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# IMPACT PATHWAYS: TRACKING AND COMMUNICATING THE IMPACT OF THE EUROPEAN FRAMEWORK PROGRAMME FOR RESEARCH AND INNOVATION

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Vienna, 6 November 2018

# Introduction

- Horizon Europe proposal adopted by EC in May 2018; context of socio-economic pressures, budgetary austerity
- Need to demonstrate and communicate why EU R&I investments matter
- Review of international experiences, past evaluations, programme-theory literature
- Key Impact Pathways as a backbone of Horizon Europe monitoring and evaluation system: reconciling policy needs with methodological challenges, tacking into account latest technological developments

# The challenge of capturing R&I impacts

- Better Regulation: evaluations to look not only at *what* happened, but also *why* and *how much* with evidence of causality
- Specific challenges of R&I programmes evaluations:
  - **Uncertainty and risk:** need risk taking, trials and errors, role of public intervention when markets fail, **what** to measure
  - **The time lag issue:** possibly very long timeframe before impact occurs, when to measure
  - **The attribution/contribution problem:** nature of knowledge (non-rival, cumulative), other projects running, R&I systems influence
- Particularly difficult when it comes to measure outputs/results/impacts

# Learning from others' indicator frameworks

- **No one-fit-all solution** (Graham et al., 2018): more for accountability/advocacy purpose (quantitative) than learning
- Traditionally two main areas of indicators on outputs side: 1) scientific publications and citations; 2) patent applications, awards and citations
- Now (van den Besselaar, Flecha, Radauer, 2018) turning to **economic impact** data (jobs, turnover), but other types of IPR rather unused, missing data links on market reach of innovations
- Most agencies and models do not consider **societal impact** from R&I at all. Some attempts with indicators *leading* to societal impact (SIAMPI)
- **Still, data limitations:** funder ID, control groups, data linking

# Learning by doing – Past Framework Programmes

- Since 1984, **multiple evaluations of FP**: different approaches, inadequate timing, limited data, difficulty to capture wider effects, e.g. on economy/society (Arnold, 2012)
- Evolution for Horizon 2020: **Key Performance Indicators**
- **Horizon 2020 interim evaluation**: triangulation of data, long-term impact of FP7, 3 categories of impact, counterfactual analysis on research outputs, econometric modeling on jobs & growth
- But **limitations**: data availability, reliability, aggregation; lack of benchmarks and baselines; attribution/contribution

# Reconciling measurement challenges & policy needs

- Evaluations are needed to inform the policy cycle (cannot wait 25 years to know what works or not) but they also need to be informed.
- Need to handle complexity in practice (Pawson 2003):
  - ***Stare it in the face:*** mapping the complexity, the collision of theories
  - ***Concentrate your fire:*** prioritisation on what is vital for programme theory
  - ***Go back to the future:*** reviewing systematically past findings & fitting future evaluation needs
  - ***Stand on other's shoulders:*** when theories have already been tested in evaluations
  - ***Criss and cross:*** comparing with similar programmes in different contexts
  - ***Remember your job:*** look for enlightenment rather than “political arithmetic”

# The emergence of impact pathways

- Impossible to predict R&I impact trajectory; not linear, within systems
- Programme-theory approach aims to look into a 'black box' of causation, became an EC standard
- Impact pathways fall under this theory; simple and likely interpretation on how the project (e.g. UK REF)/programme/policy expects to lead to impact
- Interpreting Rogers (2008): keep impact pathways wide & use mixed methods for performance measures
- Challenge of quantification of impact; counterfactual impact evaluation with high data requirements

# PATHS Principles - behind the revamped system for the Framework Programme

- **Proximity** - Knowing who the individual researchers and companies are, for example through unique identifiers such as VAT numbers, researchers IDs, funder ID
- **Attribution** – Microdata collection supporting the identification of control groups for counterfactual analysis
- **Traceability** – 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 the objectives, at any moment in time
- **Stability** - Building on the current systems, piloting evolutions in Horizon 2020

# The Framework – Three impact dimensions



## **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

# The Framework – Key Impact Pathways

1. Creating high-quality new knowledge
2. Strengthening human capital in R&I
3. Fostering diffusion of knowledge and Open Science

**Scientific  
Impact**



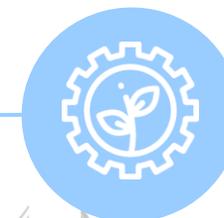
4. Addressing EU policy priorities through R&I
5. Delivering benefits & impact via R&I missions
6. Strengthening the uptake of innovation in society

**Societal  
Impact**



7. Generating innovation-based growth
8. Creating more and better jobs
9. Leveraging investments in R&I

**Economic  
Impact**



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# The Framework – Components of each Key Impact Pathway

1 **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.

2 **INDICATOR (short, medium, long-term)**



3 **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.

# Meeting the data needs

- Building on Horizon 2020 but streamlining
- A much increased reliance on microdata and unique persistent identifiers (researchers, companies, funder ID)
- Minimizing the reporting burden on beneficiaries (data linking)
- Allowing data disaggregation
- Solid basis for accountability, for evaluations to dive deeper into learning and identifying policy adjustments
- Interim evaluation to focus on relevance, coherence, efficiency + longer term assessment of past programmes for effectiveness/impact

# Conclusions



Key Impact Pathways **novel, ambitious yet pragmatic** approach for indicator frameworks when facing complexity



By applying PATHS principles expected to be able to **better communicate** the progress of Horizon Europe towards its objectives with a set of key storylines



And to **better capture** the progress made by focusing on microdata and data linking, acknowledging multiple impacts of R&I investments as well as early identification of potential barriers and drivers to impact



A key element for improving the quality of programme **evaluations**, and their usefulness for policy learning and policy design

An aerial photograph of a river delta, showing a large river branching into many smaller channels. The water is a mix of dark blue and light green, indicating different depths or sediment levels. The surrounding land is a mix of brown and green. A white rectangular box is centered in the image, containing the text "THANK YOU!".

THANK YOU!

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For the development of the Key Impact Pathways approach for Horizon Europe, authors would like to acknowledge the contribution of many colleagues from the European Commission and the independent expertise of Peter van den Besselaar, Jose Ramon Flecha Garcia and Alfred Radauer.

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