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## **Assessment of NOVEL Approaches to Alignment**

### **Case Study No.7 – Electronic Components and Systems for European Leadership Joint Undertaking**

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## ABSTRACT

This case study examines the **key features, outputs, and overall strengths and limitations of the Electronic Components and Systems for European Leadership Joint Undertaking (ECSEL)** and could serve as an inspiration for European P2Ps in the areas of thematic alignment and leveraging European / national / private investment. ECSEL's **unique tripartite funding model** financed by the Union, member states, and the private sector makes it an interesting case for European P2Ps planning to establish structures to support collaborative research and innovation. This case study will analyze the details of the funding model as well as examine the implementation and experience with tripartite funding in practice. ECSEL's success in attracting private investment and the challenges it faces regarding different national funding rates and procedures, no multi-annual budgetary commitments from member states, and need for more harmonization and alignment could serve as useful lessons learned for European P2Ps (and PPPs).

This case study highlights the following **strengths** of the ECSEL model:

- ECSEL's unique **tripartite funding and governance structure**. It leverages Union contributions, commensurate national funding, and private sector investment. According to an ECSEL-commissioned **impact analysis**, each euro contributed by the European Union resulted in EUR 6.40 worth of research and innovation activity in Europe.
- **Alignment of research agendas, priority setting, and implementation:** The MASP is a good example of thematic alignment. Thematic alignment levels across member states are very good and some countries that did not have national funding programmes for electronic components and systems before, now have established such systems upon joining ECSEL.
- **Projects as transnational cooperation & networking opportunity:** ECSEL encourages collaborative projects with multiple partners and types of partners (large corporations, SMEs, non-profit research and technology organizations). It allows for knowledge and experience transfer, significantly raises the visibility of national research capabilities, and may even be a first step to breaking into new markets.

However, the case study also reveals a number of limitations and challenges:

- **Lack of a unified EU strategy on the collaboration of the electronic components industry with other emerging technologies** that draws on various trans-national policies and strengths. ECSEL should be more flexible for market updates, and the inclusion and collaboration with other emerging technology areas in its annual strategy.
- **Lack of alignment with other EU funding instruments:** This is especially important considering the higher funding levels in the United States and China that make it very difficult for Europe to compete with these regions.
- **Insufficient alignment of applicable rules across member states and between member states and the European Union.** These include reducing the **complexity of the rules and procedures in the project proposal process**, as well as managing and reporting on projects. Moreover, **different funding rules across member states** remains a challenge.

This case study builds on the ERA-LEARN 2020 "Definition and Typology of Alignment" and relies on a review of existing literature and a targeted interview. The case is part of a series investigating NOVEL approaches toward alignment.

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**Table of contents**

1.	Introduction.....	.4
2.	Key features of ECSEL .....	.4
2.1	<i>Mission and activities</i> .....	.4
2.2	<i>Governance structure</i> .....	.5
2.3	<i>Funding model</i> .....	.6
3.	Outputs of ECSEL .....	.9
4.	Overall strengths and key achievements of ECSEL with respect to alignment .....	10
5.	Overall limitations and challenges of ECSEL.....	11
6.	Conclusion and key success factors.....	12
	References .....	14
	ANNEX 1 ECSEL objectives .....	15
	ANNEX 2 ECSEL JU organization chart (2015).....	16
	ANNEX 3 EU reimbursement rates .....	17

## 1. Introduction

This case study examines the **key features, outputs, and overall strengths and limitations of the Electronic Components and Systems for European Leadership Joint Undertaking (ECSEL)** and could serve as an inspiration for European P2Ps in the areas of thematic alignment and leveraging European / national / private investment. ECSEL is a public-private partnership (PPP), established with Council Regulation (EU) No 561/2014 and is the product of the **merger of two previously existing Joint Undertakings**, the ENIAC and ARTEMIS JUs. It brings together large companies, research and technology organizations, SMEs, the European Union, and ECSEL participating states. ECSEL's **unique tripartite funding model** financed by the Union, member states, and the private sector makes it an interesting case for European P2Ps planning to establish structures to support collaborative research and innovation. This case study will analyze the details of the funding model as well as examine the implementation and experience with tripartite funding in practice. ECSEL's success in attracting private investment and the challenges it faces regarding different national funding rates and procedures, no multi-annual budgetary commitments from member states, and need for more harmonization and alignment could serve as useful lessons learned for European P2Ps (and PPPs).

Before the merger, the ENIAC and ARTEMIS Joint Undertakings were themselves public-private partnerships bringing together industry associations, research organizations, participating member states, and the European Union through the Commission. Since there was significant overlap in ENIAC/ARTEMIS membership and in order to deliver a more coherent European strategy and increase efficiency, it was decided that the two JUs should be merged to create ECSEL. On June 27, 2014, the founding Council Regulation entered into force and ECSEL came into being, making it the first ever merger of two European bodies. Along with taking up the activities of the EPoSS (European Technology Platform on Smart Systems Integration) initiative, ECSEL is tasked with stimulating the European electronic components and systems industry. It continues to provide support to already existing ENIAC and ARTEMIS projects, but has since also defined its own research agenda and work plans, and launches two calls for proposals a year.

Electronic components and systems form the basis for all information and communication technology and serve as main drivers for innovation, and therefore, job creation and economic growth. According to some estimates, the European semiconductor industry employs approximately 250,000 people, approximately 800,000 work on the integration of components into systems, and more than 2,500,000 people are employed in the complete components value chain. In view of "Industry 4.0" and the Internet of Things, the future importance of the electronic components and systems industry is expected to increase dramatically. With expanding capability and complexity in an increasingly competitive world, it is evident that collaboration across large parts of the value chain is necessary. ECSEL is supposed to re-establish European leadership in this systemically and strategically important industry by supporting collaborative and industrially relevant research, development, and innovation projects.

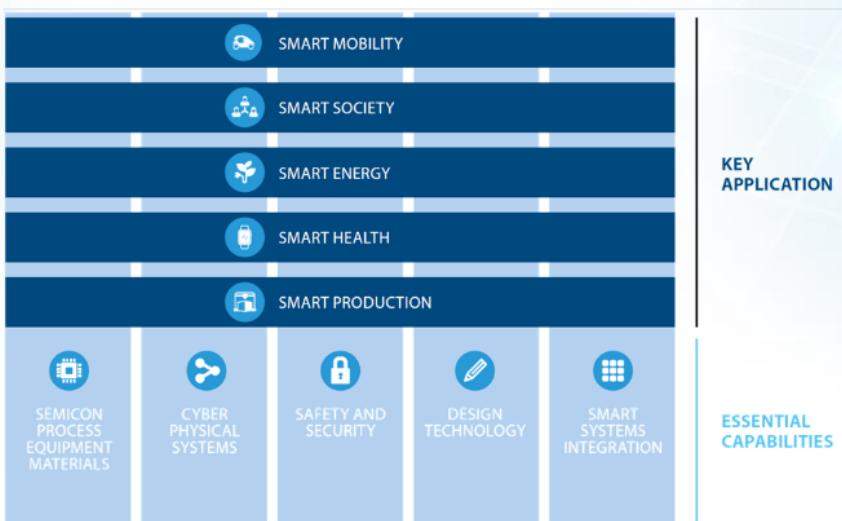
## 2. Key features of ECSEL

### 2.1 Mission and activities

ECSEL's mission statement reads as follows: "*Implement a public-private partnership in electronic components and systems, bridging the gap between research and exploitation, aligning strategies to increase European and national investments, building an advanced ecosystem.*" It complements the full objectives as laid down in Article 2 of its establishing act (Annex 1).

To this end, ECSEL established its Multi-annual Strategic Plan, covering five key application areas and five essential capabilities that reflect the high-level priorities of its private members (see Figure 1).

**Figure 1: ECSEL research and innovation programme**



Source: ECSEL Joint Undertaking website

In order to achieve its goals, ECSEL launches two calls for project proposals every year. Projects selected for funding are located within these Strategic Thrusts, however, they are not limited to covering only one of these key applications or essential capabilities. Multi- and cross-capability projects are encouraged. Of the two rounds of calls, one is dedicated to Research and Innovation Actions (RIA), the other to Innovation Actions (IA).

#### Research and Innovation Actions:

- Primarily aim to establish new knowledge or to explore the feasibility of a new technology, product, etc.
- Typically address lower technology readiness levels (TRLs of 2 to 5).
- Should not work in isolation but cluster with other ECSEL actions.

#### Innovation Actions:

- Large-scale, integrating projects that intend to bridge the “valley of death”.
- Specifically geared toward higher TRLs (4 to 8).
- Typically pilot lines and test beds that involve large demonstrators and zones of full-scale testing.

## 2.2 Governance structure

**Figure 2: ECSEL governance structure**



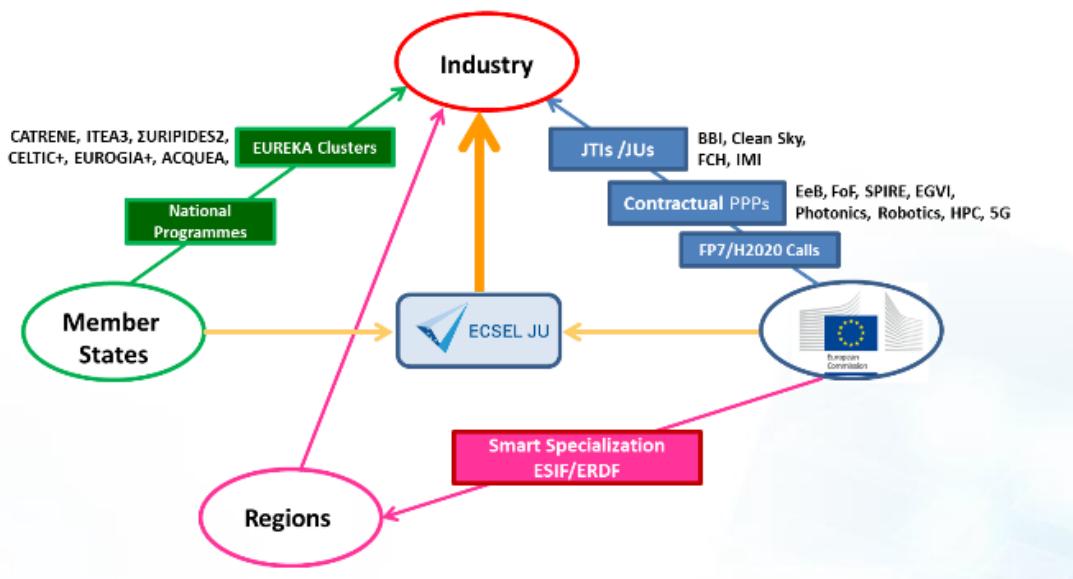
Source: ECSEL Joint Undertaking website

The **Governing Board** has overall responsibility for the strategic orientation and operations of ECSEL and supervises its activities. The Governing Board is composed of one delegation for the Commission, one for each private member, and one for each ECSEL participating state. The **Executive Director** (ED) is the chief executive responsible for the day-to-day management of ECSEL. The Programme Office, under the ED's responsibility, is tasked with consolidating the MASP and WP to be submitted for adoption to the Governing Board. The **Public Authorities Board** (PAB) is composed of representatives of the participating states<sup>1</sup> and the European Commission. It is responsible for establishing the funding budget and the allocation of funding for project proposals. The **Private Members Board** (PMB) is composed of representatives of the private members of ECSEL, with each industry association appointing one delegation. The PMB represents the community of R&D&I actors and organizes supporting activities and events, including an annual stakeholder forum.

### 2.3 Funding model

ECSEL operates on a unique **tripartite funding model**, leveraging European Union, national, regional, and private investments in research, development, and innovation. It complements other European instruments for funding of R&D projects.

Figure 3: ECSEL's tripartite funding model



Source: ECSEL Joint Undertaking website

In addition to a market-facing programme, the ECSEL funding model provides combined funding from national and regional authorities and the EU (via Horizon 2020, with capability to include structural funds (ESIF/ERDF)). To augment Europe's industrial innovation capacity, ECSEL leverages matching investments from R&D actors.

<sup>1</sup> Currently, ECSEL participating states are: Austria, Belgium, Bulgaria, Czech Republic, Germany, Denmark, Estonia, Greece, Spain, Finland, France, Hungary, Ireland, Israel, Italy, Latvia, Malta, Netherlands, Norway, Poland, Portugal, Romania, Sweden, Slovakia, Turkey, United Kingdom

**Figure 4: Contributions by category (in M€)**



Source: Council Regulation (EU) No 561/2014

- **European Union contribution:** For ECSEL's whole duration, 2014-2021, the Union is committed to contribute up to EUR 1,170,000,000 to cover administrative and operational costs.
- **ECSEL Participating States:** Member states are to make a financial contribution commensurate to that of the Union, amounting to at least EUR 1,170,000,000 over the period. Although this 1:1 ratio of contributions is foreseen in the founding of ECSEL, it has not yet been achieved in practice. There remains work to be done in this regard.
- **Private members:** The research and development actors are to contribute EUR 1,657,500,000, resulting in the target ratio of 1:1.42. Beneficiary contributions currently outperform the target at 2.22. Thus, total private contributions are expected to amount to 2,340,000,000, leveraging a total investment approaching EUR 5 billion for the whole programme.

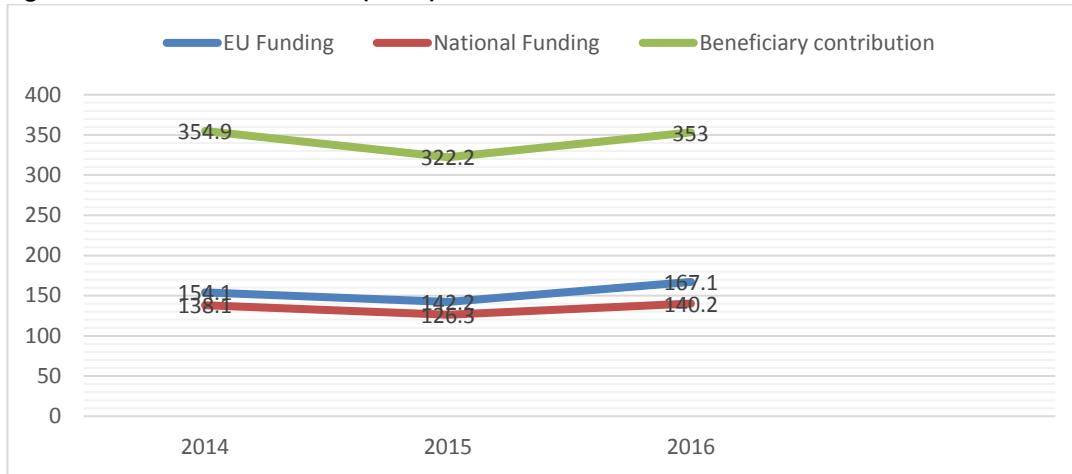
For 2017, the total EU contribution to the ECSEL project calls is expected to be EUR 160 million. An estimated EUR 92.5 million of which is expected to be allocated to IAs, and EUR 67.5 million to RIAs. Funding rates for approved IAs and RIAs follow Horizon 2020 rules (for a detailed decomposition see Annex 3). This EU expenditure is supposed to attract a commensurate amount of national funding, although each country has their own funding rules and reimbursement rates. In total, combined EU and member state expenditure for 2017 add up to an estimated EUR 185 million for IAs and EUR 135 million for RIAs.

ECSEL's 2017 running cost, including staff, infrastructure, and administrative expenditure, is expected to amount to EUR 5.2 million. Currently, ECSEL employs a relatively small team of a total of 30 statutory staff (see Annex 2 for the Programme Office organizational chart). EUR 3.2 million of the total running costs are budgeted for staff expenditure, including salaries, recruitment, mission expenses, and training. The remaining EUR 2 million shall cover infrastructure expenditure, including rental of buildings, information and communication technology, administrative costs, and R&D support.

### The funding model in practice

Overall, the tripartite funding model works well, especially in terms of leveraging private investment. However, a few key challenges remain. The founding Council regulation lays down a vision to leverage member state contributions commensurate to Union contributions and industry contributions exceeding Union contributions. Nevertheless, the present funding model remains one of the main challenges of ECSEL. In terms of industry participation, the programme has been very successful in attracting private investment. Currently, the ratio of **beneficiary to Union contribution is 2.22**, by far outperforming the target ratio of 1.42. However, member state contributions remain a challenge. National funding has persistently remained below EU funding (see Figure 5).

**Figure 5: Contributions over time (in M€)**



Data: ECSEL Annual Activity Report 2016

In practice, the **contribution ratio of 1:1, Union and member states, has not been achieved even though member states committed an amount larger than that of the Union each year, leaving significant unused national budgets<sup>2</sup>**. A possible reason could be **different national funding rules and rates**. For ECSEL, member state contributions are not fixed and harmonized across countries, rather, each member state decides upon the amount of national funding to be made available for calls individually. This leads to wide variations in national funding rates. Moreover, eligibility criteria for national funding differ across countries. Effectively, these differing rules and rates have often led to the EU budget being the limiting factor in project selection, according to the **annual activity report**. *In all three past calls, member states committed an amount larger than the European Union. However, the proposals completely consumed the Union budget, but could not engage all member state commitments by the time the Union budget has been exhausted.* There were significant unused national budgets in all three years: EUR 24.7 million in 2014, EUR 36.0 million in 2015, and EUR 50.4 million in 2016. Although the high EU funding rates play a role, i.e., EU funding rates are often significantly higher than national funding rates due to national rules. But a more decisive role is the *specific allocation of certain types of budget to certain types of actions or partners<sup>3</sup>*. This restriction on the use of national funding hampers the proper use of it.<sup>4</sup> For example, in 2016, the unused budgets of France and Ireland stand out with EUR 29.6 million and EUR 13.4 million, respectively. In both cases the largest proportion of the budget was earmarked for specific projects that were above the approval threshold but could not be funded due to insufficient EU funding<sup>5</sup> or insufficient national funding of consortium partners<sup>6</sup>. Another factor is reserving a certain amount for specific regions only, as is the case in Germany where a part of the budget is specifically for one region (Saxony). If the partners of that region do not participate in funded projects, then their share of national funding remains left over. This restriction on the use of national funding is a crucial factor contributing to unused budgets. If these restrictions were lifted and funding rules harmonized, a larger part of the unused national budget could have been allocated to some other partners in selected projects.

<sup>2</sup> More about unused budgets, see annual activity reports: 2014: [http://www.ecsel-ju.eu/web/downloads/Documents\\_GB/ecsel-gb-2015-39-aar\\_ecsel\\_2014-annex\\_1\\_final.pdf](http://www.ecsel-ju.eu/web/downloads/Documents_GB/ecsel-gb-2015-39-aar_ecsel_2014-annex_1_final.pdf) 2015: [http://www.ecsel-ju.eu/web/downloads/Documents\\_GB/ecsel\\_annual\\_report\\_2015.pdf](http://www.ecsel-ju.eu/web/downloads/Documents_GB/ecsel_annual_report_2015.pdf) 2016: [http://www.ecsel-ju.eu/web/downloads/Documents\\_GB/ecsel\\_rapportannuel\\_a4\\_2016.pdf](http://www.ecsel-ju.eu/web/downloads/Documents_GB/ecsel_rapportannuel_a4_2016.pdf)

<sup>3</sup> ECSEL (2017): Annual Activity Report 2016, 20

<sup>4</sup> Ibid.

<sup>5</sup> Ibid.

<sup>6</sup> Project selection is based on a ranking of all proposals. Therefore, it is possible that higher ranked projects use up all EU funding (or national budgets, where projects cannot be funded if it has consortium partners from the concerned country), leaving no budget for proposals that are lower-ranked but still above the approval threshold.

Related to the previous point, there is a **lack of harmonization regarding funding practices and procedures** across member states and the EU<sup>7</sup>, leading to an overly complex and burdensome administration. There is difficulty understanding the differences between EU and national funding rules and difficulty in submitting proposals when a project consortium includes members from different countries who have to adhere to different national rules. It also makes project management and reporting, especially financial reporting, difficult and cumbersome. Participants often identify the double/triple financial reporting as one of the biggest administrative burdens imposed on project consortia.<sup>8</sup> The high complexity and administrative burden of the system may be precluding SMEs and smaller research organizations from participation, as they lack the necessary financial and human resources. SME participation has dropped in the 2015 call (2015 call attracted 99 SMEs vs. 123 in 2014 call<sup>9</sup>) and encouraging participation remains a challenge.

Another frequent assessment is that ECSEL **lacks long-term financial commitment** by member states. Since member state contributions rely on a yearly budget, i.e., participating countries have to decide on the amount reserved for ECSEL calls each year, it lacks the long-term financial commitment that would reduce administrative delays caused by year-to-year uncertainties. Moreover, the lack of multi-annual budgetary commitments makes programme management very difficult and may expose the financing model to political and economic risks associated with, e.g., economic downturns and changes in political agendas.<sup>10</sup>

Some stakeholders have also noted a **lack of alignment between ECSEL and other EU funding instruments**. In the current model, beneficiaries may receive financing from structural funds (European Structural and Investment Funds ESIF), which has not been very successful until 2016. This is especially important considering that Europe faces competition from regions enjoying higher funding levels such as the United States and China.

#### Mobilizing European Structural and Investment Funds (ESIF)

- ESIF: Over half of EU funding is channeled through the 5 European Structural and Investment Funds which are jointly managed by the European Commission and the member states. The purpose is to invest in job creation and a sustainable and healthy European economy and environment.
- Although the possibility to leverage structural funds has been envisioned from the beginning, there is room for improvement in the actual mobilization of funds. Several stakeholders have noted that the ECSEL funding mechanism could be improved by better alignment with other EU funding instruments.
- The mobilization of ESIF was successful for the first time in the 2016 calls. 18 beneficiaries may receive their funding from the ESIF, requesting a total of EUR 11.1 million. RIAs could engage EUR 9.4 million and IAs EUR 1.6 million.

### 3. Outputs of ECSEL

Since its establishment in June 2014, ECSEL has successfully implemented the merger of two pre-existing Joint Undertakings. It has been fully operational, adopting its own MASP, Work Plans, and launching two calls for proposals a year. Its outputs so far are:

<sup>7</sup> This is a challenge facing many P2P networks across Europe and has been identified in previous ERA-LEARN 2020 case studies (e.g., in the case study on the alignment of national AAI programmes). Reasons include national and Union legislation, etc.

<sup>8</sup> See: Impact Analysis study [http://www.ecsel-ju.eu/web/downloads/Publications/ecsel\\_impact\\_analysis\\_study\\_website.pdf](http://www.ecsel-ju.eu/web/downloads/Publications/ecsel_impact_analysis_study_website.pdf)

<sup>9</sup> ECSEL (2016): Annual Activity Report 2015, 22

<sup>10</sup> The lack of member state commitment to a multi-annual funding system has been a long-standing criticism, mentioned in every evaluation of ECSEL and its predecessors. 1st Interim Evaluation ARTEMIS and ENIAC: <https://publications.europa.eu/en/publication-detail/-/publication/56da8c38-7094-4ca3-8494-f832529b9d94>

2nd Interim Evaluation ARTEMIS and ENIAC: <https://ec.europa.eu/digital-single-market/en/news/second-interim-evaluation-artemis-and-eniac-joint-technology-initiatives>

Support Study for the Evaluation of ENIAC/ARTEMIS/ECSEL JU

- **The consolidation of the merger** of the two preceding Joint Undertakings, ENIAC and ARTEMIS, and taking on board the EPoSS community. ECSEL is the product of the first ever merger of two European bodies. 2014 and 2015 were the main transition years – assuring continued support to the already existing ENIAC and ARTEMIS projects, while defining an ECSEL research agenda, work plan, and launching calls for proposals. There was significant overlap between these three platforms, but also fundamental differences, making the set-up phase very difficult. Some of the problems encountered were working out and agreeing on a MASP and Work Plan that satisfies all three platforms; ENIAC and ARTEMIS were familiar with the JU process before the merger (since both were also JUs), but EPoSS was not. Therefore, integration and cooperation was difficult in the beginning. It is an ongoing process, since there is still potential for improvement in the integration of these three platforms to make the work of ECSEL more impactful.
- **Funded projects:** Although established only in June 2014, ECSEL nevertheless managed to define a research agenda, a work plan, and launch and conclude two calls for proposals within the first year. Since then, it approved funding for a total of 39 projects, 17 IAs and 22 RIAs.
- **Adoption and selection of two Lighthouse Initiatives**, Mobility.E and Industry 4.E, that will achieve concrete socio-economic objectives to enhance the focus and impact of ECSEL. The intention is to promote additional cooperation to accelerate the impact of projects by engaging all needed actors in the supply/value chain. In conjunction, ECSEL will initiate a “Lighthouse Initiative Advisory Service” (LIASE) for each Lighthouse Initiative to develop, maintain, and implement the Lighthouse Initiative Roadmap. This initiative will be further refined and strengthened in 2017.

#### 4. Overall strengths and key achievements of ECSEL with respect to alignment

As a product of the merger of two pre-existing Joint Undertakings, ECSEL has demonstrated how to successfully implement such a transition. Beyond the consolidation of such a merger, some of its other strengths and achievements are presented below.

- ECSEL's unique **tripartite funding and governance structure**. It leverages Union contributions, commensurate national funding, and private sector investment. According to an ECSEL-commissioned **impact analysis**<sup>11</sup>, each euro contributed by the European Union resulted in EUR 6.40<sup>12</sup> worth of research and innovation activity in Europe. This model could serve as an interesting example for European P2Ps planning to implement support structures for public-private collaborative, trans-national research, development, and innovation. ECSEL demonstrates the effectiveness of public-private funding systems in promoting R&D&I activities in defined technology topics and essential capabilities. Furthermore, ECSEL's tripartite governance and decision-making, with the EC, member states, and industry involved in the approval and adoption of strategy and priorities through the Governing Board, promotes the alignment and communication between those three stakeholder groups. The public members contribute to the research agenda and priority-setting via a feedback process during the annual adoption of the MASP and the Work Plan, thereby ensuring a certain level of agreement between public and private interests.
- **Alignment of research agendas, priority setting, and implementation:** The MASP, based on input from both industry and representatives of the member states and the European Commission, is a good example of thematic alignment. Overall, ECSEL had a very positive impact on the alignment of research priorities across member states. Thematic alignment levels across member states are very good and some countries that did not have national funding programmes for electronic components and systems before,

<sup>11</sup> See Aspect Consulting (2016): ECSEL JU Impact analysis study, p1. [http://www.ecsel-ju.eu/web/downloads/Publications/ecsel\\_impact\\_analysis\\_study\\_website.pdf](http://www.ecsel-ju.eu/web/downloads/Publications/ecsel_impact_analysis_study_website.pdf)

<sup>12</sup> Based on EU contributions vs. total eligible costs

now have established such systems upon joining ECSEL. Therefore, ECSEL manages to align public investment priorities and strategic orientation across Europe to leverage private investment.

- **Projects as transnational cooperation & networking opportunity:** ECSEL's explicit support for trans-national research and development across large parts of the value chain encourages collaborative projects with multiple partners and types of partners (large corporations, SMEs, non-profit research and technology organizations). For many call participants, the transnational cooperation and networking opportunity provided by ECSEL represents one of the main motivations and benefits of joining the proposal process. This is essential for smaller countries and firms where it would not be feasible to work domestically across the whole value chain and collaboration with the "big players" is especially beneficial. It allows for knowledge and experience transfer, significantly raises the visibility of national research capabilities, and may even be a first step to breaking into new markets. Moreover, it had a positive effect on the electronic components and systems community by providing the opportunity to build relationships and stronger networks of firms and researchers.
- **A more coherent European perspective:** The second interim evaluation of ENIAC and ARTEMIS revealed significant room for improvement regarding the efficiency of the Joint Undertakings. They were suffering from a rather heavy regulatory, administrative, and financial burden. Funding volumes in key areas were also insufficient to create a level playing field with international competitors and different programmes were in need of harmonization and lacked critical mass. ECSEL addressed and offered a solution to these issues by integrating ENIAC and ARTEMIS on a legal and operational level. It delivers a more coherent European strategy for the funding of electronic components and systems research, development, and innovation.

## 5. Overall limitations and challenges of ECSEL

Although ECSEL has achieved significant success in driving European electronic components and systems research and innovation, its current form faces several limitations and challenges. The following section discusses these in detail.

- **Lack of a unified EU strategy on the collaboration of the electronic components industry with other emerging technologies:** In view of the scheduled European Commission interim evaluation of the ECSEL programme by June 2017, ECSEL commissioned an [impact analysis report](#) to aid the Commission's subsequent research. Surveyed participants include call participants and other ECSEL stakeholders from large corporations, SMEs, non-profits, research organizations, public authorities, etc. Without being prompted, a number of respondents noted the necessity for a unified European strategy on electronic components and software industry that draws on various trans-national policies and strengths. Because of the speed of technology development, ECSEL should be more flexible for market updates. This involves the inclusion and collaboration with other emerging technology areas in its annual strategy.
- **Lack of alignment with other EU funding instruments:** Many stakeholders identified a lack of alignment in this structure with other EU funding instruments<sup>13</sup> and highlight the need for e.g., more harmonization of funding priorities and funding rules and procedures. This is especially important considering the higher funding levels in the United States and China that make it very difficult for Europe to compete with these regions.
- **Insufficient alignment of applicable rules across member states and between member states and the European Union:** Although ECSEL is already instrumental in achieving a certain level of harmonization, there is room for improvement to achieve higher alignment levels in terms of applicable rules across member states and between member states and the Union. These include reducing the **complexity of the**

<sup>13</sup> See: [http://www.ecsel-ju.eu/web/downloads/Publications/ecsel\\_impact\\_analysis\\_study\\_website.pdf](http://www.ecsel-ju.eu/web/downloads/Publications/ecsel_impact_analysis_study_website.pdf)

**rules and procedures in the project proposal process**, as well as managing and reporting on projects. Presently, main challenges for call participants include the high administrative burden resulting from different project proposal rules and funding eligibility in member states and the often double/triple financial reporting. Similar challenges regarding limited alignment on a transnational level have already been identified in previous case studies, especially in case study 5 on the alignment of national AAL programmes. Moreover, **different funding rules across member states** remains a challenge. Different national funding rates and the national rules earmarking certain amounts for specific actions or partners led to significant unused budgets in a number of member states and made the EU budget the limiting factor in the selection of projects. Harmonizing reimbursement rates across member states would be highly beneficial.

## 6. Conclusion and key success factors

ECSEL, operating on a unique tripartite model, has achieved the first ever merger of two previously existing European bodies. It demonstrates the effectiveness of funding research and development in industries of key systemic and strategic importance by leveraging European, national, and private sector investment. The activities promoted a more coherent European perspective on electronic components and systems, alignment across member states, and international collaboration and network-building. A number of challenges remain, most importantly to the funding model, the necessity for more harmonization of reimbursement rates, rules, and procedures across member states, and the complexity and high administrative burden of project proposals, management, and financial reporting. Nevertheless, ECSEL's success in attracting private investment and participation could serve as an inspiration for European P2Ps working in other systemically and strategically important areas.

This case study identified the following **key success factors**:

- **Strong motivation and leadership:** The merger and establishment of such a PPP would likely not have been possible without the commitment and leadership of both public and private actors. The European Commission and the industry partners were particularly dedicated and enthusiastic to successfully establishing ECSEL.
- **A certain level of familiarity between members:** The overlapping membership between ARTEMIS and ENIAC was not only the reason for establishing ECSEL but also proved to be an advantage down the road. The countries and especially the industry members were able to build on a history of cooperation and coordination in a PPP setting, contributing to the success of the merger and of ECSEL.
- **Strong political and financial commitment:** ECSEL could not have been established without the political and financial commitment of member states in the set-up process and beyond. There is wide agreement on the value added of JU activities and its positive impact on thematic alignment, the research community, and industry. For some countries, membership in ECSEL was a “natural transition” from existing national funding programmes to increase international cooperation, mobilize more resources through EU contributions, and increase impact. These countries typically also face less budgetary challenges on national level, since funds were simply shifted from domestic programmes to ECSEL calls.
- **Well-established and smoothly functioning structures:** A complex tripartite system involving many and different types of stakeholders requires a carefully considered and planned programme design. The smooth operation of the governance structure fosters decision-making overall, the organization and process of joint calls, project selection, etc. A certain level of familiarity between stakeholders and with the process and functioning of PPPs (or P2Ps), in this case through ENIAC and ARTEMIS, may also be beneficial.

- **Clear overall legal framework and processes:** The high levels of participation in calls and success in funding industrially relevant, collaborative research are likely due to a clear overall legal framework and subsequent processes. The requirements and guidelines for proposals, reimbursement rates, deadlines, and the overall administrative process were clearly and effectively communicated to the target audience and stakeholders.

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## Interviews

Zergoi, Thomas, Austrian Research Promotion Agency, Interview 2017-06-23

Vierbauch, Doris, Austrian Research Promotion Agency, Interview 2017-06-23

**ANNEX 1**

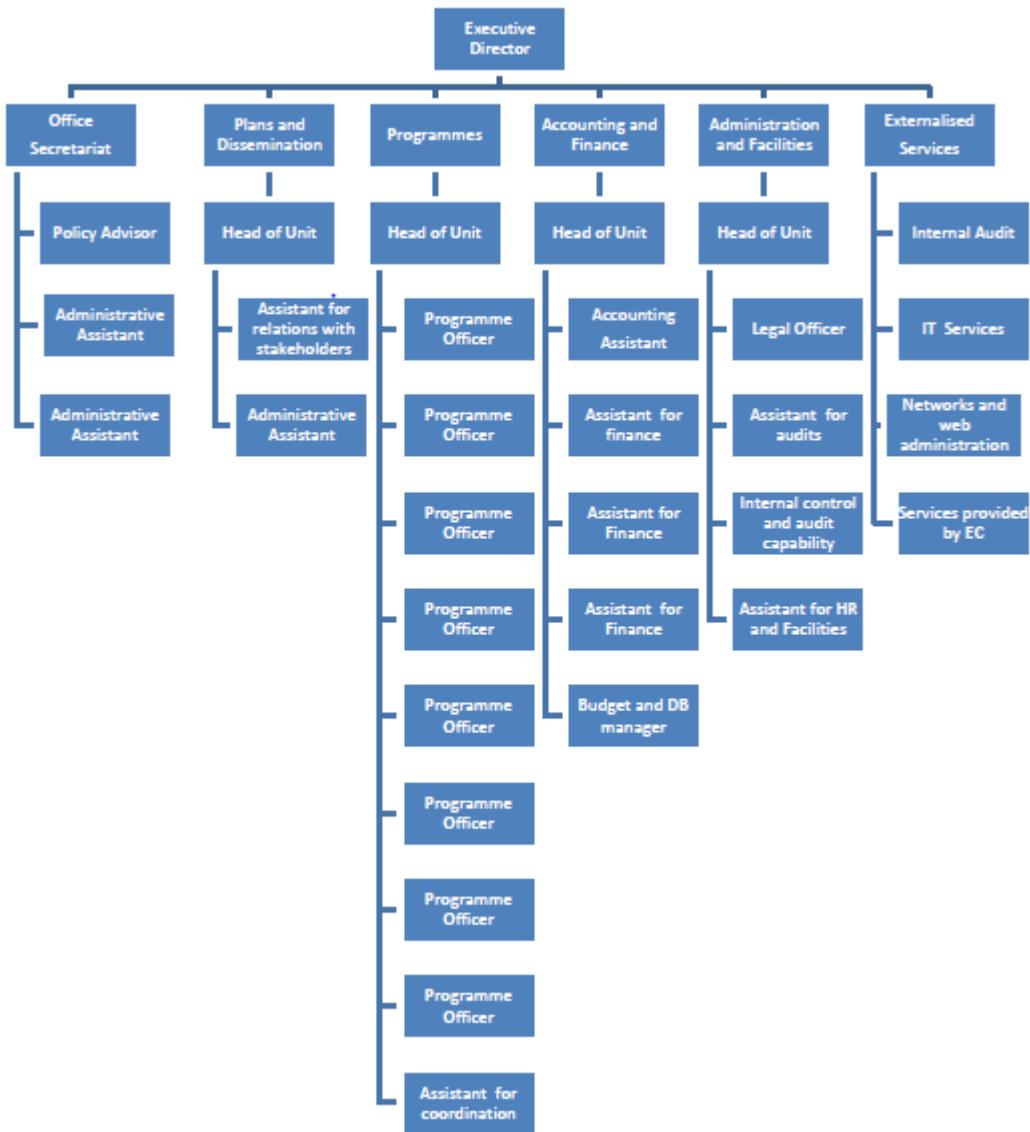
**ECSEL objectives**

1. The ECSEL Joint Undertaking shall have the following objectives:
  - (a) to contribute to the implementation of Regulation (EU) No 1291/2013, and in particular part II of Decision 2013/742/EU;
  - (b) to contribute to the development of a strong and globally competitive electronic components and systems industry in the Union;
  - (c) to ensure the availability of electronic components and systems for key markets and for addressing societal challenges, aiming at keeping Europe at the forefront of technology development, bridging the gap between research and exploitation, strengthening innovation capabilities and creating economic and employment growth in the Union;
  - (d) to align strategies with Member States to attract private investment and to contribute to the effectiveness of public support by avoiding an unnecessary duplication and fragmentation of efforts and by facilitating the participation of actors involved in research and innovation;
  - (e) to maintain and grow semiconductor and smart system manufacturing capability in Europe, including leadership in manufacturing equipment and materials processing;
  - (f) to secure and strengthen a commanding position in design and systems engineering including embedded technologies;
  - (g) to provide access of all stakeholders to a world-class infrastructure for the design and manufacture of electronic components and embedded/cyber-physical and smart-systems; and
  - (h) to build a dynamic ecosystem involving Small and Medium-Sized Enterprises (SMEs), thereby strengthening existing clusters and nurturing the creation of new clusters in promising new areas."

*Source: Council Regulation (EU) No 561/2014 of 6 May 2014, Article 2*

## ANNEX 2

### ECSEL JU organization chart (2015)



Source: ECSEL JU Budget for 2015

### ANNEX 3

#### EU reimbursement rates

	RIA			IA		
	LE	SME	Other	LE	SME	Other
ENIAC-ARTEMIS	16.7 %	16.7 %	16.7 %	16.7 %	16.7 %	16.7 %
ECSEL JU 2014	50 %	50 %	50 %	25 %	35 %	50 %
ECSEL JU 2015	25 %	30 %	40 %	15 %	25 %	40 %
ECSEL JU 2016	25 %	30 %	35 %	20 %	25 %	35 %
ECSEL JU 2017 (1)	25 %	30 %	35 %	20 %	25 %	35 %

Source: ECSEL Annual Activity Report 2016