Blueprint for Research & Innovation Impacts

A practical framework for understanding, planning for and recognizing research and innovation impacts

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A practical framework for understanding, planning for and recognising research and innovation impacts
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Disclaimer
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A note to readers

Purpose, audience and scope

This Blueprint presents a proposed conceptual and practical approach to understanding, planning for and recognising **research and innovation impacts**. Its purpose is to provide a common reference point for discussion and reflection, put forward recommendations for consideration, and contribute to building a shared understanding of research and innovation impact across the research community.

The document is designed for researchers and applicants, reviewers, members of advisory and decision-making bodies, programme staff and managers, and other actors in the broader research and innovation ecosystem. Depending on their roles, these audiences may use it to build a clearer and more consistent understanding of research and innovation impacts; to reflect on and plan credible impact pathways within individual research projects and research activities more broadly; to inform programme design and calibrate impact expectations according to the objectives and characteristics of different funding calls; and to explore possible approaches to considering, capturing and recognising impact, both ex ante and ex post.

This Blueprint is exploratory and preparatory in nature. It does not, in itself, introduce new requirements for applicants, evaluators, programme staff or advisory bodies, and it should not be read as an evaluation guide or as an operational procedure.

It is deliberately practical. Alongside definitions and principles, it offers worked examples, illustrative indicators, and a set of questions and tools to support reflection on impact. It is designed to be relevant across a broad range of contexts, from curiosity-driven basic science through to applied research, technology transfer and innovation, while recognising that relevant forms of impact, plausible pathways and time horizons differ across fields, activities and contexts.

It is consistent with the broader international effort to reform research assessment, in particular the Coalition for Advancing Research Assessment (CoARA) and the San Francisco Declaration on Research Assessment (DORA), which place qualitative, peer-review-based judgement at the centre and call for the responsible use of quantitative indicators (CoARA, 2022; DORA, 2013).

Drawing on international practice, including the comparison undertaken for this Blueprint of how other organisations approach impact, the document is guided by a central premise: **good systems do not ask researchers to promise impact; they help them build a credible and realistic pathway towards it**, where appropriate. Expectations concerning impact should therefore be calibrated to each research project or activity and its context, rather than applied uniformly regardless of circumstance.

PART I — ABOUT THE BLUEPRINT

1. Why this Blueprint?

The term *Blueprint* is used deliberately. The document brings together a common vocabulary, conceptual distinctions, impact dimensions and practical tools, providing a shared starting point for understanding, planning for and reflecting on research and innovation impacts. It does not prescribe a single, finished model or a uniform set of expectations. Like a blueprint, it offers a structured but adaptable foundation that different actors can draw on in ways suited to their roles, needs and contexts.

The need for such a shared foundation arises from the complex relationship between research and the society that sustains it. Reflecting on research impact invites us to consider how knowledge, over time, can ultimately influence people's lives, the economy, public decisions, culture and the environment. In doing so, it touches a deeper and genuinely open question about the ultimate purpose of research: whether knowledge is pursued for its own sake, for the benefits it brings, or, as many would argue, for both. This Blueprint does not attempt to settle that debate. It starts instead from a more practical premise: that thinking about impact is a way of building a bridge between science and the broader society, without diminishing the value of curiosity-driven inquiry.

This is true even of fundamental research, which can generate broad societal value over time, although this value may be diffuse and difficult to trace, sometimes emerging only decades later. A recent long-term assessment of The European Organization for Nuclear Research (CERN), which is an organisation devoted to pure, curiosity-driven physics, traced concrete socio-economic benefits across scientific knowledge, supplier innovation, technology transfer, skills and international cooperation, accumulated over two to three decades (CERN, 2026). This is a reminder that a credible pathway to wider impact can be long and indirect without being any less real.

Against this background, the Blueprint offers recommendations for consideration on how credible pathways towards impact can be planned and supported, and how the resulting contributions can be captured and recognised across different research and institutional contexts.

UEFISCDI is the main funder for competitive research in Romania and a policy adviser for science, innovation and higher education, under the ultimate authority of the Ministry of Education and Research. As a funding agency, UEFISCDI supports exploratory and applied research across all branches of science and the humanities, and funds research projects on a competitive basis. Its prerogatives in the research area pertain to the implementation of most programmes under the National Research, Development and Innovation Plan 2022-2027 (PNCDI IV), which is the main instrument for delivering the National Strategy for Research, Innovation and Smart Specialisation 2022–2027.

Reflecting this broad mandate, the Blueprint covers the full spectrum of research supported by UEFISCDI, from frontier, curiosity-driven research through to applied and innovation-oriented programmes, while making room for applied and innovation outcomes alongside scientific ones. To do this well, the Blueprint draws not only on practices from research funders but also from how innovation-funding agencies in Europe approach impact.

The need that this Blueprint addresses is not new. Over time, UEFISCDI's experience as a research funder, together with broader discussions within the Romanian research community, have highlighted the value of developing a shared and practical understanding of impact. This Blueprint seeks to contribute to that understanding.

Why this matters for Romania

In the European Innovation Scoreboard 2026, Romania is classified as an Emerging Innovator and ranks last among EU Member States (27th), performing at 41.8% of the EU average, well below the 58.1% average of its own performance group. Romania's score has risen by 8.2 percentage points since 2019, but the EU average rose by 11.6 points over the same period. As a result, the gap between Romania and the EU average has continued to widen (European Commission, 2026).

This performance needs to be understood against a background of persistent structural underinvestment. **Gross domestic expenditure on Research and Development** stood at 0.46% of GDP in 2024, the lowest ratio in the EU and nearly five times lower than the EU average of 2.24% (Eurostat, 2026). Public support for private R&D is lower still: in 2024, **direct government funding of business R&D** in Romania amounted to 0.011% of GDP, with a further 0.004% delivered through R&D tax relief, representing a combined 0.016% of GDP, among the lowest levels recorded across all economies covered by the OECD (OECD, 2026). On this indicator Romania ranks 23rd of 27 Member States in the Scoreboard, and its score has fallen by 5.0 points since 2019. A similar diagnosis came from UEFISCDI's public-policy proposal on technology transfer, which characterises the national technology-transfer system as inefficient and under-funded, with insufficient recognition and support for its systematic development. (Curaj et al., 2023)

Taken together, these figures point to significant constraints on Romania's capacity to translate research and innovation into wider benefits, particularly through innovation and knowledge transfer. Funding and infrastructure are important parts of this picture, but they are not the only ones. How impact is understood, planned for, evidenced and recognised also matters. Although the Blueprint cannot address the structural constraints described above, it can contribute to a clearer and more consistent understanding of impact and provide a basis for considering how the wider contributions of research might be better supported and recognised.

It is in this broader institutional and national context that the Blueprint was developed within **ARIA – *Advancing Responsible and Inclusive Assessment at UEFISCDI***, an institutional change project that received cascade funding through the CoARA Boost project (Horizon Europe, Grant Agreement No. 101131826). ARIA's purpose is to accelerate the adoption, within UEFISCDI's own evaluation processes, the principles promoted by CoARA and set out in the Agreement on Reforming Research Assessment. It represents another concrete step in the implementation of UEFISCDI's Action Plan for Research Assessment Reform, published on 10 February 2025.

2. What we mean by impact

Outputs, outcomes and impact are not the same thing

A recurring source of confusion is the difference between what research *produces*, what changes as a result, and the longer-term benefit to society. Distinguishing clearly between them is the foundation for everything that follows.

- **Outputs** are the immediate products of research (e.g. a publication, a dataset, a prototype, a trained researcher).
- **Outcomes** are the changes in awareness, capacity, behaviour or practice that follow when others take up those outputs (e.g. a clinician changes a protocol, a firm adopts a process, a ministry revises a guideline).
- **Impacts** are the wider and often longer-term benefits that arise from these changes. As set out below and developed further in Section 5, the Blueprint distinguishes three main types: **academic impact, innovation and economic impact, and wider societal impact**, covering policy and governance, social and cultural, health and wellbeing, and environmental impacts. Capacity and training is treated as a cross-cutting dimension. A patent, for example, is an output; its impact emerges when the underlying knowledge or technology is taken up and put to use (Science Foundation Ireland, n.d.).

The boundary between an outcome and an impact is not always sharp, as one shades into the other as effects spread and last over time. What matters is the direction of travel:

from product -- to change -- to benefit

This trajectory is not always linear or fully attributable to the research itself: the existence, scale and timing of impact depend not only on the quality and relevance of the research, but also on the actions of external actors, contextual conditions and opportunities beyond the researcher's control. And this relationship is therefore better understood as contribution rather than attribution.

A short, illustrative example

A team develops a low-cost water-quality sensor. **Output:** the working sensor and a peer-reviewed paper. **Outcome:** a regional water utility pilots the sensor and changes its monitoring routine. **Impact:** fewer contamination incidents and improved public health in the served communities over several years.

How other funders define impact

The Blueprint situates UEFISCDI against established international practice. The table below sets out widely used definitions plus a closely related concept (knowledge utilisation).

Organisation / Framework	Definition / approach to impact
European Commission, Horizon Europe	Impact is monitored through three categories of Key Impact Pathways - scientific, societal and economic to track short, medium and long-term effects of Horizon Europe (European Commission, 2023).
UK Research and Innovation (UKRI), Research Excellence Framework (REF)	“An effect on, change or benefit to the economy, society, culture, public policy or services, health, the environment or quality of life, beyond academia” (REF 2019).
Science Foundation Ireland (SFI)	“The demonstrable contribution that excellent research makes to society and the economy” - classified across eight impact pillars (Science Foundation Ireland, n.d.).
Research Council of Finland	“The ways in which research influences a wide variety of phenomena and trends in society. Impact emerges as a result of the combined effect of research knowledge and other factors, and it generally manifests over the long term.” (Research Council of Finland, n.d.-b).
Dutch Research Council (NWO; Netherlands)	Approaches impact through knowledge utilisation rather than a single definition of impact: the iterative process of productive interactions with stakeholders that turns research into societal, including economic, value. Societal impact is defined as "cultural, economic, industrial, ecological or social changes that are entirely or in part the consequence of knowledge and expertise generated by research". (NWO, n.d.-a).

In this context, the comparison points to a clear principle: expectations concerning impact should be calibrated to the purpose of the funding instrument, the nature of the research supported and the stage at which wider effects can reasonably be anticipated. Horizon Europe illustrates how different approaches to impact can coexist within a single funding programme. The programme has an explicitly impact-driven design; in its challenge-oriented components, work programmes set out expected impacts and outcomes to which projects are expected to contribute (European Commission, 2025).

At the same time, current European Research Council (ERC) frontier research grants are funded through Horizon Europe under Pillar I, Excellent Science, but operate on a bottom-up basis, without predetermined thematic priorities, and are evaluated solely on scientific excellence (European Commission, n.d.; ERC, 2026). The UK’s Economic and Social Research Council (ESRC, part of UKRI) uses a different approach: applicants are expected to consider potential scientific, societal and economic impacts, while research without obvious or immediate societal or economic impact should not be disadvantaged in the assessment

process (Economic and Social Research Council, 2026). NWO tailors its approach to knowledge utilisation to the aims of each funding instrument. Where an instrument places greater emphasis on societal impact, applicants are expected to identify and develop productive interactions with people and organisations that may use the research (NWO, n.d.-a, n.d.-b).

Not requiring basic or frontier research proposals to specify predefined societal or economic impacts does not mean that the subsequent use of research results is left unsupported. Where appropriate, promising results can be further developed and applied through dedicated instruments, including ERC Proof of Concept grants, German Research Foundation (DFG) knowledge-transfer projects and the joint Swiss National Science Foundation (SNSF) – Innosuisse BRIDGE programme (ERC, n.d.; DFG, n.d.; Innosuisse, 2026). **Together, these examples show that a coherent funding system can support different routes to impact without expecting every project to deliver the same kind of impact, through an equally direct pathway or within the same timeframe**.

A UEFISCDI working definition

Building on these references, the Blueprint proposes the following working definition:

> **Proposed UEFISCDI working definition**
>
> Research and innovation impact is the **demonstrable contribution** that research and innovation make, both within science and beyond it, to the economy, society, culture, public policy, the environment, health and human capacity. It spans **academic impact** (advances within science), **wider societal impact** (including its cultural, environmental, health and public-policy dimensions), and **innovation impact** (commercialisation, technology transfer, firm creation and the leverage of private investment), with the last treated as a first-class category, rather than a secondary consideration.

Three categories of impact across the science-to-innovation span

The Blueprint deliberately keeps room for the whole span from basic to applied science, and on to innovation. It distinguishes three broad types:

- **Academic impact** — new knowledge, methods, theories and the training of new researchers; advances within the research system.
- **Wider societal impact** — social, policy, environmental, cultural and health benefits beyond academia, including the skills and human capacity that research brings to the wider workforce.
- **Innovation and economic impact** — the economic and commercial value of research: commercialisation, technology transfer, firm creation, productivity gains and the leverage of private investment, recognised as a category in its own right rather than treated as an afterthought.

Crucially, the existence of these categories does *not* mean every project must deliver all of them. A frontier project may legitimately aim almost entirely at academic impact; its credible

pathway to wider impact may be long and uncertain. The Blueprint asks for honesty about which kinds of impact are realistic.

3. What this Blueprint is not

To set expectations clearly, it is worth stating what the Blueprint is not:

- **Not a researcher-ranking tool**. It does not score individuals or institutions and must not be used to do so.
- **Not a substitute for scientific quality**. Rigour remains foundational; assessing impact recognises the fuller value of research, it does not replace the assessment of quality.
- **Not a uniform obligation**. Requirements must be calibrated to the type of research a call funds. E.g. a project may legitimately pursue academic impact alone.
- **Not a demand for guarantees.** It asks for credible, evidence-informed pathways to impact, not promises.
- **Not a fixed framework.** The Blueprint is intended to support shared understanding, reflection and discussion rather than prescribe a uniform set of requirements or procedures.

PART II — RESEARCH & INNOVATION IMPACTS

4. The impact pathway: from inputs to impact

Impact rarely happens by accident. The most useful way to think about it is as a **pathway**, as a chain that runs from what a project *uses*, through what it *does* and *produces*, to the changes and benefits that follow. This logic model (sometimes called a results chain or, when assumptions and context are made explicit, a **Theory of Change**) is shared, in different vocabularies, by the World Bank results chain, the W.K. Kellogg Foundation logic model and Horizon Europe's impact pathways (W.K. Kellogg Foundation, 2004; European Commission, 2023).

INPUTS	ACTIVITIES	OUTPUTS	OUTCOMES	IMPACTS
What you invest: funding, people, data, infrastructure, partnerships.	What you do: experiments, fieldwork, engagement, co-creation.	What you produce: papers, datasets, prototypes, trained people, Intellectual Property (IP).	What changes when others use the outputs: adoption, behaviour, practice, policy.	Wider benefits: social, policy, environmental, cultural, health, and innovation/economic.

◄ within the team's control — increasingly influenced by others ►

Two points matter. First, control weakens as you move right: a team has direct control especially over its inputs, activities and outputs, but can only influence outcomes, and, even

more indirectly, impacts alongside many other actors. Second, a logic model becomes a **Theory of Change** when you also make explicit the causal links between steps, identify the key actors involved, and articulate the assumptions about why those actors are expected to act as hypothesized which is where most impact plans succeed or fail (Belcher et al., 2024).

Worked logic-model examples are provided in Annex A, so readers can see every link in the chain made concrete.

5. Dimensions of impact: a UEFISCDI taxonomy

The Blueprint proposes a manageable set of impact types, grouped under the three broader categories introduced above. The set is shaped by internal practice and informed by approaches such as Science Foundation Ireland[1] impact pillars and Horizon Europe's impact categories. It is intended to be illustrative rather than exhaustive.

Impact type	What it means	Example indicators / evidence
ACADEMIC IMPACT		
Scientific & academic	Research advances knowledge itself, with new findings, methods and theories, and trains the next generation of researchers.	*significant publications and their uptake, assessed qualitatively*; new methods, datasets or theories taken up by others; PhD and early-career researchers trained; research infrastructure created or shared; *cross-disciplinary and international collaborations, knowledge spillovers to other fields and institutions.*
INNOVATION & ECONOMIC IMPACT		
Economic & innovation	Research creates economic and commercial value when its results reach the market, through new products, companies, licences and private investment.	*research results transferred to a company and brought to market*; *prototypes, demonstrators or proof of concept at higher technology-readiness levels*; *patents granted or exploited; licences signed*; spin-offs / start-ups created; *additional private investment leveraged beyond required co-financing*; new or improved products, services or processes adopted by firms, *learning*

[1] In 2024, Science Foundation Ireland merged with the Irish Research Council and became Research Ireland.

Impact type	What it means	Example indicators / evidence
		and innovation gains among research suppliers and procurement partners; *investment capital raised by spin-offs*.
WIDER SOCIETAL IMPACT		
Policy & governance	Research informs the decisions of government and public institutions - laws, regulations, guidelines and how public services are run.	policies, regulations or guidelines citing the research; researchers in advisory or expert roles; standards revised; public-service delivery improved; evidence used by ministries or agencies, *research cited in policy and strategy documents (nationally and internationally)*.
Social & cultural	Research changes how people think, behave or live together, by informing public debate, culture and community life.	public debate informed by research evidence; public engagement activities (e.g. science festivals, citizen science) and STEM outreach to schools; museums, libraries or heritage improved; local communities strengthened or revitalised.
Health & wellbeing	Research improves health and quality of life for people and animals, such as through better treatments, care and prevention.	new treatments, diagnostics or medical technologies; clinical guidelines or care practices revised; preventive measures; more efficient health services; public and animal health benefits.
Environmental	Research helps protect the environment and use natural resources more sustainably.	reduced pollution or emissions; improved conservation and biodiversity; environmental policy and spatial planning informed by research; more sustainable use of resources.
CROSS-CUTTING		
Capacity & training	Research builds skills and institutional capacity beyond the lab, in the workforce,	trained researchers moving into expert roles in industry or the public sector; curricula or training programmes updated; *international*

Impact type	What it means	Example indicators / evidence
	public institutions and society.	*funding and partnerships leveraged, career and earnings gains for trained researchers and alumni*

The seven types are not a separate scheme: they unfold the three categories into workable ones. *Capacity & training* is treated as cross-cutting because it strengthens both the research system (academic) and the wider workforce and institutions (societal). Some indicators are also informed by long-term impact assessments of research infrastructures, notably the 2026 CERN socio-economic benefits study (European Organization for Nuclear Research, 2026).

Positive and negative impact

Impact is not always positive. Research can also create risks or unintended harms, such as to the environment, to communities, to privacy; and the Blueprint treats the **reduction or prevention of harm, risk or cost** as a legitimate form of impact, as the REF definition also explicitly does (REF 2021). Honest impact planning anticipates negative as well as positive effects; the worked examples in Annex A therefore include explicit consideration of assumptions and risks.

6. Planning for impact

Planning means building the pathway *before* the project starts and revisiting it as the project evolves. Four practical steps, drawn from international practice such as from the Technological University Dublin (TU Dublin) research impact framework, and the boundary-organisation literature, work well across disciplines (Technological University Dublin, 2026; Cvitanovic et al., 2018).

1. **Map the pathway.** Identify the change you want to see, then work back to the outcomes, outputs, activities and inputs needed to reach it. Be specific about that change you want to generate, not the general benefits of your field. The chain is read forwards (inputs → activities → outputs → outcomes → impacts), but it is usually best planned backwards from the intended impact (Belcher et al., 2024).
2. **Identify and engage stakeholders.** Who will benefit, and who needs to act for the change to happen? Involving stakeholders early, ideally from the project's inception, substantially increases the likelihood of impact (Cvitanovic et al., 2018).
3. **State assumptions, risks and possible harms.** What must be true for the pathway to hold (e.g. that practitioners will adopt the result), and what could break it? Anticipate, too, any unintended or negative effects the research could create (see Section 5) (TU Dublin, 2026). Making assumptions explicit is what turns a logic model into a Theory of Change (Belcher et al., 2024).
4. **Set a baseline, indicators and time horizons.** Decide, in advance, where things stand now, what evidence would show progress (quantitative and qualitative, used

responsibly), and over what period. Some impacts appear during the project; many appear years later. Long-term assessments of research infrastructures show benefits accruing over decades, well beyond a project's lifetime (European Organization for Nuclear Research, 2026).

A credible plan claims a ***contribution*** to change, honestly characterised, rather than sole credit for it.

When building an impact pathway, we suggest reflecting on a small set of questions. These are not a template to be filled in mechanically, but questions to make the pathway concrete and honest:

> **Questions to direct building the impact pathway**
>
> • What change do you want to see, and for whom? • Who will benefit, and how? • Through what mechanisms will the benefit be realised? • Over what time horizon? • Who needs to be engaged, and when? • What is the starting point (baseline)? • What evidence would show the change? • What assumptions must hold, what risks could break the pathway? And could the research create any unintended effects?

These questions reflect principles commonly found in institutional guidance on research impact planning.

In our experience, and consistent with practice across European funders, strong impact statements share recognisable features: a credible, specific pathway with clear beneficiaries and mechanisms, genuine engagement, and realistic milestones and time horizons. Weaker ones stay general, describe routine academic activity, treat outputs as ends in themselves, or promise impact that cannot plausibly be delivered.

7. Generating impact: engagement, transfer and valorisation

Plans only matter if they are acted on. The mechanisms through which research generates impact include:

- **Communication and dissemination**: making results visible and usable to the right audiences, in accessible language.
- **Stakeholder engagement and co-creation**: involving users in the research itself, which builds the trust and the capacity of those users to take up and apply the results (Cvitanovic et al., 2018).
- **Knowledge transfer and utilisation**: supporting the use of results outside academia and across disciplines (NWO, n.d.).
- **Policy engagement and advice**: providing evidence to policymakers and taking part in advisory or expert processes, so that research informs regulation, guidelines and public services.
- **Valorisation and commercialisation**: technology transfer, IP management, proof of concept, spin-offs and private investment (Council of the European Union, 2022).

Example — a dedicated valorisation instrument (Business Finland)

Business Finland's Research to Business funding supports public research organisations preparing to commercialise a research-based solution. Project teams identify potential exploitation paths, assess routes to a new or existing company, and build their own commercialisation competence, while conducting the applied research needed to support this process. At least 40% of costs must go to commercialisation preparation. Grants cover 80% of approved costs (typically EUR 500,000–800,000), from a EUR 25 million envelope for the 2026 calls (Business Finland, 2025). The example shows the value of a dedicated valorisation instrument that sits alongside the funding of basic research, but separate from it. This way, basic research is not required to promise commercial results, while teams ready to commercialise have a funding instrument designed for exactly that.

Research to Business - Funding for preparing the commercialization of a research-based solution, call 1/2026. https://www.businessfinland.fi/en/services/funding/calls/2026/research-to-business--funding-call-12026/

8. Capturing impact: ex-ante and ex-post

The Blueprint distinguishes two moments at which impact may be considered:

- At the **ex-ante** stage (application), the focus is the *credibility of the pathway*: the expected impacts, the mechanisms, the engagement plan, the assumptions and risks.
- At the **ex-post** stage (reporting, during and after the project), the focus shifts to *evidence of what actually happened*: outputs delivered, outcomes observed, and (often only later) impacts realised, with the research's contribution honestly characterised rather than over-claimed.

Several features of our current practice already align with international good practice, and the Blueprint builds on them. First, proposals are assessed through **expert peer review**, as the qualitative, judgement-based approach that CoARA and DORA place at the centre of responsible assessment (CoARA, 2022; DORA, 2013). Second, expectations are in effect **calibrated by call type**: innovation and partnership instruments, such as the Experimental Demonstrative Projects (PED) and Transfer to the Economic Operator projects (PTE), define expected results in applied terms (functional or experimental demonstrative models; transfer of results towards the market), aligned with areas of smart specialisation or public priority and, in transfer calls, backed by private partners and co-financing; exploratory calls, such as Exploratory Research Projects (PCE) and Research Projects to Stimulate Young Independent Teams (TE), focus on the scientific quality of the expected results. This mirrors the international principle that the kind of impact sought should fit the purpose of the funding, rather than being applied uniformly (European Commission, 2023). Delivered results are then captured through intermediate and final scientific and technical reports during implementation.

One possible direction for future development, consistent with international practice, could be to complement these output-focused reports with **narrative, evidence-based accounts** of impact - who benefited, how, and with what supporting proof, and to use quantitative indicators responsibly, never as the sole measure (CoARA, 2022).

The timing gap. The most significant impacts often surface after a project closes. Rather than heavier routine reporting, this calls for a light post-award mechanism, with periodic case studies or follow-up reviews on selected programmes.

Examples of approaches from other funders: The Research Council of Finland requires applicants to structure an *interaction and impact plan* that articulates the central idea of the project, describes planned interaction activities and stakeholder engagement, and outlines expected short- and long-term effects together with approaches for monitoring and evaluation. The plan also requires specification of user groups, collaboration networks and communication activities, ensuring that interaction with societal actors is embedded throughout project design rather than treated as a separate activity (Research Council of Finland, n.d.-a). In some Research Ireland funding programmes, applicants are required to articulate expected impact through an Impact Statement, with the precise requirements calibrated to the relevant programme and call. The legacy impact framework developed by Science Foundation Ireland (SFI) also used predefined impact declarations in annual reporting: award holders selected and justified the declarations most relevant to their work. SFI complemented this narrative self-assessment with external expert review in its impact-evaluation processes (Science Foundation Ireland, n.d.; Research Ireland, n.d.).

ANNEXES

Annex A — Three worked logic model examples (illustrative)

The following three examples are illustrative. The first two are entirely hypothetical, while the third is inspired by the real context of CERN and Romania's participation within it. They show how a logic model can be developed at the start of a project across three different settings: health innovation, a social-sciences and humanities study intended to inform public policy, and participation in a large-scale research infrastructure. Together, they illustrate how the same approach can be adapted to different pathways to impact, from technological innovation and knowledge transfer to evidence for policy, skills development, and wider scientific and societal benefits. None describes actual project outcomes.

Project example 1: Development and clinical validation of a low-cost, portable test for the early detection of chronic kidney disease, designed for use directly in family-doctor practices serving under-served communities.

Logic-model level	**Content**
Inputs	Competitive research funding; an interdisciplinary team (biomedical engineering, kidney medicine, primary-care research, health economics); a university lab and prototyping facility; access to a group of patients through primary-care clinics; clinical and ethical approvals; compliant with the General Data Protection Regulation (GDPR) plan for managing patient data; an industry partner for manufacturing; an advisory panel of patients and doctors.

Activities	Review the state of the art and agree the test's requirements together with the doctors who will use it; design and repeatedly refine a working prototype; check the prototype's accuracy in the lab; run a study in real primary-care clinics to see how well it performs with actual patients; assess whether it is cost-effective and what would help or hinder its everyday use; co-develop clinical usage protocols with practitioners; file for intellectual property (patent) and engage a manufacturing partner.
Outputs	Peer-reviewed publications; an openly shared, anonymised dataset (with a permanent DOI so others can reuse it); a more mature, tested prototype; a patent application; usage guidelines and training materials for clinicians; a report on cost-effectiveness; an agreement to transfer the technology to industry (licence), an openly reported account of what did not work as expected (negative or inconclusive results), so others can learn from it.
Outcomes	The test is shown to be accurate enough to be trusted in everyday practice, at a lower cost than sending samples to a laboratory; doctors and nurses are trained and confident using it; the industry partner commits to producing it at scale; health authorities begin discussing how it could be funded and reimbursed; new research skills are built and early-career researchers are trained. *(Outcomes are the changes the project expects to bring about — they are goals to be tested, not results already achieved.)*
Impacts	Kidney disease is caught earlier in under-served communities, contributing to improved population health, fewer people progressing to the point of needing dialysis; a proven, repeatable and commercially viable way of diagnosing the disease exists (as the solution is translated from research into clinical practice); knowledge moves from the university into industry and clinical practice; national capacity to turn health research into real-world solutions is strengthened.
Assumptions	The participating clinics stay engaged for the whole study; the prototype works reliably outside the controlled lab environment; the industry partner stays committed; funding and regulatory approval routes remain workable; clinicians actually adopt the new way of working.
Risks	The prototype underperforms in real-world conditions; too few patients join or stay in the study; the industry partner or the funding is lost before the test can be scaled up; regulatory or reimbursement decisions are delayed; disputes arise over ownership of the invention. *In research and innovation, some of these risks materialising are normal rather than a sign of failure. A prototype that underperforms or an assumption that proves wrong still produces valuable knowledge, provided it is documented and shared openly. What matters for responsible assessment is the quality and transparency of the process, not only whether the original goal is reached.*
Indicators	How accurately the test agrees with the standard laboratory result; how many patients are recruited and stay in the study; how far the prototype advances toward being ready for real use (technology-readiness level); number of publications, shared datasets and patents; cost per test compared with the current approach; number of clinics and clinicians trained; licensing and adoption milestones reached; number of early-career researchers trained.

Project example 2: A mixed-methods study of why young people from disadvantaged communities leave school early, producing new evidence and an explanatory framework that can inform local and national education policy.

Logic-model level	Content
Inputs	Competitive research funding; an interdisciplinary team (sociology of education, public policy, statistics); signed agreements to access several years of existing education data; partnerships with schools, local authorities and the education ministry; students, parents and teachers who agree to take part; ethical approval; a GDPR-compliant plan for handling personal data; an advisory group including young people and practitioners.
Activities	Set the research questions and design, informed by existing theory. Analyse several years of education data to establish *who* leaves school early, and *when* and *where* it happens (the quantitative strand). In parallel, through interviews and focus groups with a carefully chosen sample of students, parents and teachers, build and test an explanation of *why* they leave (the qualitative strand). Combine the findings from both strands to explain both the scale of early school leaving, and the reasons behind it. Finally, hold a smaller set of workshops with schools and policymakers to test the findings against practitioners' experience and translate them into evidence-informed policy options.
Outputs	Peer-reviewed publications that advance understanding of early school leaving; an explanatory framework, with information about the main drivers and the paths that lead to leaving, that other researchers can reuse and test; a documented research method that others can apply to different regions or questions; an openly shared, anonymised dataset (with a permanent DOI so others can reuse it). Building on these, a plain-language policy brief and a set of concrete, costed policy recommendations; workshop reports; and an openly reported account of which ideas did not work as hoped, so others can learn from it.

Outcomes	The research community gains a better-evidenced explanation of early school leaving that others can build on. Schools, local authorities and the ministry come to share this clearer, evidence-based understanding; policymakers engage seriously with the recommendations; one or more local authorities agree to pilot a proposed measure; lasting working relationships form between researchers and decision-makers; and early-career researchers gain new skills. *(Outcomes are the changes the project expects to bring about, such as goals to be tested, not results already achieved. In this field, influence on policy is usually gradual and works by shifting how people understand a problem, rather than through a single decision.)*
Impacts	Over time, fewer young people in disadvantaged communities leave school early, improving their educational opportunities and life chances; education policy in this area rests more firmly on evidence; a stronger and more trusted bridge exists between researchers and those who make policy; and national capacity to use social-science evidence in public decision-making is strengthened.
Assumptions	Access to the education data is granted and maintained; partner schools and authorities stay engaged for the whole project; the people taking part share their experiences honestly; and a policy "window", meaning political attention and willingness to act, remains open when the findings are ready.
Risks	Data access is delayed or withdrawn; political priorities or key personnel change and the topic slips off the agenda; the findings are not taken up or acted upon by decision-makers; partners leave their institutions mid-project. *In research, and especially where findings depend on politics and human behaviour, the chances for some of these risks materialising are higher, and they are not necessarily a sign of failure. A recommendation that is not adopted, or an assumption that proves wrong, still produces valuable knowledge, provided it is documented and shared openly. This knowledge can improve understanding of the problem, inform future policy debates, and provide evidence that others can build upon.*
Indicators	Whether the two strands of evidence converge on a robust explanation; the quality and reach of the resulting publications; uptake of the framework and dataset by other researchers (for example citations and reuse); the range of stakeholders actively engaged; evidence that partners' understanding has shifted (for example through follow-up interviews); the number and type of policy recommendations taken up or seriously considered; citations of the research results in policy documents; local pilots initiated; early-career researchers trained. *(Because impact here is often gradual and indirect, these indicators are read together as a rounded picture, not as targets to be maximised individually.)*

Example 3

The following example is illustrative. It is inspired by the cost–benefit analysis of CERN's Large Hadron Collider, which characterises impact through four channels mapped to the social groups involved - scientific knowledge output, human-capital formation, technological spillovers to suppliers, and cultural effects for the public (Florio, Forte & Sirtori, 2016). It is presented as a logic model completed at the start of a project and does not describe specific real outcomes. The framing is nationally relevant, as Romania has been a CERN Member State since 2016 (European Organization for Nuclear Research, 2016).

Project: *Romanian participation in a high-luminosity LHC detector upgrade — research, training and industrial qualification.*

Logic-model level	**Content**
Inputs	National co-funding of the CERN contribution (via UEFISCDI/ministry); a host institute and university group; PhD students and early-career researchers; partnership with a CERN experiment collaboration and Romanian institutes; Romanian firms eligible as CERN suppliers; access to CERN infrastructure, open data and Grid computing.
Activities	R&D and fabrication of detector components; secondment and training of early-career researchers at CERN; competitive procurement contracts placed with Romanian industry; data analysis; public outreach (masterclasses, school visits).
Outputs	Open-access publications and datasets; qualified detector components delivered; trained PhDs and postdocs; industrial processes certified to CERN standards; outreach events held.
Outcomes	*(by impact channel)* **Knowledge:** results used and built on by the field. **Human capital:** trained researchers move into industry and academia with a demonstrable skills premium. **Spillovers:** supplier firms develop new products and win non-CERN contracts (industrial learning). **Cultural:** increased public engagement with and trust in science.
Impacts	A durable national pool of advanced technical talent; improved competitiveness of participating firms; strengthened national research-infrastructure capacity; lasting scientific and cultural value to society.
Assumptions	The national contribution is sustained; firms can meet CERN quality requirements; trained researchers are retained in the national system.
Risks	Budget/contribution shortfalls; brain drain of trained researchers; firms failing to convert CERN learning into wider markets; long lags and attribution difficulty for the largest impacts.
Indicators	Number of early-career researchers trained and their career destinations; value of industrial contracts and follow-on non-CERN sales; publications and dataset reuse; outreach reach.

Annex B — Impact-planning canvas

The canvas is offered as a voluntary planning aid for researchers and programme teams to draft an impact pathway on a single page. It mirrors the steps in Section 6 and should be read alongside the seven impact dimensions (Section 5) and the timing distinction in Section 8. Impact pathways are rarely fully linear, expect feedback loops between steps, and revise the canvas as the work develops.

Element	Guiding question(s)	Your input
The change we seek	*In one sentence: what will be different, for whom, and from what starting point (baseline)?*	
1. Beneficiaries & users	*Who benefits? Who must act for the change to happen? Who else is already working on this?*	
2. Pathway	*inputs →* *activities →* *outputs →* *outcomes →* *impacts.*	
3. Our contribution	*What change can this research credibly claim to contribute to, and what depends on others or on external factors? (Characterise the contribution honestly; avoid over-claiming.)*	
4. Engagement plan	*How and when will users be involved (co-creation), and how are ethics and data protection (GDPR/consent) handled?*	
5. Assumptions & risks	*What must hold true for the chain to work?*	

	What could break it?	
6. Evidence & indicators	*Against the baseline, what would show progress? Distinguish indicators measurable during the project from those needing post-award follow-up (Section 8). Use quantitative indicators responsibly and in context — never as the sole measure.*	
7. Type(s) of impact	*Which of the seven dimensions (Section 5) apply in this case, realistically?* *(A sense-check: claim only what the pathway and evidence realistically support.)*	

Note on the use of AI tools

AI tools were used in the preparation of this document for editorial support, including language editing, proofreading, and improving clarity and coherence. The authors reviewed and verified the final content and are fully responsible for the final wording.

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