



science & innovation

Department:
Science and Innovation
REPUBLIC OF SOUTH AFRICA

RESEARCH AND DEVELOPMENT TAX INCENTIVE PROGRAMME

Report to Parliament 2019/20

TABLE OF CONTENTS

PREFACE.....	IV
EXECUTIVE SUMMARY	VI
PERFORMANCE OVERVIEW	VIII
1. INTRODUCTION	1
1.1 Legislative mandate.....	1
1.2 Objectives of the R&D tax incentive	1
1.3 Benefits of the R&D tax incentive	1
1.4 Eligibility for the R&D tax incentive	3
1.5 Criteria used to determine eligibility	4
1.6 Exclusions and limitations.....	5
1.7 R&D tax incentive application process.....	6
2. APPLICATIONS FOR THE R&D TAX INCENTIVE.....	7
2.1 Number of applications received by the DSI.....	7
2.2 Profile of participating companies	10
2.3 Incentive awareness and impact	13
3. PROCESSING OF APPLICATIONS	16
3.1 Turnaround times	16
3.2 Status of pre-approval applications as at 29 February 2020.....	18
4. PROFILE OF COMPANIES SUPPORTED BY THE INCENTIVE	22
5. R&D EXPENDITURE SUPPORTED BY THE INCENTIVE.....	26
5.1 Estimated R&D expenditure on approved applications.....	26
5.2 Contribution to IPAP priority areas	28
5.3 Estimates of tax revenue foregone due to the incentive	29
6. CONCLUSION	32
APPENDIX A: REFERENCES	33
APPENDIX B SUPPLEMENTARY INFORMATION TABLES	34
APPENDIX C: DEFINITIONS OF SCIENTIFIC FIELDS	37
APPENDIX D: DESCRIPTION OF STANDARD INDUSTRIAL CLASSIFICATION CODES.....	39
APPENDIX E: METHODOLOGY	42

LIST OF FIGURES

Figure 1: Synopsis of legislative and regulatory changes	2
Figure 2: The application process	6
Figure 3: Uptake of applications received by the DSI in 2019/20	7
Figure 4: Number of applications received by the DSI and those containing multi-year projects (Oct. 2012 to Feb. 2020)	8
Figure 5: Number of applications per industrial sector (2019/20)	9
Figure 6: Number of applications per industrial sector (Oct. 2012 to Feb. 2020)	9
Figure 7: Uptake of companies that submitted applications per turnover size (Nov. 2006 to Feb. 2020)	12
Figure 8: Overall status in processing applications as at Feb. 2020	17
Figure 9: Status of pre-approval applications as at Feb. 2020	19
Figure 10: Breakdown of application approvals and non-approvals per industry sector (Oct. 2012 to Feb. 2020)	20
Figure 11: Approved applications per industry sector (Oct. 2012 to Feb. 2020)	21
Figure 12: Non-approved applications per industry sector (Oct. 2012 to Feb. 2020)	21
Figure 13: Number of companies supported per turnover size (Nov. 2006 to Feb. 2020)	23
Figure 14: Provincial distribution of supported R&D activities	25
Figure 15: Overall R&D expenditure supported (Nov. 2006 to Feb. 2020)	26

LIST OF TABLES

Table 1: Number of participating companies per industry sector	11
Table 2: Number of companies participating per company turnover size	12
Table 3: Number of applications adjudicated per industry sector (Oct. 2012 to Feb. 2020)	20
Table 4: Estimated R&D expenditure on approved applications per industry sector (Oct. 2012 to Feb. 2020)	27
Table 5: Contribution to IPAP priority areas (Nov. 2006 to Feb. 2020)	28
Table 6: Tax revenue foregone due to the R&D tax incentive	29

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 a mix of government policy instruments aimed at promoting science and innovation as a key driver of economic growth and competitiveness.

Section 11D of the Income Tax Act, 1962 (Act No. 58 of 1962), under which the R&D tax incentive programme is offered, requires the Minister of Higher Education, Science and Innovation to report annually to Parliament and other stakeholders on the performance of this programme. The publication of the annual report is intended not only to highlight the progress made in the performance of the programme, but also to make information available to stakeholders about lessons learnt in the implementation of the incentive.

The programme is open to companies of any size and in any industry. By 2019/20, 97,2% of valid applications were adjudicated and final decisions were provided for 88,7% of these applications. Of the adjudicated applications, 63,5% were approved, while 36,5% were not approved. The majority (42%) of the companies that have received support from the incentive since November 2006, were categorised as small and medium enterprises (SMEs). Very large enterprises made up 36% of the companies, large enterprises made up 13%, and 9% did not disclose their turnover size.

The impact evaluation study that was recently conducted by the World Bank did not meet all its objectives. In consultation with the National Treasury, the Department of Science and Innovation (DSI) is conducting a policy review to inform decisions about the incentive going forward, including the possibility of adjustments and the continuation of the programme beyond October 2022.

I encourage the private sector to continue to make use of this opportunity to invest in scientific and technological R&D to improve the success of their businesses and South Africa's innovation performance and competitiveness.

A handwritten signature in black ink, appearing to read 'B E NZIMANDE', written over a horizontal line.

DR B E NZIMANDE, MP

MINISTER OF HIGHER EDUCATION, SCIENCE AND INNOVATION

EXECUTIVE SUMMARY

This annual report on the performance of the R&D tax incentive programme for the period March 2019 to February 2020 (referred to in this document as 2019/20) is produced as required by section 11D(17) of the Income Tax Act (1962).

In this report, where appropriate, information is presented in cumulative terms to show the overall uptake and contribution of the incentive since November 2006. 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 submitted to the DSI under the pre-approval system (from October 2012 to February 2020).

In 2019/20, the DSI received a total of 103 applications from 83 companies. These applications were for 320 R&D projects, with total R&D expenditure estimated at R6,5 billion. Of the companies that submitted applications, 28 applied for the first time, increasing the total number of companies participating in the incentive since its inception in November 2006 to 1 169. Of the 1 169 companies, 954 received support by the end of February 2020.

A total of 1 537 pre-approval applications had been received by the DSI since October 2012. Of this, 47 were withdrawn by the applicants, leaving the DSI with 1 488 valid applications. By the end of 2019/20, 1 447 (97,2%) had been adjudicated, and 1 320 (88,7%) had received final decisions from the Minister. A total of 919 (63,5%) applications, involving 499 companies, were approved. The planned expenditure on R&D in the approved applications totals an estimated R74,5 billion. If this is added to the R25,4 billion reported under the retrospective system, approximately R99,9 billion in R&D expenditure has been supported and approved by the incentive since November 2006.

Different size categories of companies access the R&D tax incentive. Of the 954 companies that received support since 2006, 42% were small and medium

enterprises (SMEs) (with latest year turnover of R40 million and below). Very large enterprises (R100 million and above) made up 36% of the companies and large enterprises (R41 million to R100 million) made up 13%, while 9% did not disclose their turnover size. The latter, whose turnover is unknown, distorts the overall picture of distribution by company size.

The R&D tax incentive supports the sectoral focus areas of the current Industrial Policy Action Plan (IPAP). Since November 2006, about 69,2% (636) of the approved applications were in these areas and accounted for 71,2% (an estimated R71,2 billion) of the approved planned R&D expenditure. The top four IPAP sectoral focus areas in terms of cumulative planned R&D expenditure supported and approved are i) agro-processing; ii) mineral beneficiation; iii) chemicals, cosmetics, pharmaceuticals and plastics; and iv) electrotechnical and IT.

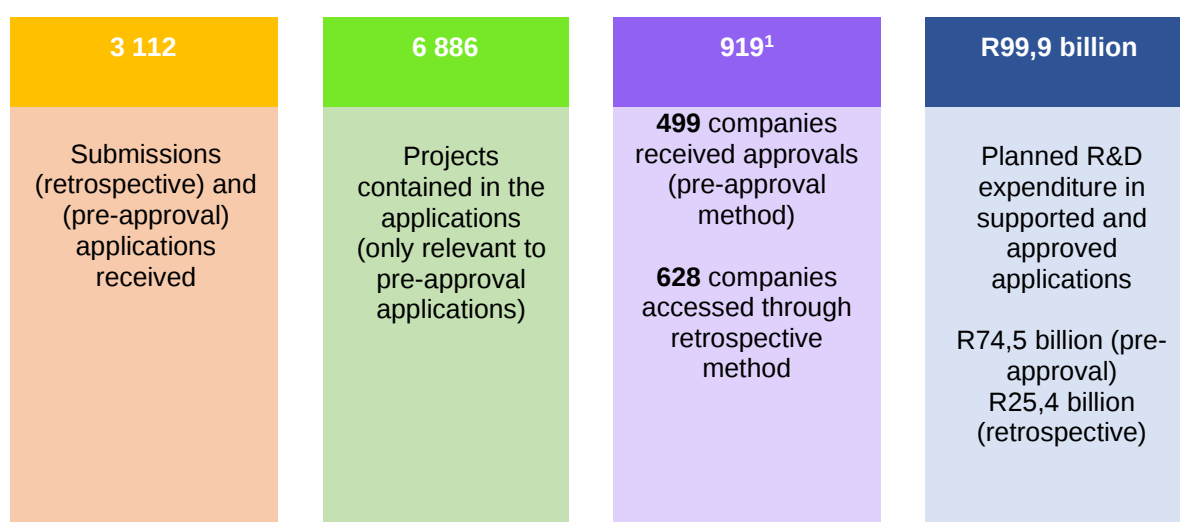
The main purpose of the incentive is to encourage companies to increase their investment in scientific and technological R&D, with the aim of promoting R&D-led innovation and competitiveness in South Africa. The DSI and National Treasury commissioned the World Bank to do an impact evaluation study to generate evidence about the value or benefits of the R&D tax incentive resulting from section 11D of the Income Tax Act. The results of the study were inconclusive as the survey sample size of matchable approved and non-approved companies was small. It nonetheless showed that the incentive more than doubled the reported R&D expenditure of the approved companies. Non-approved companies spent approximately R1,7 million on R&D while those approved spent an additional R3,6 million (a total of R5,3 million) on average. The study was however unable to demonstrate a significant effect of the incentive on the productivity, size or profitability of the companies because of the size of the survey sample.

PERFORMANCE OVERVIEW

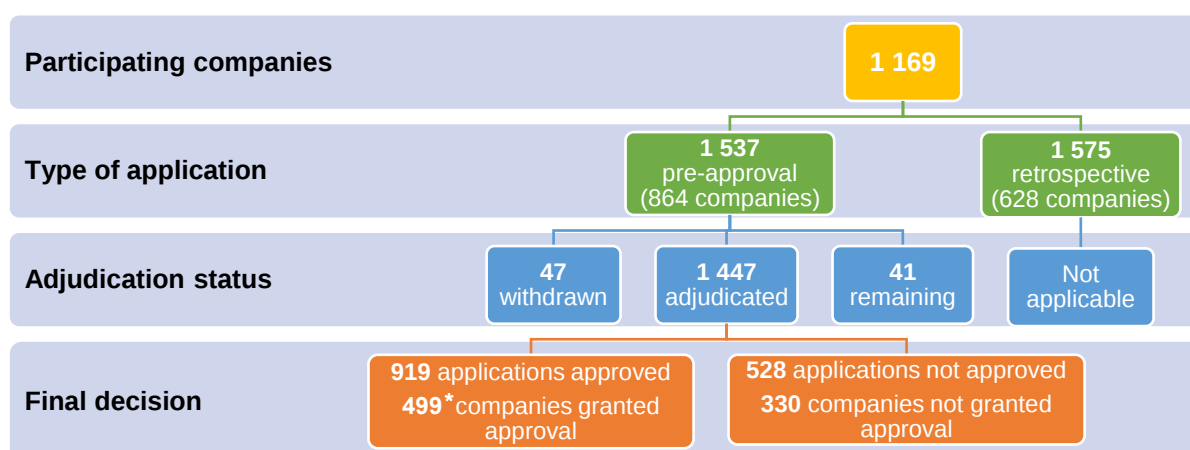
Contributions for 2019/20



Cumulative contributions (November 2006 to February 2020)



Overall status in processing applications (November 2006 to February 2020)



*This number does not account for the 628 companies that accessed the incentive under the retrospective system

¹ Note that some companies have participated in both the retrospective and the pre-approval system.

1. INTRODUCTION

1.1 Legislative mandate

The R&D tax incentive programme was introduced in 2006 to encourage private sector R&D investment in South Africa. It is implemented in terms of section 11D of the Income Tax Act as amended in October 2012, January 2014, January 2015 and January 2017, and supported by regulations published in *Government Gazettes* Nos. 38729, 38730 and 38732 of 23 April 2015 (see Figure 1).

1.2 Objectives of the R&D tax incentive

The objectives of the R&D tax incentive are:

- To encourage businesses to conduct scientific and technological R&D in South Africa, especially R&D that would not have been conducted in the absence of the R&D tax incentive.
- To advance scientific knowledge and achieve technological advancement aimed at creating new or significantly improved materials, devices, products or processes.
- To increase the positive spillover to the rest of society through knowledge transfer and skills development.

All of the above objectives are aimed at growing the economy.

1.3 Benefits of the R&D tax incentive

If an R&D tax incentive application is approved, the incentive allows companies to deduct 150% of eligible R&D expenditure incurred from their income. This deduction reduces companies' tax liability to SARS, which ultimately saves them 14 cents for each rand spent on R&D, at a corporate tax rate of 28%. The R&D tax incentive is therefore regarded as indirect financial support for private sector R&D. The aim is to help local companies build capabilities and innovations by creating new products, processes, devices and techniques, and/or to significantly improve existing ones.

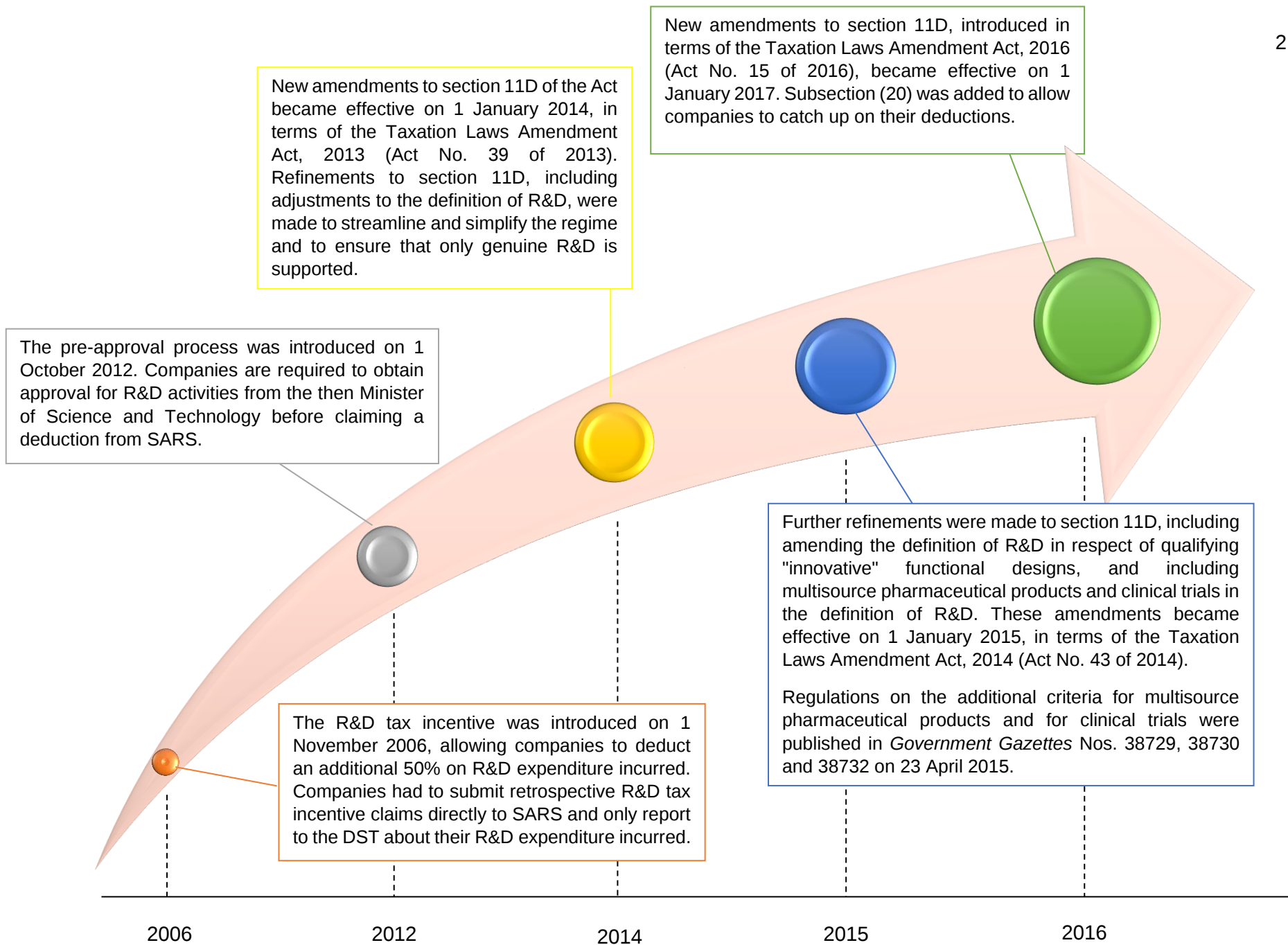


Figure 1: Synopsis of legislative and regulatory changes

1.4 Eligibility for the R&D tax incentive

The R&D incentive can be accessed by companies of all sizes and in all sectors of the economy. A company needs to be registered for tax in South Africa (i.e. a company as defined in the Income Tax Act), but need not be a registered South African company. Individuals, not-for-profit organisation and trusts are not eligible for the R&D tax incentive.

For a company to benefit from the incentive, its R&D activities must be approved by the Minister of Higher Education, Science and Innovation ("the Minister") or a person appointed by the Minister.

Companies will further be eligible if they actually incur the expenditure, directly and solely for R&D activities undertaken in the Republic of South Africa. The expenditure should also be incurred in the production of income, in the carrying on of any trade, and on or after the date of receipt of the application by the Department of Science and Innovation ("DSI"). Companies will only be eligible if they can determine or alter the methodology of the research.

Approval is granted on the basis of a recommendation by the R&D Tax Incentive Adjudication and Monitoring Committee (hereinafter called "the Committee"), which evaluates the project(s) of 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 officials of the DSI, the South African Revenue Service (SARS) and the National Treasury, who are appointed by the Minister and the Minister of Finance.

Section 11D(17) of the Income Tax Act requires the Minister to report to Parliament annually on the direct benefits of the R&D activities through the incentive programme in terms of economic growth, employment, aggregate expenditure and other broader government objectives.

1.5 Criteria used to determine eligibility

R&D is intrinsically aimed at generating new knowledge and devising new applications of available knowledge. R&D is intended to lead to new technologies or significant improvements to existing technologies, which can be used to support some form of socio-economic activity. These are some of the basic concepts included in the Frascati Manual² as standards for defining R&D.

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 invention³;
 - (ii) a functional design⁴ that is innovative in respect of the functional characteristics or intended uses of that functional design;
 - (iii) a computer program⁵ which is of an innovative nature; or
 - (iv) knowledge essential to the use of such invention, functional design or computer program⁶; or
- (c) making a significant and innovative improvement to any invention, functional design, computer program or knowledge contemplated in [paragraph \(a\)](#) of (b) for the purpose of –
 - (i) new or improved function;
 - (ii) improvement of performance;
 - (iii) improvement of reliability; or
 - (iv) improvement of quality;
 of that invention, functional design, computer program or knowledge;

² The Frascati Manual is the international guideline for definition and measurement of R&D. This guideline is published by the Organisation for Economic Cooperation and Development (OECD).

³ As defined in section 2 of the Patents Act.

⁴ As defined in section 1 of the Designs Act, capable of qualifying for registration under section 14 of the Act.

⁵ As defined in section 1 of the Copyright Act.

⁶ 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.

- (d) creating or developing a multisource pharmaceutical product⁷; or
- (e) conducting a clinical trial⁸.

1.6 Exclusions and limitations

For the purposes of section 11D of the Income Tax Act, the definition of R&D does not include activities conducted for the following purposes:

- (a) Routine testing, analysis, collection of information or quality control in the normal course of business.
- (b) Developing internal business processes, unless those internal business processes are intended for sale, or for granting right of use or permission to use to persons who are not related to whoever is undertaking that R&D.
- (c) Market research, market testing or sales promotion.
- (d) Social science research, including the arts and humanities.
- (e) Oil and gas or mineral exploration or prospecting, except research and development carried out to develop technology used for that exploration or prospecting.
- (f) Creating or developing financial instruments or financial products.
- (g) Creating or enhancing trademarks or goodwill.
- (h) Any expenditure contemplated in section 11 (gB) or (gC).

In respect of multisource pharmaceutical products and clinical trial R&D projects, the following activities are ineligible:

- (a) Phase IV clinical trials, other than a clinical trial conducted for the purpose of developing new indications, new methods of administration or new combinations of pharmaceutical products.
- (b) Post-marketing research.
- (c) Cost-effectiveness research.

⁷ 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.

⁸ 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.

- (d) Any activities undertaken for the purpose of compliance with regulatory requirements.
- (e) A product familiarisation programme.
- (f) Research carried out for statistical purposes (meta-analysis).
- (g) Epidemiological research.
- (h) Research activities undertaken in preparation for the registration of a clinical trial.

1.7 R&D tax incentive application process



Figure 2: The application process

2. APPLICATIONS FOR THE R&D TAX INCENTIVE

This section provides a summary of the uptake of the R&D tax incentive in terms of the number of applications received and the status of processing the applications. The indicators covered below comprise those from the period under review (2019/20), cumulative estimates since October 2012 (when the pre-approval system was introduced) and, in certain instances, retrospective claims since November 2006 (when the additional 50% deduction was introduced).

2.1 Number of applications received by the DSI

For the period under review, the DSI received a total of 103 R&D tax incentive applications containing 320 projects from 83 companies, of which 28 (33,7%) companies were first-time applicants (Figure 3). These applications are for an estimated R26,6 billion in planned R&D expenditure.

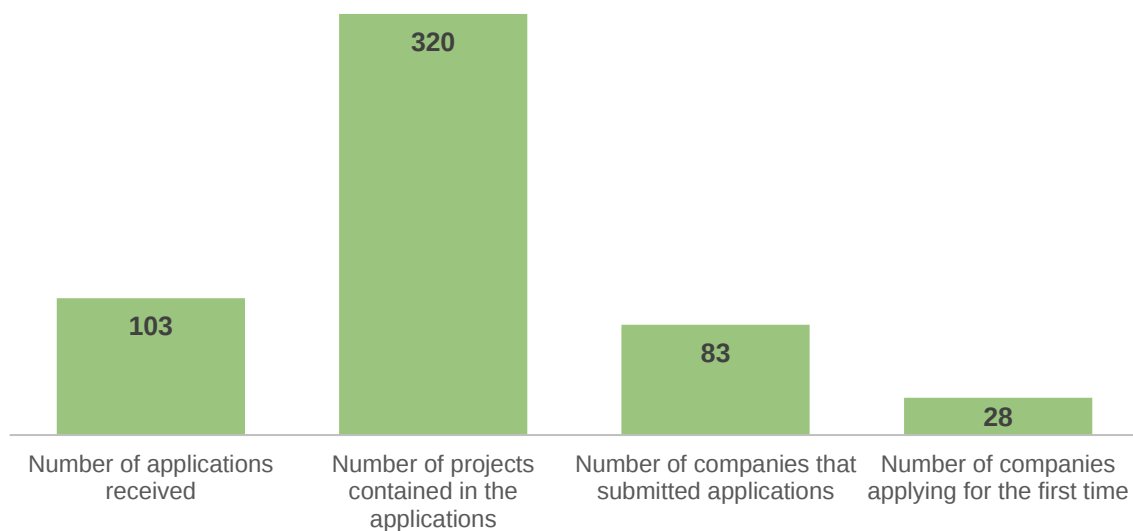


Figure 3: Uptake of applications received by the DSI in 2019/20

The number of applications received has declined in comparison to those received in previous years (Figure 4). This does not necessarily mean that participation in the programme is declining, considering that about 29,1% or 447 of all applications received since 2012 contain multi-year R&D projects. In 2012, the legislation was

amended to allow for multi-year applications. This means that applicants do not need to reapply on an annual basis for multi-year projects already approved. Some companies, however, continue to submit applications every year out of choice, while others submit only in certain years, depending on their R&D strategies. In contrast, before October 2012, companies had to submit annual retrospective submissions to the DSI for all active projects on which R&D tax deduction were being claimed from SARS.

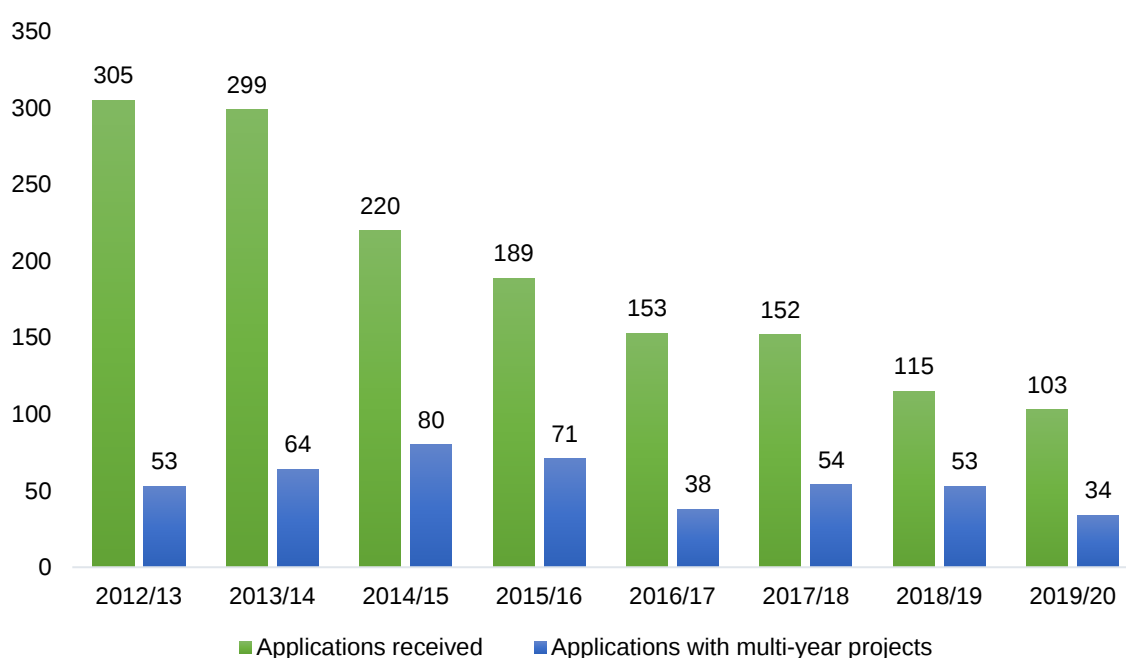


Figure 4: Number of applications received by the DSI and those new applications containing multi-year projects (Oct. 2012 to Feb. 2020)

For the period since November 2006, the programme has received 3 112 submissions/applications, with 1 575 under the retrospective submission system (received between November 2006 and 1 October 2012) and 1 537 applications under the pre-approval system (from 1 October 2012 onwards), containing 6 886 R&D projects. Under the retrospective system, R&D expenditure was not reported on a project basis and the retrospective submissions to the DSI set out R&D expenditure of the company in such a way that R&D projects could not be tracked.

Companies from all industry sectors can access the R&D tax incentive application. Figure 5 shows the distribution of the applications received in 2019/20 per Standard Industrial Classification (SIC) sectors, while Figure 6 depicts such information for the period from October 2012 to February 2020.

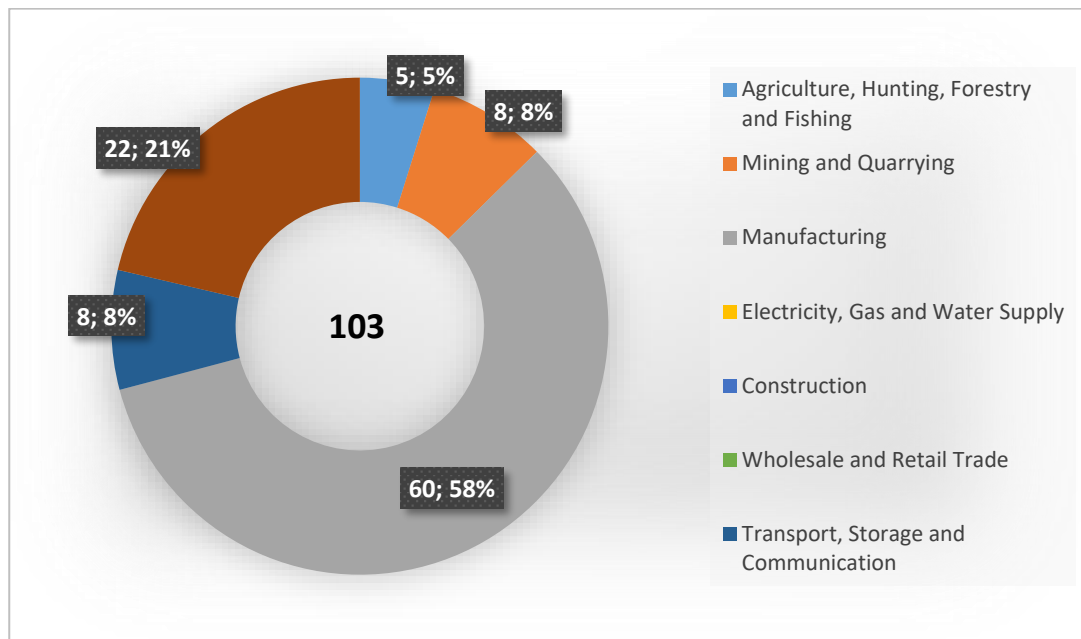


Figure 5: Number of applications per industrial sector (2019/20)

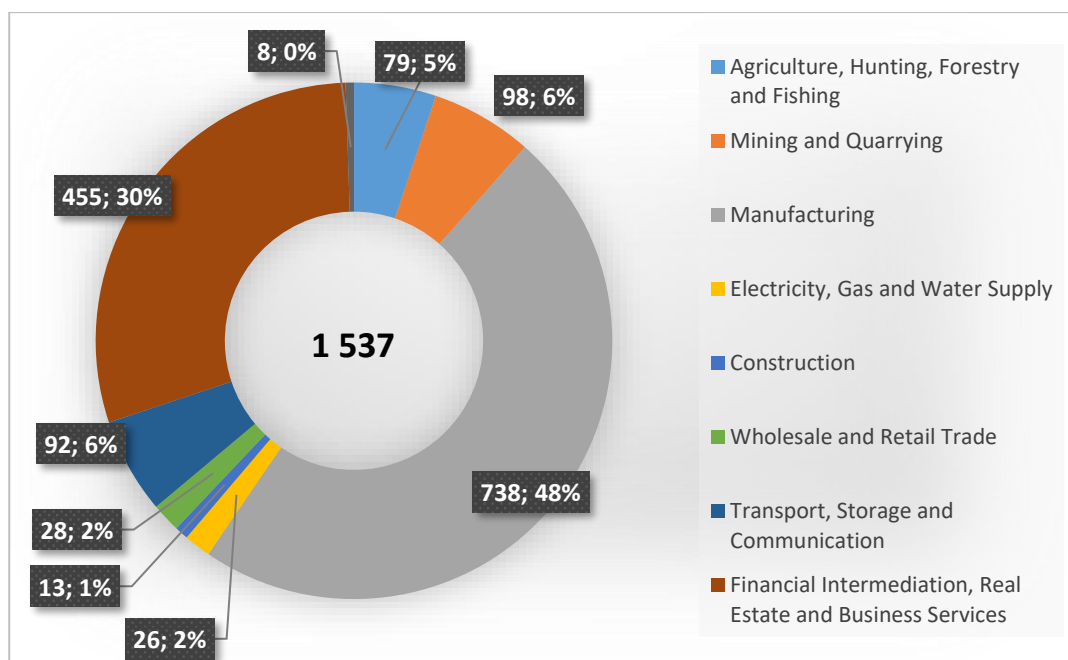


Figure 6: Number of applications per industrial sector (Oct. 2012 to Feb. 2020)

The programme receives most of its applications (about 80%) from two sectors, the Manufacturing (738) and the Financial Intermediation, Real Estate and Business Services Sectors (455). The Manufacturing Sector is dominated by the pharmaceutical industry, while some projects relate to the green economy. The Financial Intermediation, Real Estate and Business Services Sector is dominated by the information and communication technology (ICT) industry, from which applications are frequently received. The remainder of the applications (less than a quarter of those received), come from the Mining and Quarrying Sector (98), the Transport, Storage and Communication Sector (92), Agriculture, Hunting, Forestry and Fishing (79), Wholesale and Retail Trade (28), Electricity, Gas and Water Supply (26), Construction (13), and Community, Social and Personal Services (8).

2.2 Profile of participating companies

This section provides profiles of participating companies by turnover size and by industry sector.

A total of 83 companies participated in the R&D tax incentive programme in 2019/20. The cumulative number of companies participating from October 2012 (when the pre-approval system was introduced) is 864, and from November 2006 (including those companies that participated in the retrospective system) is 1 169.

Table 1 shows the distribution of companies submitting applications in 2019/20 per industry sector, as well as the cumulative numbers since 2012 and 2006, respectively. In 2019/20, a combined 77,1% of participating companies come from two sectors, namely, Manufacturing (56,6%) and Financial Intermediation, Real Estate and Business Services (20,5%). The other sectors account for the remaining 22,9% of the companies. This pattern is similar to that of the other two periods of aggregation, namely from October 2012 and from November 2006. These figures are also similar to trends in applications received per industry sector as discussed under paragraph 2.1 above.

Table 1: Number of participating companies per industry sector

	Received in 2019/20		Cumulative (Oct. 2012 to Feb. 2020)		Cumulative (Nov. 2006 to Feb. 2020)	
Agriculture, Hunting, Forestry and Fishing	5	6.0%	52	6.0%	67	5.7%
Mining and Quarrying	8	9.6%	54	6.3%	64	5.5%
Manufacturing	47	56.6%	379	43.9%	532	45.5%
Electricity, Gas and Water Supply	0	0.0%	19	2.2%	24	2.1%
Construction	0	0.0%	10	1.2%	15	1.3%
Wholesale and Retail Trade	0	0.0%	21	2.4%	19	1.6%
Transport, Storage and Communication	6	7.2%	50	5.8%	58	5.0%
Financial Intermediation, Real Estate and Business Services	17	20.5%	272	31.5%	377	32.2%
Community and Social Services	0	0.0%	7	0.8%	13	1.1%
Total	83	100,0%	864	100,0%	1169	100,0%

Table 2 shows the distribution of companies submitting applications in 2019/20 per turnover size category and the cumulative numbers since 2012 and 2006, respectively. Large companies are globally known to be the main drivers of innovation and productivity gains. However, the distribution shows that in terms of participation during the reporting period, the incentive was dominated by SMEs, followed by very large enterprises and large companies. In 2019/20, four companies did not disclose their turnover.

Similar to the pattern observed since 2012, Figure 7 depicts that of the 1 169 companies that participated in the incentive since November 2006, 45,5% (or 532) of the participating companies are SMEs, more than any other company turnover size category. This is followed by 32,1% (or 375) for very large companies and 13,1% (or 152) for large companies. There was a total of 110 companies (9,4%) that did not indicate their latest annual turnover. There are companies that submit applications frequently and those that only submits seldomly as projects are initiated.

Table 2: Number of companies participating per company turnover size

	Received in 2019/20		Cumulative (Oct. 2012 to Feb. 2020)		Cumulative (Nov. 2006 to Feb. 2020)	
Turnover not indicated	4	4.8%	73	8.4%	110	9.4%
10 and below	12	14.5%	206	23.8%	302	25.8%
10 to 15 (SMEs)	4	4.8%	48	5.6%	75	6.4%
15-20 (SMEs)	3	3.6%	38	4.4%	50	4.3%
20-30 (SMEs)	4	4.8%	52	6.0%	67	5.7%
30-40 (SMEs)	4	4.8%	33	3.8%	38	3.3%
40-50 (large)	2	2.4%	29	3.4%	38	3.3%
50 – 100 (large)	7	8.4%	85	9.8%	114	9.8%
100 and above (very large)	43	51.8%	300	34.7%	375	32.1%
Total	83	100.0%	864	100.0%	1169	100.0%

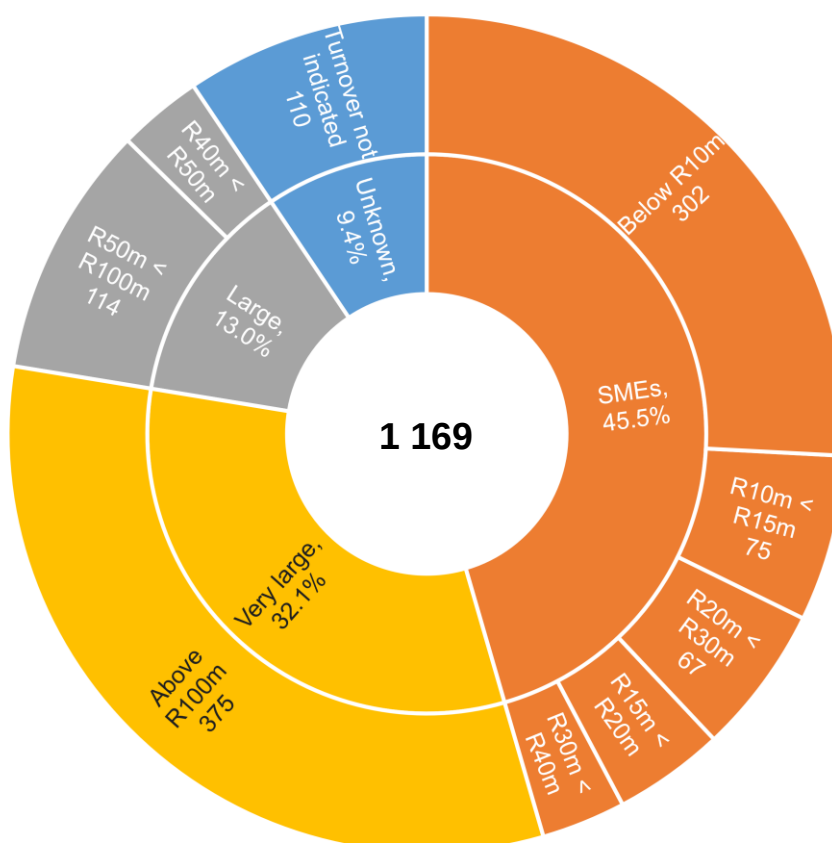


Figure 7: Uptake of companies that submitted applications per turnover size (Nov. 2006 to Feb. 2020)

2.3 Incentive awareness and impact

The R&D tax incentive is intended to encourage increased private sector R&D investment, which is central to improving South Africa's innovation performance and competitiveness. To achieve this, companies must be aware of the incentive, must find the application process easy and understand the processes for accessing it. One measure of awareness is the number of new companies that are attracted to the programme each year.

The DSI's Private Sector R&D Promotions directorate administers the R&D tax incentive programme. During 2019/20, this directorate held meetings with several companies and participated in stakeholder events at the DSI and other premises. These include participation in events hosted by the World Bank, Water Research Commission, Cova Advisory & Associates and the University of Johannesburg. During the interactions the DSI gave presentations and shared information to improve the accessibility and awareness of the R&D tax incentive programme.

Apart from increasing awareness, the DSI worked on other critical aspects relating to the R&D tax incentive, including administrative changes for long term improvements, appointment of a cohort of new experts/consultants to support programme implementation, and finalisation of an impact evaluation study conducted by the World Bank. The Department also participated in, and provided briefings on the R&D tax incentive matters to, the Organisation for Economic Cooperation and Development (OECD) Expert Network on R&D Tax Incentives Design and Indicators workshop on 22 March 2019 and the Economic Sectors, Employment and Infrastructure Development Cluster on 14 March 2019. The Portfolio Committee on Higher Education, Science and Technology was briefed on the incentive on 18 September 2019.

Towards the end of 2019 the World Bank concluded the mentioned impact evaluation study of the R&D Tax Incentive in South Africa. This study was commissioned by the DSI and National Treasury to generate evidence about the value or benefits of the

R&D tax incentive resulting from section 11D of the Income Tax Act. This was required to inform policy decisions about the incentive, including possible adjustments and/or the continuation of the incentive beyond the sunset clause which will end the operation of the incentive in October 2022. Although the study could not make conclusive recommendations due to data gaps and the size of the survey sample used, the outcomes are summarised below.

Text box 1: Key points from the impact evaluation study

The scope of the study had four components: (1) to produce descriptive statistics that provides an overview of categories of participating companies in terms of approvals and non-approvals; (2) to assess whether the incentive is successful in promoting R&D investment by companies (i.e. to determine additionality effects); (3) to assess the economic impact of the supported R&D in terms of company-level innovation outputs, employment, productivity and other outcomes expected of business sector R&D activities; and (4) to provide recommendations, which should include how monitoring of information at both the (then) Department of Science and Technology (DST) and SARS can be improved. Key findings are summarised below:

- The descriptive analysis shows similar patterns with the performance indicated in the previous R&D tax incentive annual reports. For instance, the majority of applications (almost 80%) are for projects in manufacturing and financial intermediation, real estate and business services sectors; the proportion of applications that are approved or partially-approved is much lower for the business services sector; half of all applications are from companies with a total revenue of R50 million or more; and in the earlier years of the pre-approval system, larger companies were more likely to have approved applications than smaller sized companies.
- A comparison of the data of companies that received approval and the data of companies with no approvals that have roughly similar characteristics (such as year first applied for the incentive, the primary sector, age of the company and revenue of the company) could only match 18 approved and 14 non-approved companies in the manufacturing and business services sectors. The results showed that the incentive more than doubled their reported R&D expenditure – in that non-approved companies spent approximately R1,7 million on R&D while those approved spent an additional R3,6 million (a total of R5,3 million) on average.
- The incentive may have increased the remuneration of R&D staff in beneficiary companies. Beneficiary companies could have been outbidding their rivals for available skills given that the majority of the companies that responded to the survey believed that skills were a constraint to R&D in this country, while those that submitted progress reports believed that the incentive increased their competitiveness and market share.

- Companies that received the incentive were less likely to regard government labour and other regulation as a constraint to R&D, perhaps because these are now less of a financial burden/risk. There were no statistically significant effects of the incentive for any of the other outcomes measured in the survey, namely innovation, economic growth and employment.
- Limitations of the study includes the fact that the survey sample size was small and therefore the evaluation was unable to demonstrate a significant effect of the incentive on the productivity, size or profitability of the companies. Data limitations also meant that it was not possible to estimate the economic benefits of the incentive at an economy-wide level. Therefore,
 - ✓ It was not possible to assess the technology profile of the companies within sectors using the incentive's administration data captured at the DSI from the applications.
 - ✓ There is poor compliance with section 11D(13) of the Income Tax Act as less than a third of companies approved for the incentive submitted progress reports. This hampered certain types of analysis as this created data gaps, e.g. on outputs of R&D, employment, and other company-level effects.
 - ✓ It was not possible to source company-level data from the South African Revenue Services (SARS) pertaining to the claims made by the beneficiary companies, i.e. whether they claimed successfully and the value of the deductions allowed.
 - ✓ A simple ex-post matching procedure of companies that responded to the survey and those that submitted progress reports was thus done to estimate the counterfactual outcomes of the incentive beneficiaries.

3. PROCESSING OF APPLICATIONS

3.1 Turnaround times

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 in the administration of the R&D tax incentive programme. In 2019/20, the main focus was on finalising outstanding applications received in the previous years and improving the administrative efficiencies.

Progress was made in the processing of applications. During the reporting period, the Committee had 10 meetings in which 181 applications containing 515 projects were adjudicated. Of the 181 applications that were adjudicated in 2019/20, 54 were received pre-2019. A total of 321 projects were approved for the incentive, 158 projects were not approved, and 36 projects were referred back to the applicants to provide additional information or clarification.

For projects to be approved, their activities must meet the definition of R&D in terms of section 11D of the Income Tax Act. R&D is set out in s11D to be 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) to submit additional information that supports the eligibility of their activities before a final decision is made. Of the applications that were adjudicated in 2019/20, 39 applications containing 83 projects were subjected to this process.

The turnaround time in processing applications depends on the quality of information provided in the applications. Applications that have the required information are generally processed and finalised more quickly, especially as it is unlikely that additional information will be requested from applicants. The onus is therefore on the applicants to provide sufficient information. Ways to further simplify the process are continually being explored, including improved guidelines and the development of an

updated application form to ask pertinent questions that will assist in obtaining better and more sufficient information.

Overall, of the 1 488 valid pre-approval applications received between 1 October 2012 and 28 February 2020, 1 447 (97,2%) were adjudicated and finalised by the Committee, and 1 320 (88,7%) received final decisions from the Minister. Forty-one applications remained to be adjudicated, while 47 were withdrawn by applicants (Figure 8).

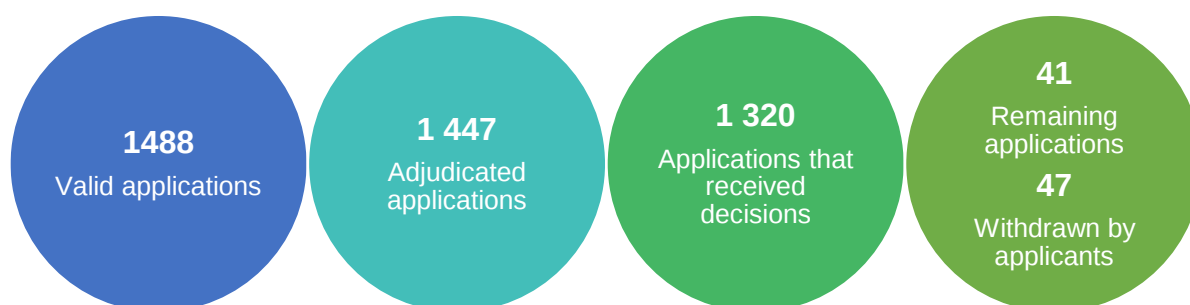


Figure 8: Overall status in processing applications as at Feb. 2020

The turnaround times for providing decisions on applications has regressed. The average turnaround time for processing applications that were received in 2019/20 increased to 125 days (relevant to 42 applications that were provided with decisions), from a 94 day average reported for applications received in 2018/19⁹. Overall, a total of 90 applications were provided with decisions in 2019/20.

As the 90-day turnaround time target has not been achieved on all applications, more still needs to be done to ensure that the target is met in the period ahead. Amongst other things, the turnaround time is affected by the number of applications that have been referred back for additional information and those that went through the PAJA process. In both instances, applicants are given 10 working days to provide

⁹The average turnaround time of 125 days is reported for 42 applications received in 2019/20 that were provided with decisions by 29 February 2020. The final figure is determined once all the 2019/20 applications have been provided with decisions.

information, and in some instances, extensions are requested by applicants to provide the additional information.

Other reasons for the slow-down in turnaround time were that the Private Sector R&D Promotions directorate started implementing changes such as introducing new steps in the administration processes, reviewing of templates and testing them to see how they work in practice. These processes ended up affecting the turnaround time.

Two key challenges hampered efforts of improvement. Firstly, an online system that was introduced to enable companies to submit applications online was delayed and could not operate optimally. Secondly, the cumulative effect of staff vacancies that could not be filled in the directorate countered improved service delivery despite increased pressure and efforts. Greater attention is being devoted to resolving these matters in the 2020/21 financial year.

3.2 Status of pre-approval applications as at 29 February 2020

Of the 1 447 applications adjudicated by 29 February 2020, 919 (63,5%) were approved and 528 (36,5%) were not approved. At the end of the reporting period, 41 (2,8%) applications were still to be adjudicated (Figure 9). There were high rates of approval (i.e. above 70%) in four sectors, namely the i) Agriculture, Hunting, Forestry and Fishing Sector; ii) Electricity, Gas and Water Supply Sector; iii) Mining and Quarrying Sector; and iv) Manufacturing Sector. The rest of the industry sectors had approval rates below 60%.

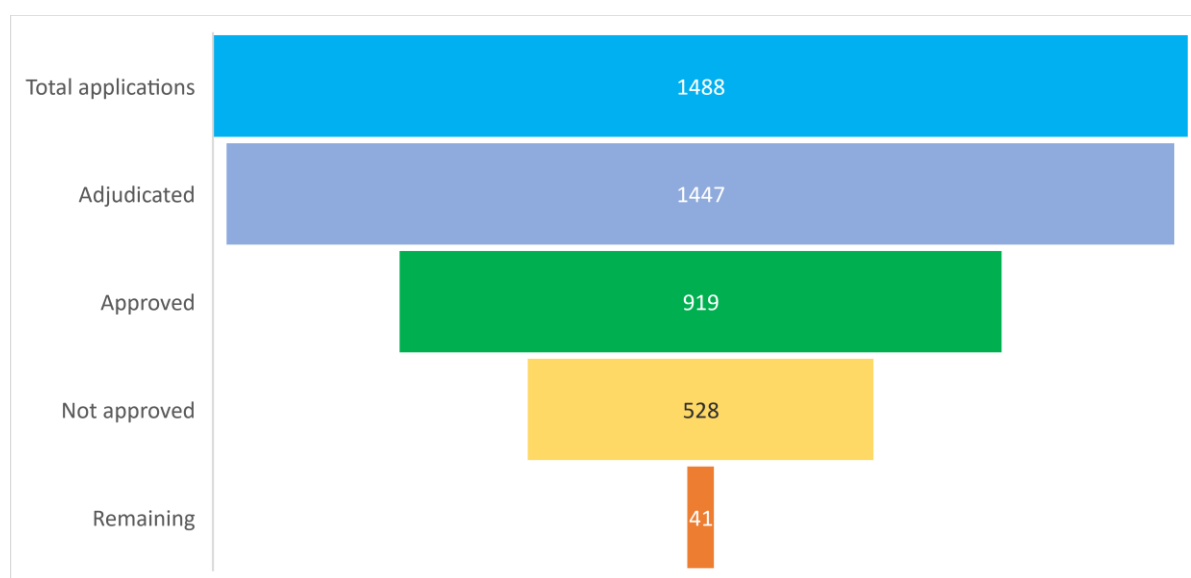


Figure 9: Status of all pre-approval applications as at Feb. 2020

The Financial Intermediation, Real Estate and Business Services Sector has the highest number of non-approved applications – 61,4% of all applications received from October 2012 were not approved. Many of these applications were for projects aimed at introducing innovations without necessarily engaging in R&D as defined in section 11D of the Income Tax Act, e.g., the acquisition and/or integration of off-the-shelf ICT-related solutions. Additionally, applications that relate to routine software-related activities were not recommended as such applications also do not involve R&D. For example, routine software-related activities usually do not involve scientific and/or technological advances and/or do not address technological uncertainties and would therefore also not be eligible for the R&D tax incentive. The government has other incentives and forms of support for such innovation activities, e.g., through direct funding grants, loans and equity funds, which target specific industry sectors, SMEs or new companies. More specifically, most funding programmes of the Technology Innovation Agency and the Support Programme for Industrial Innovation require that a project demonstrate potential for technology development and commercialisation, rather than R&D per se.

Figures 10, 11 and 12 show the proportions of approved and non-approved applications per industry sector. Table 3 shows the breakdown of adjudicated applications per industry sector.

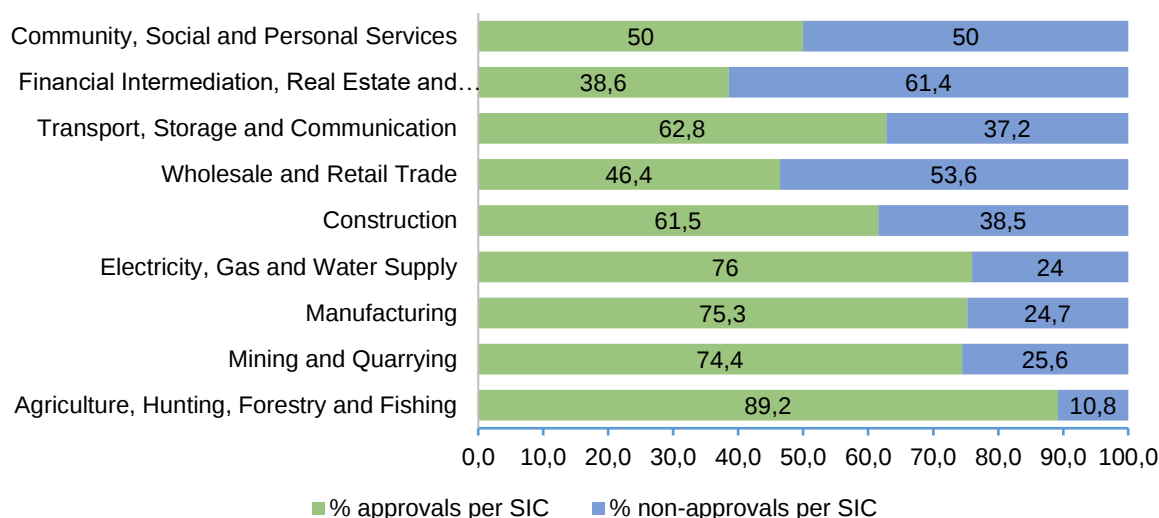


Figure 10: Breakdown of application approvals and non-approvals per industry sector (Oct. 2012 to Feb. 2020)

Table 3: Number of applications adjudicated per industry sector (Oct. 2012 to Feb. 2020)

Sector	Number of applications received	Number of adjudicated applications	Number of approvals	Number of non-approvals
Agriculture, Hunting, Forestry and Fishing	79	74	66	8
Mining and Quarrying	98	90	67	23
Manufacturing	738	695	523	172
Electricity, Gas and Water Supply	26	25	19	6
Construction	13	13	8	5
Wholesale and Retail Trade	28	28	13	15
Transport, Storage and Communication	92	86	54	32
Financial Intermediation, Real Estate and Business Services	455	428	165	263
Community and Social Services	8	8	4	4
Total	1 537	1 447	919	528

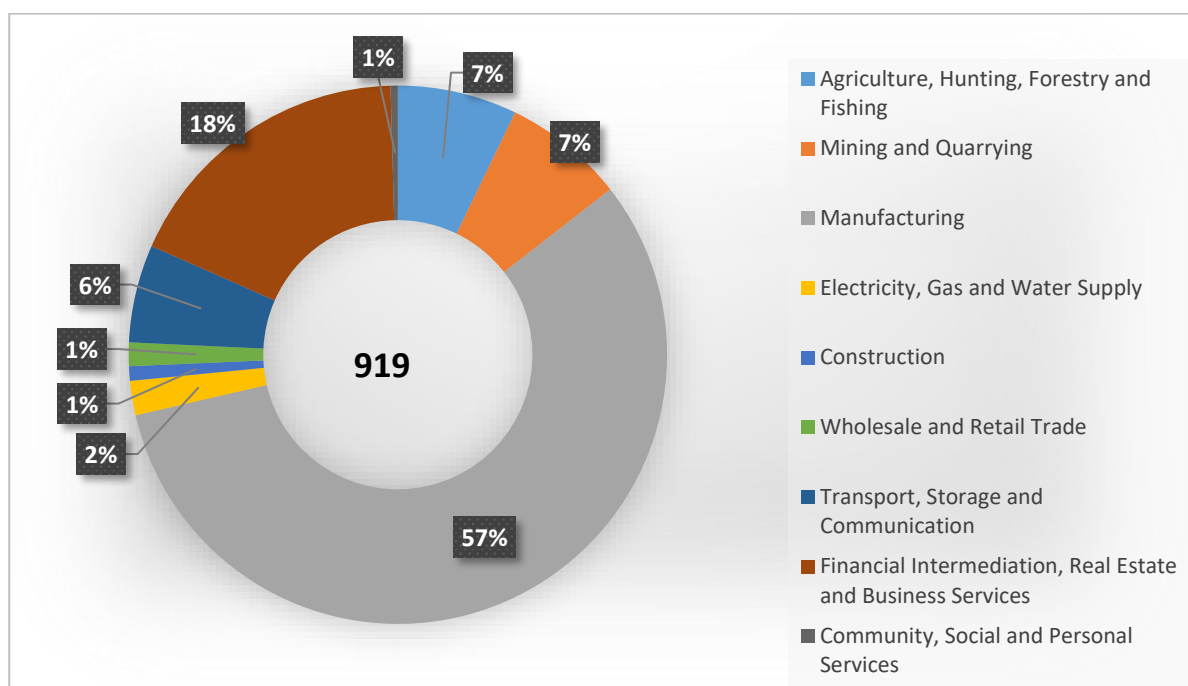


Figure 11: Approved applications per industry sector (Oct. 2012 to Feb. 2020)

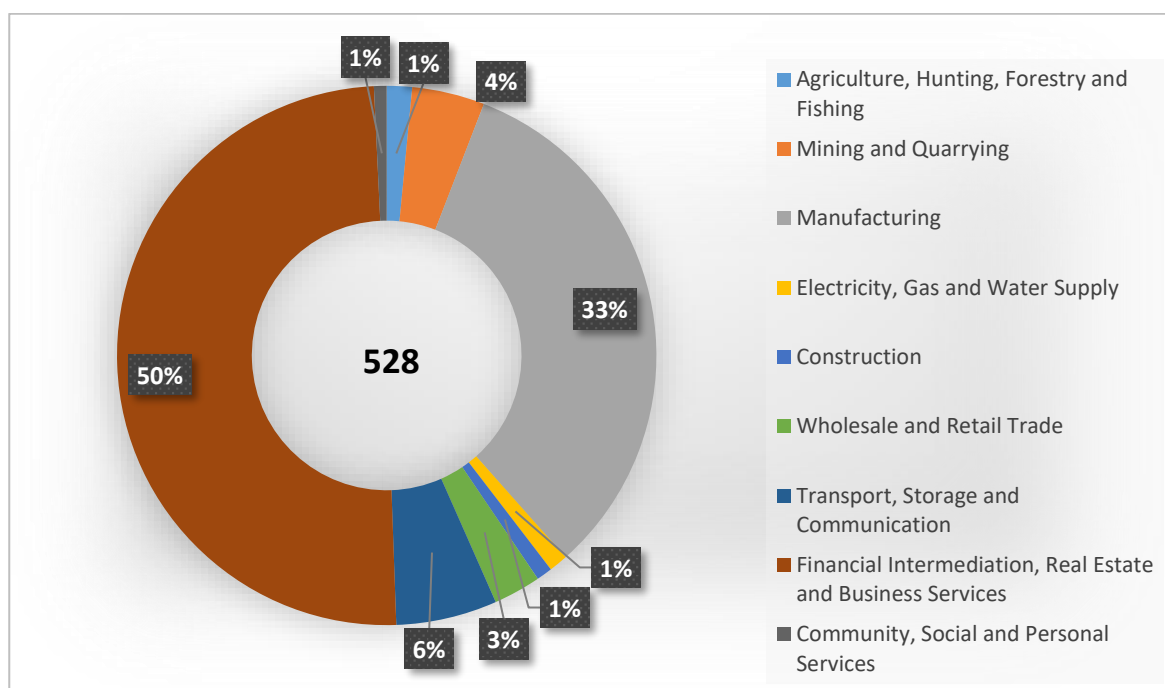


Figure 12: Non-approved applications per industry sector (Oct. 2012 to Feb. 2020)

4. PROFILE OF COMPANIES SUPPORTED BY THE INCENTIVE

This section provides profiles of supported companies (by turnover size, industry sector and provincial locations) and estimated amounts of planned R&D expenditure.

The figures for supported companies include all the companies that have participated in the incentive since its inception, i.e. under the retrospective system (supported R&D) and under the pre-approval system (approved planned R&D). The information presented here does not include data on R&D claims processed at SARS, but only, for the pre-approval system, estimates of the approved and planned R&D. This information may therefore differ substantially from the SARS data, which is reported in aggregated terms in the National Treasury budget review publications and SARS tax statistics.

Figure 13 shows that of the 954 companies that have received support from the incentive since November 2006, the majority (42%) were SMEs. Very large enterprises made up 36% of the companies, large enterprises made up 13%, and 9% did not disclose their turnover size. The 954 companies that have received support combines the 864 under the preapproval system and 628 under the retrospective system effective between November 2006 and September 2012. The number of companies under the retrospective system and the preapproval system does not add up as the majority of companies benefited under both systems.

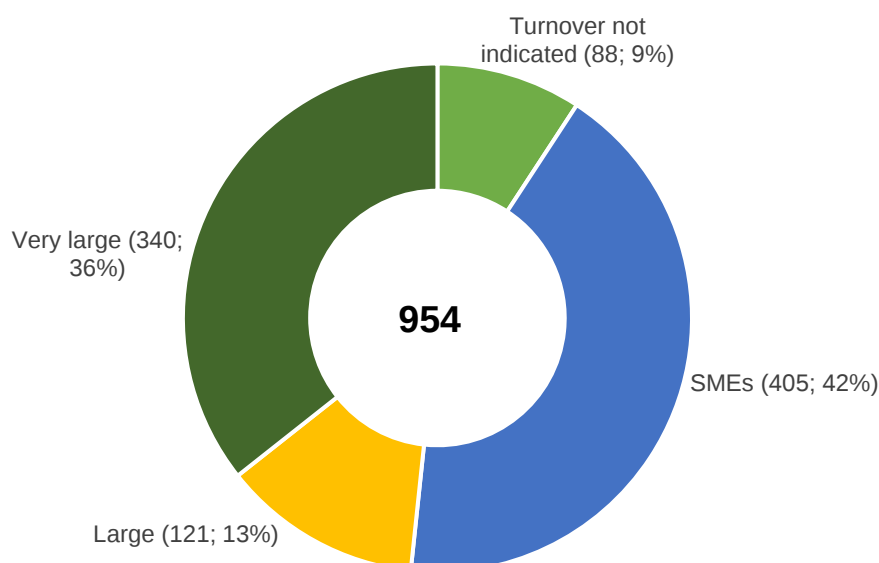


Figure 13: Number of companies supported per turnover size (Nov. 2006 to Feb. 2020)

Although the companies that submit applications come from a specific industry sector, R&D activities may be conducted in another sector. For example, companies in the Mining and Quarrying Sector could conduct R&D activities in the fields of ICT or Manufacturing or an integration of the fields. Similarly, companies in other sectors may conduct R&D activities aimed at applications in the Mining or Quarrying Sector. When deciding how much to invest in R&D, companies take several factors into consideration, such as the availability of a skilled workforce, competitiveness and access to local markets. These are some of the reasons that companies diversify R&D investments.

The companies that have participated in the incentive since 2006 are located in all the provinces. Provincial location in this report refers to the physical address indicated by the applicant on the application form, and not necessarily the location where 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. Thus, Gauteng has the greatest number of companies supported by the incentive and the highest R&D expenditure reported for supported activities.

Figure 14 shows that companies in Gauteng (982 or 63,9%) submitted the majority of applications, followed by the Western Cape (376 or 24,5%) and KwaZulu-Natal (125 or 8,1%). Companies from these three provinces contributed 1 483 applications (or 96,5% of the total). The rest of the companies are from Mpumalanga (18 or 1,2%), the Free State (13 or 0,8%), the North West (11 or 0,7%), the Eastern Cape (10 or 0,7%), the Northern Cape (1 or 0,1%) and Limpopo (1 or 0,1%).

Generally, the provincial spread shown here resembles the patterns reported in the National Survey of Research and Experimental Development (R&D Survey), which also indicates that most of the business sector R&D is performed in three provinces (Gauteng, followed by Western Cape and then KwaZulu-Natal), which are also the regions that dominate the economic activity in the country.

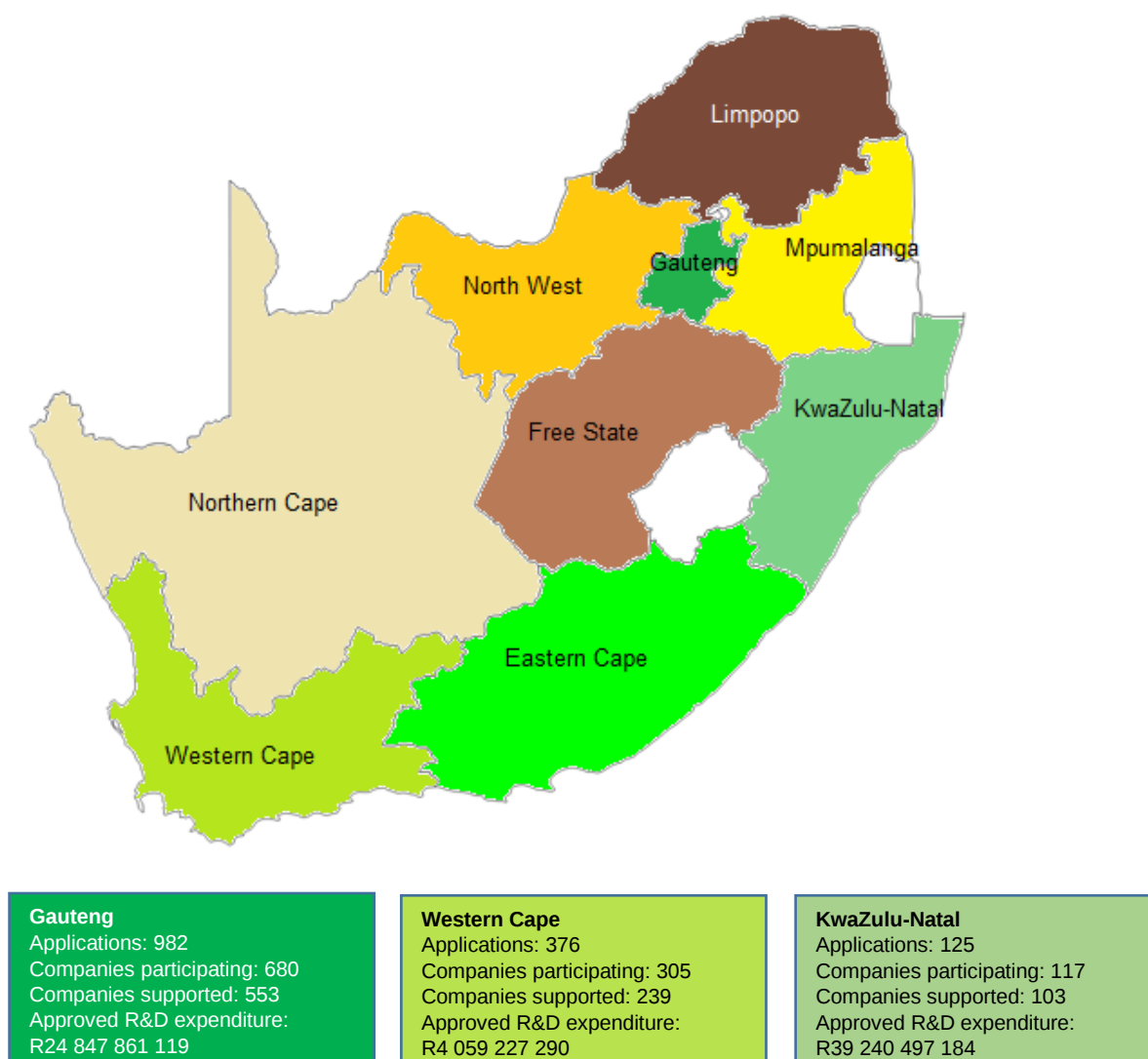




Figure 14: Provincial distribution of supported R&D activities ¹⁰

¹⁰ “Applications” indicate applications received under the pre-approval system; “Companies participating” are companies participating under both the retrospective and pre-approval systems; “Companies supported” are companies supported under both retrospective and pre-approval systems; “Approved R&D expenditure” relates to planned R&D expenditure under only the pre-approval system.

5. R&D EXPENDITURE SUPPORTED BY THE INCENTIVE

Information reported under this section is based on i) data declared to the DSI by companies on retrospective claims submitted to SARS, ii) data contained in pre-approval applications, at application stage and at approval stage. The information under this section uses information available at the DSI and the published data by the National Treasury. Data on claims processed at SARS was unavailable for this report.

5.1 Planned R&D expenditure on approved applications

Figure 15 indicates that, by the end of the reporting period, an estimated R99,9 billion in planned R&D expenditure had been supported (retrospective system), or have approved (pre-approval system)¹¹ by the incentive since November 2006. This amount comprises R25,4 billion reported under the retrospective system and R74,5 billion in planned R&D expenditure indicated on approved applications (under the pre-approval system).

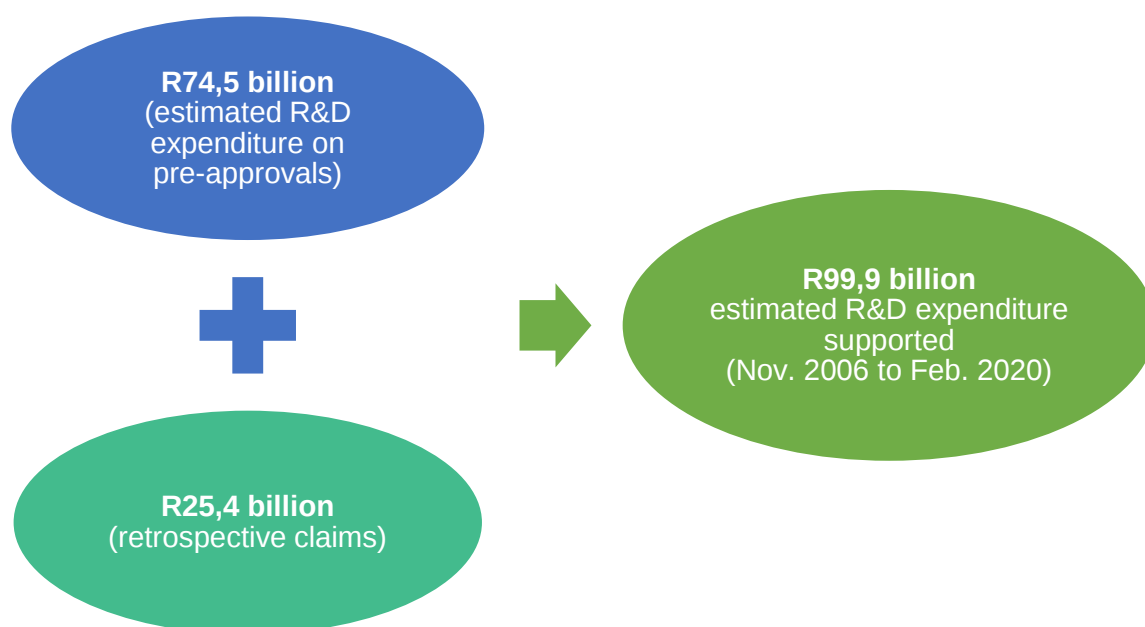


Figure 15: Overall R&D expenditure supported (Nov. 2006 to Feb. 2020)

¹¹ As previous mentioned, this data is an estimate provided by applicants for the planned expenditure over the life of the R&D project. It is an estimate and will be different from the amount ultimately claimed from SARS on an annual basis.

Table 4 shows a disaggregation of the R74,5 billion, and indicates that about 90,8% of the planned R&D expenditure for approved applications is from the top three industry sectors, Manufacturing (62,1%), Agriculture, Hunting, Forestry and Fishing (15,6%) and Mining and Quarrying (13,1%). The Manufacturing Sector is dominated by larger companies, and there are applications from a variety of sub-sectors carrying out R&D activities related to software, the green economy and health, among others.

Sixty-six applications from the Agriculture, Hunting, Forestry and Fishing Sector, with planned R&D expenditure of just above R11,6 billion, were approved. The average planned R&D expenditure¹² per application for Agriculture, Hunting, Forestry and Fishing is higher than that for all other sectors, implying that approved R&D projects in this sector are of a relatively larger scale. The same estimate shows that approved R&D projects in the Construction Sector are smaller, averaging around R9,9 million per application.

Table 4: Estimated R&D expenditure on approved applications per industry sector (Oct. 2012 to Feb. 2020)

Sector	Number of applications received	Adjudicated and finalised per SIC	Number of approvals per SIC	Estimated R&D expenditure on approved applications
Agriculture, Hunting, Forestry and Fishing	79	74	66	R11,641,365,293
Mining and Quarrying	98	90	67	R9,771,793,435
Manufacturing	738	695	523	R46,266,523,628
Electricity, Gas and Water Supply	26	25	19	R1,391,699,760
Construction	13	13	8	R79,500,000
Wholesale and Retail Trade	28	28	13	R449,092,009
Transport, Storage and Communication	92	86	54	R731,929,479

¹²¹² Calculated as estimated R&D expenditure on approved applications divided by the number of approval in the sector.

Financial Intermediation, Real Estate and Business Services	455	428	165	R4,055,342,295
Community and Social Services	8	8	4	R94,751,633
Total	1 537	1 447	919	R74,481,997,532

5.2 Contribution to IPAP priority areas

The Industrial Policy Action Plan (IPAP) identifies priority areas in which policies or programmes should be enhanced to strengthen the ability of manufacturing and other value-adding sectors, with the ultimate aim of creating decent jobs and increasing value-addition and competitiveness in domestic and export markets. To increase the economy's ability to produce complex and high value-added products with greater efficiency, the 2018/19-2020/21 IPAP identifies sectoral focus areas 1 and 2.

Of the total approved applications, 636 (69,2%) contribute to these IPAP sectoral focus areas, with an estimated R71,1 billion (71,2%) of the total supported R&D expenditure since November 2006. Table 5 shows that although the number of approved applications (209) from the electrotechnical and IT sector is more than of any other IPAP sector, the cumulative estimated R&D expenditure supported and approved from the agro-processing sector is highest, followed by mineral beneficiation; chemicals, cosmetics, pharmaceuticals and plastics; and electrotechnical and IT.

Table 5: Contribution to IPAP priority areas (Nov. 2006 to Feb. 2020)

IPAP sector descriptions	Number of approved applications (Oct. 2012 to Feb. 2020)	R&D expenditure under retrospective system (R'000)	R&D expenditure for approved applications under pre-approval system (R'000)	Cumulative (up to Feb. 2020) (R'000)	% total contribution to IPAP sectors
Electrotechnical and IT	209	3 873 476	4 418 948	8 292 424	11,7%
Chemicals, cosmetics, pharmaceuticals and plastics	183	3 909 221	5 620 636	9 529 857	13,4%
Automotive	12	3 321 901	259 293	3 581 194	5,0%

Metal fabrication, capital and rail transport equipment	63	1 217 985	1 205 620	2 423 605	3,4%
Business process services	8	1 172 476	68 954	1 241 430	1,8%
Aerospace, defence	29	497 888	1 060 021	1 557 909	2,2%
Agroprocessing	27	384 937	32 731 251	33 116 188	46,6%
Forestry, paper, pulp and furniture	38	256 300	173 827	430 127	0,6%
Green industries	0	35 057	0	35 057	0,1%
Marine manufacturing and associated services	3	0	37 200	37 200	0,1%
Clothing, textiles, footwear and leather	3	355	3 200	3 555	0,0%
Mineral beneficiation	61	1 175 953	9 682 063	10 858 016	15,3%
Total	636	15 845 549	55 261 013	71 106 562	100,0%

5.3 Estimates of tax revenue foregone due to the incentive

Tax revenue foregone represents part of the government's financial support for business sector scientific or technological R&D activities.

The National Treasury Budget Review (2020) estimated that the tax revenue foregone due to the R&D tax incentive for the period 2005/06 to 2017/18 was just above R5,4 billion.¹³ The figures presented in Table 6 represent deductions allowed by SARS on claims by companies for each particular tax year and are revised annually, as companies submit their claims. The figures also include claims that have been made under section 11B of the Income Tax Act, which was used before November 2006. These figures are revised annually as companies submit their claims.

Table 6: 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

¹³ The National Treasury Budget Review (26 February 2020).

2012/13	197 000
2013/14	219 000
2014/15	207 000
2015/16	277 000
2016/17	232 000
2017/18	150 000
2018/19 and 2019/20	Information not yet available
Total	5 409 000

At an international level, South Africa has continued its interactions with the expert network of the OECD on the design and measurement of impact of public support for business R&D. A decade long process of this cross-country collaboration has produced a comprehensive dataset that enables estimation of complementary sets of indicators, giving an integrated view of government support for business R&D across more than 30 countries. The 2018 edition of OECD R&D tax incentives country profiles covering 35 countries was launched in 2019. Colombia, Greece, Poland, Russian Federation, South Africa, Sweden and Turkey were the seven additional countries in the 2018 country profiles. These profiles provide detailed information on the design features and cost of tax provisions used by countries to incentivise R&D performance by business, reporting on both long-term and recent trends based on the OECD R&D tax incentive database update. The 2018 data builds upon the latest OECD R&D tax incentive database and includes latest time-series estimates of Government Tax relief for R&D tax expenditure (GTARD) and implied marginal R&D tax subsidy rates across OECD and partner economies.

South Africa is among the countries that offer generous R&D tax incentives (150% deduction) among OECD and non-OECD countries, to companies undertaking R&D and has been providing the OECD with data that is used in the compilation of the R&D tax incentive country profiles. The data shows that South Africa's government support for business R&D appear to be well below the OECD's average. Based on the tax expenditure estimates from 2012–2015 provided by South Africa to OECD, the 2018 country profile highlights the following:

- South Africa is placed among the lower tier of OECD and partner economies in terms of total government support to business R&D as a percentage of GDP. This is equivalent to 0.02% of GDP in 2015.

- Business R&D support from 2012-2015 declined in South Africa both in absolute and relative terms.
- Over the same period (2012-2015), the cost of the R&D tax incentive in South Africa declined from R286 million in 2012 to R149 million in 2015.
- Direct government funding of business expenditure on R&D as a percentage of GDP declined to 0,01% in 2015 compared to 0,11% reported in 2008.

The decline in the cost of R&D tax incentive is attributed to the backlog associated with pre-approval process introduced in October 2012, which led to delays in providing decisions to applicants timeously. This caused a lot of uncertainties to companies as investment in R&D for some companies was dependent on approval granted by the DSI.

The OECD Frascati Manual provides guidelines on how countries should measure and report GTARD, and complexities faced by countries in measuring tax relief for R&D have been acknowledged. The proposed reporting format of the OECD's Frascati Manual facilitates transparency and more balanced international comparisons. Measuring and reporting of GTARD at a more granular level, for instance by industry or by company size categories is one of the best practices adopted by various countries in reporting government tax relief and organising data on tax revenue foregone. This will greatly improve monitoring of the utilisation of the R&D tax incentive, as the data reported by the DSI is at an application level which can be broken down by company size and industrial sectors for the estimated expenditure reported, while SARS data on actual expenditure claimed and allowed is not published. The detailed breakdown would therefore be beneficial to the DSI as it would enable comparison of the SARS data to the R&D tax incentive data disclosed on application forms and progress reports.

6. CONCLUSION

This report has presented the performance of the incentive in terms of the number of applications received, the profile and number of participating companies, estimated R&D expenditure, provincial distribution of supported activities and the tax revenue foregone. The R&D tax incentive programme is used as part of a mix of policy instruments to encourage the private sector in all sectors of economy to conduct scientific and technological R&D in South Africa, which will lead to global competitiveness and positive economic growth. Evidence has shown that incentives of this nature are effective instruments to stimulate private sector investment in R&D and innovation provided the design and implementation is effective.

The composition and efficiency of the policy mix for government support for private sector R&D and innovation have received attention in the 2019 White Paper on Science Technology and Innovation (“2019 STI White Paper”). The 2019 STI White Paper and the 2019-2024 Medium Term Strategic Framework (MTSF) pronounced ambitious policy targets for R&D, innovation and industrial development. Government has recommitted to the target of increasing the intensity of R&D investment in the economy so that the gross domestic expenditure on R&D reaches a revised 1,1% of gross domestic product in 2024 (from 2014-2019 MTSF target of 1,5%), and an aspirational 1,5% by 2030, from the current 0,83% as reported by the 2017/18 R&D Survey. This ambitious target thus requires an increase in STI investment by the private sector.

The programme has not yet achieved the 90-day turnaround target for providing decisions on all applications. The turnaround time depends mostly on the quality of information provided in the applications as those with insufficient information are often referred back for clarification and those that goes through the PAJA process. Ways to improve the turnaround targets are constantly being explored. At the time of writing this report, the Department was developing a discussion document for private sector inputs on the R&D Tax Incentive in view of policy review to inform a decision about this incentive beyond the sunset clause in October 2022.

APPENDIX A: REFERENCES

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APPENDIX B: SUPPLEMENTARY INFORMATION TABLES

Total number of applications received per company turnover size (Oct. 2012 to Feb. 2020)

Sector	R10m and below	Between R10m and R20m	Between R20m and R40m	Between R40m and R50m	Between R50m and R100m	Above R100m	Turnover not indicated	Total
Agriculture, Hunting, Forestry and Fishing	19	9	6	3	7	32	3	79
Mining and Quarrying	12	5	4	0	7	63	7	98
Manufacturing	100	37	45	39	73	379	65	738
Wholesale and Retail Trade	9	1	2	2	2	12	0	28
Transport, Storage and Communication	17	7	8	3	16	33	8	92
Financial Intermediation, Real Estate and Business Services	111	69	55	23	35	135	27	455
Electricity, Gas and Water Supply	9	3	1	1	2	5	5	26
Construction	2	0	0	1	3	6	1	13
Community, Social and Personal Services	1	1	1	0	1	3	1	8
Total	280	132	122	72	146	668	117	1537

Total number of approved applications per company turnover size (Oct. 2012 to Feb. 2020)

Sector	R10m and below	Between R10m and R20m	Between R20m and R40m	Between R40m and R50m	Between R50 and R100m	Above R100m	Turnover not indicated	Total
Agriculture, Hunting, Forestry and Fishing	16	5	5	2	6	32	0	66
Mining and Quarrying	4	4	3	0	4	45	7	67
Manufacturing	60	14	30	24	51	297	47	523
Wholesale and Retail Trade	2	1	1	0	0	9	0	13
Transport, Storage and Communication	7	1	6	2	12	21	5	54
Financial Intermediation, Real Estate and Business Services	34	18	14	7	17	63	12	165
Electricity, Gas and Water Supply	6	2	1	0	2	5	3	19
Construction	1	0	0	0	1	5	1	8
Community, Social and Personal Services	0	0	1	0	1	2	0	4
Total	130	45	61	35	94	479	75	919

Total number of participating companies (Oct. 2012 to Feb. 2020)

Sector	R10m and below	Between R10m and R20m	Between R20m and R40m	Between R40m and R50m	Between R50m and R100m	Above R100m	Turnover not indicated	Total
Agriculture, Hunting, Forestry and Fishing	13	7	4	2	5	19	2	52
Mining and Quarrying	9	3	3	0	4	30	5	54
Manufacturing	77	26	34	11	42	151	38	379
Wholesale and Retail Trade	7	1	2	2	1	8	0	21
Transport, Storage and Communication	12	5	4	2	4	18	5	50
Financial Intermediation, Real Estate and Business Services	78	42	36	10	24	65	17	272
Electricity, Gas and Water Supply	7	1	1	1	2	3	4	19
Construction	2	0	0	1	2	4	1	10
Community, Social and Personal Services	1	1	1	0	1	2	1	7
Total	206	86	85	29	85	300	73	864

Total number of approved companies per turnover size (Oct. 2012 to Feb. 2020)

Sector	R10m and below	Between 10m and 20m	Between R20m and R40m	Between R40m and R50m	Between R50m and R100m	Above R100m	Turnover not indicated	Total
Agriculture, Hunting, Forestry and Fishing	10	5	3	2	4	20	0	44
Mining and Quarrying	3	3	2	0	3	27	5	43
Manufacturing	44	9	23	6	26	109	28	245
Wholesale and Retail Trade	2	1	1	0	0	6	0	10
Transport, Storage and Communication	4	1	4	1	2	8	4	24
Financial Intermediation, Real Estate and Business Services	26	10	11	4	12	35	10	108
Electricity, Gas and Water Supply	6	1	1	0	2	2	3	15
Construction	1	0	0	0	1	3	1	6
Community, Social and Personal Services	0	0	1	0	1	2	0	4
Total	96	30	46	13	51	212	51	499

Estimated R&D expenditure on approved applications (Oct. 2012 to Feb. 2020)

Sector	R10m and below	Between 10m and 20m	Between R20m and R40m	Between R40m and R50m	Between R50m and R100m	Above R100m	Turnover not indicated
Agriculture, Hunting, Forestry and Fishing	41,548,903	23,613,319	57,700,000	19,300,000	45,549,158	11,453,653,912	0
Mining and Quarrying	33,450,000	14,770,260	55,790,164	0	53,430,000	9,302,350,923	312,002,088
Manufacturing	611,905,653	51,458,298	425,468,064	574,158,288	1,753,642,704	41,734,540,590	1,115,350,031
Wholesale and Retail Trade	10,470,000	11,000,000	3,650,000	0	0	423,972,009	0
Transport, Storage and Communication	25,332,392	12,000,000	32,867,772	15,584,000	159,055,760	220,627,187	266,462,368
Financial Intermediation, Real Estate and Business Services	247,522,966	313,355,855	235,734,166	188,968,199	172,131,155	2,749,473,201	148,156,753
Electricity, Gas and Water Supply	15,240,000	700,000	8,000,000	0	17,955,000	100,200,000	1,249,604,760
Construction	9,100,000	0	0	0	2,500,000	27,900,000	40,000,000
Community, Social and Personal Services	0	0	2,486,773	0	7,000,000	85,264,860	0
Total	994,569,914	426,897,732	821,696,939	798,010,487	2,211,263,778	66,097,982,682	3,131,576,000

APPENDIX C: DEFINITIONS OF SCIENTIFIC FIELDS

Agricultural science is a broad multidisciplinary field that encompasses parts of exact, natural, economic and social sciences that are used in the practice and understanding of agriculture.

Animal science can be described as a study of the biology of animals that are under the control of humankind.

Biological science is a branch of science that is defined as the study of life. It provides the fundamental study for the biotechnology industry. Biological science has a great impact on our lives and stands to have an even bigger impact in the future.

Chemical science consists of a diversity of disciplines in pharmaceuticals, polymers, paints and coatings, and household and personal care products, etc.

Environmental science is an interdisciplinary academic field that integrates physical and biological sciences (including but not limited to ecology, physics, chemistry, biology, soil science, geology, atmospheric science and geography) into the study of the environment and the solution of environmental problems. Environmental science provides an integrated, quantitative and interdisciplinary approach to the study of environmental systems.

Food science is concerned with all the technical aspects of food, beginning with harvesting or slaughtering and ending with cooking and consumption ("from field to fork").

Forestry science is the scientific management of forests for the production of lumber and other resources. It is the science of cultivating, maintaining and developing forests.

Geographical information systems (GIS) science includes the design of systems to capture, store, manipulate, analyse, manage and present all types of geographically referenced data.

Geological science is the science comprising the study of the Earth, the rocks of which it is composed and the processes by which it evolves. It is commercially important for mineral and hydrocarbon exploration and for evaluating water resources.

Industrial science is made up of multidisciplinary fields, e.g. combining information technology, physical science and the science of machinery to advance industries.

Materials science is an interdisciplinary field that applies the properties of matter to various areas of science and engineering. It investigates the relationship between the structure of materials at atomic or molecular scale and their macroscopic properties. It incorporates elements of applied physics and chemistry.

Mathematical science refers to disciplines that are mathematical in nature. It includes fields like computer science, computational science, statistics, theoretical physics and actuarial science.

Metallurgical science includes disciplines concerned with the science and technology of metals and alloys. It includes fields such as process metallurgy, physical metallurgy and mechanical metallurgy.

Physical science is any of the sciences, such as physics, chemistry, astronomy and geology, which analyse the nature and properties of energy and non-living matter.

APPENDIX D: 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, machinery and equipment and of office, accounting and computing machinery
	36 000	Manufacture of electrical machinery and apparatus (not elsewhere classified)

Major division	Sub-division	Description
	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, Motor Cycles and Personal and Household Goods; Hotels and Restaurants
	61 000	Wholesale and commission trade, except of motor vehicles and motor cycles
	62 000	Retail trade, except of motor vehicles and motor cycles; repair of personal household goods
	63 000	Sale, maintenance and repair of motor vehicles and motor cycles; 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 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

Major division	Sub-division	Description
	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 E: METHODOLOGY

The report presents information on the performance of the R&D tax incentive programme for the period March 2019 to February 2020. 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 on retrospective forms (prior October 2012), pre-approval applications (from 1 October 2012) and the 2020 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.

There is no data that was sourced from SARS. Data is 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 manually or electronically and submits it to the Department. Data is captured in 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 R&D planned expenditure, which in many companies span 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.

Application and progress report forms collect information on the following:

- Particulars of the taxpayer, including the principal industrial activity in which they are involved.

- 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.
- Information on sources of funds 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 makes certain that the tables and figures in the report do not unintentionally reveal the details of individual companies and their R&D activities.