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Practices for scoping, monitoring and measuring RI impact

2025 Major Science Initiatives Fund workshop, Ottawa

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EFIS Centre expertise on impact assessment of RIs

1. A **decade long track of record for assistance to RI** strategy development and implementation of monitoring and impact evaluation framework
2. Leading **knowledge creation projects**, e.g. Horizon 2020 project Research Infrastructure imPact Assessment PaTHways (RI-PATHS) and **support projects to individual RIs**
3. Engagement in **global networks** on the topic on socio-economic impact assessment of RIs (EC, ESFRI, OECD Working Groups, Global Research Council, ICRI, etc.)
4. Extended knowledge of participatory evaluation techniques and novel impact assessment methods

Agenda for the session

1. Introduction to the world of impacts
2. RI-PATHS project results and toolkit
3. Principles of impact framework design
4. Impact measurement
5. Key takeaways

Theoretical underpinnings for thinking about RI impacts

What is an impact?

OECD defines impact as:

"The extent to which the intervention has generated or is expected to generate, positive or negative intended or unintended, higher-level effects"

European Commission defines impact as:

"All the changes which are expected to happen due to the implementation and application of a given policy option/intervention. Such impacts may occur over different timescales, affect different actors and be relevant at different scales (local, regional, national and transnational)."

In simple terms…

- … the activities carried out at an organisation will lead to effects relevant to its different users, a wider community of stakeholders, economy and society at large.
- Whether we plan for it or not, all activities will generate an impact; if not in the short term (say, in one or two years) then at a later stage.

Performance monitoring vs impact assessment (I)

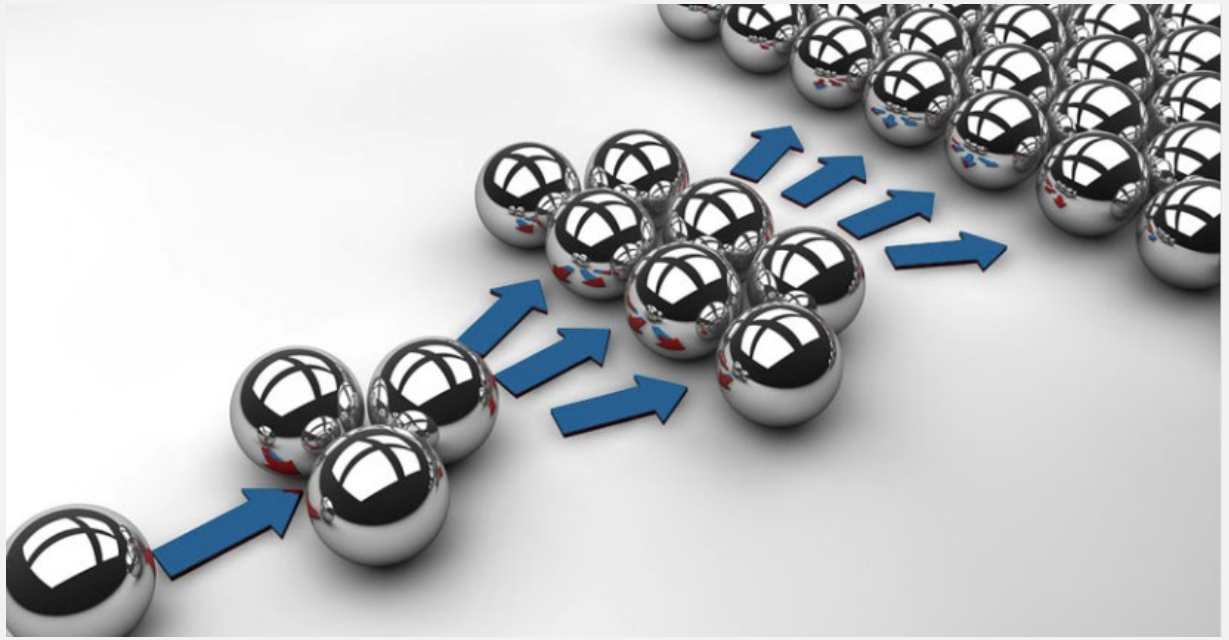
Performance monitoring: regularly collecting and analysing data on activities and their results to assess progress towards achieving predetermined goals and objectives.

Purpose: to identify areas where programme/initiative is succeeding and where it needs improvement.

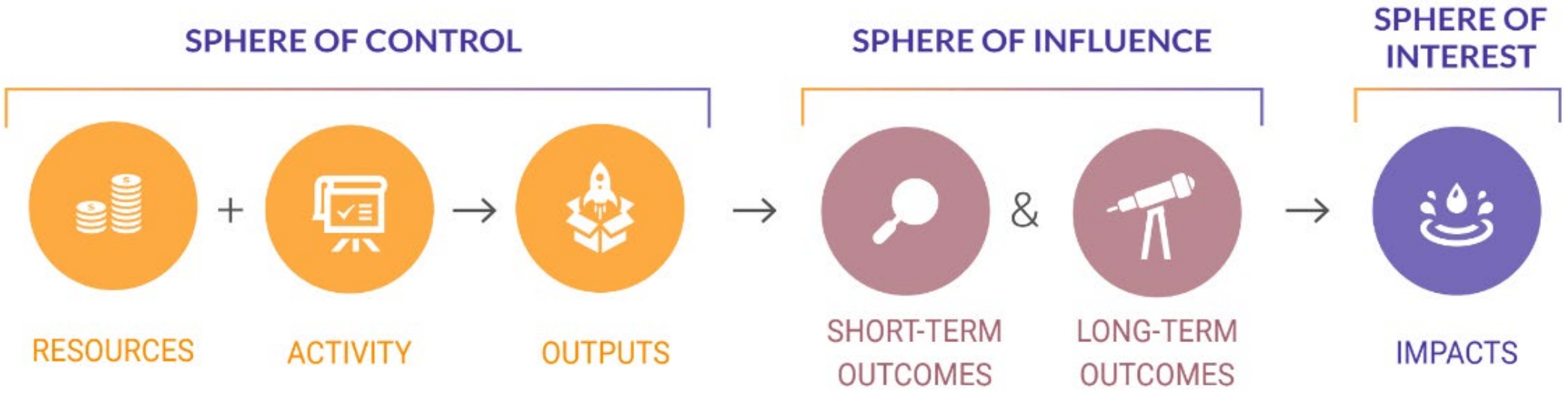
Performance monitoring vs impact assessment (II)

Impact assessment: measuring the actual changes that occur as a result of an activity.

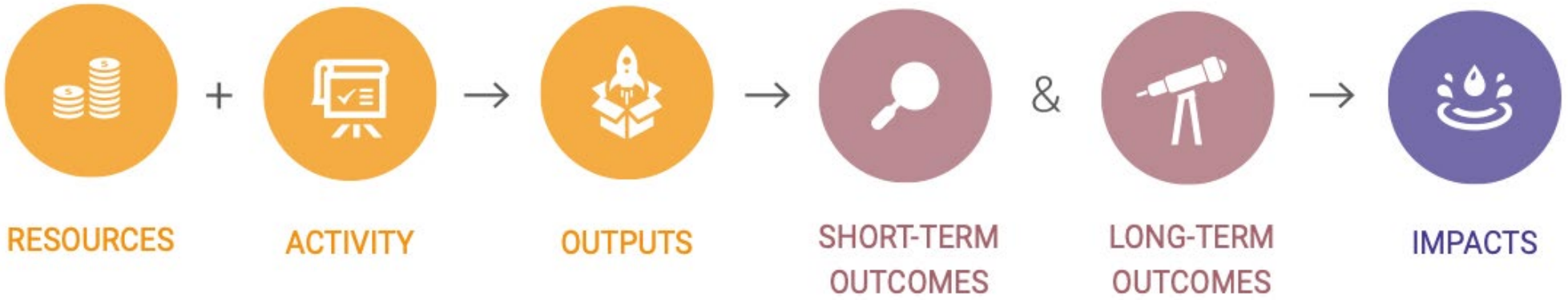
Purpose: determine the extent of changes a programme/initiative have brought about in the lives of its beneficiaries/stakeholders.



Impact pathway logic

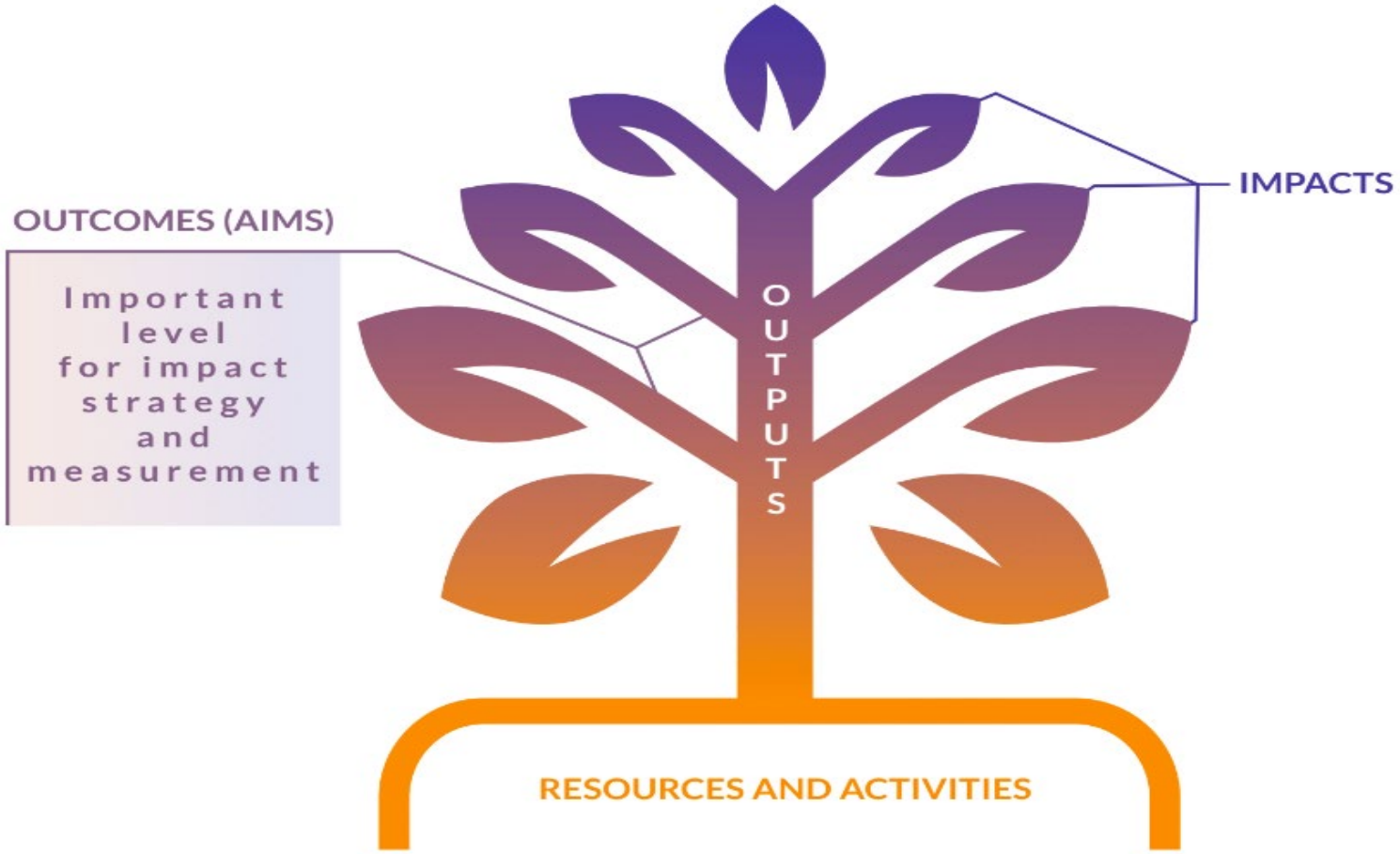


Impact pathway example



RESOURCES	ACTIVITY	OUTPUTS	SHORT-TERM OUTCOMES	LONG-TERM OUTCOMES	IMPACTS
Funding	Training activities for researchers on patient engagement in translational medicine	Courses organised Number of people trained	Improved skills in specific areas	New competences applied Increased relationship capital	Impact on the societal relevance of research

Intertwined nature of impact



Findings from RI-PATHS project

RI- PATHS project

- Funded by the European Commission's R&I programme Horizon 2020
- Implemented from January 2018 to June 2020 (30 months)
- 8 core partners teaming up policy & evaluation experts with Research Infrastructures

RI PATHS
Research Infrastructure
imPact Assessment paTHwayS

EFIS
european future innovation system centre

Csil
CENTRE FOR INDUSTRIAL STUDIES

European Science Foundation

Fraunhofer ISI

elixir

CERN

ALBA

DESY.

RI- PATHS mission

The goal was to improve the understanding of long-term **impact pathways** of various types of RIs.

Give policy makers, funders and RI managers the **tools to assess RI impact** on the economy and contribution to society.

Approach

Work was carried out in a participatory manner engaging RI stakeholders in a co-design of the impact assessment framework

Access RI- PATHS results online

- Online Toolkit - ri-paths-tool.eu
- Accompanying Guidebook

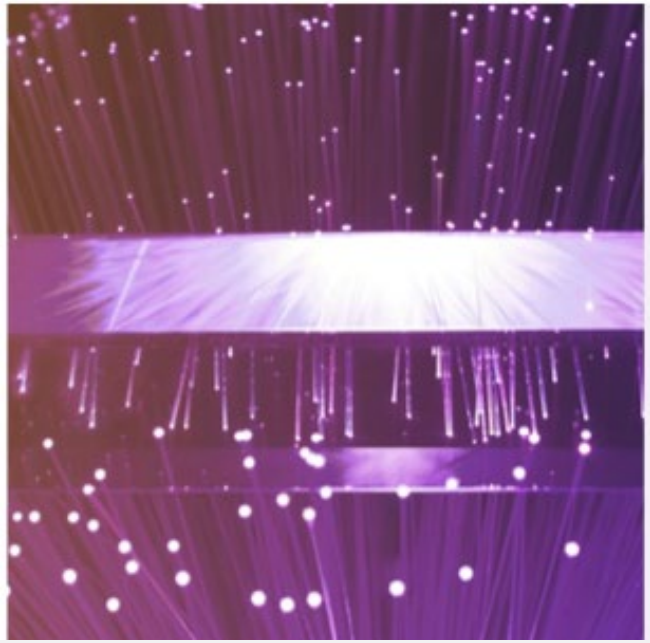
Most frequent impact areas I

Impact on Human Resources

+ Research jobs and career development
+ Skills development for non-scientific staff and users
+ Relationship capital and international collaboration
+ Better working conditions
+ Wider effects of concentrating new competences

Most frequent impact areas II

Impact on Economy and Innovation



+ Business and industry
+ Labour market and productivity
+ Technology transfer and innovation
+ Impact on local and regional economy

Most frequent impact areas III

Impact on Society

- New solutions, technologies, open access data and software for societal use
- Knowledge benefits for society in different domains
- Public awareness and engagement
- Cultural impact
- Social inclusion
- Environmental impact

Most frequent impact areas IV

Impact on Policy

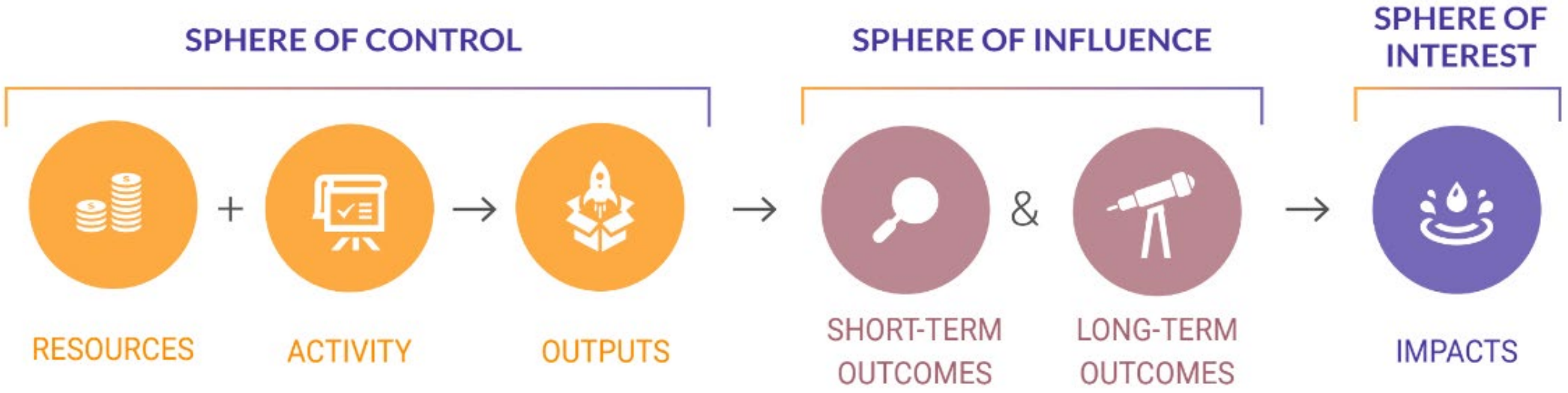
+ Policy, regulations and standards
+ Science diplomacy
+ Co-funding and sustainability
+ Ethics and trust in science

Contribution from RI- PATHS project

Identification of **13 generic impact pathways** how investments in Research Infrastructures lead to various impacts on the economy and society

Grouping pathways along three high-level missions of Research Infrastructures

- **Enabling science**
- **Problem solution**
- **Science and society**



Types of impact pathways I

ENABLING SCIENCE

P1 Publication-citation-recognition

P2 Employment, operations & standardised procurement

P3 Technology transfer and licensing

P4 Learning and training through joint development of instruments and tools

P5 Learning and training by using RI facilities and services

P6 Training and higher education cooperation

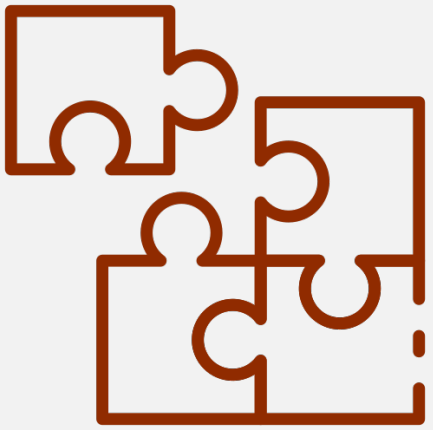
Types of impact pathways II

PROBLEM-SOLVING

P7 Interactive problem-solving for the private sector (industry)

P8 Addressing societal and public-sector challenges

P9 Provision of specifically curated/edited data



Types of impact pathways III

SCIENCE AND SOCIETY

P10 Changing fundamentals of research practice

P11 Creating and shaping scientific networks and communities

P12 Promoting engagement between science, society and policy

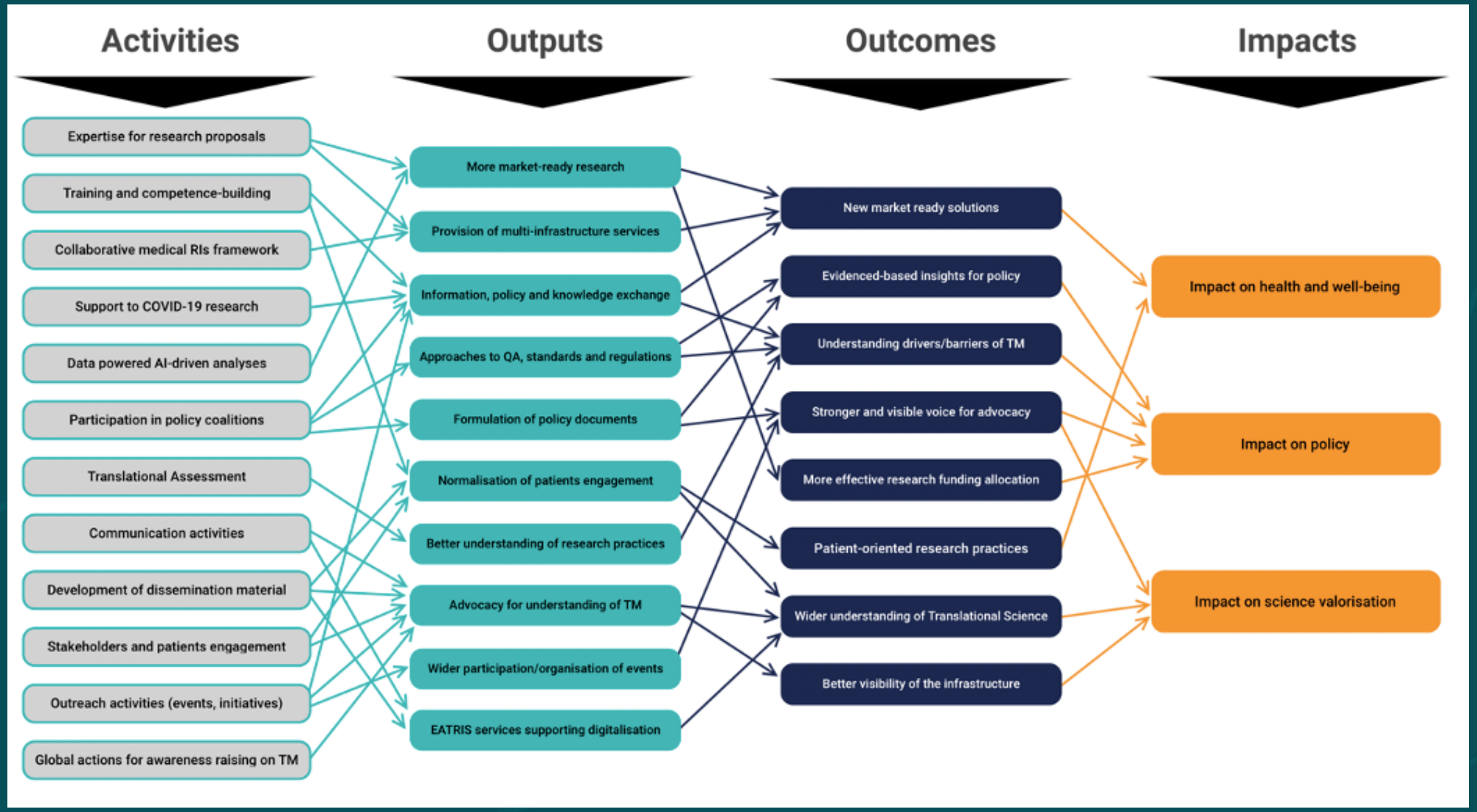
P13 Communication and outreach

Impact framework design

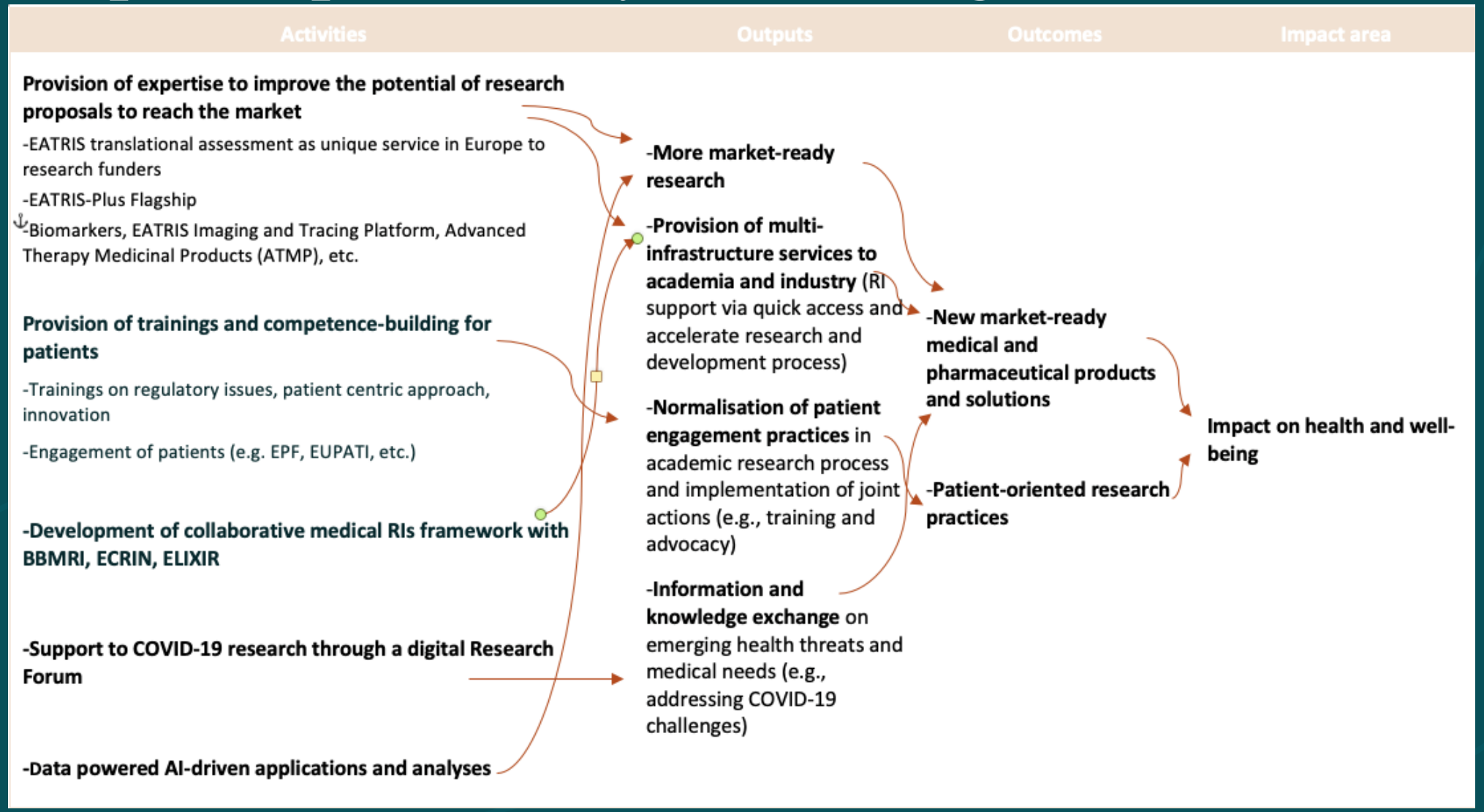
Design of an impact framework

- Impact framework gives at-a-glance overview of all relevant impact pathways of your research infrastructure
- Impact framework outlines most relevant impact areas (the strategic focus) and enlists a limited number of most prominent pathways
- The design of the impact framework need to involve key team members in charge of main activity lines
- Impact framework allows a shared understanding of the topic among all stakeholders

Impact framework example



Impact pathway charting sheet



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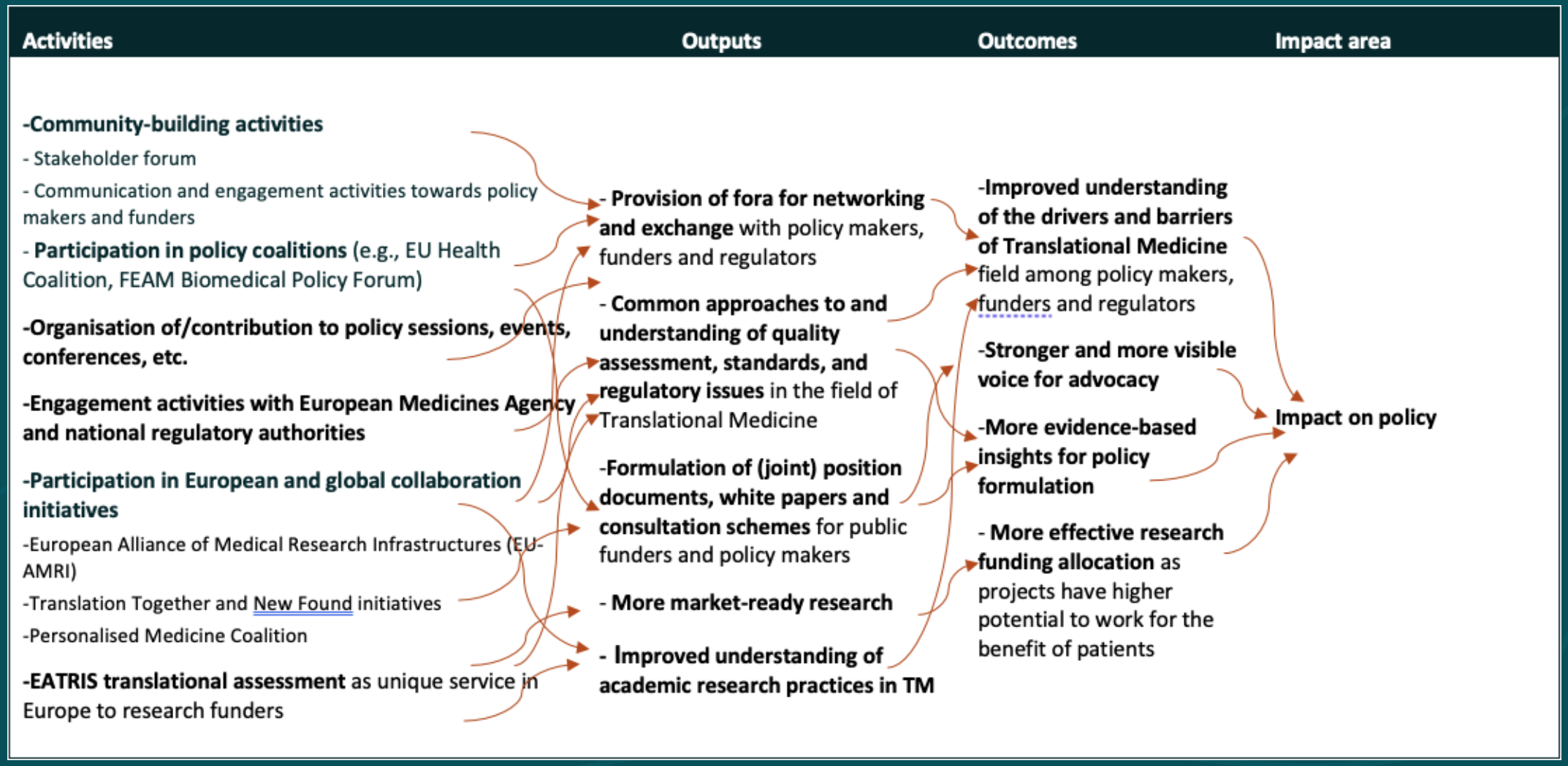

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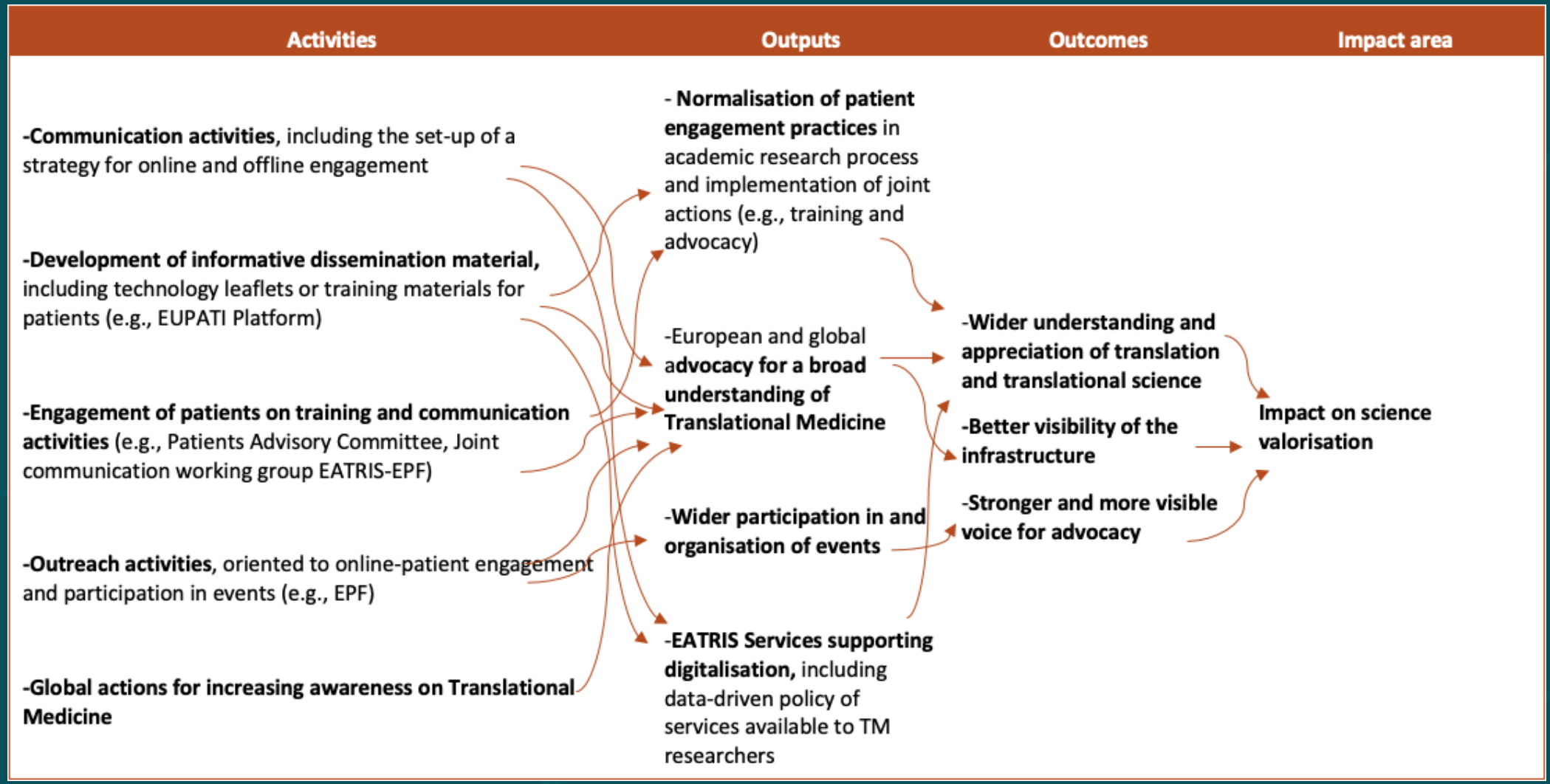

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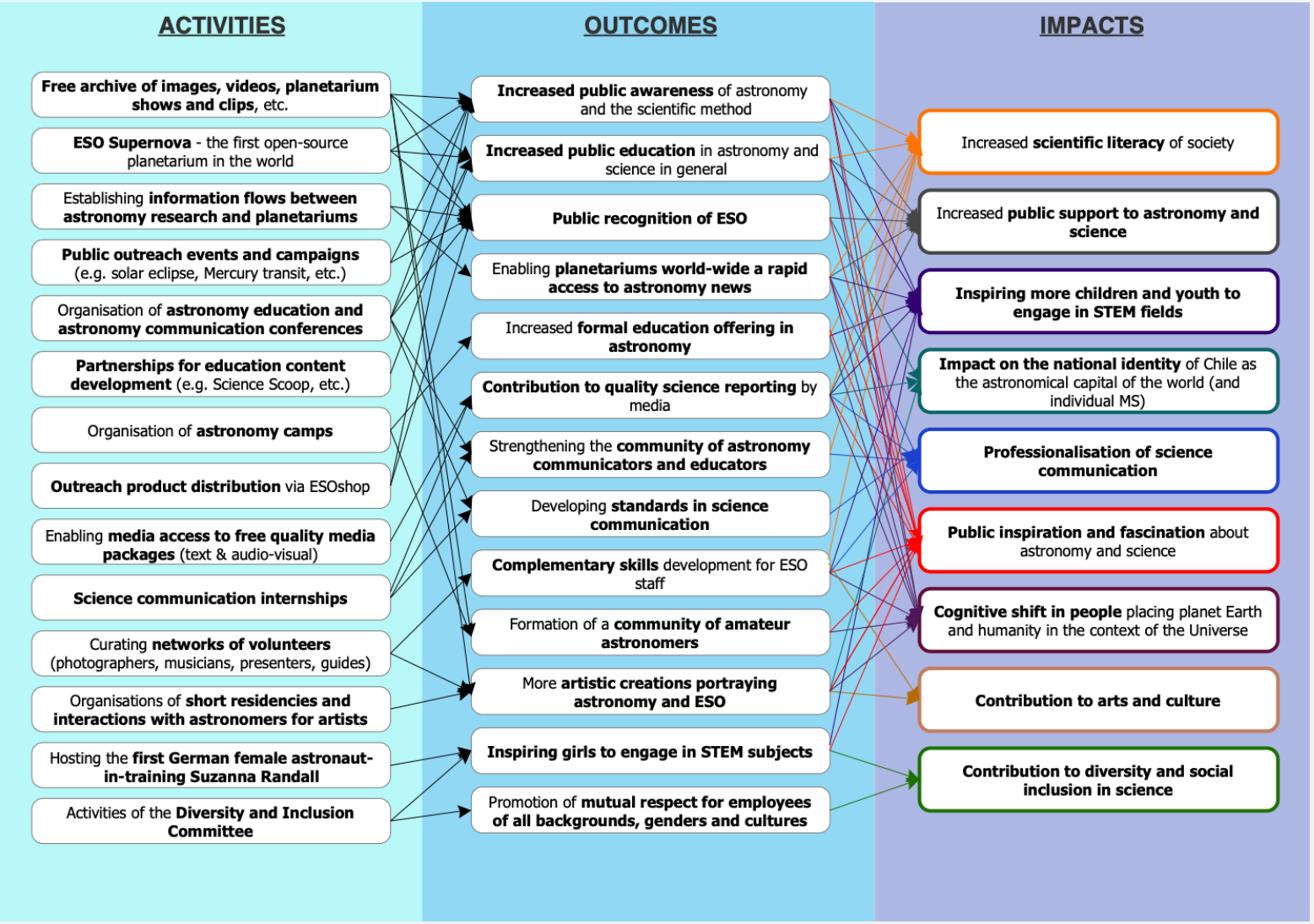

Design of an impact framework

- Impact framework gives at-a-glance overview of all relevant impact pathways of your research infrastructure **-> focus not only on individual pathways, but also links between them**
- Impact framework outlines most relevant impact areas (the strategic focus) and enlists a limited number of most prominent impact pathways **-> presents a comprehensive hypothesis how activities lead to impact**
- The design of the impact framework need to involve key team members in charge of main activity lines **-> co-design is at the heart of the activity**
- Impact framework allows a shared understanding of the topic among all stakeholders **-> essentially it also serves as strategy design and communication tool**


Uncovering and planning for impacts is a fun collaborative activity
Are you IN?

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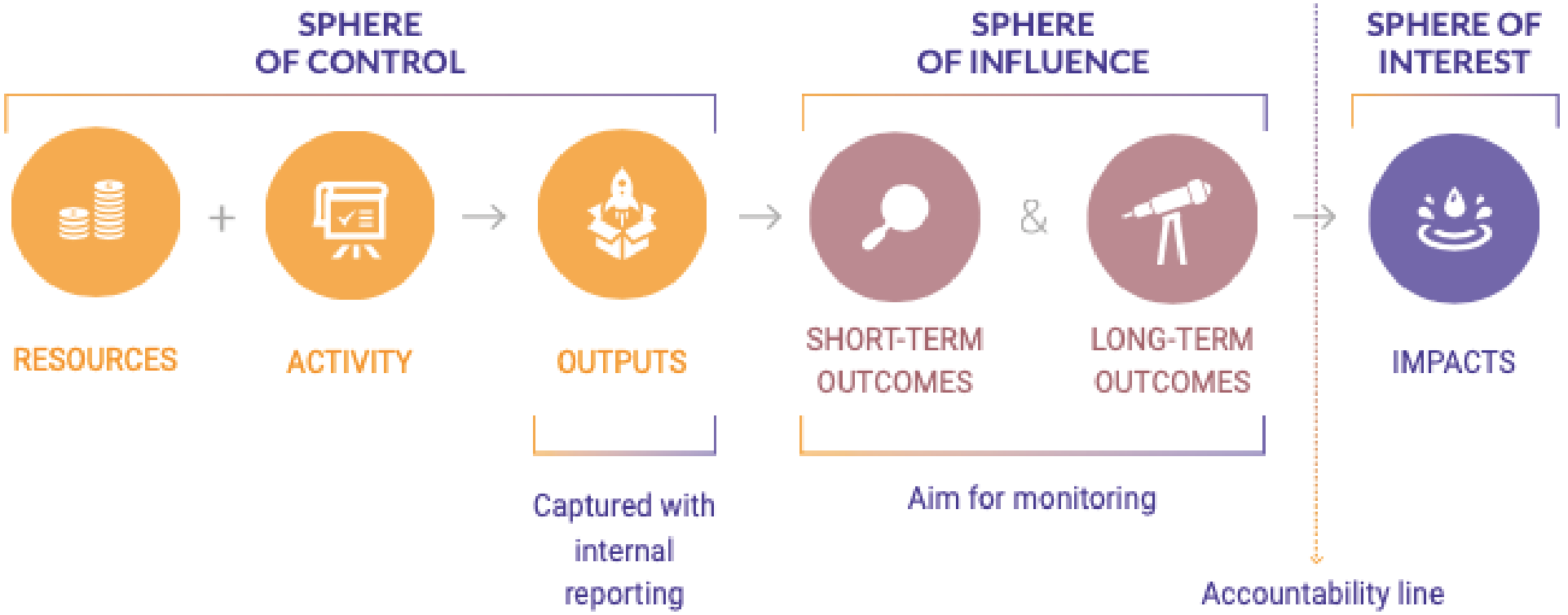
‘Measuring’ the impact

Logic of impact pathway monitoring



KPIs come in here

Considerations for choosing indicators

Activity indicators (known as KPIs): allow to assess whether right things are being done

Outcome indicators: allow to assess whether doing these right things matter

Impact indicators: allow to assess how big the overall added value of all these activities may actually be

Examples for activity, outcome and impact indicators

Activity

- Number of researchers trained
- Number of training measures by type of target group

Outcome

- Satisfaction of people trained with the course material
- Rating of the applicability of gained knowledge

Impact

- Evidence of the effect of new competences on career development
- Evidence on the increased prestige of the training provider

Tools for data collection

- **Keeping track of activities and their direct results: Systematic tracking** is the basis for the assessment of impacts. It is usually performed as part of internal monitoring and reporting.
- **Performing surveys of stakeholders interacting with results:** Helps to grasp useful **insights in the way outcomes materialise** and the way to maximise them. Impact-related aspects can be added to already existing information gathering forms and surveys.
- **Carrying out various qualitative analyses and case studies:** Helps to report on more **intangible impacts.**
- **Exploratory use of external databases:** Provides **new opportunities** for gathering impact related data.

Guidance on methodologies for impact analysis

- **Complex analysis requires appropriate skillsets.** Consider what is feasible and apply the principle of proportionality between the invested effort and expected value from the analysis.
- **Numbers matter, but they matter in a context**. Case studies and well-constructed data-based narratives can be powerful in communicating both.
- Neither quantitative nor qualitative approaches alone can provide a comprehensive and satisfactory answer to all the impact related questions. **Smart and rigorous combination of these methods is needed**.

Closing thoughts

Challenges of scoping and measuring the uptake of RIs

1. **No ‘on-size-fits-all’ approach** to measuring uptake and impact

2. **Availability of data** vs **relevance of the available data**

3. Complex analysis requires **appropriate skillsets**

Opportunities for scoping and measuring the uptake of RIs

1. **Systematic stakeholder mapping** may provide the needed clarity on potential for uptake and future impact

2. **More rigorous use of qualitative insights** can mitigate the lack of solid data

3. Untapped potential for the **use of external databases**


Key
Takeaways

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Thank you!

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