IPCEI: a high-level expert group that gathers representatives of the Member States, industry and the research community. The forum identifies key strategic value chains in the EU and develops a common vision for joint action and investment between the EU, its Member States and industry.

# A closer look at the IPCEI concept

## Treaty basis and legal provisions

Article 107(3)(b) of the Treaty on the Functioning of the European Union (TFEU) states that 'The following may be considered to be compatible with the common market: (b) aid to promote the execution of an **important project of common European interest**'. Accordingly, the possibility for forming IPCEIs was already included in the 2006 Community framework for State aid in the domain of research, development & innovation. This framework was followed in 2008 by the Community guidelines on State aid for environmental protection.[1] Finally, in 2014 the Commission adopted a communication laying out a dedicated framework of the criteria for analysing whether State aid given to IPCEIs (in any sector of economic activity) is compatible with the internal market, and replaced the previous rules. In the context of the coronavirus crisis, the Commission confirmed in July 2020 that the guidelines are valid until 31 December 2021 and that they apply to undertakings that were not in difficulty on 31 December 2019, but experienced difficulty in the period from 1 January 2020 to 30 June 2021.

## The rationale behind the IPCEI framework

The above-mentioned 2014 communication was elaborated in the context of the Commission's State aid modernisation (SAM) initiative, launched on 1 July 2014. The main aim of the communication was to actively encourage the implementation of IPCEIs as major endeavours that make an important contribution to economic growth, jobs and the competitiveness of the EU industry and economy. While such projects may have significant spill-over effects on the single market and society, they are often challenging to fund because of the sizeable technological or financial risks involved and the intricate international cooperation required. This is where State aid may become relevant. However, the EU Treaties define State aid as being incompatible with the internal market and therefore subject to control by the Commission. Correspondingly, EU competition law in general prohibits State aid in the single market so that the Member States do not grant selective advantages to some companies, putting others in an unfavourable position. The IPCEIs qualify as one of the exceptions to this general rule.[2]

While the rules from 2006 and 2008 were limited to projects in the areas of research and environmental protection, the 2014 communication broadened the assessment criteria to include projects in any area of economic activity as long as they have substantial potential to advance

broader EU objectives. The Commission aimed to create legal certainty by explaining how it would assess the measures deployed by the Member States and businesses in support of IPCEIs, that is, whether they are eligible within the meaning of Article 107(3)(b). The goal was to correct market failures (in the form of a marked lack of private initiatives in a given field) that could only be addressed by creating an IPCEI with State aid. Arguably, such aid could also be key to unlocking or leveraging much higher amounts of private investments in such projects.

The communication underlines that the rules had been overhauled to allow assessing complicated projects that cover different areas, such as research and development, cross-border transport and energy, which would otherwise need to be examined under several different sets of rules for State aid.

## Scope and eligibility

While the 2014 communication states that it does not apply to measures involving aid to enterprises in difficulty, the July 2020 update widens its scope to apply also to undertakings affected negatively by the coronavirus crisis. The Commission will conclude that State aid complies with the provisions of Article 107(3)(b) TFEU if it fulfils four cumulative conditions discussed in more detail below: i) on the project's definition; ii) on the project being in the common European interest; iii) on the project's importance in terms of objective and size; and iv) on the necessity of aid to achieve the objective of the project. IPCEIs need to have an important effect on the EU in terms of competitiveness, sustainable growth, addressing societal challenges or value creation.[3]

The project must be well defined, particularly with regard to what it intends to achieve and how, with what funding and which participants. There is also a possibility to group single projects under one structure, roadmap or programme, as long as these have a common objective and a consistent approach. The components must be complementary and necessary for the achievement of the objective.

The project must involve more than one Member State and benefit a wider community than just the funding Member State(s), undertaking(s) and sector(s) directly involved.[4] IPCEIs cannot be financed exclusively through public money; the beneficiaries must also co-fund them. The Commission clarifies that it would look more favourably at the project a) if it can be joined by all the interested Member States; b) when the Commission or any legal body to which it has delegated its powers, such as the European Investment Bank, is directly involved; c) if it entails collaboration among a significant number of partners, organisations from different sectors or undertakings of different sizes; and d) when it is co-financed by EU funds.[5] The importance of a project must be manifested either quantitatively (grand scale or scope) and/or qualitatively (it must entail a high level of technological or financial risk).

Furthermore, projects in R&D&I must demonstrate that they can lead to a major breakthrough and have significant innovative potential and added value. Projects in the industrial field must offer the possibility of creating new products or services with a major research and innovation component and/or the use of an innovative production process. The Commission introduces the concept of 'first industrial deployment' as falling within the scope of IPCEIs, and defines it as 'the upscaling of pilot facilities, or ... the first-in-kind equipment and facilities which cover the steps subsequent to the pilot line including the testing phase, but neither mass production nor commercial activities'. The Commission underlines that incremental and ordinary upgrades of existing products or facilities, devoid of true innovative element, would not be accepted as IPCEIs.

While considering the project, the Commission will execute a balancing test to determine whether the expected positive effects (contribution to the objective of a common European interest) are stronger than the possible negative effects (distortions of competition and negative impact on trade between Member States). The Commission will focus in its assessment on the risks of market foreclosure and dominance, which become particularly elevated when research results are not disseminated properly. In case it is necessary to build infrastructure, open and non-discriminatory

access and pricing must be ensured. The Commission will also pay particular attention to eliminating the risk of a subsidy race between Member States, especially when it comes to deciding the geographical location of the project.

The approved aid must also be proportionate: it cannot subsidise normal costs or compensate for the normal business risk, but it should rather be of a size or scope that would enable the realisation of the project without lessening its expected benefits. The guidelines state that 'aid will only be considered proportionate if the same result could not be achieved with less aid.'

The amount of aid should not exceed the minimum necessary for the aided project to achieve sufficient profitability, taking into account regular rates of return in similar investment projects or industries and cost of capital. If justified, the maximum level of aid can reach up to 100 % of eligible costs.[6]

The Member States are also required to provide the Commission with a counterfactual scenario that presents the situation where no aid is awarded by any Member State. In its analysis, the Commission will examine the impact that potential aid would have on the project compared to this alternative scenario, and the strength of the incentives it would create (it is likely that a project, while not being sufficiently profitable for a private undertaking to implement, would create important wider societal benefits).[7] Furthermore, there is also an international aspect to IPCEI rules – the Commission may take a more positive stand if third-country competitors have obtained (or are going to obtain) comparable aid for similar programmes, leading to a competitive advantage for them.

The Commission also has preferences for the choice of funding instrument, which needs to be optimal to address the underlying problem or market failure. This instrument is in the form of liquidity support (guarantee or loan) when the problem at hand is a shortage of funds. When risk-sharing is the main obstacle, it is in the form of a repayable advance. The Member States should provide evidence that their chosen instruments are the least distortive for competition. Projects with a large own contribution from private investors and beneficiaries, based on repayable instruments and using non-discriminatory transparent tender procedures to select beneficiaries, will be looked upon more favourably.

# Approved projects

## Infrastructure

Despite the fact that a specific framework enabling the launch of IPCEIs has been in place for 15 years, only four such projects have been notified to and assessed by the Commission. They fall under two broad categories: infrastructure and strategic value chains. The first two IPCEIs, the Øresund and the Fehmarn Belt fixed rail-road links, have both been challenged in the General Court of the Court of Justice of the EU, and are not the subject of this briefing.

In the case of Øresund link between Denmark and Sweden, the Court of Justice partially annulled on procedural grounds the Commission's decision that the State aid was lawful. Following this judgment, in 2019 the Commission opened an in-depth investigation (results are pending) to determine whether the guarantees on the consortium's loans by Denmark and Sweden and the tax support measures implemented by Denmark constituted lawful aid to promote an IPCEI.

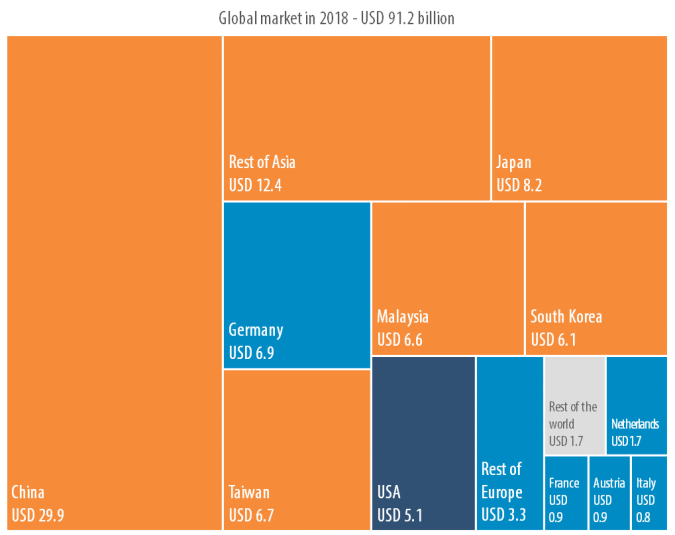
Considering the Fehmarn Belt link between Denmark and Germany, the General Court also partially annulled (on procedural grounds) the Commission's decision from 2015 that the State aid was lawful and that the project qualified as an IPCEI (Judgments T-630/15 and T-631/15). On the Court's demand, the Commission opened an in-depth investigation that concluded in March 2020. Having analysed updated figures submitted by Denmark and the changes to the financing structure of the project, the investigation concluded that the public measures (capital injections, the state guarantees on loans and the state loans) are proportionate and in line with the EU State aid rules. Consequently, the Commission reaffirmed its qualification of the project as an IPCEI.

## Microelectronics (2018-2024)

The IPCEI on microelectronics is the first project in the area of strategic value chains to be approved by the Commission. Microelectronics is an EU strategic value chain and enjoys EU support as it is considered one of its key enabling technologies. The EU promotes investment in this sector also through its European industrial strategy for electronics.

Microelectronics, present in almost every smartphone and tablet, are indispensable in today's information and communication society. While economies are increasingly dependent on electronic components, microelectronics drives the development of all kinds of digital goods and has the potential to generate new jobs, products and services and create new opportunities for economic growth and industrial competitiveness. The global competition is fierce: during the past four decades there has been continual pressure to lower production costs per unit and to improve the performance of microelectronic components, making microelectronics one of the most capital and innovation R&D&I-intensive industries. Scaling of transistors to ever smaller sizes improves the performance and the cost ratio of products. Since semiconductors are the technological basis for many microelectronic products, they increase efficiency and productivity across a wide range of industries. While each technological breakthrough creates new technological and economic opportunities, it is also achieved at ever rising costs. In this industry, economies of scale are therefore of crucial importance.

Figure 1 – Semiconductor exports, 2018




Source: The Observatory of Economic Complexity based on BACI trade flows.

Unfortunately, the EU's competitive position and market share has been shrinking, particularly when compared to east Asia. In parallel, the innovation gap between the EU and the market leaders has widened, and the emphasis on microelectronics within the EU has declined. This is evident when looking, for example, at recent global shares in semiconductor exports (see Figure 1). Semiconductors are the technological basis for all microelectronics; in the words of a group of high-level research and technology experts who drafted a report on boosting electronics value chains in 2018, 'semiconductors are levers for innovation, productivity and economic growth in Europe'.

The microelectronics IPCEI was created to reverse these negative tendencies. After preparatory work spanning several years, the Commission approved the IPCEI in December 2018. The Commission's arguments in favour of the project were that it was a major transnational innovation project with elevated risks, that it had the capacity to broadly disseminate its effects, and that it had a robust governance structure composed of representatives of the participating Member States and the Commission.

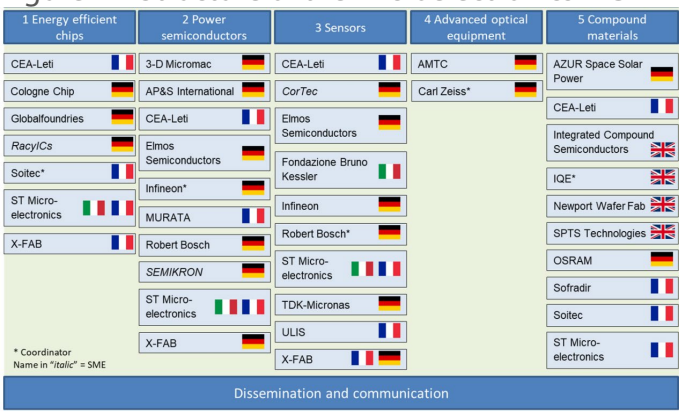
The IPCEI on microelectronics covers five technology fields:

- *energy efficient chips*: developing new solutions to lessen the overall energy consumption of electronic devices;

- *power semiconductors*: developing new technologies of components for smart appliances and for electric and hybrid vehicles. The main goal is to improve the reliability of final semiconductor devices;
- *smart sensors*: developing new optical, motion or magnetic field sensors with better performance and accuracy. Smart sensors will also be used to improve car safety through more reliable and timely reaction when changing lanes or avoiding an obstacle;
- *advanced optical equipment*: working towards more effective technologies for high-end chips of the future;
- *compound materials*: to replace silicon and pave the way for devices based on more advanced chips.

These technology fields are complementary and inter-related – the chips are typically supplied as components of an integrated system requiring a combination of different processes and technologies. Twenty-nine IPCEI participants are involved in over 100 collaborations across these areas in the 40 tightly linked sub-projects (see Figure 2). The Member States participating in the project are France, Germany and Italy, as well as the UK (still a Member State in 2018), and the Commission approved €1.75 billion in State aid for the project.[8] The IPCEI aims to unlock an additional €6 billion in private investment and its deadline is set for 2024.

Figure 2 – Structure of the microelectronics IPCEI




Source: the IPCEI on microelectronics.

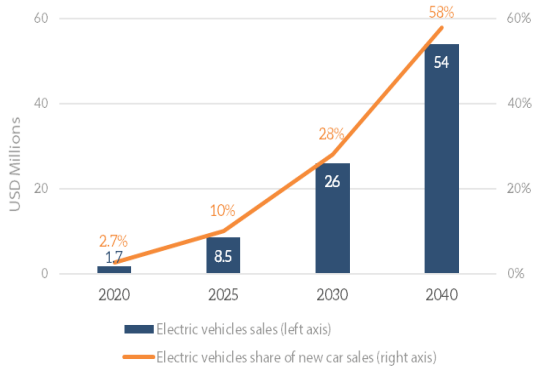
## Battery value chain (2019-2031)

The second project accepted by the Commission was an IPCEI supporting research and innovation in the common European priority area of batteries, which the EU has identified as one of its strategic value chains and is supporting through the European Battery Alliance (a cooperation platform with key industrial stakeholders, Member States and the European Investment Bank, EIB). In its long-term vision for a climate-neutral economy by 2050, 'A Clean Planet for All', the Commission supports electrification as one of the main technological enablers to achieve carbon neutrality, and batteries will be one of the key technologies in this context. The car industry is also under constant pressure to reduce its $CO_2$ emissions.

Currently, around 80 % of global battery production capacity is in Asia, with China alone accounting for 69 %, the US for about 15 % and the EU for under 4 %. This situation is unsustainable in the longer term: importing batteries from China significantly increases the carbon footprint of electric vehicles. Moreover, since batteries account for about 40 % of the cost of an electric car, the EU risks jeopardising a large proportion of the value-added part of the production chain and the technological knowledge that can be obtained from it. Developing an EU battery industry offers a solution to this situation and should also help to counter some of the inevitable job losses due to the shift from the traditional combustion engine. Remarkable economic opportunities are possible: the EU market potential could be as high as €250 billion annually from 2025 onwards. Accordingly, EU car manufacturers are progressively widening their range of electric vehicles. The accelerating

transition to clean energy means that the demand for batteries is likely to skyrocket. Another inevitable trend is that electric vehicles will have an increasing share in the car market in the coming decades (see Figure 3). Cars based on an electric battery will progressively account for the majority of new cars, with plug-in hybrids phased out as technology based on pure electrics becomes cheaper. However, battery cell manufacturing is an investment-intensive industry at present, necessitating massive volumes and highly automated manufacturing processes.

Figure 3 – Global electric vehicles sales and share of all new cars sold




Source: Bloomberg.

The IPCEI seeks to create a strategic advantage for the EU by creating the full battery value chain and by developing technologies and processes that are not currently available. It is expected to lead to breakthroughs in battery performance and to minimise the environmental footprint of battery production.

The Commission was notified jointly by seven Member States (Belgium, Finland, France, Germany, Italy, Poland and Sweden) and accepted in December 2019 that they would jointly provide up to €3.2 billion in funding for this IPCEI, which is expected to unlock an additional €5 billion in private investment.[9] The Commission reasoned that i) batteries are a strategic value chain, crucial to achieve clean and low emission mobility; ii) that creating the full battery value chain entails major technological and financial risks; and iii) that the private sector needs public incentives to commit to investing. The Commission also believes that due to the dissemination of results, large and positive spill-over effects will be generated throughout Europe. It is furthermore satisfied with the project's governance structure, being an attendee of its meetings. The battery value chain IPCEI covers four areas:

- *raw and advanced materials*: developing sustainable innovative processes leading to extraction, concentration, refining and purification of ores to obtain high-purity raw materials. The project also aims to improve existing advanced materials or create new ones, to be deployed in novel battery cells;
- *cells and modules*: developing innovative cells and modules compliant with the safety and performance standards for both automotive and non-automotive applications;
- *battery systems*: developing innovative battery systems including battery management software and algorithms and new test methods;
- *repurposing, recycling and refining*: designing safe and cutting-edge processes for collection, dismantling, repurposing, recycling and refining of recycled materials.

Figure 4 – Structure of IPCEI on batteries


Source: European Commission.

Seventeen participants, mostly industrial organisations, will be involved in this IPCEI (see Figure 4). It will entail close mutual cooperation both between them and with over 70 external partners, such as SMEs and public research organisations from across the EU. The completion of the project is planned for 2031.

# Challenges, lessons learned and recommendations

IPCEIs are not simple endeavours as proven by their rather limited number and the long time needed to create one. Project-related challenges include: the synchronisation and conciliation of common timetables and objectives (including multiple governments and companies) with differing national interests and budgets; the management and safeguarding of confidential business data in an integrated project; and bringing national funding rules into line with the IPCEI framework. The first IPCEI was a kind of a pilot and took a long time to prepare. The Commission's DG Competition underlined that it was difficult to apply novel concepts such as the 'integrated project', the 'spill-over effects in the EU', and the 'first industrial deployment'. In a report released in 2019, the Strategic Forum for IPCEI highlighted important lessons learned from the first IPCEI: i) a need to demonstrate openness to all Member States and companies (through open tenders or open calls); ii) a need for early involvement of the Commission, together with the Member States, at the design phase of an IPCEI; iii) a need for intense cooperation and coordination among the Member States throughout the lifespan of the project; and iv) a need for an individual, tailored approach that is based on the distinctive characteristics of each IPCEI and the technologies used.

The IPCEI on batteries was prepared and adopted faster using the lessons from its microelectronics predecessor. The Commission underlines the following success factors: i) already existing strong political clout (European Battery Alliance, Strategic Action Plan); ii) heavy involvement of one Member State (France) in coordinating the pre-notification and notification process, which allowed the submission of the whole package at the start of the process; iii) addressing difficult issues at an early stage based on experience from the previous IPCEI; iv) increased use of template documents; v) close work with DGs RTD and JRC on eligible costs; vi) clarifications of difficult concepts and definitions; and (vii) use of a claw-back mechanism for larger aid beneficiaries.[10]

Other recommendations include assigning an important role to high political visibility and ownership of the project in mobilising multiple stakeholders; signalling a strong commitment by both the industry and the Member States; holding regular meetings with all stakeholders to develop a common understanding; and developing clearer rules on how to join and leave an IPCEI. It would also be helpful if the Commission clearly explained the possibility of combining an IPCEI with other R&D&I supporting funds, such as the Just Transition Fund and existing regional funds. The Strategic Forum suggests the following improvements: increasing the transparency, clarity and provision of hands-on guidance to all stakeholders; increasing participation in the formation/design phase to include all Member States and companies of all sizes; ensuring wider dissemination of results; involvement of central EU funds; and improving efficiency and speed of the decision-making process, given how highly dynamic the technologies are.

It is entirely possible that creating an IPCEI can yield a negative outcome – efforts to create one on high performance computing ended when the partners concluded that a joint undertaking is a more relevant solution. An IPCEI is therefore not a 'silver bullet'.[11]

# Outlook

After a rather slow start, there seems to be momentum in the creation of IPCEIs. The already growing political shift towards greater technological sovereignty and strategic autonomy has accelerated with the outbreak of the current pandemic, which disrupted global value chains and highlighted the case for a more independent model. Even before the Covid-19 crisis, there was a lively debate on the need to create 'European champions'. The European Political Strategy Centre raised the point that there is no requirement for such a 'champion' to be a single company, and that it could also be a group like an IPCEI focused on achieving a technological breakthrough. Bruegel, while noticing that supporting selective emerging technologies through State aid has its challenges, argues that IPCEIs can be used to 'increase European competitive capacity without distorting competition'. The industrial policy in the EU has already for some time been shifting towards a more strategic

approach focused on supporting the entire key value chains, which requires longer-term vision and strengthened cross-border cooperation and coordination.

This new way of thinking is also reflected at the political level. In 2018, as many as 19 Member States called for simplifying and accelerating authorisation procedures for IPCEIs, widening their application to more technological fields and re-examining the existing framework to increase its efficiency. Similarly, the 2019 Franco-German manifesto on the future of industrial policy considered IPCEIs 'useful tools' and asked for simplification of the rules to make them easier and more effective to implement. The European Parliament is also supportive: in a June 2020 resolution it called on the Commission to 'further promote major IPCEIs in disruptive technologies, to simplify the relevant provisions and to streamline its requirements so that smaller industrial research projects are also approved'. The European Council has also demanded boosting support for IPCEIs and facilitating their implementation. It has underlined that IPCEIs are 'one of the relevant tools for supporting strategic value chains at EU level' and stated that it eagerly awaits further proposals in new technological fields.

The Strategic Forum for IPCEI has identified six additional key strategic value chains for joint or coordinated investments and actions: connected, automated and electric vehicles; smart health, low-carbon industries; hydrogen technologies and systems; industrial internet of things; and cybersecurity.[12] Preparations on a hydrogen IPCEI seem to be the most advanced at present, with 10 Member States expressing their interest and preparatory work ongoing.

On the other hand, some at the European Centre for International Political Economy have argued that IPCEIs are contrary to the fundamental principles of EU State aid policies and may lead to strengthened protectionist tendencies at national level. In a January 2020 report, Fondation Robert Schuman has underlined that there is no independent body to assess the relevance of these projects and has questioned the role of the Commission, saying that through IPCEIs 'it is using its extensive pan-European powers in the field of State aid to pursue industrial policy objectives. This could be seen as a stopgap measure or as a dysfunction to remedy the deficiencies of the European decision-making process'. Moreover, the report calls for clarification of the Commission's mandate and powers.

In this context, and as announced in the Commission work programme for 2021, the current guidelines will be revised next year (publication expected in the fourth quarter of the year) 'to reflect regulatory, technological and market developments and accompany adequately the current Commission strategic priorities and the economic recovery'. While the press hints at the need for more flexibility and facilitated access to IPCEIs, it remains to be seen whether the forthcoming update will address the shortcomings of the current framework and lead to wider deployment of these projects across the EU.

## MAIN REFERENCES

European Commission, Criteria for the analysis of the compatibility with the internal market of State aid to promote the execution of important projects of common European interest, (2014/C 188/02).

Strategic Forum for Important Projects of Common European Interest, Strengthening Strategic Value Chains for a future-ready EU Industry, 2019.

Strategic Forum for Important Projects of Common European Interest, Meetings, 2018-2020.

## ENDNOTES

[1] In both of these early frameworks the Commission outlined four conditions under which projects can be considered to be covered by Article 107(3)(b). Firstly, projects must be well defined in terms of participants and objectives. Secondly, they must be in the common European interest, giving advantages to the whole of the EU and creating

benefits with wider relevance and application to the EU economy. Thirdly, the state aid used must be crucial for the success of the project and address the high level of risk involved in carrying out the project. Fourthly, the project must be of major importance with regards to its character and its volume. The Commission also indicates that it will consider projects notified to it more favourably if they include a major own contribution of the project beneficiary and if they involve undertakings or research entities from a significant number of Member States.

[2] Others are, for example, to remedy a serious disturbance in the economy of a Member State or to facilitate the development of certain economic activities or areas.

[3] The communication gives examples of 'major importance' for projects contributing to the Europe 2020 strategy, the European research area, the European strategy for key enabling technologies, the Energy strategy for Europe, the 2030 framework for climate and energy policies, the European energy security strategy, the Electronics strategy for Europe, the Trans-European transport and energy networks, the EU flagship initiatives such as the Innovation Union, the Digital Agenda for Europe, Resource Efficient Europe, or the Integrated industrial policy for the globalisation era.

[4] The Commission mentions spill-over effects to be those that have 'systemic effects on multiple levels of the value chain, or up- or downstream markets, or having alternative uses in other sectors or modal shift'.

[5] EU funding that is not directly or indirectly under the control of the Member State does not constitute state aid.

[6] The annex to the communication outlines a detailed list of eligible costs, such as feasibility studies, permits, costs of instruments and equipment, costs of the acquisition (or construction) of buildings, infrastructure and land, costs of necessary materials, supplies and products, costs for obtaining, validating and defending patents and other intangible assets and personnel, and administrative costs (including overheads) directly incurred for the R&D&I activities, and capital and operating expenditures.

[7] The Commission will assess these two elements by testing the 'specification of intended change' and the 'level of profitability.'

[8] The participation of the UK is limited to four entities, which take part in the 'compound materials' group. France has sought approval to provide funding of up to €355 million, Germany up to €820 million, Italy up to €524 million and the UK up to €48 million.

[9] More specifically, Belgium asked for approval of grants up to approximately €80 million; Finland up to approximately €30 million; France up to approximately €960 million; Germany up to approximately €1.25 billion; Italy up to approximately €570 million; Poland up to approximately €240 million and Sweden up to approximately €50 million.

[10] Claw-back means that in case extra net revenues are generated beyond projections, the companies will return part of the taxpayer money to the Member States.

[11] Joint undertakings, established under Article 187 TFEU to boost research and innovation, are public-private partnerships composed of the European Union (represented by the European Commission) and one or more industry-led associations, as well as other partners. They are partly funded by the EU framework programme (such as Horizon 2020) and partly by the industry members. Member States are involved through the State Representatives Group that ensures synergies with national programmes and activities. Joint undertakings disperse funding through open calls for proposals.

[12] IPCEIs are not the only solution for creating strategic value chains. In fact, the report recommended creating IPCEIs in the hydrogen and low-carbon industries, but then proposed a series of broader support measures in other fields.

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