



Lessons learnt from the interim evaluation of Horizon 2020

Seminar on Comparative Evaluation
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3-4 October 2018

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DG Research & Innovation
European Commission

STRUCTURE of the PRESENTATION

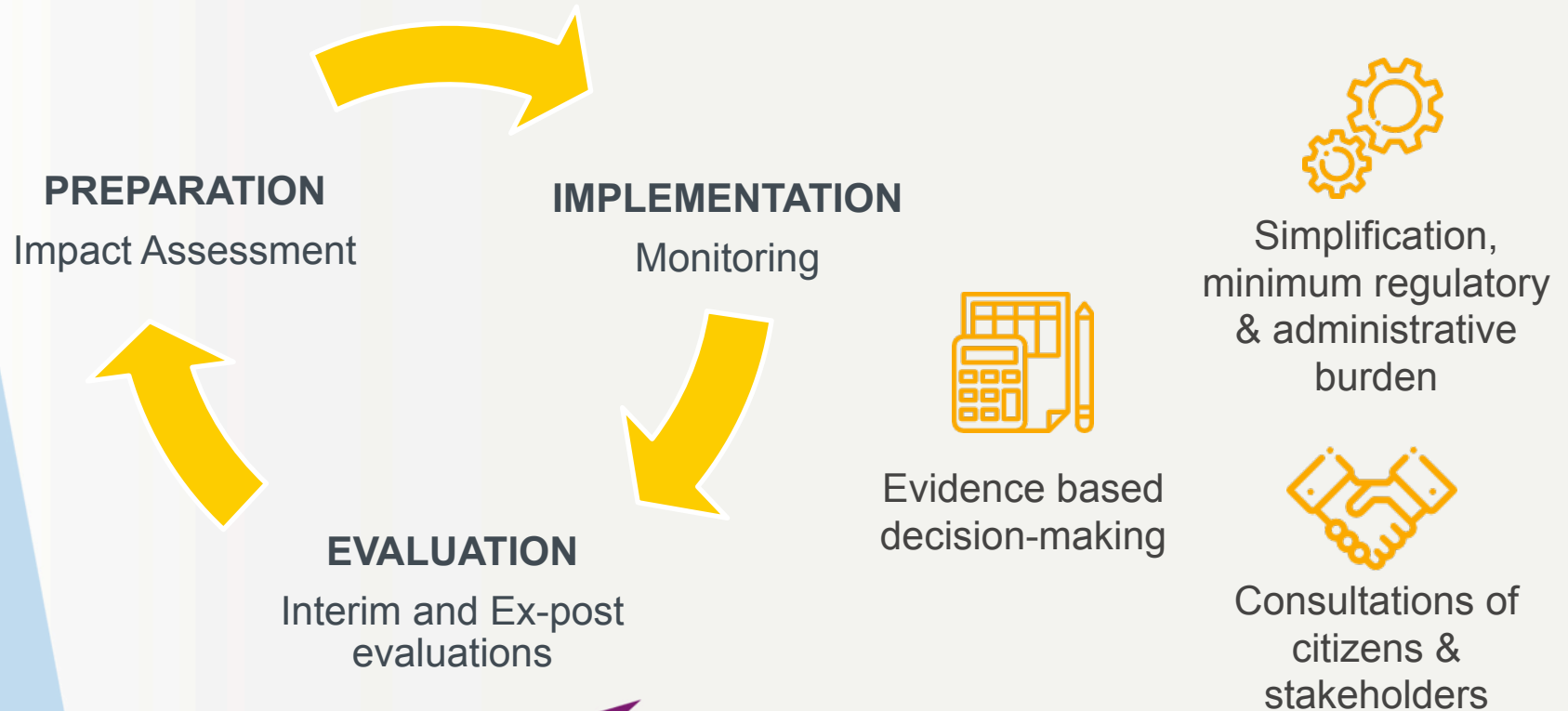
1. Why do we evaluate programmes the way we do?
 - a. Better Regulation cycle
 - b. Evaluation criteria
2. Horizon 2020 Interim Evaluation
 - a. What was evaluated?
 - b. Key challenges
 - c. Key lessons
3. From Horizon 2020 to Horizon Europe
 - a. Key features of the revamped Monitoring & Evaluation system
 - b. Tracking Impact in Horizon Europe



BETTER REGULATION AT THE EUROPEAN COMMISSION

Better regulation agenda

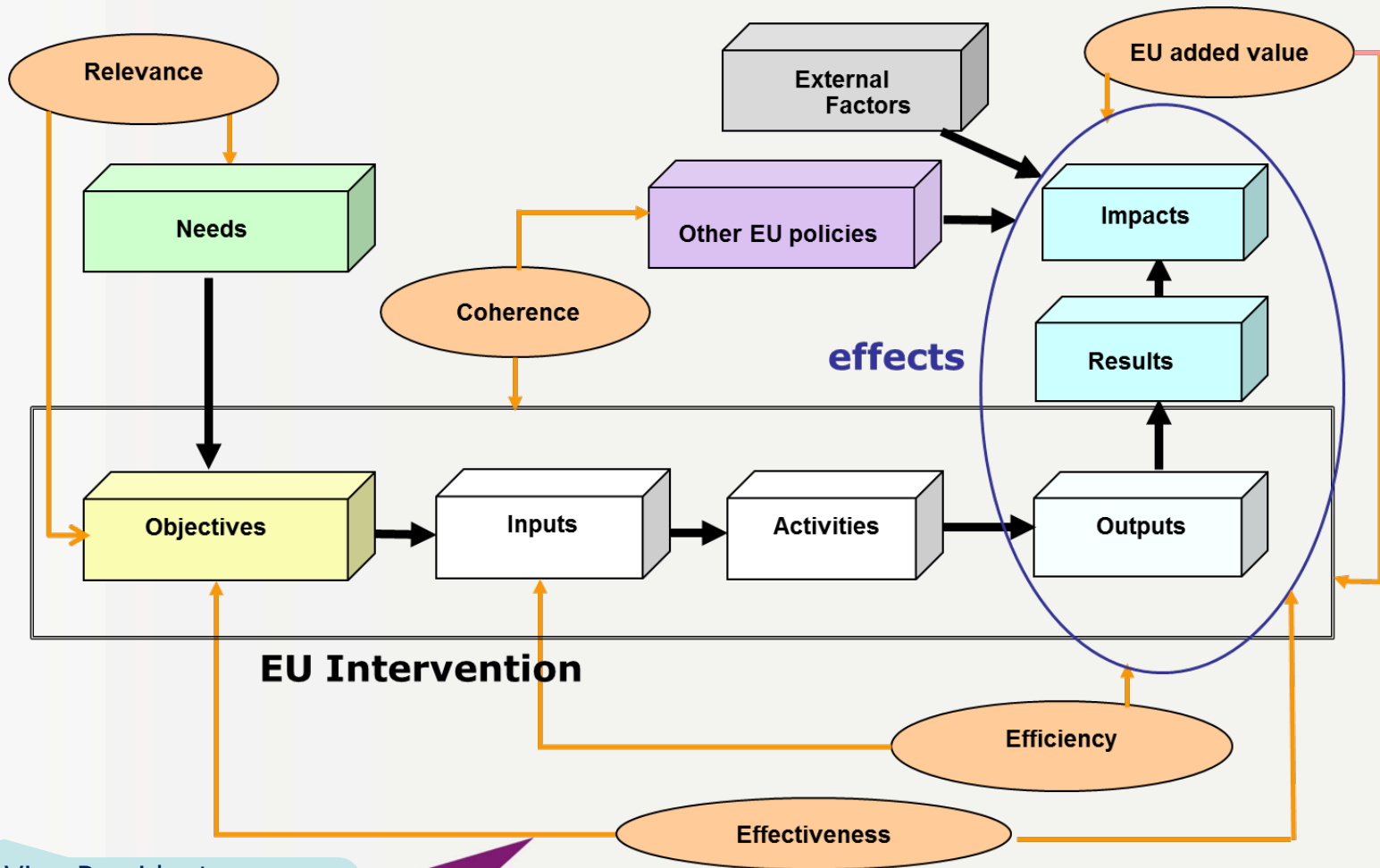
'Make sure every action delivers maximum performance and value added'





BETTER REGULATION & THE EC EVALUATION FRAMEWORK

What do we need to know? The 5 evaluation criteria



First EC Vice-President Timmermans: *"We must be honest about what works and what doesn't."*



EVALUATING RESEARCH AND INNOVATION PROGRAMMES

- Not about the evaluation of individual researchers and organisations but about the evaluation of **Framework programmes** supporting research and innovation
- Socio-economic context: **budgetary arbitrations**, need to deliver tangible results on the ground and better communicate them
- Need to know better **what is the difference we are making** through our investments, not only in the scientific arena but also for the economy and society.



KEY FEATURES OF HORIZON 2020

#1

The first European **integrated programme**, covering from basic research to close to the market innovation



Total budget of ~ **EUR 77 billion** over 2014-2020.



A **3 pillar approach** with a general objective: *"To contribute to building a society and economy based on knowledge and innovation across the Union"*



Excellence as guiding principle + impact + implementation



INTERIM EVALUATION OF HORIZON 2020 - Scope

Where did we stand after 3 years - Allocation of funding 2014-16

Additional priorities
on widening participation, including society, EURATOM and the pilot for fast-track-to innovation:
EUR 994.1 million to 270 projects

36%

3. Priority /pillar Societal Challenges
responds directly to grand societal challenges and aims to stimulate a critical mass of research and innovation efforts to help address these:
EUR 7.4 billion to 2941 projects

5%

EUR 20.4 billion

37%

1. Priority/pillar Excellent Science aims to reinforce and extend the excellence of EU's science base and to consolidate the European Research Area:
EUR 7.5 billion to 5964 projects

22%

2. Priority/pillar Industrial Leadership aims to speed up the development of the technologies and innovations that will underpin tomorrow's new technology and help innovative European SMEs to grow into world-leading companies:
EUR 4.5 billion to 1933 projects

+100,000 proposals, 11,000 projects (success rate of 11.6%)
1 out of 4 high quality proposals funded, + EUR 60 bn more needed to fund them all

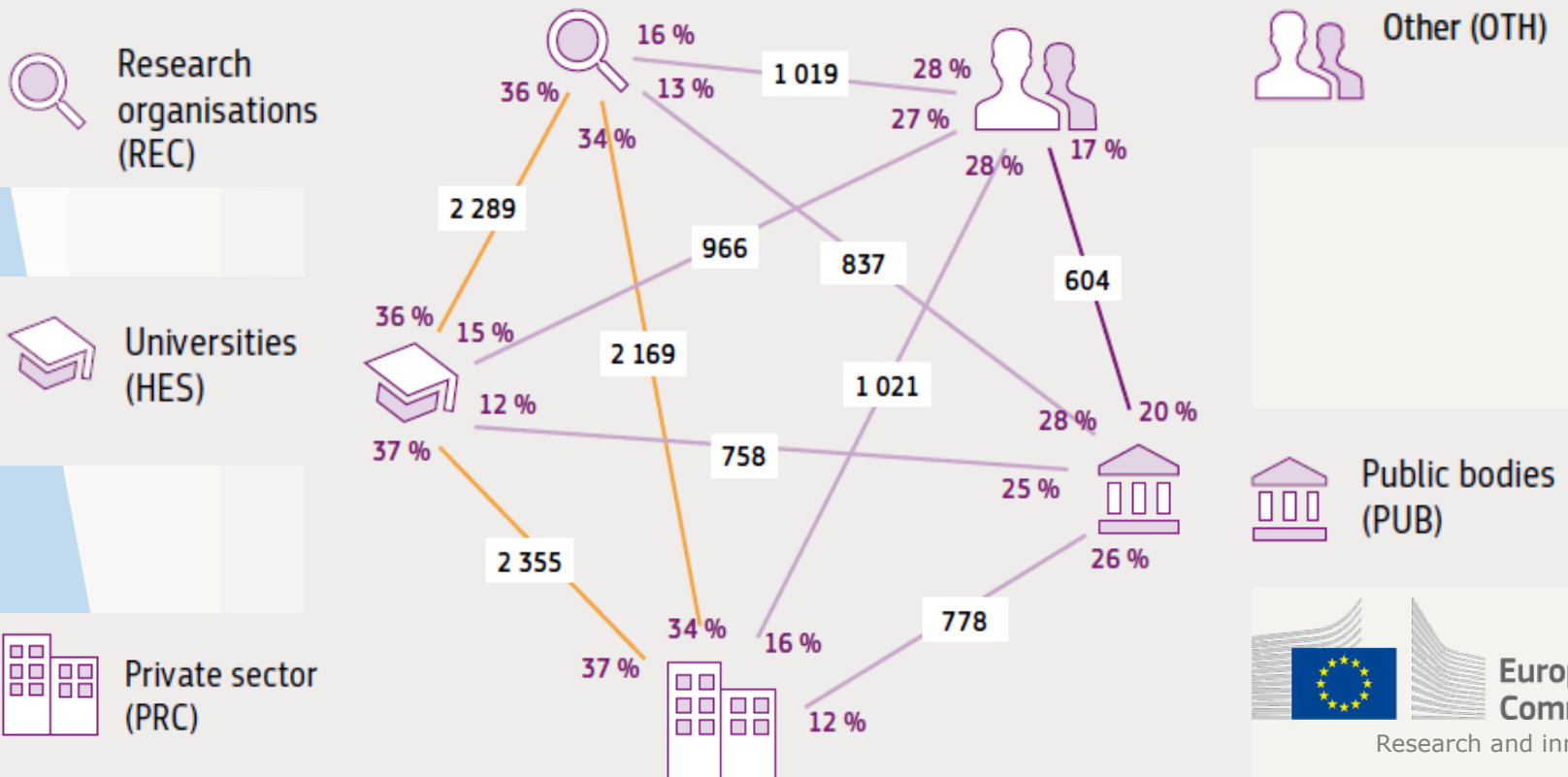


INTERIM EVALUATION OF HORIZON 2020

Collaboration under Horizon 2020

- **75%** of funding to **collaborative projects**, all technology readiness levels
- Participants from **131 countries**
- **Diversity of organisations:** 1/3 higher educations institutions, 1/3 private sector, 22% research organisations, 6% public bodies, 5% others
- 52% of participants are **newcomers** (not in previous programme FP7)

Collaborative projects





APPROACH FOLLOWED FOR THE EVALUATION

Structure and flexibility

5 EVALUATION CRITERIA FOR ALL ASSESSMENTS

- Relevance
- Efficiency
- Effectiveness
- Coherence
- EU Added Value

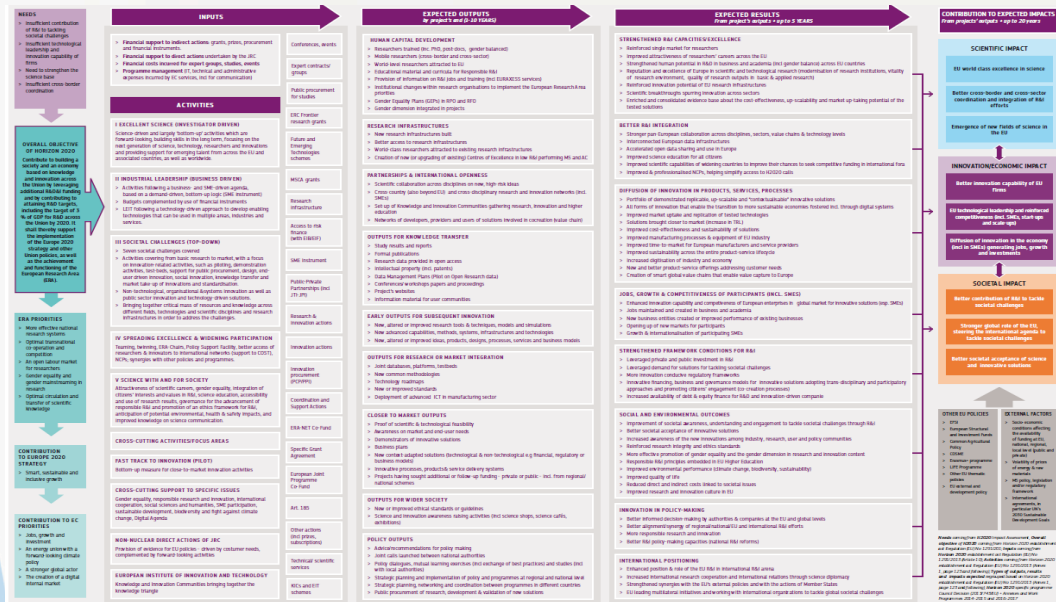
- **18 "thematic" assessments** - for each Horizon 2020 specific objective + **horizontal studies**

- Comparability ensured through **common template** whilst leaving **room for inclusion of specificities**

- **Role of the Evaluation Unit:** involved in Terms of Reference drafting, steering committees, reviewing all assessments, synthesis and drafting of meta-evaluation (Staff Working Document)

- **Internal workshops and trainings** to ensure common understanding of purpose and approach, deepening of evaluation culture

INTERVENTION LOGIC - THE BASIS OF ALL ASSESSMENTS





COLLECTING EVIDENCE FROM MULTIPLE SOURCES

Triangulation, transparency, referencing, qualitative/quantitative

DATA SOURCES

Surveys, interviews, case studies, expert groups, Horizon 2020 monitoring data (e.g. CORDA), Commission administrative data (e.g. budget), existing databases (e.g. OECD, Eurostat, ORBIS) and publications (incl. European Parliament, European Economic and Social Committee, Court of Auditors)

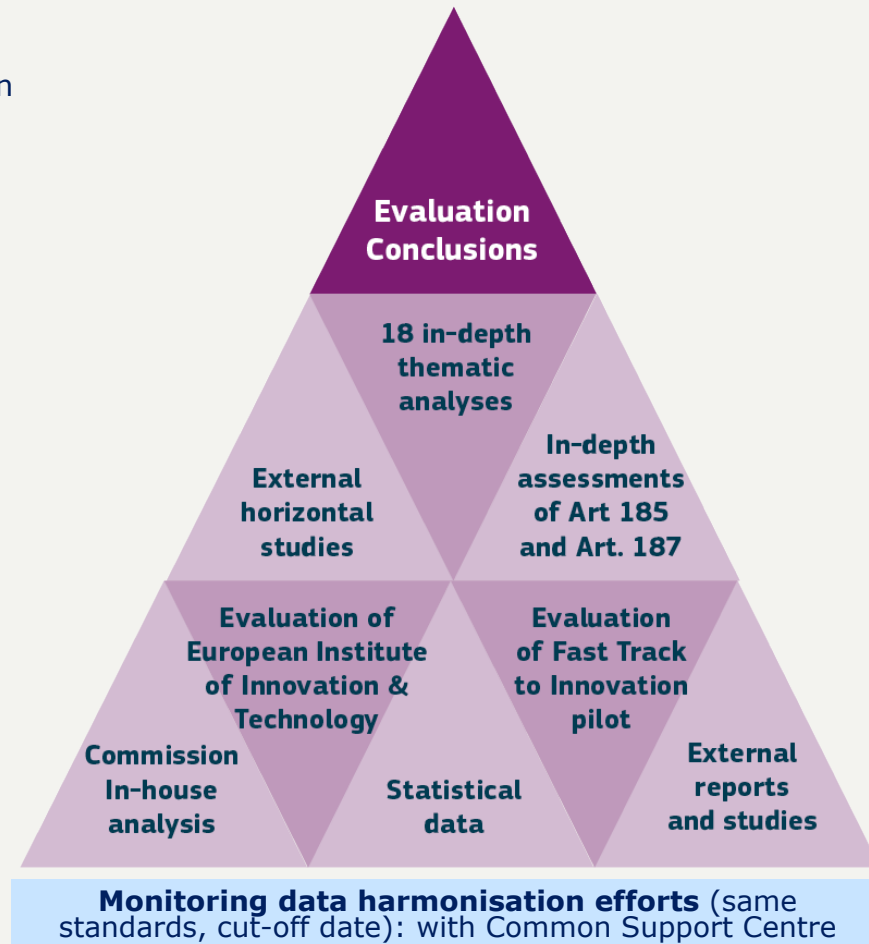
METHODS

Macro-economic modelling, counterfactual analysis, network analysis, descriptive statistics, bibliometric analysis, text and data mining analysis, document review, case studies, synthesis of thematic assessments

STAKEHOLDER CONSULTATIONS To contextualise findings

Stakeholder consultation on the Interim Evaluation of Horizon 2020 (*~3500 survey replies, 300 position papers*)

Surveys of National Contact Points, Simplification Survey, Call for Ideas on the European Innovation Council





INTERIM EVALUATION OF HORIZON 2020

Key challenges = opportunities to learn & improve in real-time

Time-lags for R&I impacts, very few projects completed (represent 0.6% of EC budget committed so far):

- Looking for indications of progress, whether right conditions are in place

Attribution of the changes observed to the programme (less than 10% of public R&D spending in Europe), non-linear impact pathways:

- Managing expectations + counterfactual analysis + triangulation

Data availability & reliability: Key Performance Indicators focus on inputs/outputs, lack of fully-fledged indicator system to track progress towards (societal) impact; output data mainly self-reported:

- Improvement of monitoring system to have the right information from the right level and at the adequate time + thematic assessments to take into account specificities of each area

Lack of benchmarks and pre-defined targets to compare performance:

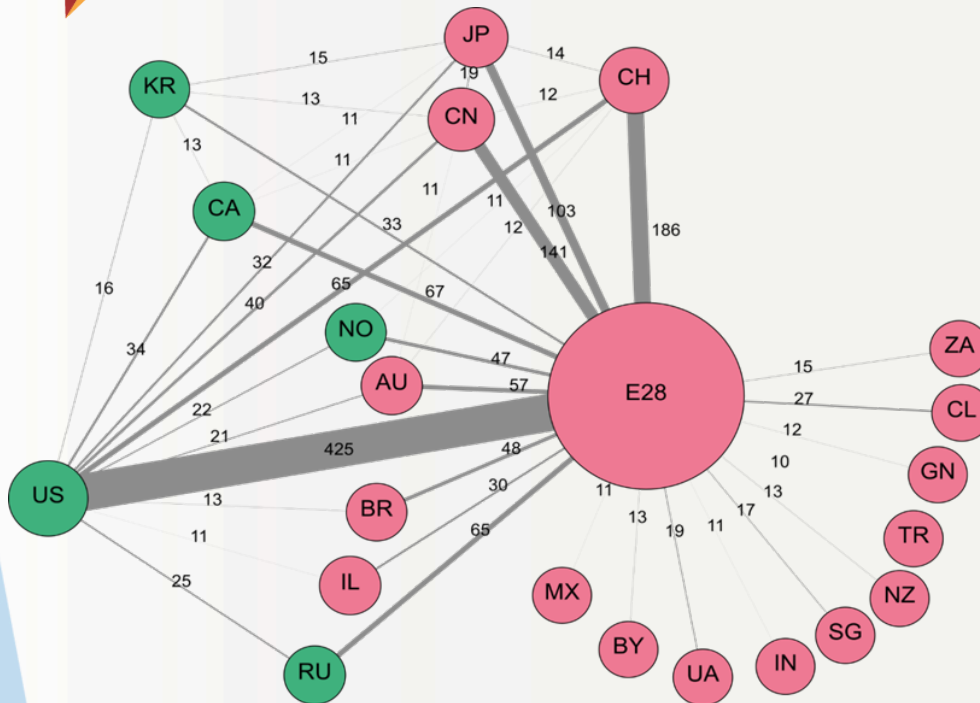
- Using the previous Framework Programme (FP7) as benchmark



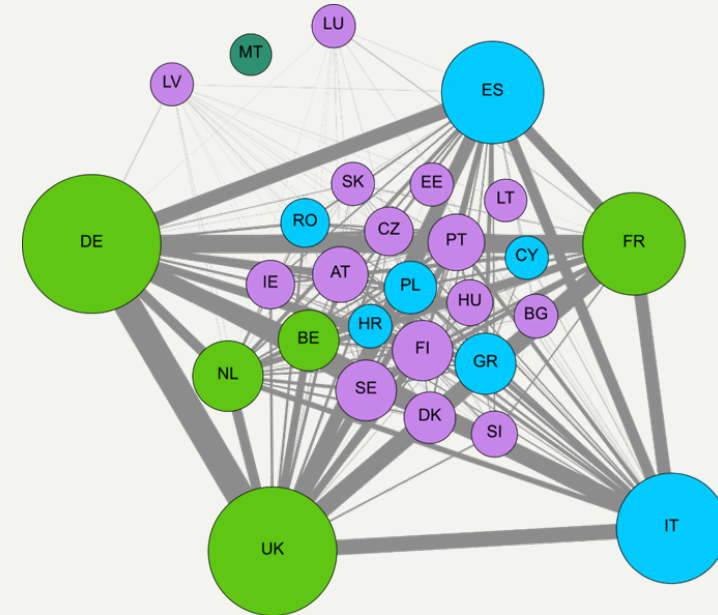
INTERIM EVALUATION RESULTS

Adding value through collaborations: first publications

Global



Within EU28



- **4,000+**, overall **Field-Weighted Citation Index: 2.46**, **2/3** in open-access
- **1 in 5** based on **private sector / academia collaboration**
- **7.55%** are **inter-disciplinary** (7.45% in the first three years of FP7). FWCI of 1.78
- Publications including authors from Associated & Third Countries cited up to **more than three times as much as the world average.**



INTERIM EVALUATION RESULTS

Further examples of early indications of progress towards scientific, economic and societal impacts



Integration of R&I efforts between countries, sectors, scientific disciplines; **340 000 researchers**, international mobility for 27,000 researchers (MSCA), **365 national research infrastructures** made accessible, scientific **reputation & breakthroughs**



Funded projects **~40 % more likely to be granted patents**; beneficiary SMEs have **higher growth paths** than unsuccessful applicants; generation of first **IPR and innovations**; reinforcement of **framework conditions** for R&I



Cross-cutting impacts on the Societal Challenges expected in most projects: publications, patents, prototypes, products, processes and methods in domains of societal relevance




GDP gain estimated between EUR 400 to EUR 600 billion by 2030 (**1 EUR -> EUR 6 to 8.5**)


83% of projects would not have gone ahead without EU funding




KEY MESSAGES ON EVALUATING IMPACTS




Need for an intervention logic with clear objectives, expected outputs, results and impacts, taking into account the baseline and context of the intervention.



Need for a sophisticated approach for R&I impacts' measurement, allowing real time monitoring of progress towards (expected & unexpected) impacts not only in scientific terms, but also for the economy & society.



Need to minimise burden on beneficiaries: potential of new ICT tools to also track impact beyond the project's lifetime.



Need to manage expectations on what can be captured when, while encouraging risk-taking. Need to be ready to evaluate, learn & adapt.



LEARNING FROM THE PAST, CONSIDERING THE FUTURE & BENEFITING FROM CO-DESIGN

STAKEHOLDER CONSULTATION

HORIZON 2020 WP 2018-2020

HORIZON 2020 INTERIM EVALUATION

STAKEHOLDER CONSULTATION

FORESIGHT

HIGH LEVEL GROUP CHAIRED BY PASCAL LAMY
on maximizing the impact of EU Research and Innovation programmes

EX-ANTE IMPACT ASSESSMENT

PROPOSAL FOR THE SUCCESSOR FRAMEWORK PROGRAMME – HORIZON EUROPE

ECONOMIC CASE OF R&I

LAB – FAB – APP
Investing in the European future we want



Horizon Europe – Focus on Impact Pathways

HORIZON EUROPE

is the Commission proposal for a **€100 billion** research and innovation funding programme for seven years (2021-2027)



to strengthen the EU's scientific and technological bases



to boost Europe's innovation capacity, competitiveness and jobs

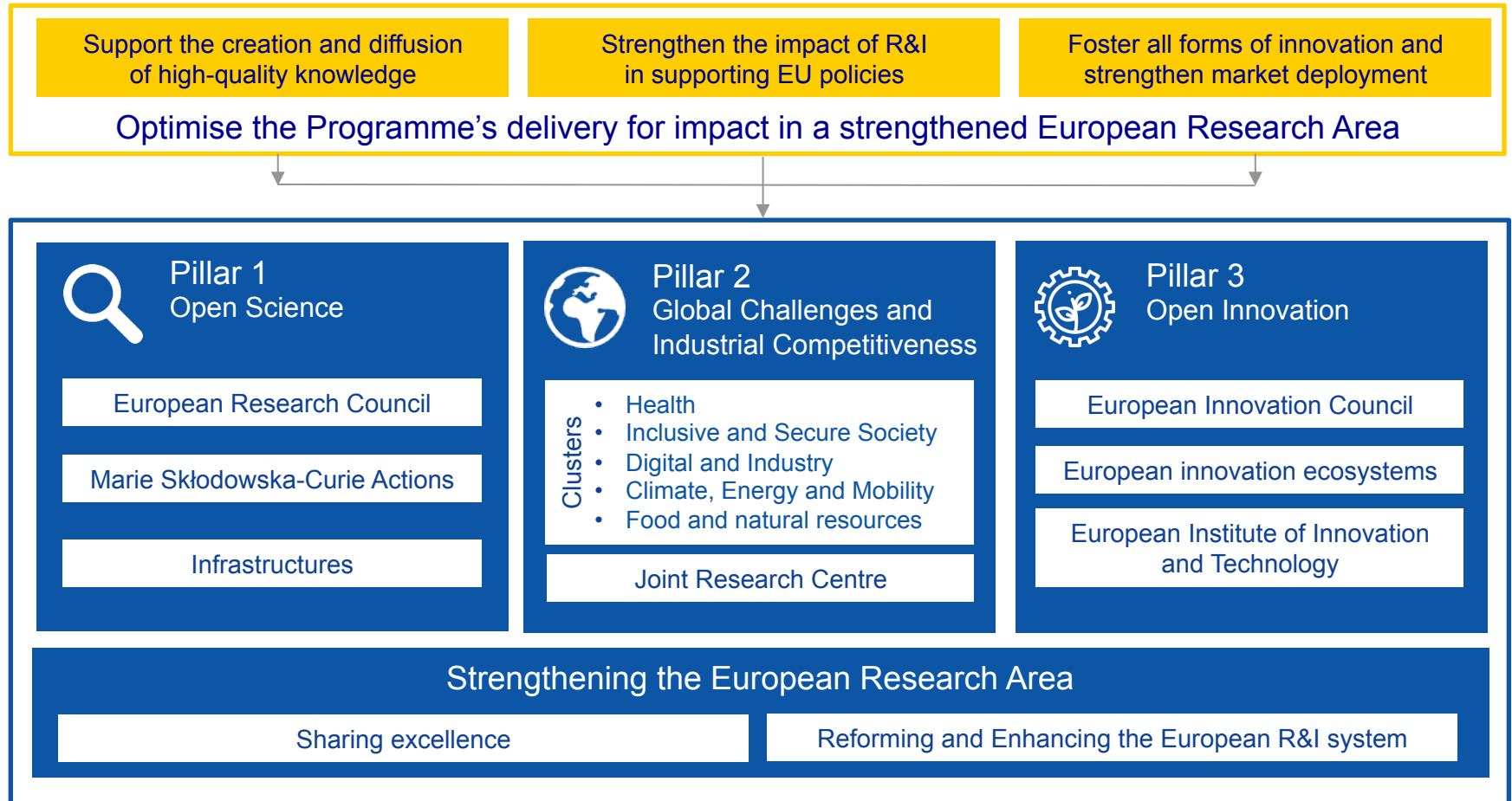


to deliver on citizens' priorities and sustain our socio-economic model and values

See here for the impact assessment, legal proposals, press materials:
https://ec.europa.eu/info/designing-next-research-and-innovation-framework-programme/what-shapes-next-framework-programme_en

HORIZON EUROPE: EVOLUTION NOT REVOLUTION

Specific objectives of the Programme



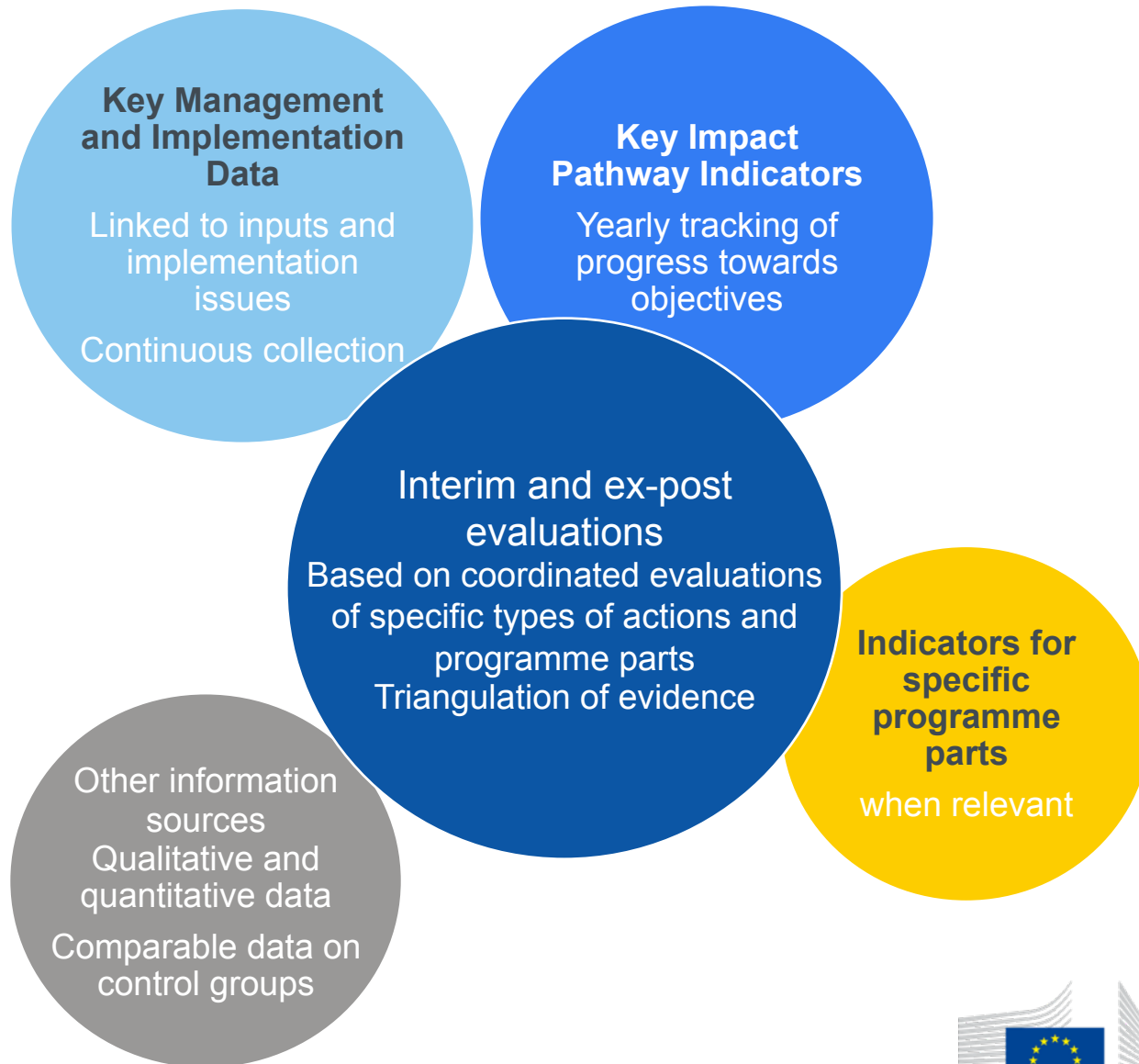
MONITORING & EVALUATION

Learning from Horizon 2020



- Embrace the specificities of R&I investment
- Set programme level indicators according to programme objectives
- Set realistic short, medium, long term indicators
- Further simplify and minimize burden on beneficiaries
- Keep it simple and easy to communicate
- Distinguish management / performance indicators

HORIZON EUROPE MONITORING & EVALUATION SYSTEM



TRACKING IMPACT IN HORIZON EUROPE

THREE TYPES OF IMPACT BASED ON OBJECTIVES



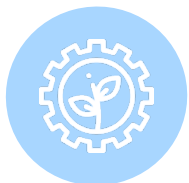
Scientific impact

Create and diffuse high-quality new knowledge, skills, technologies and solutions to global challenges



Societal impact

Strengthen the impact of research and innovation in developing, supporting and implementing EU policies, and support the uptake of innovative solutions in industry and society to address global challenges

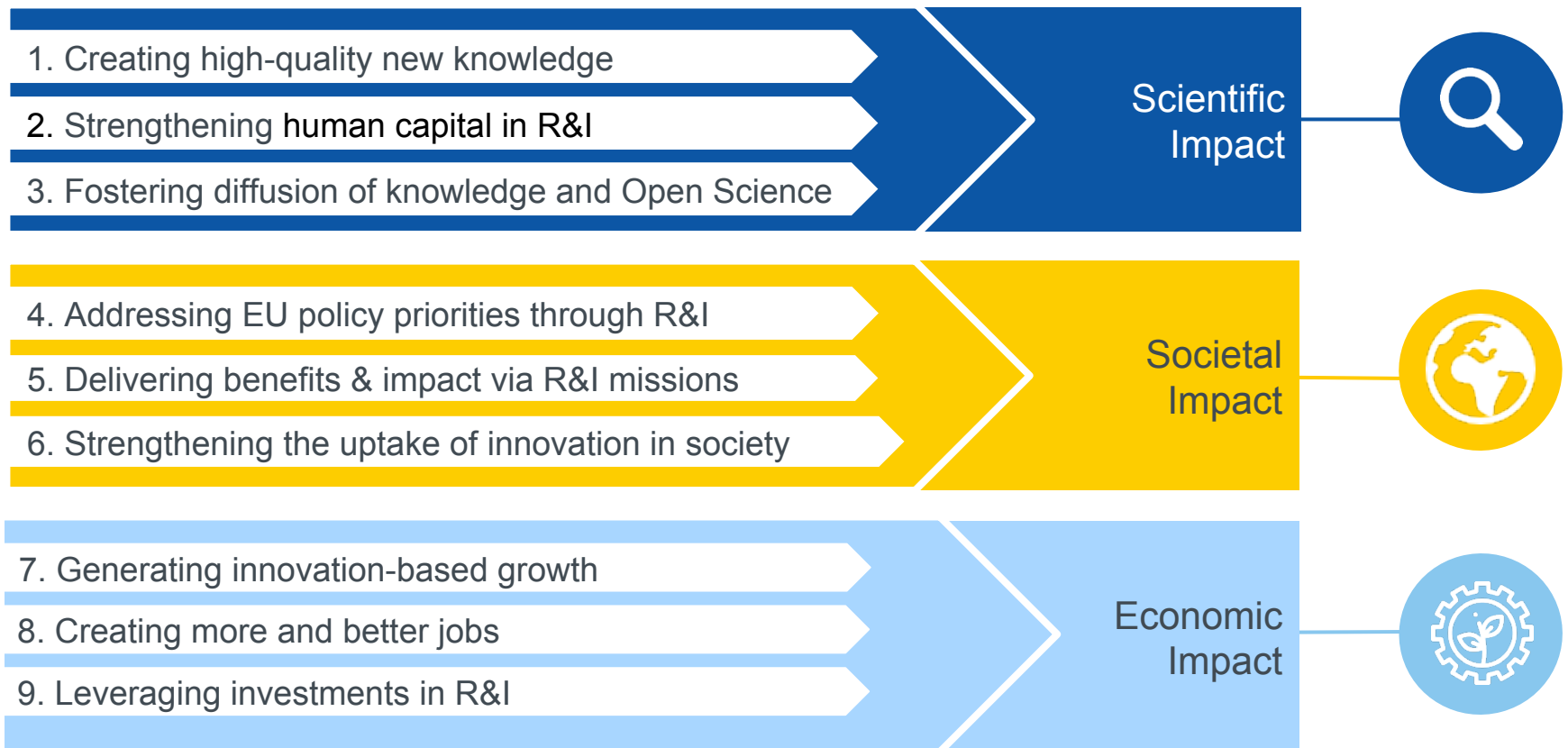


Economic impact

Foster all forms of innovation, including breakthrough innovation, and strengthening market deployment of innovative solutions

TRACKING IMPACT IN HORIZON EUROPE

9 KEY IMPACT PATHWAYS TO TRACK PROGRESS



TRACKING IMPACT IN HORIZON EUROPE

Five Principles

- **Proximity** - Knowing who the individual researchers and companies are through unique identifiers such as VAT numbers, researchers IDs
- **Attribution** – Microdata collection supporting the identification of control groups for counterfactual analysis
- **Tracking** – Minimised burden on beneficiaries through automatic data harvesting from existing databases; use of additional primary (including qualitative) data sources such as project evaluators and reviewers
- **Holism** - Telling the story of the progress of the programme as a whole according to its objectives at any moment in time
- **Stability** - Building on the current systems, piloting evolutions in Horizon 2020

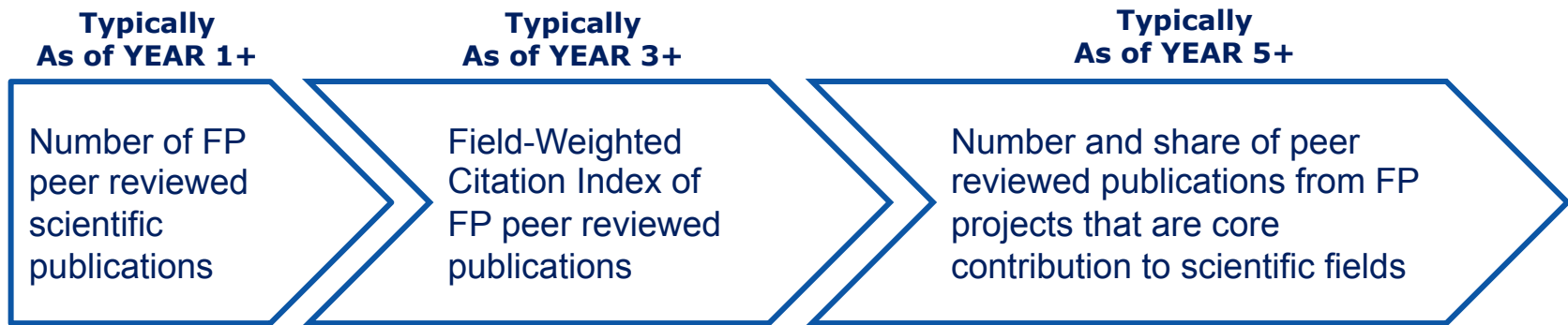
Impact pathways - Indicators

Pathway 1. Creating high quality new knowledge



STORY LINE: The FP creates and diffuses high quality new knowledge, as shown by the high-quality publications that become influential in their field and worldwide

Indicator (short, medium, long-term)



Data needs: identification of publications co-funded by the FP through the insertion of a specific funding source ID when publishing, allowing follow-up tracking of the perceived quality and influence through publication databases and topic mapping.

Pathway 2. Strengthening human capital in R&I



STORY LINE: The FP strengthens human capital, as shown by the improvement in skills, reputation and working conditions of participants

Indicator (short, medium, long-term)



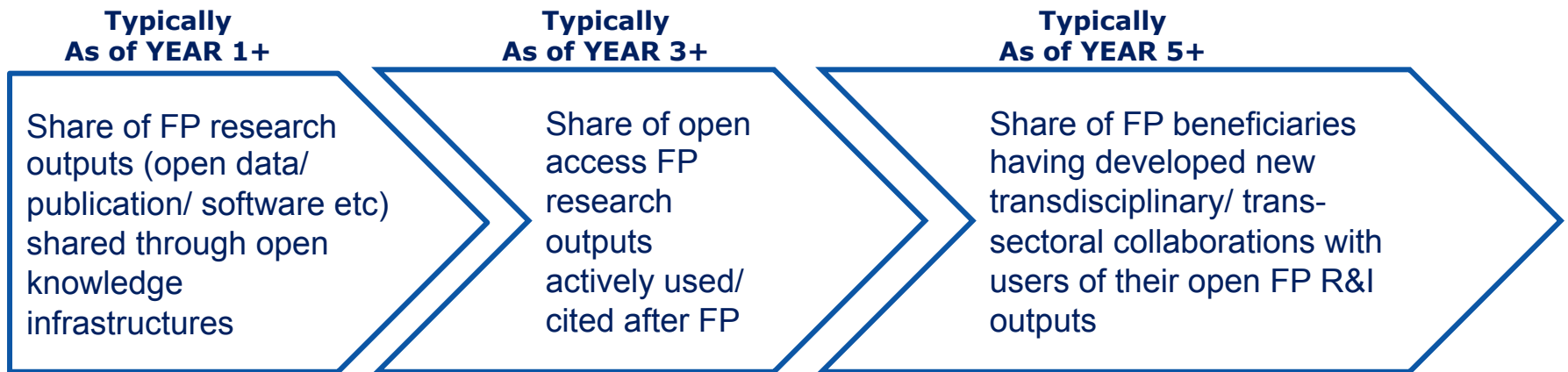
Data needs: collection of unique identifiers of individual applicants to the FP, allowing follow-up tracking of their influence in their field through publication and patent databases, awards and prizes, as well as evolution of working conditions through salary levels and benefits

Pathway 3. Fostering diffusion of knowledge and Open Science



STORY LINE: The FP opens up science, as shown by research outputs shared openly, re-used and at the origin of new transdisciplinary/trans-sectoral collaborations

Indicator (short, medium, long-term)



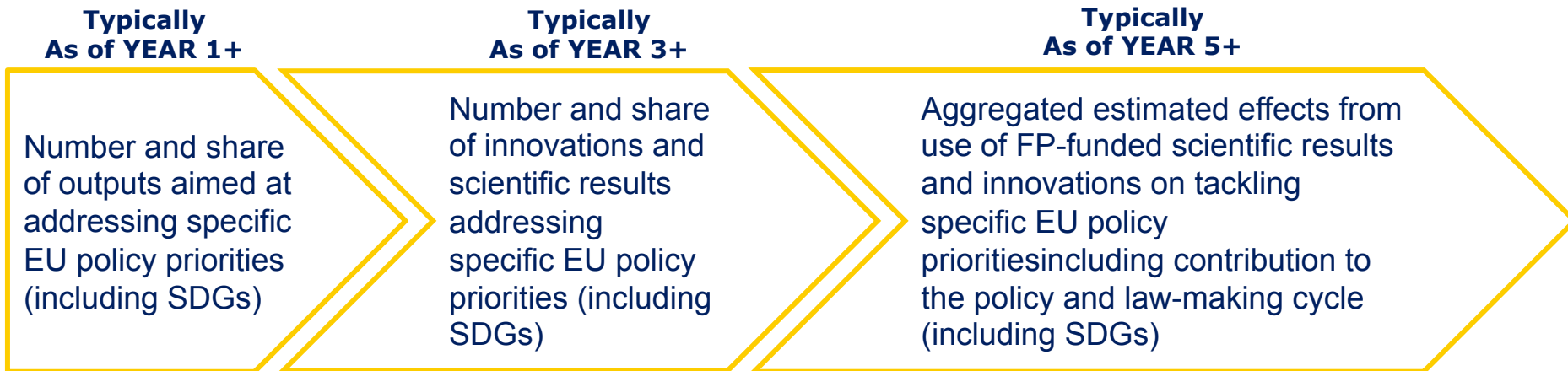
Data needs: Identification of research outputs (esp. publications & research data) co-funded by the FP through the insertion of a unique identifier for FP funding when publishing or sharing openly (e.g. OA journals/platforms (publications) and open FAIR repositories (data)), allowing follow-up tracking of open access performance in terms of active use/citations and collaborations.

Pathway 4. Addressing EU priorities through R&I



STORY LINE: The FP helps addressing EU policy priorities (including meeting the SDGs) through research and innovation, as shown by the portfolios of projects generating outputs contributing to tackling global challenges

Indicator (short, medium, long-term)



Data needs: Projects classified according to specific EU policy priorities pursued (including SDGs) and follow-up tracking of their outputs, results & impacts. Portfolio analysis on effects from scientific results & innovations in specific EU policy priority/SDGs areas, text mining.

Pathway 5. Delivering benefits and impacts through R&I missions



STORY LINE: The FP produces knowledge and innovation that contribute to achieving missions of EU interest.

Indicator (short, medium, long-term)



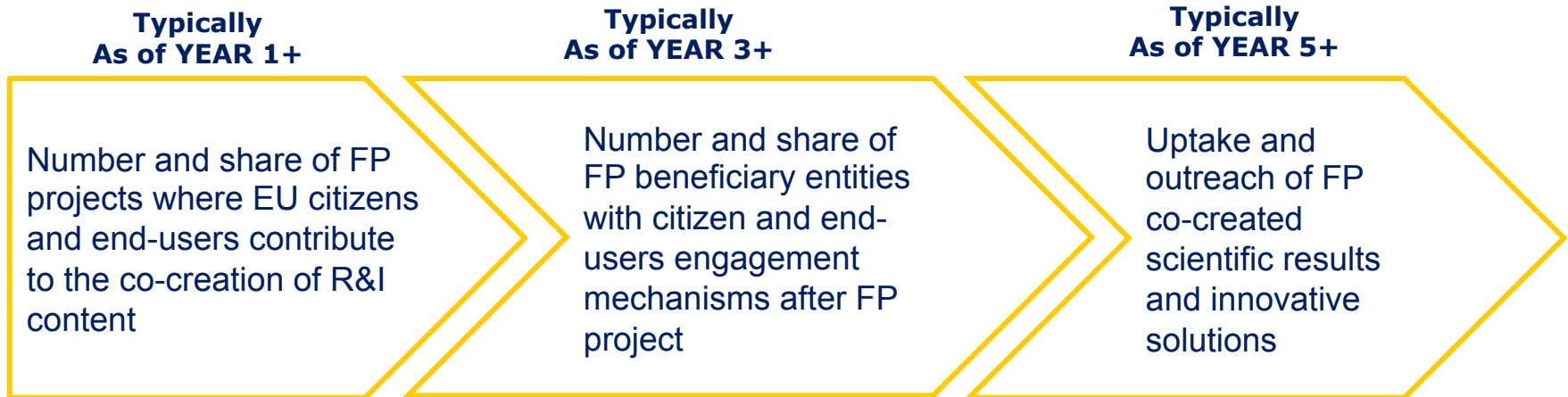
Data needs: Projects classified according to the missions pursued and follow-up tracking of their outputs, results and impacts according to the target set. Portfolio analysis on effects from scientific results & innovations in mission areas.

Pathway 6. Strengthening the uptake of innovation in society



STORY LINE: The FP strengthens the uptake of innovation in society, as shown by the engagement of citizen in the projects and beyond the projects by improved uptake of scientific results and innovative solutions

Indicator (short, medium, long-term)



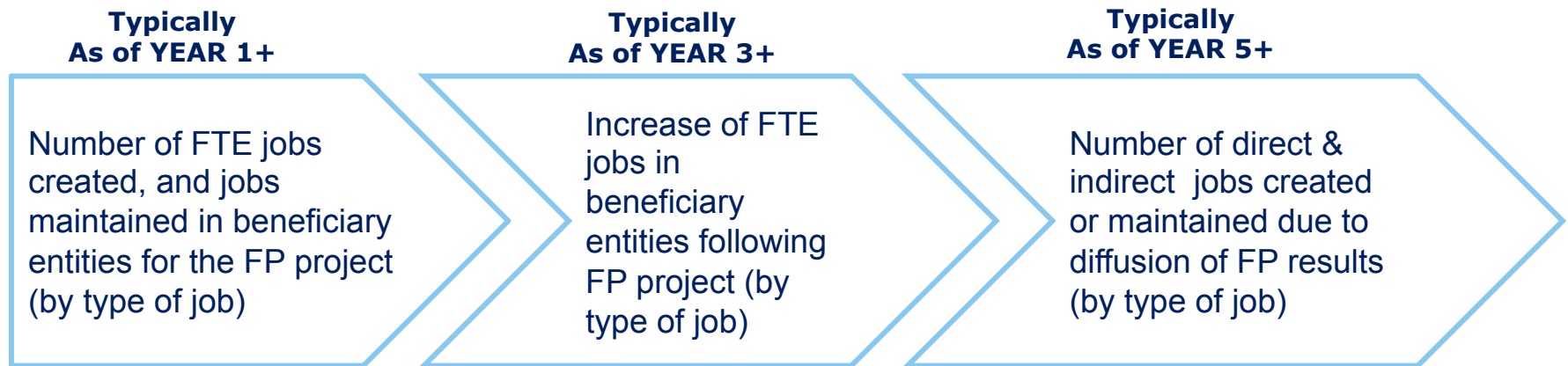
Data needs: Collection of data at proposal stage on the roles of partners (incl. citizen) in the projects, structured survey of beneficiary entities and tracking of uptake and outreach through patents and trademarks and media analysis.

Pathway 7. Creating more & better jobs



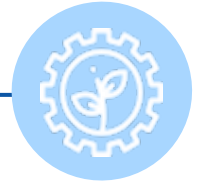
STORY LINE: The FP generates more and better jobs, initially in the projects, and then through the exploitation of the results and their diffusion in the economy

Indicator (short, medium, long-term)



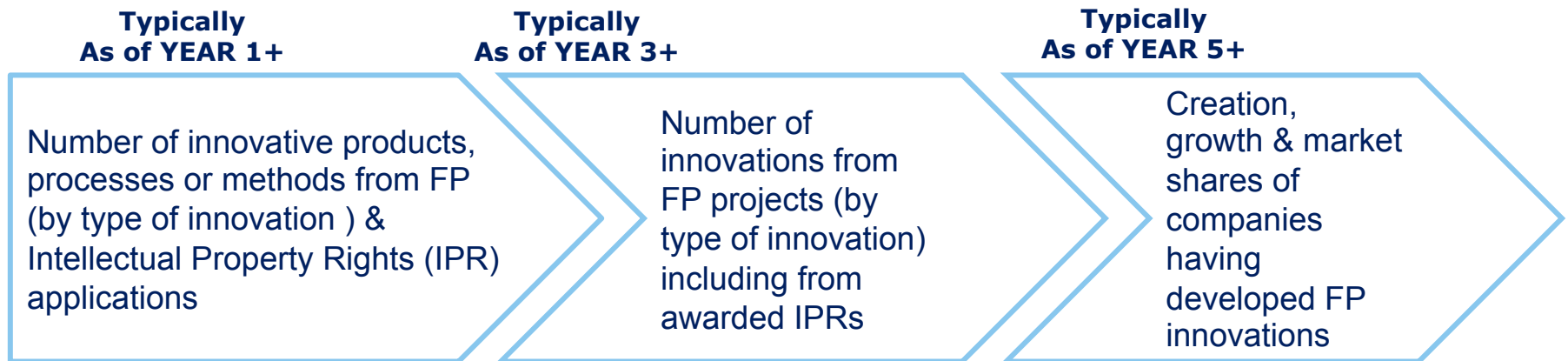
Data needs: Collection of information on individuals involved in FP projects, including their workload (Full Time Equivalent) and job profile allowing follow-up tracking of employment in beneficiary organisations. Longer-term indicator to be estimated based on dedicated study.

Pathway 8. Generating innovation-based growth



STORY LINE: The FP is a source of economic growth, as shown by the patents and innovations that are launched on the market and generate added value for businesses

Indicator (short, medium, long-term)



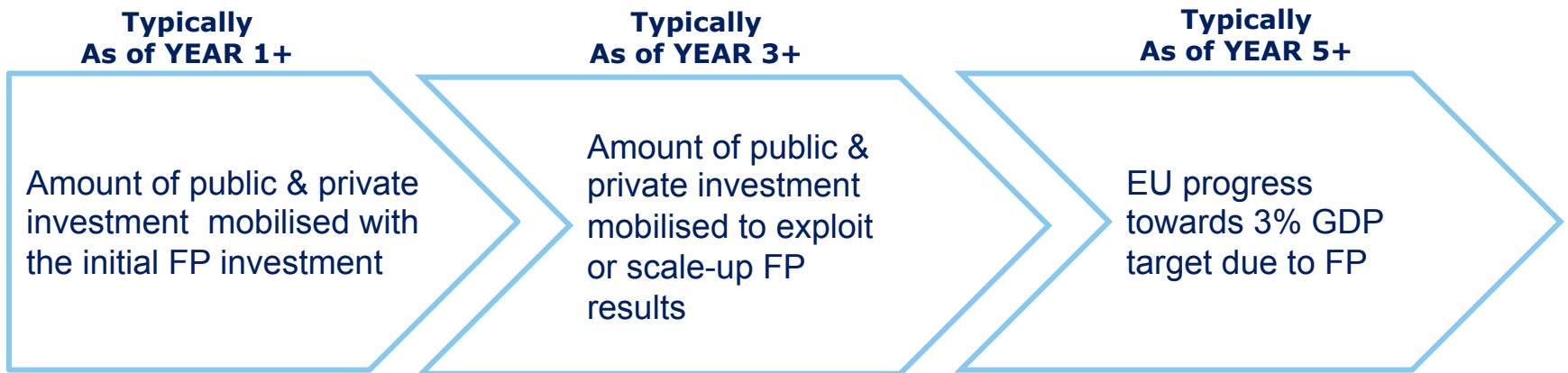
Data needs: Reporting of beneficiaries on innovative products, processes or methods from FP and their practical use, and insertion of a specific funding source ID when filling IPR applications, allowing follow-up tracking of the patents through patent databases & trademarks.

Pathway 9. Leveraging investment in R&I



STORY LINE: The FP is leveraging investments for research and innovation in Europe, initially in the projects, and then to exploit or scale-up their results

▪ Indicator (short, medium, long-term)



Data needs: Data on co-funding in FP projects by source of funds including other EU funds, collection of unique identifiers of applicants to the FP (e.g. VAT), allowing follow-up tracking of their capital. Longer-term indicator to be estimated based on dedicated study.

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Horizon Europe dedicated website

<http://ec.europa.eu/horizon-europe>

European Innovation Council

<http://ec.europa.eu/research/eic>

EU budget for the future

http://ec.europa.eu/budget/mff/index_en.cfm

Horizon 2020 monitoring and evaluation

https://ec.europa.eu/research/evaluations/index_en.cfm?pg=h2020evaluation

Horizon 2020 interactive Dashboard

<https://webgate.ec.europa.eu/dashboard>





Thank you!

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<http://ec.europa.eu/horizon-europe>

Additional slides

KEY MANAGEMENT & IMPLEMENTATION DATA

- Number of proposals and applications submitted, EC contribution requested and total costs of submitted proposals (by source of funds)
- Number of proposals reaching the quality threshold (funded/not funded)
- Number of retained proposals
- Success rates of proposals
- EC contribution and total costs of retained proposals (by source of funds)
- Number of participations and single participants

This information shall be collected according to:

- Types of action
- Types of organisations, including Civil Society Organisations (with specific data for SMEs)
- Countries and regions of applicants and participants (including from associated and third countries)
- Sectors
- Disciplines

KEY MANAGEMENT & IMPLEMENTATION DATA

Data shall also be monitored on the profiles of beneficiaries and proposal evaluators:

- Gender balance (in projects, evaluators)
- Role(s) in project
- Share of newcomers to the Programme

Data shall also be monitored on implementation processes:

- Time-to-grant
- Time-to-pay
- Error rate
- Satisfaction rate
- Rate of risk taking

Data shall also be monitored on:

- The financial contribution that is climate-related

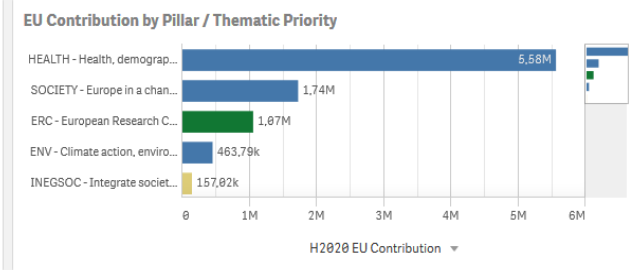
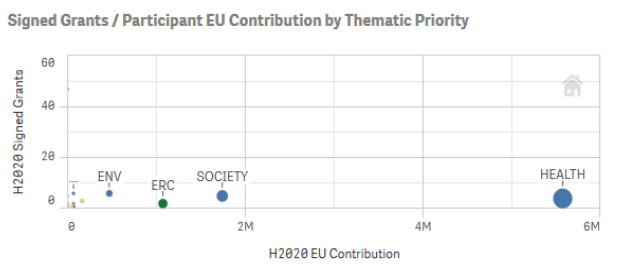
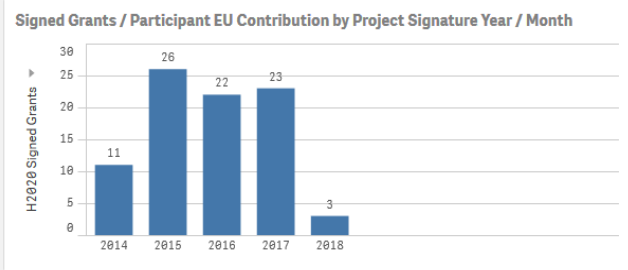
Data shall also be collected on:

- Communication of R&I results
- Dissemination of R&I results
- Exploitation and deployment of R&I results, including through monitoring the funding allocated for uptake of R&I results through the other proposals for the long-term EU budget.

Horizon 2020 Dashboard – Brazil

H2020 Projects

H2020 Signed Grants 85 ,43% <small>of H2020</small>	H2020 EU Contribution 9,22M ,03% <small>of H2020</small>	H2020 Total Cost 15,49M ,04% <small>of H2020</small>	Average Participation per Project 1,62	Average EU Contribution per Pro... 108,5k	Average Total Cost per Project 182,2k
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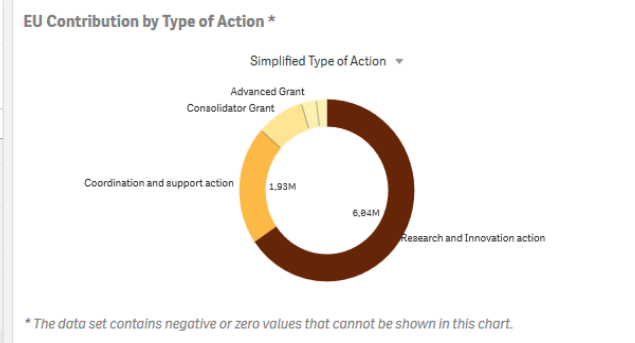


Top Funded Projects

Project Title	Project Acronym	Thema	H2020 Participations
Totals			138
Zika Preparedness Latin American Network	ZikaPLAN	Health, demographic change and wellbeing	5
ZIKAction: Preparedness, research and action network on maternal-	ZIKAction	Health, demographic change and wellbeing	3
A global alliance for Zika virus control and prevention	ZIKAlliance	Health, demographic change and wellbeing	6

Top Topics

Topic	Topic Descr	H2020 Signed Grants	H2020 EU Contribution
Totals		85	€ 9.221.745
MSCA-RISE-2017	Research and Innovation Staff Exchange	12	€ 0
MSCA-RISE-2015	Marie Skłodowska-Curie Research and Innovation Staff Exchange (RISE)	11	€ 0
MSCA-RISE-2014	Marie Skłodowska-Curie Research and Innovation Staff Exchange (RISE)	8	€ 0
MSCA-RISE-2016	Research and Innovation Staff Exchange	7	€ 0
SC1-PM-22-2016	Addressing the urgent research gaps against the Zika virus and other emerging threats in Latin America	3	€ 5.270.355



138 Brazilian participations (incl. 68 in MSCA) in 85 projects
Success rate of 17.7% > average Horizon 2020



Policy Support Facility

Help Member States "improve the design, implementation and evaluation of national R & I policies"

- Supporting evidence-based R&I policies
- Drawing on the combination of
 - the high potential of **learning between peers** (i.e. policy-makers)
 - and high-level **experts advice and assistance**

Instruments: Peer reviews of national R&I systems, Specific support to countries and **Mutual Learning Exercises**

Policy Support Facility - Mutual Learning Exercises

Pilot MLE on Measures to Stimulate business R&I

Administration and monitoring of R&D tax incentive

LV, PT, BE, HR, FR, NO, NL
CY, LT, DE (observers)

Evaluation of business R&D grant schemes

NO, DK, ES, SE, TR
HU, CZ, CY, DE, RO (observers)

Evaluation of complex public private partnerships

BE, NO, BG, SE
ES, DE, HU (observers)

Alignment and Interoperability

FR, LT, DK, TK, NO, AT, PT, EE, SE, SI
RO, DE (observers)

Performance-based funding of public research organisation

AT, CZ, CY, EE, ES, NO, SI, SE, PT,
AM, IT, TK, HR, MD

Public Innovation procurement

DK, NO, EE, LT, ES, EL

MLE Open Science

LT, SI, FR, BE, LV, CH, PT, HR, MD,
AT, AM, SE, BG

MLE Widening and Synergies

CY, FI, TK, SE, BE, HR, DE, ES, SI,
PL, LV, BG, HU

MLE Research Responsibility

Countries

PSF Knowledge Center:

<https://rio.jrc.ec.europa.eu/en/policy-support-facility/mutual-learning>