

Monitoring and impact assessment of P2Ps

Dr. Effie Amanatidou, ERA-LEARN / University of Manchester

Implementing ERA-NET Cofund Workshop, Berlin 24-25 September 2018

Too many questions...

We have done so much but what are the results?

Are publications enough? Should we have done better with end-users?

Is our SRA already an achievement?

What should our achievements be compared against?

What is an impact? Can it be the activities themselves?

Is it the results from the activities? Something else?

How can we measure our impacts?

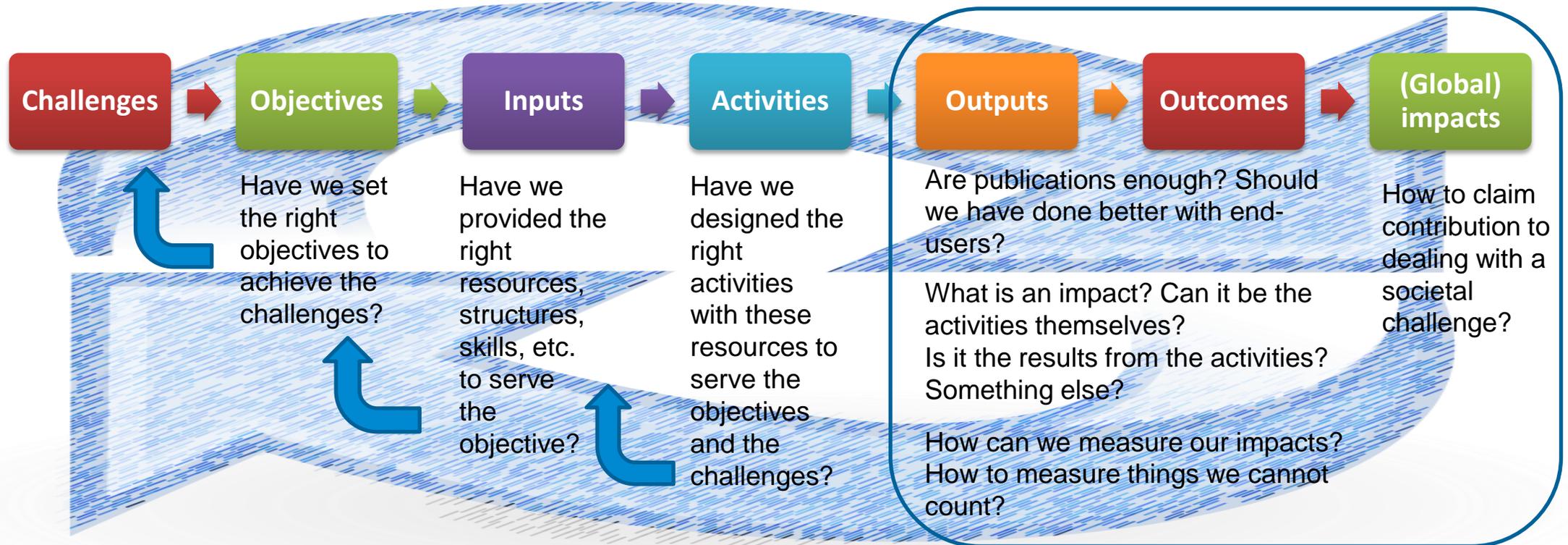
How to measure things we cannot count?

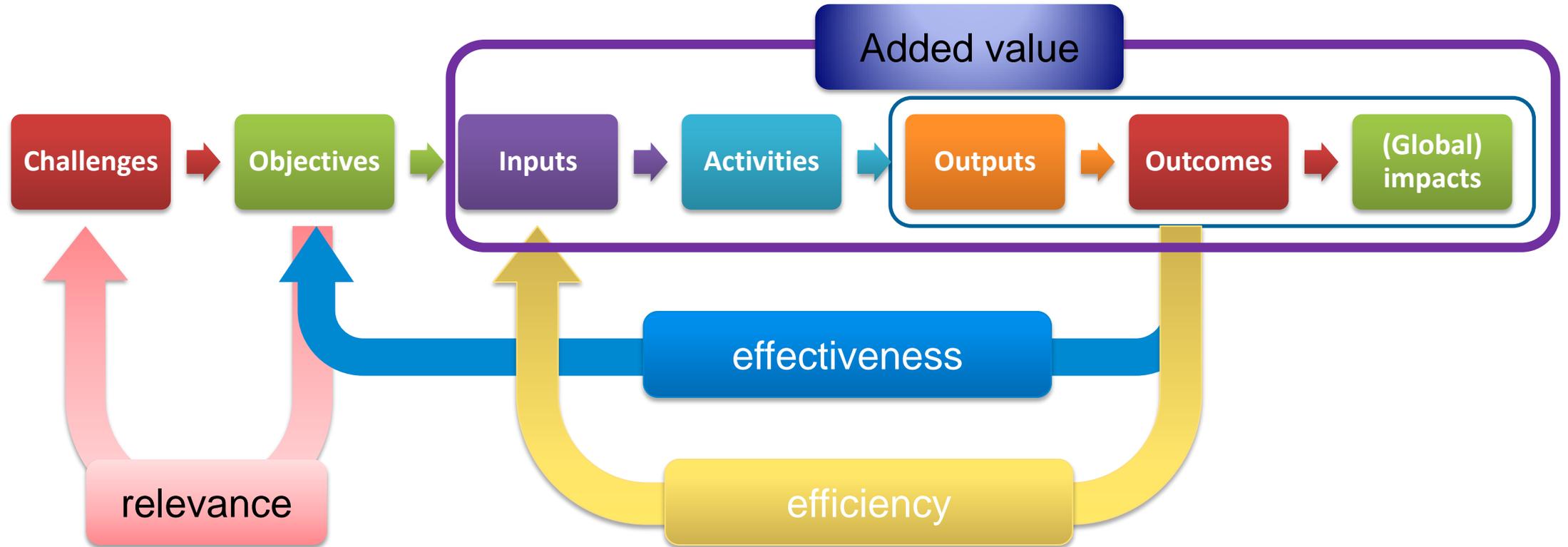
How to claim contribution to dealing with a societal challenge? (so many factors come in between)

... we cannot provide simple answers to all these questions, but at least

.... we can put the questions in the right order to understand how things work

The right order?...





..no need to examine everything in one go but good to know where to look to explain what went wrong

Effectiveness

- To what extent do the effects (outputs, outcomes, and impacts) induced by the P2P correspond with its objectives?

Relevance

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

Efficiency

- How economically have the resources used been converted into 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?

JPIs as networks...

Are characterised by **fluidity in membership**: some members may leave after a given period of time while others may join in when a follow-up action is planned;

not all members need to join and commit resources to realise the planned, joint activities; thus there are **diverse types and level of membership and engagement**;

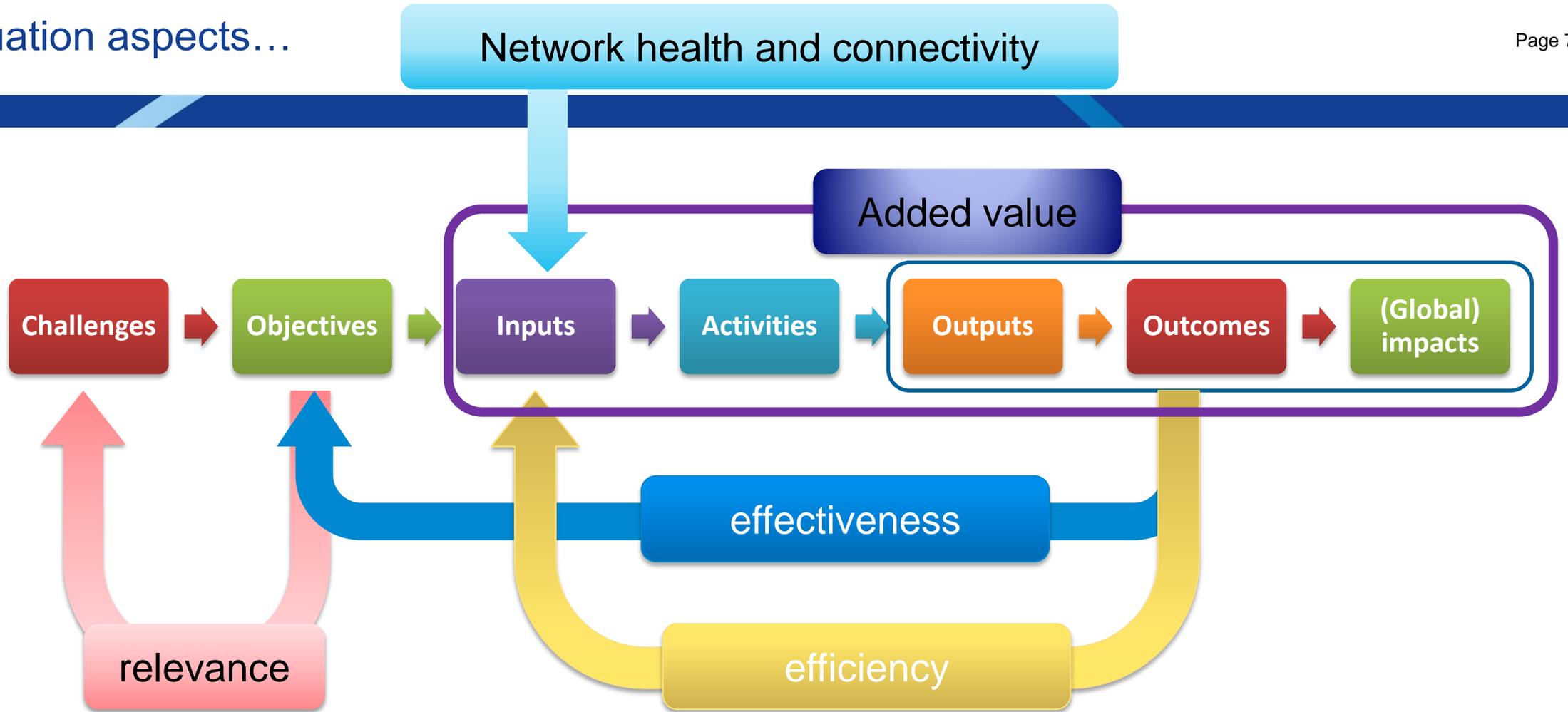
their success depends on the degree to which the network establishes **connections** among its members building **trust**, and long-term **commitment**.

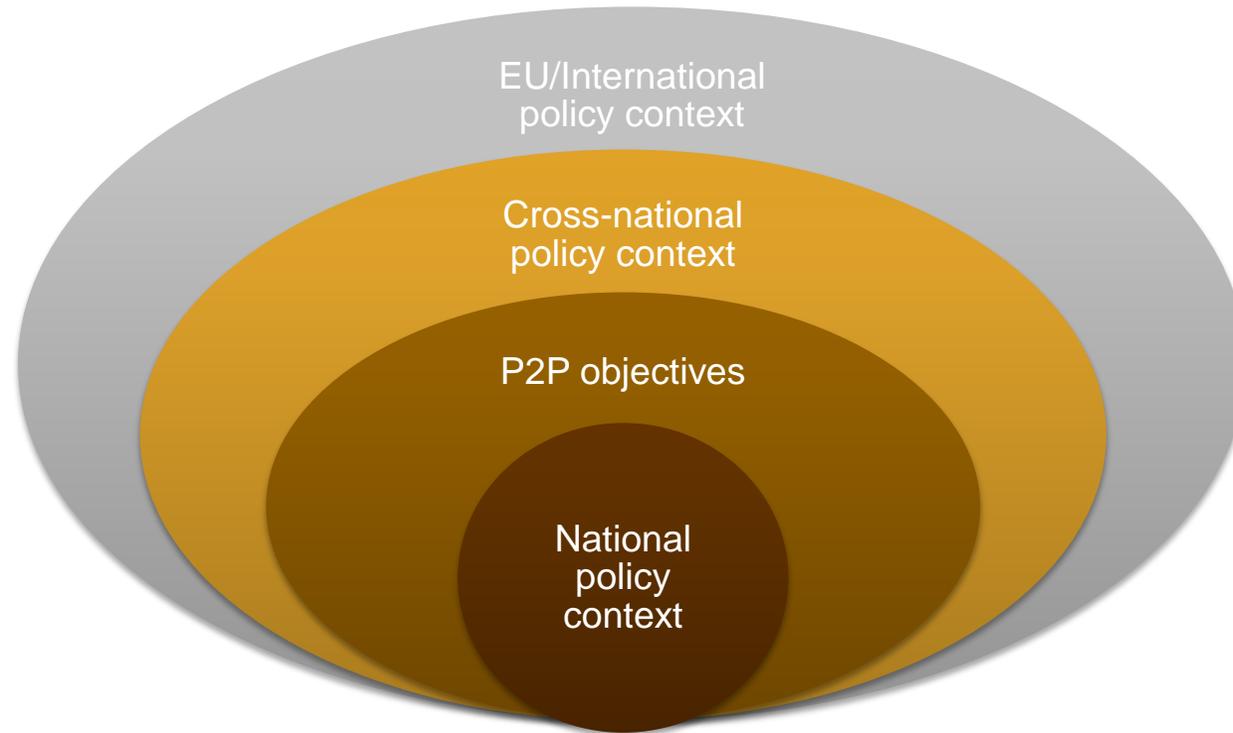
We need to understand how decisions and activities occur in a **diffused decision-making model** such as a P2P network;

We need to recognise that networks evolve through stages of development and that **their shape and structure are important** influences on their development as well as delivery of impacts;

Importance of

- ❖ 'Network health': ability to engage its members, sustain their engagement, and adapt as needed. May involve issues of trust building and management effectiveness
- ❖ 'Network connectivity': the extent to which the members' ties to each other are resulting in efficient and effective "pathways" for shared learning and action.





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)

- Smart, sustainable, inclusive growth
- Effective national research systems; Optimal TN co-operation & competition; Open labour market for researchers; Gender equality & mainstr.; Dig. ERA

Global objectives
(Europe 2020 & ERA related)

- excellent science, industrial leadership and tackling societal challenges
- support the coordination of non-Community research programmes

Intermediate Objectives
(ERA-NET Scheme; H2020)

- Best possible integration of regional and national MNT strategies with European needs and visions,
- ensure complementarities with other funding instruments

Specific objectives
(Specific network - here MNT ERA-NET)

- support collaborative research projects in micro and nanotechnologies encouraging especially the participation of SMEs and newcomers in small consortia

Operational objectives
(calls' objectives)

What are the inputs and activities that will achieve the objectives

Inputs

- Financial, human resources, skills, infrastructures, costs of beneficiaries and end-users, but also
- network structures and processes

Activities

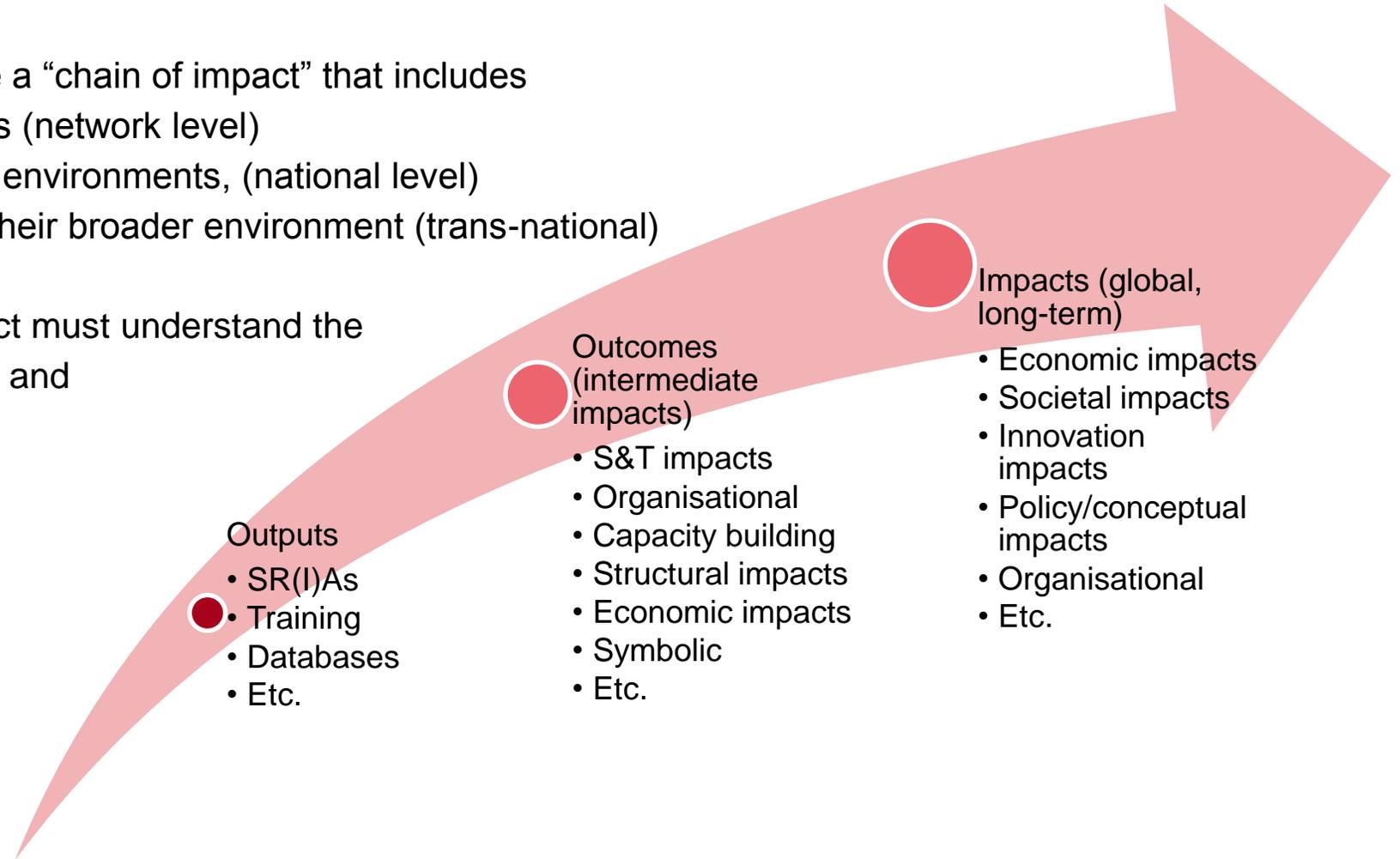
- Implementing transnational calls; additional joint calls
- Dissemination / Up-Take of research results
- Foresight and common vision building / Strategic Research Agenda / Implementation Plan
- Mapping national/trans-national activities
- Knowledge sharing amongst researchers, Mobility and training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

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

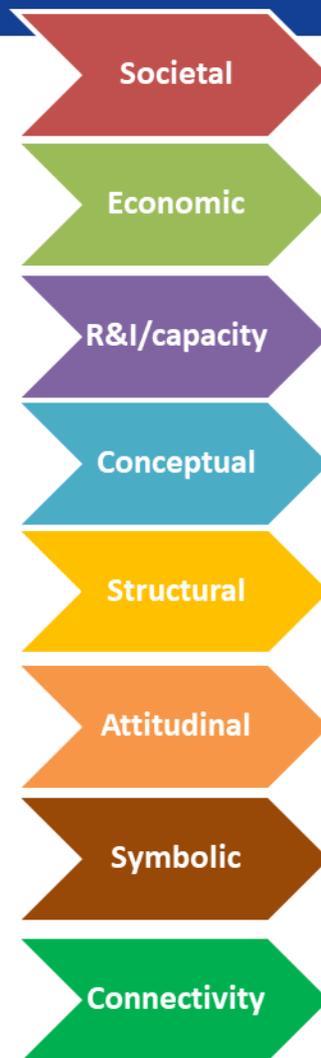
- the network’s impact on its members (network level)
- the members’ impacts on their local environments, (national level)
- the members’ combined impact on their broader environment (trans-national)

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 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

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

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).

- Examples of impact indicators at project and network level in the ERA-LEARN Guide, <https://www.era-learn.eu/support-for-p2ps/monitoring-and-assessment>
- Examples of evaluation frameworks and indicators from several P2Ps (M.ERA-NET, MANUNET, ICT-AGRI, ERA-IB, check our reference library <https://www.era-learn.eu/support-for-p2ps/monitoring-and-assessment/reference-library>)

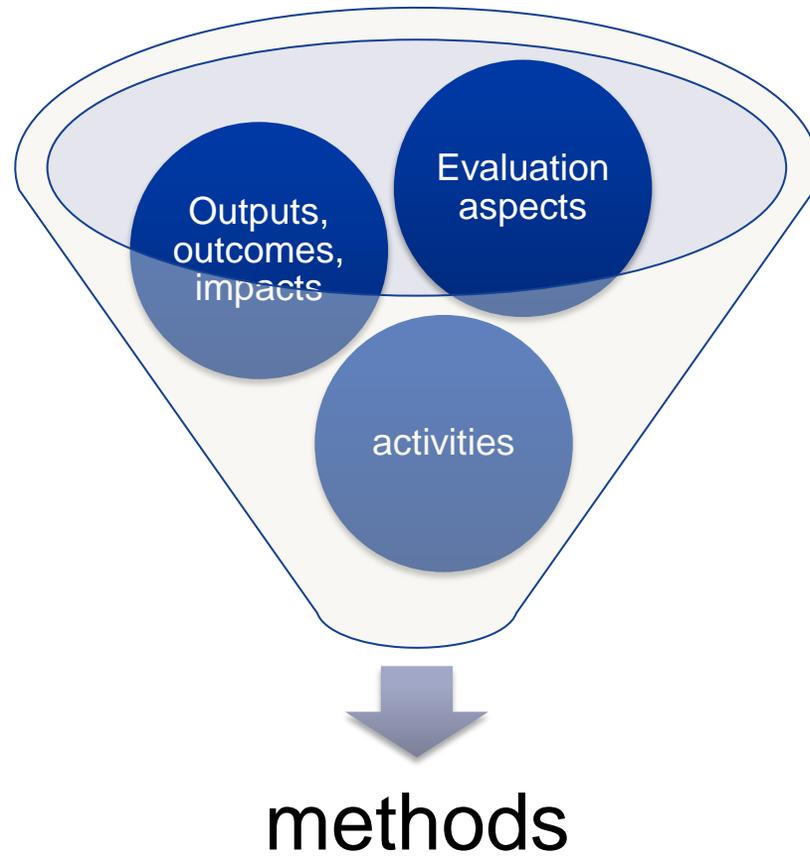
- Before proposing new data requirements, you should carefully assess to what extent the **existing data reflect the objectives set** and whether the missing key data can be collected via **existing monitoring structures**.
- It is essential to understand that **indicators are subject to a number of 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**.

Examples of indicators from P2Ps (network level)...etc. (Background Doc to the Guide) *** Page 16

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. (Background Doc to the Guide)

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



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

- **Descriptive statistics** are the most common approach, applied by more than three quarters of all evaluations
- **Case studies** – to understand contexts and developments over time – are performed by 41%.
- More sophisticated, quantitative approaches are used more selectively, e.g. 23% perform **econometric** analysis, 17% **network analysis**.
- **80% claim to use monitoring data and 70% to use existing surveys and databases** as a basis for the analysis.. However, it appears that this kind of data is insufficient to be used for specific evaluation questions such as networking or behavioural additionality.
- The most important **pro-active data collection is done through interviews and participant surveys**.

Concluding...

- ⇒ a **form follows function** approach, tailor approaches according to need for **evaluation aspects and impacts to be covered**.
- ⇒ For example evaluations interested in **strategy development** and policy issues more general also look at **consistency** and use vastly **interviews and other qualitative** methods.
- ⇒ Evaluations more concerned with **effectiveness** rely on (often simple) **statistical analysis and data, and the use of peers**, although limited, is strongly linked to quality of output.
- ⇒ Those evaluations more concerned with **efficiency** and project level issues, in turn, tend to look for **different kinds of additionality** and rely on **surveys, interviews and, less broadly, on case studies**.
- ⇒ Further, **formative and ex ante** evaluations tend to analyse **consistency** issues more broadly than other evaluations (i.e. to assess and re-adjust the overall match), and they do so by using slightly **more qualitative** methods.

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

- Monitoring is a **continuous and systematic process** of data collection about an intervention.
- Ensure that the monitoring system works **from the outset** and that data will be collected **reliably and smoothly** from the appropriate sources.
- Some monitoring indicators can only be developed while the activity is implemented, because you need the cooperation and agreement of stakeholders in developing them and in collecting the relevant information.
- Consider carefully and **provide for the cost of setting up and maintaining a monitoring system** over the life time of an intervention. This cost may not be negligible; either to the administrators who need to collect the required information and data **at regular intervals** or to those expected to deliver it.

- How much will the setting up of the monitoring system **cost and what kind of resources** will be needed to run it? Are these resources (human, financial, time) in place and can they be **ensured**?
- What **data needs to be collected and how is it to be used** (for inputs, outputs as well as outcomes)?
- **When** should the relevant data be **collected** (during the monitoring phase, ex-post, how often, etc.)?
- **By whom** should the required data be collected (e.g. P2P management team, project team, a centralised P2P systems)? Is the required capacity both in **time and skills resources available**?
- Can the process be **aligned with the monitoring/reviewing process of the P2P partners**?
- Can the process be aligned with the reporting schedule for the **evaluation/impact assessment**?

- **How** will required data be **gathered and stored**? **Where** will the data be stored? Can this be **aligned with other monitoring systems**?
- What are the necessary **data protection protocols** to ensure the system will meet security and data sharing requirements?
- **How and by whom will the data be verified** to ensure it is accurate and consistent with the relevant requirements? Are the required **skills and resources available** for this task?
- What are **suitable methods** and instruments for **collecting, storing and processing** follow-up data?

- 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.
- Etc.



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.

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
hayley.welsh@optimat.co.uk

ERA-LEARN Guide for P2P Impact Assessment (Guide and Background document) downloadable at <https://www.era-learn.eu/support-for-p2ps/monitoring-and-assessment>. This will now turn into a **Practical Toolkit** until March 2019

Latest ERA-LEARN Policy brief on project impacts in the bio-economy area <https://www.era-learn.eu/documents/era-learn-2020-d3-2-policy-brief-impacts-from-p2p-supportedprojects-final.pdf?SearchTerm=bio-economy>

Thank you!

Effie.Amanatidou@manchester.ac.uk

Effie.amanatidou@gmail.com