

Impact Assessment and Indicators

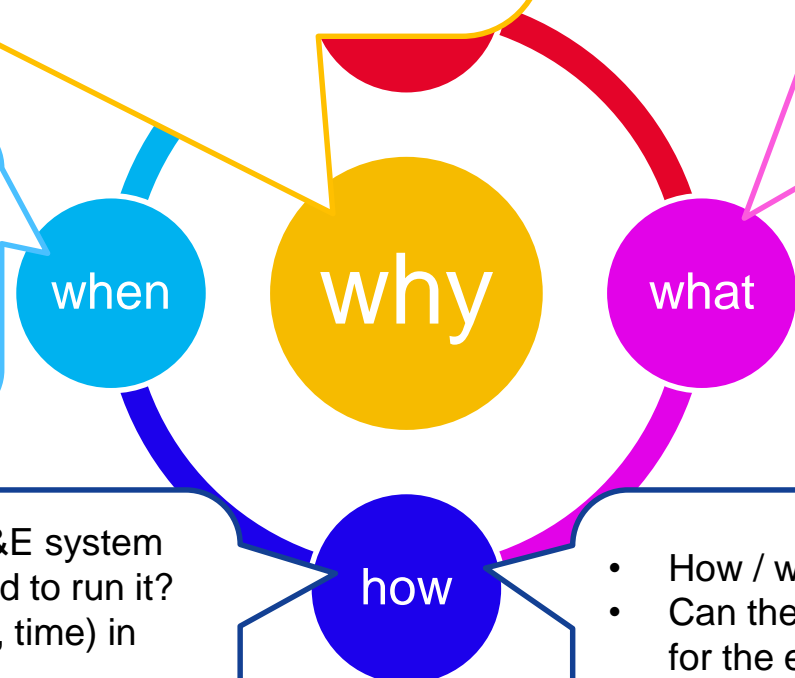
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- We ultimately monitor and evaluate to draw useful **lessons on how to improve**
- Thus we not only need to **estimate what** but also to **understand why and how**
- Numbers and shares monitor things but do not evaluate – **evaluation is about critical** judgement based on synthesis of indicators, synthesis of findings, accumulated intelligence, benchmarking, counterfactual exercises, etc.
- **Engaging** the relevant **stakeholders** is key in this process

By whom should the required data be collected (e.g. central management team, project team, a centralised P2P systems)?
 Is the required capacity available?
 Who will verify the data for accuracy and consistency with requirements

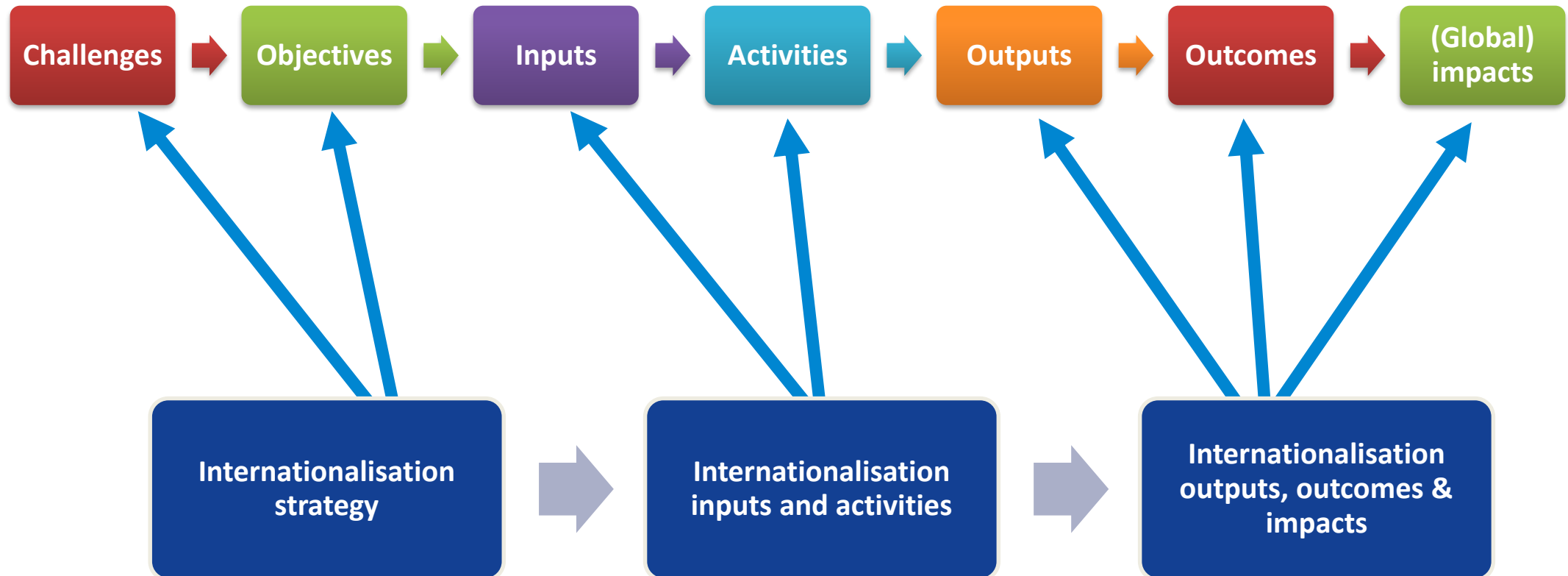
- When should the relevant data be collected (during the monitoring phase, reporting phase, ex-post, how often, etc.)?
- When should ad hoc data be collected? (ex ante, ex-post, other?)



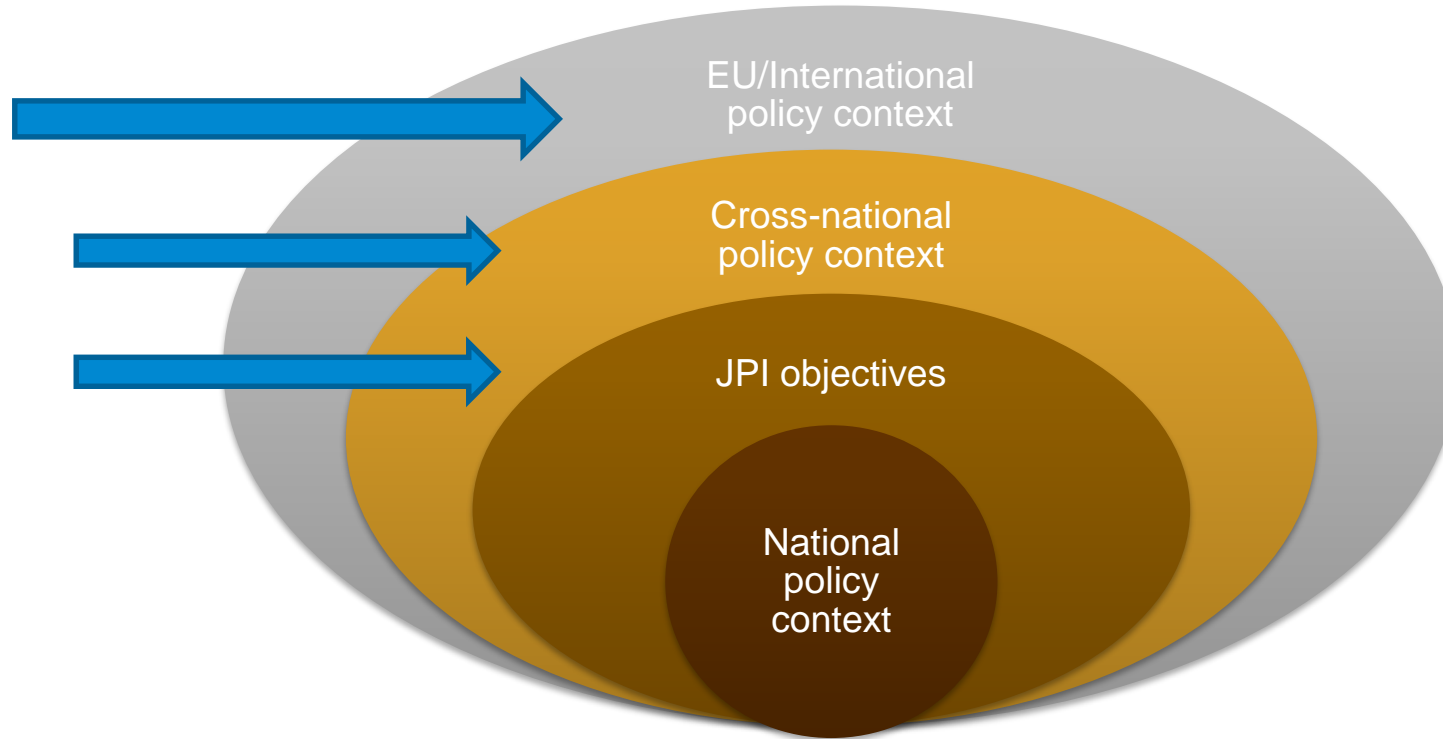
- What data needs to be collected (inputs, outputs, outcomes, impacts)? What additional data needs to be collected (ad hoc)?
- What are suitable methods for collecting, storing and analysing data? What are the necessary data protection protocols to be applied?

- How much will the setting up of the M&E system cost and what resources will be needed to run it?
- Are these resources (human, financial, time) in place or can they be ensured?
- Can this M&E system be aligned with other existing systems (e.g. national level?)

- How / where will required data be gathered and stored?
- Can the process be aligned with the reporting schedule for the evaluation/impact assessment?
- How will the data be verified for accuracy and consistency with requirements?



Contribution, i.e. integration of the internationalisation dimension, instead of addition or supplement, in the overall Water JPI Agenda



Why was the JPI established? Which challenge, problem, or situation does it aim to address?

What are the **short-term/operational**, the **medium-term/intermediate** and **longer-term/global objectives** of the specific JPI?

Objectives need to be SMART (Specific, Measurable, Accepted, Realistic and Time-dependent)

Involving water end-users for effective RDI results uptake

- JPI governance bodies, but also at the Partner country level. While Europe is the

Reaching effective, sustainable coordination of European water RDI

- A permanent dialogue between Member States, Associated Countries and EC.

Harmonising National water RDI activities in Partner Countries

- a catalogue of jointly programmed activities whose global budget amounts to

Internationalisation dimension and internationalisation-specific objectives

Attaining critical mass of research programmes

- involve at least two-thirds of the public National water RDI investment in Europe.

infrastructure, and promote innovation

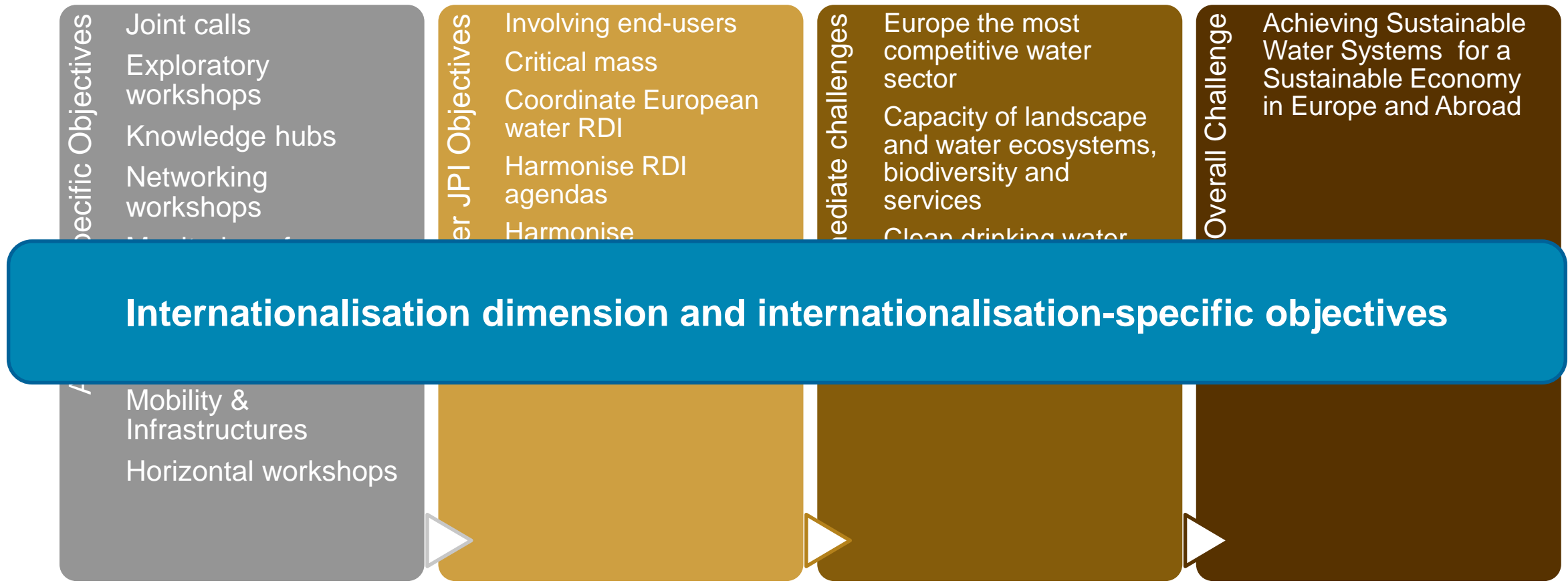
Harmonising National water RDI agendas in Partner Countries

- RDI agendas of Partner Countries and the JPI Strategic Agenda will show effective harmonization

and infrastructure actions under the variable geometry principle

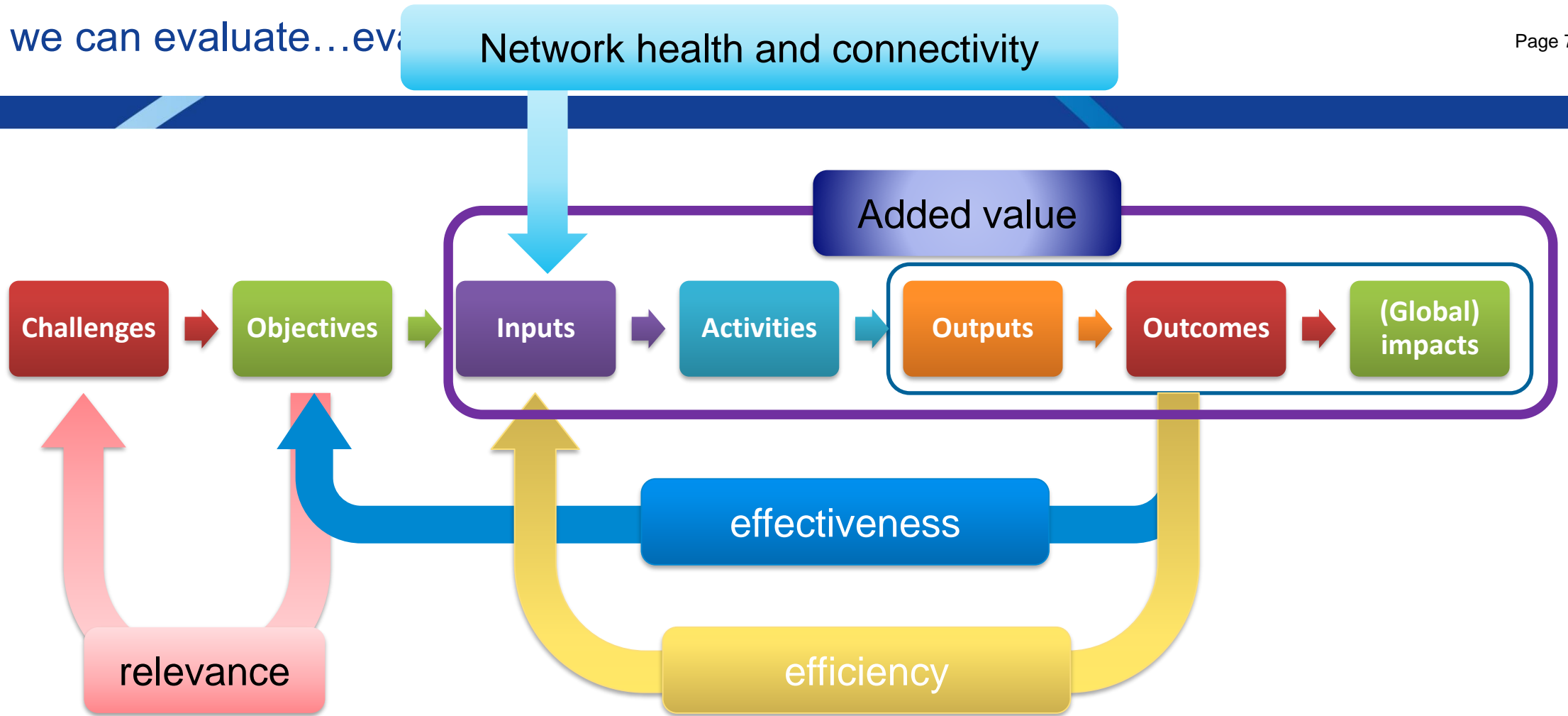
Supporting European leadership in science and technology

- maintain the current European world leadership in water related publications
- doubling multinational European authorship of scientific publications



Internationalisation dimension and internationalisation-specific objectives

The **clearer and more verifiable the objectives** of a programme, the more useful its evaluation;



Effectiveness

- To what extent do the effects (outputs, outcomes, and impacts) induced by the P2P correspond with its objectives?
- To what extent have the internationalisation results (outputs, outcomes and impacts) contributed to the overall P2P objectives?

Relevance

- To what extent are the P2P objectives relevant with respect to the needs, problems and issues identified?
- To what extent are the internationalisation objectives relevant with the needs, problems and issues addressed?

Efficiency

- How economically have the resources used been converted into effects?
- How economically have the resources used been converted into internationalisation effects?

Added value

- What is the additional value resulting from the P2P, compared to what could be achieved by Member States alone at national and/or regional levels?
- To what extent do the problems/challenges addressed by the intervention require action at EU level?
- What would be the most likely consequences of stopping or withdrawing the existing policy intervention?
- What is the added value of the internationalisation activities?

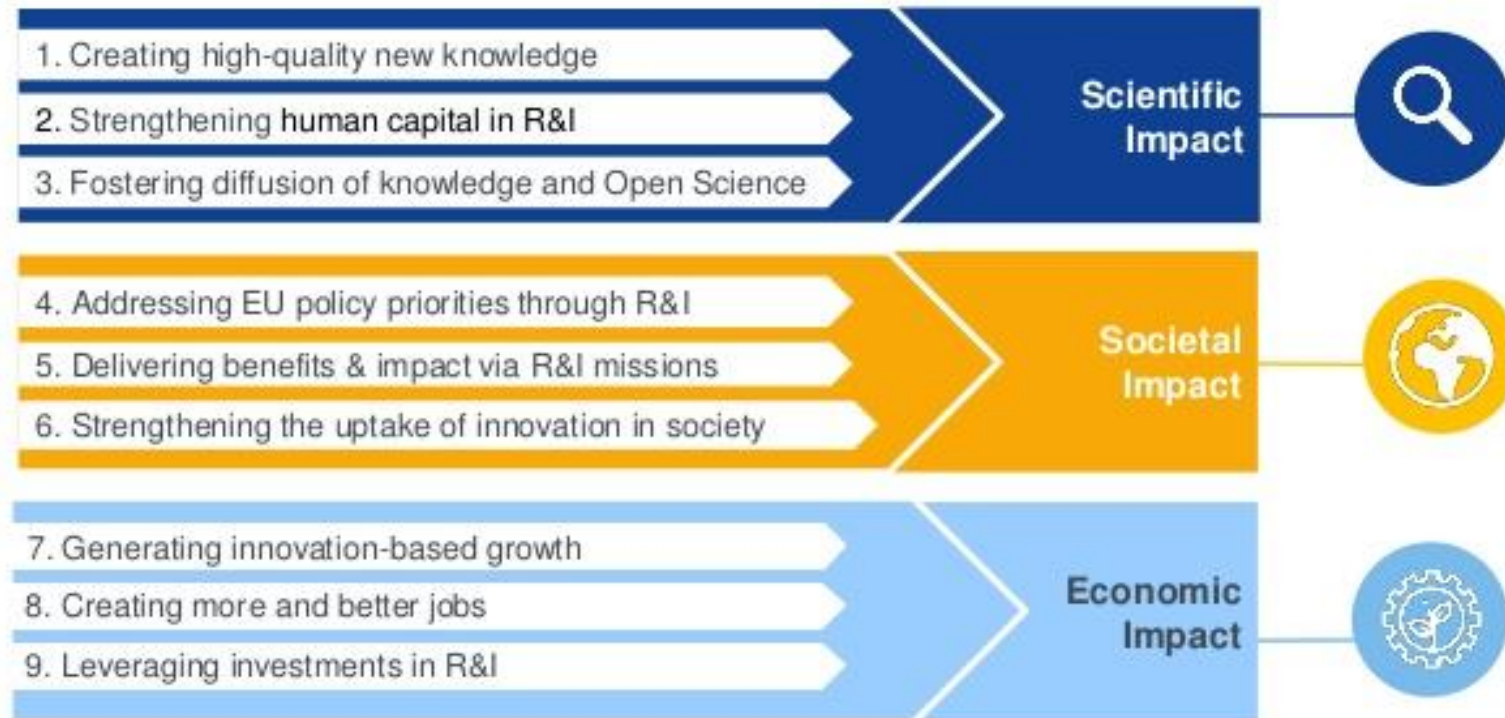
'Network health': ability to engage its members, sustain their engagement, and adapt as needed.

- What are the network's governance rules and are they effective?
- Do decision-making processes encourage members to contribute and collaborate?
- How are the network's internal systems and structures adapting over time?
- Do all members share a common purpose for the network? Are all members working together to achieve shared goals, including goals that emerge over time?
- Are members achieving more together than they could alone?
- Has a sense of trust developed amongst the network participants?
- Has the P2P secured the necessary resources (capacities, money, and infrastructure) to become self-sustained?

'Network connectivity': the extent to which the members' ties to each other are resulting in efficient and effective "pathways" for shared learning and action.

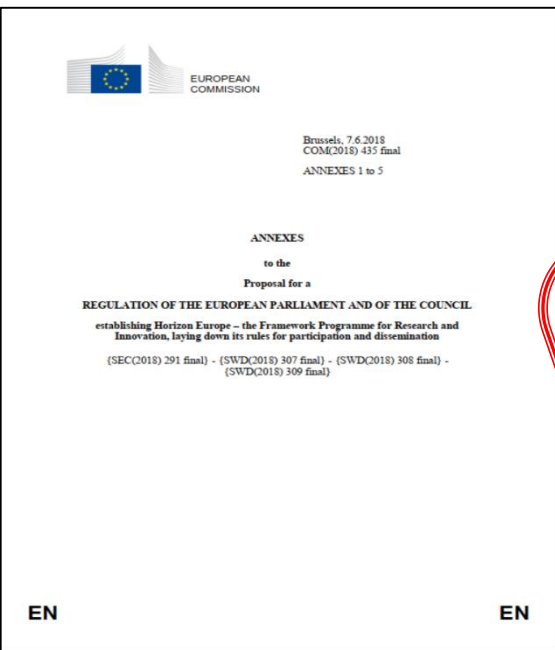
- Has the P2P assembled members with the capacities needed to meet network goals (experience, skills, connections, resources)?
- Who is connected to whom?
- Who is not connected but should be?
- Is membership adjusted to meet changing network needs?
- What are the number, quality, and configuration of network ties?
- How dependent is the network on a small number of individuals?
- Is the network structure adjusted to meet changing network needs and priorities?

Key impact pathways to track progress



Towards scientific impact	Short-term	Medium-term	Long-term
Creating high-quality new knowledge	<u>Publications</u> - Number of FP peer reviewed scientific publications	<u>Citations</u> - Number of citations of FP research outputs	<u>Peer review</u> - Number of peer reviewed publications
Promoting diffusion of knowledge and Open Science	<u>Shared knowledge</u> - Share of FP research outputs (open data/ publication/ software etc.) shared through open knowledge infrastructures	<u>Knowledge diffusion</u> - Share of open access FP research outputs actively used/cited	<u>Working conditions</u> - Number and share of upskilled FP researchers with improved working conditions
		<u>Internationalisation</u> - Share of FP researchers with more influence in their R&I field	<u>New collaborations</u> - Share of FP beneficiaries having developed new transdisciplinary/ trans-sectoral collaborations with users of their open FP R&I outputs

Internationalisation is a cross-cutting dimension



Towards societal impact	Short-term	Medium-term	
Addressing EU policy priorities through R&I	<u>Outputs</u> - Number and on		ts ing specific policy priorities, including contribution to the policy and law-making cycle
Delivering impact		<u>Key mission results</u> - Results in specific R&I missions	<u>R&I mission targets met</u> - Targets achieved in specific R&I missions
Strengthening the uptake of innovation in society	<u>Co-creation</u> - Number and share of FP projects where EU citizens and end-users contribute to the co-creation of R&I content	<u>Engagement</u> - Number and share of FP beneficiary entities with citizen and end-users engagement mechanisms after FP project	<u>Societal R&I uptake</u> Uptake and outreach of FP co-created scientific results and innovative solutions

Internationalisation may not be directly linked to HE missions but may be needed to tackle the challenges addressed by the missions

Towards economic / innovation impact	Short-term	Medium-term	Long-term
Generating innovation-based growth	<u>Innovative outputs</u> - Number of innovative products		Number of market companies having adopted FP innovations
	Number of beneficiary enterprises for the FP project (by type of job)	<u>Sustained employment</u> - Increase of FTE jobs in beneficiary entities following FP project (by type of job)	<u>Total employment</u> Number of direct & indirect jobs created or maintained due to diffusion of FP results (by type of job)
Leveraging investments in R&I	<u>Co-investment</u> - Amount of public & private investment mobilised with the initial FP investment	<u>Scaling-up</u> - Amount of public & private investment mobilised to exploit or scale-up FP results	<u>Contribution to '3% target'</u> - EU progress towards 3% GDP target due to FP

Internationalisation is important in affecting policies world-wide but generating economic impact in certain areas beyond Europe is not to be neglected even though not explicitly targeted

All indicators should be 'RACER', i.e.:

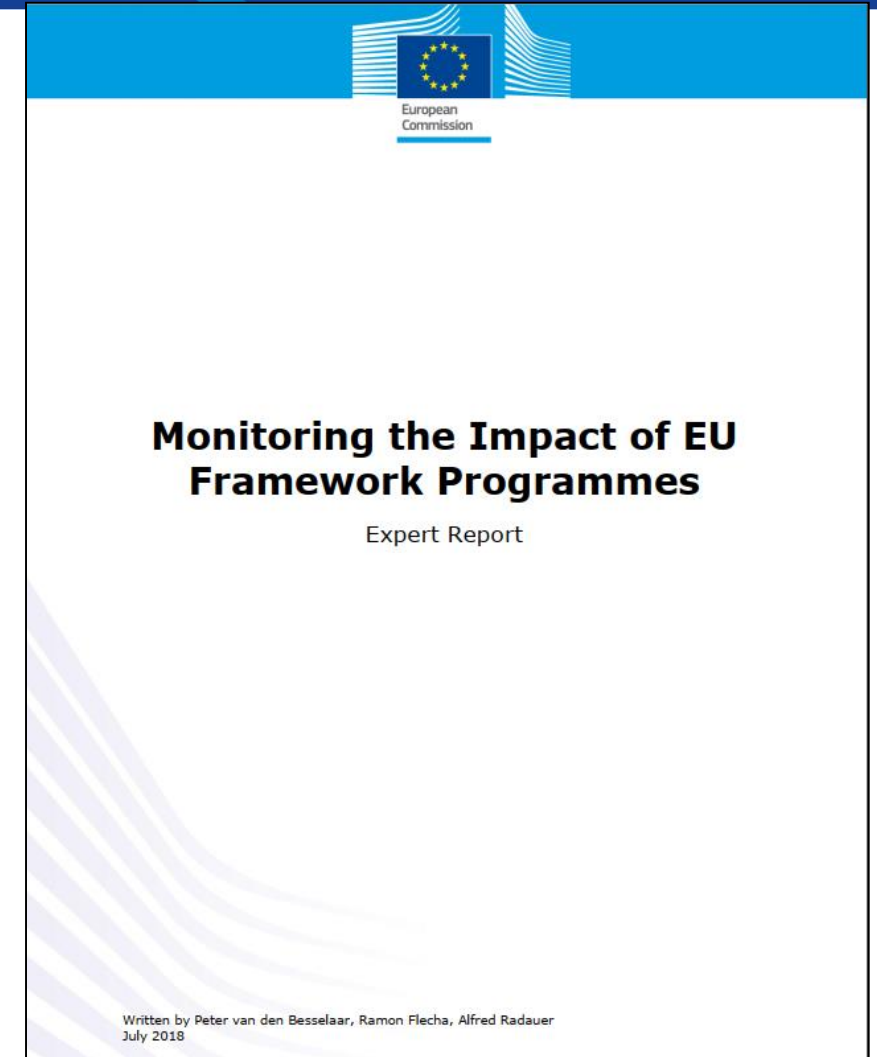
- Relevant to the objectives and should measure the right thing;
- Accepted (e.g. by staff, stakeholders who hold responsibility)
- Credible for non-experts, unambiguous and easy to interpret.
- Relatively easy to monitor (e.g. data collection should be possible at low cost).
- Robust against manipulation (e.g. If the target is to reduce administrative burdens to businesses, the burdens might not be reduced, but just shifted from businesses to public administration).

The RIPE toolkit help

- <https://www.era-learn.eu/support-for-p2ps/monitoring-and-assessment/r-i-partnership-evaluation-toolkit-ripe/carrying-out-the-evaluation-of-partnerships-in-r-i/collecting-data-and-information/defining-indicators>

- Rationale
- Assumptions
- Data information needs and resources
- Who is providing the needed information
- Methodology and frequency for indicator measurement
- Assessment of indicator quality and comparability with existing monitoring systems of EC and Member States
- Estimated cost of data collection (incl. access to external databases)
- Level of reporting burden for beneficiaries

- Summary of key data needs for monitoring progress on scientific impact



- You still need to check the **appropriateness** of what is proposed and this is generic enough to allow **adjustment** to different cases. The appropriateness of indicators is case and context dependent.
- Results span **different levels** (project level & network level, national & trans-national level).
- Indicators are subject to a number of **limitations** but don't fall into the trap that 'Impact is only what we can measure'. The **combination of quantitative and qualitative** information is invaluable.
- You still need to select the **appropriate methods** for collection and elaboration of data and indicators.

The R&I Partnership Evaluation (RIPE) Toolkit

<https://www.era-learn.eu/support-for-p2ps/monitoring-and-assessment/r-i-partnership-evaluation-toolkit-ripe>

presents a complete monitoring and evaluation methodology with concrete steps, examples, templates and good practice tips based on the work of ERA-LEARN over the years in supporting the P2Ps in their monitoring and evaluation activities.

Thank you!

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- Call / activity budget (National contributions pre-call/actual)
- Applications received / approved
- Types of participants
- Etc.

Extracts from proposals

- Level of staff receiving support
- Sources/amounts of co-funding for the project
- Level of prior contact with other project participants
- Centrality of research project to core activities of organisations
- Information about academic/industrial relevance;
- Information about intended dissemination and follow-up research;
- Information about availability of resources.



Outputs

- Publications (articles, conference proceedings, books, book chapters, reports, grey literature, datasets, etc.)
- Conference/workshop attendances
- Project meetings
- Degree theses
- Products, process etc. (licensed/patented or otherwise)
- Student/staff exchanges
- Contributions to standards, public awareness, policy
- Further development of research networks, etc.

- Information about the networks (types of networks, funding sources, budgets, national contributions, funding modes, countries represented, network objectives, activities, thematic priorities and S&T fields addressed),
- Information about network partners (number, types, contact data, role of organisation in network, funding source of organisation for the participation in the network, etc.)
- joint activities (number, types of activities, types of research and research fields addressed, sources of funds, national budget, EU budget, other budget, funding mode)
- joint calls (number, types of research and research fields addressed, sources of funds, national budget, EU budget, other budget, funding mode)

Interim evaluation/monitoring

- Planned activities against those materialised (number, type, outcomes)
- The network budget (absorbed against overall)
- Stages in networks development achieved
- Etc.

For each indicator, how can they best be measured/captured?

- Secondary data: national / European / international statistics (R&I indicators); thematic data (publications, patents, employment, etc.)
- Primary data: collection through surveys of value judgements but also facts (publications, collaborations, patents, etc.)
- Importance of monitoring systems established at the start of the activity

What is the added value of applying a quantifiable or a qualitative measurement or a combined approach in measurement?

- Snap-shot in time vs. longitudinal trends
- what vs. why and how
- A number vs. a narrative of a chain of impacts

The issue of attribution – establishing cause-effect relationships

- Cannot be too ambitious – certain correlations can indeed be made – narratives of impact chains are equally important

The importance of monitoring and keeping track of possible impact pathways can never be overestimated

Collection methods

- Existing surveys / databases
- Participant surveys
- Non-participants surveys
- Focus groups / meetings / workshops
- Technometrics/Bibliometrics analysis
- Document search
- Monitoring data

Analysis methods

- Case studies
- Network analysis
- Econometric analysis
- Descriptive statistics
- Input / output analysis
- Document / Content analysis
- Control group approach
- Counter-factual analysis
- Cost/benefit analysis

- Before proposing new data requirements, you should carefully assess to what extent the **existing data reflect the objectives set** and whether the missing key data can be collected via **existing monitoring structures**.
- It is essential to understand that **indicators are subject to a number of limitations**. They cannot measure all aspects of the reality while indicators that are defined ex-ante can only capture intended impacts. Societal impacts appear especially difficult to measure but **don't fall into the trap that 'Impact is only what we can measure'!**
- It may be the case that the most accurate indicators are extremely resource intensive to collect; thus **a balance will have to be struck between indicator suitability and ease of collection**.
- **Qualitative** indicators can be highly illustrative of the outputs and impacts of activities but are **more difficult to aggregate** and to subject to quantitative analyses.
- The **appropriateness** of indicators is **case and context dependent**.



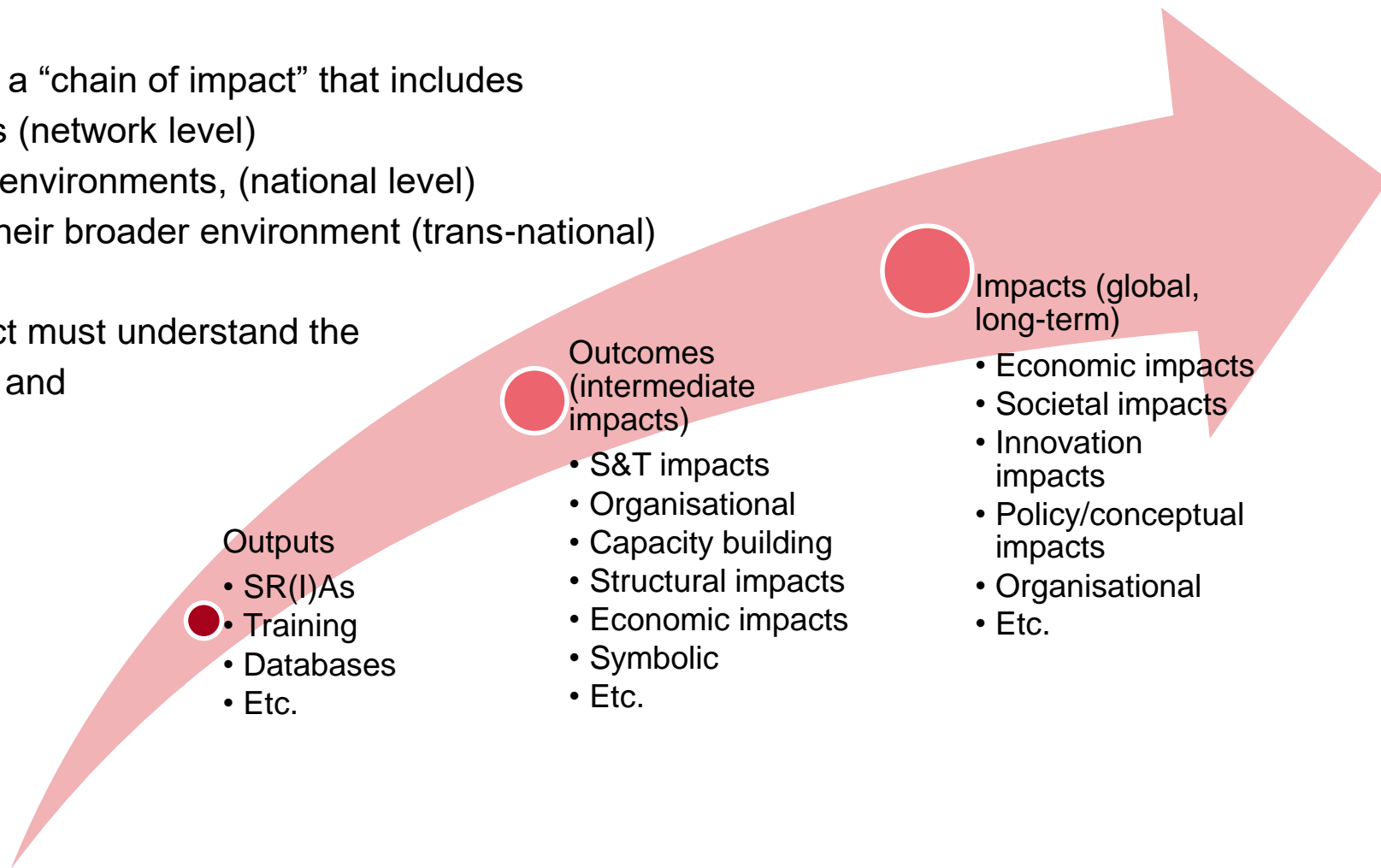
From activities to outputs, outcomes and impacts

We need to consider that networks have a “chain of impact” that includes

- the network’s impact on its members (network level)
- the members’ impacts on their local environments, (national level)
- the members’ combined impact on their broader environment (trans-national)

Evaluations designed to examine impact must understand the relationship between these three levels and be clear about where their focus lies.

The first step: sharing the right common understanding of the terminology!



Examples of indicators from P2Ps (network level)...etc.

Activity	Sub-activity	Output Indicators / nature	Outcome Indicators / nature	Impact indicators / nature	Source of information	Timing of eval.
Mapping national/trans-national activities	Mapping workshops/ meetings	<ul style="list-style-type: none"> No of attendants (quant.) Quality of report/ deliverable (qual.) Programme clustering (qual.) 	<ul style="list-style-type: none"> Identification of common areas of interest (qualitative) 	<ul style="list-style-type: none"> Critical mass of research in certain areas (both quant. qual.) 	Monitoring/ questionnaire	Interim/ ex-post
Foresight and common vision	Foresight exercise Vision building ws	<ul style="list-style-type: none"> No of attendants (quant.) Quality of report/deliverable (qualitative) 	<ul style="list-style-type: none"> Identification of common areas of interest (qualitative) 	<ul style="list-style-type: none"> Inform national and European policies (qualitative) 	Monitoring/ questionnaire	Interim/ ex-post
Strategic Research Agenda / Implementation Plan	Interaction with AB, stakeholders Specific surveys	<ul style="list-style-type: none"> No of attendants (quant.) Quality of discussions (qual.) Quality / level of approval of SRA (qual.) 	<ul style="list-style-type: none"> Identification of themes for calls (qual.) changes in research priorities of agencies (qual.) alignment of research strategies (qual.) 	<ul style="list-style-type: none"> Specific strategies for certain areas (qual.) Influence national strategies/policies/ programmes (qual.) Changes in national budgets (quant.) 	Monitoring/ questionnaire	Interim/ ex-post
Joint calls	Building a portal Call management Evaluation of prop.	<ul style="list-style-type: none"> User-friendliness of portal (quant. qual.) No of proposals submitted/ approved (quant.) Time to contract (quant.) 	<ul style="list-style-type: none"> Promotion of research area at national levels (quant.) Change of national rules, timings (qual.) Multinational evaluation schemes (qual.) 	<ul style="list-style-type: none"> Common rules, procedures, timing, and evaluation panels (qualitative) Changes in legislation to allow payments to foreign researchers (qual.) 	Monitoring/ questionnaire	Interim/ ex-post

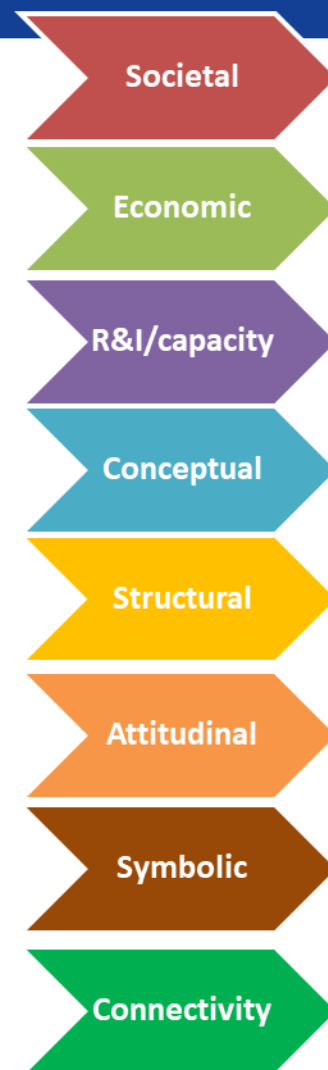
Examples of indicators from P2Ps (project level)...etc.

Project activity	Output Indicators / nature	Outcome Indicators / nature	Impact indicators / nature	Source of information	Timing of evaluation
Research collaboration	Publications (quant.) New staff, students, employees linked to project/theme (quant.); New methods, services, products (quant/qual); Co-authorships (quant.); New joint proposals/projects (quant.)	Changes to research programmes of organisations (qual.) Increased collaborations (quant.) Higher-research ranking (quant.) Increased reputation (qual.) Access to extra R&I funding (quant.)	New research trajectories / new areas of research (quant./qual.) Solutions to challenges (qual) international profile (quant./qual) Increased long-standing collabs (quant./qual)	Monitoring/ questionnaire	Interim Ex post
Research collaboration Academia – industry	Industry/HE co-publications (quant.) Prototypes of new methods/products/services (quant.qual) Patents, licenses, leasing, etc. (quant)	New methods/products/services (quant.qual); Spin-offs (quant./ qual) Market share figures (quant./qual) Commercial returns – turnover – employment (quant.) Reduced operating costs (quant.)	Solutions to challenges (qual.) Increased industry competitiveness (quant/qual) Improved business models (qual.)	monitoring/ questionnaire	Interim Ex post
Results diss. society	Raising awareness in society (quant./qual)	Change consumers behaviour (quant./qual)	More informed / concerned citizens (quant./qual)	Monitoring/ questionnaire	Interim Ex post
Results diss. policy	Inputs to standards (qual.)	White papers, draft regulations (quant./qual) Changes in policies / regulations (quant/qual.)	Solutions to challenges (qual./quant) Improved policy-making (qual.) Improved service quality (qual) Reduced environmental impacts (quant.qual)	questionnaire	Ex post
Capacity building knowl. transfer	Training schemes/activities (quant./qual.); Masters/PhD students (quant.); Conferences, workshops, seminars (quant./qual.)	Improved capacities at organisational level (quant./qual.) Changes to human resources Organisational changes (quant./qual)	Improved national capacity / performance in specific area (quant./qual) New practices for research organisation (qual)	Monitoring/ questionnaire	Interim Ex post

Examples of outcomes and impacts per different type of beneficiary

Type of Beneficiary	Outcomes	Intermediate Impacts	Global Impacts
Research organisation	new technology, new data/method, formal publications, patents	additional research income, commercial income, increased research capacity, spin-off businesses, enhanced reputation	new research trajectories, new solutions for socio-environmental challenges, economic spill-overs to industry
Industrial organisation	new product/service, new technical process, new organisational process, patent, improved capacities	increased turnover/profit, new jobs, protection of existing jobs, increased market share, geographic expansion	economic spill-overs to other businesses, new solutions for socio-economic challenges
Public service organisation	new methods/services, new organisational process	improved service quality, reduced cost of service delivery	improved health, safety, security and/or quality of life for citizens
Public administration	improved scientific evidence, new organisational process	improved governance, reduced administration costs, evidence-based policy making	improved economic, social and/or environmental impacts
Societal organisation	improved scientific evidence, improved services, improved capacities	increased influence	improved standards/regulations, improved quality of life
Environmental organisation	improved scientific evidence, improved services, improved capacities	Increased influence	improved standards/regulations, reduced environmental impacts

Examples of types and timing of impacts



	Short-term	Intermediate	Long-term
Societal	Researchers' posts created	Change of consumer practices	Improved services to citizens
Economic	More national resources in as area	New business models	Increased R&D spending in area
R&I/capacity	New knowledge Patents, prototypes	Commercialisation of invention	Innovation upscaling
Conceptual	More attention to the field addressed	A national strategy in the field	Influence of EU/world strategies
Structural	Inter-ministerial bodies for coord	More coordinated national p-making	Creation of inter' al structure
Attitudinal	Change of user behaviour	More org. collaborations	International coop. strategies
Symbolic	Improved reputation	Increased track record in projects	Increased international collab
Connectivity	New collaborations under activities	Organisational collab. strategies	Strategic alliances among org./countries

Definitions and a typology of impacts in the background Document of ERA-LEARN Guide (section 3.d 'Outputs, outcomes and impacts of P2Ps')

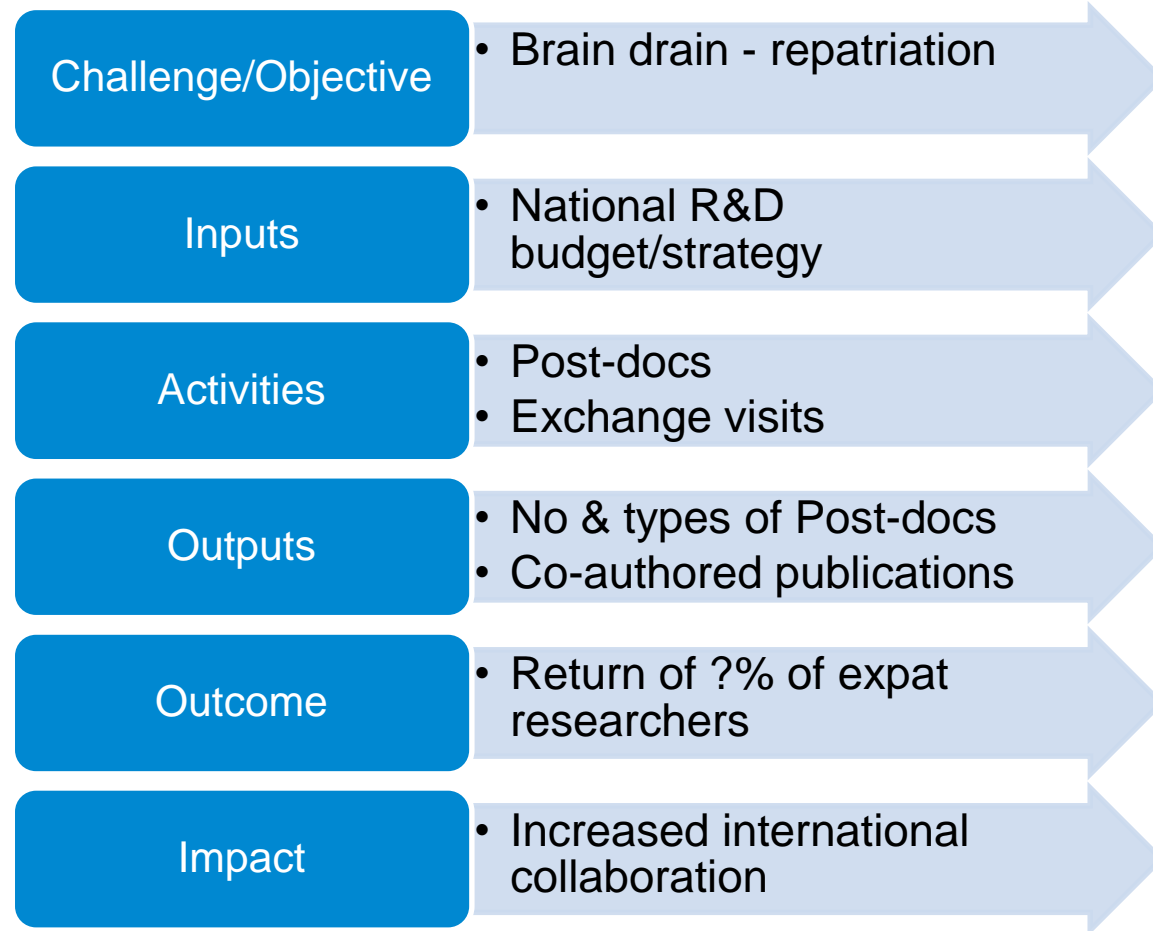
What are the inputs and activities that will achieve the P2P objectives

Inputs

- Financial, human resources, skills, infrastructures, 'costs' of beneficiaries and end-users, but also
- network structures and processes, governance and decision-making procedures, rights, obligations, rules

Activities

- Implementing transnational calls; additional joint calls
- Dissemination / Up-Take of research results
- Foresight and common vision building / Strategic Research Agenda / Implementation Plan
- Mapping national/trans-national activities
- Knowledge sharing amongst researchers, Mobility and training
- Research infrastructures; Widening participation; Internationalisation
- Monitoring and evaluation/assessment activities



Intervention Logic – main underpinning assumptions

The main reasons for researchers leaving is lack of professional opportunities in their home country

The offered post-docs and exchange visits cover their needs in terms of opportunities offered and career prospects

A post-doc position or exchange visit can act as showcase of benefits if they return home

The working conditions in the home country are more appreciated than those abroad

The personal / family opportunities in the home country are more appreciated than those abroad

The political / economic situation in the country can ensure a well-paid tenure position for people to return

The conditions in the institutions in the home country can ensure a well-paid, well-framed position for people to return

People will retain their links abroad when they return home

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Continuously running ERA-LEARN central survey for project impact assessment based on harmonised questionnaire developed by ERA-LEARN in consultation with P2Ps.

Contact Hayley Welsh Optimat UK
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ERA-LEARN Guide for P2P Impact Assessment (Guide and Background document) downloadable at <https://www.era-learn.eu/support-for-p2ps/monitoring-and-assessment>.

All ERA-LEARN Policy briefs on impacts on P2Ps and their projects <https://www.era-learn.eu/support-for-p2ps/monitoring-and-assessment>