

HORIZON EUROPE



Paving The Pathways To Impact

CERT-EGRD thematic discussion ‘Evaluating the impacts of energy innovation policies’



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Directorate-General for Research and Innovation
European Commission, October 29 2021

HORIZON EUROPE

EURATOM

SPECIFIC PROGRAMME: EUROPEAN DEFENCE FUND

*Exclusive focus on
defence research
& development*

Research
actions

Development
actions

SPECIFIC PROGRAMME IMPLEMENTING HORIZON EUROPE & EIT*

Exclusive focus on civil applications



Pillar I EXCELLENT SCIENCE

European Research Council

Marie Skłodowska-Curie

Research Infrastructures



Pillar II GLOBAL CHALLENGES & EUROPEAN INDUSTRIAL COMPETITIVENESS

Clusters

- Health
- Culture, Creativity & Inclusive Society
- Civil Security for Society
- Digital, Industry & Space
- Climate, Energy & Mobility
- Food, Bioeconomy, Natural Resources, Agriculture & Environment

Joint Research Centre



Pillar III INNOVATIVE EUROPE

European Innovation
Council

European Innovation
Ecosystems

European Institute of
Innovation & Technology*

WIDENING PARTICIPATION AND STRENGTHENING THE EUROPEAN RESEARCH AREA

Widening participation & spreading excellence

Reforming & Enhancing the European R&I system

Fusion

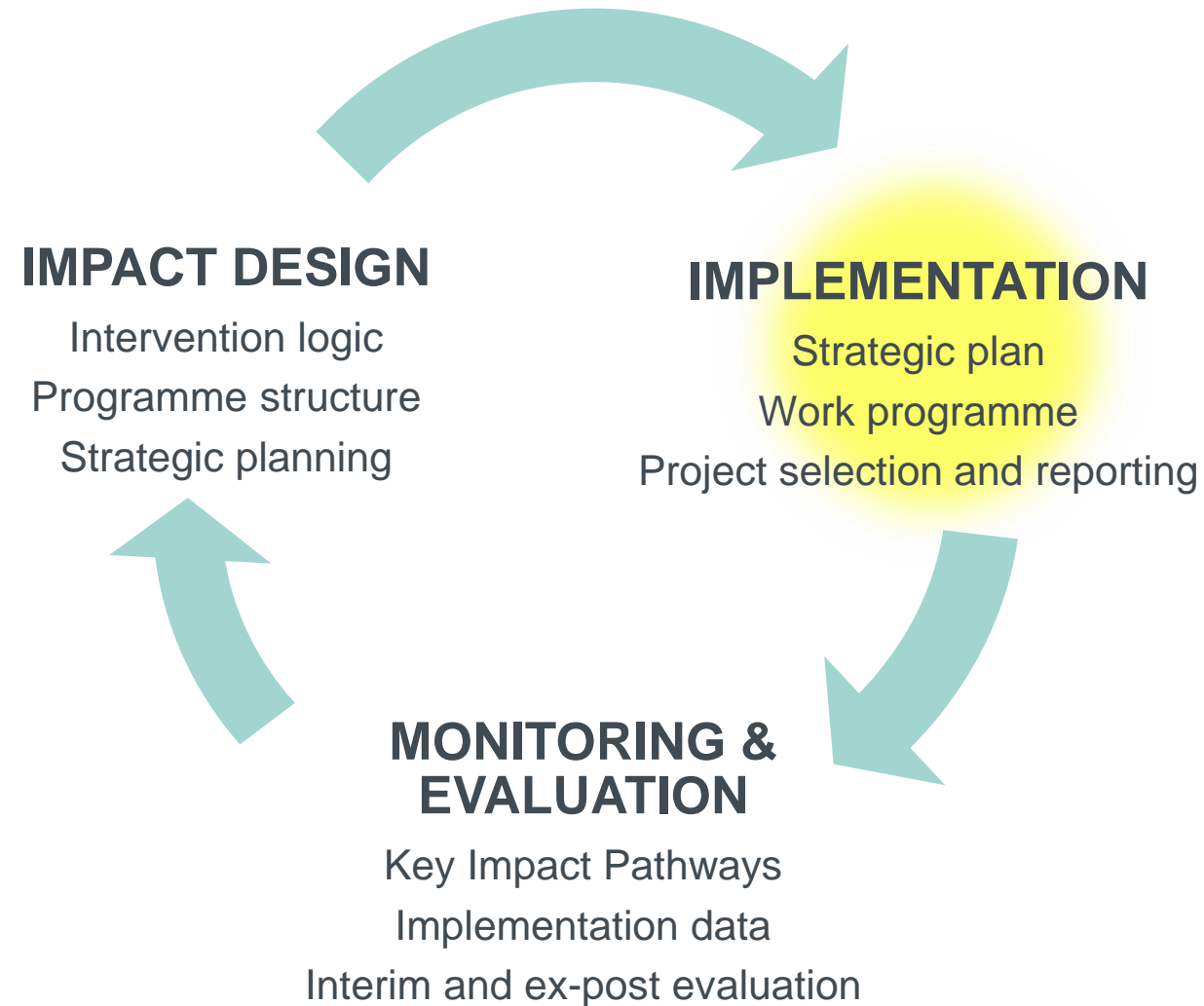
Fission

Joint
Research
Center

* The European Institute of Innovation & Technology (EIT) is not part of the Specific Programme

Horizon Europe Cycle

Impact-driven Framework Programme



Monitoring: Economic Impact

Economic pathway 7: Generating innovation-based growth



STORY LINE: Horizon Europe generates innovation-based growth, shown by its micro-economic effect on supported companies and the macro-economic effect on EU's economy.

Indicators (short, medium, long-term)

Typically
As of YEAR 1+

Number of innovative products, processes or methods

Typically
As of YEAR 3+

Awarded IPRs, family size, citations, and other indicators

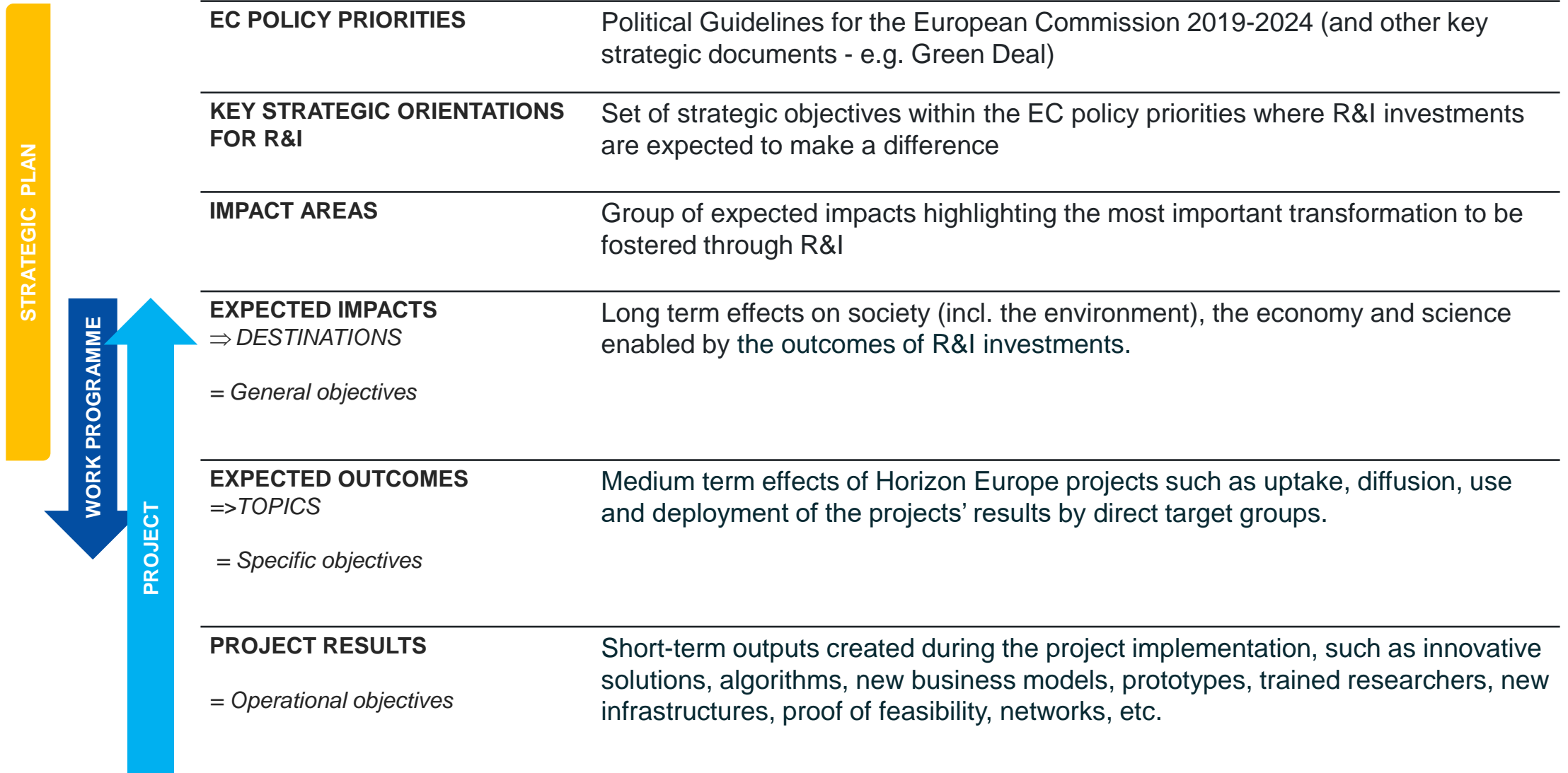
Typically
As of YEAR 5+

Growth of funded companies thanks to funding;
Macroeconomic modelling of the impact of the programme

Self-reported: innovative results, methods, processes; IPRs; company identifiers (including unsuccessful applicants), input for macro-economic models.

External: patent performance, company performance, macro-economic modelling, counter-factual analysis.

Impact Implementation



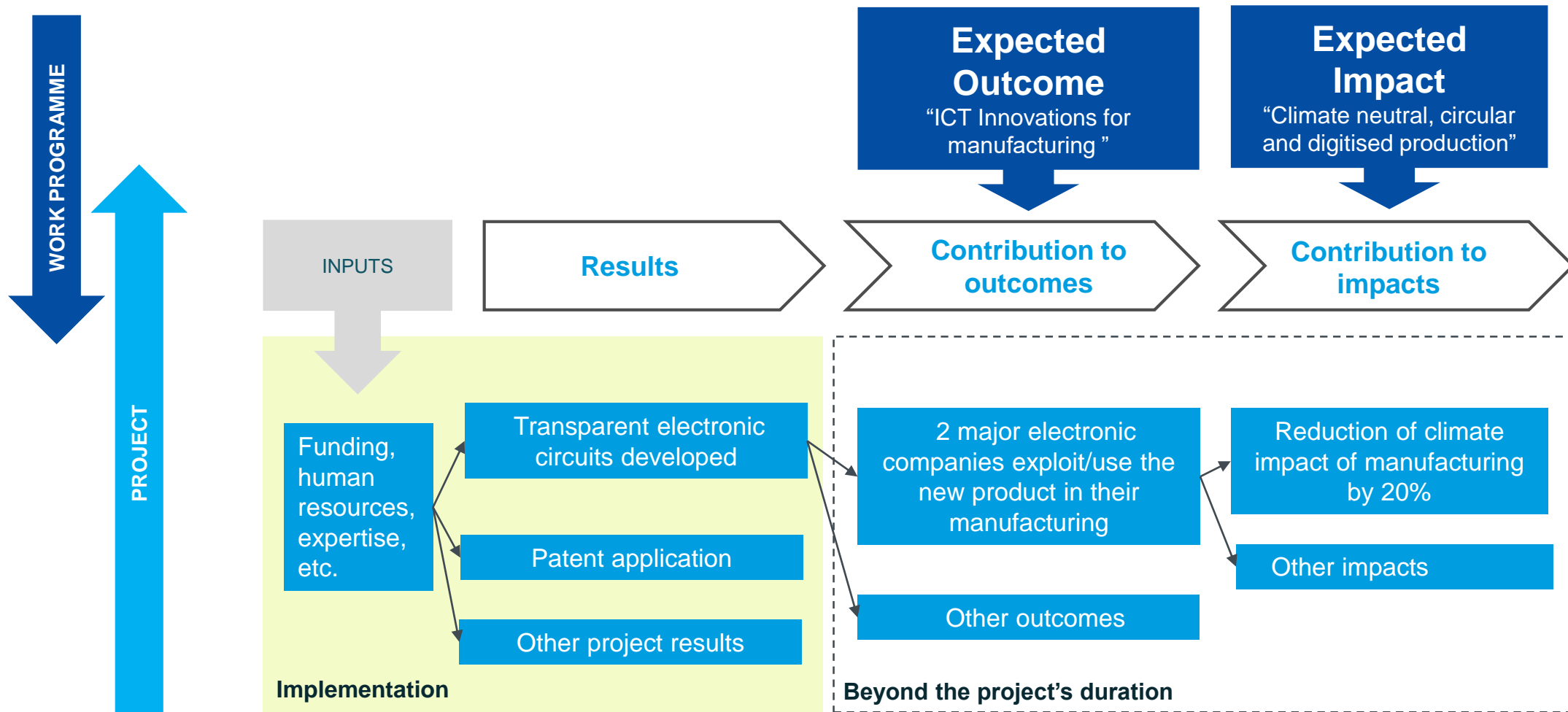
Impact Implementation

Example

	Result	Outcome	Impact
STRATEGIC PLAN Policy priorities & R&I strategic orientation	-	-	Seamless, smart, inclusive and sustainable mobility services through new digital technologies
WORK PROGRAMME Destinations & Topics	-	Innovative logistics solutions applied by the European air transport sector	Seamless, smart, inclusive and sustainable air services
PROJECT Project results & objectives	Successful large-scale demonstration trial with 3 airports of an advanced forecasting system for proactive airport passenger flow management	At least 9 European airports adopt the advanced forecasting system that was demonstrated during the project	15% increase of maximum passenger capacity in European airports

Examples: Pathway To Impact

Describes the specific contribution of the project to the expected outcomes and impacts set out in the Work Programme



HORIZON EUROPE

Monitoring and evaluating the impacts of energy innovation



Information & Knowledge In Support Of Horizon Evaluation And Monitoring

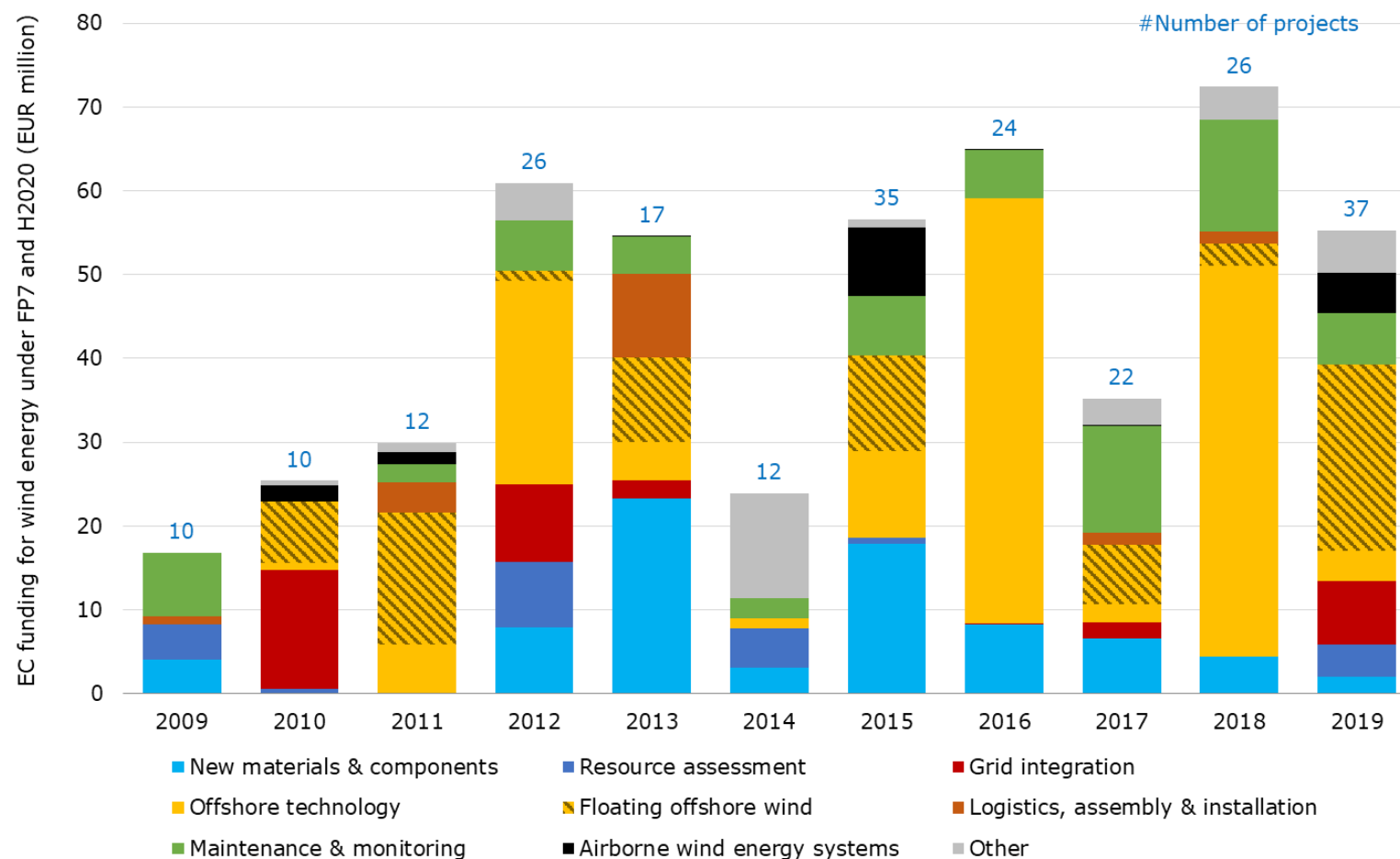
Information on the state of the art and TRL levels achieved for different technologies are essential for the design of Research Programmes and their calls. Within the Commission, the JRC, as the knowledge and science service, works in a structured partnership with policy DGs to provide this essential information on an annual basis.

The annual CPR & SOEUR provide information on the R&I investments and innovation outputs (patents) in clean energy solutions per country and the EU; and benchmarks against other major economies. They highlight areas that may need more support to achieve policy goals and boost competitiveness.

More specialised reports identify development trends and market barriers, and make (non-binding) recommendations on research topics.

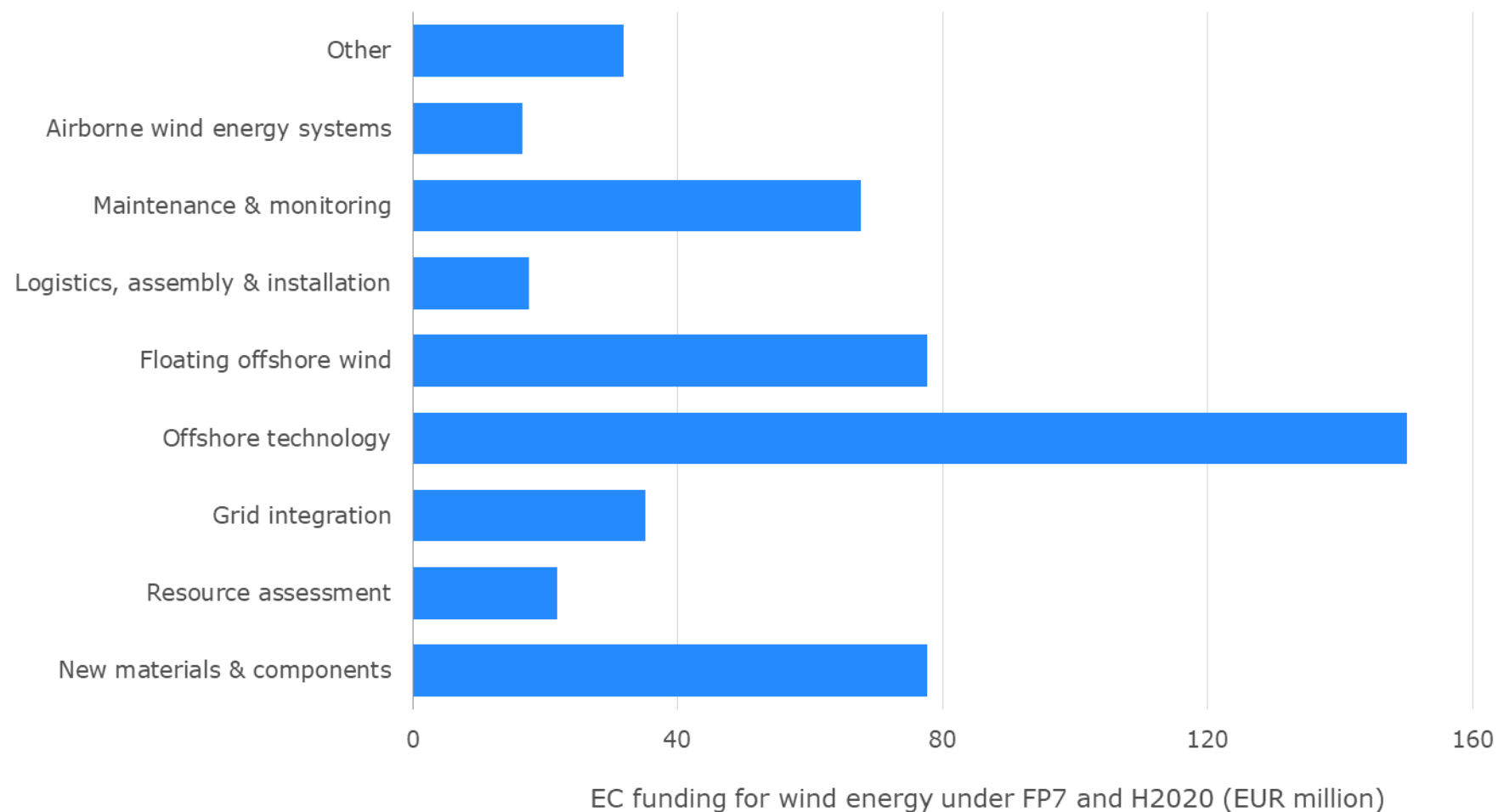
Horizon Evaluation And Monitoring

Example Wind Energy



Horizon Evaluation And Monitoring

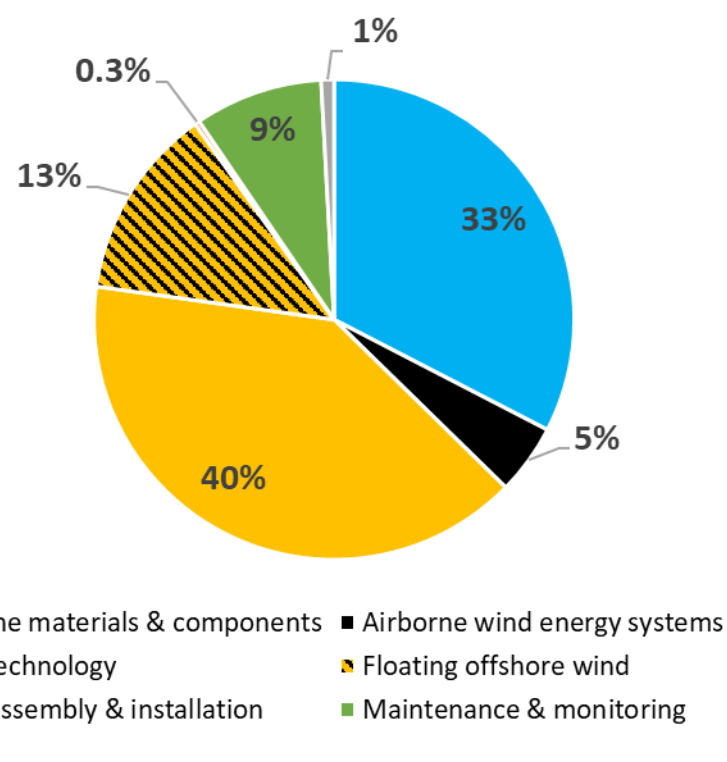
Example Wind Energy (2)



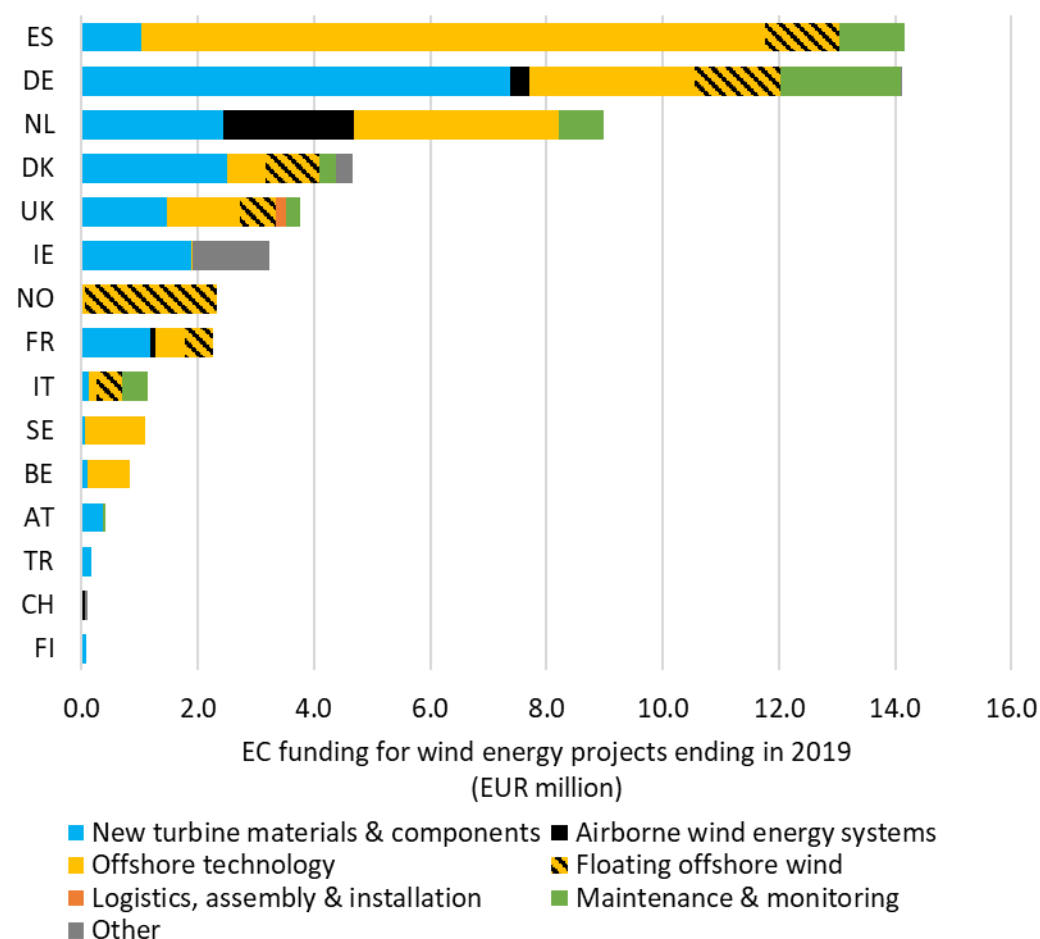
Horizon Evaluation And Monitoring

Example Wind Energy (3) - H2020 WIND Projects completed in 2019

Research areas



Beneficiary countries



Green Transition Evaluation Study

The **objective** of the **Green Transition Evaluation Study** is to support the ex-post evaluation of Horizon 2020 and the interim evaluation of Horizon Europe in the impact area 'Green Transition' and inform the implementation of Horizon Europe in the future multi-annual financial framework (2021-2027).

The study is 1/5 impact area evaluation studies part of the new FP evaluation that are being carried out together with studies focused on horizontal aspects.

Has H2020 and HE contributed to the Green Transition and in what way?

- How is the FP addressing needs and enabling and fostering the green transition?
- Lessons learned and how to optimize impact
- Special focus on synergies / coherence EU and MS policy framework

The green transition area (as defined in the study) + Relevant Partnerships & Missions



Food, Agriculture, Water, and Bioeconomy



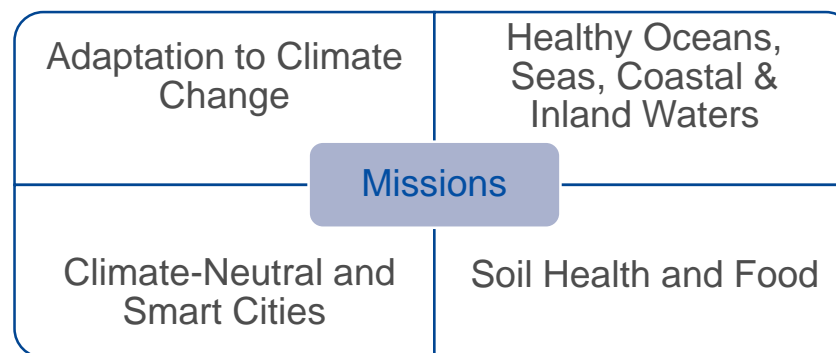
Energy



Transport and Mobility



Climate Action



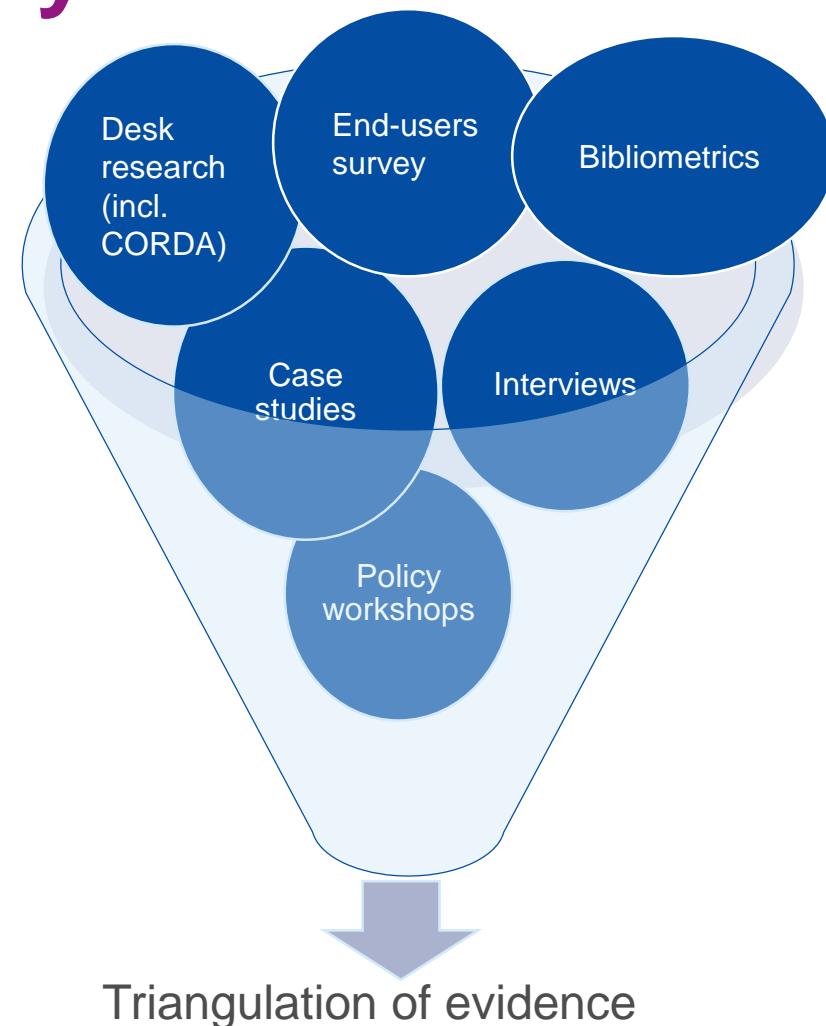
Green Transition Evaluation Study

The **Analysis** requested for the **Green Transition Evaluation Study** can be summarized accordingly:

- Programme design & its instrumental setting (Relevance & Coherence)
- Programme implementation (Efficiency & Effectiveness)
- Analysis of impact (Results & EU added value)
- Partnership evaluations (with additional partnership specific criteria)

The study is to be **divided into 2 phases**, Phase 1 - Horizon 2020 programme parts & Partnerships (legal obligation) and Phase 2 on the relevant Horizon Europe programme parts & Partnerships and additional Missions

- **Expected tools & methodologies to be used:** Targeted surveys, network analysis, patent analyses, expert group reviews, benchmarking, counterfactual analysis, cost-benefit analysis, microeconomic and macroeconomic modelling
- **Data:** Qualitative and Quantitative data sources e.g.: Stakeholder consultations and project data repositories (CORDA)
- **Level of analysis:** FP/SC/Cluster/thematic areas/partnership level.
- **Alignment with current monitoring and reporting** e.g. Key Impact Pathways, SDGs, SET Plan key actions

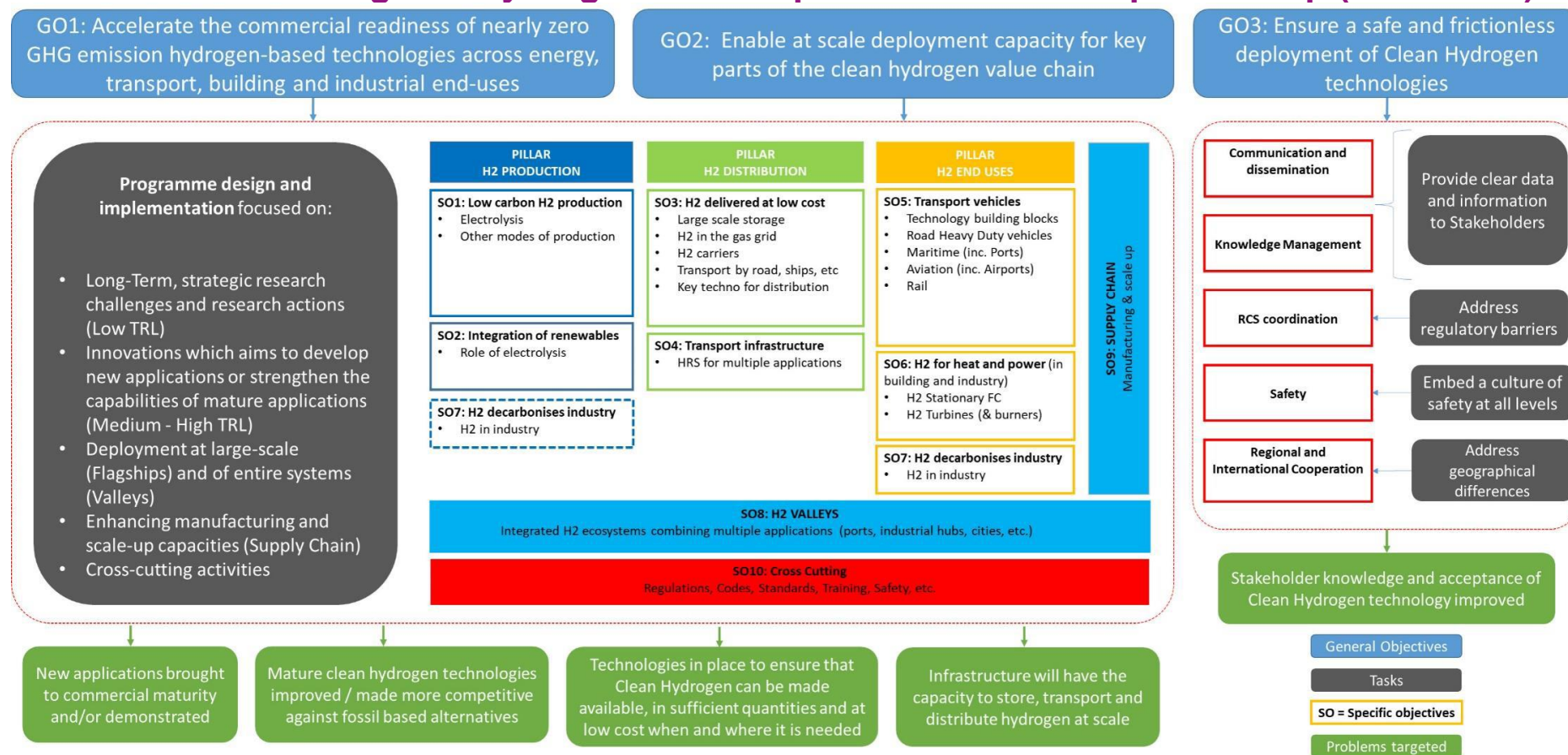


Evaluation question examples for the Green Transition	Indicators
How relevant has the FP been in addressing stakeholders' needs and considering the identified challenges at the time of the design of the WP?	Degree of fit between stakeholder needs & specific objectives Degree of fit between challenges and specific objectives
How coherent has the FP parts within the scope of the study been to deliver impact in the area of Green transition with respect to: <ul style="list-style-type: none"> - Other parts of the FP (outside of the scope of the study) - Other EU programmes - MS policy framework and initiatives 	Gaps, overlaps, synergies, complementarities Factors that foster/hamper impact creation through synergies, complementarities
Efficiency: To what extent has the FP in this area been cost-effective?	Share of high-quality proposals funded Ability of FP to deliver on specific objectives with given budget Cost Effectiveness in terms of ability to deliver on specific objectives against best practice or other interventions with similar objectives.
Effectiveness: What are the main results and (expected) outcomes and impacts from the projects supported in this area?	To be based on the relevant reporting and monitoring system, KIPs, and any additional relevant indicators.
What is the EU added value of the FP in this area?	Capacity to exploit economies of scale and cross-border externalities of EU intervention in this area

Green Transition study scope & partnerships with separate deliverables

	Phase 1 Horizon 2020 ex-post evaluation	Phase 2 Horizon Europe interim evaluation
FP	<ul style="list-style-type: none"> - SC2: Food Security, Sustainable Agriculture and Forestry, Marine, Maritime and Inland Water Research and the Bioeconomy - SC3: Secure, Clean and Efficient Energy - SC4: Smart, green and integrated transport; - SC5: Climate action, environment resource efficiency and raw materials 	<ul style="list-style-type: none"> - Cluster 5: Climate, energy and mobility - Cluster 6: Food, Bioeconomy, Natural Resources, Agriculture and Environment
Institutionalised partnerships	<p>Initiatives with a legal obligation to report by end 2022: Partnership for Research and Innovation in the Mediterranean Area (PRIMA)</p> <p>Initiatives with a successor in Horizon Europe:</p> <ul style="list-style-type: none"> - Bio-based Industries (BBI) CleanSky 2 Fuel Cells and Hydrogen (FCH 2) - Single European Sky ATM Research (SESAR) - Shift2Rail 	<ul style="list-style-type: none"> - Bio-based Industries (BBI) + Circular Bio-based Europe (CBE) Joint Undertaking - CleanSky 2 + Clean Aviation Joint Undertaking - Fuel Cells and Hydrogen (FCH 2) + Clean Hydrogen Joint Undertaking - SESAR + Single European Sky ATM Research 3 (SESAR 3) Joint Undertaking Shift2Rail + Europe's rail Joint Undertaking
Co-funded partnerships		<ul style="list-style-type: none"> - Water4all: Water security for the planet - Clean Energy Transition - Driving urban transitions to a sustainable future (DUT) - Accelerating Farming Systems Transition: Agroecology living labs and research infrastructures - A climate neutral, sustainable and productive Blue Economy - Animal Health and Welfare Rescuing Biodiversity to Safeguard Life on Earth - Safe and Sustainable Food System for People, Planet & Climate Agriculture of Data
ERANET/ EJP Cofund, Joint Programming Initiatives Co-programmed partnerships	<ul style="list-style-type: none"> - EJP SOIL (EJP Cofund) - OneHealthEJP (EJP Cofund) - Water JPI 	<ul style="list-style-type: none"> - Clean Steel & Low Carbon Steelmaking - Batteries: towards a competitive European industrial battery value chain - Connected and Automated Mobility (CCAM) Towards zero-emission road transport (2ZERO) - Zero-emission waterborne transport People-centric Sustainable Built Environment (Built4People)
EIT KICs	<ul style="list-style-type: none"> - EIT Urban Mobility; EIT Climate; EIT Food; EIT InnoEnergy 	<ul style="list-style-type: none"> - EIT Urban Mobility; EIT Climate; EIT Food; EIT InnoEnergy

Draft intervention logic of Hydrogen for Europe institutionalized partnership (June 2020)



The **specific objectives** within each pillars are, in turn, broken down in targets which should be transformed to indicators in the Strategic Research and Innovation Agenda.

Joint Undertakings

The evaluation of the FCH 2 JU confirmed that:

- A Joint Undertaking as instrument ensures good alignment with both policy and industrial objectives, and has increased Europe's competitive position;
- The FCH JU contributed to structure and mobilise an otherwise fragmented landscape of different sectors and industries;
- It has brought several applications to maturity (e.g. fuel cells for passenger cars), which do not require further support for demonstration in the next financial period;
- The scope of the new Clean Hydrogen Partnership should therefore differ from the current FCH 2 JU, and will expand to include the energy sector, industry and new transport applications (maritime, aviation, rail, heavy transport).

Joint Undertakings

The Impact Assessment for the Clean Hydrogen JU notes a.o. that:

- Increased investment in hydrogen applications would enable energy-intensive industries and heavy-duty transport to fully decarbonise.
 - The sectors in the new JU, in addition to hydrogen production, should include at least heavy industry using hydrogen as feedstock, the biomass/biogas sector, the power sector, gas and grid operators, the transport sector, and the building and heating sector.
 - There is potential for localised economic growth in areas where 'hydrogen valleys' are developed.
- The Multi-Annual Work Plan of the new Clean Hydrogen JU reflects this expansion of sectorial scope
 - The concept of 'hydrogen valleys' will be taken to a global level through the Clean Hydrogen Mission under Mission Innovation, with support from the new JU.

Contribution of the EU funding to IPCC reports

Context

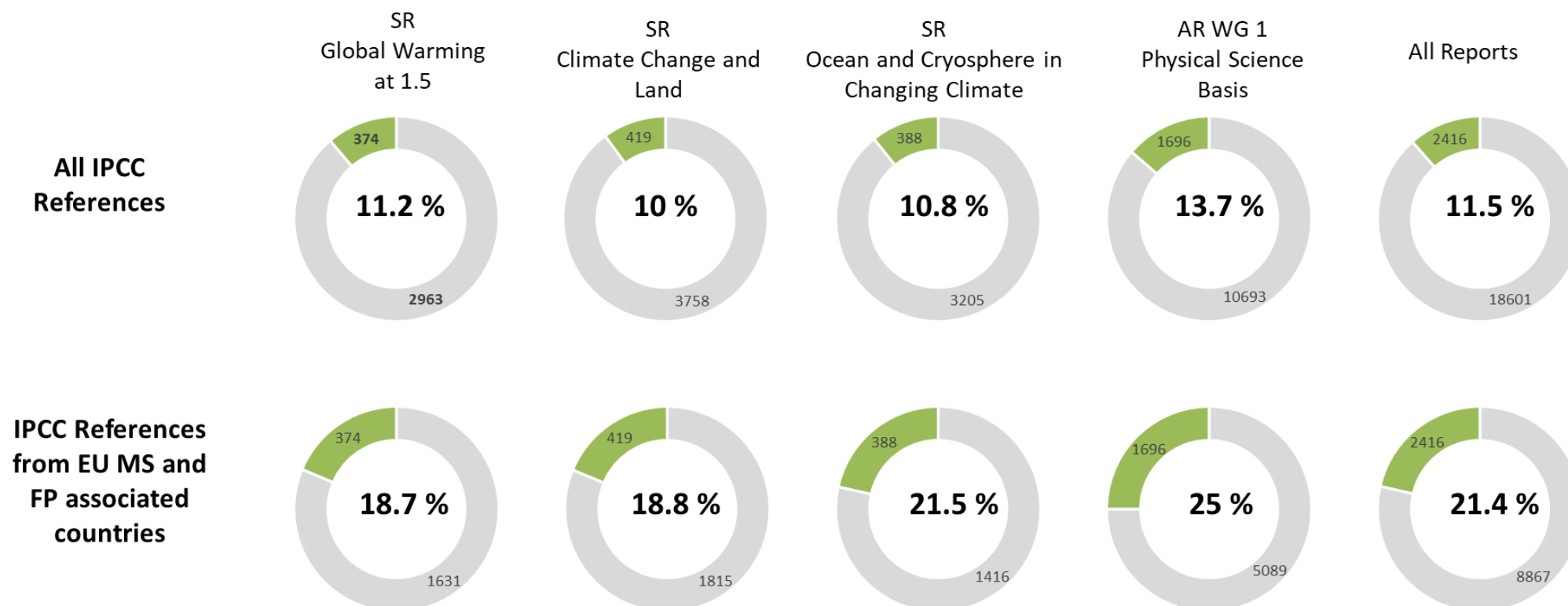
- IPCC ensures that Climate Policy actions are based on best available scientific evidence. IPCC assessments rely on research conducted all over the world and published in peer review journals
- This research is supported by several institutions and funding bodies. We monitor the extent to which the EU funding has contributed to the evidence base of IPCC

Methods & limitations

- We link references of IPCC reports to publications reported by Grant Holders (FP7 & H2020)
- Preliminary descriptive findings (not going into the details the content of the papers and citation contexts)

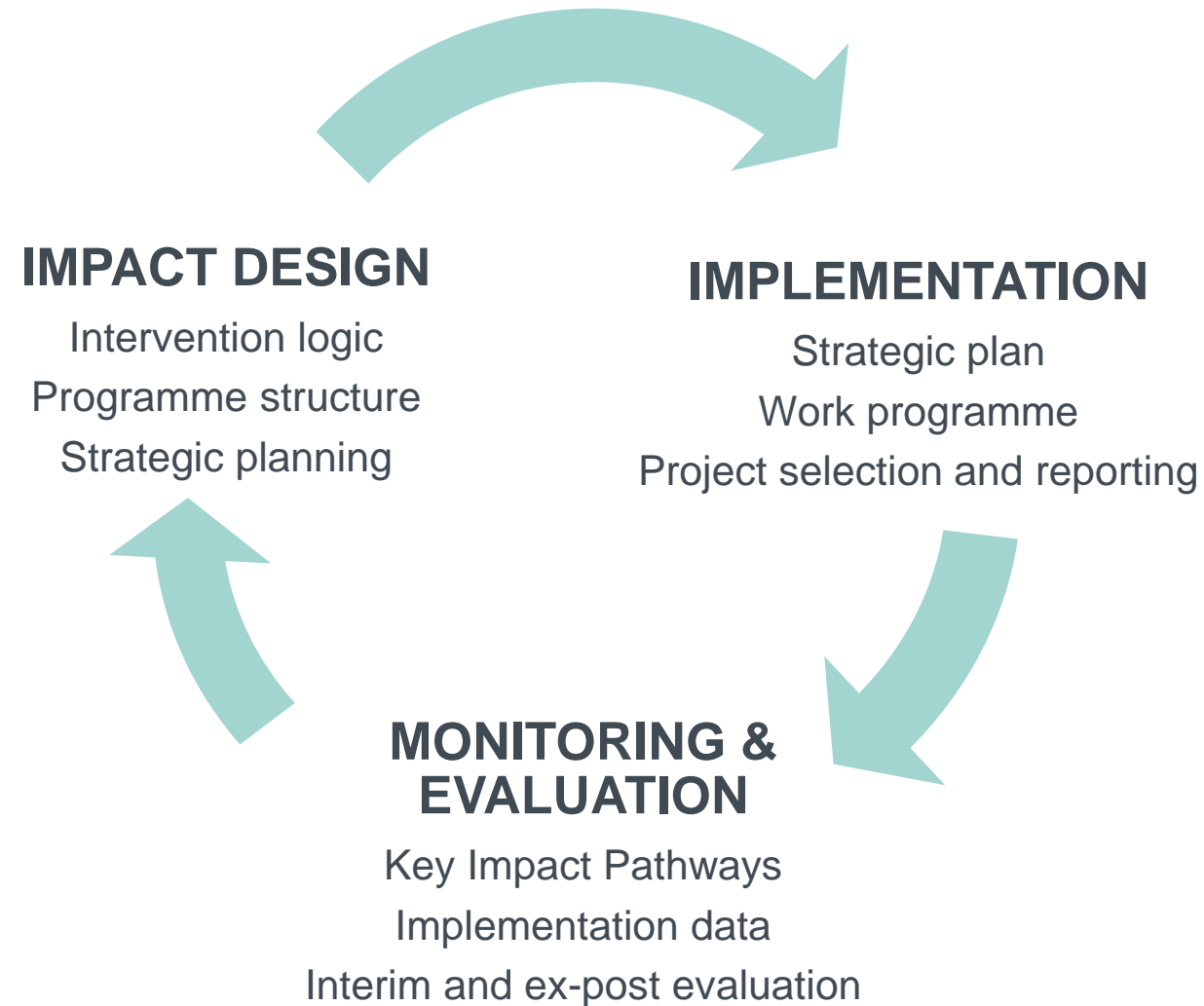
Contribution of the EU funding to IPCC reports

Results



Horizon Europe Cycle

Impact-driven Framework Programme



HORIZON EUROPE



Thank you



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