European Commission

# Partnership Evaluation Report:

# EIT InnoEnergy Partnership

## Horizon Europe and the Green Transition
## Interim evaluation support study

Independent Expert Report


Research and Innovation

**Partnership Evaluation Report: EIT InnoEnergy Partnership**

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# Partnership Evaluation Report:
# **EIT InnoEnergy Partnership**

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2024 Directorate-General for Research and Innovation EN

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# 1. Executive Summary

This evaluation report analyses the partnership EIT InnoEnergy with respect to relevance, coherence, efficiency, effectiveness, EU added value, additionally, directionality, international positioning and visibility, transparency and openness and phasing out preparedness in relation to the Horizon 2020 and Horizon Europe Green Transition objectives.

EIT InnoEnergy was established in 2010 as a Knowledge and Innovation Community (KIC) under the European Institute of Innovation and Technology (EIT). It aims to build a sustainable, long-lasting operational framework amongst the actors of the knowledge triangle in the energy sector (industry, research, and higher education), while ensuring that the integration of the three is more effective and has a higher impact on innovation (talent, technology, companies) than the three standing alone. EIT InnoEnergy takes a business approach, and all its activities are geared towards innovators, start-ups and scale-ups, students, and learners.

The activities of the partnership can be categorized along four dimensions: i) investment activities, ii) educational activities (such as the EIT InnoEnergy Master School, career services and the InnoEnergy Skills Institute), iii) ecosystem services (networking activities and facilitation of knowledge streams, e.g., through regional hubs), and iv) industry alliances (with a particular focus on batteries, hydrogen, and solar photovoltaics). The partnership is run as a Dutch company (KIC InnoEnergy SE, legal name; EIT InnoEnergy is the brand name maintaining regional offices and hubs in Central and Eastern Europe, the Nordic region, Iberia, Benelux France, DACH and the US. It builds upon a network of 1200+ partners including industry, research centres and universities across Europe, and, as of 2023, 35 shareholders. Established as a commercial company, the ownership and strategy reside with the shareholders.

EIT InnoEnergy is considered by representatives of both the EIT and the European Commission as a role model across the EIT KICs with an exceptionally strong business orientation. The current evaluation study confirms that the EIT InnoEnergy partnership is a highly valuable instrument within the Horizon Europe framework programme. Gathered evidence suggests that it is well on track in terms of financial sustainability. Stable management leads the partnership successfully through a transformation process towards becoming a an impact investor, while providing value added services and ecosystem orchestration, and education and skilling activities. Today, besides its financial support, the unique network of the partnership and its education and skills development activities are strongly sought after and create systemic value. Stakeholders expressed concerns about a possible discontinuation of some of these activities. Future analyses should explore options and strategies for continuing with some of these activities that lack direct financial returns for the partnership, as well as the integration of research within the knowledge triangle. This evaluation faced different limitations. Room for improvement was identified in relation to the transparency of the partnership, such as on details of the composition of its shareholder structure. Furthermore, evidence suggests that collaborations with other European partnerships are not transparent or exist only to a limited extent and should be further explored, since they could harbour the potential of facilitating the exploitation of research results.

## 2. Key Definitions, Acronyms and Glossary

| Abbreviation | Definition |
|---|---|
| BMR | Biennial Monitoring Report on partnerships in Horizon Europe |
| CEE countries | Central and Eastern European countries |
| CEO | Chief Executive Officer |
| CFO | Chief Financial Officer |
| CLCs | Co-location Centres |
| CO2e | Carbon dioxide equivalent |
| CRL | Commercial readiness level |
| DACH | Acronym for Germany, Austria and Switzerland |
| DG ENER | Directorate-General Energy |
| DG RTD | Directorate-General Research and Innovation |
| DSO | Distribution system operators |
| EBA | European Battery Alliance |
| eCorda | Common Research Data Warehouse |
| eGrants | Online grant application management tool |
| EGHAC | European Green Hydrogen Acceleration Center |
| EIT | European Institute of Innovation and Technology |
| EIT RIS | EIT Regional Innovation Scheme |
| ERASMUS+ | EU programme for education, training, youth and sport |
| ESCO | Energy service companies |
| EU-FP | European Framework Programmes for Research and Innovation |
| EuBatIn | European Battery Innovation |
| European Green Deal | EC policy priority of the von der Leyen Commission (2019-24) |
| FPA | Framework Partnership Agreement |

| Abbreviation | Definition |
|---|---|
| FS coefficient | Financial sustainability coefficient |
| GA | Grant Agreement |
| GHG | Greenhouse gas |
| GPA | General Partnership Agreement |
| H2020 | Horizon 2020 |
| HE | Horizon Europe |
| IPCEI | Important Projects of Common European Interest |
| KAVA | KIC Added Value Activity |
| KCA | KIC Complementary Activity |
| KIC | Knowledge and Innovation Community |
| KIC LE | KIC Legal Entity |
| KIP | Key Impact Pathway defined by the Commission for Horizon Europe |
| KPI | Key performance indicator |
| LCOE | Levelized Cost of Energy |
| NEFA | Non EIT Funded Activity |
| PSIP | Partnership Specific Impact Pathway |
| PV | Photovoltaics |
| REPowerEU | EU plan to save energy, produce clean energy and to diversify energy supply |
| ROI | Return on investment |
| SC3 | Societal Challenge 3 – Secure, clean and efficient energy (H2020) |
| SET-Plan | Strategic Energy Technology Plan |
| TRL | Technology readiness level |
| TSO | Transmission system operators |

# 3. Introduction

## 3.1. Purpose and Scope

This report on the institutionalised partnership EIT InnoEnergy is part of the ex-post evaluation of H2020 and the interim evaluation of Horizon Europe activities with a focus on their role for the Green Transition. It provides a synthesis of analyses conducted in the two phases of the commissioned study.

Phase 1 of the study focused on Horizon 2020 (2014-20), covering EIT InnoEnergy as one of the first three KICs established by the EIT. In line with the other instruments in focus under H2020, the evaluation dimensions for EIT InnoEnergy covered within this timeframe were relevance, coherence, effectiveness, EU added value, transparency and openness, additionality as well as efficiency of the implementation in relation to the Horizon 2020 objectives targeting the Green Transition. In Phase 2, focusing on the initial period of Horizon Europe (2021-27) until 2022, the report retains its scope on the same evaluation dimensions but additionally includes directionality, international positioning and visibility, as well as phasing out preparedness of the partnership.

## 3.2. Methodology

The partnership report follows the principles of a case study analysis and comprises a mixed-method approach of both quantitative and qualitative data analysis.

The quantitative data analysis comprises an analysis of the project portfolio of the institutionalised partnership and is based upon data obtained from EIT InnoEnergy. The time horizon covered within the analysis is 2014–2022. The bibliometric analysis of research output is based on Science-Metrix/Elsevier using data from Scopus (Elsevier), eCorda, EIT, PlumX, Overton and Unpaywall.

The qualitative analysis comprises desk research activities covering strategy documents and monitoring, progress and evaluation reports provided by the partnership and is complemented by results of the latest Biennial Monitoring Report of the partnership.[1] In addition, 8 interviews with 10 partnership members and stakeholders[2] were performed until May 2023 to gain deeper insights and validate the findings of the analysis. The interviews followed a semi-structured, exploratory approach based on guidelines referencing the evaluation questions in focus.

The data collection process for the partnership evaluation comprised two phases, incorporating information from both H2020 and the initial phase of the partnerships in Horizon Europe. The primary data collection was concluded by July 2023. Supplementary data from the forthcoming Biennial Monitoring Report 2024 was incorporated in December 2023. Due to the short runtime of the Horizon Europe Partnerships, it is noteworthy to bear in mind that many of the partnerships' activities are still ongoing and have not yet been fully accomplished.

[1] BMR-Survey Data 2023 received from EC.
[2] These interviews were conducted with representatives from the European Commission, the EIT, the InnoEnergy headquarters, Thematic Leaders, the Supervisory Board, as well as firms where EIT InnoEnergy holds participations (financial assets).

## 3.3. Limitations

Publicly available information on the partnership is mainly available through its website, where selected stakeholders' statements are placed visibly. However, systematic evidence regarding the satisfaction of stakeholders such as start-ups supported and students participating in the educational programmes was not available or only to a limited extent. Such evidence, if made accessible and available in a detailed, objective, and structured manner, would have been able to support this evaluation.

In addition, while the website provides an overview of the shareholders, an overview of the value of the shares is not transparent and was not available for this evaluation. Similarly, information on supported start-ups is only available at an aggregated level in the KPI reporting[3]. More detailed evidence on business development indicators of beneficiaries, especially of start-ups, would be desirable.

# 4. Background of EIT InnoEnergy

The European Institute of Innovation and Technology (EIT) was established in 2008 to develop attractive conditions for investment in knowledge and innovation to boost competitiveness, growth and jobs in the European Union.[4] The partnership EIT InnoEnergy was founded in 2010 as one of the first three KICs, the Knowledge and Innovation Communities (EIT InnoEnergy, EIT Climate-KIC and EIT-Digital), as the key instruments within the EIT. As such, EIT InnoEnergy was established as a long-term partnership integrating the knowledge triangle (research, innovation, and education) to link the full innovation cycle from education and knowledge creation to new market opportunities and business creation. This positioning was endorsed by the first EIT Impact Assessment[5], which highlighted the EU´s Horizon 2020 challenges: i) a poor record of developing, attracting and retaining talented individuals, ii) a fragmented innovation system, iii) the underutilisation of existing research strengths in terms of realising economic or social value, and iv) a low level of entrepreneurial activity, particularly in establishing potential high-growth businesses and capturing the value of research and innovation outputs.

The EIT´s Strategic Innovation Agenda for H2020 states that "setting up the three initial KICs has involved a substantial 'learning by doing'"[6].Thus, some leeway has been given to each KIC to organise its partnerships since no two KICs were considered the same in terms of their characteristics, including their size and organisation. This offered a variety of innovation models, whereby business was expected to play a strong role in realising the KICs' activities and investment as well as long-term commitment from the business sector should be realised.

EIT InnoEnergy adopted a **business approach** that is multidisciplinary, European, and systemic. As such, it follows a set of guiding principles: i) a balanced representation of research, higher education, and business in the shareholding structure; ii) clear segregation

[3] See, e.g., EIT InnoEnergy Impact Report 2020. https://www.innoenergy.com/media/6454/eit_innoenergy_impact_report_2020.pdf

[4] EIT 2017. EIT: Our Impact from 2010 to 2016. European Institute of Innovation and Technology (EIT). 11983.EIT.2017.I.JP

[5] EC 2011. Executive Summary of the Impact Assessment Integrating ex-ante evaluation requirements. Commission Staff Working Paper. SEC(2011) 1434 final.

[6] EU 2013. Strategic Innovation Agenda of the European Institute of Innovation and Technology (EIT): the contribution of the EIT to a more innovative Europe. DECISION No 1312/2013/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 11 December 2013.

of duties at the shareholder, the governance, the operational and the beneficiaries' level; iii) central Business Line strategies and Thematic Field Roadmaps operationalized at the local level across Europe; iv) full openness of the partnership for partners and beneficiaries of the KIC funding based on open innovation and mutual trust; and v) allowing for not only project-based interactions but commercial ambitions in each sector of activity.

From the very start, EIT InnoEnergy has pursued a credible plan to achieve financial sustainability after the EIT financing period, which will end in 2024. EIT InnoEnergy has shown concrete achievements in terms of switching to business activities and is considered a role model for the EIT KICs by representatives of both the EIT and the European Commission. Today, EIT InnoEnergy plays the role of a long-term strategic investor in the first place, creating a sustainable revenue stream from these investments, whereby all profits are reinvested. Clear organisational structures were established with shareholders from industry and research and led by a Chief Executive Officer (CEO). EIT InnoEnergy departed from the traditional multi-beneficiary approach and followed a business logic for the strategic planning of its activities. Equipped with its legal status[7], EIT InnoEnergy was set up for 7+7 years with support from EIT under H2020 and is now a public-private partnership under Horizon Europe (EIT KIC). From early on, EIT InnoEnergy´s long-term strategy has been the achievement of financial sustainability, envisaging the planned phase-out of institutional funding by 2024.

## 4.1. Objectives, Activities and Intended Results

According to its Strategic Agenda 2021-27, EIT InnoEnergy's **vision** is to be the "leading engine for innovation and entrepreneurship in sustainable energy".

Since its foundation in 2010, the **mission** of EIT InnoEnergy has been to contribute to a more sustainable world by fostering the energy transition. In its own words, the mission of EIT InnoEnergy is "to build a sustainable, long-lasting operational framework among the three actors of the knowledge triangle in the energy sector: industry, research and higher education, and to ensure that this integration ofthe three is more efficient and has a higher impact on innovation (talent, technology, companies) than the three standing alone". Thereby, the partnership aims to "increase European sustainable growth and competitiveness; reinforce the innovation capacity of the EU Member States; and create the entrepreneurs of tomorrow and prepare for the next innovative breakthroughs"[8].

EIT InnoEnergy is targeting two key **European Societal Challenges** the one hand, Energy and Climate, by decreasing the GHG emissions cost of energy (focusing on renewables deployment as the most affordable technology, so lowering the LCOE -Levelized Cost of Energy) and increasing the operability of the energy system (storage is the game changer for the transition to renewables), and on the other hand, Economy and Society, with job creation (or maintenance), growth, increase competitiveness of European value chains. The EIT InnoEnergy strategy and mission are fully aligned with and serve the **Sustainable Development Goals** outlined in the 2030 Agenda for Sustainable Development, the SDGs #4 (Quality in Education), #7 (Affordable and clean energy), #8 (Economic Growth), #9 (Industry, Innovation and Transformation), #11 (Sustainable Cities and Communities), #12 (Responsible Production and Consumption) and #13 (Climate Action).[9]

[7] EIT InnoEnergy S.E., Registration Authority Entity ID: 51418886. Legal jurisdiction: Netherlands.
[8] The EIT at a glance. https://eit.europa.eu/sites/default/files/EIT_Brochure.pdf
[9] EIT InnoEnergy Strategic Agenda 2021-2027. https://www.innoenergy.com/media/6400/eit-ie-strategic-agenda-2022-2024.pdf

The **strategic objectives of EIT InnoEnergy** are in line with its dedicated business approach, viewing all its activities as investments in assets that support the Energy Transition[10]. This orientation has not substantially changed (spanning the years before the integration of the EIT into the EU Framework Programme under H2020 and Horizon Europe). These strategic objectives are to **reduce the cost of energy, to increase energy security, and to reduce greenhouse gas emissions**. For the period transcending the contracted KIC funding coverage, EIT InnoEnergy has reaffirmed its strategic objectives[11] to secure a culture of systemic innovation based on individuals (game changers) beyond institutions and political/regulatory tempos.

Thus, EIT InnoEnergy aims to become the preferred **trusted knowledge ecosystem,** "the go-to" for impact-minded innovators in the EU and the US. At the same time, the partnership should be **financially independent**, reaching a financial model creating 2€ value from 1€ cost, creating 100+ supported **venture landings**, and establishing 10 products/companies as **world leaders**. At the European level, EIT InnoEnergy secures the long-term strategic sustainability of **three strategic European value chains** (batteries, hydrogen, and solar photovoltaics) and maintains a network of local operational EIT InnoEnergy Hubs: The **EIT Regional Innovation Scheme (EIT RIS)** is designed for EU Member States and Horizon 2020 Associated Countries in Europe who are modest and moderate innovators, and where Innovation Communities have few or no partners. Strategically, the scheme is an additional offer to these countries to facilitate their engagement with the EIT Innovation Communities.

The **main expected outcomes of the partnership** support the European energy innovation ecosystem by bringing sustainable innovations to the market in a permanent pipeline. They are reported in the respective key performance indicators (KPI).

- **Innovation Projects** focus on producing incremental – and a few disruptive – innovations (technological, business model or social) that contribute to the energy strategic objectives (KPIs: New/improved products, services or processes launched onto the market; Knowledge transfers/adoptions: patents, copyrights, service contracts).

- **Entrepreneurship support services** support business creation where innovative high potential start-ups are created and grown (KPIs: Ideas incubated; Start-ups or Spin-offs created; revenues generated by the supported assets).

- **Education programmes** comprise a Specialized Master School which creates the future game changers (CXOs of leading companies) in sustainable energy (KPIs: Masters and (former) PhD programmes and graduates over time)

The outputs of partnership activities are intended to i) improve investment and accelerate the growth of supported start-ups and spin-offs, ii) increase investments attracted by supported ventures, iii) rise revenues generated by the supported innovation activities, iv) encourage and assist students to lead or to work in new ventures, and v) bring new products and services on the market that contribute to the decrease of GHG emissions.

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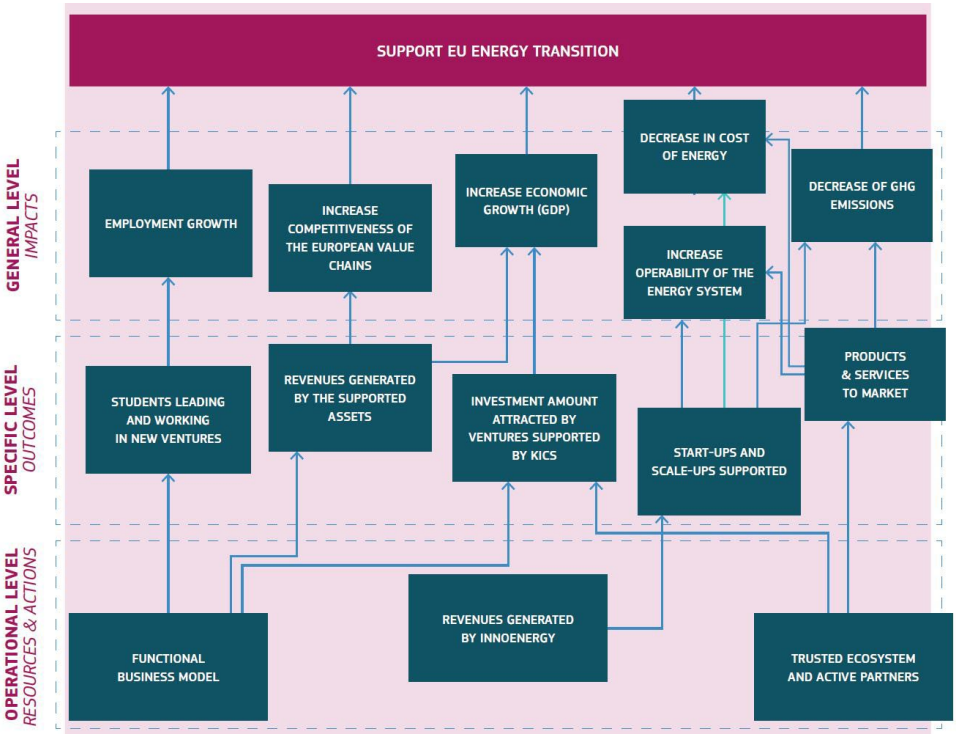
[10] Serkine, P. and D. Pavía (2018). The Energy transition & the European Innovation ecosystem. A case study: EIT InnoEnergy. Papeles de Energía 5: 7-52. https://www.funcas.es/wp-content/uploads/Migracion/Articulos/FUNCAS_PE/005art02.pdf

[11] EIT InnoEnergy Strategic Agenda 2021-2027, p13. https://www.innoenergy.com/about/policy-and-standards/strategic-agenda-2021-2027/

## 4.2. Intervention Logic of EIT InnoEnergy

The 2017 interim evaluation of the EIT[12] has highlighted the specificities of the KICs with respect to their integration in the knowledge triangle and their impact dimensions. This underlines the importance of partnership-specific intervention logic to analyse Partnership Specific Impact Pathways (PSIPs)[13]. Figure 1 illustrates the PSIP for EIT InnoEnergy, relating its resources and actions at the operational level to the specific level outcomes and to the general level impacts on the energy transition of the EU. Corresponding Key Performance Indicators (KPIs) are given in Figure 8 in Annex 10.1.

Figure 1. EIT




InnoEnergy Partnership Specific Impact Pathway.[14]

## 4.3. Governance and Operations

EIT InnoEnergy was established in 2010 as a commercial company in the Netherlands (KIC InnoEnergy SE), brand name EIT InnoEnergy and the ownership and strategy reside in the shareholders. As of today, EIT InnoEnergy comprises 35 shareholders, balanced across the

[12] EC 2017. Evaluation of the European Institute of Innovation and Technology (EIT). Final Report. European Commission Directorate-General for Education, Youth, Sport and Culture. DOI:10.2766/945203.
[13] EC 2022. Performance of European Partnerships: Biennial Monitoring Report (BMR) 2022 on partnerships in Horizon Europe. Brussels, Directorate-General for Research Innovation, Directorate G – Common Missions & Partnerships Service. https://ec.europa.eu/research-and-innovation/sites/default/files/bmr-2022/ec_rtd_bmr-2022-eit-innoenergy-fiche.pdf
[14] Biennial Monitoring Report 2022 on Partnerships in Horizon Europe, p.380. https://ec.europa.eu/research-and-innovation/en/knowledge-publications-tools-and-data/interactive-reports/performance-european-partnerships-2022

knowledge triangle – higher education, research, and business[15]. The business model of EIT InnoEnergy does not imply that shareholders receive dividends. The list of shareholders is given in Table 3 in Annex 10.1. The EIT InnoEnergy partnership governance model consists of three main bodies:

- The **General Assembly**, where the shareholders (owners of the company) meet formally every June to i) approve the financial statements of the previous year, ii) appoint/dismiss Supervisory Board members, iii) take resolutions on company framework (not on operations per se) as per the GPA (General Partnership Agreement), iv) sanctioning the strategic evolution of the company proposed by the Supervisory Board. The General Assembly meets extraordinarily when matters are required.

- A **Supervisory Board**[16] with 13 members appointed/dismissed by the General Assembly meet at least 4 times a year (every two weeks during the Corona pandemic) to 1) approve the Business Plan for the upcoming year, 2) supervise the implementation of the Business Plan and give guidance to the Executive Board, 3) proposing evolutions of the company strategy to the shareholders and, upon proposal from the Executive Board, appointing/Dismissing the CEO. The Supervisory Board does not get involved in operational decisions to secure a clear separation of duties.

- An **Executive Board**[17] with 10 members, including one CEO, one CFO, one Innovation Director, one Education Director, and 6 directors for the EIT-Offices responsible for Central Europe, DACH-Region, Benelux, France, Scandinavia, and Iberia. It is responsible for running the operations, securing the targets for the year and the upcoming periods, securing the implementation of the Business Plan, and proposing evolutions of the strategy to the Supervisory Board.

Furthermore, with respect to the management activities of EIT InnoEnergy´s investment portfolio, committees are in place that are responsible for remuneration, audit, and investment.

The **executive and operational management** of the EIT InnoEnergy company consists of three layers and extends geographically across Europe [18].

- A **central functional management layer**, represented by EIT InnoEnergy SE, defines and implements Business Lines (Education and Business Creation) as well as management and operations functions (finance, legal, ICT, marketing). EIT InnoEnergy is managed through 13 regional offices in Benelux, Central Europe, France, Germany, Iberia, Scandinavia and the United States (Boston).

- A **pan-European thematic layer** comprises seven Thematic Fields, where strategies for each respective field are created and translated into roadmaps and where the innovations are actively hunted, assessed, and selected through the centrally managed innovation selection processes.

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[15] InnoEnergy Website. https://bc.innoenergy.com/ecosystem/
[16] InnoEnergy Website. https://www.innoenergy.com/about/eit-innoenergy-team/supervisory-board/
[17] InnoEnergy Website. https://www.innoenergy.com/about/eit-innoenergy-team/executive-board/
[18] EIT InnoEnergy Strategic Agenda 2021-2027, p.27, https://www.innoenergy.com/uploads/2023/01/eit-ie-strategic-agenda-2022-2024.pdf

- A **local execution management layer** is represented by six Co-Location Centres (CLCs). They are responsible for the account management of key partners and relations with all other local partners as well as stakeholders within the geographical area of the CLC; for the management, execution and supervision of pan-European innovation programs across education, innovation and business creation, where the (leading) partner or entrepreneur is located with the Co-Location geography; generating the different revenue streams that secure the financial sustainability of the partnership, and for running EIT InnoEnergy Hubs, local offices in-line with its geographical or thematic nexus.

EIT InnoEnergy Hubs are operated by ambitious partners who are looking to build their local position, strengthen their business model and become a leading actor in the local ecosystem by playing a role in EIT InnoEnergy´s European Network. Yearly, EIT InnoEnergy issues an open call for EIT InnoEnergy Hubs. Currently, EIT InnoEnergy Hubs exist in the Czech Republic, Greece, Hungary and Türkiye. Their scope is to identify, develop, and support promising ideas, start-ups and entrepreneurs, to provide access to EIT InnoEnergy services, to host and promote co-branded events, to perform innovation capacity building services and pre-acceleration programmes, actively promote EIT InnoEnergy Business Model and participate in the local ecosystem and perform local business development services and support sales channels for EIT InnoEnergy portfolio.

# 5. Implementation State of Play

The partnership is conceived as a dynamic and flexible ecosystem (for a network representation, see Figure 10 in Annex 10.2), run by a team of about 200 people. It represents a network of i) main institutional partners from research and technology, comprising top research institutes and technical and business universities, ii) technology, innovation and business partners (more than 1,200 partners and 2,800 EIT InnoEnergy Community members), iii) an educational segment currently comprising almost 500 students and more than 1,600 alumni from the Masters programmes, and iv) the business segment, supporting 500+ start-ups, facilitating access to 100 green venture capital firms.

Through this network, entrepreneurs gain direct access to some of the most important investment executives and increase their chances of succeeding when raising funds (15% success rate vs. an average of 2%, as reported by EIT InnoEnergy[19]). Most importantly, in view of the business orientation of the partnership, EIT InnoEnergy acts as a strategic, long-term investor itself, holding equity in a portfolio of 200 companies, which represent the core assets of the future business model of the partnership after the termination of EIT funding in 2024. [20]

## 5.1. Partnership Structure

As a KIC within EIT, EIT InnoEnergy´s contractual agreements are defined in a long-term cooperation agreement with the EIT and formalised within a seven-year Framework Partnership Agreement (FPA). The specific grant agreement (GA) is the contractual instrument through which the EIT awards, on an annual basis, a grant to EIT InnoEnergy for the implementation of its KIC Business Plan. The partnership is represented by the KIC Legal

[19] EIT InnoEnergy Impact Report. https://tbb.innoenergy.com/wp-content/uploads/2018/10/InnoEnergy-Impact-Report.pdf
[20] EIT InnoEnergy Website. https://www.innoenergy.com/for-innovators/ecosystem/; last accessed 17 Oct 2023.

Entity (KIC LE), represented by KIC InnoEnergy SE, and must be empowered by the appropriate KIC governance body (e.g., Supervisory Board, General Assembly) to conclude the agreements with the EIT. The partners access the KIC through Internal Agreements between the EIT InnoEnergy SE and each KIC Partner.

EIT InnoEnergy is an open partnership under EIT, i.e., partners from all sectors can access the partnership by answering the annual open calls and proposing innovative activities that, upon meeting the eligibility, assessment and evaluation criteria, become part of the KIC Business plan. In terms of the sectoral distribution in 2022, 50.5% of partners are SMEs, 26% come from industry, 13.5% are university organisations, 7% are public research organisations and 1% are research funders. Non-profit organisations and state-companies account for 2% of partners.


Figure 2: EIT InnoEnergy partners per type of organisation[21]

The partner base of EIT InnoEnergy has continued to grow during the past years, actively managed by the central facility in Eindhoven, 6 Co-location Centres (CLCs) and 13 EIT RIS Hubs[22] across Europe. According to the Biennial Monitoring Report 2022, EIT InnoEnergy gathered a total of 578 partners from 31 countries.

Geographically, the partnership spans almost all EU Member states and is extending its reach to the US, Israel, and Türkiye. The focal area of activities is Western Europe, first and foremost, in France, Germany, The Netherlands and the Iberian Peninsula but also Sweden. Following the EIT Regional Innovation Scheme (EIT RIS),[23] considerable attention to networking and support activities is also laid on CEE countries with a weaker innovation performance with a need to catch up in the green transition endeavour: About 15% of EIT InnoEnergy´s partners are from CEE RIS countries, and among those, the majority is located in Poland (Figure 11 in Annex 10.2).

[21] Biennial Monitoring Report 2022 on Partnerships in Horizon Europe, p.382. https://ec.europa.eu/research-and-innovation/en/knowledge-publications-tools-and-data/interactive-reports/performance-european-partnerships-2022

[22] EIT InnoEnergy Strategic Agenda 2021-2027, pp 22-. https://www.innoenergy.com/about/policy-and-standards/strategic-agenda-2021-2027/

[23] EIT RIS countries are several EU Member States (Bulgaria, Croatia, Czechia, Estonia, Greece, Spain, Italy, Cyprus, Latvia, Lithuania, Hungary, Malta, Poland, Portugal, Romania, Slovenia, Slovakia) and Horizon Europe associated countries (Albania, Armenia, Bosnia and Herzegovina, Faroe Islands, Republic of North Macedonia, Georgia, Moldova, Montenegro, Serbia, Türkiye, Ukraine).

## 5.2. EIT InnoEnergy's Service Provisions

In its integrative role in the knowledge triangle, EIT InnoEnergy provides a wide set of services for a broad spectrum of stakeholders.

I. For **industry**, EIT InnoEnergy provides services for tailored access to helping corporates with the energy transition by providing commercially viable products and services, professional courses, reports and publications on energy technologies, trends and challenges.

II. For **innovators**, EIT InnoEnergy connects ideas and industry, innovators, and business partners to decrease the time to market innovative products, services, and solutions that have high commercial potential. It facilitates investment, helping to identify market needs and potential customers and provides investment funding.

III. For **start-ups and scale-ups**, EIT InnoEnergy aims to boost the success rate of start-ups, power the growth of scale-ups and SMEs and help corporates to de-risk their innovation strategies for new business development. EIT InnoEnergy acts as a broker and risk funder for start-ups and scale-ups.

IV. For **students and learners**, EIT InnoEnergy provides Professional Learning Courses and specialised tertiary education courses (Master School+ and the InnoEnergy Skills Institute) that combine engineering and technical knowledge with commercial awareness and entrepreneurial spirit for the workforce, addressing the sustainable energy revolution and achieve a sustainable European energy industry.

## 5.3. Activities and Investment Portfolio

EIT funding is intended to leverage and align KIC partners and resources towards innovation in a multi-annual perspective. Hereby, the financing principles and procedures for implementation – common to all KICs – foresee that EIT funding, on average, cannot exceed 25% of a KIC's overall funding, which means that the remaining minimum 75% must come from non-EIT sources[24], i.e., KIC partners' resources, public funding at national, regional and EU level, such as Structural Funds, or the EU-FPs.


Figure 3: The EIT funding model for KICs

**EIT InnoEnergy´s partnership activities** are represented by so-called KIC Added Value Activities (KAVA). Individual KAVAs may be financed up to 100% by the EIT financial contribution and contribute to the integration of the knowledge triangle including establishment, administrative and coordination activities of the partnership. The distribution

[24] EIT 2014. Principles for financing, monitoring and evaluating KIC activities
https://eit.europa.eu/sites/default/files/EIT-Principles-financing-monitoring-evaluating-KIC-activities.pdf

of EIT funding between different activities, as well as co-financing rates, is the KIC's responsibility, given the overall compliance with the funding model presented in Figure 3. The EIT sets the amount of its financial contribution for the proposed KIC Business Plan.

Funding data for the EIT co-funded activities of the partnership (KAVA) by source of funding clearly reflect the increasingly successful business orientation of EIT InnoEnergy (Figure 4): From 2016 to 2020, the data show a sustainable growth in overall funds. Hereby, the EIT funds represent by far the major share of activities until 2020. However, despite continuously growing partners´ and others´ investments, 2021 saw a dent in overall funds, resulting from a major reduction in EIT funds that KIC partners could not fully compensate. Thus, partners´ investments took over the lead in overall KAVA investment for this year. The figures indicate a strong upward trend in KAVA funding from the KIC partners, while funding from other sources (mainly public funds from the national level) plays a minor but stable role. The corresponding figures are presented in detail Annex 10.2, Table 4.

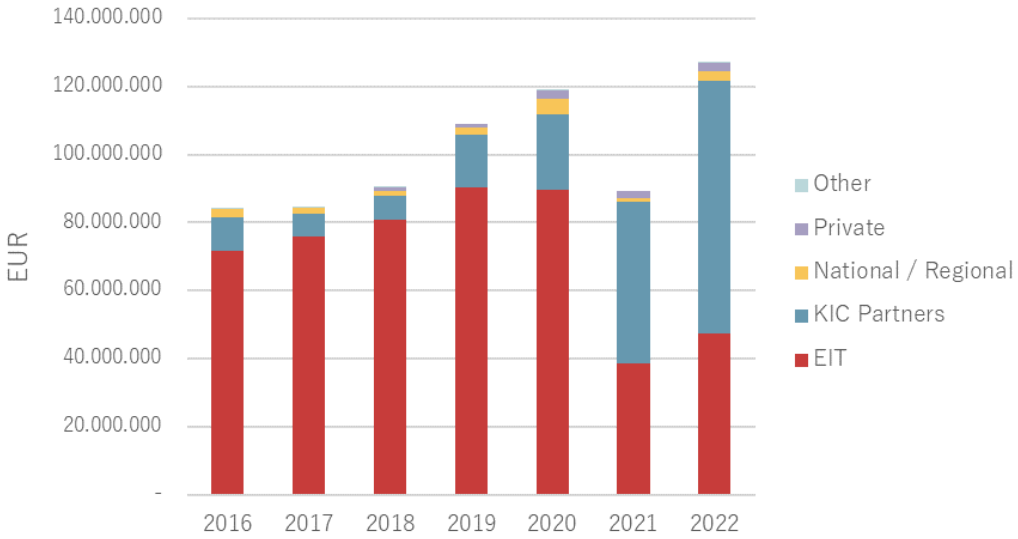


Figure 4: Funding for EIT InnoEnergy KAVA by source of funding, 2016-2022

Source: Data provided by EIT. Own calculation.

It should be noted that EIT InnoEnergy also reports on Non-EIT funded KIC activities – partners' activities with a link to at least one KAVA but not financed from the EIT contribution. Until 2020, these activities were accounted for as KIC Complementary Activities (KCAs). The KCAs had to be incurred by the KIC LE (EIT InnoEnergy SE) or by a KIC partner and be proportionate to the cost of KAVA and/or to the expected impact in furthering the mission of a KIC. KCA data are not included in Figure 4 and Table 4 (Annex 10.2).

From 2021 onwards, a modified funding model has been implemented, introducing Non-EIT Funded Activities (NEFAs). Still – like KCAs – NEFAs are activities that are fully implemented without any EIT funding; they may be completely self-funded by the KIC or funded by other EU programmes, regional funds, etc., and must comply with the same operational principles as EIT Funded Activities. However, the NEFA funding model introduces formally decreasing funding rates with the objective that over time, the EIT-financed parts of any KIC activities

are replaced by the KIC's revenues and funds from third parties to maintain activities. The overall goal is that KIC's innovation ecosystem becomes financially sustainable and no longer requires EIT funding to carry out its activities at the latest in year 15[25]. For 2021 and 2022, NEFA data are included in Figure 4 and Table 4 (Annex 10.2).

KAVA funding data by type of activity also underline the increasing business orientation of EIT InnoEnergy (Figure 5). Until 2019, innovation and research activities comprised the largest share, with an increasing path following the overall growth of the KIC. From 2020 onwards, this trend is sharply inverted: innovation and research activities decrease steadily in absolute terms, despite a further increase of total KAVA funds. The drivers for the overall growth of KAVA funds are entrepreneurship activities, increasing their share from 18% in 2016 to 26% in 2022, and communication, dissemination and outreach activities, which grow from 1% in 2016 to 32% in 2022. Thus, business-oriented activities account for a share of 58% of total KAVA funds in 2022. In comparison, KIC management, educational activities, and the funds for the Regional Innovation Scheme (EIT RIS) remain stable. The detailed numbers can be found in Annex 10.2, Table 5.

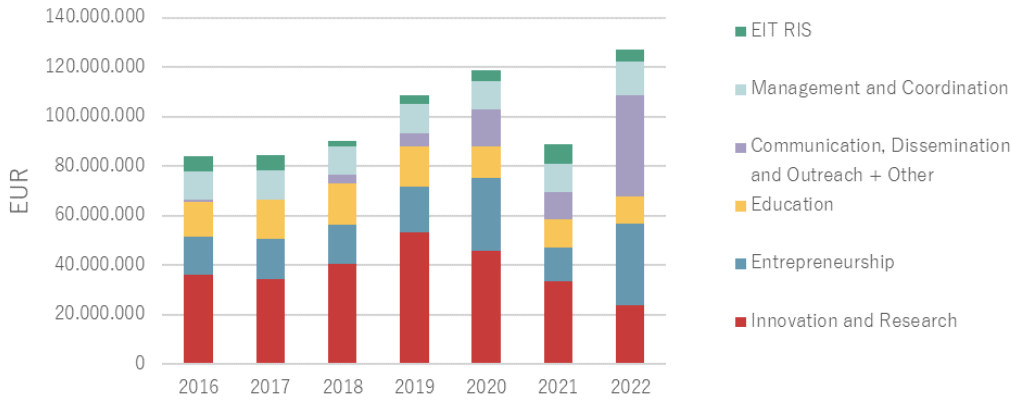


Figure 5: Funding for EIT InnoEnergy KAVA by type of activity, 2016-2022

Source: Data provided by EIT. Own calculation.

The success of EIT InnoEnergy´s business strategy is also reflected by the high share of KAVA co-funding on the part of its business partners, which (for instance, in 2022) is significantly higher than with its higher education partners. In terms of geographic outreach, EIT InnoEnergy exhibits quite extensive distribution across countries, which has remained quite stable over the years (with 22-25 countries where its partners are located; see Table 6 in Annex 10.3). In line with EIT InnoEnergy´s strong business-oriented strategy, however, the majority of partners are concentrated on a small number of countries that can be classified as strong innovator countries. Moreover, the number of its partners has continually decreased from 217 partners in 2016 to 86 partners in 2022, whereby the number of countries covered has not been reduced. At the same time, these partners increasingly tend to participate in multiple KAVAs (from 1.7 to 2.2 participations on average, from 2016 to 2022).

[25] Annex 12 – NEFA guidelines. https://eithealth.eu/wp-content/uploads/2022/09/Annex-13_NEFA-guidelines.pdf

**Table 1: Funding of EIT InnoEnergy by country of participant, Top10 countries 2014-2022**

| Country | Total | | Excl. KIC LE and CLCs | |
|---|---|---|---|---|
| | EUR | % of KIC | EUR | % of KIC |
| NL NETHERLANDS | 363,170,199 | 43% | 54,891,045 | 10% |
| SE SWEDEN | 141,408,018 | 17% | 141,408,018 | 26% |
| FR FRANCE | 91,692,347 | 11% | 91,692,347 | 17% |
| DE GERMANY | 72,352,863 | 9% | 72,352,863 | 14% |
| ES SPAIN | 45,650,111 | 5% | 45,650,111 | 9% |
| PL POLAND | 32,113,246 | 4% | 32,113,246 | 6% |
| BE BELGIUM | 14,754,871 | 2% | 14,754,871 | 3% |
| EE ESTONIA | 10,101,702 | 1% | 10,101,702 | 2% |
| PT PORTUGAL | 9,841,584 | 1% | 9,841,584 | 2% |
| US UNITED STATES | 8,764,029 | 1% | 8,764,029 | 2% |

Source: Data provided by EIT. Own calculation.

In line with these findings, also total funding attributed to EIT InnoEnergy (2014-2022) is concentrated on a small number of countries: With the KIC LE included (located in the Netherlands, with all central infrastructure costs of the partnership), the Top 5 recipient countries (The Netherlands, Sweden, France, Germany and Spain) account for 85% of all EIT InnoEnergy funds. Excluding the funds for KIC LE and Co-location Centres, the largest shares of total funds account for Sweden (26%), France (17%) and Germany (14%) (Table 1).

A cross-country analysis of funding for KAVA shows that the strong innovator countries are by far in the lead. For instance, comparing the EIT contribution requested in 2022 with co-

funding from a country, the highest sums of co-funding could be mobilized in France, Germany, Sweden and The Netherlands (see Annex 10.3, Figure 13).[26]

Interorganisational collaboration reflects the intensity of knowledge exchange among partners in innovation and is at the core of the KICs. Collaboration frequencies in EIT InnoEnergy are not as abundant as in comparable KICs and can be attributed to its strong orientation towards business activities, such as firm creation and growth. Nevertheless, the co-participations in KAVAs exhibit a dense collaboration network among partners from the EU-14 (EU member states prior to 2004), especially from The Netherlands, France, Spain, Sweden and Germany (Figure 14 in Annex 10.3). The younger EU member states and associated states among CEE countries are less well connected. Likewise, a sectoral perspective on collaborations in KAVAs sheds light on both the activity level and the collaboration structure between the business, higher education, research and regional sectors. In 2021-2022, we identified 72 business partners of EIT InnoEnergy, participating 88 times in EIT InnoEnergy KAVAs. Their most frequent collaboration partners are universities (103 collaborations), other businesses (74 collaborations), the KIC LE or CLCs (33 collaborations), research organisations (15 collaborations), and 4 collaborations with cities, regions or NGOs. A depiction of the sectoral collaboration network is given in Figure 15 in Annex 10.3.

A core element of EIT InnoEnergy´s business strategy is to be a risk investor in green startups and additionally to support them with technological, innovation ecosystem and business expertise. Currently, **EIT InnoEnergy's investment portfolio** comprises 200 companies, three of which are unicorns (start-ups with a valuation of over 1M€ worldwide),[27] for instance, the battery start-up Northvolt[28]. This portfolio of companies spans across the energy sector (generation, transmission and distribution) and sectors of energy use (industry, transport and buildings) (Figure 6). The distribution of EIT InnoEnergy´s investments in products is distributed across the Thematic Fields as described in Table 7 in Annex 10.3.


Figure 6: EIT InnoEnergy´s assets across the value chain[29]

Source: EIT InnoEnergy.

Across the energy value chain (generation, TSOs, DSOs, ESCOs, aggregators, pools, municipalities, etc.), EIT InnoEnergy has established a trusted innovation ecosystem of partners spanning utilities, equipment manufacturers, research institutes, universities, venture capital firms, business angels, business schools, and covering all energy carriers

[26] Note that Figure 13, Figure 14 and Figure 15 have been calculated based on EIT InnoEnergy data on KIC added value activities covering the reporting year 2022 and excluding the entity EIT InnoEnergy itself.
[27] EIT website. https://eit.europa.eu/news-events/news/eit-innoenergy-secures-over-eur-140-million-private-placement-round
[28] InnoEnergy website. https://www.innoenergy.com/news-events/northvolt-275-billion-capital-raise-another-milestone-in-industrial-ramp-up-to-achieve-european-green-deal-says-eit-innoenergy/
[29] EIT InnoEnergy Strategic Agenda 2021-2027, p.5, https://www.innoenergy.com/uploads/2023/01/eit-ie-strategic-agenda-2022-2024.pdf

(heat, electricity, gas, biofuels)[30]. Hereby, both incumbent players and their challengers are supported in the green transition.

EIT InnoEnergy (re-)focuses its activities on a core set of Thematic Fields, adapting to changes in the energy market and energy policy (especially the European SET-Plan). Under the first programming period (2010-16), EIT InnoEnergy provided services structured around eight Thematic Fields, while the current activities (2017-24) span seven Thematic Fields (Table 2).

**Table 2: EIT InnoEnergy Thematic Fields**

| Programming period 2010-2016[31] | Programming period 2017-2024[32] |
|---|---|
| Smart Cities and Efficient Buildings | Smart and efficient buildings and cities |
| Energy Efficiency | Energy efficiency |
| Storage | Energy storage |
| Renewables | Renewable energies |
| Smart Grids | Smart electric grid |
| Clean Coal & alternative fuels Technologies | Energy for transport and mobility |
| Energy from Chemical Fuels | Energy for circular economy |
| Convergence Nuclear-Renewables | |

Source: EIT InnoEnergy.

**Financial sustainability** has been a target of EIT InnoEnergy from its outset in 2010. All the investments done by EIT InnoEnergy have a Return of Investment (ROI) agreement signed between the beneficiary of the investment and EIT InnoEnergy. EIT InnoEnergy only invests in (business) cases where the delivered innovation (technological, social or business model) will have a potential impact in one of three energy KPIs (decrease the cost of energy, decrease GHG emissions and increase the operability of the energy system) with subsequent expected socioeconomic impact in three main KPIs (creation or maintenance of jobs, growth and increase of European competitiveness).

In purely financial terms, EIT InnoEnergy is a risk investor, so these ROI agreements are only “called” when the innovation is successful, so there is a logic of risk sharing and success

[30] Serkine, P. and D. Pavía (2018). "The Energy transition & the European Innovation ecosystem. A case study: EIT InnoEnergy." Papeles de Energía 5: 7-52. https://www.funcas.es/wp-content/uploads/Migracion/Articulos/FUNCAS_PE/005art02.pdf
[31] Serkine, P. and D. Pavía (2018). The Energy transition & the European Innovation ecosystem. A case study: EIT InnoEnergy. Papeles de Energía 5: 7-52. https://www.funcas.es/wp-content/uploads/Migracion/Articulos/FUNCAS_PE/005art02.pdf
[32] EIT InnoEnergy Annual Review 2022. https://issuu.com/innoenergy/docs/eit_innoenergy_annual_review_2022

sharing. This principle is applied to all investments and is very clear and welcome by the partners of the ecosystem.

The EIT InnoEnergy financial sustainability plan for 2027 includes revenue from a variety of sources. EIT funding (which is not expected to vanish completely after 2024 because of EU-mandated activities in the future) will be substantially reduced to 25m€ in 2027, while income from ROI and equity exits will account for a major part of the revenues. Education, consulting services and membership fees are expected to contribute at a lower but steady level. Overall, EIT InnoEnergy´s own revenues, which amounted to 21% of EIT funding in 2019, are planned to take over in 2023 and will further increase until 2027 to 729% of EIT funds, as expressed in InnoEnergy´s EIT FS coefficient[33] (Figure 16 in Annex 10.3).

## 5.4. Other Activities

In Horizon Europe, EIT InnoEnergy has received a mandate to pursue **innovation ecosystem activities** and is the driving force behind three European industrial alliances which were continued beyond Horizon 2020[34]:

- EIT InnoEnergy has been entrusted by the European Commission to drive forward and promote the **European Battery Alliance (EBA)** and the establishment of a European battery ecosystem[19]. EBA's goal is to build a strong pan-European battery industry to capture a new market worth EUR 250 billion a year in 2025. Today, EBA250 is a project-driven community which brings together more than 500 industrial and innovation actors, from mining to recycling, with the common objective of building a strong and competitive European battery industry. Activities of the alliance also include the EBA250 workshops.

- The **European Green Hydrogen Acceleration Center (EGHAC)** focuses purely on accelerating the uptake of green hydrogen in Europe. EGHAC was set up by the EIT InnoEnergy and Breakthrough Energy with the ambition 2025 to build a EUR 100 billion a year green hydrogen economy. The most urgent near-term priority of the EGHAC is to close the price gap between carbon-emitting technologies and green hydrogen.

- The **European Solar PV Industry Alliance** aims to re-develop a strong photovoltaic (PV) manufacturing industry in Europe across the entire value chain, from raw materials to recycling. EIT InnoEnergy is leading the alliance, which was launched by the European Commission in 2022. EIT InnoEnergy is joined by SolarPower Europe and the European Solar Manufacturing Council on the alliance's steering committee. The alliance aims to accelerate solar PV deployment in the EU by scaling-up to 30 GW of annual solar PV manufacturing capacity in Europe by 2025, facilitating investment, de-risking sector acceleration, and supporting Europe's decarbonization targets.

The **educational programs of EIT InnoEnergy**, for instance, the Master School, in cooperation with top universities, have successfully changed from a scholarship model to a payment model in 2016 and will continue to play an important role in the future. The EIT InnoEnergy Master School has attracted students from almost 100 countries and resulted in

[33] EIT InnoEnergy Strategic Agenda 2021-2027. https://www.innoenergy.com/media/6400/eit-ie-strategic-agenda-2022-2024.pdf
[34] InnoEnergy website. https://www.innoenergy.com/uploads/2023/01/corp_brochure_2021_b3.pdf ; https://www.innoenergy.com/about/about-eit-innoenergy/industrial-value-chains/

more than 1,600 graduates making an impact in the energy transition all around the globe. According to EIT InnoEnergy, 30% of students are female. Among graduates, 94% of students are employed within 6 months of graduation. The average annual salary of graduates is 15% higher than the earnings of similar graduates. On the 3rd of May 2023, the launch of theInnoEnergy Skills Institute was announced, an evolution of EIT InnoEnergy's European Battery Alliance (EBA) Academy, expanding to also include green hydrogen and solar photovoltaics (PV) value chains. The initiative offers training and development for workers, employers and communities. Alongside a subscription-based learning management platform tailored to business and industry, a selection of free courses is provided for individuals directly on EIT InnoEnergy´s website. The aim of the initiative is to reach more than 800,000 workers by 2025. Within the initiative, EIT InnoEnergy collaborates with NIIT, a global skills and talent development company, which provides various services, including onboarding, learning journey creation, training of teaching staff, and ensuring local training nuances are catered for.[35]

# 6. Findings

## 6.1. Relevance

The independent EIT evaluation of 2017[36] has concluded that the rationale behind the establishment of EIT InnoEnergy is still valid and that EIT InnoEnergy is highly relevant as it targets major structural weaknesses of the innovation capacities in the EU (in key thematic areas) such as the limited entrepreneurial culture, the low level of cooperation between academia and industry, and the insufficient development of human potential. The EIT InnoEnergy partnership stresses to be in line with and contribute to the objectives outlined in the European Commission Green Deal, which is at the core of the new Framework Programme from the European Commission Horizon Europe[37]. It contributes to several priorities of the Green Deal, including "the reduction of greenhouse gas emissions, the development of clean, affordable, and secure energy and creating an industrial future for Europe"[38].

The European Commission´s Green Deal, the global climate emergency and the EU 2030 Climate Target Plan have proposed to raise the EU's ambition to reduce greenhouse gas emissions to at least 55% below 1990 levels by 2030[39] and achieve climate neutrality by 2050. This underlines the very high and increasing relevance of EIT InnoEnergy´s energy transition mission, with a focus on entrepreneurship, new business creation and education. Furthermore, the activities of EIT InnoEnergy are strongly aligned with the measures of the REPowerEU plan published in May 2022, which respond to the urgency of ending the EU's dependence on Russian fossil fuels and tackling the climate crisis. They include energy savings, diversification of energy supplies, and accelerated roll-out of renewable energy. EIT InnoEnergy follows a systemic approach embedded in a long-term strategy that addresses the societal challenges outlined in the high-level policy objectives of the Paris Agreement on

[35] EIT InnoEnergy website. https://www.innoenergy.com/uploads/2023/05/EIT-InnoEnergy-launches-Skills-Institute-to-combat-significant-energy-transition-skills-gap.pdf
[36] EC 2017. Evaluation of the European Institute of Innovation and Technology (EIT). Final Report. European Commission Directorate-General for Education, Youth, Sport and Culture. DOI:10.2766/945203.
[37] EIT InnoEnergy Impact Report 2020.
https://www.innoenergy.com/media/6454/eit_innoenergy_impact_report_2020.pdf
[38] EIT InnoEnergy Strategic Agenda 2021-2027. https://www.innoenergy.com/media/6400/eit-ie-strategic-agenda-2022-2024.pdf
[39] 2030 Climate Target Plan - Climate Action. https://climate.ec.europa.eu/eu-action/european-green-deal/2030-climate-target-plan_en

Climate Change (2015) and the 2030 Agenda for Sustainable Development (2015), as described in the SRIA[40].

Flexibility in updating Strategic Innovation Agendas is key to maintaining the relevance of the activities of the KIC. At the outset of the EIT programme, EIT InnoEnergy was based on 100% public funding, acting as a technology fund, in line with the EIT´s mission. In line with its own business approach as a company and conforming with the strategic guideline to obtain financial sustainability after the 14-year funding period, EIT InnoEnergy started with commercialisation activities in a very fundamental way. This led to initial tensions with the expectations of the partners, who were used to the traditional grant application approach of the EU-FPs and not familiar with the strong orientation towards market success. Facilitated by the diversity of its public and private sector shareholders, this turn towards a stronger emphasis on investment activities took effect around 2014. In the current study, interviewees from the EC, as well as industry-related board members, conceived of EIT InnoEnergy as a significant success story related to its current revenue generation performance and financial sustainability prospects within the EIT. This transformation process of EIT InnoEnergy outlined in the EIT Strategy 2014-20 has been dynamic and has been reaffirmed in the EIT Strategic Innovation Agenda 2021-2027[18]. It is embedded in the governance structures and processes outlined in Section 4.3, Governance and operations. Moreover, according to interviewees from different EIT InnoEnergy management levels, strategy adaptation is not only a matter of explicit codification in SRIAs but is reconsidered continuously by the KIC management in everyday interactions with their stakeholders.

Flexibility has also been demonstrated in the educational sector and the innovation ecosystem services. While EIT InnoEnergy found it challenging to attract and integrate higher education partners, where a shift from scholarship to a payment model has been taken in the EIT InnoEnergy Master Programs, while the PhD School & Innovation Doctorate program was closed.

## 6.2. Coherence

The EIT KICs generally operate in coherence with i) other EU instruments, including missions and partnerships, ii) programmes from Annex IV of the HE regulation, and iii) national and regional initiatives, as detailed in this section below. EIT InnoEnergy is described by the interviewees as well-established within the policy environment in Brussels. The partnership pursues strong collaborations with the European Commission (DG ENER). The focus and type of activities of EIT InnoEnergy can be clearly distinguished from activities performed by other parts of the Framework Programme. EIT InnoEnergy covers the knowledge triangle of higher education, innovation, and entrepreneurship in a systemic manner, being a catalyst for innovative ideas and facilitating the creation of a European Innovation Ecosystem.

In 2020, the European Innovation Council (EIC) and the EIT signed a Memorandum of Understanding, making the commitment to further strengthen their collaboration in the provision of high-level support and services to European innovators, innovative SMEs and start-ups, higher education institutions, and research organisations. The alignment of EIT InnoEnergy with EU policies is extremely strong, especially with research and innovation policy, energy policy, as well as decarbonisation policies.

Within the Horizon Europe Architecture, the EIT InnoEnergy partnership is to be found within Pillar 3. Within the SRIA 2021-2027, the aim to optimize synergies and complementarity with

[40] EIT InnoEnergy Strategic Agenda 2021-2027. https://www.innoenergy.com/media/6400/eit-ie-strategic-agenda-2022-2024.pdf

other instruments is indicated. Topic-wise, there is a close thematic connection to Pillar Two (Global Challenges and European Industrial Competitiveness), primarily Cluster 5, Climate, Energy and Mobility (Figure 17 in Annex 10.4).

Concerning synergies with other partnerships, within its Strategic Agenda 2021-2027, EIT InnoEnergy indicated to plan coordinated joint activities with different types of partnerships, including EIT Digital, EIT Manufacturing, EIT Climate, Process4planet, the Clean Energy Transition Partnerships, BATT4EU, and Innovative SMEs[41]. Among those, coordinated and structured cross-KIC cooperation activities have already been established with EIT KICs Digital, Food, Health, Raw materials and Urban Mobility.[42] Interviewees highlighted the strong alignment of goals and strategies. Evidence gathered from interviews suggests that, while sharing goals and strategies, the EIT InnoEnergy lacks synergies with other EU partnerships in implementing its activities. Due to the unique business orientation of EIT InnoEnergy, the possibility of exploiting synergies in the implementation of activities has been described as more limited for EIT InnoEnergy than for other partnerships. The EIT evaluation report 2017, for instance, just reports that InnoEnergy has had seven contracts since 2012 with Commission services (DG ENER and DG RTD)[43].

EIT InnoEnergy follows synergetic activities supporting the EU´s industrial policy and takes industries of strategic importance for Europe into its focus. Interviewees described EIT InnoEnergy as a pioneer in setting up industry alliances with a particular focus on hydrogen, solar energy, and batteries (for details, see Section “Other activities”). In this vein, EIT InnoEnergy has been mandated to be the driving force behind three European industrial alliances, namely the European Battery Alliance (EBA), the European Green Hydrogen Acceleration Center (EGHAC) and the European Solar PV Industry Alliance, as described in Section 5.4 (Other activities).

Further complementary and cumulative funding is intended to come from the Innovation Fund (1% of the total partnership budget) and the European Social Fund Plus (ESF+), whereby 0.1% of the partnership budget was envisaged and has already been realised as of August 2023. Additional benefits from interaction with these Funds are reaped from events and policy recommendations.[44] In addition, InnoEnergy operates Regional Hubs (through the EIT RIS) liaises with the relevant national, regional and local authorities and facilitates the sharing of expertise with them.[45]

Due to the business orientation of the EIT InnoEnergy partnership and similar thematic fields addressed, future analyses should explore to what extent stronger collaborations between the BATT4EU partnership and EIT InnoEnergy could facilitate the exploitation of research results of projects supported by BATT4EU and their market implementation. Furthermore, the extent to which the partnership continues in integrating research within the Knowledge Triangle through synergies with Pillar 1 within Horizon Europe could not be tackled in a short amount of time and should be assessed more in detail, possibly with respect to utilizing ERASMUS+ or the industry secondments of the Marie Skłodowska-Curie Programme.

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[41] Biennial Monitoring Report of European Partnerships (2022)
[42] Indicator #7a, BMR-Survey Data 2023 received from EC.
[43] EC 2017. Evaluation of the European Institute of Innovation and Technology (EIT). Final Report. European Commission Directorate-General for Education, Youth, Sport and Culture. DOI:10.2766/945203., p 90.
[44] Indicators #8.2, #8.5, BMR-Survey Data 2023 received from EC.
[45] EIT 2021a. EIT Regional Innovation Scheme Activity 2019-2020
https://eit.europa.eu/sites/default/files/eit_ris_activity_report_-_final.pdf

## 6.3. Efficiency

According to the EIT Consolidated Annual Activity Report[46], EIT InnoEnergy has made impressive progress towards financial sustainability, indicating high cost-effectiveness in developing mechanisms ensuring financial backflow from innovation, education and business creation activities to the KIC Legal Entity (KIC LE). EIT InnoEnergy is the most business-oriented among the EIT KICs. Its shareholders have a clear interest in the (also financial) success of EIT InnoEnergy and its partners.

From a financial perspective, the management successfully sustained the partnership and attracted big firms such as Volkswagen. EIT InnoEnergy now holds promising assets and has achieved a strong level of revenues, meeting its targets. It is on track to reach a strong impact and a good level of financial sustainability by 2024, when the Framework Partnership Agreement (FPA) will end. While the partnership had to adapt to the changing needs of the market and to a changing political landscape, interviewees were satisfied with the administration of the partnership and described the business strategy of EIT InnoEnergy as very consistent over time, which was due to stable management and leadership.

The long-term aim for EIT InnoEnergy as an investor is divestment once the company has grown – a strategy that has already produced several successful exits. This will constitute the main revenue stream of EIT InnoEnergy as an independent company once the EIT dependence comes to an end after 2024. The management is, however, aware of the fact that the main goal of the investment is not financial profit but alignment with the political sustainability goals. EIT InnoEnergy does not pay dividends to its own shareholders.

On top of business and technology support services (including access to its network), the partnership provides EIT financing (KAVA) for its partners. EIT InnoEnergy moved to eGrants to simplify and align its funding approach with other partnerships. Cascade funding has been in place since 2023 to deal with third-party funding by partners; thus, evidence of experience is not yet available. Time-to-Grant is reported to be 120 days.[47]

EIT InnoEnergy's Annual Activity Report 2021 provides an overview of its contributions to the EIT KIC core KPIs. Compared to all the other EIT KICs, the table suggests a high degree of financial sustainability of EIT InnoEnergy. This is in line with the financial sustainability plans of the partnership (see Figure 16 in Annex 10.3).

The most outstanding achievements of EIT InnoEnergy, as compared with other KICs, have been in the number of graduates from EIT-labelled Master and (former) doctoral programmes, in the number of start-ups and with respect to the investments they were able to attract, and in the performance of the EIT RIS activities. By far the highest performance among the KICs, EIT InnoEnergy was able to achieve in terms of Financial Sustainability. With more than 18M€ of revenues, the KIC LE could earn almost twice as much as other KICs and achieved an FS coefficient of 20.7% (KPI: EITN11.2). For details, see Table 8 in Annex 10.4.2). The EIT Consolidated Annual Activity Report 2020[48] critically remarks that there is still no gender balance in high-level managerial positions. As of May 2023, the

[46] EIT 2021b. Decision 27/2021 of the Governing Board of the EIT https://eit.europa.eu/sites/default/files/gb_decisions_and_eit_caar_2020.pdf.pdf.
[47] Additional data for the mid-term evaluation of Horizon Europe, BMR-Survey Data 2023 received from EC.
[48] EIT 2021. Decision 27/2021 of the Governing Board of the EIT. https://eit.europa.eu/sites/default/files/gb_decisions_and_eit_caar_2020.pdf.pdf

Executive Board (10 members in total) benefits from the participation of two female board members.

## 6.4. Effectiveness

In a stakeholder interview, an important success factor for EIT InnoEnergy has been attributed to its operational management, resulting in high performance in virtually all aspects of effectiveness.

Overall, the **research output** of EIT InnoEnergy-induced activities from 2014 – 2021 includes 217 scientific papers. Bibliometric analyses of this research output suggest that in terms of highly cited publications, international co-publications, disciplinary diversity, academic-private co-publications and female researcher participation, EIT InnoEnergy shows a similar performance as SC3 baseline. However, compared to the SC3 baseline, fewer publications were available to open access and publications recorded lower levels on all altimetric dimensions (mentions in News, on Facebook, on Twitter and on Wikipedia). This result is in line with the partnership's strong business orientation. Detailed results of bibliometric analyses can be found in Annex 10.5.

Concerning effectiveness in terms of **technology and innovation**, EIT InnoEnergy contributes to reducing time-to-market, scaling-up, and replication of new technologies and innovations to decarbonise Europe. EIT InnoEnergy 200 portfolio companies were overseen, filing 290+ patents. The partnership has a clear focus on technological innovation and hardware solutions, and social innovations do not seem to be high on the agenda. The activities of EIT InnoEnergy are centred around specific thematic areas that are of high relevance for the energy transition: energy efficiency, renewable energies, sustainable buildings and cities, smart electric grid, energy storage, energy for circular economy, and energy for transport and mobility[49]. To transform a technology into a marketable product, EIT InnoEnergy assesses its potential patentability, identifies and tracks possible competitors, and ensures IP is protected[50]. EIT InnoEnergy provides prototype enhancement, product development and pilots and provides access to expertise and R&D infrastructure. For 2021-2022, EIT InnoEnergy has reported 90 **patent applications,** exceeding the target of 71 for this period. These patent filings, however, are concentrated in a small number of countries: within the 13 patenting partner countries in EIT InnoEnergy, the top 5 patenting accounts for 76% of the patents (see Figure 18 in Annex 10.4.3).

Evidence suggests that the partnership has been extremely successful in terms of **business creation**. From 2013 onwards, the KIC's performance against Business Plan targets picked up, and although some delays and problems were encountered, in 2015, it was reported that "the business creation area is in the current state a success within the KIC". Experts drew attention to the links made between the KIC and the venture capital community. Though, this does not seem to have been measured in the set of KPIs from 2019 reported to the evaluation team.

[49] InnoEnergy website.
https://bc.innoenergy.com/?_gl=1%2Aivf6sq%2A_ga%2AMTI2Mjk1MTAzNC4xNjc5Mzg3NzY4%2A_ga_PERJWSKHGL%2AMTY4NjA1NDc0Ny4xOC4xLjE2ODYwNTYzODAuNTkuMC4w#thematic-fields
[50] Accelerating sustainable energy innovation.
https://www.innoenergy.com/media/5879/corp_brochure_2021_b3.pdf

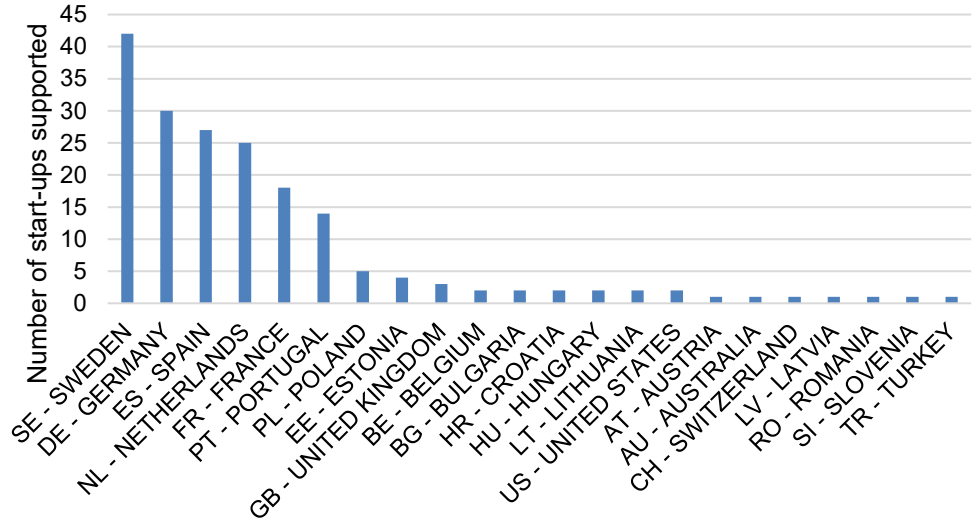


Figure 7. Number of Start-Ups supported by EIT InnoEnergy by country of registration, 2021-2022

Source: Data provided by EIT. Own calculation.

EIT InnoEnergy seeks to invest in companies that aim for impact with scalable business models and/or disruptive technologies to reduce costs in the energy value chain, reduce CO2 emissions, recure operability of the energy system, create sustainable growth, create jobs, and improve competitiveness. From 2010-2020, EIT InnoEnergy supported more than 480 companies. As of 2020, the company claimed to have one of the largest sustainable energy investment portfolios worldwide, with more than 250 investee companies.[51] By now, and since its inception in 2010, EIT InnoEnergy has screened more than 7,000 start-ups and, so far, has supported over 500 sustainable energy innovations (climate tech start-ups). Furthermore, more than 300 products were launched to market. EIT InnoEnergy has invested in 200 portfolio companies, which are expected to generate €72.8 billion in revenue and save 1.1 Gtons CO2e annually by 2030.[52] 90% of the start-ups supported already work with global brand names, including ABB, BMW, EDF, Engie, Volkswagen, Galp, Schneider Electric and Naturgy. It should be mentioned that the start-ups supported by EIT InnoEnergy are highly concentrated in a small number of countries. The Top 6 countries account for 83% of the supported start-ups (Figure 7). This concentration of start-up activity in a few countries is specific to EIT InnoEnergy, which is quite in contrast to all other KICs, which show a much broader coverage of countries at a much lower start-up activity though (Figure 19 in Annex 10.4.3).

Interviewees described the investment of EIT InnoEnergy and other kinds of support, such as access to its network, as highly valuable. It was made available at a very early stage, which was very important for the start-up process. In the growth phase, investment from third parties is an indicator for the business success of green start-ups. EIT InnoEnergy was able to achieve substantial amounts of **private investment attracted** by its partners (a total of 1.4 bn€ in 2021-2022), as can be seen in KPI EITN06 in (Table 8, Annex 10.4.2). Some of

[51] InnoEnergy Impact Report 2020.
https://www.innoenergy.com/media/6454/eit_innoenergy_impact_report_2020.pdf
[52] EIT InnoEnergy website. https://www.innoenergy.com/uploads/2023/05/EIT-InnoEnergy-launches-Skills-Institute-to-combat-significant-energy-transition-skills-gap.pdf

these start-ups have become unicorns. In terms of geographical distribution, the investments attracted are mainly in a small number of countries: Norway, Sweden, Germany, France, The Netherlands and Spain (Figure 20 in Annex 10.4.3).

Risk investments imply the possibility of failure. The toughness of the global competition in key energy sectors – most prominently with China, but also with the US due to the impact of the Inflation Reduction Act – is reflected by the fact that Norwegian Crystals, a key producer of ingots used in solar cells, and recipient of a strategic investment from EIT InnoEnergy had to file for bankruptcy in August 2023. Additionally, Norsun, a Norwegian wafer manufacturer for PV cells, recently announced a suspension of production until the end of the year, further highlighting the industry's precarious situation[53].

**Revenues from innovations** (KPI_02 EITHE02) refer to the total revenue of new or improved products, services or processes received from KIC activities. Here, EIT InnoEnergy has achieved a total amount of 54.83M€ revenues through its partners in 2021 and has increased its performance to 171.08M€ in 2022, resulting in 225.92M€ in these two years[54]. **Revenues for other services** (described in Section 5.2, EIT InnoEnergy´s service provisions) are substantially higher than other KICs have achieved, mainly stemming from extremely high annual membership fees EIT InnoEnergy is able to charge from the market and from its educational programs and consulting services (Figure 21 in Annex 10.4.3).

Through its **industrial alliances**, EIT InnoEnergy has built EU-wide capacities for innovators, investors and industry, granting access to key players and commercially viable technologies, spanning the entire supply chain. The main ambition is that this expertise helps to industrialize the innovations supported by EIT InnoEnergy, providing the industry with a wide spectrum of sustainable energy solutions (see Section 5.4, Other activities). Access to expertise is also a service that is provided through the three industrial alliances. Interviewed stakeholders confirmed the value of EIT InnoEnergy's involvement in those alliances, such as the European Battery Alliance. Activities such as the EBA250 workshops, which are provided by EIT InnoEnergy, gather the views of different companies under one umbrella. Partner companies are involved in meetings and discussions on future strategies. Interviewees described EIT InnoEnergy's role in the European Battery Alliance as providing recommendations and information, such as background data. This overarching perspective backed by data was highlighted by interviewees as a key driver for effectively contributing to a decarbonised Europe by 2050, capturing the development within the sector while not reflecting the perspective of one single company only. EIT InnoEnergy aims to work closely with policy makers and regulators to understand markets and regulation. This gives EIT InnoEnergy innovators the capability to expand geographically and take advantage of support such as accreditations and certifications to comply with local standards.

According to interviewees, part of the rationale of the **education activities** of EIT InnoEnergy is to develop talent that will be urgently needed in the future sustainable energy sector. The latest available EIT InnoEnergy Annual Review 2021 highlights that since 2019, EIT InnoEnergy has successfully connected +120 students with placements each year. It shows the success stories of graduates and current students of the EIT InnoEnergy Master School who launched clean-tech start-ups. However, within the latest available KPI overview (extracted from the Annual Activity Report 2021 – see Table 8, Annex 10.4.2), the number of clean tech startups launched by students or graduates is not reflected. To assess more fully the extent to which the educational activities of EIT InnoEnergy created value for the

[53] Microgrid Media. https://microgridmedia.com/europes-solar-industry-at-risk-of-bankruptcies-due-to-influx-of-cheap-chinese-imports/
[54] Source: Data provided by EIT. Own calculation).

ecosystem, data on updated KPIs, including evidence on the number of clean-tech ventures that directly result out of participants of educational programmes, would be beneficial. Also, more detailed information on the thematic fields covered by these ventures would be beneficial.

The EIT InnoEnergy PhD School & Innovation Doctorate Programme is no longer accepting new candidates. Instead, professional learning courses are provided. Interviewees indicated concerns about the lower success of the PhD school in comparison to the Master Programmes. According to the EIT Evaluation of 2017, EIT InnoEnergy performed well against Business Plan targets for knowledge transfers and, in 2015, achieved its target for innovations launched for the first time. According to our own statements, in 2015, innovation support by EIT InnoEnergy has been "running well, judging the higher than targeted KPI results (patents, new products/services, knowledge transfer). The first projects are becoming mature and are starting to deliver results to the market."[11]

The EIT InnoEnergy partnership effectively contributes to **EU policy formulation**. According to the EIT Consolidated Annual Activity Report 2020[55], endorsed in 2021, it has very good relations with the Energy Union DGs and is seen as a key asset by the Commission. The KIC has contributed to the relevant DG ENER Communication in accelerating the adoption of Clean Energy Technologies. Ultimately, EIT InnoEnergy brings together the knowledge and experience required to support large industrial projects that coincide with political priorities and which directly impact the energy trilemma: reducing the cost of energy, limiting greenhouse emissions and increasing availability and security. These actions play a fundamental role in realising the goal of a carbon-neutral Europe by 2050[56].

## 6.5. EU Added Value

EIT InnoEnergy creates added value that goes clearly beyond what could be achieved through national or regional support. Within EIT InnoEnergy's SRIA, the main added value the partnership provides consists in "being the 'market uptake' vehicle, […] where our role is to value the results of other EU initiatives, that are upstream in the TRL/CRL chain, and bring them to effective commercialization."[57] As of today, EIT InnoEnergy has created a pan-European network of innovators and risk funders, providing a stamp of approval for large-scale investors and contributing to effective commercialization. Thus, the partnership enables a scaling-up of investments going clearly beyond the regional and national level and facilitates an increase in knowledge circulation and transfer. According to interviewees, the established partnership structure permits that, in the face of newly emerging topics within the energy realm, EIT InnoEnergy is very quick in investing in activities, implementing education measures, in business creation and acceleration, setting up innovative projects, etc., reflecting its systemic approach. On such a big scale, this European network is unique.

One concrete example is the success story of Skeleton, a beneficiary of the former SME instrument under Horizon 2020. The firm develops the next generation of ultracapacitors for energy storage, addressing the need for a lightweight, cost-effective, and powerful energy storage system and providing the product on the market with the highest power and energy

[55] EIT 2021. Decision 27/2021 of the Governing Board of the EIT. https://eit.europa.eu/sites/default/files/gb_decisions_and_eit_caar_2020.pdf.pdf
[56] InnoEnergy website. https://www.innoenergy.com/about/about-eit-innoenergy/about-us/
[57] EIT InnoEnergy Strategic Agenda 2021-2027. https://www.innoenergy.com/media/6400/eit-ie-strategic-agenda-2022-2024.pdf

density[58]. Contributing to the objectives of the Green Deal and SDGs #7, #8, #9, #11, #12, and #13, applications include, amongst others, grid applications and wind turbines. Building upon further commercialisation activities within EIT InnoEnergy, the firm has been supported with €51 million from Germany's Federal Ministry for Economic Affairs and Energy and the Free State of Saxony under the European Battery Innovation (EuBatIn) IPCEI framework. The company states to dispose of a road map to reduce production costs "faster than for any other energy storage technology. We have a clear road map to lower it by almost 90% after our 5-year project"[59].

Furthermore, the partnership provides clear EU-added value through its activities in the context of re- and upskilling the labour force (an example is the recently launched InnoEnergy Skills Institute, which builds on the EBA Academy, described in Section 5.4, Other activities) as well as the provision of a European Master programme (seven thematic programmes that are set up in collaboration with university partners). This educational program is run across Europe on a commercial basis and has gained substantial recognition. It is also widely considered a source for breeding young entrepreneurs in the field.

## 6.6. Additionality

In terms of additionality, this study finds that the partnership provides significant added value in various ways, contributing to the European Green Deal objectives. It provides market intelligence, access to key players and commercially viable technologies, advice on technical and business matters, insights on new regulations, access to human capital, and above all, business support for start-ups, access to finance for growth and own equity investments, which makes it an important venture capital firm. EIT InnoEnergy reports its portfolio of investments to comprise 200 companies, and to be ranked among the most active investors in the energy and transportation sectors in Europe.[60]

Additionality can also be attributed to the total attracted investments (both public and private) of the beneficiaries and partners of EIT InnoEnergy. In the last four years, a small set of very large investments have stood out, but also a broad spread of investments across countries underlines the impact of EIT InnoEnergy services and investments in terms of value creation. For a brief overview of total investments, see Table 9 and Table 10 in Annex 10.3.4. Likewise, large sums of co-funding of partners for KIC Added Value Activities could be achieved, from a geographical perspective mainly in high innovation-intensive countries like France, Germany, Sweden and the Netherlands, but also in other countries like Latvia, high leverage factors in terms of attracted co-funding are documented (see Figure 13 in Annex 10.3).

For Horizon Europe (2021-2022), the leverage factor[61] (non-EU cofounding divided by EC contribution) of EIT InnoEnergy amounts to 1.51, which is significantly higher than for EIT Climate (0.89), and for the younger partnerships EIT Food (0.24) and EIT Urban Mobility (0.15)[62]. For the whole duration of the partnership, the financial leverage can be calculated in different ways. If the sum of the co-funding acquired plus the revenues and the non-EIT

[58] InnoEnergy website. https://www.innoenergy.com/discover-innovative-solutions/online-marketplace-for-energy-innovations/skeleton-ultracapacitors/
[59] EIT InnoEnergy Annual Review 2021.
[60] Pitchbook 2022 Annual Global League Tables. https://www.innoenergy.com/news-events/eit-innoenergy-ranked-most-active-investor-in-energy-sector-in-2022/
[61] Given the inconsistency of data on contributions among the EIT KICS (in-kind, in-cash, leverage targets and progress) delivered on the BMR-Survey 2023, the leverage factor calculations are based on the Monitoring data received from the EITs.
[62] EIT Monitoring Data received from EIT. See Table 11 in Annex.

financed KAVA are divided by the direct EIT funding, for EIT InnoEnergy, a financial leverage value of 0.59 is calculated. If the co-investments acquired by the start-ups are also added to the total for third-party funding, the leverage effect becomes positive and increases to 5.27. If the funds raised from the KCAs are also included, for EIT InnoEnergy, the financial leverage amounts to 7.86, the highest among all KICs. An overview of the three key figures on the financial leverage of EIT InnoEnergy is provided in Figure 22 in Appendix 10.3. It shows large differences between the KICs, with high leverage effects in some cases for the older KICs (such as InnoEnergy) and comparatively lower leverage effects for the newer KICs (e.g., EIT Manufacturing and EIT Urban Mobility).[63] For the whole duration of the partnership, partners other than the European Union committed in-kind and in-cash contributions of EUR 4,200 million in total (EUR 1,200 million in cash and EUR 3,000 million in-kind)[64].

In addition, EIT InnoEnergy creates significant added value through its established structures and networks. A concrete example is the European Battery Alliance. For firms involved in its activities, the European Battery Alliance serves as a valuable networking opportunity and knowledge centre that provides an overview and helicopter perspective on the whole battery value chain and across the EU. Such a perspective that goes beyond national borders and covers whole value chains permits firms and other stakeholders to make investment decisions in a better-informed manner.

Notably, EIT InnoEnergy is also active in the US, which facilitates setting up projects abroad. This is of value for startups and innovators who appreciate access to finance as well as to global networks and other forms of support.

## 6.7. Directionality

This evaluation finds that the EIT InnoEnergy partnership disposes of a very high directionality. The partnership's activities are clearly in line with and contributing to the objectives outlined in the European Commission Green Deal, and to delivering results for the EU citizens. EIT InnoEnergy consistently implements the EIT strategy for the KICs to play an integrative role in the Knowledge Triangle (higher education, research and business) and thereby pursue a dedicated business orientation.

Section 5.3, Activities and Portfolio, underlines this commitment, for example, exhibiting the strong upward trend in KAVA funding from the partners over time. With these activities, according to the Common Indicator Survey, EIT InnoEnergy contributes very strongly to the EU priorities: the partnership achieves its investment targets in full accordance with both the Green Deal and the resilience objectives throughout its duration. In comparison, 30% of the partnership´s planned investments are reported as relevant for the EU digitalisation objectives – a target that has been fully achieved in H2020 and already to one-third in Horizon Europe.[65]

EIT InnoEnergy considers the energy autonomy of the EU a core aspect of overall strategic autonomy and technological sovereignty. Securing the green transition is considered paramount for the long-term competitiveness of the EU.[66] In this vein, the partnership identifies and creates champions on a European scale, which facilitates the subsequent creation of ecosystems. Furthermore, the geographical distribution of EIT InnoEnergy´s

[63] EIT Monitoring Data received from EIT.
[64] Target #1, BMR-Survey Data 2023 received from EC.
[65] Indicators #3.1, #3.2, #3.3, BMR-Survey Data 2023 received from EC.
[66] Final comments, BMR-Survey Data 2023 received from EC.

partners spans almost all EU Member states, while the partnership is also extending its reach to the US, Israel and Türkiye (Figure 11 in Annex 10.3).

EIT InnoEnergy´s reporting processes allow for the identification of measurable expected outcomes, results and impacts, demonstrate expected qualitative and quantitative leverage effects, including KPI reporting, and show flexibility to adjust to changing policy, societal and/or market needs. Phasing out from the EIT KIC funding frame is clearly targeted, and a plausible pathway is documented (see Section 6.10).

## 6.8. International Positioning and Visibility

The activities of the EIT InnoEnergy partnership are mainly focused on Europe since most stakeholders are European, and the overall mission and vision of the partnership include creating jobs and innovation in Europe. While under H2020, the partnership did not foresee overseas outreach activities at all, in Horizon Europe the partnership plans to invest 0.5% of its total budget for extra-European collaboration.[67] In the conception of interviewees, EIT InnoEnergy contributes significantly to supporting the European industry in globalist worldwide competition, substantiated most prominently in its industry alliances, the European Battery Alliance and Solar PV Industry Alliance[68] (see also Section 5.4).

On the other hand, in the US, EIT InnoEnergy is actively looking for connections and gaining international visibility, for example, through its USA office in Massachusetts. Furthermore, EIT InnoEnergy also supports start-ups that have a more international focus and, for example, target an international market. Naturally, due to the continued growth of the KIC, international visibility of the EIT InnoEnergy partnership has increased in the period spanning from Horizon 2020 to Horizon Europe. The success of the KIC, as well as the success stories of various start-ups and the involvement of internationally recognized European industry as shareholders, have strongly contributed to an increase in international visibility. Hereby, the focus is laid on countries with a critical role in the strategic value chains addressed by EIT InnoEnergy through its three European industrial alliances in batteries, green hydrogen and solar PV.

## 6.9. Transparency & Openness

The 2020 assessment of the KICs, adherence to the EIT Good Governance Principles[69] has shown that, despite some identified weaknesses, all KICs, including EIT InnoEnergy address the Good Governance Principles adequately. Also, all KICs progressed in addressing the EIT Good Governance Principles compared to the 2019 assessment. Furthermore, the partnership's Code of Conduct includes the recognition and avoidance of conflicts of interest as one of its main principles[70].

The main operational focus of EIT InnoEnergy today is holding minority shares in start-ups and growing clean-energy firms. With respect to these commercial activities, EIT InnoEnergy can be considered open and transparent. Open annual calls for start-ups are issued, and the applying companies undergo a three-stage evaluation process eventually resulting in investment decisions. Like this, start-ups are recruited from the market, from the EIT partner organisations and from the educational programmes. EIT InnoEnergy invests in minority

[67] Indicator #4, BMR-Survey Data 2023 received from EC.
[68] Indicator #9, BMR-Survey Data 2023 received from EC.
[69] EIT 2021. Decision 27/2021 of the Governing Board of the EIT. https://eit.europa.eu/sites/default/files/gb_decisions_and_eit_caar_2020.pdf.pdf
[70] InnoEnergy website. https://www.innoenergy.com/about/policy-and-standards/code-of-conduct/

shares of equity and currently counts 200 portfolio companies[71]. According to interviewees, success stories such as EIT InnoEnergy's support for Northvolt, as well as the possibility of working with global brand names including ABB, BMW, EDF, Engie, Volkswagen, Galp, Schneider Electric, and Naturgy, attract new stakeholders effectively.

EIT InnoEnergy conducts outreach activities to create links with other European countries not currently in the partnership, especially Widening Countries. End-users and the private sector (particularly SMEs) are targeted with public consultations, open dialogues, city panels, webinars, etc. The openness of the partnership to new members is underlined by the strong increase in the number of members over time. Currently, the partnership counts 1200+ associate and project partners[72], including several partners from RIS countries, while the European Battery Alliance currently brings together more than 800 industrial and innovation actors[73]. Throughout, interviewees confirmed openness and transparency as important principles for the partnership, which it could implement successfully while picking the most innovative projects.

Openness is safeguarded by a range of activities that all contribute to the integration of all three elements of the knowledge triangle (higher education, research and business). Regular open brokerage events are organised for stakeholders and potential beneficiaries; special types of membership to the partnership are offered to all interested parties and countries (e.g., to hold observer status). The partnership has an accessible and well-established online presence with a simple application process for newcomers interested in entering the business creation programmes. It uses social media channels, and the website of the partnership is updated continuously and refers to a range of activities that are open to stakeholders. Relevant documents, such as the Anti-fraud Strategy 2021-2023 and the Grant Agreement, are published and accessible on the website of the partnership. The Action plan for the Anti-fraud Strategy 2021-2023 is forwarded upon request. The website provides an accessible overview of the partnership's vision and objectives, set-up and governance, including the board and shareholders, and its main activities, categorized by stakeholders that should be addressed. Valuable ecosystem activities that are announced on the website as well include matchmaking events, annual events, such as an annual business booster event[74] or the Battery 2030+ annual conference, and other events organized through industrial alliances and with partners. Furthermore, regional hubs in various countries facilitate the support of innovative projects also in moderate and emerging innovator countries and regions (according to the European Innovation Scoreboard and the Regional Innovation Scoreboard).

Updated data on the performance of the partnership in terms of KPIs is not easily accessible and publicly available. This limits the transparency of the partnership. Furthermore, while the number of start-ups supported is available, more detailed evidence on business development indicators (number of employees, revenues per year) of beneficiaries/ start-ups would be desirable from an accountability perspective. In addition, denominations of "partners", "beneficiaries", and "community members" and the distinctions/ overlaps between those stakeholders do not appear consistently handled within different documents.

Another limitation of this evaluation consists of the lack of detailed data on the partnership's shareholder structure. Table 3 in Annex 10.2 provides an overview of EIT InnoEnergy's shareholders as made available on the partnership's official website. However, the value of the shares is not transparent. According to the partnership's SRIA, one of the key criteria that

[71] InnoEnergy website. https://www.innoenergy.com/about/about-eit-innoenergy/offices-and-hubs/
[72] InnoEnergy website.: https://www.innoenergy.com/about/about-it-innoenergy/offices-and-hubs/
[73] European Battery Alliance. https://www.eba250.com/
[74] InnoEnergy website. https://www.innoenergy.com/news-events/the-business-booster-2023/

are mentioned as guiding its transparency and openness is that only "around 10% of the annual 2020 budget will be captured by EIT InnoEnergy shareholders" (in the beginning, it was much higher). This trend will continue, and it is mainly Universities and RTOs which are recurrent beneficiaries, not business."[75] Based on the data provided, a change in this key principle could not be verified. In terms of EIT InnoEnergy´s ownership structure, business and industry have gained importance as they account for 69% of the shareholders in October 2023, while in 2019, only 26% of the shareholders were business and industry companies.

According to EIT InnoEnergy, prospective shareholders are actively targeted based on their strategic fit and contribution to the strategy of the company [76]. EIT InnoEnergy has been continuously able to attract new shareholders, even though newcomers have to pay a considerably higher price for shares and commit themselves to paying an annual membership fee. For example, in 2020, a share cost 1,600K€, while it had been only 10K€ in 2010. For the strategy period 2021-27, EIT InnoEnergy is set to continue to attract openly and transparently key institutions and capital to make its strategic sustainability more robust.

## 6.10. Phasing Out Preparedness

Financially, the EIT InnoEnergy partnership is well prepared for the phasing out of the framework programme funding. Interviewees described how financial sustainability has been a priority for the partnership since the beginning. The two main sources of financing of the partnership are its de-investment activities (approximately 80% of the partnership's budget with 42 exits so far (May 2023)) and the Master School (approximately 20% of the partnership's budget with an annual fee of €18,000 per year and, so far, 1800+ students and alumni from 90+ countries). Due to its solid investment portfolio and expected returns from exits, as well as returns from its educational activities, interviewees described the partnership as financially well-prepared for the phasing out of the framework programme funding.

However, interviewees stressed that despite the systemic and social value created, a lack of direct financial return impedes the future continuation of some of the partnership's activities other than its investment activities. Interviewees described industry alliances as highly valuable and playing a pivotal role in creating and supporting industrial value chains in Europe in the battery, hydrogen and PV sectors, while the Master School was described as building the needed human potential. The professional education supported by the partnership has increased in importance over the years and a continuation is regarded as highly valuable. However, despite their systemic value, many of those activities lack direct financial returns.

Similarly, sustaining regional hubs in various countries and providing ecosystem services comes at a cost. In moderate and emerging innovator countries (as classified in the European Innovation Scoreboard 2022[77]), stakeholders see higher investment risks than in other countries, which further impedes the financial sustainability of activities of the partnership in those countries. On the other hand, interviewees conceive of the maintenance of the ecosystem in those countries as playing an important role in closing the gap in terms of innovation between countries in Eastern and Western Europe. This is critical also considering the EIT Consolidated Annual Activity Report 2020, which remarks that EIT InnoEnergy "[…]

[75] EIT InnoEnergy Strategic Agenda 2021-2027. https://www.innoenergy.com/media/6400/eit-ie-strategic-agenda-2022-2024.pdf
[76] EIT InnoEnergy Strategic Agenda 2021-2027, p22. https://www.innoenergy.com/media/6400/eit-ie-strategic-agenda-2022-2024.pdf
[77] European Innovation Scoreboard. https://research-and-innovation.ec.europa.eu/statistics/performance-indicators/european-innovation-scoreboard_en

risks becoming only commercially focussed and not follow in its operations the Knowledge Triangle Integration innovation delivery model."[78]. While interviewees described both EIT InnoEnergy's regional innovation hubs and education activities as successful in terms of social value that is created, concerns about the risk of not continuing with some of these activities due to a lack of direct financial returns and financial effectiveness were confirmed by interviewees.

Overall, the continuation of activities of the partnership that lack direct financial returns (such as ecosystem services, especially in Eastern Europe) is unsecured. Cross-KIC activities were outlined as a possibility to continue maintaining multiple regional hubs while limiting administrative costs.

# 7. Conclusions

The EIT InnoEnergy partnership continues to tackle major structural weaknesses of the innovation capacities in the EU (in key thematic areas), such as the limited entrepreneurial culture, a low level of cooperation between industry and academia, and insufficient development of human potential and human capital. Overall, the partnership provides highly **relevant** contributions to the Green Deal and to using the "green economy" as the engine for growth and job creation for Europe[79]. The investment and educational activities, ecosystem services and industry alliances all focus on sustainable energy technologies, address a range of SDGs, and contribute to achieving the objectives of the REPowerEU Plan published in May 2022 and the EU 2030 Climate Target Plan. EIT InnoEnergy has undergone a significant transformation process from being based 100% on public funds towards a strategic investor in clean tech start-ups, a fact that underlines considerable flexibility in updating the partnership's strategies in a dynamic transformation process.

Concerning the **coherence** of the partnership's activities, EIT InnoEnergy strongly collaborates with the European Commission and, in particular, with DG ENER, while its activities are strongly aligned with EU policies, especially with research and innovation policy, energy policy, and decarbonisation policies. Its Strategic Agenda 2021-2027 indicated a range of cross-KIC activities to enhance cooperation and synergies between the EIT KICs. In the perception of interviewees, EIT InnoEnergy is a pioneer in setting up industry alliances with a particular focus on hydrogen, solar energy and batteries: the European Battery Alliance (EBA), the European Green Hydrogen Acceleration Center (EGHAC), and the European Solar PV Industrial Alliance. However, except for cross-KIC activities, information on synergies with other EU partnerships could not be found. Evidence suggests that collaboration with other EU partnerships in the implementation of EIT InnoEnergy's activities is limited.

EIT InnoEnergy, the most business-oriented among the EIT KICs, made significant progress towards financial sustainability, suggesting high **cost-effectiveness**. In terms of project implementation, EIT InnoEnergy exhibits considerable flexibility. The partnership adapted its activities quickly and in due time to internal developments (such as its organizational transformation reducing its dependence on public funds) or external developments (such as the REPowerEU plan and a shift in policy priorities). Despite the changing needs of the market and a changing political landscape, interviewees stressed their satisfaction with the

[78] EIT 2021. Decision 27/2021 of the Governing Board of the EIT. gb_decisions_and_eit_caar_2020.pdf.pdf (europa.eu), p. 15.
[79] EIT InnoEnergy Impact Report 2020.
https://www.innoenergy.com/media/6454/eit_innoenergy_impact_report_2020.pdf

**efficient** administration of the partnership. The business strategy of EIT InnoEnergy is described as very consistent over time, directed towards financial sustainability, which was greatly attributed to very stable management and leadership. However, the partnership still lacks a gender balance in managerial positions. The EIT Consolidated Annual Activity Report 2020 remarks that EIT InnoEnergy risks becoming only commercially focussed and not following on its other activities that address the Knowledge Triangle. While interviewees described both EIT InnoEnergy's regional innovation hubs and education activities as successful in terms of the social value that is created, some expressed concerns about the possible discontinuation of some of these activities due to a lack of direct financial returns.

Evidence indicates that the partnership is **effective** in contributing to the objectives of the Horizon 2020 and Horizon Europe Framework Programme in this area. The partnership contributed to EU policy processes and was successful in identifying promising innovators and in supporting start-ups financially and through its entrepreneurship support services. Since its inception in 2010, EIT InnoEnergy has supported over 500 sustainable energy innovations (climate tech start-ups). In terms of innovation stimulated, portfolio companies were overseen by filing 290+ patents[80], while bibliometric results reflect the business orientation of the partnership. The EIT InnoEnergy Master School has attracted students from almost 100 countries and produced more than 1,600 graduates. Other activities of the partnership, such as the recently launched EIT InnoEnergy Skills Institute, effectively target human capital development within the workforce. In addition, the partnership leads three industrial alliances with a focus on PV, hydrogen and batteries. Alongside access to finance, access to a large network in the energy sector and to energy-sector specific background information is conceived by diverse interviewees as highly valuable.

EIT InnoEnergy provides significant **EU-added value** through the unique pan-European network of innovators and risk funders it created. The partnership enables a rapid scaling-up of investments going clearly beyond the regional and national levels. Furthermore, it facilitates knowledge circulation and transfer and the creation of human capital, also through its educational activities.

The **additionality** of EIT InnoEnergy consists in the mobilization of private investments in the creation of champions on a European scale, which facilitates the subsequent creation of ecosystems and networks, as well as in its established network structures, which include third countries (such as the US).

In terms of **directionality**, EIT InnoEnergy's activities are clearly aligned with the European Commission's Green Deal objectives, being directed by the partnership's vision to be the "leading engine for innovation and entrepreneurship in sustainable energy"[81]. Furthermore, the partnership consistently continues in its strong orientation towards business.

EIT InnoEnergy is actively looking for connections and gains **international visibility** through the diverse range of events that are set up also in the context of industry alliances, as well as through its innovation hubs and offices. In addition, success stories of start-ups and the possibility to work with global brand names increase the visibility of the partnership effectively and attract new stakeholders.

[80] InnoEnergy website. https://www.innoenergy.com/uploads/2023/05/EIT-InnoEnergy-launches-Skills-Institute-to-combat-significant-energy-transition-skills-gap.pdf
[81] EIT InnoEnergy Impact Report 2020
https://www.innoenergy.com/media/6454/eit_innoenergy_impact_report_2020.pdf

Regarding **openness and transparency**, EIT InnoEnergy continues to address the Good Governance Principles adequately, as already shown in the 2020 assessment of the KICs. The openness of the partnership is suggested by the strong increase in the number of associate and project partners over time, the high number of members within industrial alliances, the evaluation process set up for the calls, and the simple and accessible application process for stakeholders interested in entering the business creation programmes. Furthermore, a variety of events (e.g., matchmaking events), which are widely conceived as highly valuable among stakeholders, as well as the regional hubs and offices, contribute to the openness of the partnership. However, transparency regarding the actual influence of different shareholders could be improved and appears limited due to a lack of transparent data on the partnership's shareholder structure. Limits in the transparency of the partnership are also due to a lack of updated data on the performance of the partnership in terms of KPIs, which is not easily accessible and publicly available, and due to a lack of detailed evidence on business development indicators (number of employees, revenues per year) of beneficiaries/ start-ups, which could not be accessed, and which would be desirable from a perspective of accountability.

Financial sustainability has been a priority for the EIT InnoEnergy partnership since the beginning. The evidence available on expected returns from exits, as well as on returns from its educational activities, suggests that the EIT InnoEnergy partnership is financially well **prepared for the phasing out** of the framework programme funding.

# 8. Lessons Learned & Recommendations

This evaluation suggests that the **EIT InnoEnergy partnership is highly valuable within the Horizon Europe framework programme.** With respect to Horizon 2020, the independent EIT evaluation of 2017 has found that the rationale behind the establishment of EIT InnoEnergy is highly relevant as it targets major structural weaknesses of the innovation capacities in the EU. EIT InnoEnergy is in line with and contributes to the objectives outlined in the European Commission Green Deal and different SDGs as formulated in the 2030 Agenda for Sustainable Development (2015) while addressing current policy priorities (such as the EU 2030 Climate Target Plan and the REPowerEU Plan).

In a nutshell, the EIT InnoEnergy partnership activities consist of investment activities, educational activities (such as the EIT InnoEnergy Master School, career services and the InnoEnergy Skills Institute), ecosystem services (networking activities and facilitation of knowledge streams, e.g., through regional hubs), and industry alliances (with a particular focus on batteries, hydrogen and solar PV). EIT InnoEnergy underwent a transformation process from being based 100% on public funding to becoming a strategic investor while providing supplementary services and additional activities. Today, due to expected returns from its investment portfolio and from its education activities, **the partnership seems financially well prepared for the phasing out of the framework programme funding**.

One lesson learned within this evaluation consists of the **value that is attributed to very stable management and leadership of the partnership**. According to interviewees, EIT InnoEnergy is conceived of as a success story within the EIT. During the dynamic transformation process of the partnership fostering its business orientation, the management and leadership contributed to keeping the business strategy of EIT InnoEnergy consistent.

Another key lesson that can be drawn from this evaluation consists of the key added value created by the EIT InnoEnergy partnership, namely the **big and unique European network** it represents. Interviewees highlighted the importance of the now-established network structure, which permits a quick reaction to new topics within the energy realm through

investment activities, the implementation of education measures, business creation and acceleration, the setting up of innovative projects, etc. The network of the partnership includes industry alliances (the European Battery Alliance (EBA), the European Green Hydrogen Acceleration Center (EGHAC), and the European Solar PV Industrial Alliance) which all respond to current policy priorities. With offices in associated and other countries such as the US, the partnership supports start-ups and partners providing access to resources (investors, educators and talent) and to new markets. Next to the financial support, interviewees stressed the high value they perceive in the possibility of accessing the unique network EIT InnoEnergy provides. Regional hubs and activities such as the EBA250 workshops provided by EIT InnoEnergy facilitate access to the network of the partnership. In the perception of interviewees, the partnership's network provides contacts and exchange opportunities as well as highly valuable information that is backed by data and represents an overarching perspective on developments within the energy sector.

Educational programmes, ecosystem services and industrial alliances of the partnership are perceived as successful and valuable among interviewees. Although many activities of the partnership create systemic value (the Master School+ and the EIT InnoEnergy Skills Institute, ecosystem services and industrial alliances), according to interviewees, some of the activities (such as ecosystem services, especially in Eastern Europe) lack direct financial returns. While interviewees described both EIT InnoEnergy's regional innovation hubs and education activities as successful in terms of the social value that is created, some expressed **concerns about the possible discontinuation of some of these activities**. In financial terms, the partnership appears to be well prepared for the phasing out. However, the development of a clear strategy for the continuation and financing of some of the partnership's activities that are perceived as valuable for the ecosystem is critical, considering the strong business orientation of the partnership. The EIT Consolidated Annual Activity Report 2020 stated that EIT InnoEnergy risks becoming only commercially focussed and not following on its other activities that address the Knowledge Triangle. Reasons for the discontinuation of the PhD program can be seen in the stronger business orientation of EIT InnoEnergy. How far the partnership continues in integrating research within the Knowledge Triangle through synergies with Pillar 1 within Horizon Europe should be assessed to a more detailed extent, possibly utilizing the industry secondments of the Marie Skłodowska-Curie Programme.

In terms of **transparency of the partnership, room for improvement** was identified regarding transparent and accessible data on the shareholder structure, detailed, updated and accessible reporting on the KPI performance of the partnership, and with regards to an accessible overview of business development indicators of beneficiaries.

Evidence suggests that the EIT InnoEnergy partnership actively collaborates with the European Commission. While it seeks to enable synergies and coherence through collaborations with other initiatives at the EU level, evidence suggests that **despite an alignment of goals and strategies, synergies with other EU partnerships in the implementation of EIT InnoEnergy's activities are limited/ lack accessible documentation**. Due to EIT InnoEnergy's network, the business orientation of the partnership and EIT InnoEnergy's extensive activities in the realm of market implementation, future analyses should explore to what extent stronger collaborations with other partnerships, such as the co-programmed BATT4EU partnership could create a positive impact and facilitate the exploitation of research results of projects supported by BATT4EU.

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# 10. Annexes

In the Annexes, tables and figures are presented for supplementing the information given in the main part of the report.

## 10.1. Supplementary Evidence: Background of EIT InnoEnergy

**PARTNERSHIP'S KEY PERFORMANCE INDICATORS**

| KPI NAME | UNIT OF MEASUREMENT | BASELINE | TARGET 2023 | TARGET 2025 | TARGET 2027 | AMBITION >2027 |
|---|---|---|---|---|---|---|
| **RESOURCES (INPUT), PROCESSES AND ACTIVITIES** | | | | | | |
| Revenue generated by EIT InnoEnergy – audited | € | | €61.2 m | €120.2 m | €182.2 m | €220 m |
| Equity positions from the balance sheet – audited | € | | €500 m | €1000 m | €1600 m | €2000 m |
| Active Partners | Number of organisations | | 500 | 800 | 1000 | 1000 |
| **OUTCOMES** | | | | | | |
| Products and services to the market | Number of products | | 60 | 60 | 60 | 60 |
| Start-ups and scale-ups supported | Number of start -up/ scale ups supported | | 90 | 90 | 90 | 90 |
| Investment amount attracted by ventures supported by KICs | € | | €800 m | €1000 m | €1000 m | €1000 m |
| Revenues generated by the supported assets | € | | €500 m | €1200 m | €1500 m | €2000 m |
| Students leading and working in new ventures | Number of students | | 40 | 40 | 40 | 40 |
| **IMPACTS** | | | | | | |
| New jobs created & maintained (multiplied with 4 for indirect) | Number of jobs | | 10000 | 20000 | 25000 | 30000 |
| Increase competitiveness of the European value chains | Number of value chains | | 2 | 3 | 4 | 5 |
| Decrease of costs of energy | € saved | | | | €1800 m | €1800 m |
| Decrease of GHG emissions | Giga tonnes of $CO_2$ abated | | | | 0.3 | 0.3 |
| Increase operability of the energy system | TWh of renewable energy deployed | | | | 100 | 100 |

Figure 8. Selected KPI targets for EIT InnoEnergy during the HE funding period[82]

[82] Source: Biennial Monitoring Report 2022 on Partnerships in Horizon Europe, p.380. https://ec.europa.eu/research-and-innovation/en/knowledge-publications-tools-and-data/interactive-reports/performance-european-partnerships-2022

**Table 3. List of EIT InnoEnergy shareholders (October 2023)**

| Name of Shareholder | Web-Address |
|---|---|
| AGH University of Krakow | https://www.agh.edu.pl/ |
| Augur SCMT Mittelstand Partners S.A. | https://www.socius-mittelstandsfonds.de/en/ |
| Capgemini SE | https://www.capgemini.com/ |
| Commissariat à l'énergie atomique et aux énergies alternatives (CEA) | https://www.cea.fr/ |
| E.Leclerc | https://www.siplec.leclerc/ |
| Eindhoven University of Technology | https://www.tue.nl/en/ |
| Électricité de France SA | https://www.edf.fr/ |
| Engie SA | https://www.engie.com/ |
| ESADE Business School | https://www.esade.edu/en |
| Flemish Institute for Technological Research (VITO) | https://vito.be/en |
| Grenoble INP Institut d'ingénierie et de management | https://www.grenoble-inp.fr/ |
| IDEC GROUP | https://www.groupeidec.com/en/ |
| ING-DiBa AG | https://www.ing.com/Home.htm |
| Instituto Superior Técnico (Lisboa) | https://tecnico.ulisboa.pt/en/ |
| Karlsruher Institut für Technologie (KIT) | https://www.kit.edu/ |
| Koolen Industries | https://www.koolenindustries.com/ |
| KTH University | https://www.kth.se/ |
| KU Leuven | https://www.kuleuven.be/english/kuleuven/ |
| Naturgy SA | https://www.naturgy.com/ |
| NIIT | https://www.niit.com/en/ |

| Name of Shareholder | Web-Address |
|---|---|
| PULSE | https://cmacgm-group.com/en/fund-for-energies |
| Rafako SA | https://www.rafako.com.pl/ |
| Renault Group | https://www.renaultgroup.com/en/ |
| Santander Corporate & Invesment Banking | https://www.santandercib.com/ |
| Schneider Electric SE | https://www.se.com/ww/en/ |
| SIEMENS AG | https://www.siemens.com/global/en/products/financing.html |
| Silesian University of Technology | https://www.polsl.pl/ |
| Societe Generale | https://www.societegenerale.com/en |
| Stena Recycling | https://www.stenarecycling.com/ |
| TotalEnergies | https://totalenergies.com/ |
| Universitat Politècnica de Catalunya | https://www.upc.edu/ca |
| University of Stuttgart (Germany) | https://www.uni-stuttgart.de/ |
| Uppsala Universitet | https://www.uu.se/ |
| Volkswagen AG | https://www.volkswagen-group.com/en |
| Wroclaw University of Science and Technology | https://pwr.edu.pl/ |

Source: EIT InnoEnergy Website. https://www.innoenergy.com/about/eit-innoenergy-team/shareholders/

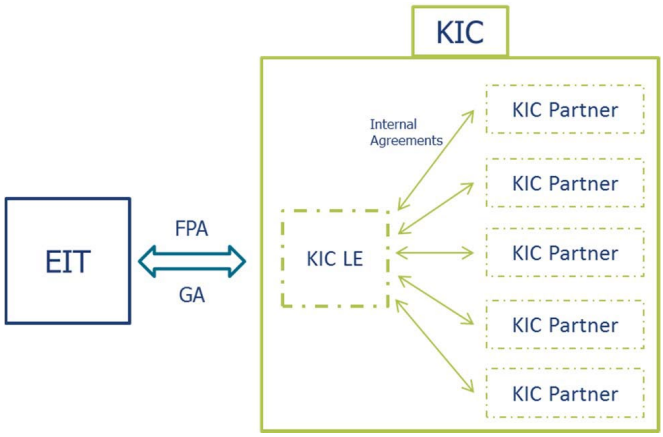


Figure 9: Contractual relations between EIT and the KICs[83]

## 10.2. Supplementary Evidence: Implementation State of Play

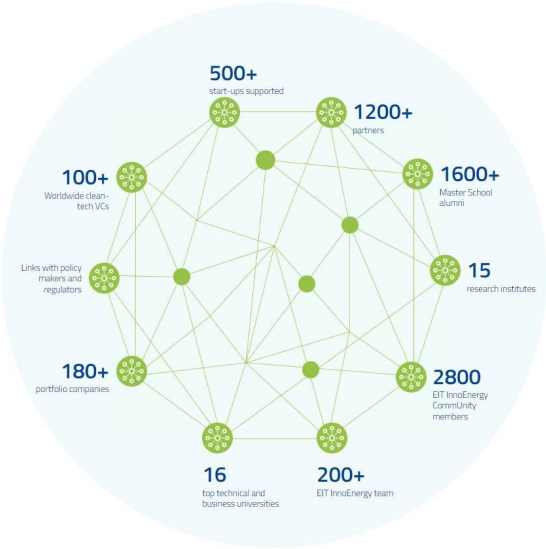


Figure 10: Network of EIT InnoEnergy (Status October 2023)

[83] EIT (2014). Principles for financing, monitoring and evaluating KIC activities
https://eit.europa.eu/sites/default/files/EIT-Principles-financing-monitoring-evaluating-KIC-activities.pdf

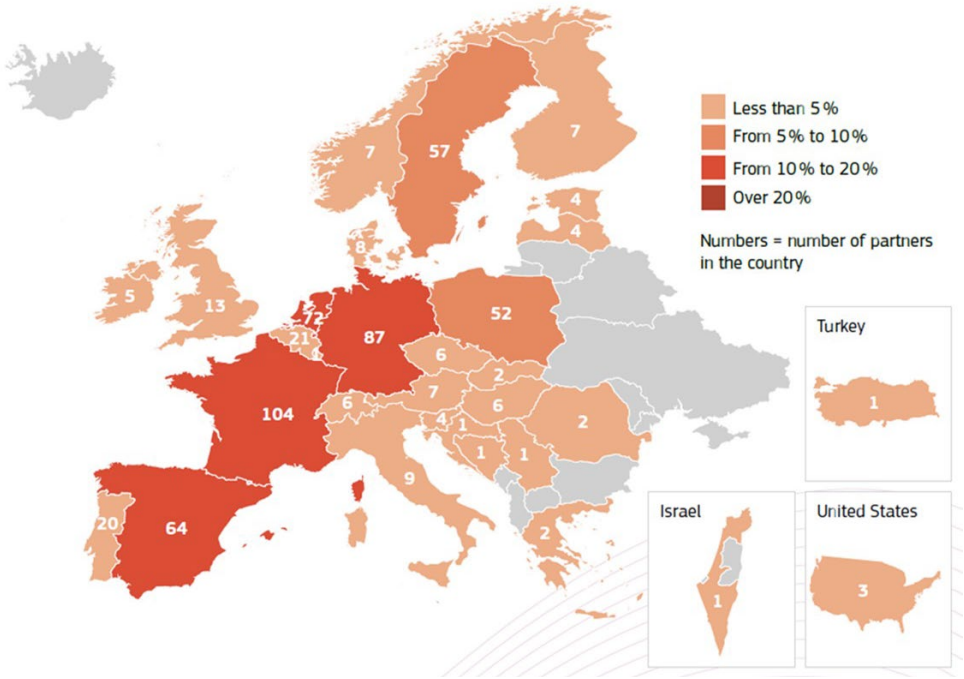


Figure 11: Geographical coverage: number and percentage group of EIT InnoEnergy partners by country[84]

[84] Biennial Monitoring Report 2022 on Partnerships in Horizon Europe, p.382. https://ec.europa.eu/research-and-innovation/en/knowledge-publications-tools-and-data/interactive-reports/performance-european-partnerships-2022

**Table 4: Funding for KAVA (€) by funding source** Source: Data provided by EIT. Own calculation.

| Year | EIT | KIC Partners | National/ Regional | Private | Other | Total Funding |
|---|---|---|---|---|---|---|
| 2016 | 71.576.067 | 9.864.337 | 2.413.727 | 205.947 | 81.598 | 84.141.676 |
| 2017 | 75.903.652 | 6.545.872 | 1.822.743 | 239.744 | 217.484 | 84.729.495 |
| 2018 | 80.799.795 | 6.914.874 | 1.699.278 | 1.046.229 | 28.168 | 90.488.345 |
| 2019 | 90.369.729 | 15.455.186 | 2.191.448 | 870.007 | 0 | 108.886.369 |
| 2020 | 89.590.893 | 22.131.440 | 4.712.558 | 2.312.152 | 269.978 | 119.017.020 |
| 2021 | 38.704.216 | 47.501.837 | 903.507 | 2.053.000 | 0 | 89.162.560 |
| 2022 | 47.550.333 | 74.008.379 | 2.874.469 | 2.594.000 | 171.874 | 127.199.054 |

**Table 5: Funding for EIT InnoEnergy activities by activity type (€)**

| Activity type | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|---|---|
| Innovation and Research | 36.422.054 | 34.390.972 | 40.482.607 | 53.331.261 | 45.717.024 | 33.500.859 | 24.132.457 |
| Entrepreneurship | 15.360.539 | 16.352.245 | 15.878.568 | 18.356.451 | 29.429.460 | 13.898.706 | 32.644.389 |
| Education | 13.685.575 | 15.944.422 | 16.662.224 | 16.529.126 | 13.093.389 | 11.369.750 | 11.301.925 |
| Communication, Dissemination and Outreach + Other | 1.218.929 | 0 | 3.868.193 | 5.312.247 | 14.624.727 | 10.829.655 | 40.755.934 |
| Management and Coordination | 11.156.683 | 11.852.638 | 11.111.333 | 11.860.038 | 11.793.515 | 11.608.445 | 13.372.329 |
| EIT RIS | 6.297.897 | 6.189.218 | 2.485.420 | 3.497.247 | 4.358.905 | 7.955.144 | 4.992.021 |
| **Funding - Any type** | **84.141.676** | **84.729.495** | **90.488.345** | **108.886.369** | **119.017.020** | **89.162.560** | **127.199.054** |

Source: Data provided by EIT. Own calculation. Note: comment on merging some funding types

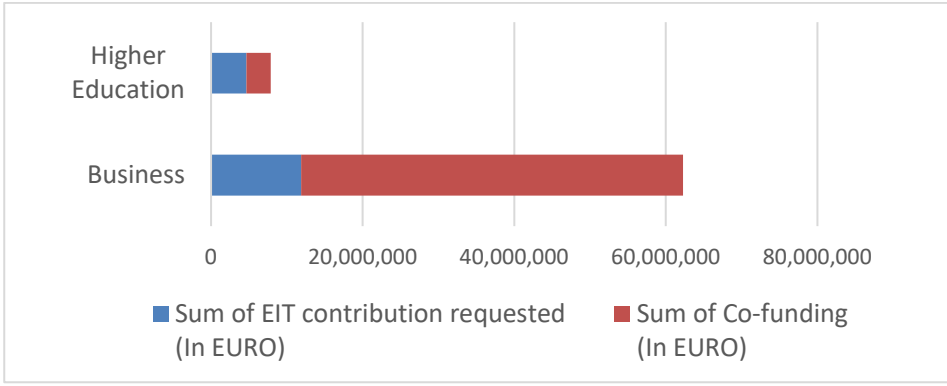


Figure 12. EIT contribution and co-funding of KAVAs by sector of implementation (2022).

Source: Data provided by EIT. Own calculation

**Table 6: Number of partners and participations in KAVA of EIT InnoEnergy, by year of activity**

| Year | Number of partners | Number of KAVA participations | Number of countries |
|---|---|---|---|
| 2016 | 217 | 365 | 23 |
| 2017 | 216 | 419 | 24 |
| 2018 | 189 | 371 | 24 |
| 2019 | 166 | 339 | 23 |
| 2020 | 138 | 275 | 22 |
| 2021 | 104 | 213 | 24 |
| 2022 | 86 | 188 | 25 |

Source: Data provided by EIT. Own calculation.

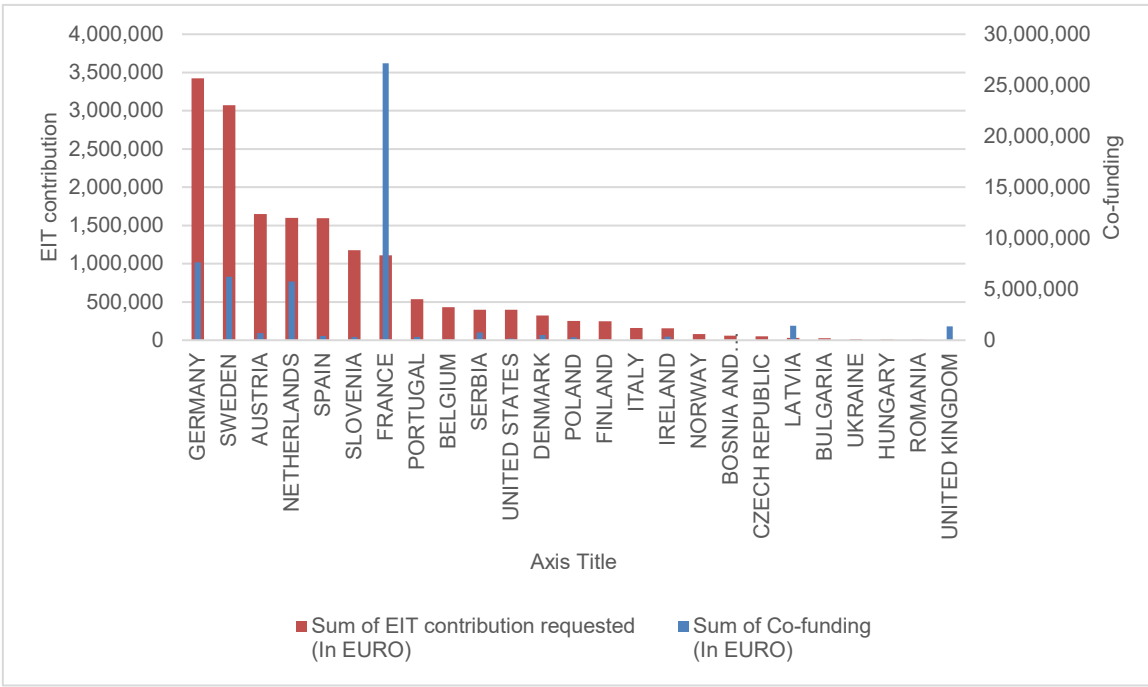


Figure 13. EIT contribution requested by EIT InnoEnergy partners and co-funding of KAVAs across countries (2022).

Source: Data provided by EIT. Own calculation.

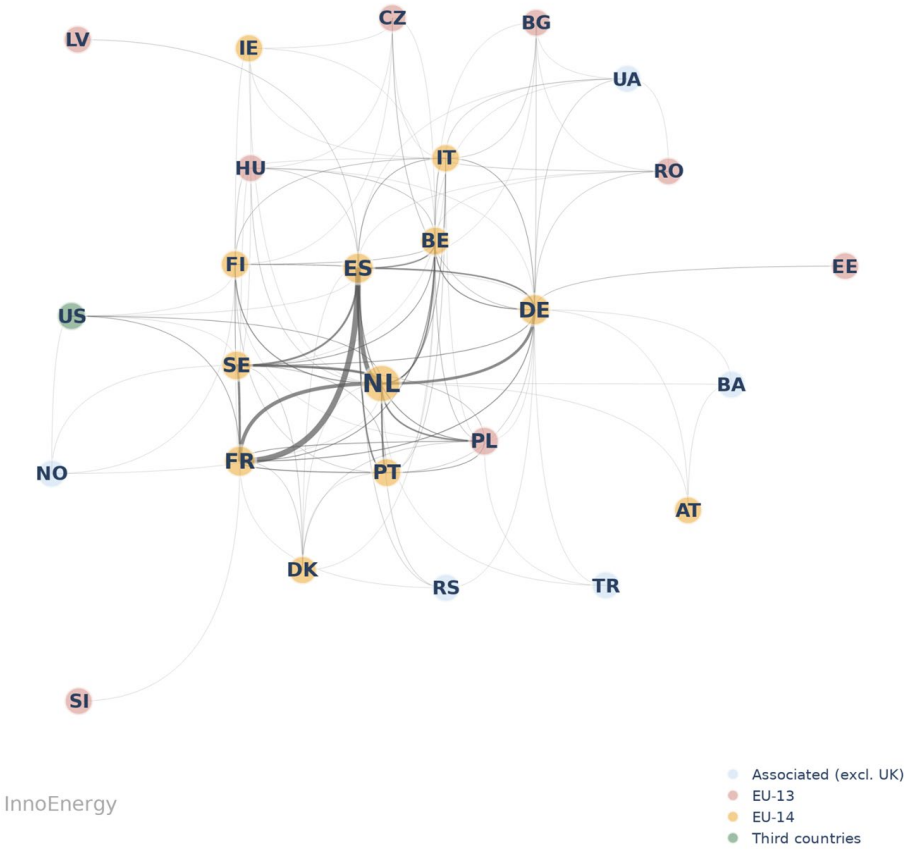


Figure 14. Network of participants in EIT InnoEnergy by country and country group 2021-2022.

Source: Data provided by EIT. Own calculation

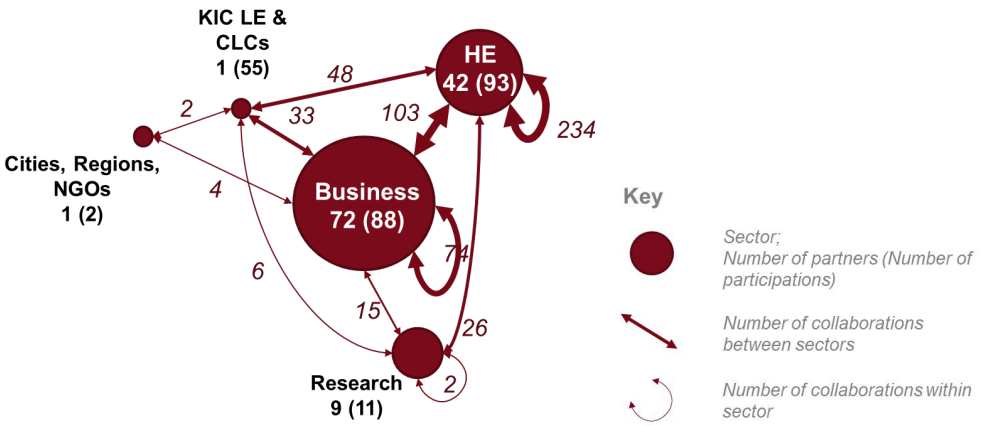


Figure 15. Network of Co-participations in EIT InnoEnergy KAVAs by institutional sector 2021-2022

Source: Data provided by EIT. Own calculation.

**Table 7. Number of products across the Thematic Fields of EIT InnoEnergy**

| Thematic Field | Number of products |
|---|---|
| Energy storage | 37 |
| Renewable energies | 52 |
| Energy for transport and mobility | 31 |
| Sustainable buildings and cities | 51 |
| Energy efficiency | 45 |
| Energy for circular economy | 18 |
| Smart electric grid | 15 |

Source: EIT InnoEnergy website

| | ACTUALS | | | FORECAST | PLAN | | | | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | (21-27) |
| 8 **EIT funding expected** (Corona excluded) | 78 | 87 | 91 | 82 | 54 | 48 | 40 | 35 | 25 | 25 | 25 | **254** |
| 1.1 **Income by ROI of I-Project/MC** (Net) | 00,8 | 4,8 | 5,79 | 6,5 | 10 | 14 | 24 | 49 | 59 | 69 | 79 | **304** |
| 1.2 **Income by equity exits** (Net) | 0,8 | 2,1 | 5,1 | 6 | 10 | 19 | 22 | 25 | 40 | 60 | 80 | **256** |
| 2 **Education** (Gross) | 0,5 | 1,1 | 1,7 | 2,7 | 3 | 4,2 | 5,2 | 6,2 | 7,2 | 7,2 | 7,2 | **40** |
| 3 **Consulting and services** (Gross revenue) | 0,3 | 0,9 | 1,9 | 1,8 | 2 | 5 | 6 | 7 | 8 | 8 | 8 | **46** |
| 4 **Membership fees** (Net) | 2,8 | 2,4 | 4,3 | 3 | 3 | 4 | 4 | 4 | 4 | 4 | 4 | **27** |
| 5 **Alternative funding** | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 2 | 3 | 4 | **10** |
| 6 **Sum of EIT InnoEnergy own revenues** | **5,2** | **11,3** | **18,79** | **20** | **30** | **46,2** | **61,2** | **92,2** | **120,2** | **151,2** | **182,2** | **683** |
| 7 **Total KAVA budget** (EIT + InnoEnergy)* | 83,2 | 98,3 | 109,79 | 102 | 84 | 94,2 | 101,2 | 127,2 | 145,2 | 176,2 | 207,2 | **937** |
| 8 **EIT funding expected** (Corona excluded) | 78 | 87 | 91 | 82 | 54 | 48 | 40 | 35 | 25 | 25 | 25 | **254** |
| 10 **EIT FS coefficient** (6/8) | **7%** | **13%** | **21%** | **24%** | **64%** | **96%** | **153%** | **263%** | **481%** | **605%** | **729%** | |
| 11 **New FS coefficient** (8/7)** | **94%** | **89%** | **83%** | **80%** | **64%** | **52%** | **40%** | **28%** | **17%** | **14%** | **12%** | |

* Cofunding from other sources excluded.

** New FS coefficient (8/7) which could make more sense: How much of the new funds (EIT and own EIT InnoEnergy) come from the EIT.

Figure 16: Financial sustainability plans (M€).

Source: EIT InnoEnergy.

## 10.3. Supplementary Evidence: Results

### 10.3.1. Coherence

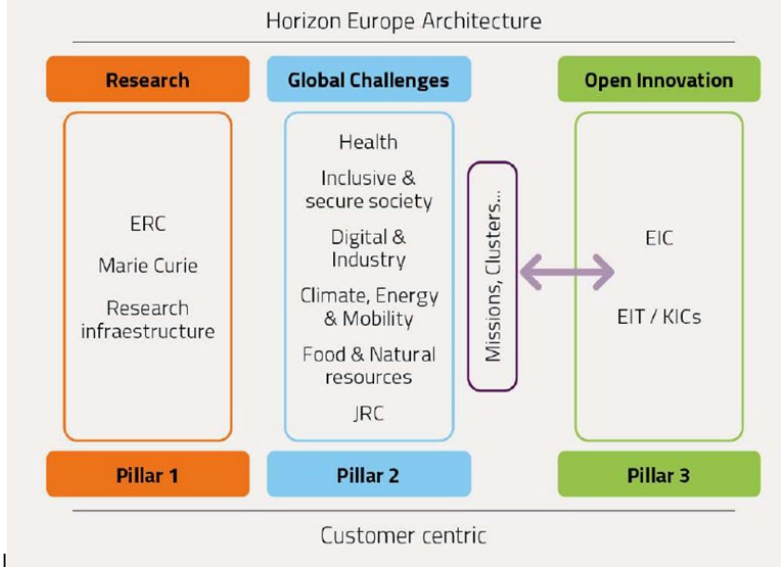


Figure 17. EIT InnoEnergy synergies[85]

[85] EIT InnoEnergy Strategic Agenda 2021-2027. https://www.innoenergy.com/media/6400/eit-ie-strategic-agenda-2022-2024.pdf

### 10.3.2. Efficiency

**Table 8 Scoreboard of EIT core KPIs**

| EIT core KPI | | EIT Digital | EIT Climate-KIC | EIT InnoEnergy | EIT Health | EIT Raw Materials | EIT Food |
|---|---|---|---|---|---|---|---|
| EITN01 | # Graduates from EIT labelled MSc and PhD programmes | 288 | 81 | 275 | 53 | 53 | - |
| EITN02 | # Start-ups created by students enrolled and graduates from EIT labelled MSc and PhD programmes | 0 | 2 | 0 | 0 | 0 | - |
| EITN03 | # Products (goods or services) or processes launched on the market | 65 | 97 | 22 | 7 | 48 | 18 |
| EITN04 | # Start-ups created as a result of innovation projects | 14 | 1 | - | 4 | 3 | 1 |
| EITN05 | # Start-ups supported by KICs | 92 | 328 | 115 | 386 | 76 | 118 |
| EITN06 | Investment attracted by start-ups supported by KICs (EUR) | 113,405,000 | 74,882,523.05 | 1,394,867,275 | 143,560,249 | 11,499,374 | 77,251,044 |
| EITN07 | # Success stories submitted to and accepted by EIT | 6 | 0 | 11 | 27 | 24 | 20 |
| EITN08 | # External participants in EIT RIS programmes | 309 | 145 | 646 | 675 | 705 | 372 |
| EITN8.1 | # External participants (individuals) in EIT RIS programmes | 269 | 35 | 600 | 662 | 418 | 332 |
| EITN8.2 | # External participants (organisations) in EIT RIS programmes | 40 | 110 | 46 | 13 | 287 | 40 |
| EITN09 | Budget consumption of KICs | 85.76% | 85.76% | 85.76% | 85.76% | 85.76% | 85.76% |
| EITN10 | Error rate of KICs | 98.49% | 98.49% | 98.49% | 98.49% | 98.49% | 98.49% |
| EITN11.1 | Financial Sustainability (FS): revenue of KIC LE (EUR) | 4,008,303 | 4,138,374 | 18,724,000 | 8,050,000 | 9,202,675 | 4,576,920 |
| EITN11.2 | Financial Sustainability (FS): FS coefficient | 5.71% | 4.80% | 20.72% | 9.94% | 12.14% | 11.45% |

Source: Annual Activity Report 2021

### 10.3.3. Effectiveness

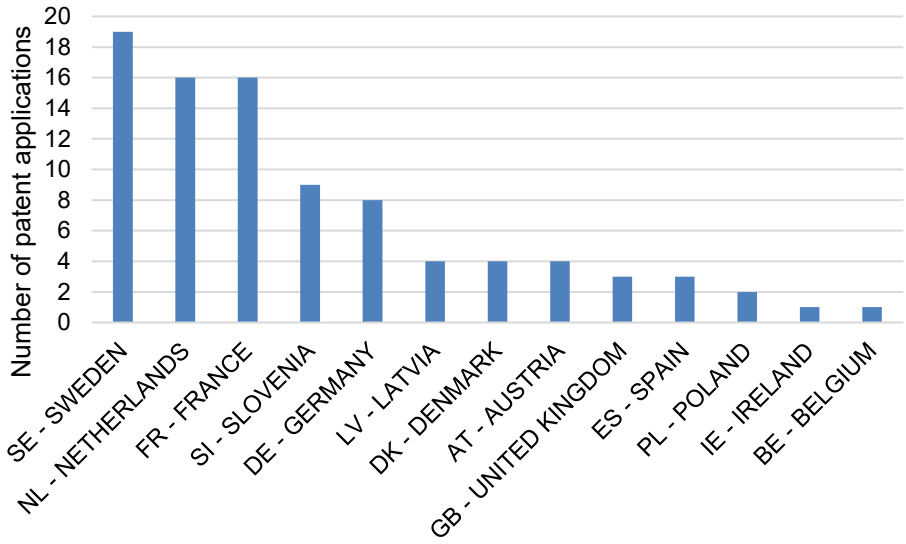


Figure 18. Patent applications from EIT InnoEnergy by country of applicant, 2021-2022

Source: Data provided by EIT. Own calculation.

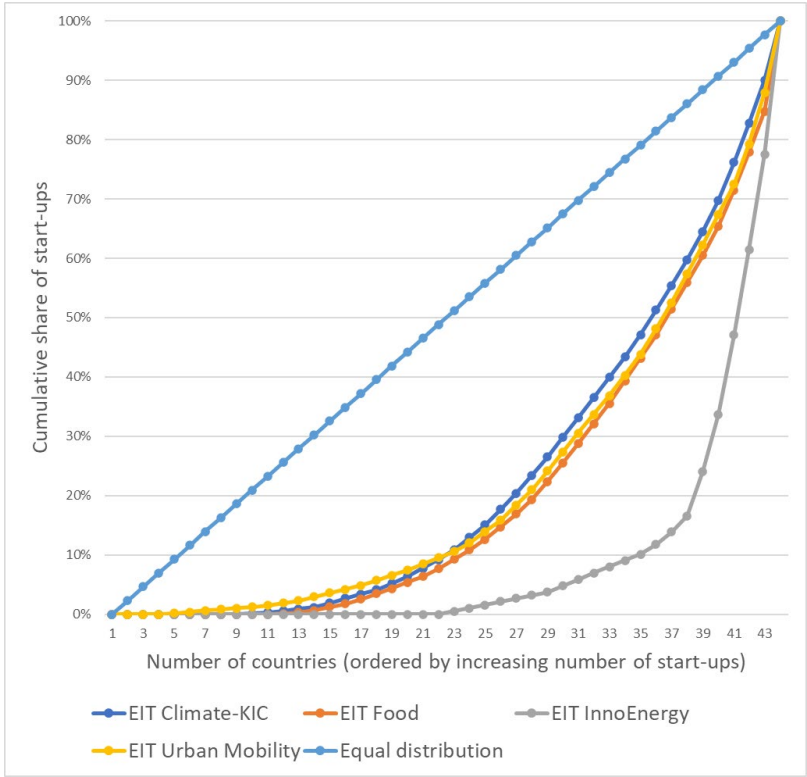

Figure 19. Cross-country distribution of start-ups in different EIT-KICs, 2021-2022 (Lorenz-curve)

Source: Data provided by EIT. Own calculation.

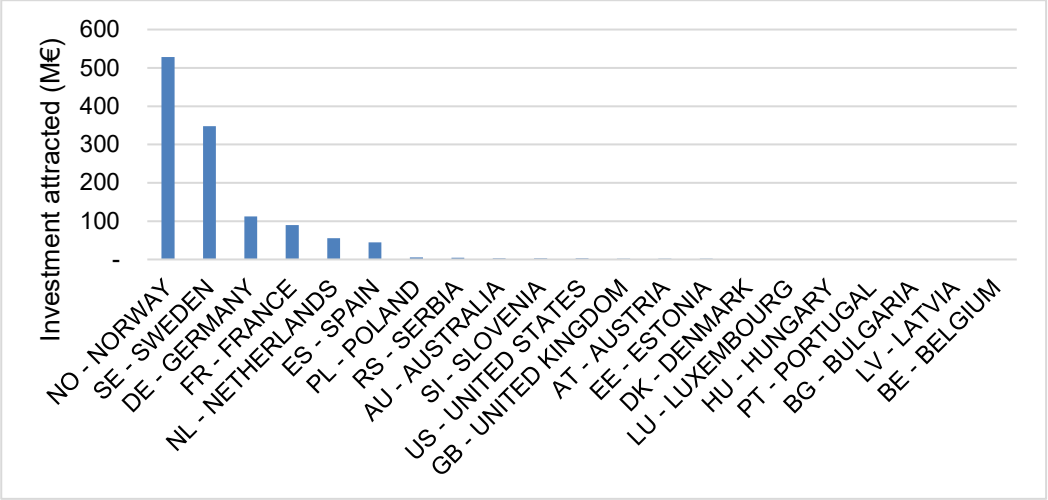


Figure 20. Investment attracted by EIT InnoEnergy start-ups by country of registration, 2021-2022

Source: Data provided by EIT. Own calculation.

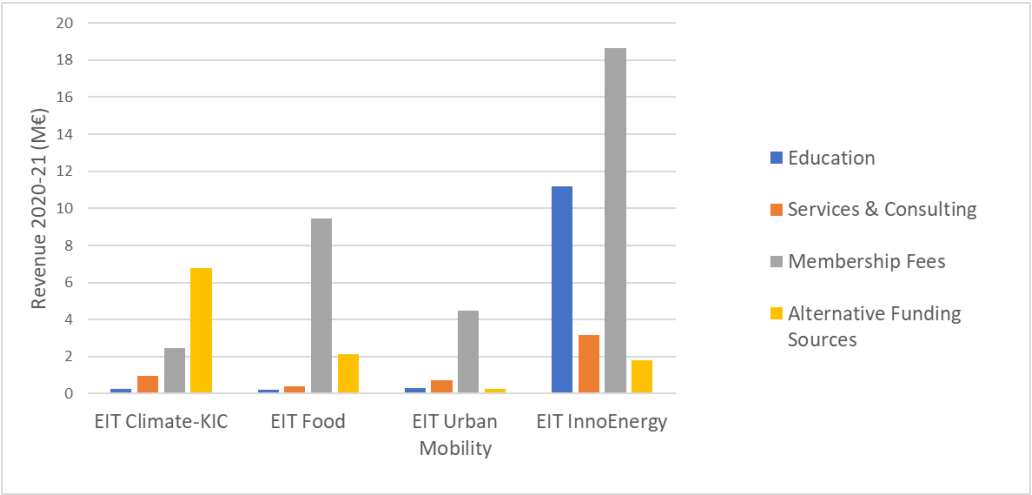


Figure 21. Revenues of EIT-KICs by type, 2021-2022

Source: Data provided by EIT. Own calculation.

### 10.3.4. Additionality

**Table 9. Total investment attracted by EIT InnoEnergy partners 2019-20 (M€)**

| Serviced by EIT InnoEnergy Office | 2019 | 2020 |
|---|---|---|
| Benelux | 18,540 | 4,191 |
| France | 16,953 | 4,309 |
| Germany | 8,042 | 4,239 |
| Iberia | 26,693 | |
| Poland | 0,833 | |
| Sweden | 1333,923 | |

Source: EIT InnoEnergy

**Table 10. Total investment attracted by EIT InnoEnergy partners 2021-22 (M€)**

| Country | 2021 | 2022 |
|---|---|---|
| AT - AUSTRIA | 1,006 | 0,862 |
| AU - AUSTRALIA | | 80,507 |
| BE - BELGIUM | 0,200 | |
| BG - BULGARIA | 0,330 | |
| CH - SWITZERLAND | | 0,090 |
| DE - GERMANY | 15,920 | 99,550 |
| DK - DENMARK | 1,457 | |
| EE - ESTONIA | 0,900 | 5,868 |

| Country | 2021 | 2022 |
|---|---|---|
| ES - SPAIN (2022 Iberia) | 13,640 | 42,313 |
| FR - FRANCE | 36,997 | 77,050 |
| GB - UNITED KINGDOM | 1,845 | |
| HU - HUNGARY | 0,830 | |
| NL - NETHERLANDS | 5,245 | 50,882 |
| NO - NORWAY | 528,201 | 10,468 |
| LT - LATVIA | | 0,300 |
| LU - LUXEMBOURG | | 0,872 |
| PL - POLAND | 0,577 | 4,636 |
| PT - PORTUGAL | 0,392 | |
| RS - SERBIA | | 4,800 |
| SE - SWEDEN | 79,258 | 281,463 |
| SI - SLOVENIA | 0,716 | 2,400 |
| US - UNITED STATES | 2,699 | |

Source: EIT InnoEnergy

**Table 11. Direct leverage factor for Horizon Europe (2021-2022) for selected EIT KICs.**

| | EC Contribution (EUR million) | Public and Private Partners Contribution (EUR million) | Direct Leverage Factor |
|---|---|---|---|
| EIT Food | 103.19 | 24.48 | 0.24 |
| InnoEnergy | 86.25 | 130.11 | 1.51 |
| EIT UM | 75.82 | 11.30 | 0.15 |
| EIT Climate | 53.99 | 48.26 | 0.89 |

Source: EIT Monitoring Data received from EIT.

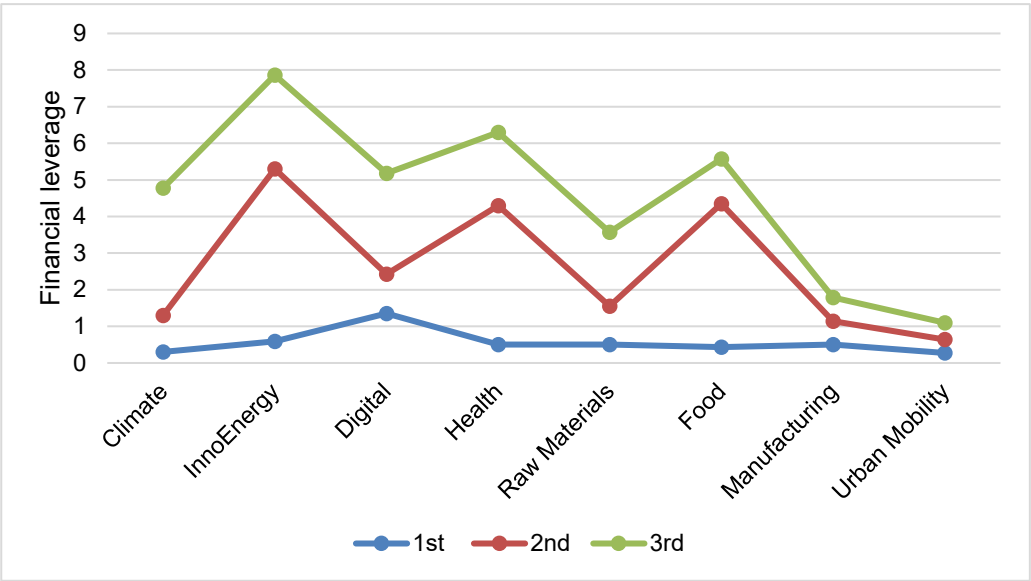


Figure 22: Financial leverage of the KICs (2010-2022)

Notes:

1st = (acquired co-funding + revenues + non EIT financed KAVA)/EIT grant

2nd = (acquired co-funding + revenues + non EIT financed KAVA + co-investment attracted by start-ups)/EIT grant

3rd = (acquired co-funding + revenues + non EIT financed KAVA + co-investment attracted by start-ups + KCA)/EIT grant

KCA have only occurred as one-off effects in 2020

Source: Data received from EIT.

## 10.4. Bibliometric research output (2014 – 2021)

The research output of EIT InnoEnergy's induced activities from 2014 – 2021 includes 217 papers (compared to 511 papers of the EIT Climate KIC). In the following, results of a bibliometric analysis of this research output are provided, supplementing results on the effectiveness of the partnership in terms of innovation.

On the following dimensions, achievements of EIT InnoEnergy publications were similar to those of SC3 projects overall:

- The share of publications that were amongst highly cited publications at the 10% threshold within their subfield of science and year amounts to 1.9% and is therefore only slightly lower than in the SC3 baseline (2.4%).

- The share of international co-publications (37.8%) is only slightly lower to the one of in SC3 "Energy" overall (43.1%).

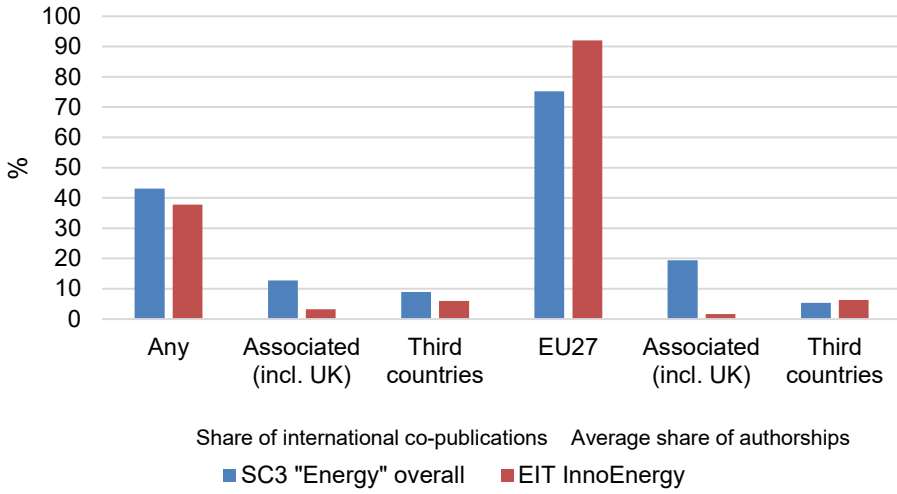


Figure 23. EIT InnoEnergy international co-publication profiles (2014-2021).

Note: Share of international co-publications with at least one first, last or corresponding author from the aggregate of interest & Average share of authorships: average publication-level share of authorships held by researchers from the country aggregate of interest.
Source: Science-Metrix/Elsevier using data from Scopus (Elsevier) and Data provided by EIT. Own calculation.

- EIT InnoEnergy achieved the same disciplinary diversity (DDA) among authors (factor 1.1) as the SC3 baseline (factor 1.1).

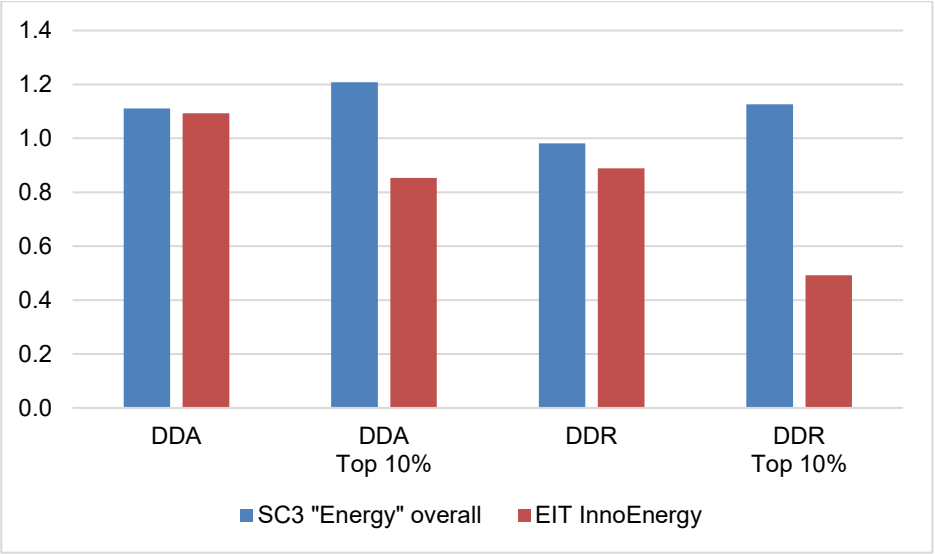


Figure 24. EIT InnoEnergy cross-disciplinarity of publications (2014-2021).

Note: DDA: diversity in disciplinary background of authors, capturing the relative collaborative multidisciplinarity of authors from different backgrounds working together. DDA10%: share of publications falling in the top decile of most multidisciplinary publications in their subfield and year. DDR: disciplinary diversity in references of publication, capturing conceptual integration of prior findings from diverse subfields.
Source: Science-Metrix/Elsevier using data from Scopus (Elsevier) and Data provided by EIT. Own calculation.

The share of academic-private co-publications amounts to 17.5% compared to SC3 with 16.1%. At least one female researcher participated in 48.3% of EIT InnoEnergy's publications, compared to 52.3% in SC3.

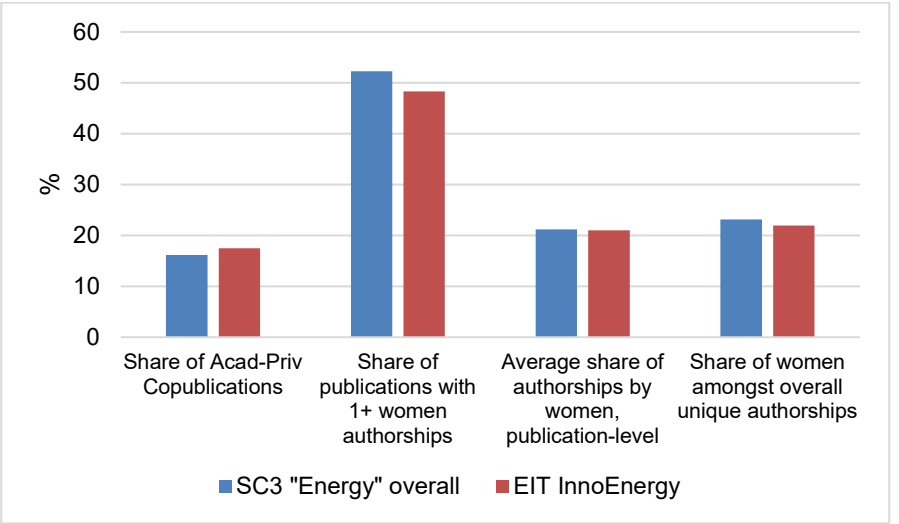


Figure 25. EIT InnoEnergy academic-private co-publications and gender equity in authorship (2014-2021).

Source: Science-Metrix/Elsevier using data from Scopus (Elsevier) and eCorda. Own calculation.

However, publications by EIT InnoEnergy's induced activities recorded lower levels on all altmetrics dimensions (mentions in News, on Facebook, on Twitter and on Wikipedia) than the SC3 baseline. For example, the share of publications mentioned in the news is 0.7% compared to 2.3% in the SC3 baseline.

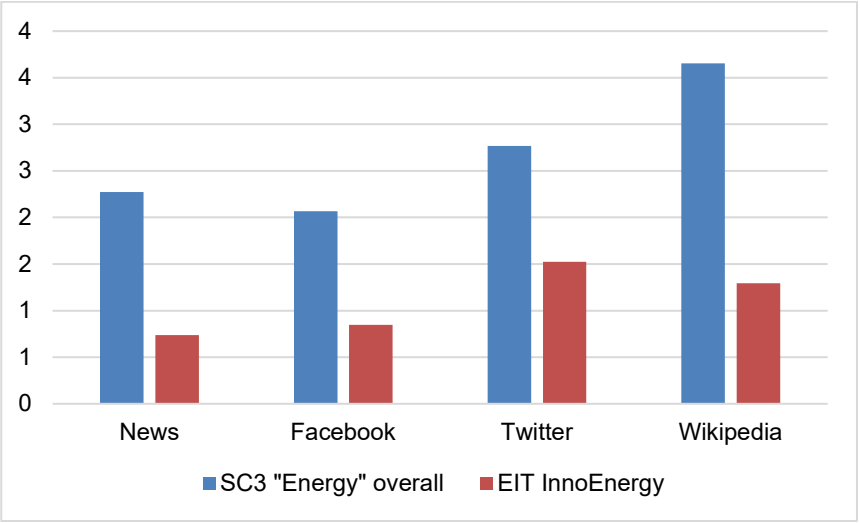


Figure 26. EIT InnoEnergy altmetrics mentions profiles (2014-2021).

Source: Science-Metrix/Elsevier using data from Scopus (Elsevier), eCorda, PlumX and Overton. Own calculation.

Furthermore, 46.9% of publications were available under open access, against 75.9% at the SC3 level.

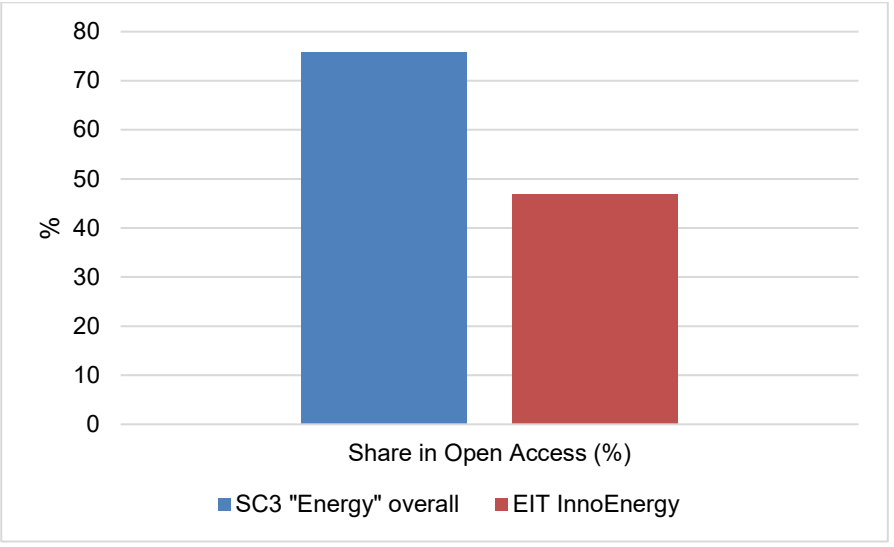


Figure 27. EIT InnoEnergy open access (OA) publications (2014-2021).

Source: Science-Metrix/Elsevier using data from Scopus (Elsevier), eCorda and Unpaywall. Own calculation.

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This evaluation report is part of the interim evaluation of Horizon Europe activities related to the Green Transition. It presents the assessment of the EIT InnoEnergy partnership against the evaluation criteria of relevance, coherence, efficiency, effectiveness, EU added value, additionality, directionality, international positioning and visibility, transparency and openness as well as phasing out preparedness. The evaluation of the partnership is based upon a mixed-method approach including quantitative and qualitative data analysis.

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