



The changing global research landscape reflected in multi-faceted bibliometric data:

Introducing the Institute of Scientific Information's PESTLE model within the Societal Impact Framework

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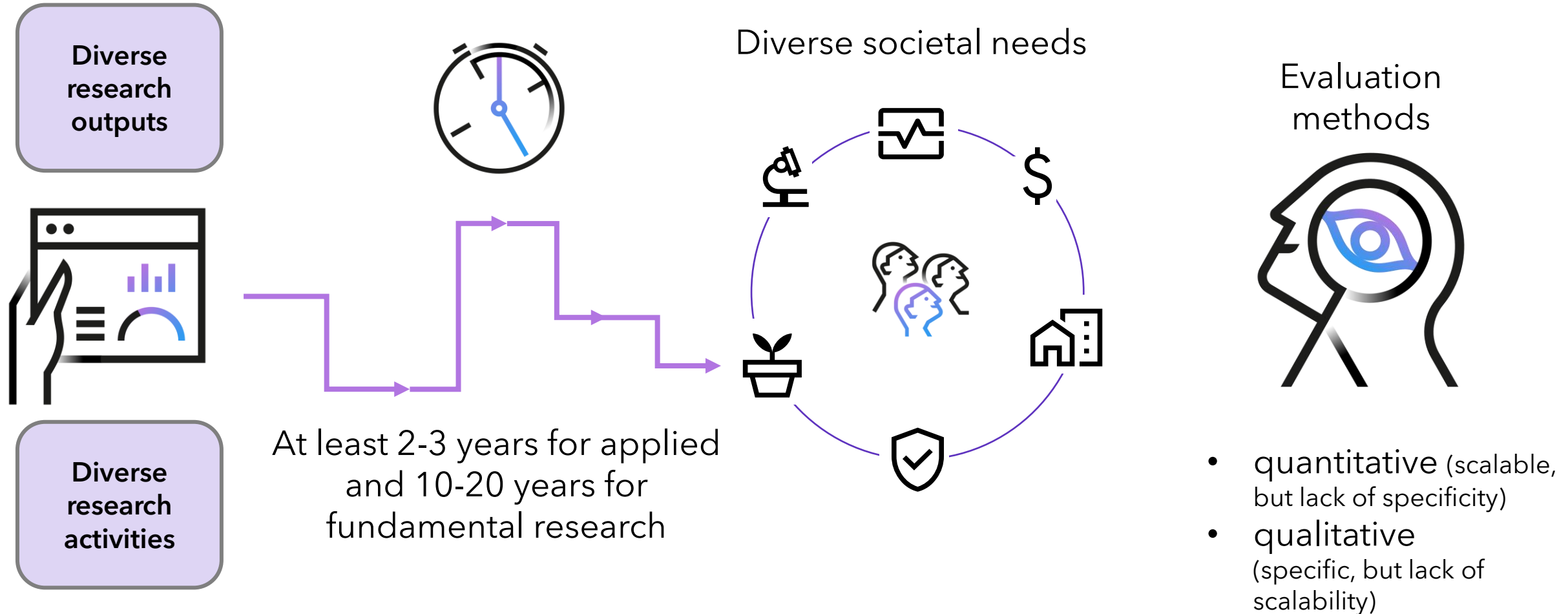
Research & Analytics

June 3, 2026

BRIC Conference, University of Alberta

Societal impact of research

Challenges of evaluation



Societal impact framework for research evaluation and uncovering insights with societal impact profiles

Societal facets

Political & Policy	the need for effective political systems and policymaking institutions.
Legal & Governance	the need for effective interpretation and conversion of political and policy decisions into legislation.
Economic	the need for improving or accelerating economic development and wealth creation.
Human Capital	the need for continuous development of human capital through all forms of education from pre-school education to professional training in the workplace.
Medical	the need for a healthy population.
Social & Cultural	the need for diversity, equity, inclusion (DEI), as well as security, cultural and spiritual development.
Technological	the need for tangible benefits via technological improvements across all areas, such as healthcare, energy consumption and information access.
Environmental	the need to address climate change and environmental protection and remediation.

[Read report 1](#)

[Read report 2](#)



Defining Societal Impact

- **Contribution of R&D outputs and activities to address real-world challenges faced by individuals, communities, organizations and economies** (ISI Report, 2024)
- Demonstrable contributions, beneficial effects, valuable changes or advantages that research qualitatively brings to the economy, society, culture, public policy or services, health, the environment or quality of life; and that are beyond academia (HK UGA, 2020)
- Demonstrable contribution that research makes to the economy, society, culture, national security, public policy or services, health, the environment, or quality of life, beyond contributions to academia. (ARC E&I, 2018)
- An effect on, change or benefit to the economy, society, culture, public policy or services, health, the environment or quality of life, beyond academia (UK REF, 2014)
- The potential to benefit society and contribute to the achievement of specific, desired societal outcomes (NSF Broader Impacts, 1997)



Image Credit: UN Office of Sustainable Development
<https://unsd.un.org/content/sustainable-development-goals-sdgs>

Societal Impact in Canada

Funding opportunity

NSERC Donna Strickland Prize for Societal Impact of Natural Sciences and Engineering Research

SSHRC Impact Awards

SSHRC Impact Awards are designed to build on and sustain Canada's research-based knowledge culture in all research areas of the social sciences and humanities. The awards recognize outstanding researchers and celebrate their research achievements, research training, knowledge mobilization and outreach activities funded partially or entirely by SSHRC.



RESEARCH IMPACT CANADA | TURNING RESEARCH INTO ACTION

LEARNING MOBILIZEU RESEARCH KMB FORUM

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TURNING RESEARCH INTO ACTION

Research Impact Canada is a pan-Canadian network dedicated to maximizing the impact of research for the public good.

Community, Economic, and Social Impact of Research



UNIVERSITY OF ALBERTA

Library

Researchers' contributions go beyond the academy and include impacts on the economy, industry and business, public policy, culture, behaviour, and society.

Research Offices of the Future Report

- Survey and report from Research Professional News, an editorially independent part of Clarivate
- Published in November 2025 (survey run June-Sept 2025)
- Prior version published in 2023
- Download the report at [https://discover.clarivate.com/Research Offices of the Future survey report](https://discover.clarivate.com/Research_Offices_of_the_Future_survey_report)

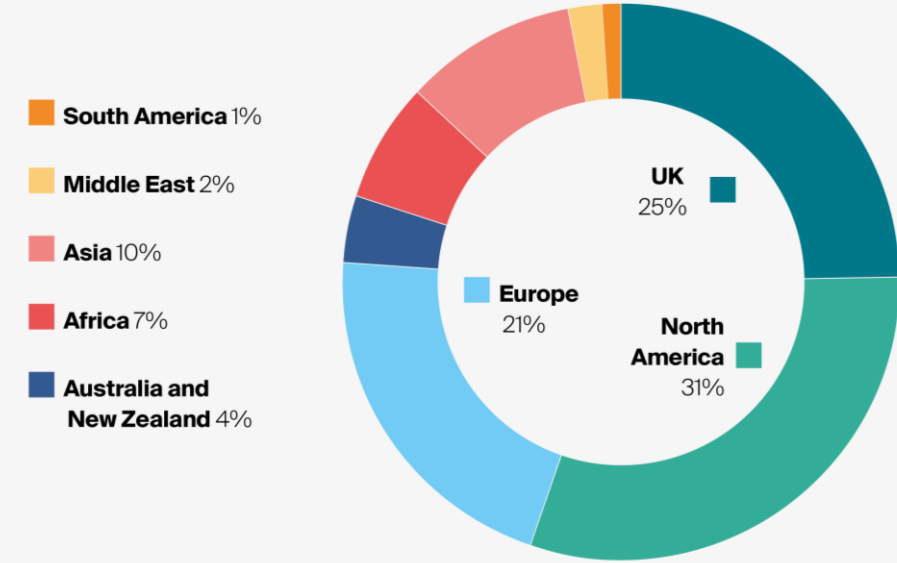


Methodology

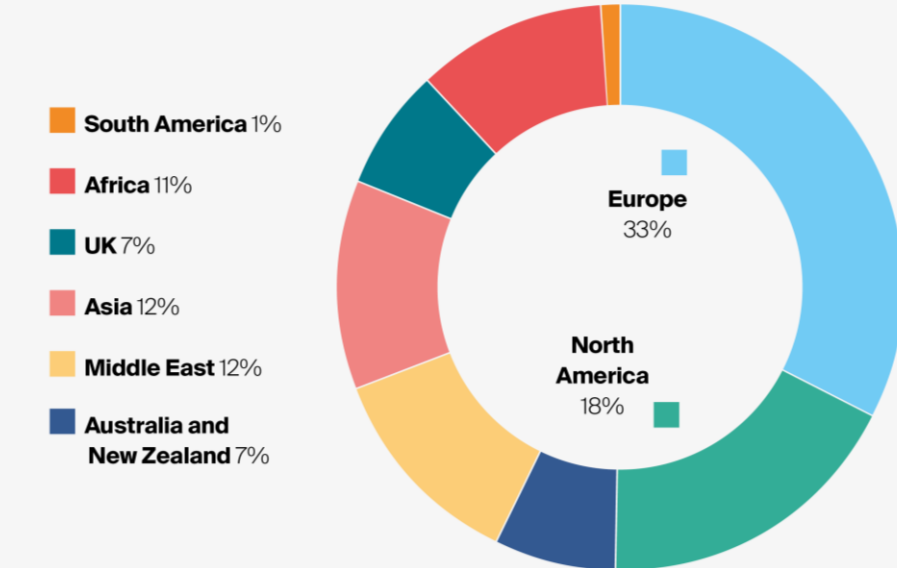
- Findings of two international surveys carried out by Research Professional News in 2025
- One targeting research office staff and those performing other academic research services roles
- One targeted at researchers at universities and institutes
- Each survey received more than 1,100 responses (over 2,500 responses in total)

The purpose of this report is to provide a detailed overview of the current state of the vital services that support research, and to identify areas where more support is needed.

Geographical breakdown of university research office respondents



Geographical breakdown of university researcher respondents



Key findings

- Research office staff put the diversification of funding sources as their top priority, followed by enhancing research visibility and reputation, and obtaining more funding to increase the amount of research.
- They see the biggest change drivers as cost pressures, the use of AI and the influence of domestic political policies.
- They are looking closely at how they measure the societal benefits of research and are keen to consider how best to do this.
- Around a third of research office staff are using AI to find funding opportunities, but AI use is seen as the biggest threat to research integrity.
- The effects of the US government's approach to research policy are being felt around the world.



Importance of Societal Impact

2023 Survey

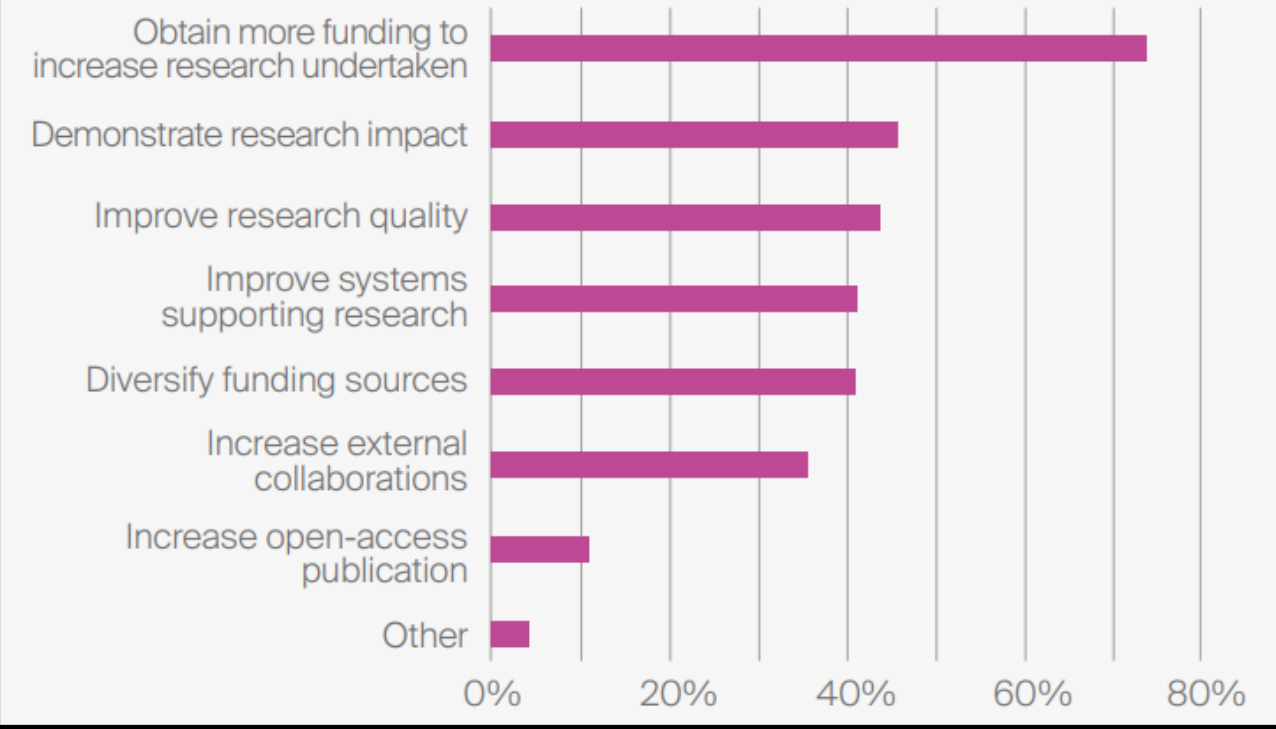
\$1.7 trillion worldwide R&D spending

57.6% research offices globally identify "Demonstrate research impact" among their top 3 longer term priorities*

56.2% research offices globally identify "Societal benefits" among all forms of research impact they will need to measure longer term*

69.9% research offices globally find societal impact of research difficult to measure*

Fig 4 What are your institution's three main priorities with regards to academic research for the next year?



* Research Professional News (2023). "Research Offices of the Future" survey report

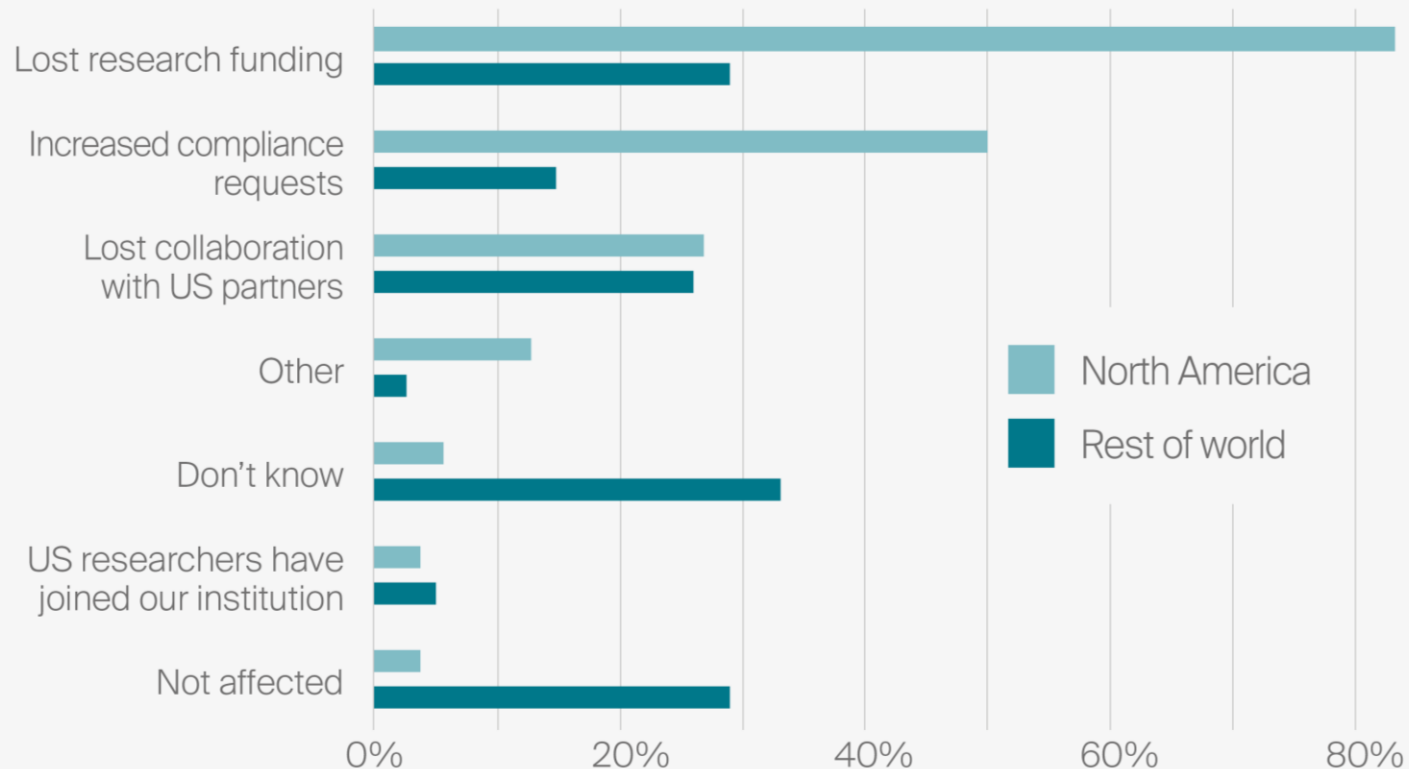
American influence

Donald Trump is back in the White House, initiating a period of turbulence for federally funded research in the US.

We asked research office staff how their institution's research operations have been affected.

- Among respondents based outside North America, almost a third (29 per cent) said the actions of the US government had resulted in their institution losing funding. About a quarter (26 per cent) said their institution had lost collaborations with US partners.
- Looking only at responses from participants based in North America, the proportion saying their institution had lost funding was much higher (83 per cent), with a far higher proportion (50 per cent) saying compliance requests had increased.

How research office respondents say their institution's research operations have been affected by US government interventions on research funding

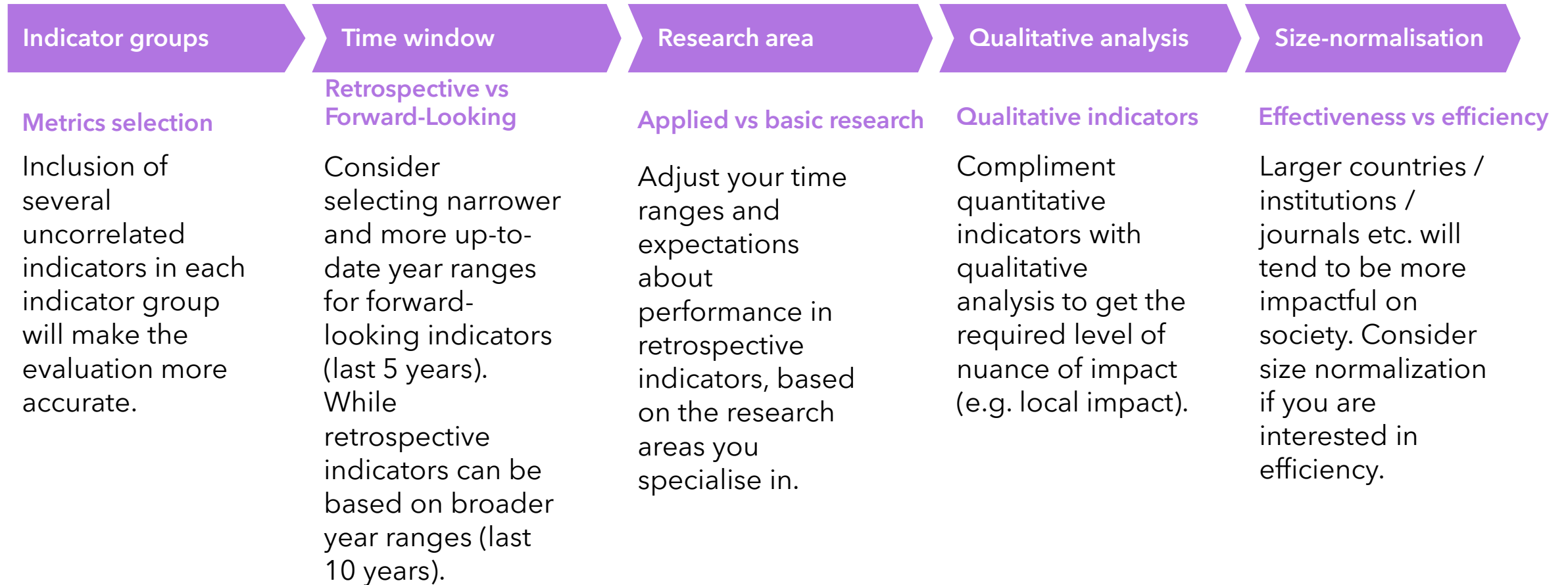




Clarivate Societal Impact Framework

Societal impact metrics

Guiding principles



Societal Impact Framework

Institute for Scientific Information (Clarivate)

Societal Facets

Political & Policy	the need for effective political systems and policymaking institutions. Legal & Governance the need for effective interpretation and conversion of political and policy decisions into legislation.
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Social

Classification of research-related outputs and activities

Professional Publications

includes non-peer reviewed materials aimed at a broader audience

Data Sets

includes research data, software or code snippets, files and images deposited in repositories worldwide.

Art & Cultural Outputs

includes visual arts, performances, designs and architectural plans.

Teaching Materials

includes lectures, presentations, online courses and other learning objects such as innovative virtual or augmented reality artifacts

Dissertations & Theses

as the main output of postgraduate studies, these are another important link between R&D and education.

Patents & Patent Applications

patent applications and patent grants are outputs of a formal transfer of intellectual property

Contributions to Policy Documents

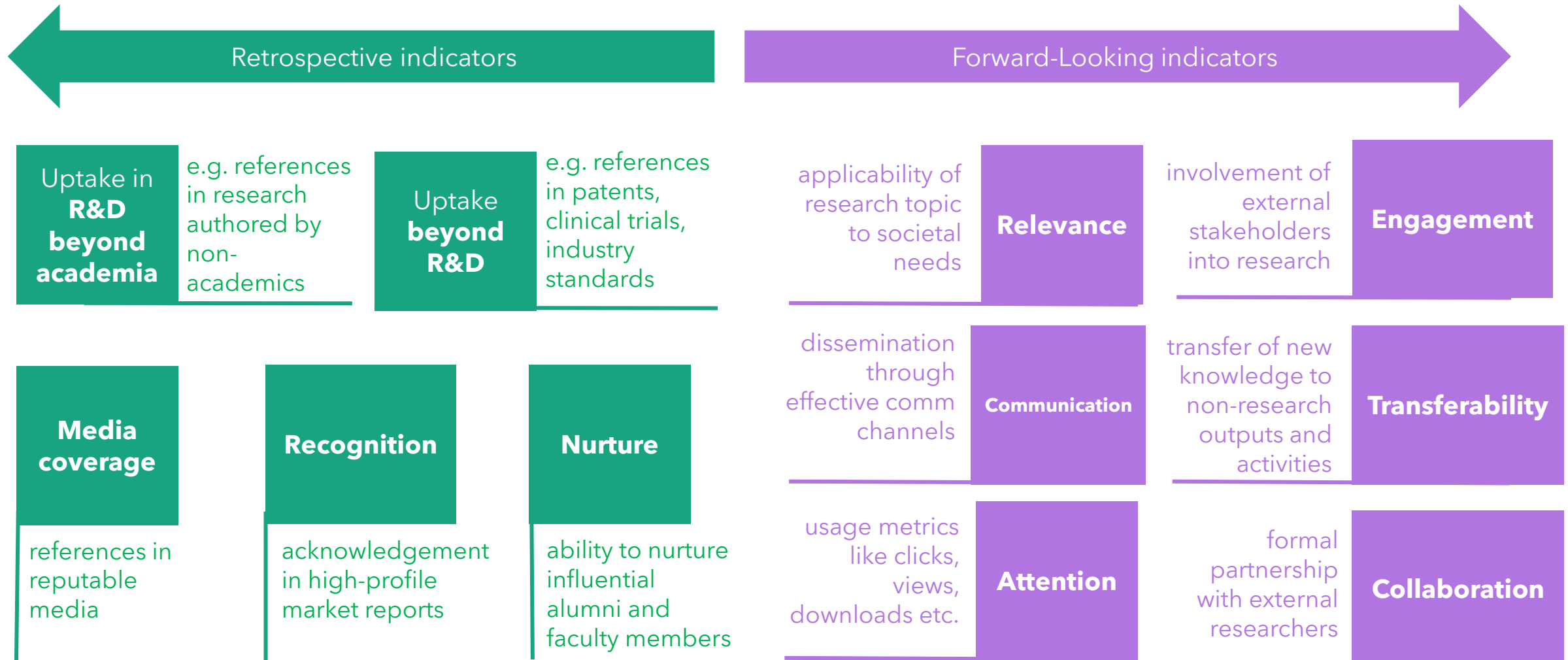
co-authors or indirect contributions via citations in documents created or utilized by policymakers

Healthcare Documents

includes medical guidelines, clinical trials and news statements from pharmaceutical companies and healthcare research institutes.

Research evaluation framework

Indicator groups



Societal Impact Framework

Institute for Scientific Information (Clarivate)

Retrospective Indicators

Uptake in R&D Beyond Academia

An indication of how stakeholders beyond academia are using, adopting or building upon institutional outputs or activities in their own R&D efforts. By **deconstructing traditional bibliometrics** and analyzing the affiliations of citing authors, we can gain valuable insights into the broader influence of research, e.g. metrics based on citations from research co-authored by pharmaceutical companies can signal impact in the medical facet.

Uptake Beyond R&D

An indication of how stakeholders are applying, adopting or taking advantage of institutional outputs or activities in non-R&D outputs, such as **patents, policy documents, industry standards, clinical trials** and other practical applications. For example, citations of research documents in patents serve as a powerful indicator that research findings are being transferred from the bench to real-world applications.

Media Coverage

Informal **mentions of research, its authors or their affiliations in reputable media outlets** indicate societal acknowledgement of research. While media platforms can provide additional sources of information, they require careful consideration, as they lack the acknowledgement conventions found in academic publications and may not be reliable.

Recognition

Acknowledgement of an individual's and/or an organization's activity by high-profile recognition programs, including **independent market reports** (e.g. 'societal impact' rankings) and surveys is another signal of research impact **beyond academia**. For example, when a researcher or research group receives a prestigious international award for their contribution to human rights it signifies the broader societal recognition of their research.

Nurture

The **training, support and guidance that an individual or an organization gives to other individuals**, who go on to demonstrate an impact on society should be credited. It has been argued that the most important output of the public sector research base is its people, as there are few other sources of human capital with the potential to apply problem-solving and risk management skills across every facet of society.

Societal Impact Framework

Institute for Scientific Information (Clarivate)

Forward-Looking Indicators

Relevance	The applicability of institutional outputs or activities to specific societal needs is a pre-requisite for research to demonstrate future societal impact. Global societal needs are defined in the UN's Sustainable Development Goals, while regional, national or community-level needs can be identified through other frameworks and sources, including qualitative studies.
Engagement	The engagement of academic staff with other stakeholders (including NGOs, governmental organizations and businesses) is a powerful mechanism for understanding community needs. This collaborative approach aligns with the 'Mode 2' research model.
Collaboration	Collaboration between researchers and other stakeholders, resulting in formal partnerships, such as co-authorship. Analysis of co-author affiliations – including government bodies, corporations, healthcare organizations and non-profits – can serve as a basis for metrics to identify the societal facets of research which may be impacted.
Communication	Communication of results via effective channels is essential for research to reach a wider audience and to be utilized in future. This can be achieved through scholarly channels that are accessible to a wider audience, such as open access journals, or reputable media outlets, talks and presentations.
Transferability	Transferability of institutional outputs or activities in addressing specific societal problems may be measured through knowledge transfer outputs beyond academia , such as patent applications, policy documents, industry standards and clinical trials.
Attention	Attention to recently published research can also indicate its future societal impact. Signals of interest ranging from clicks, views and downloads to mentions and bookmarks can provide insights, especially when analyzed from the perspective of specific audiences. For example, the frequency with which research is bookmarked in a reference management app used by healthcare organizations may signal its future adoption in the medical facet of society.

PESTLE Analysis

P	Political	Political factors are government, trade and tax policies, general political issues, changes in leadership, regulation, and political trends.	
E	Economic	Economic factors may include inflation, interest rates, exchange rates, economic growth and unemployment levels.	
S	Social	Social factors are cultural trends and patterns in society. They may include lifestyle trends, age distribution, and consumer behavior.	
T	Technological	Technological factors may include technological advancements and developments, innovation and scientific breakthroughs.	
E	Environmental	Environmental factors may include climate change, environmental regulations, waste management policies and consumer environmental awareness.	
L	Legal	Legal factors may include labor and consumer laws, market and import/export regulations, health and safety policies and guidelines	

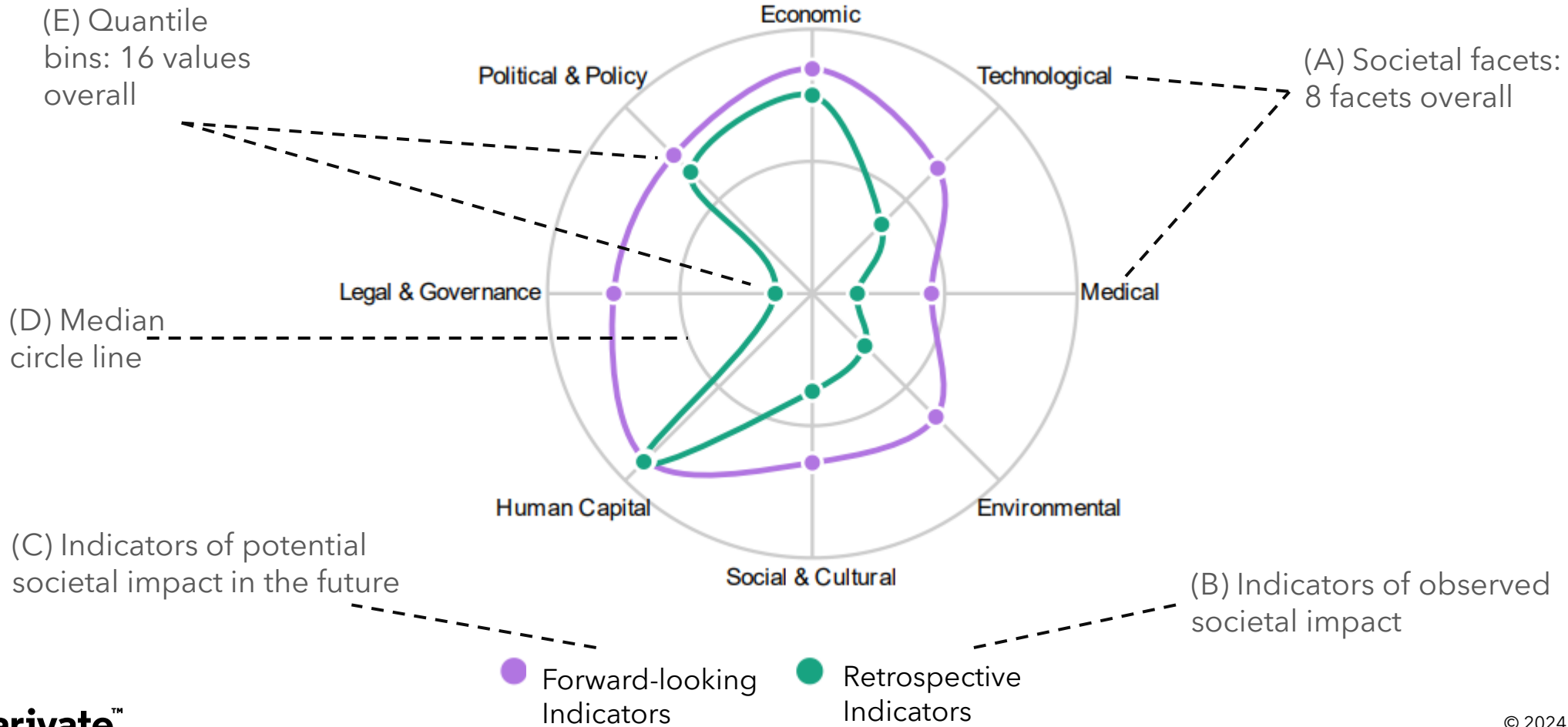


Societal Impact Profile

Societal impact framework

Design and terminology

(F) Societal Impact Profile



Comparing performance using forward-looking and retrospective indicators

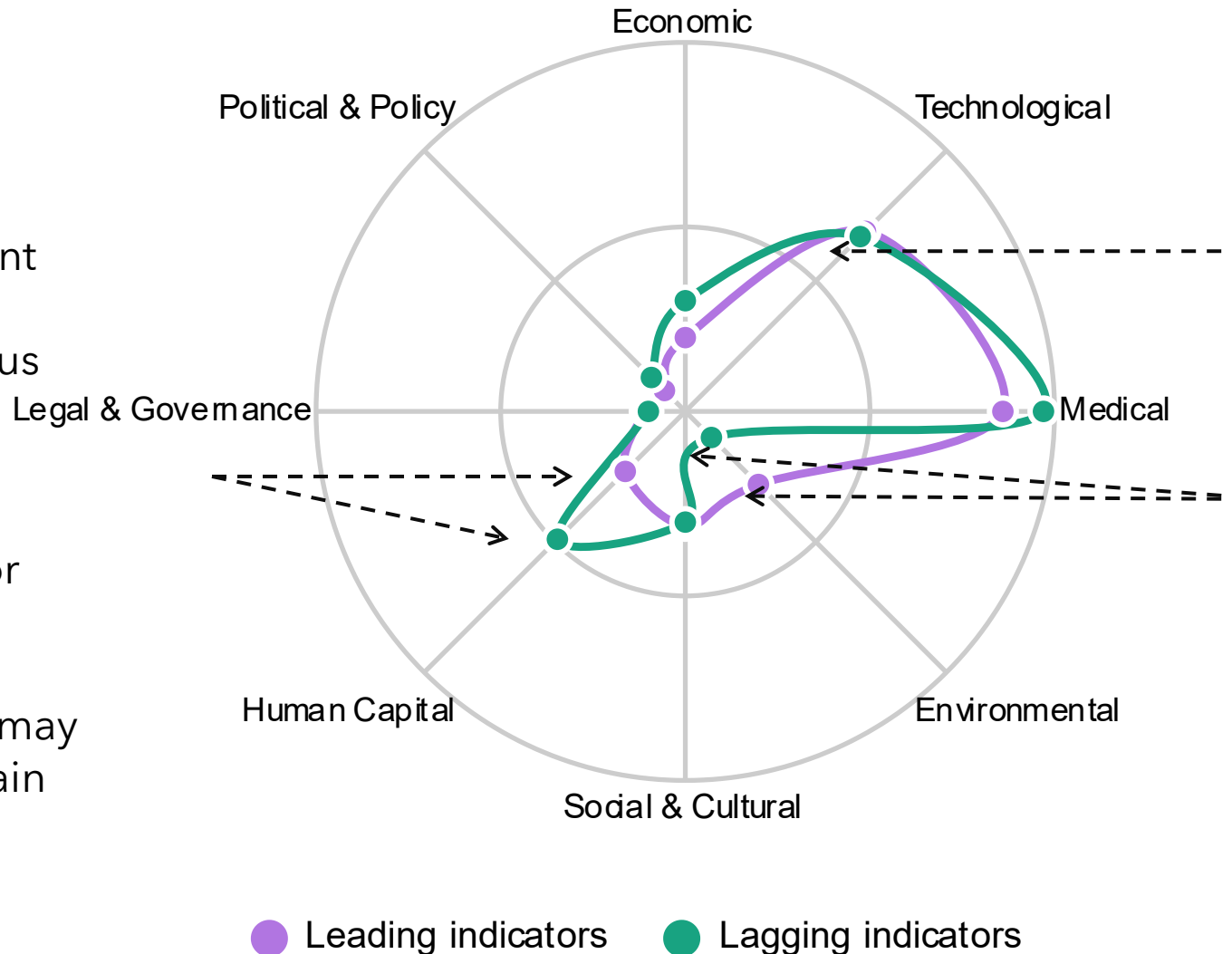
Observed and Potential Impact

Retrospective ↑

Forward-Looking ↓

An institution's current capabilities may be lower than its previous ones (e.g. due to budget cuts, the de-emphasis of certain research programs or external factors).

A course-correction may be needed to maintain previous levels of impact



Retrospective/Forward-Looking

The magnitude of an institution's future impact is likely to be comparable to its previous impact

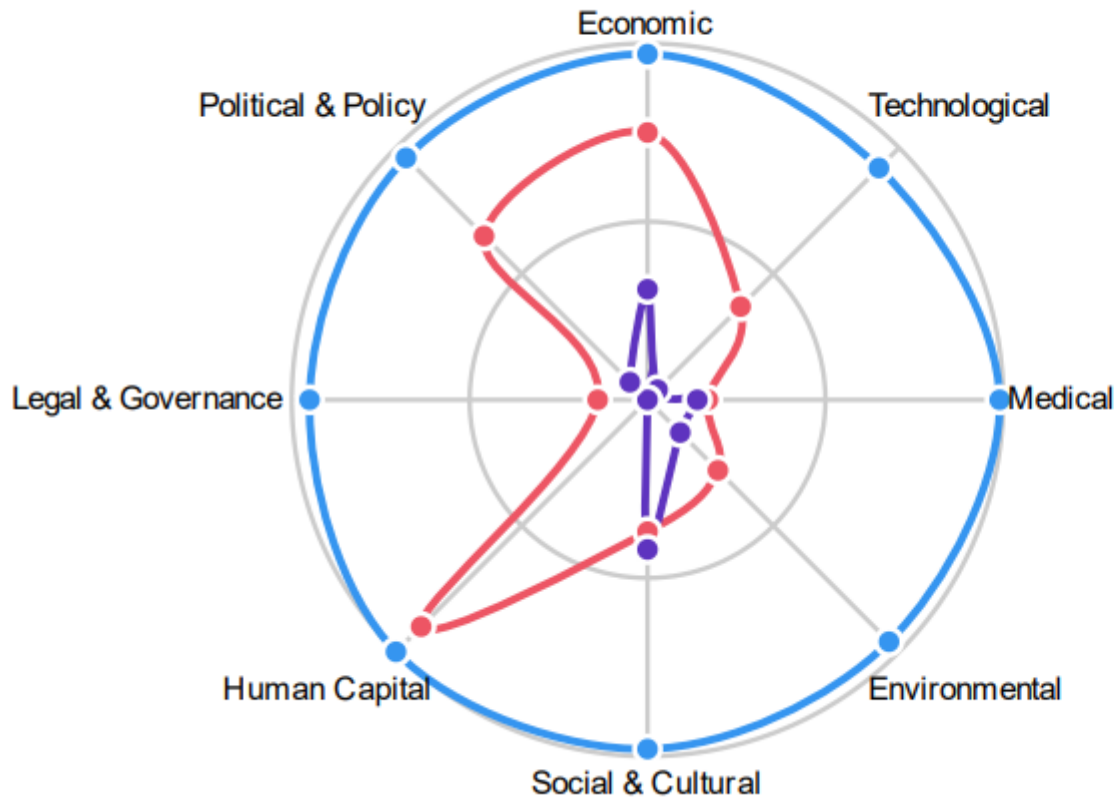
Retrospective ↓

Forward-Looking ↑

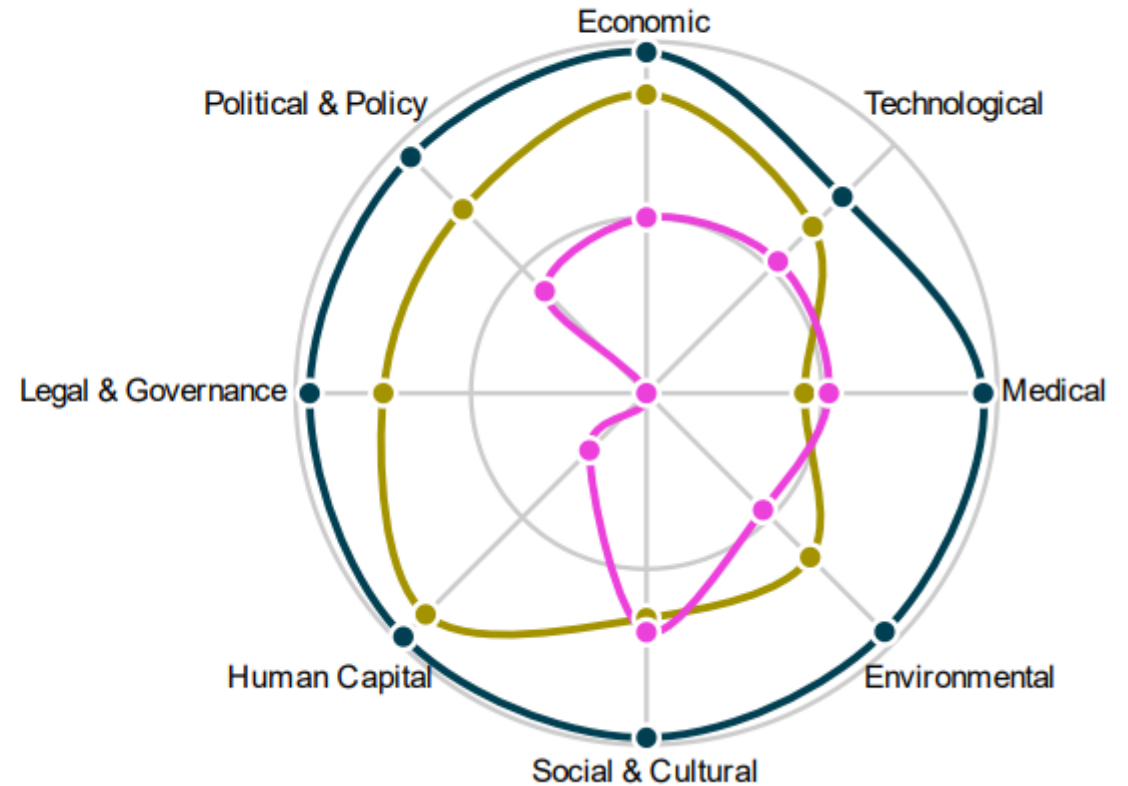
An institution's future impact has the potential to exceed its previous impact in that facet.

Benchmarking against other institutions

Past results lead to recommendations moving forward



Comparative Societal Impact Profiles (retrospective indicators) for three peer institutions

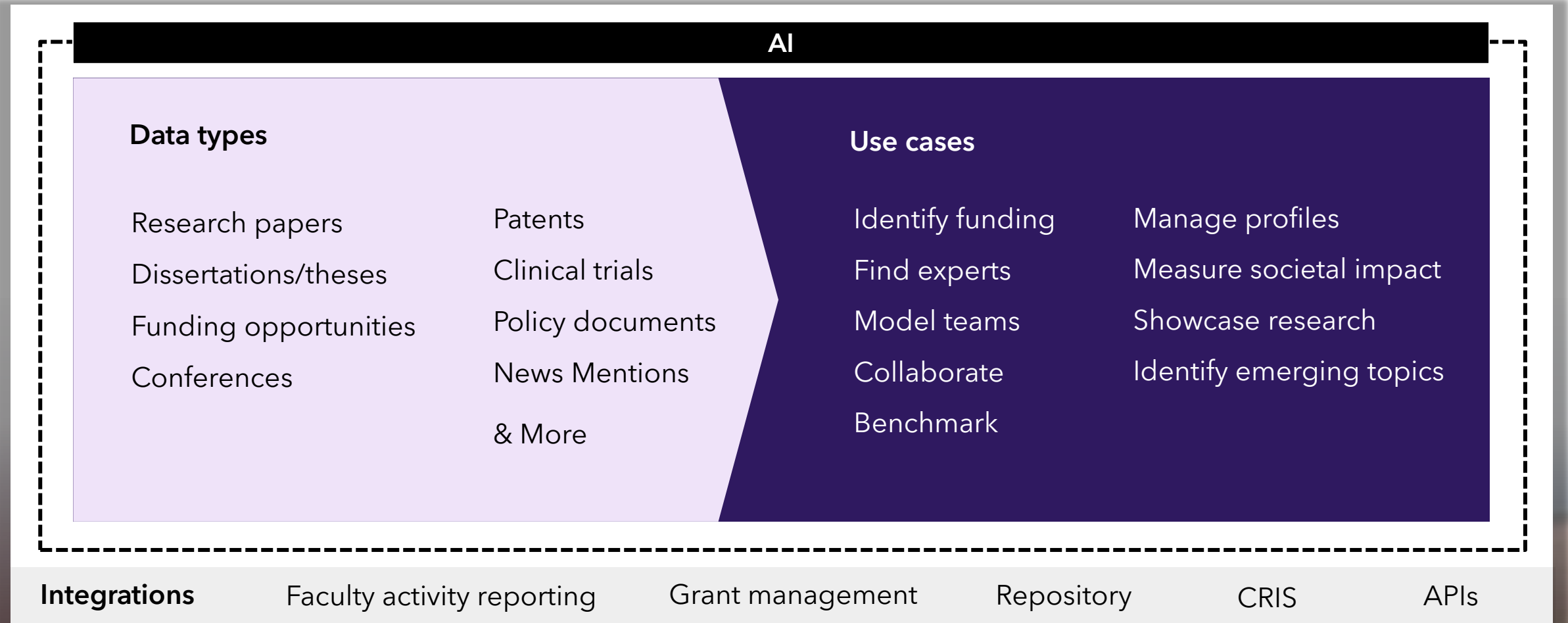


Comparative Societal Impact Profiles (forward-looking indicators) for three peer institutions



Web of Science Research Intelligence

Uniting curated data and responsible AI



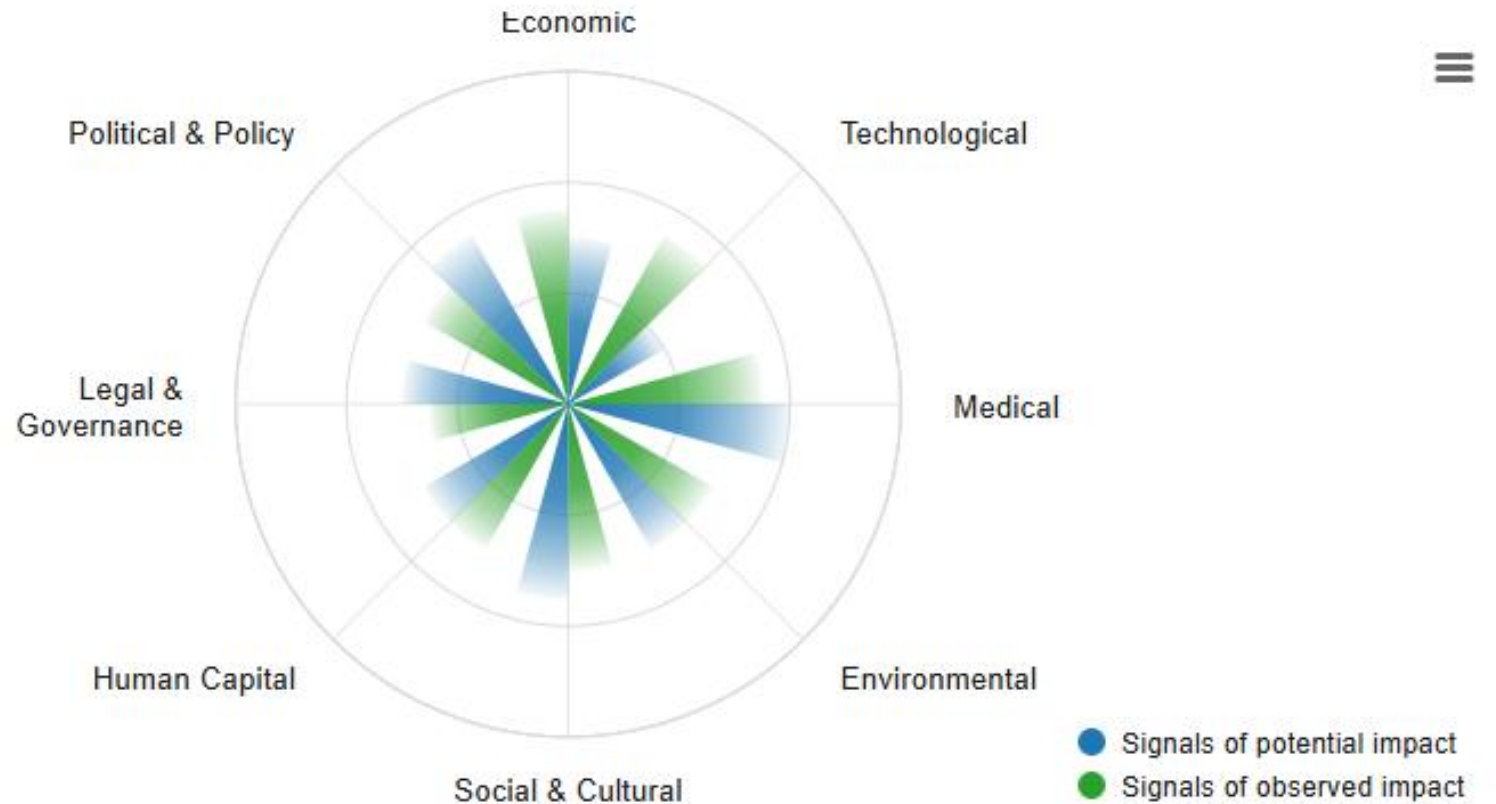
Societal Impact Report in Web of Science Research Intelligence

University of
Alberta

2021-2025

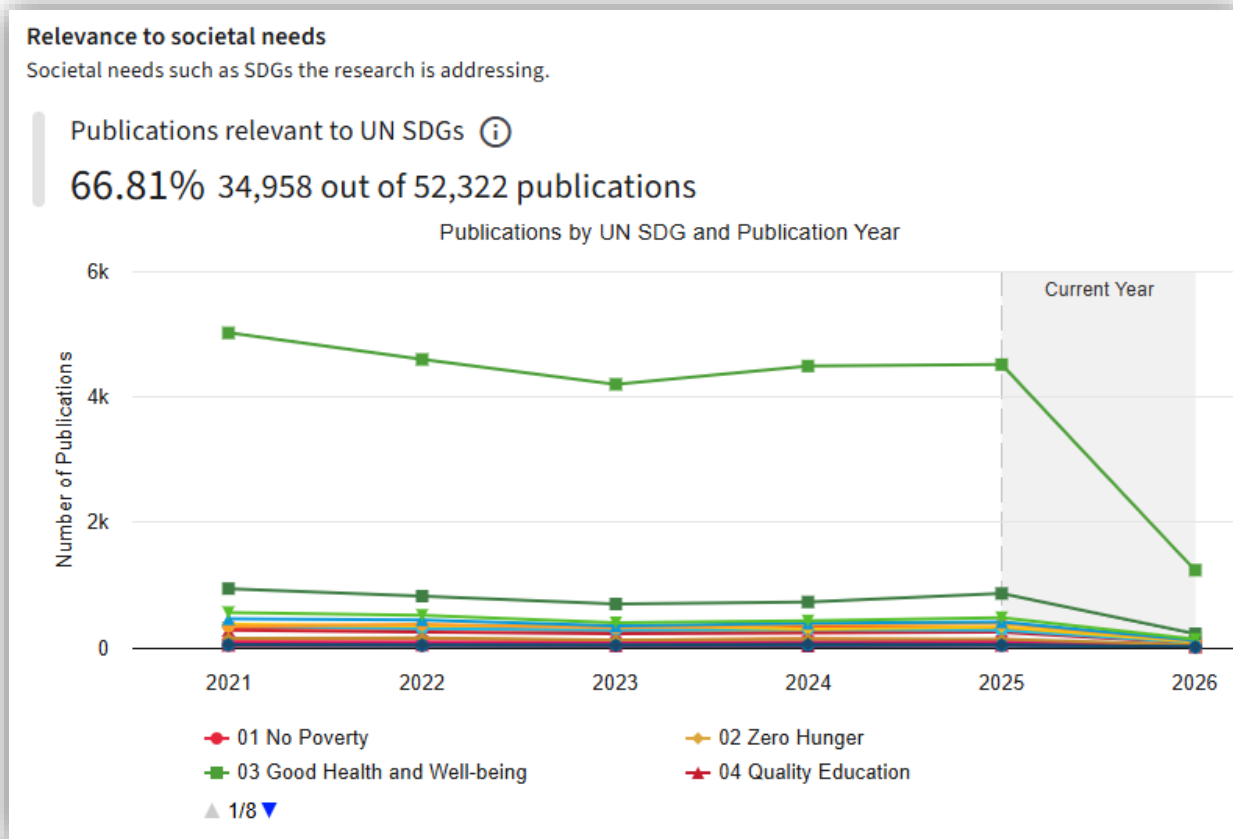
Societal Impact Profile (size—normalized)

The Societal Impact Profile uses metrics adjusted for an institution's size (publication volume) and against global benchmarks, highlighting efficiency in generating societal impact, rather than its scale. It spans eight societal facets using signals of both potential (forward-looking) and signals of observed impact (proxies for actual impact). [Learn more](#)



Societal Impact Report in Web of Science Research Intelligence

University of Alberta
2021-2025



University of Alberta output

Societal impact takes many forms and unfolds over time. It manifests across different societal facets—such as economic, technological, medical, environmental, and political & policy—reflecting the areas of society that research helps shape.

For the period 2021 - 2026, this report summarizes the University of Alberta's output based on trusted sources, including 52,322 publications, 137 patent application families, 38 granted patent families, 102 publications cited by policy documents, contributions to 206 clinical trials, and 852 news mentions. Across facets, the largest publication volumes are in the Medical, Environmental, and Political & Policy facets.

The report combines signals of potential future impact (for example, publications co-authored with non-academics and Patent application families) and signals of observed impact (for example, research cited in policy documents or referenced in patents), showing where impact is building and where it is already visible.

TOTAL PUBLICATIONS

52,322

PATENT APPLICATION FAMILIES

137

GRANTED PATENT FAMILIES

38

CLINICAL TRIALS

206

POLICY-CITED PUBLICATIONS

102

NEWS MENTIONS

852

Research Intelligence Assistant

An agentic AI assistant to advance research and assessment

Impact Evaluation	Collaboration Analysis	Emerging Topics Research	Funding Discovery	Team Builder (coming soon)
<p>Measure and visualize research performance</p> <p>Benchmark impact against peers</p>	<p>Assess collaborations across academia, industry and government</p> <p>Evaluate existing partnerships and identify new partners</p>	<p>Discover new research areas where breakthroughs are likely to occur</p> <p>Surface fast-growing research areas to inform future strategy and investment</p>	<p>Find potential funding sources for research projects, tailored to specific needs</p> <p>Match researchers to opportunities</p>	<p>Identify experts in a research area</p> <p>Model research teams to inform strategy and recruiting decisions</p>

Trusted content • Responsible AI • Optimized for transparency and accuracy



Questions?



Think forward™

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