



Monitoring and Assessment Plan for the Use and Impact of Government R&D Funding

Secretariat of the Research and Innovation Council



Publications of the Finnish Government 2025:91

Monitoring and Assessment Plan for the Use and Impact of Government R&D Funding

Secretariat of the Research and Innovation Council

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Monitoring and Assessment Plan for the Use and Impact of Government R&D Funding

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Abstract

Government research and development (R&D) funding will be increased significantly in Finland in line with a commitment by Parliament. The significant increase in public R&D funding will require more systematic impact assessment procedures.

This plan describes the new procedures for monitoring and assessing the use and impact of government R&D funding, which will be launched in 2025. The monitoring will cover both the additional funding under the Act on Research and Development Funding and state R&D funding as a whole. The aim is to produce an up-to-date overall picture of the situation with regard to the allocation, results, effects and impact of R&D funding for use by decision-makers and actors in the RDI system. Systematic monitoring and assessment serves as a tool for knowledge-based and impact-based management of the RDI system. It serves RDI actors by providing comprehensive situational awareness and information about the state of RDI activities. Monitoring will be carried out by the secretariat of the Research and Innovation Council transparently and in close dialogue with actors in the RDI field.

The indicators in the plan are divided into three categories: 1) key indicators, 2) a set of broader metrics and 3) rapid, leading indicators.

An annual monitoring report will be drawn up for the Research and Innovation Council and made available to the public. The goal is to make the monitoring and assessment data publicly available online in other respects, too.

Keywords	Research policy, science policy, innovation policy, research and development, research funding, impact, evaluation
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Valtion T&K-rahoituksen käytön ja vaikuttavuuden seuranta- ja arviointisuunnitelma

Valtioneuvoston julkaisu 2025:91

Julkaisija Valtioneuvosto

Yhteisötekijä Tutkimus- ja innovaationeuvoston sihteeristö

Kieli englanti

Sivumäärä 69

Tiivistelmä

Parlamentaarisen sitoumuksen mukaisesti valtion tutkimus- ja kehittämistoiminnan rahoitusta kasvatetaan Suomessa merkittävästi. Julkisen T&K-rahoituksen merkittävä lisääntyminen edellyttää entistä systemaattisempaa vaikuttavuuden arviointia.

Tämä suunnitelma kuvaa valtion T&K-toiminnan rahoituksen käytön ja vaikuttavuuden seurantaa ja arviointia, joka käynnistyy uudella tavalla vuoden 2025 aikana.

Seurannassa tarkastellaan sekä T&K-rahoituslain mukaista lisärahoitusta että valtion koko T&K-rahoitusta. Tavoitteena on tuottaa kokonaiskuva ja ajantasaista tilannetietoa T&K-rahoituksen kohdentamisesta, tuloksista, vaikutuksista ja vaikuttavuudesta päätöksentekijöiden ja TKI-järjestelmän toimijoiden käyttöön. Systemaattinen

seuranta ja arviointi toimii TKI-järjestelmän johtamisen työvälineenä ja vahvistaa johtamista tietoon ja vaikuttavuuteen pohjautuen. Se palvelee TKI-toimijoita kokonaisvaltaisen tilannekuvan ja tilannetiedon avulla. Seurantaa toteuttaa tutkimus- ja innovaationeuvoston sihteeristö avoimesti ja vuorovaikutteisesti yhdessä TKI-kentän toimijoiden kanssa.

Suunnitelmaan sisältyvät seurantaindikaattorit jakaantuvat kolmeen kokonaisuuteen: 1) pääindikaattorit, 2) laajempi mittaristo ja 3) nopeat, ennakoivat indikaattorit.

Seurannasta laaditaan tutkimus- ja innovaationeuvostolle vuosittain raportti, joka julkaistaan avoimesti. Lisäksi seuranta- ja arviointitietoa pyritään saattamaan julkiseksi verkkoon myös muutoin.

Asiasanat tutkimuspolitiikka, innovaatiopolitiikka, tiedepolitiikka, tutkimus- ja kehittämistoiminta, tutkimusrahoitus, vaikuttavuus, arviointi

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Plan för uppföljning och utvärdering av användningen av statlig FoU-finansiering och finansieringens genomslag

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Referat

I enlighet med ett parlamentariskt åtagande ska den statliga finansieringen av forsknings- och utvecklingsverksamhet ökas avsevärt i Finland. En betydande ökning av den offentliga FoU-finansieringen förutsätter en mer systematisk konsekvensbedömning än förut.

Denna plan beskriver uppföljningen och utvärderingen av användningen och verkningsfullheten av den statliga finansieringen av FoU-verksamhet. Uppföljningen och utvärderingen inleds på ett nytt sätt 2025. Vid uppföljningen granskas både tilläggsfinansieringen enligt FoU-finansieringslagen och statens totala FoU-finansiering. Målet är att skapa en helhetsbild och ta fram aktuell lägesinformation om fördelningen, resultaten, effekterna och verkningsfullheten av FoU-finansieringen för beslutsfattarna och aktörerna inom FoUI-systemet. Den systematiska uppföljningen och utvärderingen är ett verktyg för ledningen av FoUI-systemet och stärker ledningen med utgångspunkt i kunskap och verkningsfullhet. Den betjänar FoUI-aktörerna med hjälp av en övergripande lägesbild och lägesinformation. Uppföljningen genomförs av forsknings- och innovationsrådets sekretariat på ett öppet och interaktivt sätt tillsammans med aktörerna inom FoUI-fältet.

De uppföljningsindikatorer som ingår i planen är indelade i tre helheter: 1) huvudindikatorer, 2) bredare indikatorer och 3) snabba, ledande indikatorer.

För forsknings- och innovationsrådet upprättas årligen en rapport om uppföljningen, som publiceras öppet. Dessutom strävar man efter att offentliggöra uppföljnings- och utvärderingsuppgifterna på webben också på annat sätt.

Nyckelord forskningspolitik, innovationspolitik, vetenskapspolitik, forsknings- och utvecklingsverksamhet, forskningsfinansiering, genomslag, utvärdering

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Contents

1	Background	7
2	Starting points for and approach to monitoring and assessment	11
2.1	Focusing on government R&D funding as a whole and on additional R&D funding	11
2.2	Breadth of RDI impact, time spans and impact model	14
3	Workstreams for monitoring and impact assessment	19
3.1	Workstream 1. Monitoring of the implementation of the Multiannual Plan for the Use of Government R&D Funding and related indicators	20
3.2	Workstream 2. Allocation and assessment of impact of additional R&D funding...	24
3.3	Workstream 3. Monitoring and impact of government R&D funding	27
4	Reporting and schedule	33
5	Resources and risk management	34
6	Communication	35
7	Preparation of the plan	36
8	References	37
	Appendix 1. Monitoring indicators for R&D funding	39

1 Background

This plan describes the monitoring and assessment of the use and impact of government research and development (R&D) funding implemented by the Secretariat of the Research and Innovation Council. The monitoring covers both the additional funding under the Act on Research and Development Funding (1092/2002) and central government R&D funding as a whole.

Although the assessment focuses on the funding of R&D activities, it examines results and impact on a broad scale, also taking into account aspects including innovation effects.

The monitoring aims to produce an overall picture and up-to-date situational information with regard to the allocation, results, effects and impact of R&D funding for use by decision-makers and actors in the entire RDI system. The data obtained from monitoring and assessment will serve as a tool for governing the RDI system.

Systematic monitoring and assessment help strengthen the evidence-informed and impact-based management of the RDI system. It serves RDI actors by providing comprehensive situational overview and up-to-date information about the state of RDI activities. Monitoring and assessment will be carried out transparently and in close dialogue with actors in the RDI field.

The monitoring and assessment of national strategic choices in RDI activities and policy will be added to the plan at a later stage.

An annual monitoring and assessment report will be drawn up for the Research and Innovation Council and made available to the public. The goal is also to make the monitoring and assessment data publicly available online in other respects, too.

In accordance with recommendations of the Parliamentary RDI Working Group operational in 2021, Finland will make a historic increase in public-sector research and development expenditure by 2030. Under the Act on Research

and Development Funding, the amount of Budget Authority and appropriations intended for R&D activities will be increased in the Budgets so that they will be equal to 1.2% of GDP by 2030. The target for R&D expenditure (4% of GDP) will be reached if enterprises simultaneously increase their own R&D expenditure in proportion to the current ratio of expenditure (1/3 public, 2/3 private). Growing public R&D investment emphasises the importance of monitoring and impact assessment concerning the use of R&D funding.

With regard to the monitoring and impact assessment of government R&D funding, the following has been outlined:

- The final report of the Parliamentary RDI Working Group 2022 states the following: 'The Government will systematically monitor and assess the impact and effectiveness of the growing R&D funding. A monitoring and evaluation framework will be prepared, which will include measurement and monitoring objectives, the launching of data collection and the securing of the knowledge base, methods and indicators, and which takes into account in a comprehensive and balanced way the effects on companies, education, research, the economy and society. When planning subsidies, the needs of evaluation research based on reliable research design will be taken into account whenever possible.' (Parliamentary RDI Working Group 2022–2023)
- Adopted by the Government in summer 2024, the Multiannual Plan for the Use of Government R&D Funding outlines the following with regard to monitoring: 'The Government monitors the impact of government R&D funding. A timetable and monitoring structures will be drawn up for monitoring the impact of funding. Impacts and effectiveness will be monitored both at the level of the plan as a whole as well as the individual measures. To enable impact assessment, the planning of grants and measures must, as far as possible, pay attention to the needs for a scientific evaluation study based on a reliable research design. — The Research and Innovation Council will prepare a monitoring and evaluation plan together with the ministries. The impact assessment of the plan is designed and implemented in cooperation with scientific organisations as well as parties such as the Data Room.' (Finnish Government 2024)

- The Decree on the Research and Innovation Council (section 2, paragraph 3) lays down as one of the duties of the Council ‘to coordinate and monitor the implementation of the Act on Research and Development Funding in 2024–2030 (1092/2022) and the preparation and implementation of a multiannual plan for the use of funding laid down in its section 3’.
- In June 2024, the Research and Innovation Council adopted the Council work plan, according to which the Council will prepare a comprehensive monitoring and assessment plan in close cooperation with the various ministries in autumn 2024.

This document presents the plan of the Research and Innovation Council and its Secretariat for the monitoring and assessment of the use and impact of government R&D funding. The aim is to establish a comprehensive monitoring and evaluation framework that draws on a wide range of data sources and regularly produces an overall picture of the allocation, results, effects and impact of central government R&D funding.

In operational terms, the key starting point for the work is the extensive monitoring and impact assessment work that is carried out across the Finnish RDI system. The monitoring and assessment work of the Research and Innovation Council takes place in cooperation with the administrative branches and RDI actors. Monitoring and assessment data produced from different perspectives and different starting points is not, however, currently systematically aggregated, collated or synthesised. The assessment and monitoring work now launched aims to compile and synthesise data. The work will make as much use as possible of existing data and avoid overlapping work. For example, data collected in the performance-based management process across administrative branches can be utilised in monitoring work. Correspondingly, results of monitoring work can be utilised in performance-based management by the ministries. The monitoring will draw on a variety of both quantitative and qualitative data.

In addition to existing assessment data, new knowledge production as well as research and more profound scientific assessment of the impacts of R&D funding will also be needed (see chapter 3, workstream 3, subsection g below). The impact of R&D funding is a complex phenomenon, and the strengthening of scientific assessment supports and enables the generation of an in-depth and comprehensive knowledge base.

The Research and Innovation Council will adopt the monitoring and assessment plan and the monitoring metrics included in the plan. The Secretariat of the Research and Innovation Council will report on the monitoring to the Research and Innovation Council and the Parliamentary RDI Monitoring Group. Where necessary, the Research and Innovation Council will also outline any changes as monitoring progresses. The Parliamentary RDI Monitoring group will discuss and take a stand on monitoring progress and results and support the implementation of monitoring. Assessment and monitoring will also be discussed regularly in the Government's RDI policy network and, more broadly, with stakeholders.

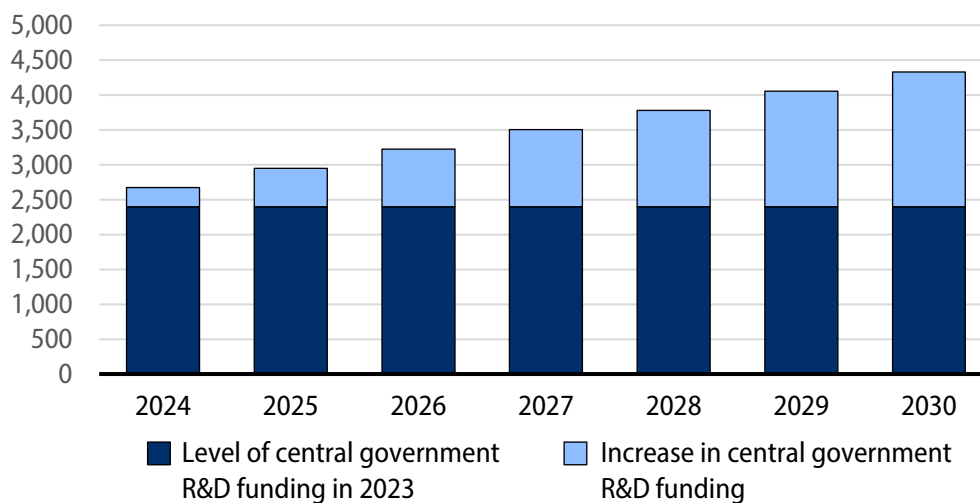
The national strategic choices of RDI activities and policy will be outlined during 2025. Monitoring and assessment relating to the choices will be attached to the plan and its implementation at a later stage once decisions on the strategic choices have been made.

2 Starting points for and approach to monitoring and assessment

2.1 Focusing on government R&D funding as a whole and on additional R&D funding

The monitoring and assessment of R&D funding will take into account government R&D funding as a whole as well as additional R&D funding provided under the Act on Research and Development Funding. From the assessment and monitoring perspective, separating additional funding from other central government R&D funding is in many cases difficult and not even justifiable, although of course in some instances also possible (for more detail, see chapter 3). It is, however, noteworthy that the significance of additional funding in government R&D funding as a whole will increase cumulatively by 2030, which is when it will account for almost half of the total funding (Figure 1). It is therefore particularly justifiable to monitor the use and allocation of additional funding as well as its impact to the extent possible.

Figure 1. Central government R&D funding. Source: Parliamentary RDI Working Group 2022 (2023)



The starting points for the monitoring are the **impact targets and societal goals set for government R&D funding**. These have been outlined along very similar lines in several contexts in recent years (the Parliamentary RDI Working Groups, the Act on Research and Development Funding and the Multiannual Plan for the Use of Government R&D Funding completed in the spring 2024):

- R&D investments ‘seek to improve productivity and competitiveness and thereby support long-term economic growth and strengthen the financial base of the welfare society. RDI activities may also increase competence and produce solutions to societal challenges, such as technological solutions for products and services supporting the green transition.’ (Act on Research and Development Funding, Government Proposal).
- ‘High-quality expertise and RDI activities lay the foundation for Finland’s competitiveness, productivity and wellbeing. The goal for Finland’s RDI environment is to be among the best in the OECD countries and to better support productivity growth, sustainable economic growth and the wellbeing of society.’ (Parliamentary RDI Working Group 2022)
- ‘Investments in research and development activities aim to accelerate sustainable economic growth, strengthen competitiveness and increase productivity. — High-quality expertise and RDI activities lay the foundation for Finland’s competitiveness, productivity growth and wellbeing.’
- Research and development investments aim at the renewal of economic life and society as well as socially, economically and ecologically sustainable growth, which will strengthen general government finances and enable the financing of the functions of the welfare society. The ultimate objective is to increase the wellbeing of society.’ (Finnish Government 2024).
- The Multiannual Plan for the Use of Government R&D Funding specifies the set of objectives as follows: ‘The short-term objective is that the government funding will encourage all organisations engaged in research and development to strongly increase their high-quality and ambitious R&D activities in Finland. The aim is to increase cooperation between companies and other organisations engaged in R&D activities, leverage private investments and attract R&D investments to Finland. The longer-term objective is for the government investments to extensively produce new knowledge and high-level expertise, innovations and solutions to global societal challenges, such as climate change, biodiversity loss, pollution and social problems. This will promote exports of high added value, sustainable economic growth and improved productivity, and increase the wellbeing of society.’ (Finnish Government 2024)

The above-mentioned impact targets are made concrete by the main guidelines of the Multiannual Plan for the Use of Government R&D Funding, which form one of the frameworks for the monitoring of R&D funding (Figure 2).

Figure 2. Main guidelines of the Multiannual Plan for the Use of Government R&D Funding (Finnish Government 2024)

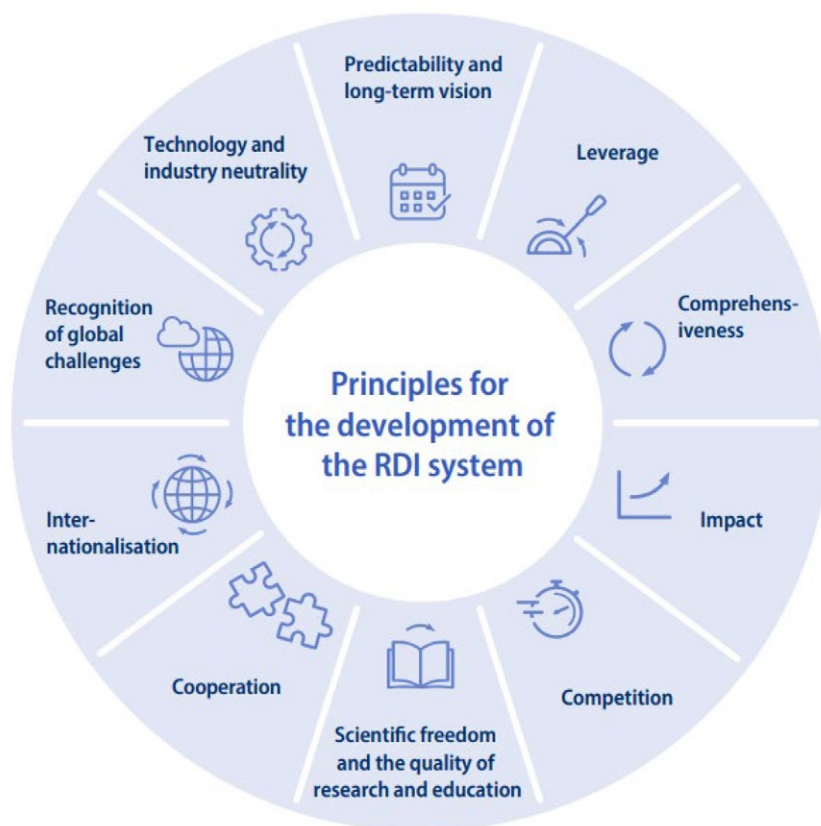


The main guidelines cover several key target dimensions of R&D funding, such as increasing R&D cooperation, strengthening competence and increasing the number of experts, leveraging R&D investments and strengthening R&D activities as well as increasing the attractiveness of Finland's RDI environment. In the monitoring and assessment work, these are examined based on several different datasets and from several different perspectives (see chapter 3).

In addition, the monitoring will take into account the principles for the development of the RDI system, as outlined by the RDI Working Group (2021) in December 2021, as a perspective for analysis (Figure 3). In its final report, the working group emphasised that commitment to a long-term, predictable, and internationally competitive level of R&D funding requires shared policy principles. The Parliamentary RDI Working Group 2022 that operated in 2022–2023 in turn considered that the development and steering of the RDI system and state R&D funding should be based on ten principles agreed in a parliamentary process

(Parliamentary RDI Working Group 2022 2023, 32). The implementation of the principles should therefore be examined particularly in terms of how the additional R&D funding is allocated.

Figure 3. Principles for the development of the RDI system drawn up by the Parliamentary RDI Working Group (2021)



2.2 Breadth of RDI impact, time spans and impact model

The work will approach impact in a broad-ranging manner. The diversity of impact is an important starting point and, in this regard, the work will rely on the view outlined by the Parliamentary RDI Working group in the principles for the development of the RDI system: 'The impact of RDI activities is diverse and varies between different actors and different forms of RDI activity.'

Another important starting point for monitoring and assessment is the variety of time spans of results, effects and impact. The results and effects of R&D are known to be generated over a period of time that is quite long. For example, with regard to productivity effects, the 2022 final report of the Parliamentary RDI Working Group suggests – referring to estimates of the US Congressional Budget Office (CBO) – that the macroeconomic effects of basic research can be seen with a delay of around 20 years, and for applied research after around 10 years. The impact is gradual and the full effect on production may only be observed much later, for example in the case of basic research after 40 years (see Campbell & Shirley 2018).

The key aspect regarding the delay in the effects of R&D activities is whether the point of interest is companies' own productivity growth or spillover effects more broadly in the business sector. R&D can generate returns for companies after a delay of only a few years. There may be major differences in delays between industries and possibly also between companies due to differences in the nature of R&D activities. (Parliamentary RDI Working Group 2022) In existing large companies, the gradual development of the product range may lead to a more rapid cycle. This may also be the case with, for example, small service enterprises. It has generally been found that outcomes of applied research and development may be translated rapidly into commercial products but, for example in pharmaceuticals, it may take two decades after the start of research for new drugs to enter the market (Campbell & Shirley 2018).

At the enterprise level, especially with regard to young enterprises, the research literature on time spans involved in the realisation of R&D effects has been summarised as follows (Maliranta 2024, 186–187): When an enterprise begins to develop new technology through R&D efforts, it will take two to five years for the R&D to generate new patentable knowledge. It will take around three to five years for R&D efforts to start affecting the productivity of companies (Ali-Yrkkö & Maliranta 2006). This is followed by technology deployment and market testing (so-called Slush phase), which may take five years. In the third phase – technology scaling and resource reallocation – the activities are built up and this may take 5–15 years. In other words, as a whole it may take 10–20 years for the results of new technology-based enterprise activity to be seen more broadly as economic impact. (Maliranta 2024)

Taking the time spans into account is particularly essential with regard to additional funding under the Act on Research and Development Funding. Over the short time span, it is possible to examine the activities being launched and possibly the change in volumes as well as the trends in the various outputs and results and their changes following additional funding. In this regard, the initial phase of the work focuses on allocations, policy implementation and monitoring of the use of

funding. The assessment and verification of effects and impact is only possible at a later stage. On the other hand, the impact of all existing central government R&D funding can already be assessed (and has been assessed for a long time), and this aspect is addressed in dedicated workstreams (for more detail, see in particular chapter 3, workstream 3).

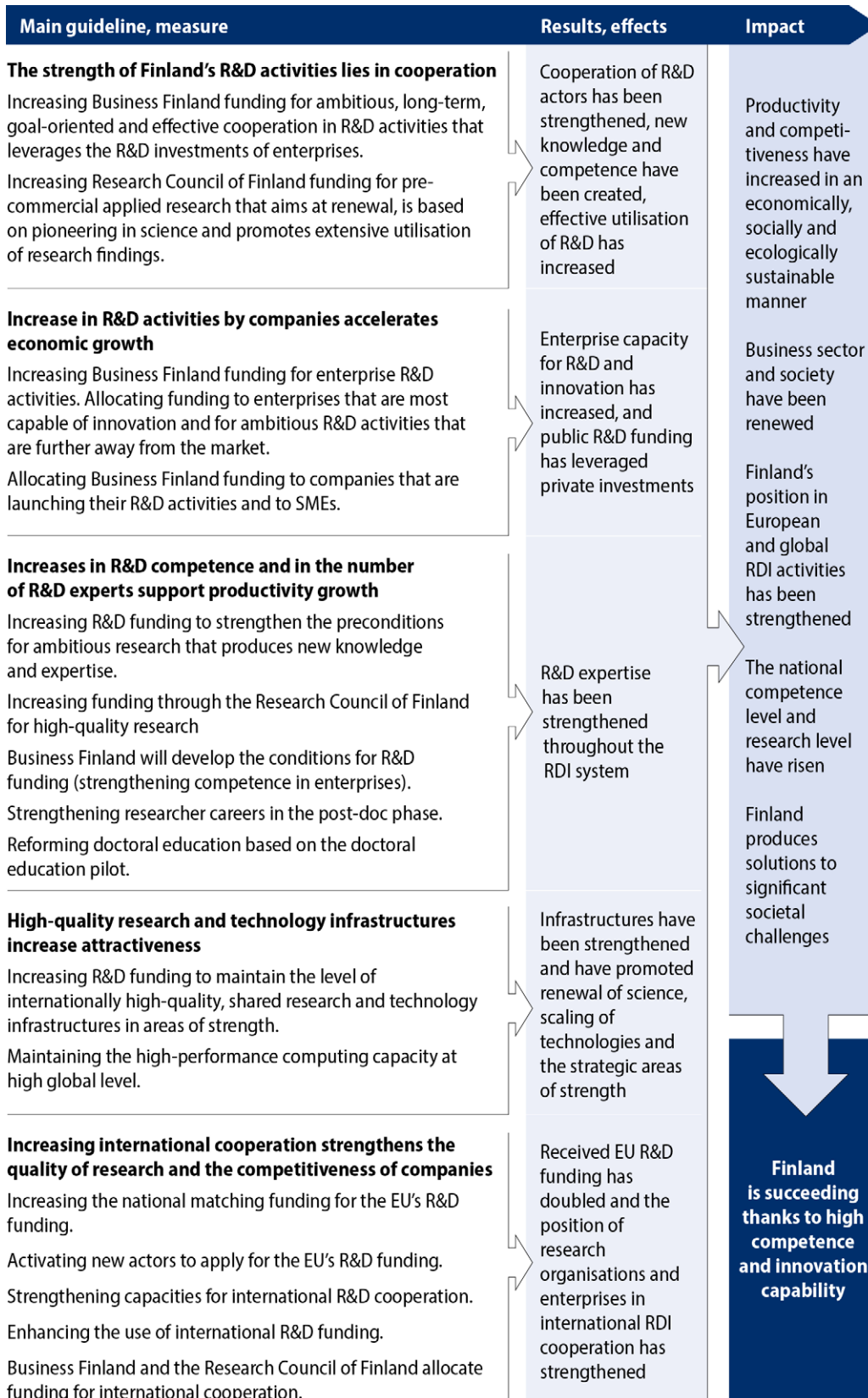
In addition to long time spans, the assessment of the effects and impact of R&D funding also involves many other well-known methodological difficulties, including the difficulty of attributing effects to specific interventions in relation to all other interventions, the difficulty of assessing externalities and the low observability of research impacts (see e.g. Rosemberg et al. 2024). On the other hand, assessing the impact of individual interventions may not necessarily always be the most essential point. Instead, what matters is the direction being taken as a whole. In this regard, the important point is a systemic perspective, that is, the need to examine the synergies of the various interventions instead of examining the effects of the various interventions separately. The assessment will seek to combine these two perspectives where possible.

Impact model

The impact of R&D funding and policy instruments is often considered through various impact frameworks. The frameworks usually make fairly simple distinctions between inputs, outputs, effects and impact over a longer time span. Long-term impact should match the societal goals and impact targets set for R&D activities. The monitoring and assessment of R&D funding is based on this type of thinking. Accordingly, the key questions are as follows: For which activities have R&D investments been allocated? What kinds of results have been obtained from the investments? What kind of impact has been generated or can be anticipated to be generated?

Figure 4 illustrates the impact model for the monitoring and assessment of R&D funding. It is based on the main guidelines for funding allocation adopted in the Multiannual Plan for the Use of Government R&D Funding, which represent inputs and measures. These are expected to generate results and effects over the short or medium term. The results and effects shown in Figure 4 can also be regarded as kinds of interim objectives, the implementation of which must be monitored. They illustrate whether the implementation of the objectives is going in the right direction. The results and effects produced over the medium term will generate impact over the longer time span. The impact objectives illustrated in the figure have been derived from the recent key policy documents mentioned above. The metrics applied in the monitoring process are aligned with this impact framework (see chapter 3, workstream 1 below).

Figure 4. Impact model for the monitoring of R&D funding

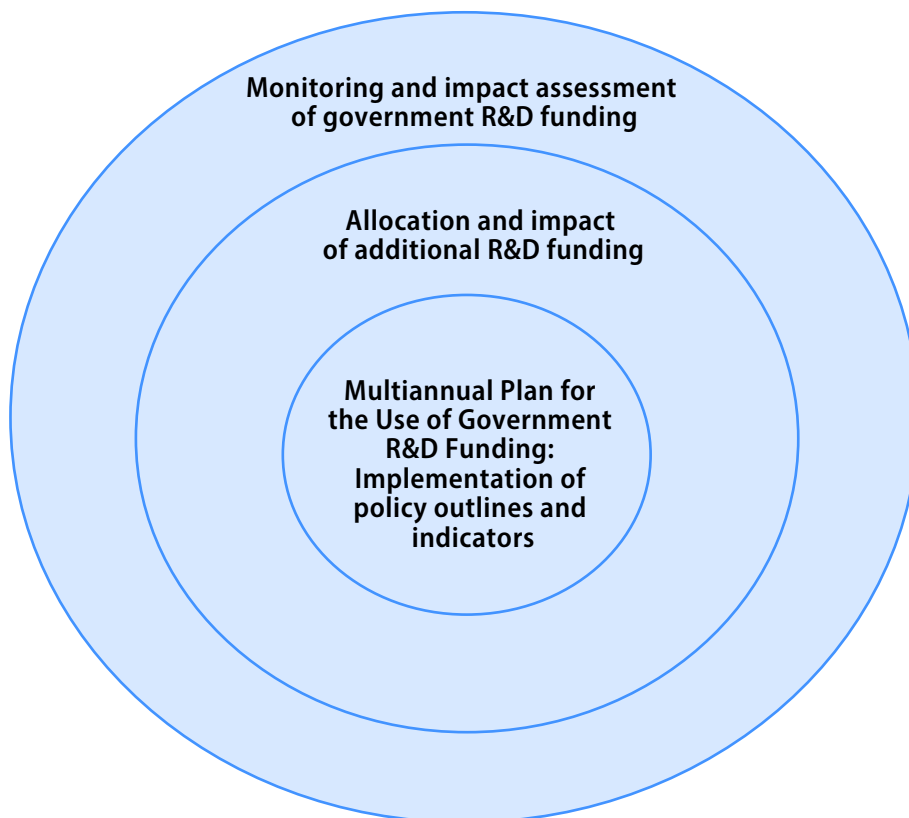


During the monitoring process, understanding of the mechanisms through which R&D funding generates impact will be deepened. For this purpose, system modelling of impact pathways and mechanisms will be developed. This work will help refine the overall impact model (see chapter 3, workstream 3, subsection f below).

3 Workstreams for monitoring and impact assessment

The monitoring and impact assessment of R&D funding is preliminarily structured into three interconnected and expanding components:

Figure 5. Components of monitoring



The components are described in more detail in the following sections.

3.1 Workstream 1. Monitoring of the implementation of the Multiannual Plan for the Use of Government R&D Funding and related indicators

Monitoring the implementation of the policy outlines of the Multiannual Plan for the Use of Government R&D Funding

Adopted by the Government in summer 2024, the Multiannual Plan for the Use of Government R&D Funding presents the main guidelines for the allocation of government R&D funding (see Figure 2 above). The guidelines primarily address the allocation of R&D funding, but also include other measures. As part of the monitoring of R&D funding as a whole, the Secretariat of the Research and Innovation Council will monitor the implementation and realisation of the policy outlines of the Multiannual Plan for the Use of Government R&D Funding. The data will be compiled in cooperation with administrative branches and providers of research funding.

Monitoring metrics

A three-tier model is proposed for the monitoring indicators, consisting of: 1) key indicators, 2) a broader set of indicators, and 3) rapid, leading indicators.

As appropriate, baselines and targets will be established for the metrics. Baseline levels are important in order to track the direction of change towards the target level. It is proposed that the baselines and targets be established during autumn 2025.

Key indicators, which will form the set of metrics for R&D funding monitored across parliamentary terms. The following are proposed as the key indicators:

1. Labour productivity growth
2. Exports of high technology products
3. Applications receiving the highest rating in Academy Project calls of the Research Council of Finland
4. R&D personnel (R&D in full-time equivalents)
5. Share of enterprises engaged in innovation collaboration with universities and research institutes

6. Funding received through Horizon Europe programme
7. R&D intensity (R&D expenditure over GDP)
8. Business sector R&D expenditure (EUR) and R&D intensity (business sector R&D expenditure over GDP)

Efforts have been made to choose the key indicators so that they as a whole would cover most of the key target dimensions and policy outlines of the Multiannual Plan for the Use of Government R&D Funding.

In addition, the share of young adults (aged 25–34) with tertiary attainment will be monitored as a background indicator. Increasing the number of experts with tertiary attainment is a key prerequisite factor for growing R&D investments and their efficient and successful utilisation. R&D funding cannot, however, directly affect tertiary attainment, and therefore the indicator is classified as a background indicator in the monitoring.

A broader set of metrics in accordance with the main guidelines and impact targets for R&D funding of the Multiannual Plan for the Use of Government R&D Funding (Figure 6). The set of metrics is structured in accordance with the impact model described above. The key indicators are also placed in the framework as part of the broader set of metrics. The indicators are described in more detail in the appendix.

Figure 6. Monitoring Indicators for R&D Funding



*main indicator | background indicator: share of young adults with tertiary attainment

In developing the indicators, the aim was to identify those that best and most appropriately represent each area under review in a balanced way. It is, however, clear that existing statistical data sets restrictions on the indicators. The choice of indicators has taken account of the reliability of the statistical datasets available and the continuity of access to data. Efforts have also been made to focus on indicators that enable international comparison.

It is important to note with regard to indicators that the essential aspect is the monitoring of the attainment of the targets (both the impact targets and interim objectives) and not the indicators in themselves. A model such as the traffic light model can be used to illustrate the attainment of the targets. In addition, it is important to note that, alongside indicator data, the assessment of the achievement of the targets also requires qualitative data produced by the other workstreams of the plan.

Rapid, leading indicators are experimental indicators based on alternative data sources that provide a forward-looking view picture of selected topics (in particular business sector R&D investments and R&D experts). The indicators and related data collection and AI-assisted analysis were developed and tested in a pilot project of the Secretariat of the Research and Innovation Council in autumn 2024. The results of the project show that the indicators mentioned below could be utilised as part of the monitoring. Using the indicators in monitoring will, however, still require further work on the datasets and the analytical model, which is intended to continue during 2025.

- Business sector R&D investment / investment intentions
 - Company R&D job advertisements
 - R&D personnel in companies
- R&D experts
 - R&D profiles
 - R&D job advertisements

During the monitoring and evaluation process, opportunities to introduce additional rapid and anticipatory indicators – potentially related to scientific research – will also be explored. In addition, datasets such as those of Business Finland could offer opportunities to examine early innovation concepts.

Reporting on the indicators will take place in the annual monitoring report. In addition, opportunities will be explored to place the metrics on an online platform where they would be openly accessible and updatable.

There are unavoidable uncertainties involved in the statistical and other data underlying the indicators. When adopting the indicators, the Secretariat should be allowed a technical scrutiny margin for any cases where challenges emerge for one reason or another in data collection at a later date. It is already known that the knowledge base for certain indicators is lacking. For example, there is currently no knowledge base on international R&D investments in Finland. The theme is, however, important from the perspective of the national R&D target, whereby it is warranted to seek to compile data in this context. In addition, there are uncertainties relating to certain other indicators. The option of updating the set of metrics during the monitoring should also be allowed in order to enable options including the use of such data and information sources that were not known or available when the plan was prepared.

3.2 Workstream 2. Allocation and assessment of impact of additional R&D funding

The second monitoring component focuses on the allocation of additional government R&D funding and the assessment of its impact. The component will form an overall picture of where R&D funding has been allocated and which activities have been launched with the funding. The data will be collected from the allocation recipients. The section will examine the impact of the additional funding where possible.

In many cases, additional funding is difficult to distinguish from other central government R&D funding, making assessment difficult. For example, if the additional funding is allocated in the budget on top of an existing budget authority, the funding providers have access to the combined pot of the previous and the additional funding without any differentiation (unless the funding is earmarked). Based on available data, with regard to the Research Council of Finland and Business Finland, for example, the additional R&D funding would appear to be allocated to a rather large extent through instruments that already exist, which is why it is not worthwhile to seek to assess the impact of additional funding separately from other funding. In these cases, it may be warranted to seek to focus the monitoring and assessment on performance and impact as a whole of central government R&D funding channelled through these instruments (such as flagships and leading companies). It should be noted that entirely new kinds of calls for funding have also been launched, such as Business Finland's Rise to Challenge funding for research organisations, calls for R&D funding for the creative industries, and the call for universities of applied sciences. All in all, clearly the largest set of additional funding so far has been allocated for Business Finland funding.

Some of the additional R&D funding has already been allocated for separate (mainly fixed-term) packages, and in these cases separate monitoring and impact assessment is possible. As regards the allocation decisions made in 2023 and 2024, these were as follows:

- *Doctoral education pilot* (EUR 262 million for 2024–2027). A monitoring and evaluation study commissioned by the Ministry of Education and Culture has been launched on the pilot and is implemented by Tampere University and the University of Jyväskylä. The final report of the study will be completed at the beginning of 2028 (progress reports at the beginning of 2025, 2026 and 2027).
- *Postdoctoral Programme for Research Institutes* (EUR 40 million for 2025–2028). Tulanet, the cooperation body of government research institutes, is implementing monitoring relating to the Postdoctoral Programme for Research Institutes. This data will be used in the monitoring and assessment work of the Research and Innovation Council.
- Allocations relating to *quantum technology and microelectronics* granted to VTT Technical Research Centre of Finland (pilot environment for microelectronics and quantum technology, EUR 79 million for 2024–2027 and quantum computer EUR 70 million for 2024–2027). VTT will produce data on project progress and results.
- Funding for VTT Technical Research Centre of Finland for *development of small modular reactor projects* (EUR 4.5 million, 2025–2027). VTT will produce data on project progress and results.
- REPowerEU, *clean energy and material flows R&D project* (2024–2026): VTT Technical Research Centre of Finland (EUR 23 million), Finnish Environment Institute (EUR 14 million), Natural Resources Institute Finland (EUR 3 million)
- *Replacing the EuroHPC LUMI with a new supercomputer* (EUR 250 million for 2025–2028)
- *GTK MinTec pilot plant, research infrastructure implementation and commissioning* (Phase 1 in 2025–2028, totalling EUR 55 million)

- *EU matching funding.* The Ministry of Economic Affairs and Employment will produce monitoring data on matching funding.
- *Central government funding for healthcare units for university-level research and for university-level research in social work* (permanent increase, 2024 EUR 5 million; 2025 EUR 10 million)
- *Support for R&D activity in bioeconomy* (permanent increase, starting from 2025 EUR 4 million)

The above does not take into account allocations made in the spring 2025 government discussion on spending limits. These and other subsequent allocations will be taken into account in monitoring as decisions are made.

According to information obtained from the ministries, the ministries mostly monitor and assess additional R&D funding by means of procedures already in place, where aspects such as performance guidance and ownership steering play a key role. In addition, the Commission's monitoring procedures are in place for EU-related funding decisions (RePowerEU, R&D in bioeconomy). Going forward, it would be important to ensure that, in the context of the allocation of additional R&D funding, monitoring and assessment as well as related data collection is planned right from the start.

As regards the impact of additional funding, it should be noted that its externalities at the level of the R&D system as a whole may be very significant. Externalities are as a whole very difficult to assess or, overall, to capture through monitoring or assessment.

Allocation of additional R&D funding will also be assessed in relation to the ten principles for the development of the RDI system drawn up by the Parliamentary RDI Working Group.

3.3 Workstream 3. Monitoring and impact of government R&D funding

In the third section, monitoring and assessment expands to examine central government R&D funding as a whole, its allocation and its impact.

The workstream consists of the following components:

- a. Overview of the monitoring of government R&D funding across government sectors

Monitoring and assessment of government R&D funding takes place broadly in the administrative branches. There is, however, currently no uniform overall picture of how monitoring takes place in concrete terms and what data it provides. In an early stage of the work, a description was produced of how the use of R&D funding and its effectiveness and impact is monitored in the various administrative branches. The Secretariat of the Research and Innovation Council has collected information from the ministries on the implementation of monitoring and discussed with the key R&D funding providers (Research Council of Finland, Business Finland) about impact assessment and monitoring, information sources and analyses used, and related follow-up plans. Based on these datasets, a provisional overall picture has been formulated on the current state of monitoring, and this will be made more in-depth during the work. The aim is to build an understanding of what monitoring and evaluation data will be available in the future and what work is already being done, and thereby support the direction and refinement of the monitoring plan. This workstream lays the foundation for the work carried out under component d (see below).

- b. Monitoring of R&D expenditure in euros (attainment of 4% target)

The government proposal for the Act on Central Government Research and Development Funding in 2024–2030 (Government Proposal HE 211/2022) obligates the Government to monitor the trend in public and private R&D expenditure so that the attainment of the 4% R&D target can be monitored and assessed.

The Multiannual Plan for the Use of Government R&D Funding states the following concerning the monitoring of expenditure in terms of euros: ‘The Government will monitor the development of public and private R&D expenditure in euros as a part of the General Government Fiscal Plans for the

coming years. This monitoring will be based on Statistics Finland's annual statistics on research and development activities. The monitoring involves examining the data from the three most recent annual statistics. In addition, the rationale for the budget proposals includes a summary describing government R&D funding as a whole.'

The Ministry of Finance is responsible for the monitoring of R&D expenditure in euros. Monitoring under the Act can take place for the first time in autumn 2026. The trend in R&D expenditure in euros is, however, also monitored annually. Statistics Finland data is released annually in October, which is when the official situation picture is updated.

It is clear that the leverage of private R&D investments and, consequently, the monitoring of business sector R&D expenditure will play a key role in the monitoring and assessment as a whole. In addition to the monitoring required by the R&D Funding Act and the statistics of Statistics Finland, efforts will be made to also make use, in the monitoring of the 4% target, of other datasets that could produce a more real-time and forward-looking picture of the R&D expenditure trend and related weak signals. The leading indicators aimed to provide a forward-looking situation picture of the trend in enterprise R&D investments and investment intentions are described under workstream 1 above. These are based on novel and alternative datasources and making use of AI. The aim is to enable a forward-looking situation assessment. In addition, business barometers and surveys produced by various actors can be utilised for the same purpose. Examples of these include the TeknoBaro survey of Technology Industries of Finland, which covers issues including the outlook for enterprise R&D investment (see Technology Industries Finland 2024), the biannual investment survey of the Confederation of Finnish Industries (see Confederation of Finnish Industries 2024), the Finnish Industry Investment (Tesi) high-growth enterprise pulse survey, and the SME barometer of Suomen Yrittäjät (Federation of Finnish Enterprises). R&D investment intentions of enterprises have also been covered by surveys such as the autumn 2024 enterprise survey commissioned by the Finnish Innovation Fund Sitra (Sitra 2024). Efforts will also be made within the confines of available data to examine to which extent public R&D funding leverages private R&D investments.

Where possible, the monitoring of the R&D expenditure trend will also make use of enterprise-specific monitoring.

c. Allocation of government R&D funding

An overview will be created to illustrate the allocation of public R&D funding along key dimensions. As regards R&D subsidies allocated by central government to enterprises, the section will make use of datasets and analyses produced by the Data Room. In September 2024, the Data Room launched a project examining the amount and allocation of R&D subsidies and, in some respects, also their effects and impact (patents, publications). The allocation of R&D subsidies targeted at enterprises is examined by aspects including size category, industry, ownership, region, various productivity levels, and allocation to exporting enterprises and high-growth enterprises. Preliminary results of the project are available in spring 2025 and the final results in September 2025. The Data Room project focuses on subsidies targeted at enterprises, but the project will also explore opportunities to expand the database to public-sector research funding. The Data Room may be able to include metrics and/or quantitative assessments in the monitoring of R&D funding allocation.

As regards research funding allocated to the public sector, the datasets of Statistics Finland in particular but also other data sources (such as Vipunen Education Statistics Finland) will be used.

d. Collection of impact and monitoring data from administrative branches and funding providers

Data produced by the administrative branches and by key funding providers (in particular the Research Council of Finland and Business Finland) on R&D funding results, effects and impact will be compiled and synthesised. This will be based on the description of existing assessment data produced under subsection a.

As noted above, there is plenty of assessment and monitoring data in the RDI system. Various actors produce monitoring and impact data, and this data plays an important role for successful monitoring and assessment. The ministries carry out monitoring as a key element of performance guidance/ownership steering and performance reporting (research and expert institutes/agencies) and steering of higher education institutions (Ministry of Education and Culture). The Research Council of Finland and Business Finland produce data on their funding activities and their impact and more broadly on the situation of R&D funding and RDI field. Higher education institutions monitor impact in their own research and RDI assessments. Higher education

institutions have the statutory obligation to assess their activities regularly. Research institutes also report on their impact. All this data is scattered in the system, and a major challenge for the assessment efforts as a whole is to aggregate the data and separate the most essential data. The extent to which existing datasets are suitable for such formulation of an overall picture of impact sought in this monitoring and assessment work may prove to be a challenge.

e. Monitoring and assessment of the use of R&D tax incentives

R&D tax incentives or tax relief are not counted in R&D funding. However, the use of R&D tax incentive will be monitored as part of the overall monitoring and evaluation framework outlined in this plan.

Finland has two tax expenditures in force aimed at R&D activities: the deduction for R&D cooperation (fixed term for 2021–2027) and the combined deduction based on R&D costs. The combined deduction entered into force from the beginning of 2023 on the basis of a policy outlined by the Parliamentary RDI Working Group. The combined deduction consists of a general additional deduction based on the amount of costs and an extra additional deduction based on the increase in costs. The Ministry of Finance monitors the use of R&D tax incentives, and the key monitoring data source for use is the datasets available from the Ministry of Finance. Initial data on the use of the new combined deduction was received at the end of 2024 following the end date of tax assessment for 2023. The extra additional deduction based on the increase in costs entered into force at the beginning of 2024, so the initial data concerning 2023 only covers the general part of the combined deduction. The Ministry of Finance monitors the use of tax expenditures in conjunction with reporting on tax expenditures. In this regard, the Tax Administration database is also a possible data source.

As regards tax incentives, the Data Room is also a potential knowledge producer. According to available information, VATT Institute for Economic Research is also launching research relating to the Postdoctoral Programme for Research Institutes examining the allocation and use of tax expenditures and the combined use of tax expenditures and direct subsidies.

f. System modelling of impact and effect pathways of RDI investments

As part of the monitoring and assessment work, systemic causal network modelling will be produced to illustrate how the effects and impact of public RDI investments can be expected to be generated in the RDI system. The modelling will be produced in cooperation with the societal sustainability assessment project underway at the Government Strategy Department of the Prime Minister's Office. Modelling can also identify and examine factors and dependencies that may prevent or hinder the generation of effects. The work entails concrete modelling of impact chains.

System modelling supplements and deepens the impact model described above (Figure 4) and increases understanding of how R&D investments are translated into effects.

g. Advancing research on the impact of R&D funding

There is significant societal interest in the monitoring of the impact of R&D funding. The 2022 Parliamentary RDI Working Group (2023, 56) outlined the following in its final report: 'The significant increase in public R&D funding in the coming years and the needs of research and innovation policy require sufficient focus on monitoring and measuring the impact and effectiveness of public R&D activities and funding.' As noted above, there is a reasonable amount of assessment and monitoring data produced in the various parts of the RDI system. Assessment and impact research and, consequently, the knowledge base for decision-making should, however, be strengthened. The need to strengthen the scientific assessment of R&D subsidies was also identified in the final report of the Room for Growth project (Kasvuriihanke) (Room for Growth Working Group 2025, 54). It should also be noted that the rapid advancements in technology and data exploitation (big data, AI, etc.) open up new opportunities for the assessment and analysis of R&D impact. Taking advantage of these opportunities in national-level impact assessment and monitoring calls for further inputs, target-oriented systems development, and experiments.

There is a need in Finland to strengthen scientific research on impact of R&D activities, funding and policy. Opportunities will be explored to launch a multidisciplinary research programme examining impacts of R&D funding on a broad scale. The exploration should take place during 2025 so that any programme could be launched within a sufficiently short time frame.

As regards impact research on R&D funding, the need to promote the availability and combinability of datasets related to the topic has also been identified.

In addition, the opportunity to launch scientific evaluation research on R&D subsidies based on a randomised experimental design will be explored. The final report of the 2022 Parliamentary RDI Working Group, the Multiannual Plan for the Use of Government R&D Funding and the decisions of the spring 2024 government discussion on spending limits on central government R&D funding allocations for 2025–2028 underline that the planning of subsidies and measures must take into account the needs of evaluation research based on reliable, scientific research design. The 2022 Parliamentary RDI Working Group (2023, 56) stated in its report that ‘the impacts could most reliably be examined using a randomised trial arrangement’.

As part of the monitoring, making use of various datasets, information sources and novel analytics methods to support the work will be surveyed extensively. Potential data and information sources include the SFINNO® Database of Finnish Innovations maintained by VTT Technical Research Centre of Finland, Business Finland’s Innovation and Growth Research, the RDI research projects included in the Postdoctoral Programme of VATT Institute for Economic Research, etc. In addition, the Secretariat of the Research and Innovation Council may launch an open information request to the RDI field to map out the existing and upcoming knowledge base. In addition, documents such as impact stories could be an interesting method to gain a qualitative view on effects and impact of increased R&D funding at the actor level.

Conducting separate external evaluations may be possible with regard to, for example, the impact of additional funding at a later stage.

4 Reporting and schedule

The Secretariat of the Research and Innovation Council will prepare an annual report each year to the Research and Innovation Council and to the Parliamentary RDI Monitoring Group. The first report will be prepared during autumn 2025. According to the preliminary plan, the first report could focus particularly on the monitoring of the allocation of additional funding and on what kinds of activities have been launched with the funding (including what kinds of more precise funding-specific targets have been set), the outlook on progress made towards the 4% target and the trend in private R&D investments, the first compilation of monitoring indicators and their interpretation, and the results of the system modelling. Due to the rapid change in the operating environment, there is a need to produce a situation picture in the report on the situation of the R&D operating environment.

The time frame and potential other reporting forms will be made more specific during the monitoring work.

5 Resources and risk management

The monitoring work will mainly take place with existing resources as part of official duties, making use of data already collected in various parts of the RDI system. Under the leadership of the Council Secretariat, cross-governmental cooperation will be intensified, for example within the framework of the Government's RDI policy network in order to avoid unnecessary extra work. The monitoring needs and the Council guidelines concerning monitoring will be communicated openly and well in advance to funding providers and beneficiaries so that they will also have an actual opportunity to influence the monitoring and monitoring methods in a timely manner. The aim is cost-efficient monitoring and assessment work that is efficient and based on cooperation.

As regards new monitoring methods, cooperation partnerships (such as databases, the Data Room, the European Commission, the OECD, researcher networks), existing research and analysis activities and scientific research will be utilised.

The objective of establishing a comprehensive framework for monitoring and evaluating R&D funding represents a broad and challenging undertaking. It is clear that there are risks involved in the implementation that may jeopardise the attainment of the assessment objectives. These include sufficiency of resources in proportion to the work required as well as aspects relating to availability, quality and depth of existing monitoring and assessment data. An aspect closely related to existing data is the question of what supplementary information and information sources will still be needed and whether, for example, any new monitoring and assessment projects potentially needed can be launched. In practice, these questions will be answered during the assessment and monitoring work. Efforts will be made to manage risks through continuous and proactive planning as well as active interaction with the various actors.

6 Communication

The aim of the monitoring is to provide a comprehensive overview and up-to-date information on the allocation, outcomes, impacts, and effectiveness of R&D funding for the benefit of decision-makers and all actors within the RDI system. Monitoring and assessment will strengthen the evidence- and impact-based management of the RDI system. This will serve RDI actors by providing comprehensive situational awareness and information regarding the state of RDI activities. Monitoring and assessment will be carried out transparently and in close dialogue with actors in the RDI field.

The data obtained from monitoring and assessment will serve as a tool for managing the RDI system. This means the monitoring of government R&D funding is likely to have a steering impact on RDI actors. For example, the monitoring indicators may affect the work of RDI actors. The various stages, methods and objectives of monitoring will be communicated transparently, and a dialogue will be maintained with the entire field of RDI actors. Communication aimed at the general public will also be needed.

It is also important to communicate internationally about Finland's significant increases in R&D investments and on the results and impact of the investments. International communication is also linked to the promotion of Finland's country image with regard to R&D. This calls for extensive cooperation with various parties.

Communication will be further specified during the course of the monitoring process.

7 Preparation of the plan

The plan was prepared by the Secretariat of the Research and Innovation Council. The draft plans were discussed by the Research and Innovation Council on 9 October 2024, by meetings of the preparatory composition of the Council on 10 September 2024, 5 November 2024 and 16 January 2025, by the Parliamentary RDI Monitoring Group on 2 October 2024 and by the Government's RDI policy network on 24 October 2024 and 23 January 2025. In addition, a written round for comments was organised for the preparatory group of the Research and Innovation Council and the Parliamentary RDI Monitoring Group in February–March 2025.

The preparation also made use of the science sparring of the Finnish Academy of Science and Letters in late 2024. In the science sparring, researchers with expertise on RDI policy and activities commented on the draft plan in two workshops. The science sparring provided the preparation of the plan with strong scientific backing. The first science sparring event on 26 November 2024 covered the draft plan and the latter event of 17 December 2024 the set of indicators.

The preparation of the plan has also involved dialogue with experts from organisations including the Ministry of Education and Culture, the Ministry of Economic Affairs and Employment, the Research Council of Finland and Business Finland. In the finalisation stage in February–March 2025, written comments were requested from certain key stakeholders in the RDI field.

The Research and Innovation Council adopted the plan at its meeting on 6 June 2025.

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Appendix 1. Monitoring indicators for R&D funding

Monitoring indicators for R&D funding

This appendix describes the contents and information sources of the monitoring metrics. The rapid leading indicators for R&D funding are not described in this appendix (see monitoring plan, workstream 1). The metrics are structured in accordance with the R&D funding impact model presented in the plan:



*main indicator I background indicator: share of young adults with tertiary attainment

Finland is succeeding thanks to high competence and innovation capability

Indicators related to impact targets

Impact target	Indicator	Current level	Nature of indicator	Data source (latest data)	International comparability	Update frequency	Remarks
Productivity and competitiveness have increased in a sustainable manner	1. Labour productivity growth in the corporations sector (key indicator)	–	Impact	Finnish Productivity Board	Yes	Available in autumn 2025	The revised indicator of the Productivity Board will be used.
Productivity and competitiveness have increased in a sustainable manner	2. GDP per capita	2024: EUR 49,133 (preliminary data)	Impact	Statistics Finland (2024)	Yes	Annually	–
Productivity and competitiveness have increased in a sustainable manner	3. Resource productivity (GDP over material consumption)	2023: EUR 1.165/kg	Impact	Eurostat (2023)	Yes	Annually	Resource productivity is measured as GDP in relation to domestic material consumption. It represents the efficiency of the use of natural resources in relation to GDP.
Productivity and competitiveness have grown in a sustainable manner	4. SDG index (Finland's ranking)	2024: 1.	Impact	UN Sustainable Development Report	Yes	Annually	Finland's ranking among 193 countries. Measures progress in all Sustainable Development Goals (SDGs).

Impact target	Indicator	Current level	Nature of indicator	Data source (latest data)	International comparability	Update frequency	Remarks
Business sector and society have been renewed	5. Exports of knowledge-intensive services (share of service exports)	2024: 80.8%	Impact	Eurostat, European Innovation Scoreboard (2024)	Yes	Annually	–
Business sector and society have been renewed	6. Employment in knowledge-intensive activities (share of labour force)	2023: 17.9%	Impact	Eurostat (2023)	Yes	Annually	–
Business sector and society have been renewed	7. Exports of high technology products (key indicator)	6.27% (2022) 10% (2023)	Impact	Eurostat (2022) World Bank (2023)	Yes	Annually	Two possible data sources with slightly different definitions (see below). NB: The European Innovation Scoreboard uses 'Exports of high and medium high-tech products', where the definition is broader. Statistics Finland's experimental indicator on trade in value added
Finland's position in European and global RDI activities has been strengthened	8. Finland' ranking in innovation comparisons: European Innovation Scoreboard (EIS), Global Innovation Index (GII), Innovation Indicator (II)	2024: EIS: 3rd GII: 7th II: 6th	Impact	European Innovation Scoreboard, Global Innovation Index, Innovation Indicator	Yes	Annually	–

Impact target	Indicator	Current level	Nature of indicator	Data source (latest data)	International comparability	Update frequency	Remarks
Finland's position in European and global RDI activities has been strengthened	9. Attractiveness of Finland's RDI system: Ranking in the Leader in Technology and Innovation and Leader in Science categories of the Global Soft Power Index	2024: Leader in Technology and Innovation: 19th Leader in Science: 16th	Impact	Brand Finance: Global Soft Power Index	Yes	Annually	The Global Soft Power Index has a broad comparison base (193 countries)
Finland's position in European and global RDI activities has been strengthened	10. Foreign R&D investments to Finland	–	Impact	Requires new data collection.	No	Will be specified once data collection method is confirmed.	No systematic data collection currently taking place. Requires separate data collection, for example by collecting data from relevant sources (such as the largest cities) on establishment of significant enterprise R&D activities in Finland.
National competence level has increased	11. Applications receiving the highest rating (6/6) in Academy Project calls of the Research Council of Finland, share	16% (2021–2024)	Impact	Research Council of Finland	Yes*	Annually	Calculated as a moving average from years N (current), N-1, N-2

Impact target	Indicator	Current level	Nature of indicator	Data source (latest data)	International comparability	Update frequency	Remarks
National competence level has increased	12. Funding received from ERC, share of ERC funding	Situation February 2025: 2.13% (ERC dashboard)	Impact	ERC dashboard (regular monitoring twice a year also by EUTI, the National Liaison Office for Horizon Europe Programme)	Yes	Continuous (ERC dashboard)	Most up to date data from the ERC dashboard Share of ERC funding or, alternatively, per capita
Finland produces solutions to significant societal challenges	13. Environmental technology patents (share of all patents)	2022: 7.98%	Impact	OECD (2022)	Yes	Annually	Share of environmental technology patents of all patents in all technology fields

* Does not enable comparisons with different countries, but the indicator reflects the level of Finnish applications compared with the international level. Peer review places Finnish research project plans in international comparison.

Information sources:

1. Labour productivity growth
 - Finnish Productivity Board
2. GDP per capita
 - Statistics Finland: https://stat.fi/tup/suoluk/suoluk_kansantalous_en.html#Gross%20domestic%20product%20per%20capita
3. Resource productivity
 - Eurostat: https://ec.europa.eu/eurostat/databrowser/view/ENV_AC_RP/default/table?lang=en
 - See also: https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:Resource_productivity
 - See also: https://ec.europa.eu/eurostat/statistics-explained/index.php?title=SDG_12_-_Responsible_consumption_and_production
4. SDG index:
 - <https://dashboards.sdgindex.org/>
5. Exports of knowledge-intensive services
 - Eurostat: https://ec.europa.eu/eurostat/databrowser/view/bop_its6_det_custom_14031246/default/table?lang=en
 - European Innovation Scoreboard: https://research-and-innovation.ec.europa.eu/statistics/performance-indicators/european-innovation-scoreboard_en
6. Employment in knowledge-intensive activities
 - Eurostat: 'Employment in knowledge-intensive activities at the national level' (business industries) (same as used in EIS): https://ec.europa.eu/eurostat/databrowser/view/htec_kia_emp2/default/table?lang=en&category=scitech.htec.htec_kia
 - Another Eurostat indicator relating to employment in knowledge-intensive services: https://ec.europa.eu/eurostat/databrowser/view/htec_emp_nat2/default/table?lang=en&category=scitech.htec.htec_emp.htec_emp_n (Employment in technology and knowledge-intensive sectors at the national level, percentage of total employment)

7. Exports of high technology products
 - Eurostat: https://ec.europa.eu/eurostat/databrowser/view/htec_si_exp4/default/table?lang=en&category=scitech.htec.htec_eco.htec_eco_trd (Exports of high technology products as a share of total exports)
 - It is also possible to use European Innovation Scoreboard data: https://research-and-innovation.ec.europa.eu/statistics/performance-indicators/european-innovation-scoreboard_en
 - World Bank: https://data.worldbank.org/indicator/TX.VAL.TECH.MF.ZS?locations=Z7-FI-SE&name_desc=false (High technology exports, % of manufactured exports)
8. Finland's ranking in innovation comparisons
 - European Innovation Scoreboard: https://research-and-innovation.ec.europa.eu/statistics/performance-indicators/european-innovation-scoreboard_en
 - Global Innovation Index: <https://www.wipo.int/en/web/global-innovation-index>
 - Innovation Indicator: <https://www.rolandberger.com/en/Insights/Publications/Innovation-Indicator-2024.html>
9. Attractiveness of Finland's RDI system
 - <https://brandirectory.com/softpower>
10. Foreign R&D investments to Finland
11. Applications receiving the highest rating (6/6) in Academy Project calls of the Research Council of Finland
 - Research Council of Finland
12. Funding received from ERC
 - ERC dashboard: <https://erc.europa.eu/projects-statistics>
 - Also regular monitoring by EUTI, the National Liaison Office for Horizon Europe Programme

13. Environmental technology patents

- OECD Green Growth Database: [https://data-explorer.oecd.org/vis?df\[ds\]=DisseminateFinalDMZ&df\[id\]=DSD_GG%40DF_GREEN_GROWTH&df\[ag\]=oECD.ENV.EPI&dq=AUS.&pd=2017%2C&to\[TIME_PERIOD\]=false](https://data-explorer.oecd.org/vis?df[ds]=DisseminateFinalDMZ&df[id]=DSD_GG%40DF_GREEN_GROWTH&df[ag]=oECD.ENV.EPI&dq=AUS.&pd=2017%2C&to[TIME_PERIOD]=false)
- Also: <https://www.oecd.org/en/data/indicators/patents-on-environment-technologies.html?oecdcontrol-8027380c62-var3=2022>

Indicators specific to policy outline

1 R&D cooperation

Indicator	Current level	Nature of indicator	Data source (latest data)	International comparability	Update frequency	Remarks
14. Research Council of Finland and Business Finland funding incentivising R&D cooperation of enterprises and research organisations	Research Council of Finland 2025: EUR 63.5 million (= 12% the Council's Budget Authority of EUR 515 million)	Input	Research Council of Finland and Business Finland	No	Annually	For the Research Council of Finland, the indicator includes: 1) Flagships and international cooperation in the research fields of competence clusters included in the Flagships Programme, 2) Proof of Concept Funding, 3) parallel energy programmes of the Research Council of Finland and Business Finland* For Business Finland, the Co-Research, Co-Innovation and Co-Creation funding would provisionally be included in the indicator.
15. Research organisations' R&D expenditure funded by the business sector	2023: for universities: EUR 57.7 million (3.5%); for universities of applied sciences: EUR 9.9 million (3.7%); for research institutes: EUR 60.7 million (11.5%)	Input	Vipunen Education Statistics Finland (2022) / Statistics Finland	No (OECD MSTI, but only in part)	Annually	Vipunen Education Statistics Finland: domestic and international enterprise funding for universities, research institutes and universities of applied sciences The OECD MSTI provides data on enterprise funding for higher education institutions but not for research institutes. The statistics describe R&D expenditures.

Indicator	Current level	Nature of indicator	Data source (latest data)	International comparability	Update frequency	Remarks
16. Enterprises engaged in innovation collaboration with research organisations (share of enterprises, %) (key indicator)	2022: 13.3%	Results, effects	Statistics Finland, Innovation	Yes (Eurostat, Community Innovation Survey)	Once in two years (next update in spring 2026)	The most recent years in the 2026 statistics are 2024–2022. NB: The R&D survey is based on a sample and may be unreliable concerning small enterprises. Excluding enterprises with fewer than 10 persons should be considered.
17. Joint publications of higher education institutions and research institutes with enterprises (% of publications)	2024: Universities: 6% Universities of applied sciences: 2.1% Research institutes: 8.9%	Results, effects	Vipunen Education Statistics Finland / Ministry of Education and Culture data collection Research Council of Finland / CSC (WoS) Leiden Ranking also possible for higher education institutions.	To be explored	Annually (Ministry of Education and Culture data collection: April)	In data collection by the Ministry of Education and Culture, data is collected on joint publications with enterprises (see below). State of Scientific Research in Finland 2024 reports the corresponding based on WoS data, with the latest data covering 2020–2022. Data collected in Vipunen Education Statistics Finland. NB: In the European Innovation Scoreboard, this indicator is Scopus data calculated by Science Metrix for DG R&I.

Indicator	Current level	Nature of indicator	Data source (latest data)	International comparability	Update frequency	Remarks
18. Innovation activities of higher education institutions and research institutes – patents, invention disclosures and spinoffs, number of deep tech companies	2024: Universities: invention disclosures: 478 patents: 71 new research-driven enterprises: 25 Universities of applied sciences invention disclosures: 15 patents: 3 Number of deep tech companies: 270	Results, effects	Vipunen Education Statistics Finland (patents and invention disclosures of higher education institutions) (2024) Finnish Industry Investment (Tesi) (number of deep tech companies) (2024) University of Oulu data collection (new research-driven enterprises of universities)	No	–	NB: Database lacking. Vipunen Education Statistics Finland contains some of the data (patents granted, invention disclosures) for higher education institutions. Universities have their own data collection (coordinated by the University of Oulu). Tulanet, the cooperation body of government research institutes, will collect information on research institutes in autumn 2025. It is necessary to strengthen the knowledge base. 'Deep tech company' as defined by Tesi.

* For the Research Council of Finland, the funding forms included in the indicator and their volumes in accordance with the 2025 budget proposal:

1. Flagships and international cooperation in the research fields of competence clusters included in the Flagships Programme (incl. Research Council of Finland/Business Finland/USA cooperation calls) (EUR 30.5 million + EUR 13 million, 2025 budget proposal)
 2. Proof of Concept (PoC) Funding (EUR 10 million)
 3. Parallel energy programmes of the Research Council of Finland and Business Finland (Research Council of Finland EUR 10 million)
- Total EUR 63.5 million or 12% the Research Council Budget Authority of EUR 515 million (item 29.40.51).

Information sources:

14. Research Council of Finland and Business Finland funding incentivising R&D cooperation of enterprises and research organisations
 - Research Council of Finland and Business Finland

15. Research organisations' R&D expenditure funded by the business sector
 - Vipunen Education Statistics Finland: <https://vipunen.fi/fi-fi/kkyhteiset/Sivut/Tutkimus--ja-kehitysty%C3%B6.aspx>
 - Statistics Finland: https://pxdata.stat.fi/PxWeb/pxweb/en/StatFin/StatFin__tkke/statfin_tkke_pxt_129x.px/
 - OECD: MSTI: <https://www.oecd.org/en/data/datasets/main-science-and-technology-indicators.html>

16. Enterprises engaged in innovation collaboration with research organisations
 - Statistics Finland, Innovation activity: https://pxdata.stat.fi/PxWeb/pxweb/en/StatFin/StatFin__inn/statfin_inn_pxt_14rc.px/

17. Joint publications of higher education institutions and research institutes with enterprises
 - Vipunen Education Statistics Finland (Ministry of Education and Culture data collection): <https://vipunen.fi/fi-fi/kkyhteiset/Sivut/Julkaisut.aspx> (Julkaisutyypit A-E > Pivotin julkaisumuuttajat muuttujalista > Yhteisjulkaisu yrityksen kanssa). See also: <https://wiki.eduuni.fi/pages/viewpage.action?pageId=469017967> (3.2.3.8 Yhteisjulkaisu yrityksen kanssa).
 - Leiden Ranking (universities): <https://www.leidenranking.com/>
 - State of Scientific Research in Finland 2024: <https://www.aka.fi/globalassets/2-suomen-akatemian-toiminta/2-tietoaineistot/state-of-scientific-research-2024.pdf>

18. Innovation activities of higher education institutions and research institutes

- Vipunen Education Statistics Finland: https://vipunen.fi/fi-fi/_layouts/15/xlviewer.aspx?id=/fi-fi/Raportit/Korkeakoulutus%20ja%20TK-toiminta%20-%20julkaisut%20A-E%20-%20julkaisutyypit.xlsb
- Number of deep tech companies: Finnish Industry Investment (Tesi)
- University of Oulu data collection

2 Business sector R&D activity

Indicator	Current level	Nature of indicator	Data source (latest data)	International comparability	Update frequency	Remarks
19. Number of enterprises engaged in R&D activities	2023: 2,758	Input	Statistics Finland, Research and development (2023)	No	Annually (autumn)	Statistics likely to only be reliable for enterprises with more than 10 persons (enterprises with 0–9 persons engaged in R&D in 2023 totalled 655). Excluding enterprises with fewer than 10 persons should be considered.
20. Business sector R&D expenditure (EUR) (a) and business sector R&D intensity (enterprise R&D expenditure over GDP) (b) (<i>key indicator</i>)	2023: EUR 5,703 million 2023: 2.09%	Input	Statistics Finland, Research and development (2023), OECD MSTI (2022), Eurostat (2023)	Yes (OECD; Eurostat)	Statistics Finland: Once a year, Eurostat: Once a year (October/November), MSTI: Twice a year (March and September)	–
21. Central government funding for business sector R&D activities, % of GDP (direct subsidies and tax expenditures)	2023: 0.0722% (direct subsidies 0.0597, tax expenditures 0.0125)	Input	OECD: R&D tax incentives database (both direct subsidies and tax expenditures) (2023)	Yes	Unknown	Direct central government funding but no tax expenditures available from Eurostat.
22. Turnover from innovation (share of turnover)	2022: 19.8%	Results, effects	Eurostat, Community Innovation Survey (2022); Statistics Finland	Yes	Once in two years (next in spring 2026)	The most recent years in the 2026 statistics are 2024–2022

Indicator	Current level	Nature of indicator	Data source (latest data)	International comparability	Update frequency	Remarks
23. Investments received by startups	2023: EUR 438 million	Results, effects	Finnish Venture Capital Association	To be explored	To be explored	Finnish Industry Investment (Tesi) also has data for this
24. PCT patent applications	2022: 1,307	Results, effects	OECD MSTI (2021)	Yes	To be explored	Must be expressed as e.g. per capita or over GDP.
25. Number of Finnish enterprises among the world's top 2,000 or the EU's top 800 R&D investors	2024: The world's top 2,000 includes 9 Finnish enterprises; the EU's top 800 includes 41 Finnish enterprises.	Results, effects	EU Industrial R&D Investment Scoreboard	Yes	Annually	–

Information sources:

19. Number of enterprises engaged in R&D activities
 - Statistics Finland: https://pxdata.stat.fi/PxWeb/pxweb/en/StatFin/StatFin__tkke/statfin_tkke_pxt_11qt.px/
20. Business sector R&D expenditure and R&D intensity:
 - Statistics Finland: https://pxdata.stat.fi/PxWeb/pxweb/en/StatFin/StatFin__tkke/statfin_tkke_pxt_11qr.px/
 - Eurostat: https://ec.europa.eu/eurostat/databrowser/view/tsc00001/default/table?lang=en&category=t_scitech.t_rd (share of GDP)
 - OECD MSTI: <https://www.oecd.org/en/data/datasets/main-science-and-technology-indicators.html>
21. Central government funding for business sector R&D activities
 - R&D tax incentives database: <https://www.oecd.org/en/topics/sub-issues/rd-tax-incentives.html>
22. Turnover from innovation
 - Eurostat: <https://ec.europa.eu/eurostat/data/database>
 - Statistics Finland: https://pxdata.stat.fi/PxWeb/pxweb/en/StatFin/StatFin__inn/statfin_inn_pxt_14rh.px/
23. Investments received by startups
 - Finnish Venture Capital Association: https://paaomasijoittajat.fi/app/uploads/VC_Finland_2024.pdf
 - See also Finnish Industry Investment (Tesi) data: <https://tesi.fi/en/market-data/>
24. PCT patent applications
 - OECD MSTI: <https://www.oecd.org/en/data/datasets/main-science-and-technology-indicators.html>
25. Number of Finnish enterprises among the world's top 2,000 or the EU's top 800 R&D investors
 - EU Industrial R&D Investment Scoreboard: <https://iri.jrc.ec.europa.eu/scoreboard/2024-eu-industrial-rd-investment-scoreboard>

3 Competence and R&D experts

Indicator	Current level	Nature of indicator	Data source (most recent year)	International comparability	Update frequency	Remarks
26. R&D intensity (R&D expenditure over GDP) (<i>key indicator</i>)	2023: 3.09%	Input	Statistics Finland, Research and development (2023), OECD MSTI (2022), Eurostat	Yes	Statistics Finland once a year, Eurostat: Once a year (October/November), MSTI: Twice a year (March and September)	Target level 4% in 2030.
27. R&D expenditure of higher education institutions and state research institutes	2023: Universities: EUR 1.66 billion Universities of applied sciences: EUR 271 million Research institutes: EUR 530 million	Input	Vipunen Education Statistics Finland	No	Annually (January)	–
28. R&D personnel (R&D in full-time equivalents) (<i>key indicator</i>)	2023: 59,724 (FTE)	Results, effects	Statistics Finland, Research and development (2023); OECD (2022)	Yes (OECD and Eurostat)	Statistics Finland: annually; OECD: not known.	OECD data has deficiencies and is only available as number, not in full-time equivalents.

Indicator	Current level	Nature of indicator	Data source (most recent year)	International comparability	Update frequency	Remarks
29. Number of persons with doctoral degrees (R&D full-time equivalents)	2023: 11,010 (FTE)	Results, effects	Statistics Finland (2023); Eurostat (2022)	Yes (Eurostat)	Annually	Eurostat data deficient for many countries.
30. Employees with doctoral degree in enterprises (R&D full-time equivalents, % of R&D personnel)	2023: 8.04% (FTE)	Results, effects	Statistics Finland (2023); Eurostat (2022)	To be explored, OECD possibly	Annually	Eurostat data deficient for many countries. The Research and Innovation Council set 15% as the target for the indicator in 2017.
31. Foreign researchers in higher education institutions (and research institutes) (share, FTE)	Universities: 2023: Career stages I–II: 40%, III–IV: 15%; Universities of applied sciences:** 2023: 15%	Results, effects	Vipunen Education Statistics Finland: Foreign teaching and research staff of universities by career stage and personnel of universities of applied sciences	No	–	Data not available for research institutes.

*15% target set by the Research and Innovation Council in 2017

** Universities of applied sciences: Only RDI personnel included

Information sources:

26. R&D intensity

- Statistics Finland Research and development: <https://stat.fi/en/statistics/tkke> and https://pxdata.stat.fi/PxWeb/pxweb/fi/StatFin/StatFin__tkke/statfin_tkke_pxt_13ri.px
- OECD MSTI: <https://www.oecd.org/en/data/datasets/main-science-and-technology-indicators.html>
- Eurostat: https://ec.europa.eu/eurostat/databrowser/view/tsc00001/default/table?lang=en&category=t_scitech.t_rd

27. Research funding of higher education institutions and state research institutes

- Vipunen Education Statistics Finland: <https://vipunen.fi/fi-fi/kkyhteiset/Sivut/Tutkimus--ja-kehitysty%C3%B6.aspx>
- Statistics Finland
 - Higher education institutions: table 129x: https://pxdata.stat.fi/PxWeb/pxweb/en/StatFin/StatFin__tkke/statfin_tkke_pxt_129x.px/
 - Research institutes: table 1331: https://pxdata.stat.fi/PxWeb/pxweb/en/StatFin/StatFin__tkke/statfin_tkke_pxt_1331.px/

28. R&D personnel (R&D in full-time equivalents)

- Statistics Finland: R&D personnel and R&D full-time equivalents: https://pxdata.stat.fi/PxWeb/pxweb/en/StatFin/StatFin__tkke/statfin_tkke_pxt_11sv.px/
- Eurostat: https://ec.europa.eu/eurostat/databrowser/view/rd_p_persqual11custom_17023076/default/table?lang=en
- OECD: Research and Development Statistics (RDS) Data: [https://data-explorer.oecd.org/vis?lc=en&fs\[0\]=Topic%2C1%7CScience%252C%20technology%20and%20innovation%23INT%23%7CResearch%20and%20development%20%28R%26D%29%23INT_RD%23&pg=0&fc=Topic&bp=true&snb=9&vw=tb&df\[ds\]=dsDisseminateFinalDMZ&df\[id\]=DSD_RDS_PERS%40DF_PERS_FUNC&df\[ag\]=OECD.STI.STP&df\[vs\]=1.0&dq=CHE%2BSWE%2BFIN%2BDNK.A.._T..._T..._T..PS%2BPS_FTE&pd=2015%2C&to\[TIME_PERIOD\]=false](https://data-explorer.oecd.org/vis?lc=en&fs[0]=Topic%2C1%7CScience%252C%20technology%20and%20innovation%23INT%23%7CResearch%20and%20development%20%28R%26D%29%23INT_RD%23&pg=0&fc=Topic&bp=true&snb=9&vw=tb&df[ds]=dsDisseminateFinalDMZ&df[id]=DSD_RDS_PERS%40DF_PERS_FUNC&df[ag]=OECD.STI.STP&df[vs]=1.0&dq=CHE%2BSWE%2BFIN%2BDNK.A.._T..._T..._T..PS%2BPS_FTE&pd=2015%2C&to[TIME_PERIOD]=false)

29. Number of persons with doctoral degrees (R&D full-time equivalents)

- Statistics Finland, R&D, table 11st: https://pxdata.stat.fi/PxWeb/pxweb/en/StatFin/StatFin__tkke/statfin_tkke_pxt_11st.px/
- Eurostat: https://ec.europa.eu/eurostat/databrowser/view/rd_p_persqual11custom_17023360/default/table?lang=en

30. Employees with doctoral degree in enterprises (R&D full-time equivalents, share of R&D personnel):

- Statistics Finland: table 11sq: https://pxdata.stat.fi/PxWeb/pxweb/en/StatFin/StatFin__tkke/statfin_tkke_pxt_11sq.px/
- Eurostat: https://ec.europa.eu/eurostat/databrowser/view/rd_p_persqual11custom_17024301/default/table?lang=en
- OECD: R&D personnel by sector of employment and qualification: [https://data-explorer.oecd.org/vis?lc=en&df\[ds\]=DisseminateFinalDMZ&df\[id\]=DSD_RDS_PERS%40DF_PERS_QUAL&df\[ag\]=oECD.STI.STP&df\[vs\]=1.0&av=true&dq=.A..T...RSE._T._T..PS&pd=2015%2C&to\[TIME_PERIoD\]=false&vw=tb](https://data-explorer.oecd.org/vis?lc=en&df[ds]=DisseminateFinalDMZ&df[id]=DSD_RDS_PERS%40DF_PERS_QUAL&df[ag]=oECD.STI.STP&df[vs]=1.0&av=true&dq=.A..T...RSE._T._T..PS&pd=2015%2C&to[TIME_PERIoD]=false&vw=tb)

31. Foreign researchers in higher education institutions (and research institutes)

- Vipunen Education Statistics Finland:
 - Universities: foreign teaching and research personnel of universities by career stage (university education – personnel): <https://vipunen.fi/fi-fi/yliopisto/Sivut/Henkil%C3%B6st%C3%B6.aspx>
 - Universities of applied sciences: https://vipunen.fi/fi-fi/_layouts/15/xlviewer.aspx?id=/fi-fi/Raportit/Amk%20henkil%C3%B6st%C3%B6%20-%20vuosi.xlsb

4 Research and technology infrastructures

As regards infrastructures, the indicators focus mainly on the 21 research infrastructures included in the Finnish national roadmap for research infrastructures for 2025–2028. The Research Council of Finland collects monitoring data on these 21 infrastructures. The data will be fully available from early 2027 (if necessary, can be brought forward to October 2026). Preliminary but not comprehensive data will be available in late 2025 (for the first monitoring report).

There is no data base available on technology infrastructures.

Indicator	Current level	Nature of indicator	Data source	International comparability	Update frequency	Remarks
32. Research Council of Finland research infrastructure funding (Roadmap infrastructures + others)	2024: EUR 35.8 million	Input	Research Council of Finland	No	Status for previous year annually in January–February (funding granted). Status data for 2024 will be received for the 2025 monitoring report.	The indicator includes research infrastructure funding granted by the Research Council of Finland, incl. EuroHPC JU matching funding. Please note that no direct input–output comparisons can be made between indicators 32 and 34–36.
33. Number of infrastructure users (academic users, enterprise users, other users) (Roadmap 2025–2028)	–	Results, effects	Research Council of Finland	No	Preliminary, non-comprehensive data in autumn 2025 (based on data reported to the Research Council in summer 2025 or earlier). Actual data (Roadmap 2025–2028) available in October 2026. Following that, updates every other year (October 2028 and October 2030).	Autumn 2025 data for the first report: based on the Roadmap’s infrastructure reporting data prior to 2025 (data aggregated for each infrastructure from the most recent available report(s); indicative, as data produced like this on the various infrastructures is not fully comparable)

Indicator	Current level	Nature of indicator	Data source	International comparability	Update frequency	Remarks
34. Utilisation of infrastructures (publications, patents, invention disclosures) (Roadmap 2025–2028)	–	Results, effects	Research Council of Finland	No	<p>Preliminary, non-comprehensive data in autumn 2025 (based on data reported to the Research Council in summer 2025 or earlier).</p> <p>Actual data (Roadmap 2025–2028) available in October 2026. Following that, updates every other year (October 2028 and October 2030).</p>	Autumn 2025 data for the first report: based on the Roadmap’s infrastructure reporting data prior to 2025 (data aggregated for each infrastructure from the most recent available report(s); indicative, as data produced like this on the various infrastructures is not fully comparable)
35. Share of international infrastructure collaboration partners of collaboration partners (Roadmap 2025–2028)	–	Results, effects	Research Council of Finland	No	<p>Preliminary, non-comprehensive data in autumn 2025 (based on data reported to the Research Council in summer 2025 or earlier).</p> <p>Actual data (Roadmap 2025–2028) available in October 2026. Following that, updates every other year (October 2028 and October 2030).</p>	Autumn 2025 data for the first report: based on the Roadmap’s infrastructure reporting data prior to 2025 (data aggregated for each infrastructure from the most recent available report(s); indicative, as data produced like this on the various infrastructures is not fully comparable)

Indicator	Current level	Nature of indicator	Data source	International comparability	Update frequency	Remarks
36. EU funding received by infrastructures	–	Results, effects	Research Council of Finland	No	<p>Preliminary, non-comprehensive data in autumn 2025 (based on data reported to the Research Council in summer 2025 or earlier).</p> <p>Actual data (Roadmap 2025–2028) available in October 2026. Following that, updates every other year (October 2028 and October 2030).</p>	<p>EU funding received by infrastructures during the reporting period.</p> <p>Autumn 2025 data for the first report: based on the Roadmap's infrastructure reporting data prior to 2025 (data aggregated for each infrastructure from the most recent available report(s); indicative, as data produced like this on the various infrastructures is not fully comparable)</p>
37. Finland's ranking in high-performance computing	6th (November 2024)	Results, effects	TOP500 Supercomputers list (Finland's ranking)	Yes	Twice a year (June and November)	Country ranking may need to be calculated, TOP500 list available.

Information sources:

32. Research Council of Finland research infrastructure funding

- Financial statements of the Research Council of Finland

32–36. Several indicators

- Research Council of Finland

37. Finland's ranking in high-performance computing

- TOP500 list: <https://top500.org/lists/top500/> and country ranking calculated from this: <https://www.visualcapitalist.com/ranked-top-countries-by-computing-power/>

5 International R&D cooperation

Indicator	Current level	Nature of indicator	Data source	International comparability	Update frequency	Remarks
38. Government R&D funding allocated for international cooperation	Research Council of Finland: 2024: EUR 21.2 million	Input	Research Council of Finland, Business Finland, State Budget (match funding)	No	Research Council of Finland: annually (February; status for previous year)	For the Research Council of Finland, the indicator would include funding granted by the Research Council in calls implemented in cooperation with European, Nordic and global funding providers (international joint calls). Membership contributions to international organisations would not be included in the indicator. For Business Finland, at least international joint calls would be included.
39. Number of actors having received Horizon Europe funding	614*	Activity	EUTI (also HE Dashboard)	Yes	EUTI: Twice a year (spring and autumn)	Reported as a cumulative amount.
40. Funding received through Horizon Europe programme (EUR and share of allocated funding) (<i>key indicator</i>)	EUR 1,231.5 million*, 2.8% of allocated HE funding	Results, effects	EUTI (also HE Dashboard)	Yes	EUTI: Twice a year (spring and autumn)	Reported as a cumulative amount.

Indicator	Current level	Nature of indicator	Data source	International comparability	Update frequency	Remarks
41. International innovation collaboration of enterprises (share of enterprises having engaged in international innovation collaboration of enterprises having engaged in innovation collaboration)	2022: 47.4%	Results, effects	Statistics Finland, Innovation (2022)	Yes (Eurostat, Community Innovation Survey)	Statistics Finland: Once in two years	Latest Statistics Finland data from 2022.
42. International joint publications	2023: 20,640 (53%) (peer reviewed)	Results, effects	Vipunen Education Statistics Finland (2023)	Vipunen Education Statistics Finland does not enable international comparison. InCites tool potential international comparable data (see below).	–	NB: European Innovation Scoreboard uses Science-Metrix data

* EUTI: Brief summary of Finland's HE participation. <https://www.businessfinland.fi/suomalaisille-asiakkaille/palvelut/rahoitus/horisontti-eurooppa/tilastotietoa> (based on European Commission project database of 12 February 2025) (Horizon Europe: 2021–2027, budget EUR 95 billion)

Information sources:

38. Government R&D funding allocated for international cooperation
- Research Council of Finland and Business Finland
39. Number of actors having received Horizon Europe Funding
- Horizon Dashboard: <https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/horizon-dashboard>
 - Brief summary of Finland's HE participation: <https://www.businessfinland.fi/suomalaisille-asiakkaille/palvelut/rahoitus/horisontti-eurooppa/tilastotietoa>
40. Funding received through Horizon Europe programme
- CORDIS: <https://www.aka.fi/globalassets/2-suomen-akatemia-toiminta/2-tietoaineistot/state-of-scientific-research-2024.pdf>
 - EUTI: <https://www.businessfinland.fi/suomalaisille-asiakkaille/palvelut/rahoitus/horisontti-eurooppa/tilastotietoa> (statistical review twice a year)
41. International innovation collaboration of enterprises (share of enterprises)
- Statistics Finland, Innovation, table 14r9, innovation co-operation by co-operation partner and location (of enterprises with innovation co-operation: https://pxdata.stat.fi/PxWeb/pxweb/en/StatFin/StatFin__inn/statfin_inn_pxt_14r9.px/)
42. International joint publications
- Vipunen Education Statistics Finland: <https://vipunen.fi/fi-fi/kkyhteiset/Sivut/Julkaisut.aspx>
 - International comparison: possibly InCites tool: <https://wiki.eduuni.fi/spaces/csckjmo/pages/242718557/InCites+Benchmarking+Analytics>
 - See also e.g. <https://www.rathenau.nl/en/science-figures/process/collaboration/share-international-co-publications-international>

Background indicator

Indicator	Current level	Nature of indicator	Data source (latest data)	International comparability	Update frequency	Remarks
Share of young adults (aged 25–34) with tertiary attainment	2023: 39.2%	Impact	OECD, Statistics Finland	Yes (OECD)	To be explored	OECD: survey-based, enables international comparison. Statistics Finland: population-level data, more precise, does not enable international comparison. Target set to be as close as possible to 50% in 2030.

Information sources:

Share of young adults (aged 25–34) with tertiary attainment

- OECD: labour force survey; OECD Education at a Glance: https://www.oecd.org/en/publications/education-at-a-glance-2024_c00cad36-en.html
- Statistics Finland's Register of Completed Education and Degrees (see Ministry of Education and Culture publication: Comparison of education levels following labour force survey reform)



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