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Picking Sectors: IPCEIs and Europe's Emerging State Capacity for Strategic Identification

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Abstract

A central feature of industrial policy today is governments' growing willingness to direct economic activity into strategic sectors. However, identifying which sectors or technologies are strategic is not trivial, and little is known about how this is actually done. In this article, we introduce and conceptualize the notion of state capacity for strategic identification (SCSI), comprising internal capacity (to gather and validate information) and external capacity (to build consensus and coordinate around strategic priorities). We examine how SCSI has developed in the EU based on the need to identify strategic sectors for Important Projects of Common European Interest, one of the flagship initiatives of the EU's new industrial policy. We analyze the evolution of SCSI from ad-hoc processes (2014) through the Strategic Forum (2018–2020) to the Joint European Forum (2023–present). Based on primary documents and original interviews, we document a process of policy learning where policy failures led to the gradual institutionalization of SCSI. We find that the Joint European Forum represents substantial external SCSI through institutionalized coordination and maintaining industry connections while avoiding capture, whereas internal SCSI remains more limited due to a lack of systematic integration of technical expertise.

Keywords

industrial policy; IPCEI; geopolitics; single market; state capacity

1. Introduction

A defining feature of the global "return of industrial policy" (Evenett et al., 2024) is the growing willingness of governments to direct economic activity into sectors or technologies deemed "strategic," be it for objectives

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of competitiveness, national security, or societal transformation (Seidl & Schmitz, 2024; Weiss & Thurbon, 2021). Former EU internal market Commissioner Thierry Breton, for example, openly stated that "supporting operational expenditure on certain strategic projects is central to the Commission's 'new approach to state aid'" (Breton, 2023). And in a comprehensive study of recent industrial policies, Evenett et al. (2024, p. 10) show that the "promotion of domestic competitiveness or innovation in a strategic product or sector" was the most common justification. But if industrial policy is increasingly targeting strategically important sectors or "key industries" (Dullien & Hackenbroich, 2022, p. 4), this raises an obvious follow-up question: what areas count or should count as strategic and therefore warrant selective protection or promotion, and how are they identified?

One way to answer this is to spell out criteria for which sectors or technologies *should* be prioritized, to what extent, and at what cost. Mainstream economists typically justify selective support in cases of market failures (Evenett et al., 2024, p. 21), with some advocating selection based on demonstrated performance or revealed comparative advantage (e.g., Reed, 2024) or targeting "related" products—goods requiring capabilities similar to those already in place (Hidalgo & Hausmann, 2009). Others advocate for mission-oriented approaches focusing on broader societal goals to avoid capture (Mazzucato, 2021), make the case for flexible, experimental approaches over perfect ex ante prioritization (Radosevic et al., 2023), or focus on accelerating and scaling democratically decided priorities (Rochowicz, 2025). Yet others focus on geoeconomically and geopolitically vital sectors or technologies that cannot easily be procured elsewhere if push comes to shove, arguing for ability over autarky (March & Schieferdecker, 2023) and for doubling down on existing strengths or "strategic indispensabilities" rather than playing catch-up (Gehrke & Ringhof, 2023). Critical approaches, meanwhile, stress the importance of downscaling harmful activities, establishing democratic control, and factoring in global (ecological) justice (Hauge & Hickel, 2025).

Yet, none of these approaches examines the political economy of how these prioritization decisions are made in practice (see also, Arroyo, 2025). Therefore, instead of asking (and answering) which areas *should* be(come) strategic, we—in line with the thematic issue's focus on how industrial policy is "done on the ground"—empirically investigate how such areas are actually identified. We do so by focusing on the flagship initiative of the EU's new industrial policy: the Important Projects of Common European Interest (IPCEIs).

IPCEIs provide an exception to the EU's relatively stringent state aid rules that allows member states to subsidize companies involved in highly innovative, cross-border projects centred on strategic sectors or technologies such as semiconductors, batteries, cloud, or hydrogen. IPCEIs have not only attracted considerable public and private investment (currently €37.6 and an expected €66.8 bn respectively, with more to come). They have also become the locus of much industrial policy experimentation and innovation in the EU. The Draghi report suggests that IPCEIs "should be expanded to all forms of innovation that could effectively push Europe to the frontier in strategically important sectors and benefit from EU financing" (European Commission, 2024, p. 17) and the Letta report states that "for many of the EU's industrial policy ambitions, the IPCEI model could serve as a blueprint" (Letta, 2024, p. 40).

While the existing literature on IPCEIs has focused on their historical origins and evolution (Seidl & Lopes-Valença, 2025), governance (Schmitz et al., 2025), developmental ambitions (Gräf, 2024), or implications for regional inequality (De la Cruz, 2025; Lavery & Lopes-Valença, 2025; Lopes-Valença, 2024), we shift the focus to how the strategic areas underlying IPCEIs are identified and how individual IPCEIs are

created. Given that there is hardly any explicit theoretical or empirical work on how states identify strategic sectors for industrial policymaking, we draw on the broader literature on state capacity and embedded autonomy to conceptualize what we call state capacity for strategic identification (SCSI). We define SCSI as the ability of states or supranational entities to assess which sectors or technologies contribute to important public goals and to elicit cooperation from and coordinate the activities of private actors around a public goal.

We reconstruct the gradual institutionalization of SCSI in the context of IPCEIs, from the first initiatives after the IPCEI instrument was launched in 2014, to the creation and discontinuation of the Strategic Forum (SF) for IPCEIs, to finally, the creation and subsequent evolution of the Joint European Forum for IPCEIs (JEF-IPCEI). We view this as a partially successful, albeit non-linear process of policy learning (Radaelli, 2022) in which the EU gradually built SCSI in response to policy failures resulting from the absence of such capacities. This involves the institutionalization of formal procedures and best practices, but also of routines, networks, and "muscle memory."

We document this ongoing process through an in-depth case study that combines qualitative analysis of primary documents (e.g., meeting minutes, internal reports, official documents) and 17 original interviews with public and private sector representatives at both the EU and member state level, conducted in 2024 and 2025. An initial round of interviewees was selected on the basis of their involvement in IPCEIs and the JEF-IPCEI, with additional interviewees identified through snowball sampling (for details, see Table 2 in the Supplementary File). In doing so, we combined theory-testing and theory-building variants of qualitative research (Beach & Pedersen, 2016). Following Schimmelfennig's (2015) methodological suggestions on "efficient process tracing," we initially analyzed the empirical material through the lens of ex-ante theoretical expectations derived from the literature on state capacity. However, given the lack of theoretical work on strategic identification, we partially developed the concept of SCSI "from the data" (Corbin & Strauss, 2015, p. 7). Repeatedly iterating between theoretical and empirical work, we adapted concepts like internal and external state capacity or embedded autonomy to the case of strategic identification while using these refined concepts to make sense of and organize our empirical material.

We contribute to the EU industrial policy literature by offering the first comprehensive account of how strategic sectors or technologies are actually chosen in the context of IPCEIs, and of the inner workings of what may well be the most important institutional innovation in EU industrial policymaking to date: the JEF-IPCEI. The literature has made important inroads into understanding if and how money is mobilized for public goals (Lepont & Thiemann, 2024) and if and how conditionality is used to align corporate behavior with public goals (Bulfone, Ergen, et al., 2025). Yet, much less is known about how strategic areas or investment priorities are actually defined, who defines them, and how successful they are in developing effective selection procedures—a gap that Leff (1985, p. 346) identified four decades ago when he noted that we still don't understand "how individual sectors are selected for high priority treatment in particular countries and times." This process of strategic identification is critically important, as it comes first and thus has downstream effects on other aspects of industrial policy. As more and more states reorient their economic policies around strategic or key industries (see Evenett et al., 2024), we concur with Lepont and Thiemann (2024, p. 385) that the "political process by which the borders of what is deemed worthy investment [sic] are drawn constitutes in itself a research agenda"—one to which we contribute both empirically and theoretically.

The remainder of the article is structured as follows. We first conceptualize the notion of SCSI, drawing on the literature on state capacity, both old and new. We then apply and adapt this general conceptual framework to the context of the EU and its multilevel polity, before we present the case study of strategic identification for IPCEIs. We conclude by briefly summarizing our findings and discussing the strengths and shortcomings of the EU's current approach to strategic identification.

2. State Capacity for Strategic Identification

A central lesson from the vast literature on the role of the state in economic transformations is that intervening in the economy effectively and equitably requires state capacity. For one, economic intervention requires "an effective bureaucratic machinery" (Rueschemeyer & Evans, 1985, p. 51). But state capacity is not just a matter of bureaucratic prowess. It also requires the ability to orchestrate agreements between and overcome opposition from social actors. Meckling and Nahm (2022) call this "strategic state capacity." State capacity, then, involves both "internal capabilities" of monitoring, planning, and implementation and "external capabilities for building coalitions and disciplining resistant actors" (Chibber, 2006, p. 7; Collington, 2025, p. 4). These two dimensions of state capacity reflect the state's dual role as an actor in its own right *and* as an arena of social conflict (Rueschemeyer & Evans, 1985, p. 55).

A second important lesson from this literature is that doing industrial policy well requires the ability to pursue goals that transcend those of individual market actors *while also* harnessing their knowledge, resources, loyalties, and interests. States, in other words, need "embedded autonomy" (Evans, 1995): they need to be connected to but not captured by market actors (Evans, 1995, p. 50). As Weiss (1995, p. 604) put it: "connectedness without insulation breeds rent seeking and distributive policies that can smother development (…), insulation without connectedness widens information gaps that encourage policy failure." Industrial policy thus works best if state-business relationships are characterized by "governed interdependence," encompassing and combining insulation and connectedness, coordination and cooperation (Weiss, 1995).

Our conceptualization of SCSI combines these two insights (see Figure 1). SCSI involves both the internal capacity to assess a sector's or technology's contribution to a public goal and the external capacity to elicit cooperation from and coordinate the activities of private actors around a public goal. Both require embedded autonomy. Internal SCSI requires embeddedness to tap into the knowledge of relevant actors to gather information about markets and technologies, but also sufficient autonomy to independently validate such information. External SCSI requires consultations and coalition-building with companies, taking on board their concerns and priorities while also avoiding capture by industry as a whole or particular sectors or companies. This conceptualization leaves open the question of how a public goal is defined in the first place, and how inclusive and democratic this process is. It also acknowledges that the line between internal and external SCSI is somewhat fluid—gathering knowledge, for example, often requires eliciting actor participation, while avoiding capture depends on the capacity to validate information.

Internal SCSI involves what Arcesati and Gehrke (2024) have called "techno-industrial intelligence" and Edler et al. (2023, p. 7) "strategic intelligence." It is about the analytical capacity to monitor and forecast technological and market trends, identify risks and possible dependencies, and understand which technologies or sectors are most likely to further public goals, be that decarbonization, economic

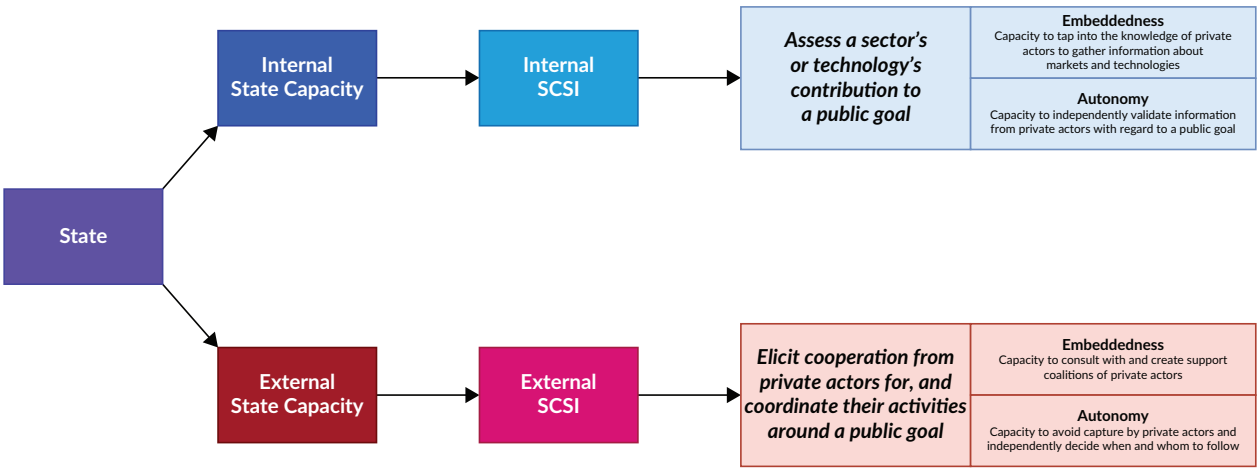

Figure 1. The two dimensions of SCSI.

competitiveness, or, increasingly, economic and national security. Kleinhans (2024, p. 15), for example, argues that good semiconductor policy is more than a collection of initiatives and production targets. It requires a detailed "understanding of…semiconductor ecosystems (…), a long-term strategy and policy objectives articulating why and to what end this sector receives support." This is partly a question of "the quality and prestige of the economic bureaucrats [and] a strong in-house capacity for information gathering" (Weiss, 1995, p. 596). However, even a competent bureaucracy can only acquire detailed, on-the-ground, and constantly updated knowledge through close connections with industry itself, i.e., embeddedness (Arcesati & Gehrke, 2024; Juhász & Lane, 2024, p. 46; Rodrik, 2004). Japan's famous Ministry of International Trade and Industry (MITI), for example, engaged in "painstaking discussions with scientists and engineers, research scholars, industry leaders, and financial analysts—the people in the know—to find out where technology is headed and where the most promising commercial opportunities lie" (Okimoto, 1989, p. 73; see also, Johnson, 1982).

But such state-industry exchange is not only important for accessing crucial information, but also for building consensus and coordinating private actors around industrial policy priorities, that is, for external SCSI. To ensure industry buy-in and avoid destructive opposition, it is rarely effective to unilaterally impose decisions (Meckling & Nahm, 2022). Conversely, shoring up political support, for example in the form of an upgrading coalition, is crucial for the success of innovation policies (Maggor, 2021). As Weiss (1995, p. 595) puts it:

> Unilateralism is more likely to be a developmental minus than a plus. It implies the capacity to act, but not necessarily to act effectively. What really matters is whether the state is able to use its autonomy to consult and to elicit consensus and cooperation from the private sector.

Japan's own extensive consultations were meant to ensure that national research projects emerge from and in an "ongoing process of national consensus building based on extensive give-and-take between government and the private sector" (Okimoto, 1989, p. 73).

However, the "organic interpenetration of state and society" (Evans, 1995, p. 59) also carries risks. While embeddedness is necessary for strategic identification, without a certain degree of autonomy from industry, embeddedness can "degenerate into a super-cartel, aimed, like all cartels, at protecting its members from

changes in the status quo" (Evans, 1995, p. 58). For example, states need to be able to independently formulate public goals and validate whether supporting certain technologies or sectors is likely to contribute to achieving these goals—instead of outsourcing these tasks to external consultancies (Mazzucato & Collington, 2023; Weiss, 1995, p. 598). Likewise, they need to be able to say no if industry pressure runs counter to public goals. Industry taking the lead is not necessarily a problem as long as the state can "choose when and whom to 'follow'" (Weiss, 1998, p. 72); what matters in the end is whether support for private goals is "ultimately dependent upon the extent to which they meet publicly defined criteria" (Bulfone, Ergen, et al., 2025; Weiss, 1998, p. 76).

Leaving aside how public goals are defined in the first place, industrial policy involves "a discovery process—one where firms and the government learn about underlying costs and opportunities and engage in strategic coordination" (Juhász & Lane, 2024, pp. 46–48; Maggor, 2021, p. 454; Rodrik, 2004, p. 3; Whitford & Schrank, 2011). This requires institutional settings "in which private and public actors come together to solve problems in the productive sphere, each side learning about the opportunities and constraints faced by the other" (Rodrik, 2004, p. 3). The precise nature of such a setting may vary based on public goal and political context, and will inevitably involve experimentation, iteration, and learning-by-doing. We should therefore treat SCSI as "a variable, not a constant" (Wade, 1990, p. 6)—and empirically investigate how it is institutionalized.

3. Institutionalizing State Capacity for Strategic Identification in the EU

Historically, questions of state capacity and embedded autonomy, while explored in detail in the context of East Asian capitalism (e.g., Johnson, 1982; Wade, 1990), remained underexplored in the European context, not least because of the EU's longstanding aversion to interventionist industrial policy. However, with the EU's recent (re-)discovery of "market activism" (McNamara, 2024, p. 2372), scholars started to explore the inner workings of Europe's emerging "developmental network state" (Di Carlo & Schmitz, 2023), for example through the creation of European Industrial Alliances intended as a forum to "reconcile geostrategic and commercial goals" and thus "elicit [companies'] consensus and cooperation" for EU industrial policy goals (Bosticco & Herranz-Surrallés, 2024, pp. 3–4).

In this article, we build on this literature but shift its focus to questions of strategic identification. Empirically, we look at how IPCEIs were identified since the creation of the instrument in 2014, and how the shortcomings of earlier attempts contributed to the institutionalization of the JEF-IPCEI in 2023. We view this process as one of partially successful policy learning (Radaelli, 2022) in which new institutions are developed to address existing problems. This is not a linear process, as the discontinuation of the SF shows. But we argue—and document below—that policy failures resulting from the absence of state capacity created demand for institutionalizing such state capacity. It is against this background that we argue that the JEF-IPCEI addresses two central problems that European industrial policymakers faced as they (re-)discovered their penchant for "market activism" (McNamara, 2024, p. 2372): the Commission's limited experience with and dispersed competences for industrial policy, and the complex coalitional politics of industrial policymaking in the EU's multilevel polity.

First, while "the identification of, and particular support for, 'strategic industries'" has been a "common feature" of member states' industrial policies in the post-war period (Landesmann & Stöllinger, 2020,

pp. 624–625), the EU itself has very limited experience with market-directing industrial policy. With some exceptions in the 1980s (Cobby, 2023; Martin, 1996; Sandholtz, 1992), it has spent much of the last decades on "supranational market-making largely centered on neoliberal precepts of competition and openness" (McNamara, 2024, p. 2372). Moreover, while it has long used state aid regulation to steer member states' industrial policies towards broader "horizontal" objectives, it has only recently begun to steer them towards specific "strategic" sectors or technologies (Bulfone, Di Carlo, et al., 2025). The EU has, therefore, limited experience with and expertise for strategic identification, and thus has to create novel institutions or repurpose market-creating institutions for market-directing activities (Ergen & Schmitz, 2025).

Moreover, the Commission's earlier industrial policy efforts suffered from industry capture. Programs like ESPRIT or RACE were characterized by the "absence of public sector strategic insight," which meant that there were no "clear criteria for potential technologies" and much of the project definitions were left to "quasi-cartel formations" of the so-called "Big Twelve"—incumbent technology firms like Siemens or Philips (Cobby, 2023). Although the support by and existence of industrial coalitions were absolutely crucial in garnering member state support, these programs were "as much managed by industry as the Commission itself in a highly insular, initiative-level policy community" (Peterson, 1991, p. 277). As a result, funding patterns showed a "consistent bias in favor of established firms" and legacy rather than frontier technologies (Cobby, 2023). Instead of a "tough love" approach that combined carrots with sticks, the EU "offered only love" (Martin, 1996, p. 733).

This is further complicated by the Commission's fragmented nature as a multi-organization (Cram, 1994) with different Directorates-General (DGs) having their own areas of expertise, policy ideas, and "administrative styles" (Knill & Grohs, 2015; Vantaggiato et al., 2021). Reflecting the general tension between competition and industrial policy, DG COMP and DG GROW in particular have rarely seen eye to eye in matters of state aid (Lavdas & Mendrinou, 1999). In addition, policy expertise is often concentrated in sectoral DGs such as DG CONNECT or DG SANTE, which exacerbates epistemic and administrative "siloization" (Birkeland & Trondal, 2023; Marques et al., 2025; Vantaggiato et al., 2021). However, the Commission has developed mechanisms of formal and informal coordination, such as joint committees or interorganizational working groups, to counteract such fragmentation, often in response to external challenges revealing organizational underlap and overlap, i.e., policy problems falling through the cracks or under the joint responsibility of multiple units (Birkeland & Trondal, 2023; Blom-Hansen et al., 2024, p. 242; Marques et al., 2025).

Second, the Commission operates in a complex multilevel polity in which it needs to compromise and cooperate with member states. While the Commission has considerable legal and political authority to restrict and redirect member state subsidies or state aid (Bulfone, Di Carlo, et al., 2025), the limits of this authority are constantly negotiated with member states who have their own industrial policy priorities and—in the absence of significant supranational fiscal resources—are the ones primarily paying for EU industrial policies (e.g., Bora & Schramm, 2025). The multilevel nature of the EU means that both external and internal SCSI exist at multiple governance levels. There is no single organization—such as Japan's MITI—coordinating strategic decisions. Instead, SCSI is dispersed across Commission DGs and national ministries, often operating at the intersection of the national and European level rather than through a single organization.

Overall, the institutional setting in which EU industrial policy operates puts particular constraints on the EU's SCSI. In what follows, we document how the EU has dealt with these constraints as it found itself having

to identify strategic sectors or technologies for IPCEIs. We show how the EU has, in a non-linear process of incremental policy learning, developed and expanded its SCSI—and how it continues to do so.

4. Identifying IPCEIs and the Emergence of European State Capacity for Strategic Identification

When IPCEIs were created as a standalone policy instrument in 2014, they initially flew a bit "under the radar" (Lopes-Valença, 2022, p. 118). Member states and companies did not quite know what to make of this "strange animal" (Interview-3) coming from Brussels or what an IPCEI can or should actually look like. The IPCEI communication had specified that IPCEIs must contribute to "common European objectives…and key areas for economic growth" (European Commission, 2014, p. 4). But it did not spell out which sectors or technologies meet these criteria, and how member states should go about creating IPCEIs. As a result, the first IPCEIs were developed in a "largely ad hoc manner, implying a lot of experimentation" (Eisl, 2022, p. 2), sometimes with industry in the driver's seat (e.g., microelectronics) and other times member states (e.g., batteries; med4cure) or DGs such as DG GROW (e.g., hydrogen) or DG Connect (e.g., cloud; see Table 1 in the Supplementary File for an overview). As one former high-level official put it, there was "no rule book. We have developed a new instrument" (Interview-1).

The first IPCEI on microelectronics, for example, was largely the result of industry pressure. Semiconductor companies active in Germany had long argued that additional investments in semiconductor production would require subsidies to match those offered by other countries and/or compensate for lower labor and energy costs elsewhere. While initially unsuccessful under the liberal, FDP-led economic ministry of Philipp Rösler (2011–2013), it was in the context of these lobbying efforts that, in 2015, the now social democratic ministry first encountered the newly created IPCEI instrument as it was looking for ways to provide subsidies without violating EU state aid rules. Absent a formal process, the German officials contacted their colleagues in France, Italy, and the UK, since having "three other European heavyweight member states on board helped to sell this to the Commission" (Interview-17). They also decided to limit subsidies to €1bn in anticipation of DG COMP's attitude towards subsidies: "We deliberately chose the sum of €1bn and not more. We did not want to come with a bazooka, which might have made DG COMP block the whole thing" (Interview-17).

The opacity of this process meant that smaller member states often learned about the first IPCEIs only when they were approved, or because a participating company from a larger member state was also present in a smaller member state (Interview-10; Interview-9), or simply because of random interactions with officials from other national ministries (Interview-5). Strategic identification thus initially happened in a "small club, there was not a lot of transparency, with member states later saying: 'ah, we were not really in the loop, or we were not really aware it was existing'" (Interview-3). This created considerable frustration on the part of smaller member states, which would eventually lead to calls for the creation of the JEF-IPCEI (see Section 4.2). But the JEF-IPCEI was not the first attempt the Commission made to institutionalize strategic identification.

4.1. The Strategic Forum

In 2017, when discussions about the first IPCEIs on microelectronics and batteries were already underway, the Commission promised to "establish a strategic forum involving key stakeholders to identify key value chains and investment projects" (European Commission, 2017, p. 12). This happened against the background

of a new-found willingness to protect and promote "Europe's strengths and assets in strategic value chains (SVC) in new technologies," with IPCEIs being viewed as just the tool "for such strategic projects" (European Commission, 2017, p. 12). It was this desire for a more "proactive approach" to strategic identification that resulted in the creation of the SF in early 2018 (European Commission, 2018, p. 4). Led by DG GROW, the SF convened several times between May 2018 and February 2020, with 24 member state representatives, 17 from industry associations and private firms, and a small number of experts.

In many ways, the SF was the first of its kind in Europe. There was no recipe for identifying SVC in which Europe could "capture value and build a 'future-proof industry'" necessary to achieve "sustainability, security of supply and sovereignty" (unless noted otherwise, the following quotes are from SF meeting minutes). DG GROW thus outsourced much of the practical work to PwC Netherlands. PwC then sourced a longer list of potential SVCs and developed a prioritization methodology ranking them by their potential contribution to competitiveness and value creation, Europe's autonomy and security, to EU climate and energy targets, the existence of relevant European or trans-national initiatives, and the potential impact of coordinated action. The last indicator is notable because it was based on subjective rankings: each SF member, whether from industry, member states, or civil society, could distribute a maximum of 10 points—a process one participant likened to a "beauty contest" (Interview-2) and another to the Eurovision Song Contest (Lopes-Valença, 2022, p. 165).

In a first draft of the prioritization methodology, this indicator was to make up 40% of the overall ranking. However, after a "simulation" exercise, this was increased to 60%, which gave SF members more influence on the prioritized SVCs. Initially, members could distribute up to 5 points to one value chain. This was reduced to three after some members pointed out that this could lead to "potential bias towards sectors represented in the SF." This procedure nonetheless heavily favored the industry, which made up more than a third of members. By contrast, the SF included very few independent experts, although it was meant to include representatives from "academia and research" (European Commission, 2018, p. 4). As one member recalls, the Commission's "initial idea [was] that experts take at least one third of this Board, but in practice…there were two experts and a lot of lobbyists" (as cited in Lopes-Valença, 2022, p. 125).

Eventually, six SVCs were prioritized based on the "commitment and willingness [of members] to cooperate and invest." This process also involved a "consensus-finding discussion," which meant that SF members had to build coalitions and hash out deals by merging SVCs so as to have the most backing. For example, based on a joint proposal distributed in advance by industry associations Eurofer, Cefic, and Cembureau, "low-carbon steel making" and "low-carbon industrial processes" became "low CO2 emissions industry" and thus could count on high support by participants. Interestingly, "hydrogen technology and systems" remained a separate SVC even though it had previously been provisionally grouped with the other two in a "low-carbon industry" category, suggesting that it had enough backing within the SF. It was also decided that, because of ongoing initiatives, including approved and emerging IPCEIs, microelectronics, batteries, and high-performance computing, should be included "on the short list without going through the prioritization procedure." Figure 2 provides a summary of the identified SVCs.

What does the SF teach us about the EU's SCSI? The Commission has certainly taken steps to make the process (appear) "as objective as possible," and there is no denying that much "analytical work" (Interview-3) went into the identification process. The prioritization methodology is sophisticated, and the Forum's task forces

Black: SVCs for which the Strategic Forum Report included detailed recommendations
Black & Italic: SVCs for which coordinated initiatives were already ongoing
Grey: Additional SVCs prioritised after the first stage of the prioritisation process
Grey & Italic: Additional SVCs

Additive manufacturing	Advanced materials	Augmented reality and virtual reality devices	*Batteries*
Bio-based materials	Clean, Connected and Autonomous Vehicles	*Critical raw materials for innovative applications*	Cybersecurity
E-waste recycling	Energy efficient and smart aeronautics	Energy efficient and smart trains	*High performance computing*
Hydrogen technologies and systems	Industrial IoT	Industrial robotics	Low CO 2 Emissions Industry
Micro-electronics	*Net zero energy building construction and renovation*	*Nuclear decommissioning*	Photonics, integrated circuits
Photovoltaics	Plastics recycling	Precision farming	Proteins from crops and residues (including aquaculture) and fermentation
Smart Health	*Smart vessels*	*Space - launchers*	Structural electronics products
Wave and tidal energy	Wind energy	*Wired and wireless networks*	

Figure 2. SVC identified by the strategic forum.

prepared detailed recommendations, including SWOT analyses, for all six selected SVCs, which served as the basis for the final report published in November 2019. However, this relatively formalized process masks a high degree of arbitrariness in the actual selection. Ultimately, the SF suffered from three shortcomings in particular.

First, the SF's composition is biased towards industry, mirroring some of the problems of EU industrial policy in the 1980s (Cobby, 2023; Martin, 1996; Sandholtz, 1992). Given that the decisive steps during both stages of the prioritization process were based on the subjective preferences of members, with industry having the same number of votes as member states, this obviously creates a bias towards industry interests, and specific sectors in particular. Even a Commission representative concedes that it was not "fully clear why [some] sectors were there and not others" (Interview-3). Companies themselves also took notice. In an internal paper sent to DG COMP on March 12 2020, Spanish renewables company Iberdrola strongly criticized the Forum's final report for "basically reflect[ing] the positions [of] the hydrogen sector," arguing that the report "is just an opinion" and can hardly be considered as "the basis for any regulatory action or public intervention" (Iberdrola, 2020). Meanwhile, 10 renewables industry associations called for "renewable energy technologies" to be included in the list of SVCs and demanded that membership of the SF "should be opened to representatives of the renewable energy industries by the end of 2020" (EBA et al., 2020). Thus, rather than being "objectively the most important ones," the identified value chains reflected the interests of "those around the table" (Interview-2).

Second, three out of 9 selected SVCs were essentially waved through because of ongoing initiatives. This raises questions about whether the Forum's work identified areas of "strategic importance for Europe" or provided formalistic cover for a process that was fundamentally led by large member states. While the SVC

designation can help potential IPCEIs get approved (Interview-5), new IPCEIs continued to be launched in areas not prioritized by the Forum, and with a small group of member states moving ahead without informing everyone, as was the case for the Cloud IPCEI approved in December 2023 (Interview-11). This went so far that in some cases, topics for IPCEI were agreed at a high-level meeting between the German chancellor, the French president, and the relevant Commissioners and Commission president (Interview-1; Interview-12; Interview-5). Meanwhile, there are still no IPCEIs in prioritized areas like Cybersecurity or the Industrial Internet of Things. In the end, it was only for the health and hydrogen IPCEIs that there was a clear connection between the creation of IPCEIs and the SF's work (Lopes-Valença, 2022, p. 140).

Third, the SF ultimately failed to create lasting networks and routines of market-directing industrial policymaking in the EU. For one, coordination within the Commission remained limited. The Forum was led by DG GROW, with DG COMP only invited as a guest (Interview-3). Moreover, some member states were not even part of the SF. Most importantly, the SF was abruptly discontinued after its last meeting on 18 February 2020. This decision was a political one, resulting from a change in personal and political priorities under the new Commission. The old Commission had applauded the SF's "valuable input for the Commission's preparations of the long-term industrial vision" and wanted its work to "be taken forward." And, as Commissioner-designate, Breton himself had initially used the language of the SF when declaring his intention "to introduce a permanent high-level governance forum to ensure a continuous dialogue with Member States and industry to identify new SVCs where large cross border investment [sic] are needed" (Breton, 2019, p. 13). Yet, as Commissioner, Breton decided to reorganize DG GROW's work around industrial ecosystems and create a new body called the Industrial Forum (Interview-2). This created a strange and almost deliberate discontinuity between the Industrial and Strategic Forum. The latter's work is never mentioned in the call for applications or the minutes of IF meetings, and the language of SVCs is entirely replaced by the language of "industrial ecosystems": a concept which was developed in the context of the EU's new industrial strategy and defined as "encompass[ing] all players operating in a value chain" (European Commission, 2020a, p. 15), thus lacking strategic focus (Interview-12). Moreover, the Industrial Forum is explicitly conceived as a "sounding board for stakeholders" (European Commission, 2020b, p. 1), rather than as a high-level governance structure for the cultivation of SCSI, with no in-depth discussion on IPCEIs (Interview-6; Lopes-Valença, 2022, pp. 126–127).

4.2. The Creation of the Joint European Forum

The lack of a high-level governance forum for the identification of IPCEIs after the discontinuation of the SF was partially compensated for by the experiences, knowledge, and connections gained by member states and the Commission. Yet, IPCEIs continued to be created in a "deus ex machina type process" (Interview-7), with member states trying to compensate for the lack of institutionalized coordination with email or other "artisanal methods" (Interview-8). Processes remained "opaque and ad hoc and dominated by a small group of member states and several large companies" (Interview-9). Together with the slowness and complexity of the IPCEI approval process (see Schmitz et al., 2025), this led to considerable frustration among member states. In an open letter initiated by Austria, nine of them lamented "irregular and unsystematic exchanges" and proposed "to set up a Joint European Forum" which would allow for the exchange of information and best practices as well as help in "identifying new priority fields" for IPCEIs (The Republic of Austria et al., 2022). Importantly, Germany and France signed the letter, hoping that a joint forum could achieve better coordination and clearer procedures so that IPCEIs could be designed and approved more quickly (Interview-8).

The Commission approved the member states' request in mid-2023, and the JEF-IPCEI started operations in October 2023. It regularly holds high-level and technical meetings and is organized into four workstreams: identification, design, assessment, and implementation and evaluation. Reflecting this, its official goal is to *identify* areas of strategic EU interest for potential future IPCEIs and to increase the effectiveness of the *design*, *assessment*, and *implementation* of IPCEIs. In this article, we primarily deal with the JEF-IPCEI's first workstream on identification, although some of this work spills over into the design workstream. To the best of our knowledge, the JEF-IPCEI is the first EU body to be officially co-led by DG COMP and DG GROW, with members representing all EEA countries as well as all interested DGs (Interview-8). In contrast to the SF, industry representatives are not part of the JEF-IPCEI, although they and other external partners can be invited on an ad-hoc basis.

How does strategic identification in the JEF-IPCEI actually work, and to what extent does it involve policy learning in the direction of institutionalizing SCSI? In the era before the JEF-IPCEI, strategic identification suffered from several shortcomings. First, it was often captured by (particular parts of) industry, resulting in "strongest-lobby-wins" dynamics (Interview-5). To be clear, the problem is not that industry had influence, but that the state—or member states—had little autonomy: instead of being a forum for states to deliberate "when and whom to follow" (Weiss, 1998, p. 72), the SF primarily provided formalistic cover for a largely industry-led process. Second, member state involvement remained patchy and informal, and the coordination of industrial priorities was the result of chance encounters and "artisanal methods" (Interview-8) rather than of an institutionalized process. Third, the Commission's lack of internal as well as external coordination prevented a clearer and more coherent strategic focus and the build-up of expertise and networks. The JEF-IPCEI addresses these shortcomings in a variety of ways, exhibiting clear signs of policy learning (see Table 1).

First, the industry is still involved in identification but is no longer directly at the table. In the identification workstream, industry representatives are only invited to help work out the details after member states have already identified a priority area. Industry can and does, of course, exert influence through member state ministries or Commission DGs. But the decision itself is made by member states, with each member state having one vote. Initially, the identification process began with the Commission drafting a long list of topics or technology areas, based on existing EU "policy priorities" as well as "the findings of the Strategic Forum" (Interview-7; Interview-5), while also giving member states the chance to add more areas. DG GROW and DG COMP then asked DGs or member states to "sponsor" a specific item on the list and make the case for it in the technical meeting, detailing why it would be a good idea to prioritize this technology area for IPCEIs (Interview-7). An area needs at least four member states supporting it at the high-level meeting towards the end of the year, and at least one member state (co-)leading the work. Thus, a small coalition can move a technology area to the design phase even "if the rest don't like it" (Interview-5).

This process was somewhat amended in 2025. Instead of starting with a long list of topics, member states themselves pitch areas in the technical groups. In doing so, they have to—briefly but in greater detail than before—spell out how the proposal addresses a market failure and how it contributes to common European objectives (Interview-8). The Commission then keeps the three or four areas with the highest number of votes at the high-level meeting, with the goal to focus on a limited number of technology areas each year (Interview-7). For both procedures, the essential idea is the same: to find areas where "there is a critical mass of member states that want to collectively invest in one given strategic technology" (Interview-7). Member

Table 1. Differences between the strategic forum and joint european forum.

Dimension	Strategic Forum	Joint European Forum IPCEI
Public-Private Relationships	• Industry is at the table with equal voting rights • Strongest-lobby-wins dynamics, with singular pressure by specific sectors	• Industry not directly involved in decision-making • Industry support is necessary but not sufficient; the requirement of support across member states mitigates sectoral bias
Member State Relationships	• Artisanal and informal communication channels • Deus-ex-machina IPCEIs initiated by small groups of member states	• Clear communication channels and institutionalized exchange • Every member state is informed and gets the chance to participate in identification processes (although differences in administrative and fiscal capacity continue to matter)
Intra-Commission & Commission-Member state relationships	• Division of labor across DGs (state aid control vs. strategic identification) • No systematic involvement of DGs with expertise during identification • Formalistic process covers rather arbitrary decision-making with limited political support • Unclear and limited role of identified priorities for later design of IPCEIs	• Institutionalized coordination across DGs and the build-up of networks and rapport • Improved but still limited involvement of DGs with internal expertise • Explicitly political decision-making with member states deciding while taking into account Commission preferences and European priorities • Clear connection between identification and later design of IPCEIs

states need to take the initiative if they want a specific area to be prioritized. But how member states arrive at their priority areas is "internal" (Interview-8) to each member state, and industry plays an important role here.

Getting involved is generally not a yes-or-no but a "sectoral decision" that depends on a country's strategy or strength in a given sector (Interview-16; Interview-9). One national representative, for example, explained that the decision to support an area depended on whether their country "already had a competitive advantage or some kind of industrial base" in this sector, while also highlighting the importance of high-level political support and alignment with the "strategic direction of [the country's] industrial policy" (Interview-9). Industry has a lot of influence in this regard, but decisions are a mixture of embeddedness and autonomy. Member states need to always be "connected…with industry. You need industry. Without industry, there will be no IPCEI" (Interview-9). It is in that sense that IPCEIs are "a pretty well-embedded market instrument because it's companies that propose projects eventually" (Interview-7).

Yet, while member states want to "know the temperature of the industry" (Interview-16), they also analyze the "market situation" themselves, take their cues from discussions in the JEF-IPCEI, and ascertain whether an area of interest is "in line with the current industrial policy at the European level" (Interview-9). In doing so, member states do not just follow industry's lead: "Sometimes you approach industry. Sometimes they approach you" (Interview-9). Moreover, the necessity to build multi-member state coalitions while also

convincing the Commission that an area is in line with EU-level priorities prevents "singular individual pressure to result in an IPCEI" (Interview-5). Given that industry is not "directly present" when decisions are made, it needs to convince members of the JEF-IPCEI that their topic "makes sense from a strategic point of view for Europe and for the member states" (Interview-5). In other words, while both the Commission and member states are "asking, surveying industry constantly" and industry interest is crucial for any IPCEI (Interview-5), industry support is at best a necessary but not a sufficient condition for strategic identification in the JEF-IPCEI. This means that while industry is sometimes successful, it also fails at other times. For example, in one case, industry was unhappy with the direction the discussion in the forum was taking and managed—through its ministry contacts—to steer it to accommodate its concerns (Interview-13). By contrast, a pitch by the Carbon Capture and Storage Association at the JEF-IPCEI remained unsuccessful.

Second, the JEF-IPCEI has made the identification process a lot more transparent and inclusive, continuing but also institutionalizing existing improvements (e.g., the Code of Good Practices; Interview-3; Interview-8). Member states are now always informed about emerging discussions for IPCEIs and can, in turn, consult their own industries on them. New IPCEIs are only set up through the identification stream, never outside of it (Interview-5; Interview-14). Given the centrality of cross-border collaboration and the creation of genuinely European industrial ecosystems, this inclusivity is key (Interview-5). The JEF-IPCEI gives smaller member states the opportunity to "promote [their] own companies at the European level" (Interview-9) and help them plug into transnational company networks, not just as direct participants but also as associated or indirect partners. This inclusivity creates "buy-in" from member states; with even those "traditionally a bit wary of the instrument start[ing] to recognize its value" (Interview-7), thus shoring up political support that makes discontinuation—as in the case for the SF—less likely (Maggor, 2021). Member states seem to value process over particular outcomes, as can be seen from the fact that even member states highly sceptical of nuclear energy have not publicly criticized or called into question the decision to have nuclear technologies as a priority area.

Generally, the JEF-IPCEI has been very positively received thus far, with interviewees expressing their satisfaction and support. Whether this will remain the case is, of course, an open question. As one interviewee put it:

> It's kind of a honeymoon moment where everyone is working together, developing new projects, and there has been no very hard make-or-break moment, so it's part of the nice period. If in two years' time we don't have any new IPCEI, probably many people will be a lot less happy about the JEF, but we are still at the time where people are very happy about the way it works. (Interview-7)

In addition to whether the JEF-IPCEI can actually "deliver the babies" (Interview-13) by speeding up and streamlining the creation of IPCEIs, a crucial question is whether the process will continue to be considered fair and inclusive. This is not just about differential fiscal capacities, which can force member states to withdraw from IPCEIs they would otherwise join (Interview-16). While the JEF-IPCEI has reduced disparities in national administrative capacity by sharing best practices and knowledge (Interview-9), creating momentum for an IPCEI still largely depends on having the administrative wherewithal to lead a working group—putting some member states at a disadvantage (Interview-16).

Third, the JEF-IPCEI has improved both the internal coordination within the Commission as well as its external coordination with member states. On the one hand, the forum has reduced the fragmentation of industrial policymaking within the Commission, having established rapport and connections among DGs with very different "administrative styles" (Knill & Grohs, 2015) and whose relationship has not always been harmonious (Interview-7). Officials from both DG COMP and DG GROW agree that the JEF-IPCEI proved to be a "great tool to align the Commission on IPCEIs," mentioning that co-chairing the forum had "created more direct exchanges on all levels…in the past year than we had probably over the past four years" (Interview-7; Interview-5). It "forced [DG COMP and DG GROW] to sit in the same room to talk and to agree…and we did" (Interview-7). This "forcing device of having to deliver something was very efficient" (Interview-7) and the "really good inter-service coordination" (Interview-6) is a clear improvement over the SF's more "top-down process of identification with one DG very much in the lead and not so much considering a lot of other DGs" (Interview-5). It also promises to do what the SF's discontinuation prevented: the durable institutionalization of SCSI in the EU.

This matters for two reasons. First, DG COMP and DG GROW have often viewed industrial policy very differently, with the former having been more concerned with limiting distortions to competition and the latter having been more comfortable with having an active industrial strategy to protect and promote the competitiveness of European industry (Lavdas & Mendrinou, 1999). Given that IPCEIs are a state aid instrument tied to European strategic priorities, it is essential for the two DGs to see eye to eye on what these priorities can and should be (see Birkeland & Trondal, 2023; Blom-Hansen et al., 2024, p. 242; Marques et al., 2025). Several member states had already warned that not "every sector and technology should be regarded as strategic or critical to the EU" and urged the Commission "to be more focused and steer Member States towards smart and selective projects where an IPCEI effectively addresses a market failure" (Czech Republic et al., 2021). The rapport and connections established through the JEF-IPCEI strike us as crucial for developing such a clear and coherent strategic focus, and to mitigate the risks of misaligned IPCEIs being bogged down during the later assessment process.

Second, better coordination allows for the better pooling of internal SCSI, which, in the case of the Commission, is dispersed across different DGs, including policy DGs such as DG Connect or DG Sante, as well as the Joint Research Centre (JRC). Officials there "know quite well where the market is going for specific sectors" (Interview-13), and they are regularly consulted by DG COMP during the assessment of pre-notified IPCEIs. The JRC, for example, houses substantial scientific and engineering expertise and was asked to help verify claims of companies made during pre-notification of the battery and hydrogen IPCEIs, especially with regard to the "technological soundness" and "feasibility" of projects and the calculation of funding gaps (Interview-15). However, the JRC is not "directly involved in deciding which technologies are strategic" but merely "supports the Commission once this decision has been taken." While this decision should ultimately be a political one, we consider it a missed opportunity not to involve the JRC and the policy DGs more systematically in the process of strategic identification, e.g., helping to assess which technologies are most likely to contribute to certain goals.

At the same time, the JEF-IPCEI has institutionalized a compromise between member states and the Commission when it comes to strategic identification. After all, the former want to be in charge of the prioritization (Interview-8) since they are the ones paying for IPCEIs, while the latter wants to keep control of state aid and limit distortions to the single market, as well as retain influence over the setting of European

priorities. The JEF-IPCEI is explicit about letting member states decide which areas will be prioritized, recognizing that IPCEI money is "member states' money" (Interview-5). At the same time, member states are aware of the Commission's legal and political authority when it comes to state aid and anticipate its preferences, which limits their degrees of freedom. As one member-state official put it:

> You have to persuade the Commission. You need their approval.....The real work is done within the smaller working groups where you have to answer all of these general questions why IPCEI is a suitable tool for this kind of problem, this kind of technology.....You have to discuss with the Commission that, ok, we identified this market failure or this problem, this dependence. And this is how we want to contribute to the strategic EU goals. And the Commission says, ok, ok, we are ok with this. (Interview-9)

Despite member states deciding, there is thus a clear European spirit to discussions about strategic identification in the JEF-IPCEI.

5. Conclusion

Since industrial policy involves "state action meant to shift the composition of economic activity" (Juhász & Lane, 2024, p. 27), the question arises as to *where* economic activity should be redirected. In this article, we have developed the concept of SCSI and defined it as the capacity of a polity to assess which sectors or technologies contribute to important public goals and to elicit cooperation from and coordinate the activities of private actors around a public goal—regardless of how such a goal is defined in the first place. Looking at the case of EU industrial policy, we document the gradual institutionalization of SCSI in the context of IPCEIs: multi-member-state, collaborative projects aimed at fostering frontier innovation in strategic sectors or technologies. Our analytical narrative reveals a process of incremental and non-linear policy learning and capacity building (see also Ergen & Schmitz, 2025), culminating in the creation and ongoing development of the JEF-IPCEI.

In closing, we want to discuss some implications of our findings. On the one hand, it is difficult to escape the conclusion that the JEF-IPCEI is a policy success. The tenor across our interviews—be it with member state, Commission, or private sector representatives—was overwhelmingly positive, although we did not interview trade union or civil society representatives (who are not involved in the forum). Despite most interviewees agreeing that it was too early to tell whether the JEF-IPCEI will ultimately live up to its promise, it undoubtedly meets a need that the return of market-directing policy created, and, at least in principle, is set up in a way that can balance embeddedness and autonomy. It involves member states much more transparently and industry sufficiently, but not too early, it creates new networks and connections within the Commission, across member state ministries, and eventually also between European companies, and it establishes an explicitly politically guided process of strategic identification, in which member states decide while anticipating and recognizing the Commission's priorities and companies' interests.

At the same time, the JEF-IPCEI still lacks a systematic integration of internal SCSI across its various workstreams, although the newly created Design Support Hub for IPCEIs is a step in the right direction in this regard. While technical expertise exists in various parts of the Commission, member state ministries, and civil society, it is not systematically consulted during the identification process (see also European Commission, 2024, p. 305). One way to more systematically include technical expertise would be a "Critical

Tech Council" with representatives from (at least) the Commission, member states, and company executives, which could "serve as standing platforms for information exchange on security risks, supply chain disruptions and strategic challenges" (Arcesati & Gehrke, 2024). Moreover, although not the focus of this article, it would arguably strengthen both the effectiveness and political legitimacy of the EU's new industrial policy to have a broader and more inclusive debate about what Europe's strategic priorities should be in the first place. After all, "better-defined technological priorities" need to be "derived from a vision of the technological trajectory European societies want to embark on" (Landesmann & Stöllinger, 2020, p. 653).

To conclude, while the JEF-IPCEI does by no means solve all the problems that plague EU industrial policy and IPCEIs in particular (e.g., Lavery & Lopes-Valença, 2025; Schmitz et al., 2025), we consider it a step in the right direction. Ultimately, the Joint European Forum and IPCEIs more broadly are the closest thing the EU has to a "blueprint" (Letta, 2024, p. 40) for industrial policies aimed at pushing "Europe to the frontier in strategically important sectors" (European Commission, 2024, p. 13). Yet, while such strategic industrial policies were traditionally pursued with a "developmental mindset," characterized by a felt sense of urgency and "desire for national techno-industrial catch-up and export competitiveness" (Thurbon, 2016), IPCEIs remain wedded to a state-aid mindset, obsessed with questions of necessity, appropriateness, and proportionality of aid in response to market failures. It remains to be seen whether the relative lack of a developmental mindset, and the continued dominance of a state-aid mindset, will ultimately thwart the stated ambitions of EU industrial policymakers—or whether the two can be successfully hybridized.

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Supplementary Material

Supplementary material for this article is available online in the format provided by the authors (unedited).

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