



science & innovation

Department:
Science and Innovation
REPUBLIC OF SOUTH AFRICA

RESEARCH AND DEVELOPMENT TAX INCENTIVE PROGRAMME

Report to Parliament 2021/22

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PREFACE

The South African government offers the research and development (R&D) tax incentive to promote private sector R&D investment in the country. R&D is required to advance innovation, especially the development of new products and processes, and the improvement of existing ones. The incentive is one of the government policy instruments aimed at supporting early-phase research and development, thereby promoting innovation as a key driver of economic growth and competitiveness. This incentive is implemented under section 11D of the Income Tax Act, 1962.

The Income Tax Act was amended a decade ago to introduce the R&D tax incentive pre-approval system. In October 2022, the National Treasury published proposed draft amendments to section 11D of the Income Tax Act for public comment, which concluded a policy review that considered the effects of the incentive. Comments were received from stakeholders on the draft amendments and, in the 2023 Budget Speech, the Minister of Finance announced the extension of the incentive by 10 years, as well as refinements that will be included in the 2023 Taxation Laws Amendment Bill.

The year under review also marked the beginning of the implementation of the Science, Technology and Innovation Decadal Plan (2022-2032), which aims to address the need to develop South Africa's innovation capacity, build and transform science, technology and innovation (STI) human resources, strengthen and transform the research enterprise, and expand partnerships and linkages through science diplomacy. I encourage the business sector to conduct R&D activities in general, but particularly related to the thematic priorities set out in the Decadal Plan in striving towards economic growth.



DR BE NZIMANDE, MP

MINISTER OF HIGHER EDUCATION, SCIENCE AND INNOVATION

EXECUTIVE SUMMARY

The research and development (R&D) tax incentive programme is mandated through section 11D of the Income Tax Act, 1962, which provides that 150% of expenditure on approved R&D activities is tax deductible for companies carrying out such activities. The incentive is a government tax policy instrument that supports early-phase R&D and, by raising gross expenditure on research and development (GERD), contributes to the Medium-Term Strategic Framework's Priority 2: Economic Transformation and Job Creation.

This annual report on the performance of the R&D tax incentive programme for the period March 2021 to February 2022 (referred to in this document as 2021/22) is produced as required by section 11D(17) of the Income Tax Act.

In this report, the information presented focuses mainly on the applications received in 2021/22 and, where appropriate, the cumulative uptake and contribution of the incentive since October 2012. The information was obtained from two sources, namely, declarations made to the Department of Science and Innovation (DSI) about claims that companies submitted to the South African Revenue Service (SARS) retrospectively (from November 2006 to September 2012) and the applications for proposed R&D submitted to the DSI in the reporting period.

In 2021/22, the DSI received 121 applications from 91 companies. These applications were for 334 R&D projects, with total planned R&D expenditure estimated at R2,82 billion. The majority (69 or 57%) of applications were received from very large companies, followed by 32 (26,6%) from SMEs and 10 (8,3%) from large companies. Ten companies (8,3%) did not indicate their latest annual turnover. In 2021/22, the DSI also received a total of 280 R&D tax incentive progress reports related to 1 353 approved (i.e. ongoing or finalised) projects from 177 companies.

Of the 334 projects that were received in 2021/22, 13 were withdrawn by the applicants. Of the 321 remaining applications, 237 projects were adjudicated by the

end of the reporting period, leaving 84. Of the adjudicated applications, 110 projects received final decisions from the Minister.

The R&D Tax Incentive Adjudication and Monitoring Committee had 20 meetings in 2021/22 and adjudicated a total of 216 applications covering 562 projects. Of these, 215 were recommended for approval, 241 were not approved, 26 were referred back to the applicants for additional information, and 36 were for Committee's discussion and noting.

The majority of projects that the Committee recommended for approval related to the discovery of non-obvious scientific or technological knowledge. Most of those not recommended for approval related to making significant and innovative improvements to an invention, functional design, computer program or knowledge. Of the projects for which the Minister signed approval, the most related to the discovery of non-obvious scientific or technological knowledge (39) and conducting clinical trials (34). The two projects that were not approved related to the discovery of non-obvious scientific or technological knowledge and the creation or development of a computer program.

By the end of the reporting period, an estimated R963,8 million in planned R&D expenditure had been approved for project applications received in 2021/22. This amount comprises R897,7 million for projects approved by the Minister and R66,1 million for projects recommended for approval by the Committee but not yet approved by the Minister. The manufacturing sector, at R716,9 million (79,9%), reported the highest planned R&D expenditure for approved projects, followed by the financial intermediation, real estate and business services sector, at R108,3 million (12,1%).

The statistics in this report are a simple aggregation of the data available in the administrative records of the DSI and are reported at company level. They do not give a complete picture of the incentive's impact, but they do give an indication of participation and interest levels. The date in the sunset clause for the incentive has been extended to 31 December 2023. A statement was included in the 2023 National Treasury Budget Review for inclusion in the draft 2023 Taxation Laws Amendment Bill.

This report also provides a summary of key observations from the policy review that preceded the Minister of Finance's announcement on the extension of the incentive. The observations should be seen against the backdrop of government refining the corporate tax system by removing redundant, inefficient or inequitable tax incentives, but keeping others that are likely to result in positive societal benefits that outweigh the cost of providing such incentives. The policy review referred to analyses undertaken by various authors/institutions on the impact of the incentive and concluded that the South African R&D tax incentive had a positive impact on R&D spending by companies, increasing in-house R&D investment in terms of expenditure, R&D intensity and productivity, as well as reduced technology in-licensing.

1. APPLICATIONS AND PROJECTS RECEIVED

This section provides a summary of the uptake of the research and development (R&D) tax incentive in terms of the number of applications and projects received, and the number of companies participating during the period under review (March 2021 to February 2022, referred to in this document as 2021/22).

1.1 Number of applications and projects received by the DSI

In 2021/22, the DSI received a total of 121 R&D tax incentive applications for 334 projects from 91 companies (Figure 1). A total of 13 projects were withdrawn by the applicants, leaving the DSI with 321 projects.

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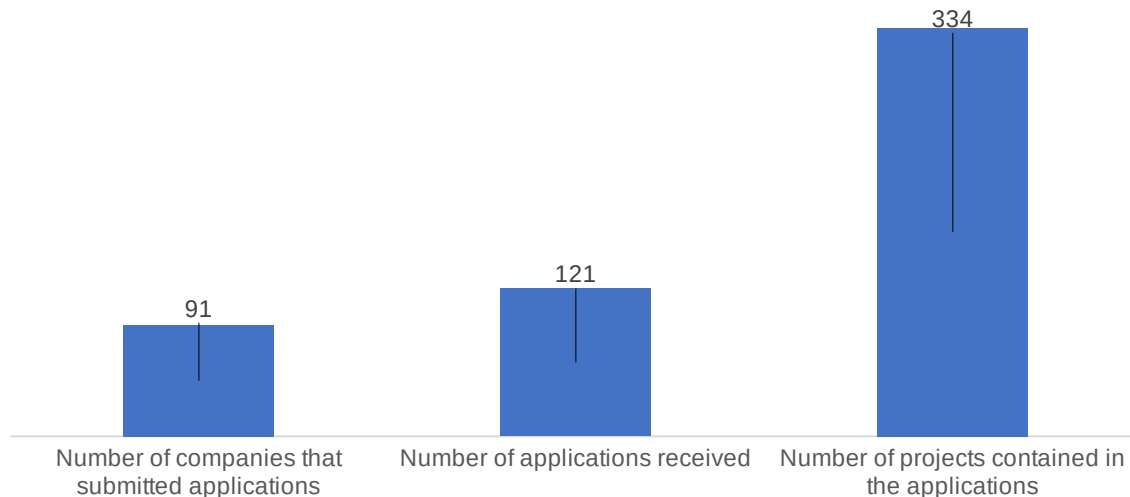


Figure 1: Uptake of applications received by the DSI in 2021/22

Table 1 shows that most of the applications (69 or 57%), covering 187 projects (56%), came from very large companies. Thirty-two applications (26,6%) covering 118 projects (35,3%) were received from small or medium enterprises (SMEs) and 10 (8,3%) covering 19 projects (5,7%) from large companies. Ten companies (8,3%), which submitted applications for a total of 10 projects (3%), did not indicate their latest annual turnover.

Table 1: Number and percentages of applications and projects received in 2021/22 per company turnover size

	Applications received		Projects received	
	Number	Percentage	Number	Percentage
Turnover not indicated	10	8,3%	10	3,0%
R10m and below (SME)	18	14,9%	35	10,5%
R10m-R15m (SME)	7	5,8%	31	9,3%
R15m-R20m (SME)	2	1,7%	40	12,0%
R20m-R30m (SME)	3	2,5%	7	2,1%
R30m-R40m (SME)	2	1,7%	5	1,5%
R40m-R50m (large)	0	0,0%	0	0,0%
R50m-R100m (large)	10	8,3%	19	5,7%
R100m and above (very large)	69	57,0%	187	56,0%
Total	121	100,0%	334	100,0%

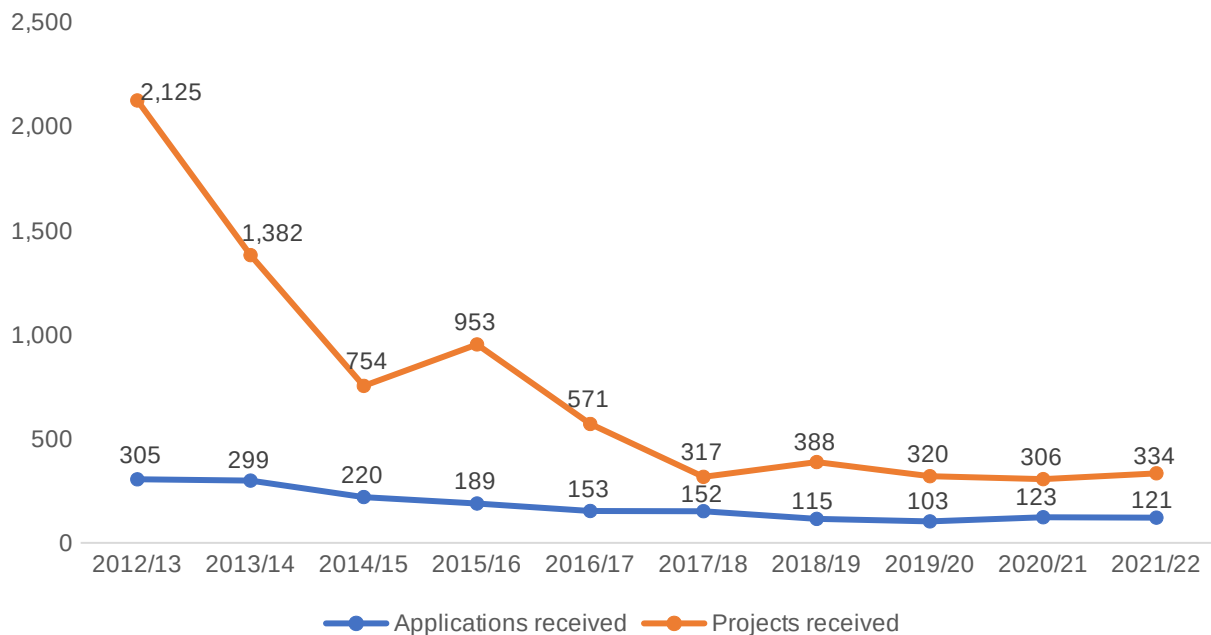


Figure 2: Number of applications and projects received by the DSI (2012/13 to 2021/22)

Figure 2 indicates that R&D tax incentive participation in 2020/21 and 2021/22 is in line with the trends of recent years. Over the past five years, the incentive attracted an average of 121 applications with 334 projects a year. There was no drop in the number of projects received, despite the impact of the Covid-19 pandemic and uncertainty that may have existed on the future of the incentive (e.g. in anticipation of National

Treasury's pronouncement regarding the extension of the programme and potential amendments). Since the introduction of the pre-approval system in October 2012, a total of 1 475 applications containing 5 325 projects have been received.

1.2 Profile of participating companies

Table 2 shows the distribution of companies submitting applications in 2021/22 by industry sector. In line with the trends of previous years, a combined 79,2% of participating companies came from two sectors, namely, manufacturing (45,1%) and financial intermediation, real estate and business services (34,1%). Of the manufacturing sector companies, 13 (31,7%) manufactured pharmaceuticals. In 2021/22, there was no participation from the construction or community and social services sectors.

Table 2: Number of participating companies per industry sector

Sector	Number of companies	Percentage
Agriculture, hunting, forestry and fishing	8	8,8%
Mining and quarrying	2	2,2%
Manufacturing	41	45,1%
Electricity, gas and water supply	3	3,3%
Construction	0	0,0%
Wholesale and retail trade	1	1,1%
Transport, storage and communication	5	5,5%
Financial intermediation, real estate and business services	31	34,1%
Community and social services	0	0,0%
Total	91	100,0%

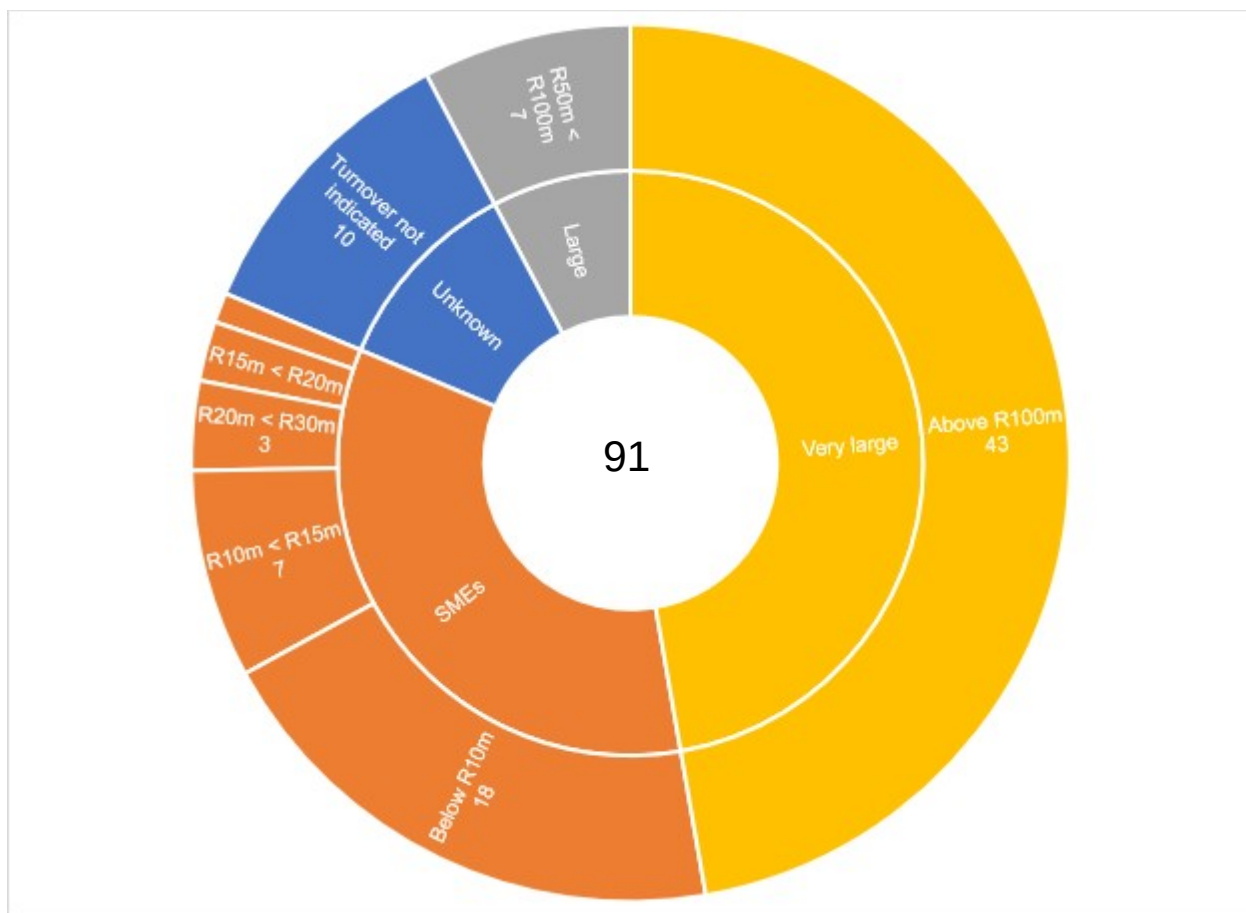


Figure 3: Number of companies that submitted applications per turnover size (Mar. 2021 to Feb. 2022)

Figure 3 shows that, of the 91 companies that participated in the incentive in 2021/22, 43 were very large companies (47,2%), followed by 31 SMEs (34,1%) and seven large companies (7,7%). Very large companies are globally known to be the main drivers of innovation and productivity gains, which explains the trend in South Africa as well. A total of 10 companies (11,0%) did not indicate their latest annual turnover. Although SMEs make up a third of companies, the 2019/20 National Survey on Research and Experimental Development (R&D survey) states that SMEs indicated that they were struggling to sustain their R&D projects and did not consider themselves likely to undertake any more R&D during the Covid-19 pandemic.

The companies that participated in the incentive in 2021/22 were located in six provinces, although participation in three of these provinces was negligible. Provincial

location in this report refers to the physical addresses indicated by the applicants on the application form, and not necessarily the location at which the R&D activities are performed. For this reason, it is likely that the recorded addresses are those of the national headquarters of companies which completed the application forms, most of which are located in Gauteng. This has, however, been addressed in the new online application system, which collects information on R&D location for each project rather than the company headquarters.

Table 3: Number and percentages of companies that participated in the incentive in 2021/22 per province

Province	Participating companies	
	Number of companies	Percentage
Mpumalanga	0	0,0%
Eastern Cape	1	1,1%
Northern Cape	0	0,0%
Western Cape	15	16,5%
Gauteng	60	65,9%
North West	1	1,1%
Free State	1	1,1%
KwaZulu-Natal	13	14,3%
Limpopo	0	0,0%
Total	91	100,0%

Table 3 shows that Gauteng had the greatest number of companies participating in the incentive (60 or 65,9%), followed by the Western Cape (15 or 16,5%) and KwaZulu-Natal (13 companies or 14,3%). Companies from these three provinces contributed 115 (or 95% of the total) applications in 2021/22. The remaining three companies participating were from the Eastern Cape, North West and the Free State.

2. PROCESSING OF APPLICATIONS AND PROJECTS

The number of applications processed and finalised during the reporting period and the time taken to inform applicants of decisions are key indicators of the efficiency of the administration of the R&D tax incentive programme.

2.1 Number of adjudication meetings and recommendations on project applications

Approval or non-approval for projects to access the incentive is granted on the basis of a recommendation by the R&D Tax Incentive Adjudication and Monitoring Committee (the Committee), which evaluates the project(s) covered by each application according to the definition of R&D in terms of section 11D of the Income Tax Act. The Committee is made up of South African Revenue Service and National Treasury officials appointed by the Minister of Finance, and officials from the DSI.

Of the 334 project applications received in 2021/22, a total of 13 projects were withdrawn by the applicants, leaving 321 applications. Of these, 237 projects were adjudicated by the end of the reporting period. The Committee also adjudicated applications left over from the previous year. During the reporting period, the Committee had 20 meetings, at which 216 applications covering 562 projects were adjudicated. Of the project applications, 215 were recommended for approval, 241 were not approved, 26 were referred back to the applicants for the provision of additional information or clarification, and 36 projects were for the Committee's discussion or noting. Of the 237 projects adjudicated by the Committee during the reporting period, 110 (46,4%) received final decisions from the Minister.

For projects to be approved, their activities must meet the requirements of section 11D of the Income Tax Act, which defines R&D as systematic investigative or systematic experimental activities of which the results are uncertain. The onus is on the applicant to demonstrate that their proposed activities qualify. Where non-approval is likely, applicants are given a further opportunity in terms of section 3 of the Promotion of

Administrative Justice Act, 2000 (Act No. 3 of 2000) (PAJA), to submit additional information that may support the eligibility of their activities before a final decision is made. Of the applications that were adjudicated in 2021/22, 29 applications covering 125 projects were subjected to this process. During the same period, 32 letters were sent to applicants asking them to submit representations in terms of PAJA.

It is to be noted that the number of applications and projects (216 applications with 562 projects) adjudicated by the Committee indicates the total number of adjudications over the year. Applications and projects that are considered by the Committee several times because they are referred back to applicants for clarification or additional information, or in terms of PAJA, are counted each time they are adjudicated.

2.2 Number of projects approved and not approved

For the purposes of the R&D tax incentive, R&D means systematic investigative or systematic experimental activities of which the result is uncertain for the purpose of –

- (a) discovering non-obvious scientific or technological knowledge;
- (b) creating or developing –
 - (i) an invention¹;
 - (ii) a functional design² that is innovative in respect of the functional characteristics or intended uses of that functional design;
 - (iii) a computer program³ which is of an innovative nature; or
 - (iv) knowledge essential to the use of such invention, functional design or computer program⁴; or
- (c) making a significant and innovative improvement to any invention, functional design, computer program or knowledge contemplated in paragraph (a) or (b) for the purpose of –
 - (i) new or improved function;

¹ As defined in section 2 of the Patents Act.

² As defined in section 1 of the Designs Act, capable of qualifying for registration under section 14 of the Act.

³ As defined in section 1 of the Copyright Act.

⁴ Other than creating or developing operating manuals or instruction manuals or documents of a similar nature intended to be utilised in respect of that invention, functional design or computer program subsequent to the research and development being completed.

- (ii) improvement of performance;
 - (iii) improvement of reliability; or
 - (iv) improvement of quality;
- of that invention, functional design, computer program or knowledge;
- (d) creating or developing a multisource pharmaceutical product⁵; or
 - (e) conducting a clinical trial⁶.

For adjudication, applicants are required to select one or more predefined purposes from the section 11D(1) definition of R&D to indicate the purpose for which the proposed scientific or technological activities will be conducted. An applicant can select more than one purpose per project.

Of the project applications adjudicated by the Committee, the purpose given for the majority (12) of those recommended for approval was discovering non-obvious scientific or technological knowledge, while the purpose for the majority (35) of those not recommended for approval was making a significant and innovative improvements to invention, functional design, computer program or knowledge (Table 4). Of the projects that were signed off as approved by the Minister, most were for discovering non-obvious scientific or technological knowledge (39) or conducting a clinical trial (34). The two projects not approved by the Minister were stated to be for the purpose of discovering non-obvious scientific or technological knowledge and creating or developing a computer program. None of the projects adjudicated by the Committee by the end of the reporting period were for the purpose of creating or developing a multisource pharmaceutical product.

⁵ As defined in the World Health Organisation Technical Report Series, No. 937, 2006 Annex 7 Multisource (generic) pharmaceutical products: guidelines on registration requirements to establish interchangeability issued by the World Health Organisation, conforming to such requirements as must be prescribed by regulations made by the Minister after consultation with the Minister for Science and Technology.

⁶ As defined in Appendix F of the Guidelines for good practice in the conduct of clinical trials with human participants in South Africa issued by the Department of Health (2006), conforming to such requirements as must be prescribed by regulations made by the Minister after consultation with the Minister for Science and Technology.

Table 4: Number of projects adjudicated and signed off per stated purpose of R&D

Subsection of section 11(D)(1) cited for purpose	Projects recommended by Committee	Projects not recommended by Committee	Projects approved by Minister	Projects not approved by Minister
(a) Discovering non-obvious scientific or technological knowledge	12	25	39	1
(b)(i) Creating or developing an invention	4	28	15	0
(b)(ii) Creating or developing a functional design	3	4	9	0
(b)(iii) Creating or developing a computer program	2	3	25	1
(b)(vi) Creating or developing knowledge essential to the use of an invention, functional design, computer program or knowledge	1	21	8	0
(c) Making a significant and innovative improvements to invention, functional design, computer program or knowledge	6	35	24	0
(d) Creating or developing a multisource pharmaceutical product	0	0	0	0
(e) Conducting a clinical trial	5	0	34	0

Note: Due to administrative processes, there is a delay between Committee recommendations and approval/non-approval by the Minister, so no correlation should be drawn between the two stages. The number of recommendations may differ from the number of approvals if they do not fall in the same reporting period. For example, the figures in this table do not include projects that the Committee adjudicated in 2020/21 but that were only approved/not approved in 2021/22.

Table 5 shows the breakdown of adjudicated and approved projects by company turnover size. By the end of the reporting period, 110 projects had been signed off by the Minister, of which 108 were approved and two not. Of those adjudicated but not yet signed off, 23 were recommended for approval by the Committee and 69 were not. Sixty-five of the project applications not approved were from SMEs and three were from very large companies. It is concerning that only 13 SME applications were approved. However, applicants are given opportunities to provide additional information to strengthen their applications, and the Directorate: Private Sector R&D Promotions also

interacts with applicants to explain the criteria and provide any other assistance required.

Table 5: Number of project application adjudicated and signed off per company turnover size

	Projects recommended by Committee	Projects not recommended by Committee	Projects approved by the Minister	Projects not approved by the Minister
Turnover not indicated	0	1	2	0
R10m and below (SMEs)	1	1	5	1
R10m-R15m (SMEs)	0	25	1	0
R15m-R20m (SMEs)	0	39	0	0
R20m-R30m (SMEs)	0	0	5	0
R30m-R40m (SMEs)	3	0	2	0
R40m-R50m (large)	0	0	0	0
R50m-R100m (large)	4	0	9	1
R100m and above (very large)	15	3	84	0
Total	23	69	108	2

Note: Due to administrative processes, there is a delay between Committee recommendations and approval/non-approval by the Minister, so no correlation should be drawn between the two stages. The number of recommendations may differ from the number of approvals if they do not fall in the same reporting period. For example, the figures in this table do not include projects that the Committee adjudicated in 2020/21 but that were only approved/not approved in 2021/22.

Table 6 shows the breakdown of adjudicated and approved projects by industry sector. Of the approved projects, the majority (80) were from the manufacturing sector, followed by the financial intermediation, real estate and business services sector (19). Of those recommended for approval, the majority (61) were from the agriculture, hunting, forestry and fishing sector. This indicates that most of the project applications received from this sector are not in line with the definition of R&D in the Income Tax Act. The Directorate: Private Sector R&D Promotions has recently developed brief guidelines specifically for this sector as it relates to activities for registering agricultural products for the South African market. It is hoped that these guidelines will provide additional insights into the information required for such applications and the particular criteria for the sector.

Table 6: Number of adjudicated and approved projects per industry sector

	Projects recommended	Projects not recommended	Projects approved	Projects not approved
Agriculture, hunting, forestry and fishing	7	61	0	0
Mining and quarrying	0	0	1	0
Manufacturing	7	2	80	0
Electricity, gas and water supply	0	1	2	0
Construction	0	0	0	0
Wholesale and retail trade	0	0	0	0
Transport, storage and communication	4	0	6	0
Financial intermediation, real estate and business services	5	5	19	2
Community and social services	0	0	0	0
Total	23	69	108	2

Note: Due to administrative processes, there is a delay between Committee recommendations and approval/non-approval by the Minister, so no correlation should be drawn between the two stages. The number of recommendations may differ from the number of approvals if they do not fall in the same reporting period. For example, the figures in this table do not include projects that the Committee adjudicated in 2020/21 but that were only approved/not approved in 2021/22.

3. EXPENDITURE AMOUNT PLANNED FOR R&D BUDGET

The data reported by the DSI below comes from applications received and can be disaggregated per industry sector. In contrast, SARS data published in the annual National Treasury Budget Review speaks to actual expenditure claimed by taxpayers and allowed by SARS. The detailed breakdown of actual expenditure claimed per industry sector provided in the budget review allows the DSI to compare the SARS data to the R&D tax incentive data disclosed on application forms and progress reports. However, SARS information is available only for the period between 2016/17 and 2019/20, so this report will not include a comparison with SARS data, but will concentrate on the applications received by the DSI in 2021/22.

3.1 Planned expenditure for project applications received and approved

The planned R&D expenditure for the project applications received in 2021/22 was for an estimated total of R2,82 billion. However, as shown in Figure 4, only an estimated R963,8 million of this planned R&D expenditure was approved for the tax incentive. This amount comprises projects to the value of R897,7 million approved by the Minister and projects to the value of R66,1 million in planned R&D expenditure recommended for approval by the Committee but not yet approved by the Minister.

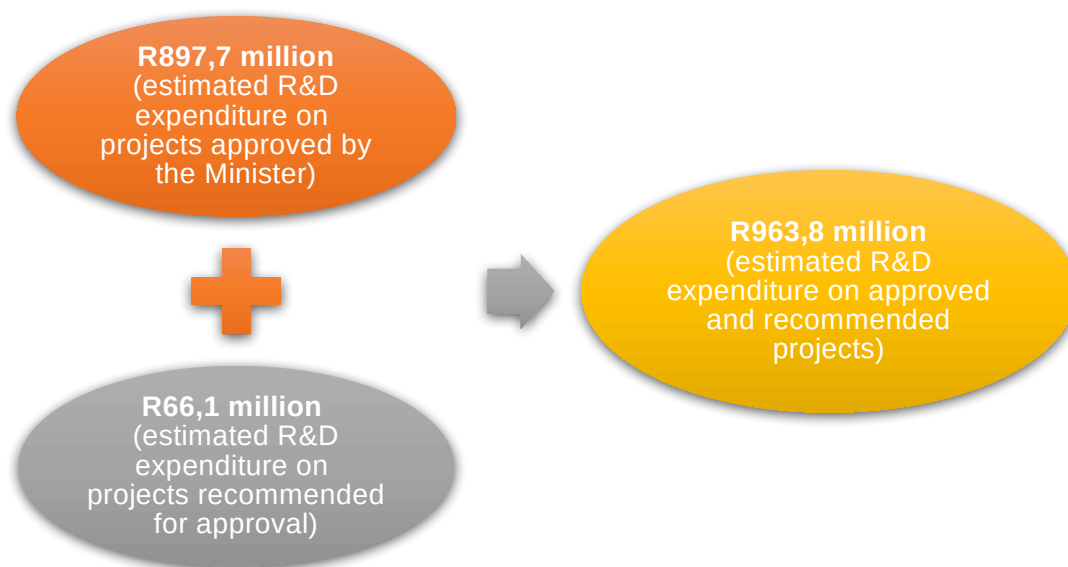


Figure 4: Planned R&D expenditure on approved and recommended projects

Table 7 shows the breakdown of planned R&D expenditure for projects received in 2021/22, those approved by the Minister, and those recommended for approval by the Committee per industry sector. Following the trends reported in above and in previous years, the manufacturing sector had the highest planned R&D expenditure for approved projects (R716,9 million or 79,9%), followed by the financial Intermediation, real estate and business services sector (R108,3 million or 12,1%).

Table 7: Planned R&D expenditure per industry sector

Sector	Planned R&D expenditure for all projects	Planned R&D expenditure for approved projects	Planned R&D expenditure for projects recommended for approval
Agriculture, hunting, forestry and fishing	63 831 309	0	5 027 000
Mining and quarrying	37 120 000	17 120 000	0
Manufacturing	1 541 551 650	716 952 331	24 916 405
Electricity, gas and water supply	15 649 575	2 900 000	0
Construction	0	0	0
Wholesale and retail trade	9 600 000	0	0
Transport, storage and communication	384 631 884	52 350 000	900 000
Financial intermediation, real estate and business services	764 346 928	108 348 175	35 266 833
Community and social services	0	0	0
Total	2 816 731 346	897 670 506	66 110 238

3.2 Estimates of tax revenue foregone

Tax revenue foregone represents part of the government's financial support for business sector scientific or technological R&D activities. The National Treasury conducted a sectoral trend analysis in tax expenditure for a period between 2016/17 and 2019/20, using SARS tax data.⁷ Table 8 and Figure 5 show that half of the total R&D tax expenditure foregone supported the manufacturing sector over this period. These figures show that the largest share of support is directed to manufacturing, followed by financial and business services and to a lesser extent the agricultural sector, which also corresponds with the trend of applications received from these

⁷ The National Treasury Budget Review (23 February 2022).

sectors. It appears that the incentive encourages R&D in sectors that are important for creating jobs. It should be noted that the data for the most recent years has not yet been finalised and will be updated in future budget reviews as companies submit their claims.

Table 8: Selected corporate tax estimates by sector

Sectors	2016/17 (R million)	2017/18 (R million)	2018/19 (R million)	2019/20 (R million)	Total (R million)
Manufacturing	123	128	144	57	452
Financial intermediation, insurance, real estate and business services	42	41	41	27	151
Agriculture, hunting, forestry and fishing	22	35	27	12	96
Community, social and personal services	17	24	18	5	64
Mining and quarrying	14	23	30	0	67
Others	16	15	19	18	68
Total	234	266	279	119	898

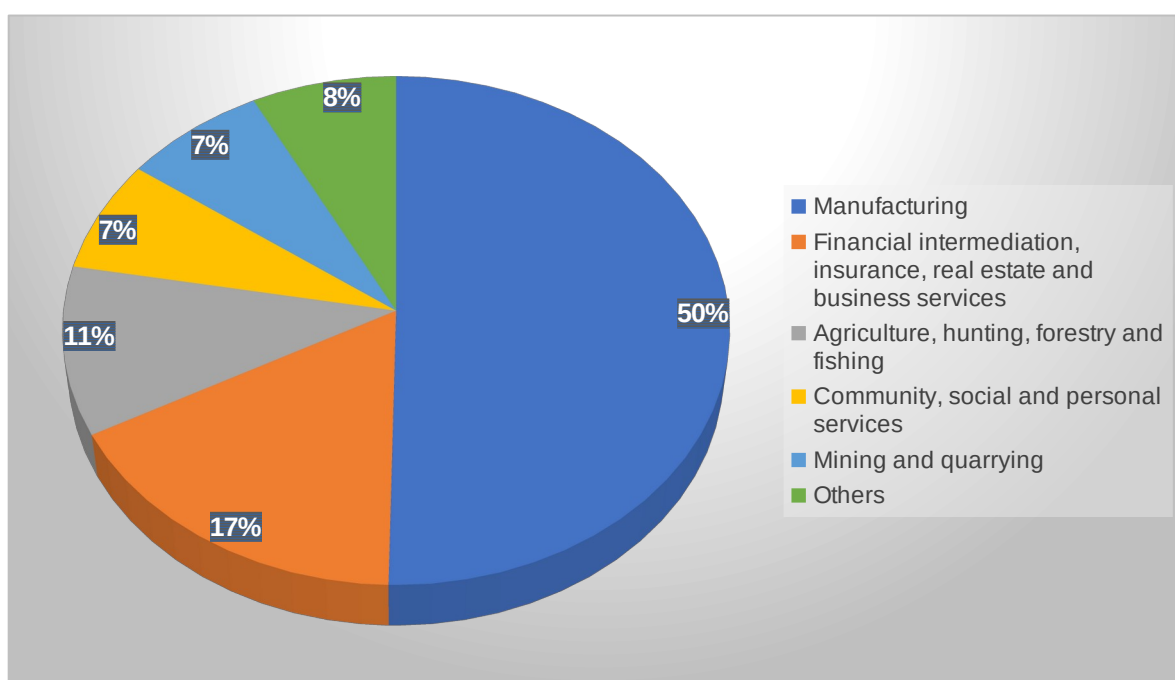


Figure 5: Percentage distribution of selected business tax estimates by sector

The National Treasury Budget Review (2022) estimated that the tax revenue foregone due to the R&D tax incentive for the period 2005/06 to 2019/20 was just above R5,9 billion. This indicates that the private sector conducted R&D costing approximately R42 billion during this period. The figures in Table 9 represent deductions allowed by SARS on claims by companies for each particular tax year and are revised annually, as companies submit their claims (as mentioned above). The figures also include claims that have been made under section 11B of the Income Tax Act, which was used before November 2006.

Table 9: Tax revenue foregone due to the R&D tax incentive

Reporting period	Tax revenue foregone (R'000)
2005/06	183 000
2006/07	449 000
2007/08	358 000
2008/09	594 000
2009/10	966 000
2010/11	1 216 000
2011/12	361 000
2012/13	197 000
2013/14	219 000
2014/15	207 000
2015/16	277 000
2016/17	234 000
2017/18	266 000
2018/19	279 000
2019/20	119 000
Total	5 925 000

Note: Information for 2020/21 and 2021/22 is not yet available.

3.3 Consideration of the National Survey of Research and Experimental Development

The annual national survey of research and experimental development (R&D survey) is one of the instruments used to monitor the R&D investment level in the country and to inform policies to increase R&D and innovation performance. The survey is undertaken on behalf of the DSI by the Centre for Science Technology and Innovation Indicators, housed at the Human Sciences Research Council. The 2019/20 R&D survey reports

that gross expenditure on research and development (GERD)⁸ for 2019/20 amounted to R34,5 billion in real terms. This represents the second decline of 6,3% (R2,3 billion) from the R36,8 billion recorded in 2018/19. GERD as a percentage of gross domestic product (GDP) has been largely stagnant over the years. In 2019/20, GERD/GDP (the measure for R&D intensity in the economy) was 0,62%, which is seven basis points lower than the 0,69% recorded in 2018/19.

The 2019 White Paper on Science, Technology and Innovation aims to increase GERD/GDP to 1,5% by the year 2030 and aspires to achieve GERD/GDP of 2% a decade later⁹. The government's five-year plan (the 2019-2024 Medium-Term Strategic Framework) also recommitted to increasing the intensity of R&D investment in the economy by revising the GERD/GDP target to 1,1% by 2024. The 0,62% reported in the 2019/20 R&D survey indicates that these are ambitious targets that require substantial additional investment from both the public and private sectors.

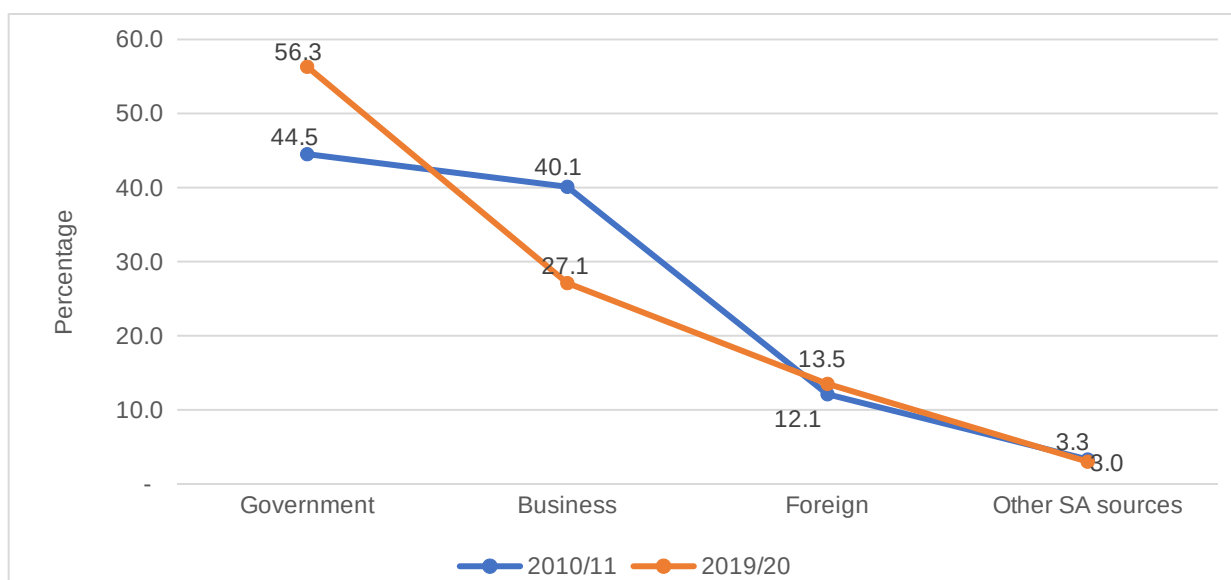


Figure 6: Shift in R&D funding sources

GERD is performed in five institutional sectors, namely, government, science councils, higher education, business and not-for-profit. There are three main broadly defined

⁸ GERD is defined as an aggregated measure of in-house R&D expenditure performed domestically in five institutional sectors, namely government, science councils, higher education institutions, the business sector and the not-for-profit sector.

⁹ 2019 White Paper on Science, Technology and Innovation.

sources of funding, namely, government, business and foreign sources, with basic, applied and experimental research being the three main types of research activity.

Figure 6 shows that, according to the 2019/20 R&D survey, the main sources of funding for R&D in South Africa are government (56,3%), business (27,1%) and foreign sources (13,5%).

The government sector's share of R&D funding (which includes science councils and universities' own funds) increased by 11,2% between 2010/11 and 2019/20. R&D funding from foreign sources increased by 1,4% over this period, while the business sector's funding for R&D declined by 13%.

4. PROGRESS REPORTS

Section 11D(13) of the Act requires companies that have received ministerial approval for R&D projects to submit progress reports to the DSI annually, within 12 months after the close of the company's tax assessment year. Many companies fail to comply with this requirement and DSI accordingly does not have a full picture of the progress of R&D projects approved under the programme. Poor compliance with reporting requirements, also highlighted in an impact evaluation study conducted by the World Bank in 2019, has an impact on monitoring and evaluation. Despite constraints, recommendations made in the impact evaluation study on how compliance could be improved are therefore being explored.

For example, since 2019 the DSI has introduced measures to improve compliance such as conducting compliance audits using the database of approved R&D projects and sending letters to companies that have not submitted reports. In parallel, the online system discussed in more detail in par. 7 has been developed to make it easier to submit and receive progress reports. The system will also facilitate the monitoring of compliance with section 11D(13), in that progress report statuses can be monitored through automated reports, and it will automatically send reminders to taxpayers about progress reports that are due. An increase in progress reports is therefore anticipated. Ultimately, the online system should enable the DSI to extract more information relating to outputs produced and the impact of the R&D tax incentive at company level.

4.1 Number of progress reports received by the DSI

Figure 7 shows the number of companies that have submitted progress reports during the reporting period. The DSI received a total of 280 R&D tax incentive progress reports related to 1 353 projects from 177 beneficiary companies. The total eligible R&D expenditure incurred as reported in these progress reports is R6,8 billion.

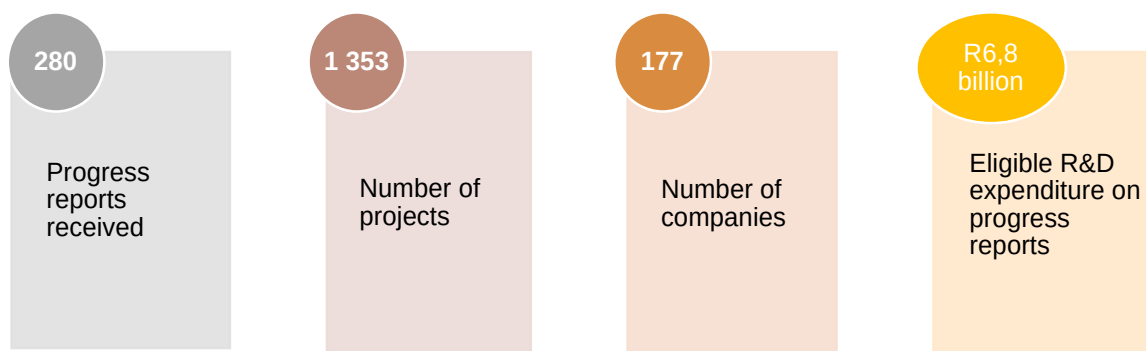


Figure 7: Number of progress reports received by the DSI

4.2 Number of projects reported in progress reports

Companies reporting on the progress of their approved R&D projects are also required to indicate the status of the project for the relevant financial year. Figure 8 show the status of each project for which progress reports were received in 2021/22. The majority (947 or 70%) of projects are in progress, 225 (16,6%) have been completed, 154 (11,4%) are on hold, 20 (1,5%) have been discontinued for various reasons, five (0,4%) have not yet begun, and two (0,1%) have been transferred to another entity.

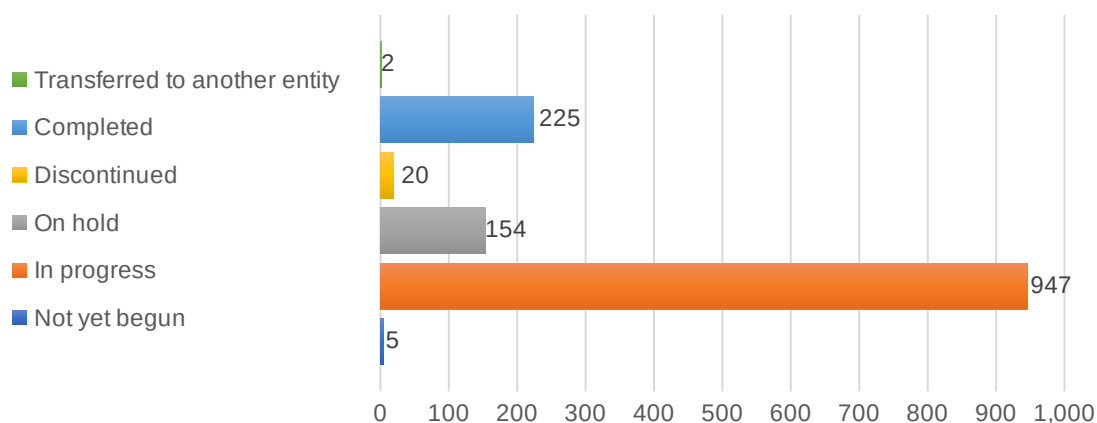


Figure 8: Status of projects for which reports were received

4.3 Status of projects per financial year

Some companies submitted multiple progress reports (i.e. progress reports for multiple financial years) for the same project. It appears that the non-compliance measures taken by the DSI in recent years have encouraged companies to rectify past non-compliance.

Table 10: Number of project progress reports received in the 2021/22 financial year

Financial year	Not yet started	In progress	On hold	Discontinued	Completed	Transferred to another entity	Total
2012/13	—	4	—	—	—	—	4
2013/14	—	5	—	—	—	—	5
2014/15	—	16	—	—	8	—	24
2015/16	—	13	—	—	2	—	15
2016/17	—	14	1	—	8	—	23
2017/18	—	17	1	—	1	—	19
2018/19	—	38	3	—	7	—	48
2019/20	1	81	17	—	24	—	123
2020/21	2	864	101	7	131	2	707
2021/22	2	285	30	13	43	—	373
2022/23		10	1	—	1	—	12
Total	5	947	154	20	225	2	1 353

Table 10 and Figure 9 show that more than half (707 or 52,3%) of the projects for which progress reports were submitted during the reporting period relate to R&D activities performed during the 2020/21 financial year. The 2020/21 financial year has the highest number of projects still in progress, followed by 2021/22, with 285. The 12 project reports submitted during 2022/23 relate to companies with financial years ending on 28 February 2022. A recent campaign by the Directorate: Private Sector R&D Promotions is expected to improve compliance by taxpayers accessing the incentive.

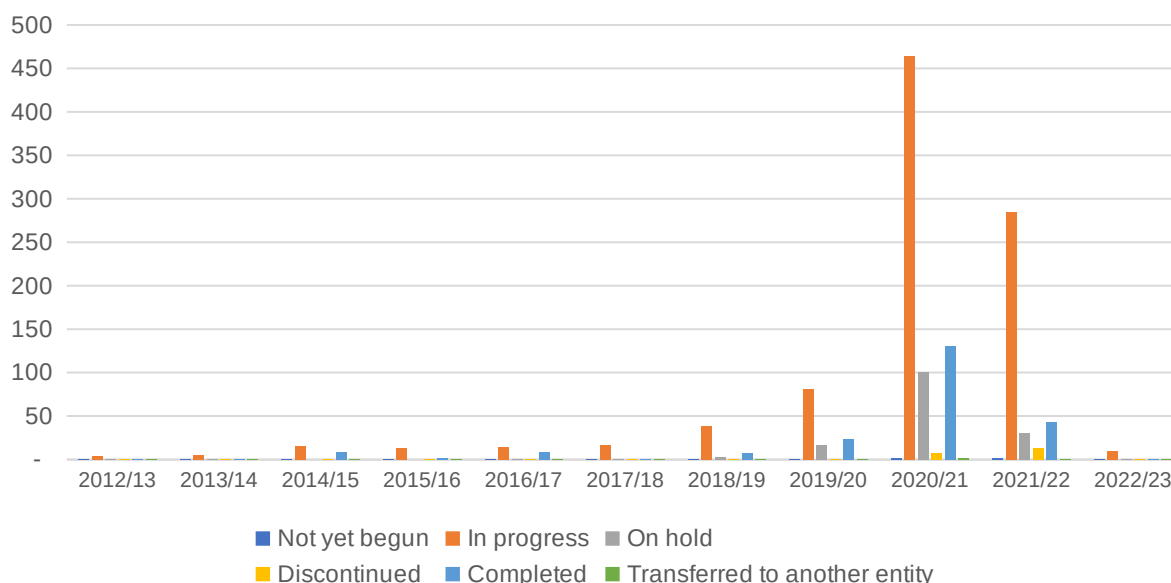


Figure 9: Number of projects per status for each financial year

4.4 R&D expenditure reported in the 2021/22 reporting period

Table 11 and Figure 10 give a breakdown of the R6,8 billion of R&D expenditure incurred between the 2012/13 and 2022/23 company financial years, in contrast to the number of projects reported on, by the end of the reporting period. Although the number of project reports received in the 2021/22 financial years (373) were just over half of the reports received in the 2020/21 financial year (707), their eligible R&D expenditure was higher (R3,6 billion) than the amount (R2 billion) reported for 2020/21. This indicates that activities with higher R&D expenditure per project were carried out in 2021/22.

Table 11: R&D expenditure on projects for which progress reports were received in 2021/22

Financial year	Number of projects	Eligible R&D expenditure (R'000)
2012/13	4	-
2013/14	5	2 997 172
2014/15	24	9 413 258
2015/16	15	30 998 355
2016/17	23	43 947 289

2017/18	19	46 733 790
2018/19	48	339 373 572
2019/20	123	776 255 686
2020/21	707	2 015 928 797
2021/22	373	3 595 423 675
2022/23	12	7 476 459
Total	1 353	6 868 548 054

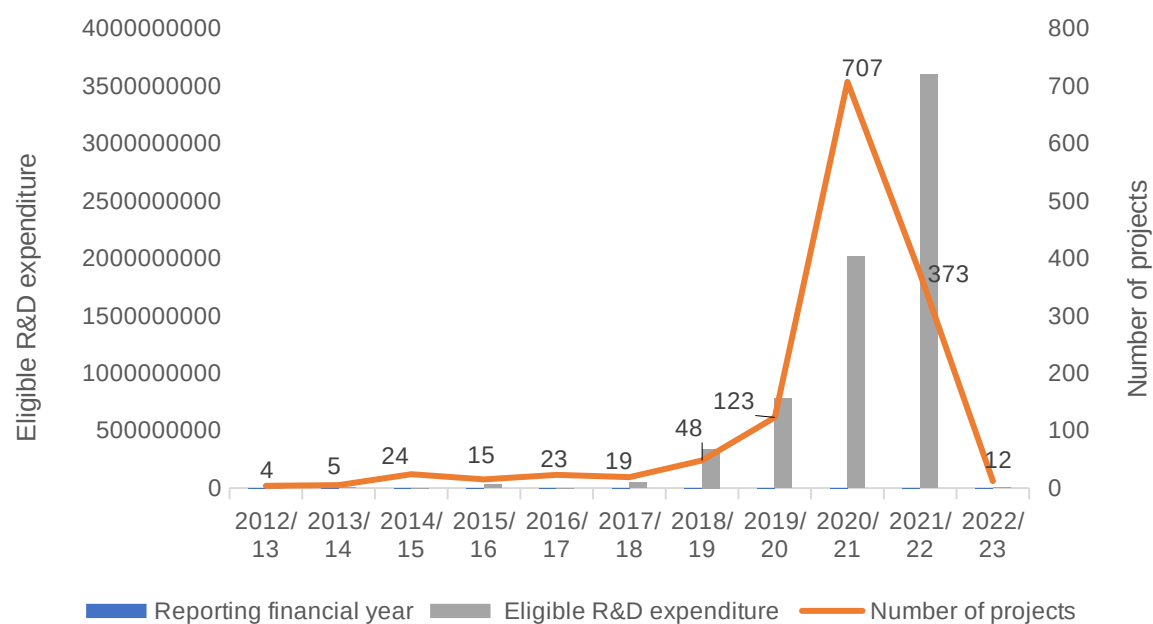


Figure 10: Eligible R&D expenditure for projects for which progress reports were received in 2021/22

5. INCENTIVE AWARENESS, PROMOTION AND NEW QUERIES

To increase the number of applications received for the R&D tax incentive, the DSI's Directorate: Private Sector R&D Promotions, which administers the tax incentive programme, holds meetings with potential and current applicants or their representatives to increase awareness of the programme and to provide a clearer understanding of the criteria for approval.

In 2021/22, the directorate held meetings and engagements with multiple stakeholders, including taxpayers and various types of consulting companies and legal firms. Many meetings were held with new applicants. During the interactions, the DSI gave presentations and shared information to improve awareness of the R&D tax incentive programme and make it more accessible.

6. POLICY REVIEWS AND ENGAGEMENTS

The 2022 National Treasury Budget Review acknowledged that tax incentives may be complex and unfairly favour certain taxpayers. In line with the recommendations of the Katz Commission and the Davis Tax Committee, National Treasury has indicated that expiring incentives that do not have broad social or economic benefits will not be renewed. Government also continues to assess existing incentives. Those found to be effective and which create the intended benefits will be retained and, where necessary, redesigned to improve their transparency, efficiency and performance.

The aim of the R&D tax incentive programme is to increase the knowledge base of companies, leading to improved productivity, enabling them to develop new or improved products and processes. This has the potential to result in spillovers that assist in growing the economy and making South Africa more internationally competitive. The incentive does not support innovation not based on scientific or technological R&D, or provide assistance in the commercialisation, industrialisation or incubation of new start-ups per se. Other government programmes are aimed at addressing these aspects and related funding gaps. Rather, the R&D tax incentive aims to incentivise companies to conduct R&D themselves, particularly R&D that they would not have carried out if there had not been the incentive.

A policy review on the R&D tax incentive has been conducted over the last couple of years to determine whether to extend the R&D tax incentive programme beyond its sunset clause date. This review was congruent with the government's move to refine the corporate tax system by removing tax incentives that were redundant, inefficient or inequitable, or that showed little evidence of socio-economic benefit. The government intends to ensure that the tax system is more efficient, and equitable for different types/sectors of taxpayers.

A discussion document entitled *Reviewing the Design, Implementation and Impact of South Africa's Research and Development Tax Incentive* and an online survey were published jointly by the National Treasury and the DSI for public comment on

15 December 2021. This document was developed to set out the historical background of the incentive and outline its policy design. The document also included analyses undertaken by various authors/institutions on the impact of this and similar incentives. The review and the survey specifically focused on the definition of R&D, the requirement that R&D be "innovative", internal business process exclusion, software and computer programs, and third-party R&D funding arrangements.

The discussion document pointed to three recent studies that used the National Treasury-SARS panel dataset of about 200 000 South African companies. It concluded that the South African R&D tax incentive had a positive impact on R&D spending by companies.

S James (2017), in a paper commissioned by the Davis Tax Committee, estimated that companies benefiting from the incentive spent R4 million more on R&D than those that conducted R&D but did not benefit from the incentive. The study also found that for every one rand of tax revenue foregone, companies spent an additional R1,83 on R&D. The impact was found to vary by sector, with a higher positive impact in sectors such as aircraft and ships, pharmaceuticals, computers and services.

Tregenna et al. (2020) focused on the South African manufacturing sector for the period 2010 to 2017 and found positive and significant effects associated with the R&D tax incentive, in that companies that received the R&D tax allowance increased in-house R&D investment in terms of expenditure and intensity. R&D tax allowances for companies also reduced technology in-licensing.

Kreuser and Newman (2018), using the NT-SARS panel dataset for the period 2010-2013, found a positive and significant correlation between R&D expenditure and productivity, as well as a positive correlation between R&D tax allowances and total factor productivity, even after controlling for actual R&D expenditure. This implies that companies that receive the R&D tax incentive are more productive.

This research has shown that, apart from additional R&D spending, on average, large companies dominate the R&D space and companies which invest in R&D employ nearly nine times as many people as non-R&D-active companies.

Assessing the true impact of the R&D tax incentive is complicated, as it is only one of the instruments used to incentivise and stimulate R&D in South Africa. In general, studies tend not to look at the impact of R&D tax incentives on innovation per se. This is as it is methodologically more difficult to assess the impact on innovation, owing to both data gaps and the fact that R&D output takes longer to materialise.

The discussion document also highlighted important points about the structure of business R&D spending in South Africa drawn from studies the DSI reviewed.

A small number of large companies are the biggest contributors to business expenditure on R&D (BERD) in South Africa. Only a few companies (about 1 885 companies in 2011 and 1 670 in 2012) reported positive values of R&D expenditure in their income statements over the period 2009 to 2014. A large number of companies reported R&D expenditure of less than R1 million. Companies spending more than R40 million on R&D drive business R&D spending in South Africa. This type of concentration of BERD is not unique to South Africa. Large companies in R&D-driven industries perform most of the R&D in several other economies.

The discussion document also noted the following important points about the structure of business R&D spending in South Africa drawn from studies the DSI reviewed:

- The bulk of the R&D-active companies are older and larger (in terms of gross sales and/or the number of employees) and are more likely to be in the business service and manufacturing subsectors.
- Most R&D-active companies in South Africa allocate a relatively small share of resources to R&D expenditure (i.e. their R&D intensity is very low), compared to companies in OECD countries.
- Few companies regularly spend money on R&D. The SARS-NT data reveals that nearly one-third of R&D-active companies reported positive R&D

expenditure values in only one financial year over the period 2009 to 2014. The R&D survey data shows that, of the 1 437 companies in the sample, only 144 companies (10%) conducted R&D continuously throughout the 10-year period. Of the 144 companies, 61 (42%) were the largest contributors to BERD (exceeding R20 million for 10 or more consecutive years).

- There is considerable attrition in R&D-active companies. About 74% of the companies that appeared in the 2006 R&D survey had left the R&D system by 2016. The number of exits showed an average loss of 60% across all BERD investment with the period.
- The proportion of BERD contribution to GERD has been declining over the years. This is partly due to an increased contribution of the higher education sector to R&D. BERD has not yet recovered since the 2008 global economic crisis. The impact of Covid-19 on BERD is not yet known, but is expected to be severe.
- Low prevalence, persistence and intensity of R&D expenditure among South African manufacturing companies confirm that developing countries generally invest much less in R&D as a share of GDP than developed countries.
- The high number of exits from the R&D system justifies the need for continued public support for R&D to help retain companies in the R&D system. Modifications in the design of public R&D support instruments like the R&D tax incentive may also be necessary to attract and encourage companies to invest in R&D for longer periods. However, as stated at the outset, a tax incentive cannot be effective on its own. A strong policy ecosystem that provides support (monetary and otherwise) from the R&D phase through to commercialisation is required. This is necessary as SMEs often struggle to finance their R&D projects externally because of uncertain outcomes and the long time R&D projects take, which also means a long time until they can be commercialised. Inadequate support from government forces companies to decide between risking their limited funds by conducting R&D at a lower scale, or suspending or abandoning R&D projects that they would have invested in if sufficient funds had been available. This results in SMEs investing less in R&D or even struggling to

survive beyond the first year, which in turn results in low investment in R&D in the economy.

The National Advisory Council on Innovation published a review of the National Research and Development Strategy and Ten-Year Innovation Plan in May 2020. This review included an assessment of the R&D tax incentive, with the reviewers recommending that, rather than giving up on the R&D tax incentive, the DSI should work harder to improve the impact of the incentive. The reviewers considered increasing the impact particularly important because raising new revenue from a highly constrained fiscus will not be easy when funds for many socio-economic programmes are being reduced.

To interact with taxpayers and provide feedback on public comments received on the discussion document, an online session was held on 7 April 2022. It was attended by stakeholders representing the private sector, consulting companies and government departments. Feedback indicated that the main reasons for companies not conducting R&D related to capacity issues, affordability, timing (R&D being time consuming and having a long return on investment) and the poor economic environment.

Hindrances to participation in the R&D tax incentive were identified as the complexity of the incentive, a lack of knowledge, the turnaround time and inadequate support. Stakeholders indicated that more should be done to market the incentive and increase support for applicants. There should be specific and enhanced support for SMEs to counter the cost of applying for the incentive (time and other resources) and the perceived need for consultants. A capped grant system for SMEs was proposed.

Proposed draft amendments to section 11D of the Income Tax Act were published by National Treasury on 7 October 2022, and public comments have been taken into account.

In his 2023 budget speech, the Minister of Finance announced that the R&D tax incentive would be extended for a period of 10 years from 1 January 2024, as a

government tax policy instrument that supports "early-phase research and development".

Apart from extending the incentive, the following refinements will be made:

- There will be a six-month grace period after projects have commenced for the application to be submitted. This will allow new and smaller applicants to gather information and potentially benefit from the incentive.
- The definition of R&D will be made simpler to understand and administer, resulting in an easier application process for the incentive. The incentive should apply only to activities aimed at resolving a scientific or technological uncertainty. For example, if a professional with appropriate knowledge and skills could resolve the uncertainty without R&D, then the incentive will not apply.
- The definition of R&D will be changed from an "end result" approach (for example, it must be patentable) to incorporate principles of the OECD Frascati Manual, in which activities should be novel, uncertain, systematic, and transferable and/or reproducible. This change recognises that, given the risk and uncertainty involved, applicants will not know how their R&D activities will unfold when applying for the incentive. It also removes the confusing requirement that R&D be "innovative".
- Internal business processes will no longer be excluded, so that if an activity is investigative or experimental with the aim of resolving a scientific or technological uncertainty and it meets the proposed (revised) definition of R&D for the purposes of this incentive, it should be considered R&D – regardless of whether it is intended for sale or for use by the company.
- The SARS Commissioner will be allowed to disclose certain information to the Minister of Higher Education, Science and Innovation to improve monitoring and evaluation.

The R&D tax incentive has been found to have a positive impact and is seen as one of a mix of policy instruments (including direct government investment in scientific research institutions and projects, infrastructure, human capital and other measures to facilitate technical progress) to support early-phase research and development, and ultimately to grow the economy.

7. ONLINE R&D TAX INCENTIVE SYSTEM

On 3 October 2022, the DSI introduced an online system for the R&D tax incentive programme. The system is internet-based and accessible from any web browser or device. The system can be used by applicants to submit new R&D tax incentive project applications and progress reports, as well as changes to company details.

The automated system is intended to streamline the application and reporting processes, decreasing the administrative burden for all stakeholders and improving the turnaround times for responses to applications. The launch of the online system is an important milestone for the DSI, as the public have been asking for one since 2015. The system will enable the R&D tax incentive team to enhance its support for new and existing R&D tax incentive participants.

The project application form questions have been improved to make it easier for companies to demonstrate clearly and adequately that their R&D activities are eligible in terms of section 11D of the Income Tax Act. Some of the information collected through the application form will be used for monitoring and evaluation only (e.g. location of the R&D activities, ownership of applicant and funding details), and will not have any bearing on the eligibility of new projects.

The DSI will gradually migrate the large volume of existing data from manually submitted forms (both approved applications and progress reports) to enable companies with approved R&D projects to submit their annual progress reports online.

APPENDIX A: REFERENCES

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APPENDIX B: DESCRIPTION OF STANDARD INDUSTRIAL CLASSIFICATION CODES

Major division	Sub-division	Description
10 000	10 000	Agriculture, hunting, forestry and fishing
	11 000	Agriculture, hunting and related services
	12 000	Forestry, logging and related services
	13 000	Fishing, operation of fish hatcheries and fish farms
20 000	20 000	Mining and quarrying
	21 000	Mining of coal (hard) and lignite (brown coal)
	22 000	Extraction of crude petroleum oils and natural gas; service activities incidental to oil and gas extraction, excluding surveying
	23 000	Mining of gold and uranium ore
	24 000	Mining of metal ores, except gold and uranium ore
	25 000	Other mining and quarrying activities
	29 000	Service activities incidental to the mining of minerals
30 000	30 000	Manufacturing
	30 000	Manufacture of food products, beverages and tobacco products
	31 000	Manufacture of textiles, clothing and leather goods
	32 000	Manufacture of wood and products of wood and cork except (furniture); manufacture of articles of straw and plaiting materials; manufacture of paper and paper products; manufacture of publishing, printing and reproduction of recorded material
	33 000	Manufacture of coke, refined petroleum products and nuclear fuel; manufacture of chemicals and chemical products; manufacture of rubber and plastic products
	34 000	Manufacture of non-metallic mineral products
	35 000	Manufacture of basic metals, fabricated metal products,

Major division	Sub-division	Description
		machinery and equipment and of office, accounting and computing machinery
	36 000	Manufacture of electrical machinery and apparatus (not elsewhere classified)
	37 000	Manufacture of radio, television and communication equipment and apparatus for medical application, precision and optical instruments, watches and clocks
	38 000	Manufacture of transport equipment
	39 000	Manufacture of furniture; manufacturing (not elsewhere classified); recycling
40 000	40 000	Electricity, gas and water supply
	41 000	Electricity, gas, steam and hot water supply
	42 000	Collection, purification and distribution of water
50 000	50 000	Construction
	50 000	Construction
60 000	60 000	Wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods; hotels and restaurants
	61 000	Wholesale and commission trade, except of motor vehicles and motorcycles
	62 000	Retail trade, except of motor vehicles and motorcycles; repair of personal household goods
	63 000	Sale, maintenance and repair of motor vehicles and motorcycles; retail trade in automotive fuel
	64 000	Hotels and restaurants
70 000	70 000	Transport, storage and communication
	71 000	Land transport; transport via pipelines
	72 000	Water transport
	73 000	Air transport
	74 000	Supporting and auxiliary transport activities; activities of

Major division	Sub-division	Description
		travel agencies
	75 000	Post and telecommunications
80 000	80 000	Financial intermediation, insurance, real estate and business services
	81 000	Financial intermediation, except insurance and pension funding
	81 000	Insurance and pension funding, except compulsory social security
	83 000	Activities auxiliary to financial intermediation
	84 000	Real estate activities
	85 000	Renting of machinery and equipment, without operator, and of personal and household goods
	86 000	Computer and related activities
	87 000	Research and experimental development
	88 000	Other business activities
90 000	90 000	Community, social and personal services
	91 000	Public administration, compulsory social security and defence activities
	92 000	Education
	93 000	Health and social work
	94 000	Sewage and refuse disposal, sanitation and similar activities
	95 000	Activities of membership organisations (not elsewhere classified)
	96 000	Recreational, cultural and sporting activities
	99 000	Other service activities

APPENDIX C: METHODOLOGY

The report presents information on the performance of the R&D Tax Incentive programme for the period March 2021 to February 2022. It is based on the information submitted to the DSI by companies that participated in the programme.

The data used to compile this report is based mainly on applications received between March 2021 and February 2022, and seldom on retrospective forms (prior to October 2012), pre-approval applications (from 1 October 2012) and the 2022 national budget review by National Treasury. Data on tax revenue foregone due to the R&D Tax Incentive programme is estimated by the National Treasury on the basis of the deductions made against the claims for the R&D tax incentive submitted to SARS. These figures are updated annually and published in the National Treasury's budget review.

No data was sourced from SARS. Data was collected in accordance with the requirements of section 11D(11) of the Income Tax Act through an application form and progress report form (for approved activities) prescribed by the Department. The taxpayer completes the application form and progress report form electronically and submits it to the Department. Data was captured on the R&D tax incentive programme database at the Department.

For the applications, companies have to report on their annual R&D budget and the estimated planned R&D expenditure, which, in many companies, spans a period of two to three years. The R&D tax incentive database is arranged in a manner that enables reporting according to Statistics South Africa's Standard Industrial Classification (SIC) codes.

Annual data stated in the report represent the totals that were available at the time of compiling the report.

The application and progress report forms collect information on the following:

- The particulars of the taxpayer, including the principal industrial activity in which they are involved.
- A summary of projects and R&D activities, i.e. the nature of the R&D, its classification in terms of fields of science, SIC, and supporting information such as R&D documentation and research outputs for the projects.
- R&D expenditure and which components of R&D activities are contracted out.
- Sources of funding for R&D activities, the nature of government grants received, and the personnel involved in the R&D projects.

The Income Tax Act requires that the information be presented in an aggregated and anonymous form. The Department has made certain that the tables and figures in the report do not unintentionally reveal the details of individual companies and their R&D activities.