INNOVATION & RESEARCH CAUCUS

TOWARDS A UNIFIED POLICY AND EVIDENCE CAPACITY FOR THE UK RESEARCH AND INNOVATION SYSTEM:

Lessons from selected OECD Countries

IRC Report No: 045

REPORT PREPARED BY

George Paily
Warwick Business School

Stephen Roper
Warwick Business School

Delivered with ESRC and Innovate UK

CONTENTS

Executive Summary 4

1. Introduction 10

2. International Evidence: Case Studies from OECD Countries 14

3. Strengthening the Policy and Evidence function in the R&I system: Lessons from OECD peers 20

Annex 1: Belgium 28

Annex 2: Canada 34

Annex 3: Denmark 40

Annex 4: Germany 46

Annex 5: Ireland 51

Annex 6: Netherlands 55

Annex 7: Spain 60

Annex 8: Sweden 64

References 68

Authors
The core members of the research team for this project were as follows:

- George Paily ((PI) – Warwick Business School
- Professor Stephen Roper – Warwick Business School

This document relates to IRC Project IRCP0038: Developing a unified analytical research capacity for the UK innovation system

Acknowledgements
This work was supported by Economic and Social Research Council (ESRC) grant ES/X010759/1 to the Innovation and Research Caucus (IRC) and was commissioned by ESRC. We are very grateful to the project sponsors at UK Research & Innovation (UKRI) for their input into this research. The interpretations and opinions within this report are those of the authors and may not reflect the policy positions of ESRC.

We would also like to acknowledge and appreciate the efforts of the IRC Project Administration Team involved in proofreading and formatting, for their meticulous attention to detail and support.

About the Innovation and Research Caucus
The Innovation and Research Caucus supports the use of robust evidence and insights in UKRI's strategies and investments, as well as undertaking a co-produced programme of research. Our members are leading academics from across the social sciences, other disciplines and sectors, who are engaged in different aspects of innovation and research systems. We connect academic experts, UKRI, IUK and the (ESRC), by providing research insights to inform policy and practice. Professor Tim Vorley and Professor Stephen Roper are Co-Directors. The IRC is funded by UKRI via the ESRC and IUK, grant number ES/X010759/1. The support of the funders is acknowledged. The views expressed in this piece are those of the authors and do not necessarily represent those of the funders.

Contact
You are also welcome to email us if you have any questions about this report or the work of the IRC generally: info@ircaucus.ac.uk

Cite as: Paily. G. and Roper S. January 2026. *Towards a Unified Policy and Evidence Capacity for the UK Research and Innovation System: Lesson from Selected OECD Countries.* Oxford, UK: Innovation and Research Caucus

Executive Summary

In an era of accelerating technological disruption, geopolitical uncertainty, and fiscal constraints, the United Kingdom faces a strategic imperative: to modernise its research and innovation (R&I) governance through evidence-driven policy. We derive insights from eight OECD countries - Belgium, Canada, Denmark, Germany, Ireland, the Netherlands, Spain, and Sweden - and distil lessons for the UK to strengthen its R&I policy and evidence system.

Global Context and Strategic Imperatives

Science, Technology and Innovation (STI) policy is no longer confined to academic excellence or long-term economic growth. It now underpins national missions such as climate neutrality, health resilience, and digital leadership, while serving as a lever for economic security and competitiveness. Governments worldwide are embedding mission-oriented approaches, integrating industrial policy with R&I strategies, and demanding robust evidence systems to steer investments and measure impact.

Governments are increasingly adopting mission-oriented approaches, integrating industrial policy with R&I strategies and placing greater demands on evidence systems to guide investments and evaluate impact. However, existing data infrastructures—often organised around sectors or disciplines—are not entirely suited to this task. Missions usually aim for broad societal outcomes but rely on a foundation of cross-cutting inputs such as education, research funding, regulatory capacity, and more. Aligning these inputs with mission goals will require a more integrated and adaptable approach to evidence generation, capable of linking strategic priorities with the underlying policy levers that enable them.

Three global trends shape this imperative: (1) persistent productivity stagnation, requiring systemic innovation to drive growth; (2) mission-driven policies addressing grand challenges like the green transition and health resilience; and (3) rising geopolitical competition over critical technologies, prompting policies for strategic autonomy and technology sovereignty. These shifts demand evidence systems that go beyond tracking inputs and outputs to assess system health, mission progress, and societal impact.

UK Context: Strengths and Structural Gaps

The UK boasts world-class research institutions, a consolidated funding architecture under UKRI, and comprehensive R&D statistics. The Research Excellence Framework (REF) and

Knowledge Exchange Framework (KEF) provide robust evaluation mechanisms for academia. However, systemic weaknesses persist: fragmented analytical capacity, absence of an annual 'State of Innovation' report, and limited integration of evidence into mission-oriented strategies. Analytical resources are dispersed across departments, UKRI, and external consultancies, creating silos and reducing responsiveness. Unlike Germany's EFI or Denmark's DFiR, the UK lacks a permanent independent body to provide impartial, system-level analysis and recommendations.

Comparative Insights from OECD Peers

International case studies reveal diverse governance models but common success factors:

- ***Germany***: Anchored by the High-Tech Strategy 2025 and EFI's annual reports, Germany exemplifies mission-oriented governance supported by independent, system-level analysis. Indicators track progress on strategic missions, ensuring adaptive policy.
- ***Sweden***: Embeds analytical capacity within agencies like Vinnova, enabling real-time learning and iterative policy design. Despite rich data, Sweden faces challenges in system-wide coordination and follow-through on evaluation insights.
- ***Denmark***: Combines registry-based data systems with an independent advisory council (DFiR), fostering evidence-based policymaking. Coordination gaps remain, but the culture of evaluation is strong.
- ***Ireland***: Demonstrates best practice in annual R&D budget reporting and KPI-driven prioritisation, linking evidence tightly to policy. Weaknesses include limited SME visibility and fragmented datasets.
- ***Netherlands***: Offers comprehensive data and strong analytical institutes (Rathenau) but lacks unified evaluation frameworks and societal impact metrics.
- ***Belgium***: Features robust regional data infrastructures (e.g., Flanders' ECOOM) but suffers from fragmentation across federal and regional tiers.
- ***Canada***: Data-rich but strategy-poor; absence of an overarching analytical body limits coherence and long-term impact assessment.
- ***Spain***: Centralised data systems and consistent monitoring, yet weak causal impact evaluation and integration of findings into policy cycles.

Lessons for the UK

- ***Integrate Analytical Capacity with Policy Delivery***: Co-locate evaluation and policy functions within UKRI or DSIT to create real-time feedback loops, mirroring Sweden's model. This would enable adaptive learning and reduce reliance on ad-hoc external reviews.
- ***Institutionalise Annual System-Level Reporting***: Establish a comprehensive, independent 'State of UK Innovation' report akin to Germany's EFI. This report should consolidate indicators, assess progress against missions, and provide actionable recommendations to government and Parliament.
- ***Develop a Shared Scoreboard of Indicators***: Introduce a concise dashboard tracking R&I inputs, outputs, and outcomes—covering diffusion, skills, regional impact, and inclusion. This would enhance transparency and accountability while enabling early detection of systemic weaknesses.
- ***Align Evidence with National Missions***: Embed mission-linked indicators and evaluations into strategic frameworks, ensuring adaptive policy responses to emerging challenges. For example, clean energy and AI leadership missions should have dedicated metrics and analytical reviews.
- ***Institutionalise Independence and Transparency***: Create an arm's-length advisory body to safeguard impartiality and enhance public trust. This body should have statutory authority to publish annual reports and convene stakeholders for evidence-based dialogue.

Implementation Considerations

Implementing these reforms would require investment in skills, data infrastructure, and governance mechanisms. This may involve strengthening analytical units within UKRI and DSIT, with clear mandates for system-level evaluation and mission tracking. Data interoperability across agencies must be prioritised, utilising digital platforms for real-time analytics. Stakeholder engagement—including industry, academia, and regional actors—will be essential to co-design indicators and ensure relevance.

Acknowledgements

The views and opinions expressed in this report are those of the authors. We are grateful to the international consultants who provided detailed and informed commentary on the policy and evidence capabilities of the different OECD countries. These were:

- Belgium - Anaïs Biclot (anais.biclot@fcdo.gov.uk)
- Canada - Victoria Mico Egea (Victoria.MicoEgea@ukri.org) and Simon Raby (sraby@mtroyal.ca)
- Denmark - Jesper Lindgaard Christensen (jlc@business.aau.dk)
- Germany - Esma Gjertsen (Esma.Gjertsen@fcdo.gov.uk) and Kate Robinson (Kate.Robinson3@fcdo.gov.uk)
- Ireland - Kevin Mulligan (k.mulligan@qub.ac.uk)
- Netherlands - George Paily (g.paily@aston.ac.uk)
- Spain - Abel Ernesto Lucena Pimentel (abel.lucena@uib.eu)
- Sweden - Rasmus Lema (lema@merit.unu.edu)

Abbreviations

Abbreviation	Full Term
AI	Artificial Intelligence
BELSPO	Belgian Federal Science Policy Office
BMBF	Federal Ministry of Education and Research - Germany
BMWK	Federal Ministry for Economic Affairs and Climate Action – Germany
CBS	Statistics Netherlands (Centraal Bureau voor de Statistiek)
CANARIE	Canada's Advanced Research and Innovation Network
CCA	Council of Canadian Academies
CDTI	Centre for the Development of Industrial Technology (Spain)
CESE Wallonie	Conseil économique, social et environnemental de Wallonie
CFA	Centre for Studies in Research and Research Policy
CIHR	Canadian Institutes of Health Research
COTEC	Fundación Cotec para la Innovación
CRDCN	Canadian Research Data Centre Network
CRef	Conseil des Recteurs des Universités Francophones de Belgique
CSPC	Canadian Science Policy Centre
CSO	Central Statistics Office (Ireland)
Destatis	Federal Statistical Office of Germany
DETE	Department for Enterprise, Trade and Employment (Ireland)
DFHERIS	Department of Further and Higher Education, Research, Innovation and Science
DFiR	Danish Council for Research and Innovation Policy
DFHERIS	Department of Further and Higher Education, Research, Innovation and Science (Ireland)
DSIT	Department for Science, Innovation and Technology
ECOOM	Centre for Research & Development Monitoring
EFI	Expert Commission for Research and Innovation (Germany)
ERDF	European Regional Development Fund
ESRC	Economic and Social Research Council
ESRI	Economic and Social Research Institute (Ireland)
EU	European Union
EWI	Department of Economy, Science and Innovation (Flanders)
EZK	Ministry of Economic Affairs and Climate Policy (Netherlands)
FECYT	Spanish Foundation for Science and Technology
FEDEA	Foundation for Applied Economics Studies (Spain)
FRIS	Flanders Research Information Space
HESA	Higher Education Statistics Agency
IDA	Industrial Development Agency (Ireland)
INE	Instituto Nacional de Estadística (National Statistics Institute) - Spain
Innoviris	Brussels Institute for Research and Innovation
KEF	Knowledge Exchange Framework
KNAW	Royal Netherlands Academy of Arts and Sciences
KPI	Key Performance Indicator
M&E	Monitoring and Evaluation

Abbreviation	Full Term
NAO	National Audit Office
NRC IRAP	National Research Council – Industrial Research Assistance Program
NSERC	Natural Sciences and Engineering Research Council of Canada
NWO	Netherlands Organisation for Scientific Research
OECD	Organisation for Economic Co-operation and Development
OCW	Ministry of Education, Culture and Science
R&D	Research and Development
R&I	Research and Innovation
REF	Research Excellence Framework
R&I	Research and Innovation
RVO	Netherlands Enterprise Agency
SCB	Statistics Sweden
SEP	Strategy Evaluation Protocol (Netherlands)
SICTI	Spanish Science, Technology and Innovation Information System
SIIU	Integrated University Information System (Spain)
SIPs	Strategic Innovation Programmes (Sweden)
SME	Small and Medium-sized Enterprise
SSHRC	Social Sciences and Humanities Research Council
Statbel	Belgian Statistical Office
STI	Science, Technology and Innovation
Tillväxtanalys	Swedish Agency for Growth Policy Analysis
UKÄ	Swedish Higher Education Authority (Universitetskanslersämbetet)
UKRI	UK Research and Innovation
Vinnova	Swedish Agency for Innovation
VLAIO	Flemish Agency for Innovation and Entrepreneurship

1. Introduction

While a well-established Research and Innovation (R&I) system is a key driver of economic growth and societal progress, designing R&I policies that deliver the greatest return requires data, evidence, and analysis (OECD, 2020). This report provides a comparative analysis of the Research & Innovation (R&I) policy and evidence systems of eight OECD countries - Belgium, Canada, Denmark, Germany, Ireland, the Netherlands, Spain, and Sweden. It aims to inform the development of a unified analytical research capacity for the UK innovation system. The project has been undertaken in partnership with the ESRC, UK Research and Innovation (UKRI), and the Department for Science, Innovation and Technology (DSIT).

1.1 The New Imperative for R&I Evidence

Historically seen as a specialised area focused on academic excellence and long-term economic benefits, Science, Technology and Innovation (STI) policy is now being reshaped by new global challenges, including increasing economic security concerns and disruptive, converging technologies (OECD, 2023; Steeman, et al., 2024). This strategic shift is driven by a convergence of forces that are fundamentally changing the demands on national evidence systems.

Firstly, the Research and Innovation System acts as the established engine of productivity, growth, and living standards (Steeman, et al., 2024). In an era of sustained decline in productivity growth, investment in new technologies, organisational innovations, and human capital remains the main driver of economic progress. This economic necessity has been strengthened by the shift to mission-oriented policies. Major societal challenges, such as the European Green Deal, climate change, and public health, require systemic transformations of economic models (Borgers, 2020; Rohracher, Coenen, & Kordas, 2023; Grillitsch, Hansen, Coenen, Miörner, & Moodysson, 2019). These missions call for innovations that go beyond incremental, technology-focused improvements, advocating for a systemic approach that leverages R&I to fundamentally reshape markets and societies.

Secondly and more recently, as the global environment is increasingly shaped by rising geopolitical tensions and intense strategic competition over emerging and critical technologies, governments across the OECD are reconfiguring their research and innovation (R&I) policies to pursue greater “strategic autonomy” and “technology sovereignty”, aiming to integrate economic and national security goals (OECD, 2023).

The OECD Science, Technology and Innovation Outlook (OECD, 2023) highlights that this manifests in three distinct policy streams, each creating new evidence requirements. These streams are promotion policies focusing on national and economic security through direct R&D and industrial strategies, protection policies aimed at safeguarding research and technological assets, and projection policies involving international strategic cooperation and science diplomacy to advance national interests while managing global research linkages.

This newly emerging landscape fundamentally changes the type of evidence required from an R&I policy and evidence system.

1.2 The UK Context: Unifying a Fragmented Landscape

This global context intersects with a specific challenge for the UK's economy and Research and Innovation System, with budgets under pressure and a renewed focus on science and technology (DSIT, 2025). The 2015 Nurse Review aimed to create a more cohesive R&I system by establishing UKRI from nine separate organisations. Since its inception in 2017, UKRI has sought to enhance its capacity to understand where and how public R&D spending delivers the greatest impact (NAO, 2025).

Today, with budgets under pressure and a renewed focus on science and technology, there is growing momentum behind developing the skills, data infrastructure, and evidence base needed to shape the future of the UK innovation system (BEIS, 2021). Essentially, the UK aims to deepen its understanding of the R&I landscape, use data to allocate funding more systematically, and monitor the impacts of investments – both to guide its own decisions and to provide robust evidence to government (Innovate UK, 2018; NAO, 2025).

Despite efforts in previous years, various government departments and agencies influence UKRI's priorities, but their expectations are not coherently integrated. A recent review by the UK's National Audit Office identifies over a hundred policy papers from 13 ministerial departments published between 2021 and 2024 that reference UKRI's role. It highlights that government policies and priorities are communicated to UKRI through diverse mechanisms such as ad hoc meetings, formal letters, policy papers, and budget announcements - without a unified or hierarchical framework (NAO, 2025).

This fragmentation hinders strategic investment and performance assessment across the entire innovation system as noted by previous studies including Coyle and Muhtar (Assessing

policy co-ordination in government: Text and network analysis of the UK's economic strategies, 2023). A unified analytical function could assist by combining data and insights from various sectors and funding bodies, thus informing strategic choices (Baskaran & Muchie, 2010). It would also fill gaps in evidence: for example, UKRI possesses decades of grant data that remain under-utilised, and there are deficiencies in understanding outcomes like the commercialisation of research (e.g., patents, spin-offs) that new analytics could elucidate. The demand for better evidence is increasing, not only to identify where to invest for the greatest impact but also to demonstrate the value for money of R&I expenditure and to communicate the benefits of innovation to the public and Parliament.

To create an effective R&I policy and evidence system for the UK that better informs investment strategies and decisions with timely data, coordinates programme evaluations to provide a comprehensive view of impact, gathers evidence of innovation outcomes for communication, and improves capacity for evidence-based decision-making across the system, it is useful to learn from how other countries collect and utilise evidence in managing their innovation systems.

Many advanced economies have established mechanisms to ensure policies are guided by data, evaluation, and expert analysis. In some countries, this function is centralised within a dedicated body, while in others it is spread across several organisations. For instance, Germany has an independent expert commission (EFI) that provides scientific policy advice to the government and regularly produces reports on Germany’s research and innovation performance (Commission of Experts for Research and Innovation, 2025). Such a coordinated, arm’s-length approach helps ensure that German policymakers receive current, impartial evidence on the health of the innovation system and emerging issues.

Other nations adopt different strategies: some establish high-level advisory councils or observatories with analytical capabilities, while others depend on internal government analytical units or statistical agencies to publish scoreboards and studies. The OECD Science, Technology and Innovation (STI) Policy report states that countries utilise a variety of strategic policy intelligence tools, including R&I data dashboards, indicator scoreboards, technology foresight exercises, regular monitoring reports, benchmarking studies, and expert advisory panels, to strengthen evidence-based STI policy making and governance.

1.3 About this project

Against this backdrop, the Economic and Social Research Council (ESRC), in partnership with UKRI's Strategy Team and the Department for Science, Innovation and Technology (DSIT), were keen to investigate the capabilities required for a unified analytical research capacity for the UK innovation system.

As an initial step in this process, this report examines how other OECD countries meet the evidence needs of their innovation system governance. Through a combination of desk research and structured discussions with international experts, we surveyed the approaches in eight countries – Belgium, Canada, Denmark, Germany, Ireland, the Netherlands, Spain, and Sweden. The research focused on five key questions about each country's context:

(1) How comprehensive is the data available on the R&I system's development and effectiveness, and where are the gaps?

(2) Is there a consistent, year-on-year approach to monitoring and evaluating the innovation system, and who drives this analysis?

(3) Which organisation (s) take the lead in gathering and interpreting data on the innovation system's performance – is it a single coordinating body or spread across agencies?

(4) How are these organisations situated (inside government or independent), and how are they funded?

(5) How are data and analysis actually used in governing the innovation system – who integrates the insights, and is policy development truly evidence-based in practice?

By exploring these questions, we aimed to understand both the structures (the institutional setup and processes) and the practices (how evidence is used for decision-making) in each country. Each may offer lessons for the UK.

1.4 Structure of this report

In Section 2, we begin with concise case study narratives for each of the eight countries, highlighting how each nation approaches the collection and use of innovation system data and evidence. Detailed overviews for each country are included in the annexes. These case studies distil the inputs from our international experts and document analysis into a narrative form,

allowing us to observe the variety of models in operation – from centralised observatories to decentralised departments.

Section 3 compares the UK's R&I policy and evidence system with these examples of international practice. We identify the strengths and weaknesses across the different approaches, especially data comprehensiveness, coordination of monitoring, institutional leadership, independence, and evidence integration. We consider the lessons for how the UK can utilise these practices to improve the R&I governance system, ultimately enabling more effective, evidence-driven innovation policy.

2. International Evidence: Case Studies from OECD Countries

2.1 Introduction

Effective governance of the R&I system relies on thorough and comprehensive data collection, ongoing monitoring, and rigorous evaluation (OECD, 2020; Molas-Gallart, 2012). This report consolidates insights from eight case studies of peer countries – including Belgium, Canada, Denmark, Germany, Ireland, the Netherlands, Spain, and Sweden – exploring how each tackles governance challenges in their R&I system.

The reason for this comparative approach is to examine how other nations organise data, monitoring, and evaluation in R&I, offering valuable lessons and benchmarks for the UK. Each country has aimed to improve the effectiveness of its R&I investments, and their experiences showcase both successful strategies and cautionary tales that can inform UK policymakers.

2.2 Case study overview

This section provides a brief overview of the policy and evidence system in each country and identifies strengths and weaknesses. Country case studies are detailed in Annex 1-8. Table 2.1 provides a summary of system strengths and weaknesses.

2.2.1 Belgium

Belgium's R&I governance reflects its federal structure, creating a multi-level evidence system (Duchêne, 2014). At the federal level, BELSPO oversees data on federal research programmes, space policy, and international cooperation, complemented by Statbel for macro-

level statistics (BELSPO, 2024). Regional systems are strong but fragmented: Flanders has the most institutionalised monitoring architecture, with EWI and ECOOM producing longitudinal indicators and maintaining continuity through annual STI reports and portals like FRIS (EWI, 2014). Wallonia and the Wallonia-Brussels Federation rely on CESE Wallonie, CRef, and Innoviris for regional and higher education data, but lack integration across regions.

The strengths of the Belgian policy and evidence system include well-developed data infrastructures across all levels of government, with Flanders demonstrating best practice through systematic monitoring and evaluation (BELSPO, 2022). The main weaknesses lie in the absence of a national platform that integrates federal and regional data, gaps in long-term impact assessment and cross-sectoral performance, and limited coherence across levels that constrain system-wide learning. While this fragmentation is often viewed as a limitation, it reflects Belgium's federal governance model, in which R&I policy is a regional competence and integration at national level is not formally mandated.

2.2.2 Canada

Canada's evidence ecosystem remains fragmented despite being data-rich in R&D inputs (Bouchard, et al., 2023). Statistics Canada offers high-quality surveys, and agencies such as NSERC, SSHRC, CIHR, and NRC-IRAP maintain detailed administrative datasets. Independent bodies including the Council of Canadian Academies (CCA) and CSPC add analytical depth. However, no single organisation is tasked with integrating these insights into a coherent national perspective.

System strengths include a strong statistical foundation, regular expert reviews, and advanced digital research infrastructures (CANARIE, CRDCN). Weaknesses involve the lack of an overarching strategy and an independent analytical body; poor integration across datasets; limited evidence on long-term societal impacts; and evaluations that remain programme-specific rather than system-wide. Recent federal reviews, notably the Bouchard Panel, have highlighted these issues and recommended structural reform (Bouchard, et al., 2023). A follow-up is now underway at national level, including the planned creation of a new advisory council to provide independent, system-level guidance.

2.2.3 Denmark

Denmark has a comprehensive, registry-based evidence system aligned with EU standards (European Commission, 2019; Christensen & Knudsen, The performance, challenges and

related policies of the Danish research and innovation system, 2021). Statistics Denmark provides detailed R&D and innovation data, while the Ministry of Higher Education and Science coordinates national strategies and evaluations (Knudsen, Christensen, & Christensen, 2018). Independent bodies like DFiR and Aarhus University's CFA offer system-level analysis. Innovation Fund Denmark and Research Portal Denmark contribute programme and metadata insights.

The main strengths of Denmark's policy and evidence system are: rich administrative datasets, a strong tradition of evidence-based policymaking, and an independent advisory council (DFiR) that ensures impartial analysis (European Commission, 2019). Weaknesses include: coordination between actors could be improved, evaluations are often siloed, there is limited anticipatory data for emerging technologies, and peer reviews call for stronger cross-ministerial alignment (Ketels, et al., 2019). Although an effort in the early 1990s to align research and innovation (R&I) policy with broader societal and economic goals, using a more integrated, evidence-based framework (an early version of what we might now call a mission-oriented, cross-sector policy matrix), was made, it did not become fully reflected in policies and statistics (Lundvall, 1999; Graversen, 2017).

2.2.4 Germany

Germany's system is supported by the High-Tech Strategy 2025 (Federal Ministry of Education and Research, 2025) and the Expert Commission for Research and Innovation (EFI), which publishes annual reports and maintains an R&I dashboard. Federal ministries (BMBF, BMWK) and Destatis provide essential data, complemented by major research organisations (Max Planck, Fraunhofer, Helmholtz, Leibniz) and advisory councils (Wissenschaftsrat).

System strengths include: consistent annual reporting; mission-driven governance; strong integration of indicators into policy; high analytical independence of EFI. Perceived weaknesses relate to: limited real-time responsiveness; gaps in societal impact measurement; regional disparities across Länder remain under-analysed (Commission of Experts for Research and Innovation, 2025).

2.2.5 Ireland

Ireland's evidence system is fairly coherent, overseen by DETE and DFHERIS (Department of Further and Higher Education, Research, Innovation and Science (Ireland), 2025). The CSO provides official R&I statistics, while DETE releases annual R&D budget reports and manages

research prioritisation processes with clear KPIs. Agencies such as Enterprise Ireland and IDA Ireland supply administrative data, and ESRI contributes independent analysis.

Identified strengths include: annual reporting on culture; structured prioritisation with KPI tracking; strong linkage between evidence and policy. Weaknesses are: limited integration of datasets; weak visibility of SME innovation; some major supports lack robust tracking mechanisms (DFHERIS, 2022).

2.2.6 Netherlands

The Netherlands combines extensive data collection with fragmented evaluation (OECD, 2014; Jongbloed, 2018). CBS provides official statistics, Rathenau Institute translates policy ambitions into indicators, and NWO oversees research quality through the Strategy Evaluation Protocol (SEP). Ministries (OCW, EZK) and agencies like RVO use evidence to inform policy development (van den Broek-Honingh & Vennekens, 2022).

System strengths include high-quality, internationally comparable data, strong analytical institutes, and structured research evaluations (NWO, 2021). Weaknesses are the lack of a unified system-level evaluation, gaps in societal impact assessment, and limited coverage of micro-enterprises and non-technological innovation (Ministry of Education, Culture and Science, 2024).

2.2.7 Spain

Spain's system is centred on SICTI and SIIU under the Ministry of Science, Innovation and Universities, integrating data from INE and other sources (Ministry of Science and Innovation (Spain), 2021). CDTI and FECYT contribute programme-level indicators, while independent foundations (COTEC, FEDEA) provide observatory-style analysis.

The strengths of the Spanish policy and evidence system include: centralised data systems, consistent monitoring aligned with EU standards, and strong descriptive indicators. Weaknesses involve limited causal impact evaluation, insufficient integration of evaluation results into policy adjustments, and gaps in micro-level data on start-ups and technology adoption.

2.2.8 Sweden

Sweden has a substantial evidence base spread across agencies like Vinnova, the Swedish Research Council, UKÄ, Tillväxtanalys, and SCB (OECD, 2016; Edquist, 2019; Grillitsch,

Hansen, Coenen, Miörner, & Moodysson, 2019). Evaluations are integrated into major programmes, and international benchmarking is common. However, system-level coordination remains weak, and follow-up on evaluation recommendations is inconsistent.

System strengths include: embedded analytical capacity within agencies, a strong evaluation culture, and active use of international benchmarks (Åström & Arnold, 2023). Weaknesses are: fragmented system-level oversight, inconsistent adoption of evaluation insights, and limited connection between research investments and societal outcomes (Rohracher, Coenen, & Kordas, 2023).

Table 2.1: Summary of system strengths and weaknesses

Country	Strengths	Weaknesses
Belgium	Robust regional data infrastructures; Flanders has systematic monitoring and evaluation.	No national integration; fragmented governance; gaps in long-term impact assessment.
Canada	Strong statistical base; advanced digital research infrastructures; periodic expert reviews.	No overarching strategy; fragmented datasets; weak system-level evaluation.
Denmark	Comprehensive registry-based data; independent advisory council; strong evidence culture.	Coordination gaps; siloed evaluations; limited anticipatory data.
Germany	Consistent annual reporting; mission-oriented governance; independent analysis.	Limited real-time responsiveness; gaps in societal impact; regional disparities.
Ireland	Annual reporting; structured prioritisation; KPI tracking.	Limited dataset integration; weak SME visibility; gaps in tracking major supports.
Netherlands	High-quality data; strong analytical institutes; structured evaluations.	Fragmented evaluation; gaps in societal impact; limited SME coverage.
Spain	Centralised data systems; consistent monitoring; strong descriptive indicators.	Limited causal impact evaluation; weak integration into policy; gaps in micro-level data.
Sweden	Embedded analytical capacity; strong evaluation culture; international benchmarking.	Fragmented oversight; uneven uptake of insights; weak linkage to societal outcomes.

2.3 Summary

A consistent finding from our consultation is that strong data infrastructure and evaluation frameworks are indispensable for evidence-led R&I governance. International experience shows that governments benefit when they institutionalise the regular collection and analysis

of R&I data. For instance, Germany has a standing independent commission that produces annual reports on the nation's innovation performance, providing decision-makers with a comprehensive analysis of system strengths and weaknesses (Commission of Experts for Research and Innovation, 2025). Germany integrates data-driven indicators to track progress on research missions, ensuring that policy remains adaptive and responsive to evidence.

Such examples underscore how systematic monitoring can directly inform strategic priorities and policy adjustments. By contrast, countries without an overarching evaluation, framework often struggle to obtain a clear, year-on-year picture of their R&I system's development. For example, expert inputs from Canada show a fragmented approach with multiple agencies collecting R&I data, but no single body is mandated to integrate insights into a coherent national view, and gaps persist in linking research investments to long-term outcomes.

The absence of an overarching strategy and independent analytical capacity has been identified there as a structural weakness in the R&I governance system. Similar challenges are noted elsewhere – the Netherlands and Sweden, despite being data-rich, also face difficulties in unifying their monitoring and evaluation efforts across various organisations. These comparisons highlight that data alone is not enough: coordination and an overarching analytical framework are vital to translate evidence into effective governance.

At the same time, the diversity of international approaches reveals that there is no one-size-fits-all model. Each country's governance of R&I reflects its unique context – whether a federal structure (as in Belgium, with responsibilities split between federal and regional bodies) or a more centralised system (as in smaller nations like Denmark or Ireland). Some countries have established dedicated independent bodies or formal councils to regularly evaluate their R&I system (for example, Germany's EFI or Sweden's use of arm's-length agencies), whereas others rely on inter-departmental coordination or periodic expert reviews.

Each approach has its strengths and limitations. Many countries excel in certain aspects, such as developing comprehensive R&D input indicators or conducting rigorous programme evaluations, yet even these leaders acknowledge gaps – be it in measuring long-term societal impacts, ensuring real-time policy learning, or coordinating across fragmented agencies. The case studies note, for instance, effective practices like Ireland's use of annual R&D budget reports and research prioritisation with clear Key Performance Indicators, alongside common

difficulties like aligning diverse data systems or sustaining evidence-based policy momentum over time.

The international case studies of eight OECD countries presented in this report offer comparative and analytical insights to guide the UK's strategy for an integrated R&I analytical capacity. They show that bolstering data, monitoring, and evaluation in governance is both critically important and challenging in practice. While no foreign system can be copied wholesale, the accumulated lessons – from building central data repositories to fostering independent policy evaluation and nurturing a culture of evidence-based decision making – will inform recommendations for the UK. Identifying these lessons is the focus of Section 3.

3. Strengthening the Policy and Evidence function in the R&I system: Lessons from OECD peers

3.1 Introduction

The R&I policy and evidence system in the UK has improved in recent years, particularly with the establishment of UK Research & Innovation (UKRI) as a single umbrella for funding bodies and a robust culture of research assessment (e.g., the Research Excellence Framework). International comparisons with other OECD countries indicate that the UK now leads in certain aspects of R&I data and oversight.

For example, our consultants for Canada in this project expressed the view that the UK has a more integrated UKRI/REF architecture compared to the Canadian fragmented system, noting that the UK has a national framework to benchmark research excellence, impact, and system health and to feed findings back into policy.

However, despite these strengths, the UK lacks certain systemic practices that peers like Sweden and Germany employ to better incorporate evidence into policy. This section reviews the UK's strengths in R&I policy and evidence, highlights key weaknesses, and explores lessons from other OECD countries to further enhance the UK system.

3.2 Strengths of the UK's R&I Policy and Evidence system

The UK benefits from a relatively well-integrated institutional framework for research and innovation. The 2018 creation of UKRI merged nine separate agencies (seven research councils, Innovate UK, and Research England) into one, fostering a more unified strategy and data collection approach across disciplines. This consolidation, as recommended by the 2015 Nurse Review (Nurse, 2015), has begun to reduce silos.

International observers emphasise that, unlike countries with varied funding bodies, UKRI offers a single "architecture" linking research and innovation funding under common oversight. Additionally, the Research Excellence Framework (REF) provides a regular, nationwide assessment of university research quality and societal impact (Research England, 2025). Together, UKRI and the REF create feedback loops in such a way that the REF benchmarks research excellence and societal impact across the country, and these insights inform funding allocations and priorities in a coordinated manner. Many OECD countries, in fact, lack a similar system-level performance framework, and the UK's capacity to generate such holistic evaluations of its research base is a clear governance strength.

Furthermore, the UK maintains comprehensive R&D statistics and evaluation mechanisms that provide a robust evidence base for policy. The Office for National Statistics regularly conducts R&D and innovation surveys (e.g., the UK Innovation Survey every two years, annual BERD survey, annual GovERD survey, etc.), ensuring the UK is data-rich in inputs (spending, personnel) and outputs (publications, patents). Within academia, extensive datasets (via HESA and others) monitor funding, student outcomes, and research performance. At the programme level, major funding initiatives come with monitoring and evaluation requirements; for example, UKRI's innovation programmes such as the Industrial Strategy Challenge Fund are specifically designed with rigorous monitoring and evaluation (M&E) requirements. Newer frameworks like the Knowledge Exchange Framework (KEF), which assesses how effectively universities transfer knowledge to industry and society, are also subject to M&E obligations.

Moreover, the UK actively participates in international benchmarking (OECD and European innovation scoreboards), which help identify its relative strengths (such as a world-class science base) and weaknesses (such as business innovation and productivity). Our consultancy with other internal R&I experts indicates that the UK's institutional framework and

data practices provide it with a comparatively solid foundation to understand and steer its R&I system.

3.3 Weaknesses and Gaps in the UK's R&I System

Although it has strengths, our international comparisons reveal some weaknesses in the R&I policy and evidence system compared to OECD peers (Table 3.1). The UK's R&I governance faces notable shortcomings, particularly in systematically integrating evidence into broader strategies and ensuring analysis informs policy across the entire innovation system.

A significant gap we identify is the absence of a single, comprehensive annual assessment of the UK's innovation system. The UK has yet to produce a routine "state of UK innovation" report that consolidates data on research, innovation, and system performance into an overall strengths and weaknesses analysis. By contrast, Germany's independent Expert Commission on Research and Innovation (EFI) publishes an annual report directly to the Chancellor, evaluating Germany's innovation system with key indicators and trend analysis. This yearly review provides German policymakers with a shared evidence base on what is working and what is not, including a detailed analysis of the strengths and weaknesses of the innovation system alongside policy recommendations.

The lack of a regular, comprehensive stock-take in the UK means there is not a single forum or document where the country's innovation challenges are consistently reviewed and discussed. Key data and analysis are scattered across various reports and organisations, which hampers strategic coherence. For instance, UKRI publishes many programme-specific evaluations, and the government releases a range of strategy documents, but these are not brought together into a unified narrative of progress. Consequently, it becomes more difficult to foster a shared understanding among stakeholders of how all the different parts of UK innovation are performing relative to national goals.

Table 3.1: International Case Studies – Summary and UK Lessons

Country	Key Features of R\&I Evidence System	Lessons for the UK	UK Current Status vs Gap
Belgium	Fragmented due to federal structure; strong regional systems but no national integration; good data on inputs/outputs, weak on long-term impact.	Need for national integration of data across regions and sectors; avoid fragmentation by creating a unified platform.	UK has strong national data assets but fragmented across departments; lacks unified platform for cross-sector integration.
Canada	Data-rich on R\&D inputs; weak on system-level outcomes; fragmented governance; lacks overarching strategy and independent analytical body.	Establish a permanent independent analytical body and a coherent national evaluation framework.	UK has UKRI and REF but no independent system-level analytical body; evaluations remain program-specific.
Denmark	Comprehensive data; strong registry-based system; independent advisory council (DFiR); evaluations embedded but coordination could improve.	Embed independent advisory capacity and strengthen cross-ministerial coordination.	UK lacks a standing advisory council for R\&I system performance; coordination across DSIT and UKRI is ad hoc.
Germany	Robust annual reporting via EFI; mission-oriented High-Tech Strategy; strong integration of indicators into policy; independence of analysis.	Introduce annual “State of Innovation” report and mission-linked indicators.	UK does not produce an annual integrated innovation report; mission metrics are fragmented across strategies.
Ireland	Consistent annual R\&D budget reporting; structured research prioritisation; strong KPI culture; gaps in linking datasets and SME visibility.	Develop annual integrated reporting and clear KPIs for missions; improve data linkage.	UK publishes multiple reports but no single annual R\&I budget and KPI dashboard; data linkage across agencies is weak.
Netherlands	Comprehensive data; fragmented evaluation; strong analytical institutes; gaps on societal impact and SMEs.	Create a shared scoreboard of system-level indicators and strengthen evaluation of societal impact.	UK has REF and KEF but no unified innovation scoreboard; societal impact evaluation is limited beyond academia.
Spain	Centralised data systems; consistent monitoring; strong descriptive indicators; weak causal impact evaluation.	Move beyond descriptive indicators to impact evaluation; embed evaluation results into policy adjustments.	UK evaluations often focus on outputs, not causal impact; limited integration of evaluation findings into policy cycles.
Sweden	Rich data and evaluation culture; analytical capacity embedded in agencies (e.g., Vinnova); fragmented system-level coordination; weak follow-through.	Co-locate analytical capacity with policy delivery; ensure system-wide learning and follow-through.	UK analytical capacity is spread across UKRI, DSIT, and external consultants; lacks embedded, iterative learning loops.

Another weakness of the UK's R&I policy and evidence capacity is the fragmentation of analytical resources and their disconnection from policy implementation. Although the UK conducts many analytical efforts, they are distributed across various bodies – government departments, UKRI's strategy teams, academia, and consultants – rather than being consolidated within a single centre of excellence that reliably informs policy.

In Sweden, a significant analytical capacity is integrated within or alongside the agencies responsible for designing and implementing innovation policy. For example, Vinnova, Sweden's national innovation agency, not only funds and manages programmes but also monitors how innovation investments enhance competitiveness and societal change, and regularly assesses the outcomes of major initiatives. This ensures that policy design, implementation, and analysis are closely connected within a single organisation in Sweden, establishing strong feedback loops between evidence and action.

The UK lacks a unified framework where the same organisation both guides policy actions and conducts comprehensive system analysis. Instead, analysis within the UK's innovation system is often targeted at specific projects or carried out by external entities—for example, commissioned evaluations by consultancies or one-off expert reviews—and typically focuses on individual programmes rather than the entire system. Because of these fragmented insights, despite the availability of extensive data, the UK struggles to fully utilise this wealth of information for coordinated learning and policy development.

We also observe that evidence use in UK innovation policymaking can be inconsistent: some decisions are strongly grounded in evidence, but others (for instance, shifting industrial strategy priorities) may be shaped more by short-term political motives with less analytical backup. Additionally, without a permanent independent analytical body for R&I (similar to Germany's EFI or Denmark's DFiR advisory council), the UK lacks a dedicated watchdog to gather data from across government and publicly report on how the system is performing and the evolving roles of different actors, agents, and networks.

3.4 Lessons for the UK

The UK can draw several lessons the R&I policy and evidence capability of other leading nations. Other OECD countries have pioneered approaches to use evidence more systematically in steering their innovation systems. Key improvements for the UK, informed by international best practice, include:

- **Integrate Analytical Capacity with Policy Delivery:** The UK should aim for closer collaboration between those who generate analysis and those who make policy decisions. Sweden's model provides inspiration: agencies like Vinnova combine policy implementation with strong in-house evaluation and data analysis, ensuring continuous learning informs programme design. Creating a well-resourced analytical team within UKRI or the new Department for Science, Innovation and Technology could help embed evidence directly into policies. For example, as UKRI funds innovation programmes, it could also study what works (and what doesn't) and adjust funding strategies accordingly. A more integrated approach would shift the UK away from ad-hoc, external studies towards real-time, iterative policy refinement—similar to Sweden's substantial analytical capacity collocated with its innovation policymakers.
- **Establish a Comprehensive Annual Innovation Report:** the UK would benefit from introducing an annual "State of the Innovation System" report, similar to Germany's EFI annual report to the Chancellor. Such a report should compile key indicators and analyses across the research base and industrial innovation, highlight overall system strengths and weaknesses, and provide independent recommendations. It would serve as an annual focal point for government, industry, and academia to review progress on R&I goals. By publicly sharing an integrated set of findings, this process fosters a, shared, evidence base and accountability for the health of the innovation system. Germany's experience demonstrates that an authoritative yearly review can sharply focus attention on strategic issues (for example, Germany monitors its R&D intensity, patenting, SME innovation, etc., and uses these findings to guide its High-Tech Strategy). A UK innovation system report, produced either by an independent expert panel or a cross-government analytical team, would define clear success metrics and enable evidence-based tracking of progress.
- **Develop a Shared Scoreboard of Key R&I Indicators:** To supplement a narrative report, the UK could introduce a concise set of system-level indicators co-developed with stakeholders such as researchers, businesses, and regional leaders. Several peers emphasise the value of a "shared scoreboard" that tracks not only R&D spending and academic output but also outcomes like innovation diffusion, skills, regional impacts, and inclusion. In Canada, for example, experts have called for a small, consensus-driven set of system-level indicators that monitor capabilities, connectivity, inclusion, adoption, and impact - not just spending and publications. The UK would similarly benefit from standardising metrics across its multiple agencies and strategies. A

dashboard of innovation metrics, updated regularly, would allow for consistent monitoring year-on-year. It would help identify emerging issues—such as stagnation in business R&D or lagging productivity from innovation—early enough to inform policy responses. The scoreboard would also enhance communication with the public and Parliament about how the innovation system contributes to national goals, thereby improving transparency and accountability.

- **Align Evidence with National Missions and Strategy:** As global challenges develop, many countries are shaping their R&I policies around clear missions (e.g., carbon neutrality, digital leadership) and leveraging data to guide progress. The UK can draw lessons from Germany's mission-oriented approach: Germany's High-Tech Strategy 2025 sets out priority missions and monitors their progress through quantitative indicators and evaluations, ensuring policies remain adaptable. The UK's innovation strategy could be refined by connecting evidence directly to mission outcomes. For instance, if the UK has a mission on clean energy innovation or AI leadership, there should be specific metrics and an analytical process to assess whether policies in those sectors are delivering results. Other nations' experiences demonstrate that dedicating strong analytical capacity to guide mission-based programmes is crucial. Practically, this might involve bolstering the analytical units within UKRI and government departments to conduct in-depth reviews of each priority (similar to Sweden's Tillväxtanalys agency, which provides strategic analysis on competitiveness and long-term transformation). By aligning data and analysis closely with strategic missions, the UK can more agilely adjust policies in response to new technologies or external shocks, maintaining its edge in the innovation race.

3.5 Concluding remarks

The United Kingdom's research and innovation governance has strong foundations – a solid science base, integrated funding structures, and extensive data on many aspects of the system. These strengths have established the UK as a benchmark for other countries aiming to enhance their R&I oversight. However, as the global innovation landscape becomes increasingly competitive and mission-oriented, the UK must avoid complacency. Leading nations are aligning their R&I systems closely with national missions and developing robust analytical capacities to steer these systems.

To keep pace, the UK must address its governance gaps by more systematically transforming evidence into policy learning. This involves adopting a more integrated approach—building bridges between analysts and policymakers, creating a unified annual narrative of progress, and establishing clear metrics for success. By learning from the practices of Sweden and Germany, the UK can improve consistency, coordination, and foresight within its innovation system. In an era of rapid technological change and societal challenges, stronger evidence-based governance will enable the UK not only to excel in research but also to turn ideas into impactful innovations and lasting prosperity. Ultimately, strengthening R&I governance through better strategy, data, evaluation, and accountability will position the UK to navigate a changing world with agility and purpose.

Annex 1: Belgium

A1.1 Comprehensiveness of Data and Key Evidence Gaps

In Belgium, the availability of data on the research and innovation (R&I) system is generally strong within each layer of the federal structure, but uneven when viewed at national level (BELSPO, 2022). At the federal tier, BELSPO maintains a solid and methodologically robust evidence base on federal research programmes, space policy and international scientific cooperation, and contributes to EU and OECD reporting. However, its mandate is confined to federal competencies, so it does not systematically capture regional or community-level R&I activity. This fragmentation is often seen as a coordination weakness from an international perspective: there is no single national dataset or platform that integrates information across all Belgian entities, limiting the ability to generate a coherent, system-wide picture of R&I performance (European Commission, 2025). However, this reflects the country's institutional structure, in which R&I policy is a regional competence; while national coordination could support greater consolidation, there is no formal mandate to unify these data streams.

At sub-federal level, data infrastructures are comparatively well developed but highly differentiated. Flanders has perhaps the most comprehensive and institutionalised monitoring architecture, with regular STI key-figures reporting (EWI, 2014), a research portal, and specialised centres such as ECOOM producing longitudinal indicators on R&D, innovation and human capital. Here, the main evidence gaps concern more complex questions – such as long-term societal impact and the systematic inclusion of qualitative stakeholder insights. In Wallonia and the Wallonia-Brussels Federation, data are available from bodies such as CESE Wallonie, the French Community statistics office and CRef, and in Brussels via Innoviris. Yet this information is fragmented by the split of competences between region (applied research, economic policy) and community (universities, fundamental research), and there is no integrated platform comparable to the Flemish system. As a result, key gaps persist around long-term impact assessment, cross-sectoral innovation performance and, above all, the ability to aggregate and compare evidence consistently across federal, regional and community levels.

A1.2 Consistency of Monitoring and Evaluation

Because of Belgium's federal structure, there is no single, fully consistent national approach to monitoring and evaluating the R&I system year on year; instead, consistency exists mainly within each level of competence (BELSPO, 2022).

As mentioned above, at the federal level, BELSPO operates a clearly structured and relatively stable M&E approach for the areas it is responsible for (federal research programmes, space policy, international cooperation). It undertakes regular evaluations and reporting (e.g. on BRAIN-be) and contributes to OECD and EU exercises, so within its remit the monitoring framework is coherent and continuous.

In Flanders, where the approach is relatively more institutionalised. The Department of Economy, Science and Innovation (EWI) coordinates data collection and analysis, working closely with ECOOM (Centre for Research & Development Monitoring), which produces longitudinal indicators and maintains continuity in methods and coverage. Annual reports such as STI in Flanders – Policy & Key Figures and the Flemish Research Portal underpin a systematic, year-on-year monitoring culture. This creates one of the most consistent R&I M&E regimes in the Belgian system.

In Wallonia and the Wallonia-Brussels Federation, monitoring is more fragmented (EWI, 2014). CESE Wallonie provides annual evaluations of scientific policy for the Walloon Government, while on the French Community side, the administration and the rectors' council (CRef) monitor higher education and research. Innoviris plays a similar role for the Brussels-Capital Region. These efforts are regular within each organisation, but there is no unified monitoring framework that ties region and community together, limiting coherence over time across the French-speaking part of the system.

Overall, Belgium has islands of consistent monitoring and evaluation – notably federal BELSPO and the Flemish architecture – but lacks a single body or framework that provides integrated, year-on-year assessment of the R&I system across all federal, regional and community levels.

A1.3 Key Organisations for R&I Data, Analysis and Insight

In Belgium, responsibility for evidence on research and innovation is intentionally shared across a small set of specialist organisations rather than concentrated in a single national observatory. At the federal tier, BELSPO anchors data and intelligence around federally funded research and international engagements, while Statbel supplies the broader statistical backbone.

In Flanders, a cluster of bodies – the EWI department, ECOOM, VLAIO and the Flemish Research Portal (FRIS) – together generate indicators, programme data and publicly accessible information on projects and outputs. On the Francophone side, CESE Wallonie, the French Community statistics services and CRef contribute complementary perspectives on regional scientific policy and university research, with Innoviris performing a similar role for the Brussels-Capital Region.

Table A1: Key Organisations for R&I Data, Analysis and Insight – Belgium

Organisation	Type/Level	Main Evidence Function	Web Link
BELSPO (Belgian Science Policy Office)	Federal	Responsible for data and analysis on federal research programmes, space policy and international cooperation, and contributes to EU/OECD reporting	https://www.belspo.be
Statbel (Statistics Belgium)	Federal – National Statistics Office	Provide macro level economic and social statistics including many R&I indicators	https://statbel.fgov.be
EWI Department (Economy, Science and Innovation)	Flanders-Government department	Leads policy-related evidence work in Flanders, commissioning and using R&I data for strategy, monitoring and reporting.	https://www.ewi-vlaanderen.be
ECOOM (Centre for Research & Development Monitoring)	Flanders – University-based consortium	Develops detailed, longitudinal R&D and innovation indicators for Flanders, supporting policy analysis and evaluation	https://www.ecoom.be/en

Organisation	Type/Level	Main Evidence Function	Web Link
VLAIO (Flemish Agency for Innovation and Entrepreneurship)	Flanders – Government agency	Collects and uses firm-level information linked to innovation support instruments, feeding evidence into business-oriented innovation policy	https://www.vlaio.be
Flemish Research Portal (FRIS)	Flanders – Public portal	Aggregates information on projects, funding and outputs from Flemish research actors in a single public interface.	https://researchportal.be/en
CESE Wallonie (Economic, Social and Environmental Council of Wallonia)	Wallonia – Consultative body	Produces annual assessments of regional scientific policy, combining quantitative indicators and qualitative analysis for the Walloon government	https://www.cesewallonie.be
FWB Statistics Office (Wallonia-Brussels Federation)	French Community – Statistics service	Provides statistical data on higher education and research for the French Community, used to monitor universities and research activity	https://statistiques.cfwb.be
CRef (Conseil des Rectrices et Recteurs)	French Community – Rectors' council	Channels university-level information and analysis into system monitoring and policy discussions on the Francophone side.	http://www.cref.be/
Innoviris	Brussels-Capital Region – R&I agency	Gathers and uses data on regional R&I activities in Brussels to support funding, strategy and evaluation.	https://innoviris.brussels

A1.4 Institutional Positioning and Funding of Key Organisations

Across Belgium's multi-level R&I system, most evidence-producing bodies are publicly funded but differ in how closely they are embedded in government. At the federal level, BELSPO is a science policy department directly under the Federal Minister for Science Policy, with federal budget funding and administratively linked federal scientific institutions that enjoy scientific but not institutional autonomy. In Flanders, EWI and VLAIO are government bodies financed through the Flemish budget, while ECOOM operates as a university consortium funded by the Flemish Government, offering greater analytical independence within a publicly financed framework; the FRIS portal is maintained under EWI. On the French side, CESE Wallonie is a

consultative council financed by the Walloon Region, the FWB statistics office is part of the French Community administration, and CRef is a university rectors' council supported through public university and community resources. Innoviris is a regional public agency under the Brussels-Capital Region. Overall, in Belgium, funding is overwhelmingly public, with independence varying from full departmental control to arm's-length advisory and analytical roles.

Table A2: - Institutional Positioning and Funding - Belgium

Organisation	Type	Funding Source	Independence
BELSPO (Belgian Science Policy Office)	Federal government department	Federal state budget	Part of federal administration; scientific institutions have autonomy but BELSPO is ministerially accountable.
Federal scientific institutions (e.g. Royal Belgian Institute of Natural Sciences)	Federal research institutes	Federal public funding via BELSPO	Medium: scientific autonomy, but administratively linked to federal government.
EWI Department (Economy, Science and Innovation – Flanders)	Flemish government department	Flemish Government budget	Low: fully embedded in the Flemish administration and directly aligned with government policy.
ECOOM (Centre for Research & Development Monitoring)	University consortium / research centre	Public funding from Flemish Government via universities	Medium–high: analytically independent but financed through public contracts and grants.
VLAIO (Flemish Agency for Innovation and Entrepreneurship)	Flemish government agency	Flemish Government budget (plus EU funds for some schemes)	Medium: arm's-length agency under Flemish Government with operational autonomy within political mandates.
Flemish Research Portal (FRIS)	Public research information infrastructure	Flemish Government funding via EWI	Low–medium: operated under EWI, primarily a technical/portal function rather than an independent policy actor.

Organisation	Type	Funding Source	Independence
CESE Wallonie (Economic, Social and Environmental Council of Wallonia)	Regional consultative council	Walloon Region budget	Medium: consultative and advisory body, publicly funded but institutionally distinct from the executive.
FWB Statistics Office (Wallonia-Brussels Federation)	Statistics unit within French Community administration	French Community (FWB) budget	Low: internal statistical service of the French Community government.
CRef (Conseil des Rectrices et Recteurs)	Council of university rectors (French-speaking universities)	Public university resources and French Community support	Medium–high: represents universities collectively; independent of government line management but publicly financed.
Innoviris	Regional public R&I agency	Brussels-Capital Region budget (plus EU co-funding for some programmes)	Medium: arm's-length agency under regional government with programme-level autonomy within strategic directives.

A1.5 Use of Evidence in R&I Governance and Integration of Data Insights

In Belgium, data and analysis are used to govern R&I mainly within each level of government rather than through a single integrated national framework. At federal level, BELSPO evidence informs federal priorities and international reporting, while in Flanders indicators from ECOOM, administrative data from VLAIO and information from the Flemish Research Portal are closely tied to strategy, funding and advisory work, making policy development strongly evidence-based. In Wallonia and the Wallonia-Brussels Federation, CESE Wallonia's evaluations and French Community statistics support regional and higher-education decisions, but the absence of a common integrating body means evidence use is more fragmented than in Flanders.

Annex 2: Canada

A2.1 Comprehensiveness of Data and Key Evidence Gaps

Canada is data-rich on R&D inputs and activities, but data-poor on the R&I system as a whole (CCA, 2025). Statistics Canada produces high-quality R&D and innovation surveys, federal funders and agencies hold detailed administrative datasets, and the Council of Canadian Academies (CCA) provides strong descriptive system overviews, complemented by specialist work on higher education by groups such as Higher Education Strategy Associates. Together, these sources give a good picture of what Canada spends on research and what it produces in terms of publications and some innovation outputs.

However, experts agree this falls short of a comprehensive system view. Major gaps include weak integration across university, public sector, firm-level and ecosystem data; limited coverage of service and non-R&D innovation; uneven visibility of public and social innovation; and very little systematic evidence on longer-term outcomes such as productivity, resilience, inclusion and regional impacts. In short, Canada can see “what it spends” and “what it produces”, but has a fragmented, much thinner evidence base on how those investments translate into innovation and societal impact (Bouchard, et al., 2023).

A2.2 Consistency of Monitoring and Evaluation

Canada does not have a unified, year-on-year monitoring and evaluation framework for its R&I system. Instead, M&E is anchored in the Treasury Board’s Policy on Results, which drives programme-level performance measurement across departments, and in periodic, issue-specific reviews such as CCA assessments and blue-ribbon panels (e.g. Naylor, Bouchard). This creates pockets of methodological rigour but no coherent, system-wide performance regime: funders like NSERC, SSHRC, CIHR, CFI and NRC-IRAP all run their own, largely compliance-oriented approaches, with limited alignment to a shared national theory of change for research and innovation. Experts contrast this with the UK’s integrated UKRI/REF architecture and the Bouchard report explicitly flags the absence of an overarching strategy and independent analytical capacity as a structural weakness of Canadian R&I governance (Bouchard, et al., 2023).

A2.3 Key Organisations for R&I Data, Analysis and Insight

For Canada, experts describe a multi-node, fragmented evidence ecosystem rather than a single lead body. Statistics Canada provides the core statistical baseline; ISED, the tri-agencies and other funders generate and use their own administrative and performance data; specialised infrastructures like CANARIE, the Digital Research Alliance and CRDCN enable data-intensive analysis; and independent organisations such as the CCA, CSPC and private analysts synthesise and interpret evidence. Collectively they produce substantial insight, but no organisation is mandated to integrate a system-wide analytical picture.

Table A3: Key Organisations for R&I Data, Analysis and Insight – Canada

Organisation	Type/Level	Main Evidence Function	Web Link
Statistics Canada	National statistics	Core producer of R&D, innovation and post-secondary education statistics that provides the quantitative baseline for system analysis.	https://www.statcan.gc.ca
Innovation, Science and Economic Development Canada (ISED)	Federal department	Federal lead for innovation and industrial policy; commissions major system reviews and hosts coordinating mechanisms across the portfolio.	https://ised-isde.canada.ca
Tri-agencies (NSERC, SSHRC, CIHR)	Federal funders	Collect and use their own grant and performance data and are increasingly opening datasets for 'research on research'.	https://www.nserc-crsng.gc.ca, https://www.sshrc-crsh.gc.ca, https://cihr-irsc.gc.ca
Canada Foundation for Innovation (CFI)	Federal funder / infrastructure	Maintains administrative data on funded research infrastructure and outcomes, used in evaluations and system diagnostics.	https://www.innovation.ca
NRC-IRAP (Industrial Research Assistance Program)	Federal agency	Holds detailed firm-level data on supported innovation projects, informing assessments of business R&D and SME support.	https://nrc.canada.ca/en/support-technology-innovation/about-nrc-industrial-research-assistance-program

Organisation	Type/Level	Main Evidence Function	Web Link
Mitacs; Sustainable Development Technology Canada (SDTC)	National programmes	Generate programme-specific datasets on collaborative research, skills and clean-tech innovation, contributing to the wider evidence base.	https://www.mitacs.ca
CANARIE; Digital Research Alliance of Canada	Digital research infrastructure	Provide connectivity, advanced computing and research data management infrastructure enabling secure access to and analysis of large datasets.	https://www.canarie.ca, https://alliancecan.ca
Canadian Research Data Centre Network (CRDCN)	Secure data access infrastructure	Gives accredited researchers secure access to detailed Statistics Canada microdata for high-quality, evidence-based socio-economic analysis.	https://crdcn.ca
Council of Canadian Academies (CCA)	Independent assessment body	Produces expert-panel assessments synthesising existing evidence on science, industrial R&D and innovation performance.	https://cca-reports.ca
Canadian Science Policy Centre (CSPC)	Independent convenor	Acts as a national convening and thought-leadership hub, mobilising evidence through conferences and dialogues.	https://sciencepolicy.ca

A2.4 Institutional Positioning and Funding of Key Organisations

Canada's R&I evidence ecosystem is a mixed landscape, dominated by publicly funded organisations but spanning government, arm's-length bodies and fully independent actors. Core data producers and funders such as Statistics Canada, ISED, the tri-agencies, CFI, NRC and regional development agencies sit within or close to government and are financed through federal appropriations, operating under the Treasury Board Policy on Results. Organisations like the CCA and Mitacs are publicly funded but work under constrained mandates, while bodies such as CSPC, private consultancies and academic centres rely on sponsorships,

contracts and fees, highlighting a key design gap: the lack of a permanent, independent advisory body mandated to provide integrated, system-level analysis and public reporting, as recommended by the Bouchard panel (Bouchard et al., 2023). There has been follow-up discussion at federal level on these recommendations, and while it remains uncertain whether a fully-fledged body will be established, the issue is now clearly recognised within Canadian policy discourse.

Table A4: - Institutional Positioning and Funding - Canada

Organisation	Type	Funding Source	Independence
Statistics Canada	Federal statistical agency	Federal funding	High analytical independence within a statutory mandate, but institutionally part of the federal system and subject to federal policies.
Innovation, Science and Economic Development Canada (ISED)	Federal government department	Federal funding	Low: core part of government, directly accountable to ministers and Cabinet.
Tri-agencies (NSERC, SSHRC, CIHR)	Federal research funding agencies	Federal funding via the research budget	Medium: arm's-length in funding decisions and evaluation, but priorities and accountability frameworks set by government.
Canada Foundation for Innovation (CFI)	Arm's-length federal funding body	Federal contributions and programmes	Medium–high: independent board and processes, but reliant on public funds and federal programme frameworks.
NRC-IRAP	Federal agency/programme within NRC	Federal appropriations	Medium: operates within NRC and federal policy direction, with some operational autonomy in programme delivery.
Regional development agencies	Federal regional economic development bodies	Federal appropriations	Medium: regionally focused agencies following federal mandates, with some discretion in programme implementation.

Organisation	Type	Funding Source	Independence
Mitacs	Arm's-length not-for-profit	Predominantly federal and provincial public funding plus partner contributions	Independent non-profit delivering public programmes under funding agreements.
Sustainable Development Technology Canada (SDTC)	Arm's-length federal foundation	Federal contributions for clean-tech programmes	Independent foundation operating within the constraints of federal contribution agreements.
Council of Canadian Academies (CCA)	Independent assessment body	Federal contribution agreements / Strategic Science Fund	High analytical independence (expert panels), but cannot make explicit policy recommendations and is publicly funded.
CANARIE; Digital Research Alliance of Canada	National digital research infrastructures	Federal funding and partner contributions	Not-for-profit entities delivering publicly funded infrastructure with operational independence.
Canadian Research Data Centre Network (CRDCN)	National research network	Public grants and host-institution support	Operates under agreements with Statistics Canada and universities.
Canadian Science Policy Centre (CSPC)	Independent non-profit	Conference revenues, sponsorship and project support	independent convenor and thought-leadership hub outside government structures.
Higher Education Strategy Associates and other consultancies/experts	Private firms / independent analysts	Fee-for-service contracts and self-initiated work	Fully independent, commissioned for specific analytical projects.

A2.5 Use of Evidence in R&I Governance and Integration of Data Insights

In Canada, the use of data and analysis in governing the R&I system is selective and fragmented rather than systematically embedded. Statistics Canada data, agency evaluations and major assessments (such as CCA reports and the Bouchard panel) do inform specific policy choices, budget discussions and mandate renewals, while CSPC and independent

analysts provide a forum that surfaces system weaknesses and policy options. However, there is no binding national R&I strategy to which evidence is consistently tied, integration of insights across organisations is largely ad hoc and dependent on political will, and the prevailing culture prioritises accountability and financial compliance over strategic learning about system performance and impact. Several experts therefore describe Canada as having an R&D funding system without a fully articulated research and innovation policy, with lessons on system design currently flowing more from the UK to Canada than the other way around.

Annex 3: Denmark

A3.1 Comprehensiveness of Data and Key Evidence Gaps

Denmark has, for decades, been deeply involved in the development of R&I data standards, including leading early Community Innovation Survey (CIS) work and major revisions of the Oslo Manual (Christensen, Gregersen, Holm, & Lorenz, 2021; OECD, 2005). As a result, the availability of data on the development and effectiveness of the R&I system is relatively comprehensive. European Innovation Scoreboard indicators and national statistics provide detailed measures of R&D intensity, innovation outputs and institutional performance, rooted in administrative registers, surveys and thematic databases that follow Frascati, Oslo and Eurostat standards. The national statistical office offers transparent methodological documentation and metadata, and Danish registers are notably rich at both firm and, in particular, individual level – with a level of detail matched by only a few other countries.

The evidence gaps largely echo those seen elsewhere. There are challenges around timeliness (with a lag before data become available), and occasional methodological updates can create breaks in time series as new sectors and technologies emerge. Informal and small-scale R&D is under-covered, especially among small firms in services and creative industries, leading to potential bias in sectoral and SME estimates (European Commission, 2019). It is also difficult to assign activities precisely at workplace rather than headquarters level, and to attribute cross-border or intra-group R&D of multinationals to national accounts. Forward-looking data remain limited, weakening real-time responsiveness. Despite effort in early 1990s to align research and innovation (R&I) policy with broader societal and economic goals, using a more integrated, evidence-based framework (an early version of what we might now call a mission-oriented, cross-sector policy matrix), it did get fully reflected in policies and statistics (Graversen, 2017; Lundvall, 1999). However, overall, Denmark's R&I system is well developed and strongly committed to evidence-based governance, but there is still scope to better integrate impact assessment, address under-counting biases and expand more timely, anticipatory data.

A3.2 Consistency of Monitoring and Evaluation

Broadly, there exist a consistent approach to monitoring and evaluating the R&I system in Denmark, shaped by earlier European Commission monitoring practices and national

experience. The Ministry of Higher Education and Science coordinates national strategies and oversees data collection, ensuring alignment with EU processes, while specific policy initiatives are typically followed by evaluations, often carried out by independent, specialised consultants. At system level, the Danish Council for Research and Innovation Policy (DFiR) provides independent, expert advice to the Minister and other key actors on research, technological development and innovation (DFIR, 2025), and Aarhus University's Centre for Studies in Research and Research Policy (CFA) contributes through evaluations of research funding and activities as well as research on the system itself. A 2019 European Commission peer review, however, highlighted the need for stronger coordination between organisations involved in system development and for better alignment between individual strategies and their evaluations, suggesting that existing monitoring and evaluation efforts do not yet fully realise their learning potential (European Commission, 2019). The same review recommended a more systematic use of data for cross-ministerial coordination and long-term planning, and since then the Ministry has taken steps to improve system-level coherence and simplify the broader support structure.

A3.3 Key Organisations for R&I Data, Analysis and Insight

Denmark's R&I evidence system is led by a small number of core organisations with complementary roles rather than a single observatory. Statistics Denmark is the main operational hub for R&D and innovation data, supplying official statistics, registry extracts and research access. The Ministry of Higher Education and Science coordinates national research policy and key data initiatives, supported by the Danish Council for Research and Innovation Policy (DFiR) and Aarhus University's CFA for system-level analysis. Innovation Fund Denmark contributes grant and impact data on applied research and innovation, while Research Portal Denmark aggregates project, publication and funding metadata. On the business side, the Danish Business Authority and the Danish Board of Business Development generate and use firm-level evidence for innovation and regional policy, with the Danish Patent and Trademark Office providing IP statistics that complement the wider indicator set.

Table A5: Key Organisations for R&I Data, Analysis and Insight – Denmark

Organisation	Type/Level	Main Evidence Function	Web Link
Statistics Denmark (Danmarks Statistik)	National statistical office	Produces official R&D and innovation statistics based on registers and surveys; supplies registry extracts for ex-post evaluations and research use.	https://www.dst.dk
Ministry of Higher Education and Science (Uddannelses- og Forskningsministeriet)	Central government ministry	Holds administrative data, coordinates national research policy and selected data initiatives, and translates statistical evidence into priorities and funding designs.	https://ufm.dk/en
Danish Council for Research and Innovation Policy (DFiR)	Independent advisory council (national level)	Provides system-level analyses and independent advice on research, technological development and innovation policy.	https://ufm.dk/en/research-and-innovation/councils-and-commissions/the-danish-council-for-research-and-innovation-policy
Centre for Studies in Research and Research Policy (CFA), Aarhus University	University-based research centre	Conducts evaluations of research funding and activities and develops indicator catalogues and analyses for government.	https://ps.au.dk/en/research/research-centres/danish-centre-for-studies-in-research-and-research-policy
Innovation Fund Denmark (Innovationsfonden)	National innovation funding agency	Allocates funds for applied research and innovation and publishes grant, evaluation and impact data on funded projects.	https://innovationsfonden.dk/en/about-innovation-fund-denmark
Research Portal Denmark (Danmarks Forskningsportal)	National research information infrastructure	Aggregates metadata on publications, projects, grants and some patents from national and international sources for search and analysis.	https://researchportal.dk
Danish Business Authority (Erhvervsstyrelsen)	Central government agency	Uses and commissions data on firms, innovation and productivity to support business and innovation policy design and evaluation.	https://forskningsportal.dk/
Danish Board of Business Development	National board under the	Commissions large firm surveys on innovation, productivity and related	https://erhvervsfremmebestyrelsen.dk

Organisation	Type/Level	Main Evidence Function	Web Link
(Danmarks Erhvervsfremmebestyrelse)	Business Authority	parameters to inform regional and business-promotion policy.	
Danish Patent and Trademark Office (Patent- og Varemærkestyrelsen)	National IP office	Collects and provides statistics on patents and trademarks that complement core R&I indicators.	https://www.dkpto.dk

A3.4 Institutional Positioning and Funding of Key Organisations

The organisations involved in R&I governance in Denmark comprise both governmental and independent bodies. DFiR is an independent advisory council with its own legal status and funding directly from Parliament (DFIR, 2025), though it is linked to the Ministry of Higher Education and Science. Innovation Fund Denmark is publicly funded but operates with a degree of autonomy, while universities, hospitals and research centres are financed through a mix of public and private sources. Basic research funding for universities is managed by the Danish Agency for Science and Higher Education, and private foundations play an increasingly important role in supporting applied research.

Table A6: - Institutional Positioning and Funding - Denmark

Organisation	Type	Funding Source	Independence
Danmarks Statistik (Statistics Denmark)	National statistical authority	Publicly funded through the national budget; partial cost recovery via paid data services	Operates under the Statistics Act under the Ministry of the Interior and Health, but with statutory autonomy over methods and outputations
Uddannelses- og Forskningsministeriet (Ministry of Higher Education and Science)	Core government ministry for research and higher education	Fully financed through the state budget	Integral part of central government, directly accountable to ministers and Parliament

Organisation	Type	Funding Source	Independence
Styrelsen for Forskning og Innovation (Agency for Science and Higher Education)	Executive agency under the Ministry of Higher Education and Science	Fully publicly funded; manages grants and programmes	Follows ministry strategy but has operational autonomy in programme management
Innovationsfonden (Innovation Fund Denmark)	Independent governmental foundation under the Ministry of Higher Education and Science	Annual allocations from the national budget; co-financing from EU funds and private partners	Arm's-length funder with its own board and procedures, within a government-set mandate
Erhvervsstyrelsen (Danish Business Authority)	Executive agency under the Ministry of Industry, Business and Financial Affairs	Fully state-funded; manages EU structural funds and national business-promotion programmes	Agency status gives some operational autonomy, but tied closely to ministerial priorities
Danmarks Erhvervsfremmebestyrelse (Danish Board of Business Development)	Quasi-independent, government-appointed board under the Danish Business Authority	Financed by national funds and EU Structural Funds (ERDF/ESF+)	Board-based governance with advisory/allocative powers, but embedded administratively in Erhvervsstyrelsen
Patent- og Varemærkestyrelsen (Danish Patent and Trademark Office)	Agency under the Ministry of Industry, Business and Financial Affairs	Largely fee-based (self-financing) through patent, design and trademark registration fees	Operates on a commercial, self-financing model within a government framework
Danmarks Forskningsportal (Danish Research Portal)	National research information infrastructure coordinated by UFM	Publicly financed through the Ministry of Higher Education and Science and participating universities	Infrastructure initiative with shared governance between ministry and institutions
EIFO (Export and Investment Fund of Denmark)	Government-owned financial institution	Publicly capitalised; operates on commercial principles with reinvested returns	State-owned but commercially governed, with autonomy over investment decisions within policy constraints

Organisation	Type	Funding Source	Independence
Centre for Studies in Research and Research Policy (Aarhus University)	Independent research centre within a university	Contract research income plus a basic university contribution	Academically independent, though much work is commissioned by ministries and agencies

A3.5 Use of Evidence in R&I Governance and Integration of Data Insights

Data and analysis are integral to the governance of Denmark's R&I system, with evidence-based policymaking explicitly guiding strategic priorities and funding allocations. R&D and innovation indicators – such as sectoral R&D intensity, patenting trends and innovation performance – are used to select priority areas, design policy instruments (grants, loans, innovation partnerships) and shape proposals for new programmes, clusters and ERDF-funded initiatives. Agencies like Innovation Fund Denmark, the Danish Business Authority, the Danish Board of Business Development and EIFO routinely commission thematic studies, impact assessments and scenario analyses, and benchmark performance against OECD/Eurostat comparators to inform decisions. In implementation and evaluation, register data from Statistics Denmark, administrative funding records and bespoke surveys are combined to monitor funded projects and estimate impacts on firm growth, employment and innovation outcomes.

Annex 4: Germany

A4.1 Comprehensiveness of Data and Key Evidence Gaps

Germany has a robust and well-documented framework for research and innovation (R&I), particularly under the High-Tech Strategy 2025 (Federal Ministry of Education and Research, 2025)and through the work of the Expert Commission for Research and Innovation (EFI) (Commission of Experts for Research and Innovation, 2025). Data on inputs and immediate outputs – such as funding, patents and technological performance – are generally strong, but long-term impact on societal outcomes (for example health, environment or inclusion) is less systematically captured. Publicly available information on regional differences across the Länder remains limited, and the evidence base is largely retrospective, with only modest capacity for near real-time tracking of emerging trends or disruptions such as AI and green technologies.

A4.2 Consistency of Monitoring and Evaluation

Germany has a relatively consistent approach to monitoring and evaluating the year-on-year development of its R&I system, driven above all by the Commission of Experts for Research and Innovation (EFI) and the Federal Ministry of Education and Research. EFI maintains an R&I dashboard with regularly updated indicators on technological performance, R&D spending and sectoral competitiveness, and submits an annual report to the Federal Government that analyses strengths and weaknesses of the German innovation system in international and time-series perspective, and assesses Germany's position as a location for research and innovation. These analyses are complemented by the ministry's own data portal and other federal resources, which together provide a structured evidence base for ongoing policy adjustment and priority setting.

A4.3 Key Organisations for R&I Data, Analysis and Insight

Germany's R&I evidence system is clearly multi-actor rather than centred on a single observatory (Kuhlmann & Rip, 2016). Strategic data collection and analysis are led by federal ministries (for research and for the economy), the Joint Science Conference (GWK), and the independent Expert Commission for Research and Innovation (EFI), which provides the core system-wide assessments. Major research organisations and funders – including the Max Planck Society, Fraunhofer, Helmholtz, Leibniz, DFG, Stifterverband and the Wissenschaftsrat

generate and use detailed data on research performance, funding and structures, with international scoreboards (OECD, EU, Global Innovation Index) providing additional comparative benchmarks.

Table A7: Key Organisations for R&I Data, Analysis and Insight – Germany

Organisation	Type/Level	Main Evidence Function	Web Link
Federal Statistical Office of Germany (Destatis)	National statistical office	Produces official statistics, including R&D, education and economic indicators, which underpin many German R&I measures and international comparisons.	https://www.destatis.de
Federal Ministry of Education and Research (BMBF)	Federal ministry	Leads national R&I policy and major funding strategies; maintains data portals and uses system indicators to steer the High-Tech Strategy 2025 and related programmes.	https://www.bmbf.de
Federal Ministry for Economic Affairs and Climate Action (BMWK)	Federal ministry	Leads innovation and industrial policy; uses R&I and productivity data to design and assess innovation, industrial and SME measures.	https://www.bmwk.de
Joint Science Conference (Gemeinsame Wissenschaftskonferenz – GWK)	Federal–Länder coordination body	Coordinates research and higher-education funding between the Federal Government and the Länder, using financial and performance data to agree joint programmes.	https://www.gwk-bonn.de
Commission of Experts for Research and Innovation (Expertenkommission Forschung und Innovation – EFI)	Independent expert commission	Produces annual reports and an R&I dashboard with indicators on technological performance, R&D spending and competitiveness; provides independent, evidence-based policy advice.	https://www.e-fi.de

Organisation	Type/Level	Main Evidence Function	Web Link
Max Planck Society (MPG)	National research organisation (basic research)	Collects and analyses data on research output, careers and international collaboration across its institutes, feeding into system overviews.	https://www.mpg.de
Fraunhofer-Gesellschaft (FhG)	Applied research organisation	Generates data on contract research, innovation projects and industrial collaboration; contributes evidence on application-oriented innovation capacity.	https://www.fraunhofer.de
Helmholtz Association (HGF)	Large-scale research organisation	Monitors long-term research programmes and infrastructures, providing performance and impact data on mission-oriented research.	https://www.helmholtz.de
Leibniz Association (WGL)	Research organisation spanning multiple disciplines	Produces institute-level and association-wide evaluations and statistics on research output, third-party funding and societal relevance.	https://www.leibniz-gemeinschaft.de
German Research Foundation (DFG)	National research funding organisation	Tracks funded projects, publications and career outcomes; provides core data on academic research performance and funding flows.	https://www.dfg.de
Stifterverband	Private non-profit association	Collects and publishes statistics on R&D spending, especially in the private sector, and produces analytical reports on innovation and higher education.	https://www.stifterverband.org
German Council of Science and Humanities (Wissenschaftsrat, WR)	Independent advisory council	Advises federal and Länder governments on the structural development of science, research and higher education, based on extensive data analysis and evaluations.	https://www.wissenschaftsrat.de

A4.4 Institutional Positioning and Funding of Key Organisations

Germany's main R&I governance organisations are a mix of core government ministries, intergovernmental bodies, arm's-length advisory councils, and largely autonomous research

organisations, underpinned predominantly by public funding. The key federal ministries (education/research and economy) and Destatis sit firmly inside government, while bodies such as EFI, the Wissenschaftsrat, the major non-university research organisations and the DFG operate at arm's length with significant scientific and analytical independence. Stifterverband adds a privately funded, independent perspective, especially on business R&D and higher education.

Table A8: - Institutional Positioning and Funding - Germany

Organisation	Type	Funding Source	Independence
Federal Statistical Office (Destatis)	National statistical office	Federal government budget; limited cost-recovery via data services	Operates under federal law with methodological autonomy, but embedded in the federal administrative system
Federal Ministry of Education and Research (BMBF / BMFTR in brief)	Federal government ministry	Federal government budget	Core part of the federal executive, directly accountable to the government and parliament
Federal Ministry for Economic Affairs and Climate Action (BMWK)	Federal government ministry	Federal government budget	Core government department steering economic and innovation policy within political mandates
Joint Science Conference (Gemeinsame Wissenschaftskonferenz – GWK)	Federal–Länder coordination body	Jointly financed by the Federal Government and the Länder	Intergovernmental body with shared decision-making but no full autonomy from its funders
Commission of Experts for Research and Innovation (EFI)	Independent expert commission	Funded by the Federal Government	High analytical independence in its assessments and recommendations, despite public financing
German Council of Science and Humanities (Wissenschaftsrat)	Independent advisory council	Jointly funded by the Federal Government and the Länder	Operates at arm's length and provides independent advice on science and higher-education structures

Organisation	Type	Funding Source	Independence
Max Planck Society (MPG); Fraunhofer-Gesellschaft (FhG); Helmholtz Association (HGF); Leibniz Association (WGL)	Non-university research organisations	Predominantly public institutional funding from federal and Länder budgets, plus competitive and contract income	Mission-oriented but with significant autonomy over research agendas and internal governance
German Research Foundation (DFG)	National research funding organisation	Mainly financed by the Federal Government and the Länder	Self-governing science organisation with peer-led decisions within a publicly agreed framework
Stifterverband	Private non-profit association	Membership fees, donations and project-based public and private funding	Independent private actor providing data, analysis and advocacy on R&D, innovation and higher education

A4.4 Use of Evidence in R&I Governance and Integration of Data Insights

The Commission of Experts for Research and Innovation (EFI) publishes an annual report that evaluates Germany's R&I performance across a wide range of indicators (e.g. R&D intensity, patent activity, sectoral competitiveness); these reports are presented directly to the Federal Chancellor and act as a key input to policy decisions. The High-Tech Strategy 2025 is a flagship, mission-oriented framework that uses quantitative indicators and qualitative evaluations to track progress against 12 strategic goals (such as cancer research, digital health and environmental sustainability), helping to keep policy adaptive and evidence-based. All federal ministries contribute to this strategy via shared data platforms and coordinated evaluations, while organisations such as Stifterverband and Fraunhofer supply detailed evidence on private-sector R&D and innovation trends that is integrated into national dashboards and reports.

Annex 5: Ireland

A5.1 Comprehensiveness of Data and Key Evidence Gaps

In Ireland, data availability on the effectiveness of the R&I system is broadly comprehensive and comparable to other advanced systems such as Germany and Belgium (DFHERIS, 2022). The Central Statistics Office provides key datasets – notably the Community Innovation Survey and the Business Expenditure on R&D survey – while the responsible Government Department collects the Annual Business Survey of Economic Impact, together offering rich longitudinal evidence on firms' R&I and business activities. These can be further enhanced when linked to administrative data from funding agencies and tax authorities on firms receiving R&I subsidies (e.g. grants, tax credits). However, important gaps remain: there are no or limited common firm-level identifiers across datasets, some major policy supports were introduced without robust tracking mechanisms, and the system is heavily dominated by a small number of large multinational firms whose highly sensitive R&D data are often not fully accessible for evidence-building (IRDC, 2025; Department of Enterprise, Trade and EmploymentDepartment of Enterprise, Trade and Employment, 2022).

A5.2 Consistency of Monitoring and Evaluation

Ireland has a broadly consistent approach to monitoring and evaluating its R&I system, led primarily by the Department for Enterprise, Trade and Employment (DETE). DETE publishes the Government's annual R&D Budget report, which synthesises key R&D datasets, provides cross-country comparisons, and flags emerging issues and trends. Since 2012, a structured "research prioritisation" process – involving government, academia and industry – has set and periodically updated priority areas for public R&D support, with a steering group defining Key Performance Indicators and tracking progress through interim reports; similar arrangements have applied to macro-level strategies such as Innovation 2020. Data collection and analysis are ultimately driven by the lead department for each policy area (typically DETE for business R&I), supported by administrative grant data from agencies such as Enterprise Ireland and IDA Ireland, with analysis carried out in-house or commissioned from academic researchers and consultants.

A5.3 Key Organisations for R&I Data, Analysis and Insight

Ireland's R&I evidence system is spread across several core organisations rather than concentrated in a single body. The Central Statistics Office (CSO) provides the main statistical backbone, DETE and DFHERIS lead policy-related data work for firms and higher education respectively, while ESRI and specialist consultancies add independent, often commissioned analysis that underpins key policy reports.

Table A9: Key Organisations for R&I Data, Analysis and Insight – Ireland

Organisation	Type/Level	Main Evidence Function	Web Link
Central Statistics Office (CSO)	National statistical agency	Collects and publishes official R&I statistics (e.g. Community Innovation Survey, Business Expenditure on R&D) and provides descriptive analysis and time-series trends.	https://www.cso.ie/en/index.html
Department for Enterprise, Trade and Employment (DETE)	Government department (enterprise and innovation)	Leads on R&I evidence for private firms, compiles the annual Government R&D Budget and other policy reports, and uses administrative grant data for analysis.	https://enterprise.gov.ie/en/
Department of Further and Higher Education, Research, Innovation and Science (DFHERIS)	Government department (higher education and research)	Oversees R&I data related to higher education and research policy, and undertakes internal analysis feeding into strategic documents.	https://www.gov.ie/en/department-of-further-and-higher-education-research-innovation-and-science/
Economic and Social Research Institute (ESRI)	Independent research institute	Produces academic-standard, policy-relevant analysis on R&I and related areas, including bespoke survey work and contract research for government.	https://www.esri.ie/

A5.4 Institutional Positioning and Funding of Key Organisations

Ireland's R&I governance is organised around a mix of core Government Departments, arm's-length funding agencies and an independent research institute. DETE and DFHERIS sit at the centre of policy and budget responsibility, while Enterprise Ireland, IDA Ireland and Science Foundation Ireland/Research Ireland are publicly funded agencies with operational autonomy over grant allocation but priorities set by Government. ESRI, though originally established by Government, is structured as an independent institute, funded mainly through grant-in-aid and contract research, and is expected to provide academically rigorous, non-partisan evidence on policy issues.

Table A10: - Institutional Positioning and Funding - Ireland

Organisation	Type	Funding Source	Independence
Central Statistics Office (CSO)	National statistical agency	Exchequer-funded (state budget), with some cost-recovery from commissioned work	Operates under legislation and government oversight but with strong professional and methodological independence in how statistics are produced and released.
Department for Enterprise, Trade and Employment (DETE)	Core government department (enterprise, trade, innovation)	Directly funded from the national Exchequer (state budget)	Part of central government; sets policy and priorities for enterprise and R&I instruments.
Department of Further and Higher Education, Research, Innovation and Science (DFHERIS)	Core government department (higher education, research, innovation)	Direct funding from Budget	Core government department responsible for higher education and research policy.
Enterprise Ireland	State agency under DETE	Primarily Exchequer funding, with some EU and programme income	Arm's-length in project and grant decisions, but strategic priorities and budgets set by government.
IDA Ireland	State agency under DETE	Primarily Exchequer funding, with some EU/programme funding	Operational autonomy in firm-level support decisions, within government-set investment and R&D strategies.

Organisation	Type	Funding Source	Independence
Science Foundation Ireland / Research Ireland	State research funding agency under DFHERIS	Exchequer funding allocated via DFHERIS	Arm's-length funder with peer-reviewed grant processes and scientific autonomy, but aligned to government priority areas.
Economic and Social Research Institute (ESRI)	Independent research institute (non-profit)	Mix of government grant-in-aid, competitive contract research and other external funding	Institutionally independent of government; expected to provide academically rigorous, non-partisan evidence while remaining responsive to public policy needs.

A5.5 Use of Evidence in R&I Governance and Integration of Data Insights

Data and analysis play an important role in governing the Irish R&I system, guiding strategy for both higher education and enterprise/innovation policy. They are used to set and monitor key performance indicators for Government objectives (for example, sectoral R&D expenditure) and to assess the impact of R&I supports. DETE and DFHERIS are primarily responsible for integrating data insights, working with agencies such as Enterprise Ireland, IDA Ireland and Research Ireland, and drawing heavily on consultancy studies as well as, increasingly, academic research. A notable development was Science Foundation Ireland/Research Ireland's mid-2010s move to fund science policy research and enable academic access to key datasets, which has helped strengthen the evidence base and support incremental, evidence-informed changes in the Irish R&I system.

Annex 6: Netherlands

A6.1 Comprehensiveness of Data and Key Evidence Gaps

The Netherlands collects a comprehensive set of data on its research and innovation (R&I) system, with strong data quality and international comparability (OECD, 2014). Statistics Netherlands (CBS) runs long-standing R&D surveys (since the 1970s) and the Community Innovation Survey (CIS) in line with OECD and Eurostat standards, while the Rathenau Institute's annual TWIN reports track government R&I expenditure (van den Broek-Honingh & Vennekens, 2022). Together with indicators on publication quality, innovation performance and international cooperation, this provides a solid statistical foundation. The Strategy Evaluation Protocol (SEP), overseen by NWO and KNAW, offers regular six-year assessments of research quality and outputs (e.g. publications and patents), and European Innovation Scoreboard results highlight core Dutch strengths in skilled human capital, digitalisation and collaborative activity (OECD, 2023).

However, notable evidence gaps remain. OECD reviews point to weaknesses in measuring and evaluating the impact of innovation policy, particularly regarding long-term outcomes and broader systemic effects, and SEP is less well equipped to capture societal value and policy effectiveness. Standard surveys such as CIS exclude enterprises with fewer than 10 employees – a group that accounts for a significant share of innovation activity – and data on non-technological innovation (for example organisational change and marketing innovation) are still relatively limited.

A6.2 Consistency of Monitoring and Evaluation

There is a structured but fragmented approach to monitoring and evaluating the Dutch R&I system. CBS, the Rathenau Institute, NWO and EU bodies (via the European Innovation Scoreboard) all produce regular data and reports, and CBS in particular ensures good year-on-year comparability through annual R&D and innovation surveys. Rathenau translates government ambitions into indicators, while NWO and the SEP focus on programme- and research-quality evaluations. However, long-term coordination and a single, unified framework for system-wide, year-on-year evaluation remain limited.

A6.3 Key Organisations for R&I Data, Analysis and Insight

Responsibility for data, analysis and insight in the Dutch R&I system is spread across several organisations rather than concentrated in a single body. Statistics Netherlands (CBS) provides the core statistical backbone, while the Rathenau Institute, NWO, and the key ministries (OCW and EZK), together with RVO and KNAW, generate, interpret and use evidence to inform funding, strategy and evaluation (NWO, 2021; RVO, 2023). This creates a rich but distributed evidence ecosystem, without one organisation mandated to provide a fully integrated system-wide view.

Table A11: Key Organisations for R&I Data, Analysis and Insight – Netherlands

Organisation	Type/Level	Main Evidence Function	Web Link
Statistics Netherlands (CBS)	National statistical office	Collects and publishes official R&D and innovation statistics (e.g. CIS, R&D surveys) via StatLine; ensures comparability over time for core R&I indicators.	https://www.cbs.nl/en-gb
Rathenau Institute	Public research institute on science, technology and society	Produces analytical reports (e.g. 'The Balance of Science', TWIN) translating policy ambitions into measurable indicators and tracking public R&I investment and its context.	https://www.rathenau.nl/en
Netherlands Organisation for Scientific Research (NWO – Dutch Research Council)	National research funding organisation	Collects data on funded programmes and research performance, and conducts evaluations within the Strategy Evaluation Protocol (SEP) framework.	https://www.nwo.nl/en
Ministry of Education, Culture and Science (OCW)	Central government ministry (science and higher education)	Oversees national science policy, strategic planning and budget allocation, using evidence from CBS, Rathenau, NWO and others to inform decisions.	https://www.government.nl/ministries/ministry-of-education-culture-and-science
Ministry of Economic Affairs and Climate Policy (EZK)	Central government ministry (economy, innovation, climate)	Uses R&I, productivity and sectoral data to steer innovation policy and top-sector strategies.	https://www.government.nl/ministries/ministry-of-economic-affairs-and-climate-policy

Organisation	Type/Level	Main Evidence Function	Web Link
Netherlands Enterprise Agency (RVO)	National agency under EZK	Implements innovation programmes, collects project and monitoring data, and feeds evidence into policy refinement.	https://english.rvo.nl
Royal Netherlands Academy of Arts and Sciences (KNAW)	National academy	Provides scientific advice and contributes to research evaluation and system reflection using data from research assessments and surveys.	https://www.knaw.nl/en

A6.4 Institutional Positioning and Funding of Key Organisations

The Dutch R&I governance landscape is a mix of core government ministries, semi-autonomous public bodies and independent institutes, all predominantly funded from public sources. The key ministries (OCW and EZK) sit at the centre of strategy and budgets, while organisations such as CBS, NWO, Rathenau, KNAW, RVO, SURF and AWTI operate at arm's length to varying degrees, providing statistics, funding, analysis, infrastructure and advice. Overall, funding is mainly public, but institutional arrangements are designed to safeguard analytical and scientific independence where needed.

Table A12: - Institutional Positioning and Funding - Netherlands

Organisation	Type	Funding Source	Independence
Ministry of Education, Culture and Science (OCW)	Government department	Public (government budget)	Direct part of the Dutch government
Ministry of Economic Affairs and Climate Policy	Government department	Public (government budget)	Direct government body
Rathenau Institute	Government-affiliated research institute	Public (via Parliament/government)	Operates independently but closely linked to Parliament

Organisation	Type	Funding Source	Independence
Statistics Netherlands (CBS)	Independent statutory body	Public (government allocation)	Operationally independent; legally mandated to provide objective statistics
NWO (Dutch Research Council)	Semi-autonomous public organisation	Primarily public; also, project-based	Independent in operations; works within policy framework of the government
Netherlands Enterprise Agency (RVO)	Government agency	Public (under Ministry of Economic Affairs)	Executes policy on behalf of government
KNAW (Royal Netherlands Academy of Arts and Sciences)	Independent scientific academy	Public (government)	Independent in scientific advice and operations
SURF	Not-for-profit cooperative	Member contributions + public funds	Operates independently; supports public sector institutions
AWT (Advisory Council for Science, Technology & Innovation)	Independent advisory council	Public (government-funded)	Independent in advice; formally outside government hierarchy

A6.5 Use of Evidence in R&I Governance and Integration of Data Insights

Data and analysis are actively used in governing the Dutch R&I system, with organisations such as the Rathenau Institute, NWO, CBS, CPB and KNAW generating indicators, evaluations and economic analysis that feed into strategic decisions. Rathenau translates government ambitions into measurable indicators, NWO evaluates its programmes and tracks research trends, CBS provides official R&D and innovation statistics, CPB offers macroeconomic assessments including R&I aspects, and KNAW leads the Standard Evaluation Protocol for research quality. The Ministries of Education, Culture and Science (OCW) and of Economic Affairs and Climate Policy (EZK) draw on this combined evidence base, alongside international sources such as the OECD and European Innovation Scoreboard, when designing and

adjusting policy. Overall, policy development is largely evidence-based, though gaps remain around non-technological innovation and the limited coverage of micro-enterprises.

Annex 7: Spain

A7.1 Comprehensiveness of Data and Key Evidence Gaps

The data available on Spain's R&I system is quite comprehensive, with indicators tracking R&D expenditure in public and private organisations, the composition of human capital involved in innovation activities, and the sources of funding for those activities (Ministry of Science and Innovation (Spain), 2021). However, causal impact analysis of specific interventions and counterfactual evaluations remain underdeveloped, going beyond basic descriptive statistics. There are also notable gaps regarding the functioning of Spanish technology markets (e.g. patent trade and licensing), as well as limited micro-level data on start-ups and the adoption of emerging technologies.

A7.2 Consistency of Monitoring and Evaluation

Spain has a broadly consistent approach to monitoring and evaluating the R&I system (Ministerio de Ciencia, Innovación y Universidades, 2025). The National Statistics Institute (INE) and the Spanish Science, Technology and Innovation Information System (SICTI) regularly collect harmonised data (aligned with CIS and the Oslo Manual) to support evaluation of the Spanish Strategy for Science, Technology and Innovation (EECTI) and State Plans. Coordination of data collection, analysis and evaluation sits with the Ministry of Science, Innovation and Universities, working through the Council for Science, Technology & Innovation Policy (CPCTI), an inter-governmental forum bringing together the central government and Autonomous Regions. In parallel, the Network on R+D+I Policies (RED IDI) provides additional multilevel coordination and evidence, especially for ERDF-cofunded actions, by collecting data and publishing impact reports across regional, national and European levels.

A7.3 Key Organisations for R&I Data, Analysis and Insight

Spain's R&I evidence system is built around a small set of core public information systems and agencies, complemented by independent foundations. SICTI and SIIU, housed within the Ministry of Science, Innovation and Universities, integrate data from INE and other sources to monitor the national strategy, while CDTI and FECYT add programme-level and performance indicators. Independent organisations such as COTEC and FEDEA further enrich the picture through innovation panels and observatory-style analysis, providing additional system-level insight.

Table A13: Key Organisations for R&I Data, Analysis and Insight – Spain

Organisation	Type/Level	Main Evidence Function	Web Link
Spanish Science, Technology and Innovation Information System (SICTI)	Government R&I information system (within Ministry of Science, Innovation and Universities)	Coordinates and integrates data on Spain's R&I ecosystem across national and regional administrations to monitor the EECTI and its implementation plans.	https://www.ciencia.gob.es/en/Ministerio/Estadisticas/SICTI.html
Integrated University Information System (SIIU)	Government higher-education information system	Compiles systematic data on universities' teaching, research and innovation activities to assess performance and support policy for the higher education system.	https://www.ciencia.gob.es/en/Ministerio/Estadisticas/SIIU.html
National Statistics Institute (INE)	National statistical office	Produces official R&D, innovation and related economic and social statistics that underpin monitoring of Spain's R&I system and feed into SICTI analyses.	https://www.ine.es
Centre for the Development of Industrial Technology (CDTI)	Public innovation and R&D funding agency	Manages grants and programmes promoting business R&D and innovation and collects programme-level data used to evaluate EECTI measures.	https://www.cdti.es/en
Spanish Foundation for Science and Technology (FECYT)	Public foundation supporting science and innovation	Collects, analyses and disseminates data on Spain's R&I performance and scientific outputs; publishes indicators and open data on the R&I ecosystem.	https://www.fecyt.es/
COTEC Foundation for Innovation	Private non-profit foundation	Produces research, data and policy-oriented reports on innovation in Spain and created/manages key statistical tools such as the PITEC innovation panel.	https://cotec.es/
Foundation for Applied Economics Studies (FEDEA)	Independent research foundation	Runs an R&I observatory that compiles data and publishes analytical reports on trends and challenges in Spain's research and innovation landscape.	https://fedea.net/category/observatorio-id/

A7.4 Institutional Positioning and Funding of Key Organisations

Spain's R&I monitoring system combines public, ministry-linked structures (SICTI, SIIU, CDTI, FECYT, INE) with independent foundations (COTEC, FEDEA). The public bodies sit under or alongside the Ministry of Science, Innovation and Universities and are largely funded from the state budget, while COTEC and FEDEA are privately funded non-profits that enjoy high analytical independence and complement the official evidence base.

Table A14: - Institutional Positioning and Funding - Spain

Organisation	Type	Funding Source	Independence
Spanish Science, Technology and Innovation Information System (SICTI)	Government R&I information system within the Ministry of Science, Innovation and Universities	Public funds via the Ministry of Science, Innovation and Universities	Embedded in the ministry but with a technical mandate to coordinate and integrate R&I data across administrations.
Integrated University Information System (SIIU)	Government higher-education information system	Public funds via the Ministry of Science, Innovation and Universities	Part of the ministerial information infrastructure, with technical autonomy over statistical work.
National Statistics Institute (INE)	National statistical office	State budget (public funding)	Operates under statistical law with professional independence in methodology and publication of official statistics.
Centre for the Development of Industrial Technology (CDTI)	Public innovation and R&D funding agency	Public funds channelled through the Ministry of Science, Innovation and Universities and EU co-funding for some programmes	Public entity under ministerial oversight, but with operational autonomy in programme management and firm-level decisions.
Spanish Foundation for Science and Technology (FECYT)	Public foundation supporting science and innovation	Public funding from the Ministry of Science, Innovation and Universities plus competitive project income	Publicly owned foundation with some autonomy in how it designs indicators, studies and dissemination activities.
COTEC Foundation for Innovation	Private non-profit foundation	Contributions from private firms and individuals, with some	Independent private entity setting its own analytical

Organisation	Type	Funding Source	Independence
		support from public administrations	agenda within its mission to promote innovation.
Foundation for Applied Economics Studies (FEDEA)	Independent research foundation	Membership contributions and project-based funding, largely from private organisations and sponsors	Independent in its research and publications, though responsive to the interests of its funders and partners.

A7.5 Use of Evidence in R&I Governance and Integration of Data Insights

In Spain, data and analysis are used systematically to govern the R&I system, with the Ministry of Science, Innovation and Universities – acting through the Council for Science, Technology and Innovation Policy – as the main integrator of insights (Ministerio de Ciencia, Innovación y Universidades, 2025). Evaluations of the Spanish Strategy for Science, Technology and Innovation (EECTI) draw on INE's R&D Survey and data compiled by SICTI (including the Knowledge Transfer and Innovation Survey), and inform both progress reviews and the design of subsequent National State Plans. While the use of descriptive indicators is well established, rigorous impact evaluations (e.g. counterfactual assessments) remain limited; independent organisations such as COTEC and FEDEA add further analysis and scrutiny, so overall Spain shows a clear commitment to evidence-based governance, but still needs to embed evaluation results more consistently into policy adjustment.

Annex 8: Sweden

A8.1 Comprehensiveness of Data and Key Evidence Gaps

Sweden has a highly developed infrastructure for monitoring its R&I system, with several agencies systematically tracking indicators on research quality, funding, collaboration, human capital and innovation, alongside strong comparative evidence from the European Innovation Scoreboard and OECD reviews (Åström & Arnold, 2023; European Commission, 2025; Grillitsch, Hansen, Coenen, Miörner, & Moodysson, 2019). At the same time, evaluations highlight important evidence gaps: monitoring still focuses more on outputs than on how innovation policies drive industrial transformation; links between research investments and long-term societal or mission-oriented outcomes remain weakly specified; and national metrics are skewed towards large firms, giving limited visibility on SME innovation dynamics.

A8.2 Consistency of Monitoring and Evaluation

Sweden has a structured but ultimately fragmented approach to monitoring and evaluation of its R&I system (European Commission, 2025; OECD, 2020). There is no single national M&E framework that consistently links indicators and evaluations across the full system; instead, agencies commission programme- or domain-specific evaluations based on different policy logics (excellence, missions, transformation), which makes aggregation and comparison difficult. Recent governance changes – such as the discontinuation of the National Innovation Council and shifting ministerial responsibilities – have weakened central coordination, so while agencies still evaluate their own portfolios, there is less alignment to ensure that data insights feed into a coherent, shared strategic direction.

A8.3 Key Organisations for R&I Data, Analysis and Insight

Sweden's R&I evidence system is distributed across several specialised public agencies rather than concentrated in a single observatory. Vinnova, the Swedish Research Council, UKÄ, the National Audit Office and Tillväxtanalys each collect and analyse different parts of the system, with independent evaluators such as Technopolis providing additional, external assessments of major programmes.

Table A15: Key Organisations for R&I Data, Analysis and Insight – Sweden

Organisation	Type/Level	Main Evidence Function	Web Link
Statistics Sweden (SCB)	National statistical office	Produces official statistics, including R&D, innovation, education and economic indicators that underpin monitoring and evaluation of the Swedish R&I system.	https://www.scb.se/
Vinnova – Swedish Agency for Innovation Systems	National innovation agency (arm's-length public authority)	Monitors how innovation investments contribute to competitiveness and societal transformation; evaluates major programmes, cross-sector collaborations and mission-driven initiatives.	https://www.vinnova.se/
Vetenskapsrådet – Swedish Research Council	Central public research funding authority	Funds and assesses basic research; produces national analyses on research quality, academic performance and knowledge development; monitors use of public research funding.	https://www.vr.se/
Universitetskanslersämbetet (UKÄ) – Swedish Higher Education Authority	Independent public authority under Ministry of Education and Research	Responsible for quality assurance and monitoring in higher education; evaluates how universities manage research quality and collects data on research performance and research careers.	https://www.uka.se/
Riksrevisionen – Swedish National Audit Office	Independent supreme audit institution reporting to Parliament	Conducts performance audits of government agencies and R&I-related programmes, providing independent scrutiny of how public funds are used.	https://www.riksrevisionen.se/
Tillväxtanalys – Swedish Agency for Growth Policy Analysis	Analytical agency under the Ministry of Climate and Enterprise	Delivers analysis-based recommendations on business development, innovation and structural transformation; conducts evaluations and international comparisons, especially on firm-level innovation and growth.	https://www.tillvaxtanalys.se /
Technopolis Group	Independent international evaluation and policy consultancy	Commissioned by Vinnova and other agencies to conduct external programme evaluations and meta-reviews, particularly for large-scale and complex innovation policy instruments.	https://www.technopolis-group.com/

A8.4 Institutional Positioning and Funding of Key Organisations

Sweden's key R&I monitoring and evaluation organisations are mainly public bodies operating at arm's length from government, funded predominantly through the state budget. Core actors such as Statistics Sweden, Vinnova, the Swedish Research Council, UKÄ, Tillväxtanalys and the National Audit Office combine formal links to ministries or Parliament with varying degrees of analytical and operational independence, while private consultancies add a fully independent perspective through commissioned evaluations.

Table A16: - Institutional Positioning and Funding - Sweden

Organisation	Type	Funding Source	Independence
Statistics Sweden (SCB)	National statistical office	Public funding from the state budget	Operates under statistical law with professional and methodological independence, though institutionally part of central government.
Vinnova – Swedish Agency for Innovation Systems	National innovation agency (arm's-length public authority)	Public funding via the national budget, allocated through the responsible ministry	Arm's-length authority with autonomy over programme design and evaluation within a government-set mandate.
Vetenskapsrådet – Swedish Research Council	Central public research funding authority	Public funding via the state budget under the Ministry of Education and Research	Independent in scientific funding decisions and analyses, while operating within a national research policy framework.
Universitetskanslersämbetet (UKÄ) – Swedish Higher Education Authority	Independent public authority under the Ministry of Education and Research	Public funding from the state budget	Independent in its quality assurance and monitoring judgements, though its remit is defined by government.
Tillväxtanalys – Swedish Agency for Growth Policy Analysis	Analytical agency under the Ministry of Climate and Enterprise	Public funding from the state budget, with commissioned assignments from ministries	Mandated by government but with analytical independence in how it conducts evaluations and studies.

Organisation	Type	Funding Source	Independence
Riksrevisionen – Swedish National Audit Office	Independent supreme audit institution reporting to Parliament	Public funding via the parliamentary budget	Independent from government ministries, with constitutional protection for its audit and performance evaluation work.
Technopolis Group	Independent international evaluation and policy consultancy	Fee-for-service contracts with Swedish and international public bodies	Private, independent firm providing external evaluations and meta-reviews on a commissioned basis.

A8.5 Use of Evidence in R&I Governance and Integration of Data Insights

Sweden shows a strong institutional commitment to evidence-based policymaking in R&I, with monitoring and evaluation embedded in major instruments and performance data increasingly used to shape strategic priorities, programme renewals and targeting of industrial strengths. International benchmarking via EU and OECD scoreboards is routinely used to identify gaps, especially around innovation diffusion and SME performance, and mission-oriented initiatives such as the Strategic Innovation Programmes (SIPs) use ongoing evaluation and meta-evaluation to adjust design and targeting towards transformative objectives.

At the same time, evidence uptake is uneven at system level: insights often remain siloed within agencies, older excellence-oriented logics sit uneasily alongside newer transformative ambitions, and the National Audit Office has highlighted inconsistent follow-through on evaluation recommendations. Sweden thus makes more active use of M&E than many peers, but has not yet fully converted its rich data and evaluation base into coordinated system-wide learning and policy adaptation, particularly around societal impact and mission progress.

References

Advisory Council for Science, Technology & Innovation. (n.d.). Retrieved November 2025, from https://www.awti.nl/

Annani, S., Boberg, A., Johnson, Å., & Olsson, N. (2023). *A system review: A summary analysis of the national system for quality assurance 2017–2022.* Universitetskanslersämbetet (UKÄ). Retrieved from https://www.uka.se/download/18.690ff30418a87e4375e61f9/1695717779580/report-System%20review.pdf

Arnold, E., Åström, T., Glass, C., & De Scalzi, M. (2018). *How should we evaluate complex programmes for innovation and socio-technical transitions?* Technopolis Group. Retrieved from https://www.technopolis-group.com/wp-content/uploads/2020/02/How-should-we-evaluate-complex-programmes-for-innovation-and-socio-technical-transitions.pdf

Åström, T., & Arnold, E. (2023). *Meta-evaluation of the Swedish Strategic Innovation Programmes.* Technopolis Group / Vinnova. Retrieved from https://www.vinnova.se/globalassets/publikationer/2024/meta-evaluation-of-sip---long-summary.pdf

Baskaran, A., & Muchie, M. (2010). *Towards a unified conception of innovation systems.* Pretoria, South Africa: Institute for Economic Research on Innovation. Retrieved from https://repository.mdx.ac.uk/item/82595

BEIS. (2021). *UK Innovation Strategy: leading the future by creating it.* Department for Business, Energy & Industrial Strategy. Retrieved from https://www.gov.uk/government/publications/uk-innovation-strategy-leading-the-future-by-creating-it

Belgian Science Policy Office. (n.d.). Retrieved from https://www.belspo.be

BELSPO. (2022). *Belgian Report on Science Technology and Innovation 2021.* Belgian Science Policy Office (BELSPO). Retrieved from https://www.belspo.be/belspo/organisation/publ/pub_ostc/BRISTI/FWB_rapport_2021_en.pdf

BELSPO. (2024). *Belgian Research Action through Interdisciplinary Networks (BRAIN-be)*. Retrieved from https://www.belspo.be/belspo/research/brainbe_en.stm

Borgers, N. (2020). *Mission-oriented Innovation Policy and the influence of its predecessors: A case study on the evolution of policy.* Copernicus Institute of Sustainable Development, Utrecht University. Retrieved from https://www.uu.nl/sites/default/files/Policy_brief_MIPO_Niko_Borgers.pdf

Bouchard, F., Chan, Y., Patry, G., Rossant, J., Schafer, L., & Singh, B. (2023). *Report of the advisory panel on the federal research support system.* Ottawa, ON: Innovation, Science and Economic Development Canada.

Canadian Science Policy Centre (CSPC). (n.d.). Retrieved from https://sciencepolicy.ca/

Canadian Science Policy Centre. (2025). *National Conversation on Canada's Innovation Strategy.* Canadian Science Policy Centre. Retrieved from chrome-extension://efahttps://sciencepolicy.ca/wp-content/uploads/2025/12/Overarching-Synthesis-Report-CSPC-2025.pdf

CCA. (2025). *The State of Science, Technology, and Innovation in Canada 2025.* Ottawa, ON: Council of Canadian Academies. Retrieved from https://www.cca-reports.ca/reports/the-state-of-science-and-technology-and-innovation-in-canada/

Central Statistics Office (Ireland). (n.d.). Retrieved from https://www.cso.ie/en/index.html

Christensen, J. L., & Knudsen, M. P. (2021). The performance, challenges and related policies of the Danish research and innovation system. In *Globalisation, New and Emerging Technologies, and Sustainable Development: The Danish Innovation System in Transition* (pp. 33-52). New York: Routledge.

Christensen, J. L., Gregersen, B., Holm, J. R., & Lorenz, E. (2021). *Globalisation, new and emerging technologies, and sustainable development: The Danish innovation system in transition.* New York: Routledge.

Commission of Experts for Research and Innovation. (2025). *Annual report on research, innovation and technological performance in Germany.* Retrieved from https://www.e-fi.de/en/publications/reports

Council of Canadian Academies. (2025). *Reports on Science, Technology and Innovation*. Retrieved from https://cca-reports.ca/reports/

Coyle, D., & Muhtar, A. (2023). Assessing policy co-ordination in government: Text and network analysis of the UK's economic strategies. *European Journal of Political Economy, 79*. doi:doi.org/10.1016/j.ejpoleco.2023.102402

Department of Enterprise, Trade and EmploymentDepartment of Enterprise, Trade and Employment. (2022). *National Smart Specialisation Strategy for Innovation 2022-2027.* Dublin: Government of Ireland. Retrieved from https://enterprise.gov.ie/en/publications/publication-files/national-smart-specialisation-strategy-for-innovation-2022-2027.pdf

Department of Further and Higher Education, Research, Innovation and Science (Ireland). (2025). *The Research and Development Budget 2023-2024: Government Budget Allocations for Research and Development.* Government of Ireland. Retrieved from https://www.gov.ie/en/department-of-further-and-higher-education-research-innovation-and-science/

DFHERIS. (2022). *Impact 2030: Ireland's Research and Innovation Strategy.* Department of Further and Higher Education, Research, Innovation and Science (Ireland).

DFIR. (2025). *The Danish Council for Research and Innovation Policy*. Retrieved from https://ufm.dk/english/the-ministry/councils-and-commissions/the-danish-council-for-research-and-innovation-policy/

Drejer, I., & Christensen, J. L. (2021). The Danish regional innovation system in transition. In *Globalisation, New and Emerging Technologies, and Sustainable Development.* New York: Routledge.

DSIT. (2025). *UKRI framework document 2025.* Department for Science, Innovation and Technology. Retrieved from https://www.gov.uk/government/publications/ukri-framework-document-2025

Duchêne, V. (2014). *RIO Country Report Belgium 2014.* Publications Office of the European Union.

Edquist, C. (2019). Towards a holistic innovation policy: Can the Swedish National Innovation Council (NIC) be a role model? *Research Policy, 48*(4), 869-879. doi:https://doi.org/10.1016/j.respol.2018.10.008

European Commission. (2019). *Peer review of the Danish research & innovation system.* European Commission. Retrieved from https://projects.research-and-innovation.ec.europa.eu/en/statistics/policy-support-facility/peer-review-danish-research-innovation-system

European Commission. (2024). *European Innovation Scoreboard 2024: Country profile Netherlands.* European Commission. Retrieved from https://ec.europa.eu/assets/rtd/eis/2024/ec_rtd_eis-country-profile-nl.pdf

European Commission. (2025). *European Innovation Scoreboard 2025: Country profile Sweden.* Directorate-General for Research and Innovation. Retrieved from https://ec.europa.eu/assets/rtd/eis/2025/ec_rtd_eis-country-profile-se.pdf

European Commission. (2025). *Regional Innovation Scoreboard 2025 Regional profile Belgium.* Directorate-General for Research and Innovation. Retrieved from https://ec.europa.eu/assets/rtd/ris/2025/ec_rtd_ris-regional-profile-be.pdf

EWI. (2014). *STI in Flanders - Policy & Key Figures 2022.* Department of Economy, Science and Innovation (EWI). Retrieved from https://www.ewi-vlaanderen.be/sites/default/files/bestanden/sti_in_flanders_-_policy_key_figures_2022_-_for_web.pdf

Federal Ministry of Education and Research. (2025). *High-Tech Strategy 2025 Progress Report.* Retrieved from https://www.bmftr.bund.de/SharedDocs/Publikationen/DE/FS/31557_Fortschrittsbericht_zur_Hightech_Strategie_2025_en.pdf?__blob=publicationFile&v=10

Graversen, E. K. (2017). *From tendencies to genuine innovation policy: the Danish case.* Retrieved from https://pure.au.dk/ws/portalfiles/portal/172000820/From_tendencies_to_genuine_innovation_policy_the_Danish_case_Chapter_3_22_07_2016.pdf

Grillitsch, M., Hansen, T., Coenen, L., Miörner, J., & Moodysson, J. (2019). Innovation policy for system-wide transformation: The case of strategic innovation programmes (SIPs) in Sweden. *Research Policy, 48*(4), 1048-1061. doi:https://doi.org/10.1016/j.respol.2018.10.004

Higher Education Strategy Associates. (2025). *The State of Postsecondary Education in Canada 2025.* Retrieved from https://higheredstrategy.com/publication/the-state-of-postsecondary-education-in-canada-2025/

Innovate UK. (2018). *Evaluation Framework: How we assess our impact on business and the economy.* Innovate UK. Retrieved from https://www.ukri.org/publications/evaluation-framework/

IRDC. (2025). *Ireland's Innovation Index 2025.* Dublin: KPMG Ireland. Retrieved from https://kpmg.com/ie/en/insights/tax/ireland-s-innovation-index-2025.html

Jongbloed, B. (2018). *Overview of the Dutch science system.* Centre for Higher Education Policy Studies, University of Twente.

Ketels, C., Hanouz, M. D., Hunter, J., Kuhlmann, S., Raven, T., Heringa, P., & Palmberg, C. (2019). *Peer Review of the Danish R&I System: Ten steps, and a leap forward: Taking Danish innovation to the next level.* European Commission. Retrieved from https://projects.research-and-innovation.ec.europa.eu/en/statistics/policy-support-facility/peer-review-danish-research-innovation-system

Knudsen, M., Christensen, J., & Christensen, P. (2018). *RIO Country Report 2017: Denmark.* Joint Research Centre, European Commission. Retrieved from https://publications.jrc.ec.europa.eu/repository/bitstream/JRC111331/rio_cr_dk_2017_pubsy_idf_1.pdf

Kuhlmann, S., & Rip, A. (2016). Next-Generation Innovation Policy and Grand Challenges. *Science and Public Policy, 45*(4), 448–454. doi:https://doi.org/10.1093/scipol/scy011

Lundvall, B. Å. (1999). *Det danske innovationssystem: Et forskningsbaseret debatoplæg om innovationspolitiske udfordringer og handlemuligheder.* The IKE Research Group. Retrieved from https://vbn.aau.dk/en/publications/det-danske-innovationssystem-et-forskningsbaseret-debatopl%C3%A6g-om-i/

Ministerio de Ciencia, Innovación y Universidades. (2025). *Monitoring and evaluation of the EECTI 2021-2027*. Retrieved from https://www.ciencia.gob.es/en/Estrategias-y-Planes/Estrategias/Seguimiento-y-evaluacion-de-la-EECTI-2021-2027.html

Ministry of Education, Culture and Science. (2024). *The Netherlands vision paper on the future EU Framework Programme for Research and Innovation (FP10).* Ministry of Education, Culture and Science. Retrieved from https://open.overheid.nl/documenten/5509d59a-e7c2-4fd2-b76c-6676e0063814/file

Ministry of Science and Innovation (Spain). (2021). *Spanish Science, Technology and Innovation Strategy 2021-2027 (EECTI 2021-2027).* Ministry of Science and Innovation. Retrieved from https://www.ciencia.gob.es/en/Estrategias-y-Planes/Estrategias/Estrategia-Espanola-de-Ciencia-Tecnologia-e-Innovacion-2021-2027.html

Molas-Gallart, J. (2012). Research governance and the role of evaluation: A comparative study. *American Journal of Evaluation, 33*(4), 583-598. doi:https://doi-org.mu.idm.oclc.org/10.1177/1098214012450938

NAO. (2025). *UK Research and Innovation: Providing support through grants.* National Audit Office. Retrieved from www.nao.org.uk/reports/uk-research-and-innovation-providing-support-through-grants/

Nurse, P. (2015). *Ensuring a successful UK research endeavour: A Review of the UK Research Councils.* UK Government. Retrieved from https://www.gov.uk/government/publications/nurse-review-of-research-councils-recommendations

NWO. (2021). *NWO Annual Report 2020.* Dutch Research Council (NWO). Retrieved from https://www.nwo.nl/sites/nwo/files/media-files/Annual%20report_2020_11-10-2021.pdf

NWO. (2022). *NWO strategy 2023–2026.* Dutch Research Council (NWO). Retrieved from https://www.nwo.nl/en/nwo-strategy-2023-2026

OECD. (2005). *Oslo Manual: Guidelines for Collecting and Interpreting Innovation Data.* OECD Publishing. Retrieved from https://www.oecd.org/content/dam/oecd/en/publications/reports/2005/11/oslo-manual_g1gh5dba/9789264013100-en.pdf

OECD. (2014). *OECD Reviews of Innovation Policy: Netherlands 2014.* OECD Publishing. doi:https://doi.org/10.1787/9789264213159-en

OECD. (2016). *OECD Reviews of Innovation Policy: Sweden 2016.* Paris: OECD Publishing. doi:https://doi.org/10.1787/9789264250000-en

OECD. (2020). *Improving Governance with Policy Evaluation: Lessons From Country Experiences.* Paris: OECD Publishing. doi:https://doi.org/10.1787/89b1577d-en

OECD. (2020). *Improving Governance with Policy Evaluation: Lessons From Country Experiences.* Paris: OECD Publishing. doi:https://doi.org/10.1787/89b1577d-en

OECD. (2023). *Science, technology and innovation outlook 2023: Enabling sustaining and driving the green transition.* OECD Publishing. doi:https://www.oecd.org/en/publications/oecd-science-technology-and-innovation-outlook-2023_0b55736e-en.html

Rakic, R., Correia, A., Larsson, J., Bilbao-Osorio, B., Borunsky, L., Bruno, N., & Kadunc, M. (2021). *Fostering R&D intensity in the European Union: Policy experiences and lessons learned. Case study contribution to the OECD TIP project on R&D intensity.* Case study contribution to the OECD TIP project on R&D intensity. Retrieved from https://community.oecd.org/community/cstp/tip/rdintensity

Research England. (2025). *How Research England supports research excellence*. Retrieved from https://www.ukri.org/who-we-are/research-england/research-excellence/research-excellence-framework/

Research, N. O. (2025). *Vision for Science 2025.* Retrieved from https://www.nwo.nl/en/vision-science-2025

Rohracher, H., Coenen, L., & Kordas, O. (2023). Mission incomplete: Layered practices of monitoring and evaluation in Swedish transformative innovation policy. *Science and Public Policy, 50*(2), 336-349. doi:https://doi.org/10.1093/scipol/scac071

RVO. (2023). *Innovation Missions Report 2023.* Netherlands Ministry of Economic Affairs and Climate Policy. Retrieved from https://www.rvo.nl/sites/default/files/2024-03/Innovation-missions-report-2023_0.pdf

RVO. (2024). *Annual Report Innovation Missions 2024.* Netherlands Enterprise Agency (RVO). Retrieved from https://www.rvo.nl/sites/default/files/2025-03/Innovation%20missions%20report%202024.pdf

Steeman, J. T., Hobza, A., Canton, E., Di Girolamo, V., Mitra, A., Peiffer-Smadja, O., & Ravet, J. (2024). *Why investing in research and innovation matters for a competitive, green, and fair Europe-A rationale for public and private action.* Publications Office of the European Union. Retrieved from https://op.europa.eu/en/publication-detail/-/publication/e830b15b-e4db-11ee-8b2b-01aa75ed71a1/language-en

van den Broek-Honingh, N., & Vennekens, A. (2022). *Total Investment in Research and Innovation 2020–2026 (TWIN 2020–2026).* Rathenau Institute.

Now that you have read our report, we would love to know if our research has provided you with new insights, improved your processes, or inspired innovative solutions.

Please let us know how our research is making a difference by completing our short feedback form via this link.

You are also welcome to email us if you have any questions about this report or the work of the IRC generally: info@ircaucus.ac.uk

Thank you

The Innovation & Research Caucus

www.ircaucus.ac.uk

Email info@ircaucus.ac.uk Twitter @IRCaucus

INNOVATION & RESEARCH CAUCUS

Delivered with ESRC and Innovate UK