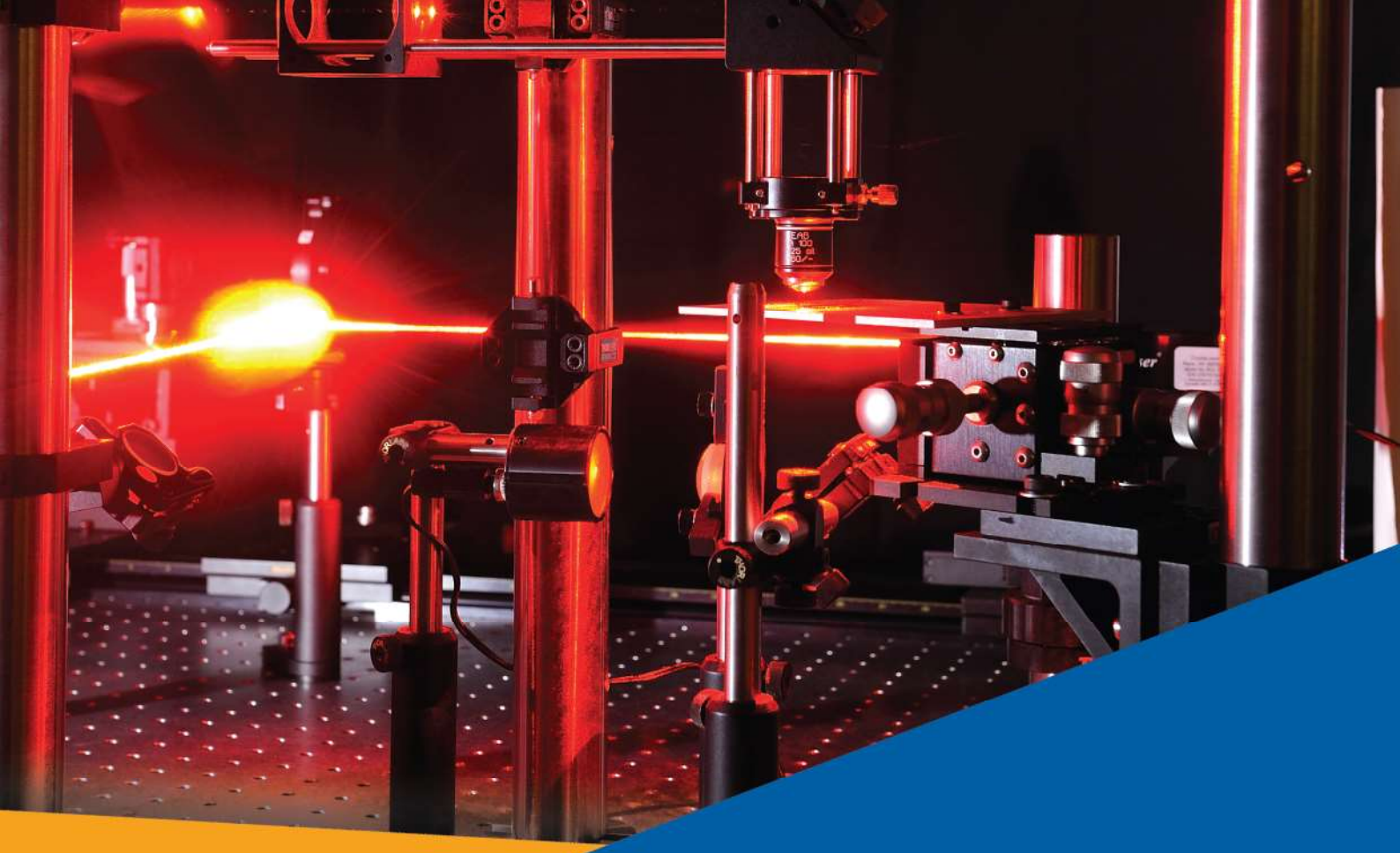

RESEARCH AND DEVELOPMENT TAX INCENTIVE PROGRAMME
Report to Parliament
2016/17

science
& technology

Department:
Science and Technology
REPUBLIC OF SOUTH AFRICA

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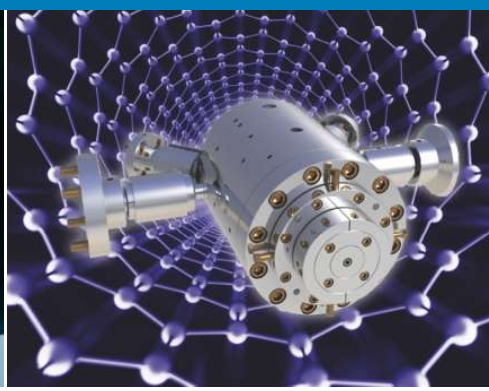

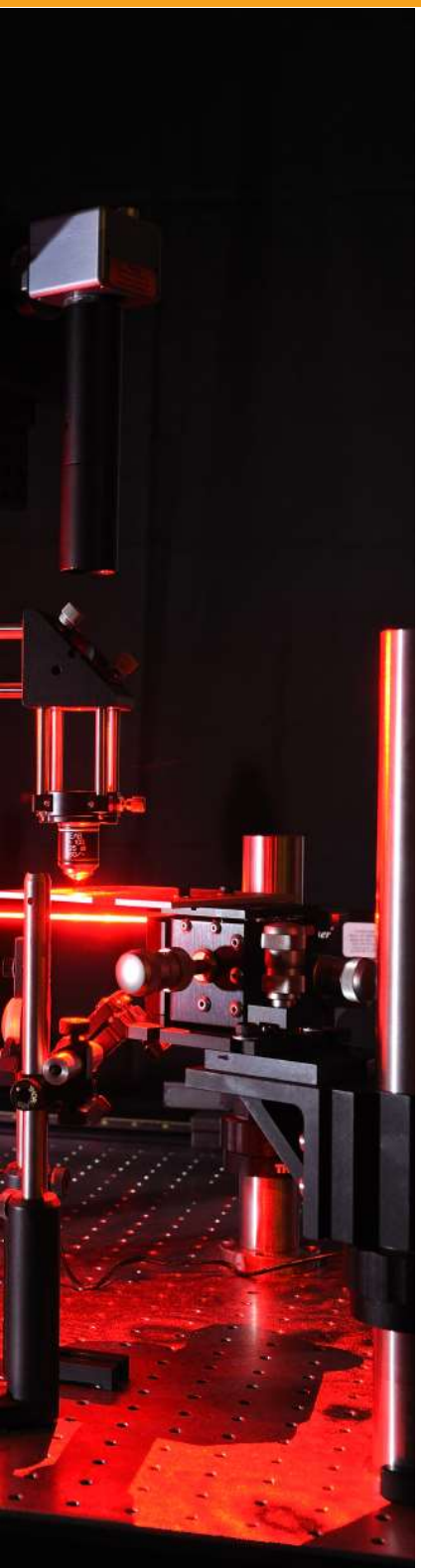

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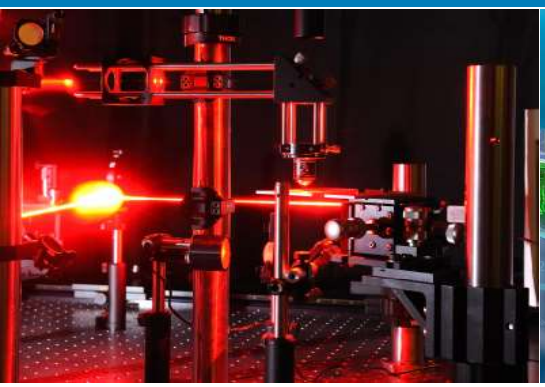

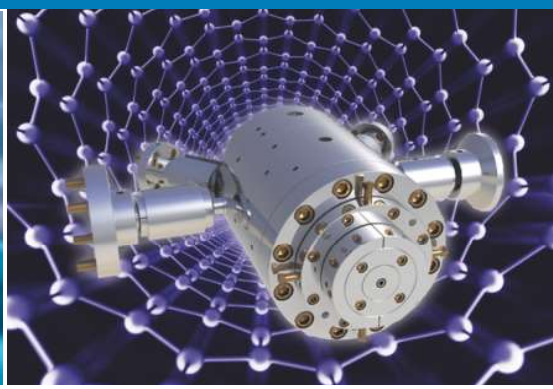

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ABBREVIATIONS

DST	Department of Science and Technology
ICT	information and communication technology
IPAP	Industrial Policy Action Plan
R&D	Research and Development
SARS	South African Revenue Service
SIC	Standard Industrial Classification
SMEs	small and medium enterprises

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's policy instruments aimed at promoting 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 Science and Technology 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 implementation of the programme, but also to make information available to stakeholders about the lessons learnt in the implementation of the incentive.

The programme is open to firms of any size and in any industry, allowing the government to reach a large number of firms. However, the programme needs extensive resources and an implementation model that can be scaled up and adjusted according to the interest shown by firms.Interventions to improve the administration of the R&D tax incentive were made in 2016/17, largely in response to the recommendations presented by the joint government-industry task team established in November 2015.

The changes introduced so far have addressed the delays experienced by firms in the complexity of the application process, and accessing the incentive benefit. The application process has been simplified, and the clarification of information requirements has improved the quality of applications received. The approval rate of applications received from small and medium enterprises (SMEs) has increased, from 35% in 2014/15 to 41% in 2016/17, and we have introduced an online system for submitting applications.

The improvements should not make us complacent, however. There is a constant need to evolve the incentive programme in line with the shifting landscape, both to pursue local policy goals and to keep up with best practices in the international context.

Importantly, the lessons learnt thus far from implementing the R&D tax incentive have been incorporated into the ongoing process of developing a new White Paper on Science, Technology and Innovation, which has identified the need to look at simplifying the overall government incentive portfolio for R&D and innovation as a step towards achieving greater impact.

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.

MS M T KUBAYI-NGUBANE, MP
MINISTER OF SCIENCE AND TECHNOLOGY

EXECUTIVE SUMMARY

This annual report on the performance of the R&D tax incentive programme for the period March 2016 to February 2017 (referred to in this document as 2016/17) is made as required by section 11D(17) of the Income Tax Act (1962).

The report presents information on the activities of the incentive on the basis of performance indicators such as uptake in terms of the number of applications and the profile of participating companies, the estimated R&D expenditure, the tax revenue foregone, the R&D personnel involved, and the measures taken to improve the administration of the R&D tax incentive programme.

In this report, where appropriate, information is presented in cumulative terms to show the overall uptake and contribution of the incentive since November 2006. Information was obtained in two ways.There is information that was declared to the Department of Science and Technology (DST) about claims that companies have submitted to the South African Revenue Service (SARS) retrospectively. There is also information obtained from the applications submitted to the DST under the pre-approval system.

In 2016/17, the DST received a total of 153 applications from 117 companies. These applications were for 571 R&D projects, with total expenditure estimated at R3,6 billion. Of the companies that submitted applications, 58 applied for the first time, increasing to 1 020 the total number of companies participating in the incentive since its inception in November 2006.

By the end of 2016/17, 972 (83,4%) of the 1 166 pre-approval applications that had been received since October 2012 had been adjudicated, and 737 (75,8%) had received final decisions from the Minister. A total of 525 (54%) applications,involving 341 companies, were approved. The expenditure on R&D in theapproved applications totals an estimated R15,6 billion. If this is added to the R25,4 billion reported under the retrospective system, approximately R41 billion in R&D expenditure has been supported by the incentive since November 2006.

The trend of approvals per turnover size and industry sector in 2016/17 was similar to that observed in previous years, with just over half (51%) of all approved applications coming from the Manufacturing Sector. Larger companies in the Manufacturing Sector are dominant in terms of number of applications received, estimated R&D expenditure and the R&D personnel employed. The approval rate for applications received from very large companies (i.e. companies with latest year turnover of above R100 million) was 64,2%. The approval rate for applications from large companies (i.e. with turnover from R40 million to R100 million) was 53,2%, and for those from SMEs (i.e. turnover of below R40 million) was 40,5%. The approval rate for those that did not disclose their turnover size was 65,4%. Applications from the Agriculture, Hunting, Forestry and Fishing Sector had the highest rate of approval (84,2%) for the R&D tax incentive, followed by the Electricity, Gas and Communication Sector (83,3%) and Mining and Quarrying Sector (70,6%). The Financial and Business Services Sector, involving mostly information and communication technology activities, had the least rate of approval (34,2%).

The R&D tax incentive supports the priority focus areas of the current Industrial Policy Action Plan (IPAP). Since October 2012, about 55% (an estimated R8,6 billion) of the approved R&D expenditure and about 62,3% (327) of the approved applications were in these areas.

Companies reported an estimated 20 434 R&D personnel directly involved in the supported R&D activities for the period November 2006 to February 2017. Of these, 64% were core research personnel (i.e. scientists, engineers, technologists and technicians), and 36% were support personnel (i.e. R&D managers and other technical staff).

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 incentive strengthens local companies' ability to develop new value-added products, processes, technologies and services, and to improve existing ones. The incentive has the additional benefit of supporting knowledge transfer and skills development.

The DST has made progress in implementing the recommendations of the joint government-industry task team established by the Minister of Science and Technology in November 2015 to look into possible improvements to the administration of the R&D tax incentive. The DST accepted all 17 recommendations made by the task team, and by the time of compiling this report, 14 had been implemented. It is, however, still necessary to establish the impact of the incentive on the South African economy, employment creation and other broader government objectives. To measure the impact of this programme, the DST is finalising the terms of reference of an impact evaluation process in consultation with the National Treasury.

2016/17 IN NUMBERS

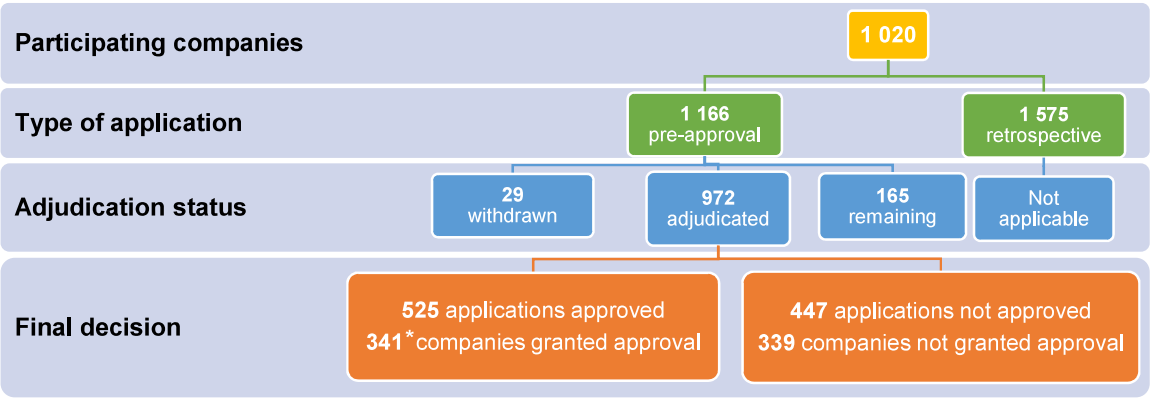
Contributions for 2016/17

153	571	117	58	R3,6 billion
Applications received	Projects contained in the applications	Companies applying	Companies applying for the first time	Estimated R&D expenditure on 2016/17 applications

Cumulative contributions (November 2006 to February 2017)

2 741	5 890	1 020[1]	83	R41 billion
Applications received	Projects contained in the applications (only apply to pre-approval system)	714 companies applying (pre-approval) 628 companies applying (retrospective)	5-year average: Companies applying for the first time per year (2012/13 to 2016/17)	Estimated R&D expenditure in supported applications R15,6 billion (pre-approval) R25,4 billion (retrospective)

Overall status in processing applications (November 2006 to February 2017)



*This number does not include those 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, 1962 (Act No. 58 of 1962), supported by regulations published in Government Gazettes Nos. 38729, 38730 and 38732 of 23 April 2015 and the relevant amendments to the Act that came into effect from October 2012, January 2014, January 2015 and January 2017.

Table 1: Synopsis of legislative and regulatory changes

Year	Description
2006	The R&D tax incentive was introduced on 1 November 2006, allowing companies to deduct an additional 50% on R&D expenditure incurred. Companies had to submit retrospective R&D tax incentive claims directly to SARS and only report to the DST about their R&D expenditure incurred.
2012	The pre-approval process was introduced on 1 October 2012. Companies are required to obtain approval for R&D activities from the Minister of Science and Technology before claiming a deduction from SARS.
2014	New amendments to section 11D of the Act became effective on 1 January 2014, in terms of the Taxation Laws Amendment Act, 2013 (Act No. 39 of 2013). Refinements to section 11D, including adjustments to the definition of R&D, were made to streamline and simplify the regime and ensure that only genuine R&D is supported.
2015	Refinements were made to section 11D, including amending the definition of R&D in respect of qualifying "innovative" functional designs, and including multisource pharmaceutical products and clinical trials in the definition of R&D. These amendments became effective on 1 January 2015, in terms of the Taxation Laws Amendment Act, 2014 (Act No. 43 of 2014). Regulations on the additional criteria for multisource pharmaceutical products and for clinical trials were published in Government Gazettes Nos. 38729, 38730 and 38732 on 23 April 2015.
2016	New amendments to section 11D, introduced in terms of the Taxation Laws Amendment Bill[No. B 17B-2016](Act No. 15 of 2016),became effective on 1 January 2017. Subsection (20) was added to allow companies to catch up on their deductions.

1.2 Objectives of the R&D tax incentive

- To encourage businesses to conduct scientific and technological R&D in South Africa.
- 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.

1.3 Benefits of the R&D tax incentive

If an application is approved, the tax incentive allows companies to deduct 150% of 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. It is, therefore, regarded as indirect financial support for private sector R&D and innovation. The aim is to help local companies to build capabilities and innovations by creating new products, processes, devices and techniques, and/or to significantly improve existing ones.

1.4 Eligibility for the R&D tax incentive

The incentive can be accessed by South African registered companies of all sizes in all sectors of the economy. For a company to benefit from the incentive, its R&D activities must be approved by the Minister of Science and Technology or a person appointed by the Minister.

Approval is granted on the basis of the recommendation by the R&D tax incentive Adjudication and Monitoring Committee (hereinafter called "the Committee"), which evaluates 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 from the Department of Science and Technology (DST), the South African Revenue Service (SARS) and the National Treasury. The Committee members are appointed by the Minister of Science and Technology and the Minister of Finance.

Section 11D(17) of the Income Tax Act requires the Minister of Science and Technology 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 R&D tax incentive application process

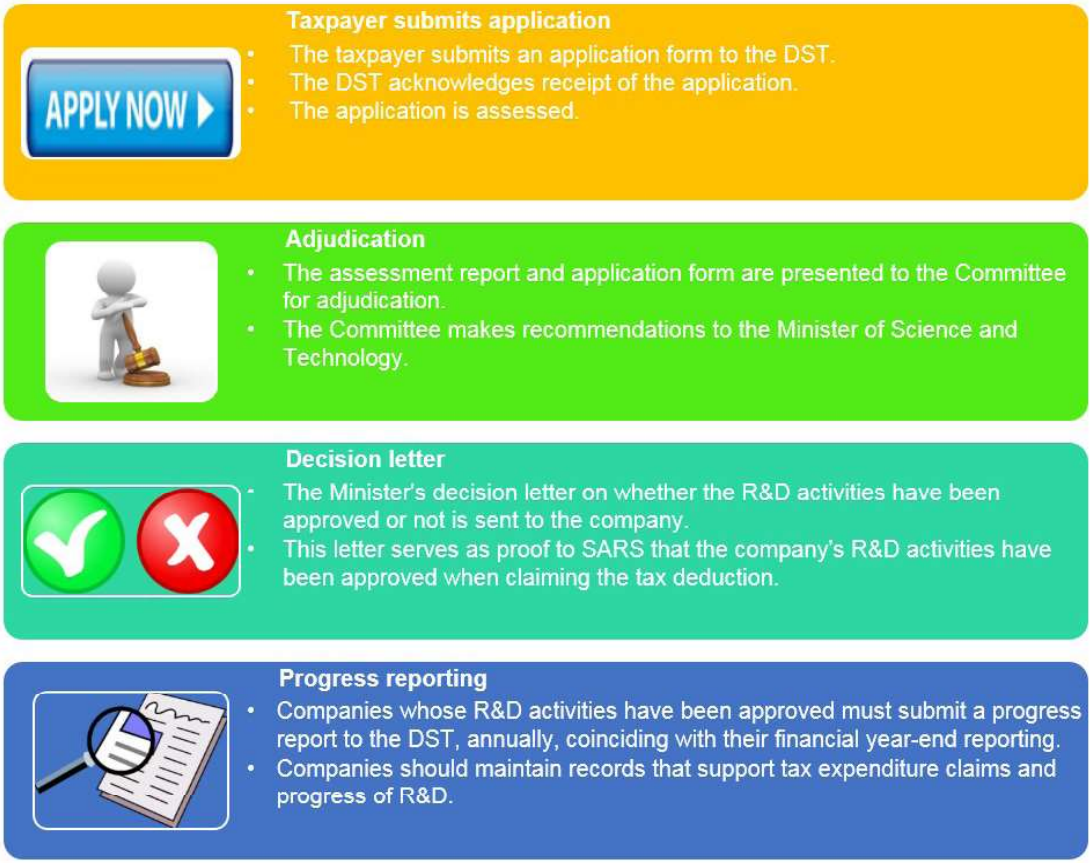


Figure 1: The application process

1.6 The DST Directorate: R&D Tax Incentive

The Directorate: R&D Tax Incentive is responsible for the administration of the incentive programmes to promote private sector R&D investment. It targets the following:

- **Process efficiency:** To provide decisions within 90 days of date of receipt of application for the R&D tax incentive, and to implement the R&D tax incentive online application and monitoring system fully – companies are expected to use only the online system by March 2019.

- **Increased awareness:** To increase awareness and provide up-to-date guidelines, information tools and guidance to improve the accessibility of the R&D tax incentive programme.

- **Policy effectiveness:** To proactively identify issues and engage with the National Treasury, SARS and other relevant parties to improve legislation and policy on the R&D tax incentive.

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 in processing those applications. The indicators covered below comprise those from the period under review (2016/17), 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 DST

For the period under review, the DST received a total of 153 R&D tax incentive applications containing 571 projects from 117 companies, of which 58 (49,6%) were first-time applicants (Figure 2). These applications are for an estimated R3,6 billion in R&D expenditure at the application stage. Since the inception of the incentive in November 2006, a total of 2741 applications have been received (1 166 from the preapproval system and 1 575 from the retrospective system), while a total of 1020 companies have participated. The incentive is attracting an average of 83 new companies a year since 2012/13 when the pre-approval system was introduced.

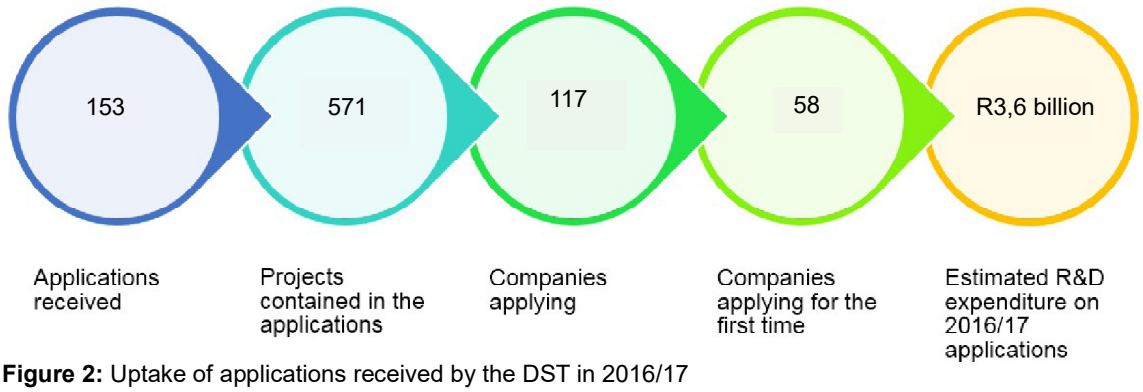


Figure 2: Uptake of applications received by the DST in 2016/17

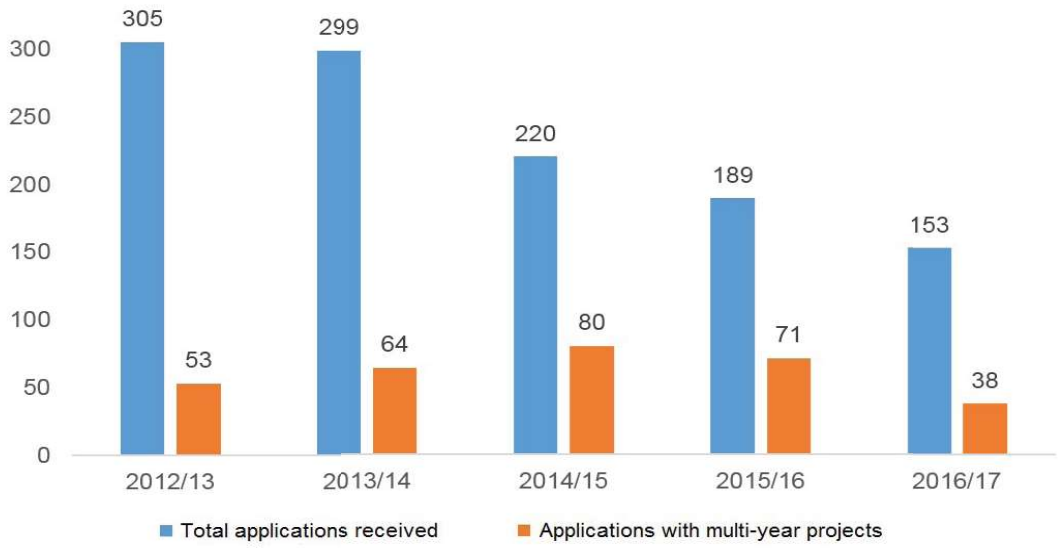


Figure 3: Applications received by the DST and indication of multi-year projects(Oct. 2012 to Feb. 2017)

The number of applications received has declined from 305 in 2012/13 to 153 in 2016/17 (Figure 3). This does not necessarily mean that participation in the programme is declining, considering that about 26,2% or 306 of all applications received contain multi-year R&D projects. In 2012, the legislation was amended to allow for multi-year applications. This means that companies do not need to apply for approval for the same projects on a yearly basis, but can apply when they have a new R&D project. Before October 2012 companies had to submit retrospective forms to the DST every year when claiming the R&D tax deduction from SARS. Some companies, however, submit applications every year out of choice, owing to their regular R&D activities, while others submit claims only in certain years, depending on their strategies.

One of the possible reasons for the decrease in the number of applications received by the DST could be a clearer understanding of the eligibility criteria for support. The quality of applications received in the 2016/17 improved significantly, indicating that companies have a better understanding of the criteria for support. However, if companies are aware that their projects do not meet the criteria, they will not have applied. Companies that have made previous applications but did not apply in 2016/17 may simply not be undertaking R&D every year, or may have applied for multi-year R&D in the previous year.

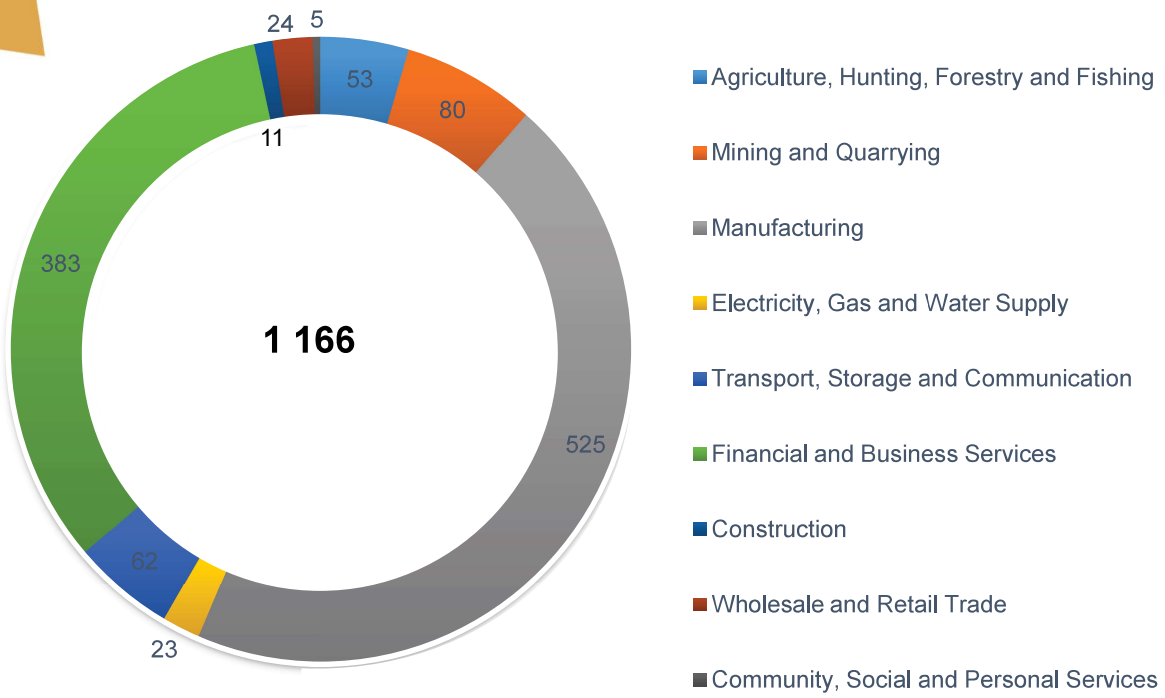


Figure 4: Number of applications received by the DST per industrial sector (Oct. 2012 to Feb. 2017)

The DST has received R&D tax incentive application forms from all industry sectors. Figure 4 shows that 525 (45%) of the total applications received were from the Manufacturing Sector, while 383 (32,8%) of applications were received from the Financial and Business Services Sector. The latter sector is dominated by the information and communication technology (ICT) industry, from which applications are frequently received. The applications from this sector declined to 19,7% in 2016/17, compared to an aggregate of about 33,3% received since 2012/13. The possible reason for this decrease could be that companies in this sector now understand the eligibility criteria used in adjudicating these applications following information sessions conducted with companies by DST officials, and the issuing of R&D tax incentive guidelines for applicants.

The remainder of the applications (less than a quarter of those received), come from the Mining and Quarrying Sector (80), the Transport, Storage and Communication Sector (62), Agriculture, Hunting, Forestry and Fishing (53), Wholesale and Retail Trade (24), Electricity, Gas and Water Supply (23), Construction (11), and Community, Social and Personal Services (5).

2.2 Processing of applications

The efficiency of the R&D tax incentive programme can be measured in terms of the number of applications processed and finalised during the reporting period, as well as the time it takes to inform applicants of decisions. The DST's performance target is to provide a final decision within 90 days of receiving an application. The turnaround time depends mostly on the quality of information provided in the application. Applications that have the required information are processed and finalised more quickly. Ways to simplify the process are continually being explored.

During the reporting period, progress has been made in the processing of applications. The average turnaround time for processing applications at the beginning of the reporting period was 250 days, but this had improved significantly by the end of the period. Of the finalised applications received in 2016/17, 22 (84,6%) took an average of 132 days from the date of receipt by DST (just over four months) to the issuing of a decision letter to the company making the application. Four (15,4%) took an average of 212 days (seven months). It is important to note that these numbers do not include applications received in previous years that were finalised in 2016/17. Although the turnaround time has been significantly reduced, more needs to be done to ensure that the 90-day target is met in the period ahead.

2.3 Status of pre-approval applications as at February 2017

Of the 1 166 pre-approval applications received between 1 October 2012 and 28 February 2017, 972 (83,4%) were adjudicated and finalised by the Committee, 737 (75,8%) had received final decisions from the Minister, while 29 applications had been withdrawn by the applicants (Figure 5).

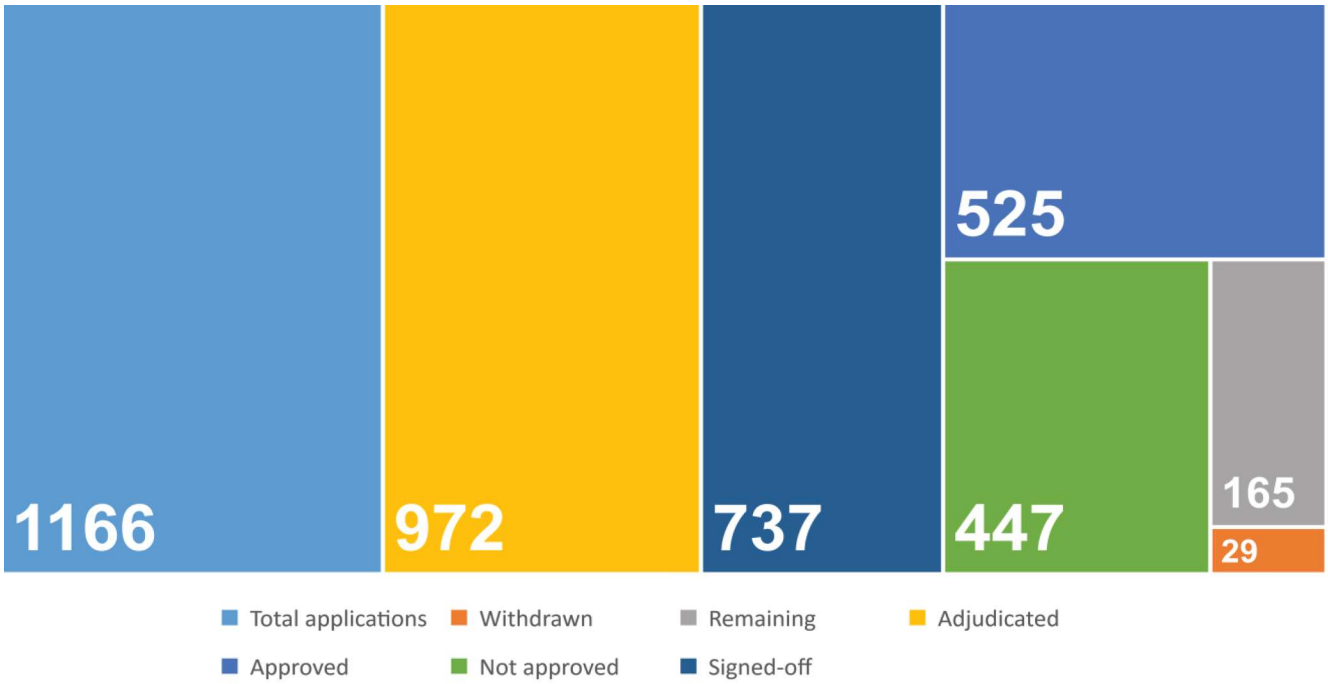


Figure 5: Overall status in processing applications as at 28 Feb. 2017

Table 2: Number of applications adjudicated per industry sector (Oct. 2012 to Feb. 2017)

Sector	Number of applications received	Adjudicated and finalised per Standard Industrial Classification (SIC)	Number of approvals per SIC
10000 – Agriculture, Hunting, Forestry and Fishing	53	38	32
20000 – Mining and Quarrying	80	68	48
30000 to 39000 – Manufacturing	525	418	270
40000 – Electricity, Gas and Water Supply	23	18	15
70000 – Transport, Storage and Communication	62	56	30
80000 – Financial and Business Services	383	339	116
*Other	40	35	14
Total	**1 166**	**972**	**525**
***"Other" includes 50000 – Construction; 60000 – Wholesale and Retail Trade; and 90000 – Community and Social Services.**			

Of the adjudicated and finalised applications from the Manufacturing Sector, 270 (64,6%) were recommended for approval, in contrast with only 116 (34,2%) of those from the Financial and Business Services sector (Table 2).

Furthermore, the Agriculture, Hunting, Forestry and Fishing Sector, and the Electricity, Gas and Communication Sector had a higher percentage of their applications approved for the R&D tax incentive than the Financial and Business Services Sector (Figure 6).

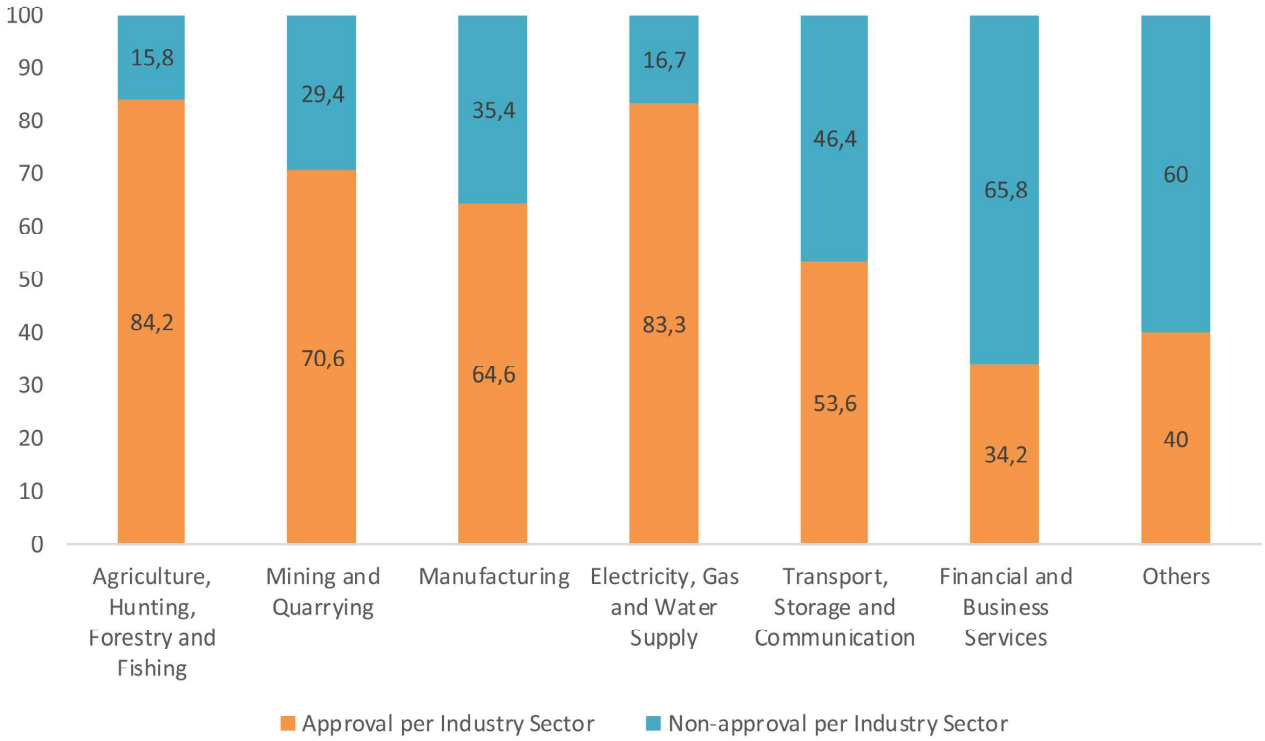


Figure 6: Proportions of approvals and non-approvals of applications per industry sector (Oct. 2012 to Feb. 2017)

Figure 7 shows that just above half (270 or 51%) of all the applications granted approval are from the Manufacturing Sector, followed by the Financial and Business Services Sector (116 or 22%), Mining and Quarrying (48 or 9%), Agriculture, Hunting, Forestry and Fishing (32 or 6%), Transport, Storage and Communication (30 or 6%),and Electricity, Gas and Water Supply (15 or 3%).

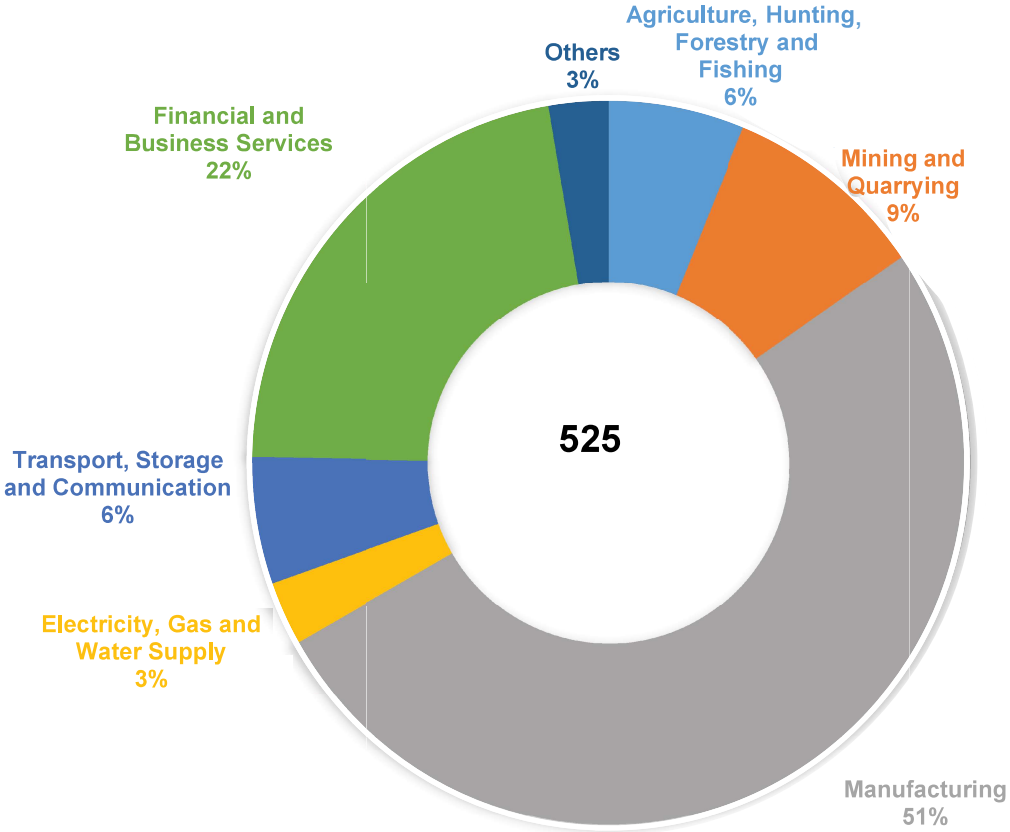


Figure 7: Percentage of approvals per industry sector (Oct. 2012 to Feb. 2017)

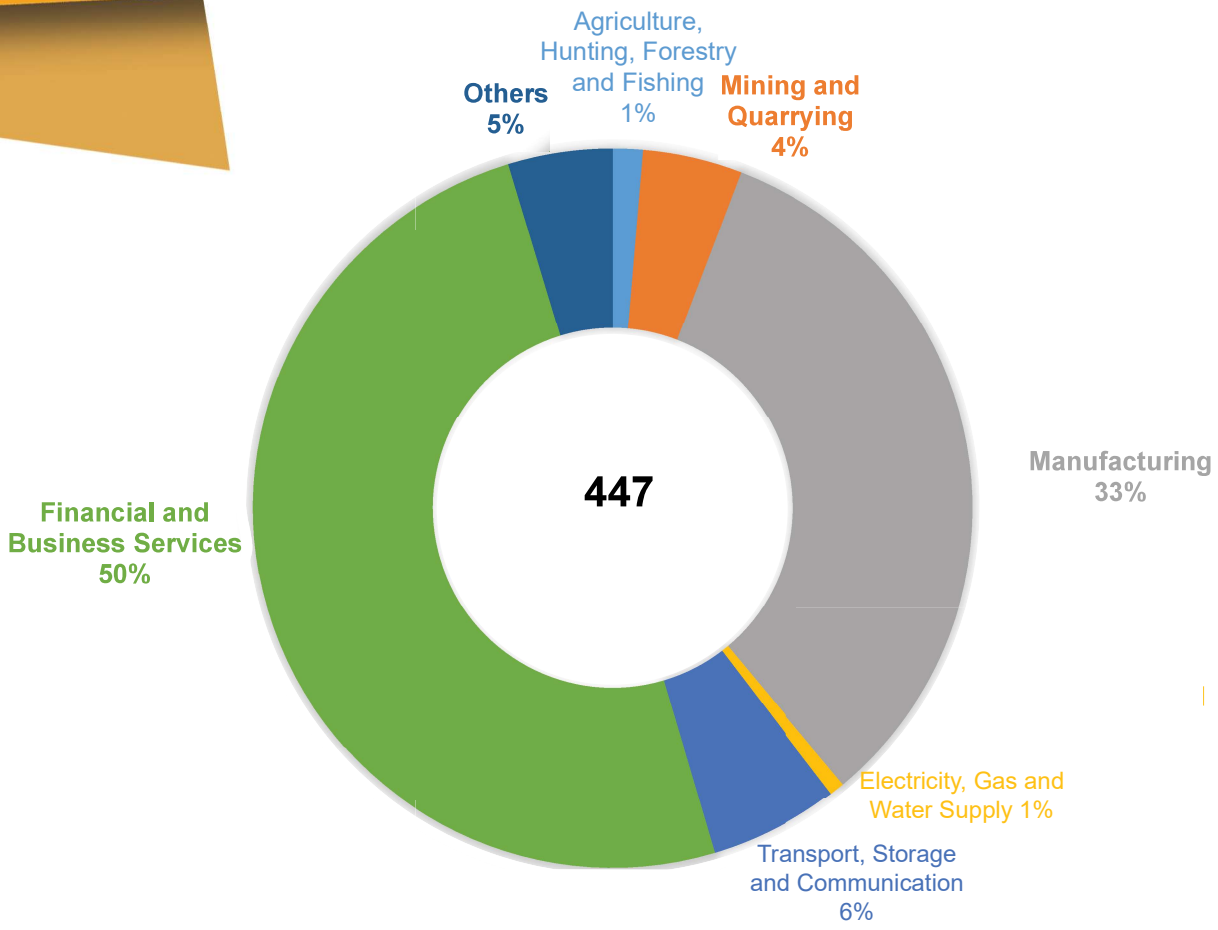


Figure 8: Percentage of non-approvals per industry sector (Oct. 2012 to Feb. 2017)

Half (50%) the applications that were not granted approval to access the initiative came from the Financial and Business Services Sector, followed by the Manufacturing Sector (33%) (Figure 8). The remaining 17% of non-approved applications come from the other sectors.

Table 3: Number of applications adjudicated per turnover size (Oct. 2012 to Feb. 2017)

Turnover size (in R million)	Number of applications received	Adjudicated and finalised per size category	Number of approvals per size category
Turnover not indicated	104	81	53
10 and below	228	192	82
10 < 15	61	50	12
15 < 20	44	40	15
20 < 30	63	55	27
30 < 40	35	28	12
40 < 50	56	32	11
50 < 100	107	92	55
Above 100	468	402	258
Total	**1 166**	**972**	**525**

As indicated in Table 3, larger companies have a higher rate of approval than SMEs and submit the majority of applications received. The approval rate for applications received from very large companies (i.e. companies with latest year turnover of above R100 million) is 64,2%. The approval rate for applications from large companies (i.e. with turnover from R40 million to R100 million) is 53,2%, and for those from SMEs (i.e. turnover of below R40 million) is 40,5%. The approval rate for those that did not disclose their turnover size is 65,4%. These figures may indicate that the innovation activities of SMEs involve the acquisition and integration of off-the-shelf technology rather than R&D as defined in section 11D(1) of the Income Tax Act. The figures may also indicate that SMEs need support in the preparation of applications and understanding the criteria for eligibility.

3. COMPANIES PARTICIPATING IN THE INCENTIVE

3.1 Participation per company profile

This section provides a profile of participating companies (by turnover size and industry sector) and estimated amounts of R&D expenditure.

A total of 117 companies participated in this programme in 2016/17, while the cumulative figure from October 2012 (when the pre-approval system was introduced) is 714, and from November 2006 (including those companies that participated in the retrospective system) is 1 020.

Table 4 shows that the trend of companies submitting applications per industry sector in 2016/17 was similar to that observed in previous years, with 72,7% of the applications coming from two sectors, namely, Manufacturing (53%) and Financial and Business Services (19,7%). The cumulative number of companies applying from these two industry sectors since October 2012 is 543 (76,1%), and from November 2006 is 798 (78,2%). The participation of companies from the Agriculture, Hunting, Forestry and Fishing Sector, the Mining and Quarrying Sector, and Transport, Storage and Communication Sector in 2016/17 was 6,8% for all three, while the cumulative figures from October 2012 are 36 (5%), 47 (6,6%) and 39 (5,5%), respectively.

Table 4: Number of participating companies per industry sector

Sector	Received in 2016/17		Cumulative (Oct. 2012 to Feb. 2017)		Cumulative (Nov. 2006 to Feb. 2017)	
	Number of companies applying	% of total	Number of companies applying	% of total	Number of companies applying	% of total
10000 – Agriculture, Hunting, Forestry and Fishing	8	6,8%	36	5,2%	53	5,2%
20000 – Mining and Quarrying	8	6,8%	47	5,6%	57	5,6%
30000 to 39000 – Manufacturing	62	53,0%	298	44,9%	458	44,9%
40000 – Electricity, Gas and Water Supply	3	2,6%	16	2,2%	17	1,7%
70000 – Transport, Storage and Communication	8	6,8%	39	4,5%	46	4,5%
80000 – Financial and Business Services	23	19,7%	245	33,3%	340	33,3%
*Other	5	4,3%	33	4,6%	49	4,8%
Total	**117**	**100,0%**	**714**	**100,0%**	**1 020**	**100,0%**
*"Other" includes 50000 – Construction; 60000 - Wholesale and Retail Trade and 90000 – Community and Social Services						

Table 5: Number of companies adjudicated per industry sector (Oct. 2012 to Feb. 2017)

Sector	Number of applications received	Adjudicated and finalised per SIC	Number of approvals per SIC	% of total	Number of companies applying	% of total
10000 – Agriculture, Hunting, Forestry and Fishing	36	29	25	5,2%	53	5,2%
20000 – Mining and Quarrying	47	38	30	5,6%	57	5,6%
30000 to 39000 – Manufacturing	298	269	165	44,9%	458	44,9%
40000 – Electricity, Gas and Water Supply	16	14	12	2,2%	17	1,7%
70000 – Transport, Storage and Communication	39	37	15	4,5%	46	4,5%
80000 – Financial and Business Services	245	224	81	33,3%	340	33,3%
*Other	33	30	13	4,6%	49	4,8%
Total	**714**	**641**	**341**	**100,0%**	**1 020**	**100,0%**
*"Other" includes 50000 – Construction; 60000 – Wholesale and Retail Trade; and 90000 – Community and Social Services.						

By the end of the reporting period, 641 (89,8%) of the companies that had submitted applications from October 2012 had had their applications adjudicated. Of those whose applications had been adjudicated, 341 (53,2%) of companies had received approval. Table 5 and Figure 9 show that, of the companies whose applications were adjudicated, companies in the Agriculture, Hunting, Forestry and Fishing Sector had the highest rate of approval (86,2%), followed by the Electricity, Gas and Water Supply Sector (85,7%) and the Mining and Quarrying Sector (78,9%). Companies in the Manufacturing Sector had an approval rate of 61,3%,and those in the Financial and Business Services Sector a rate of 36,2%.

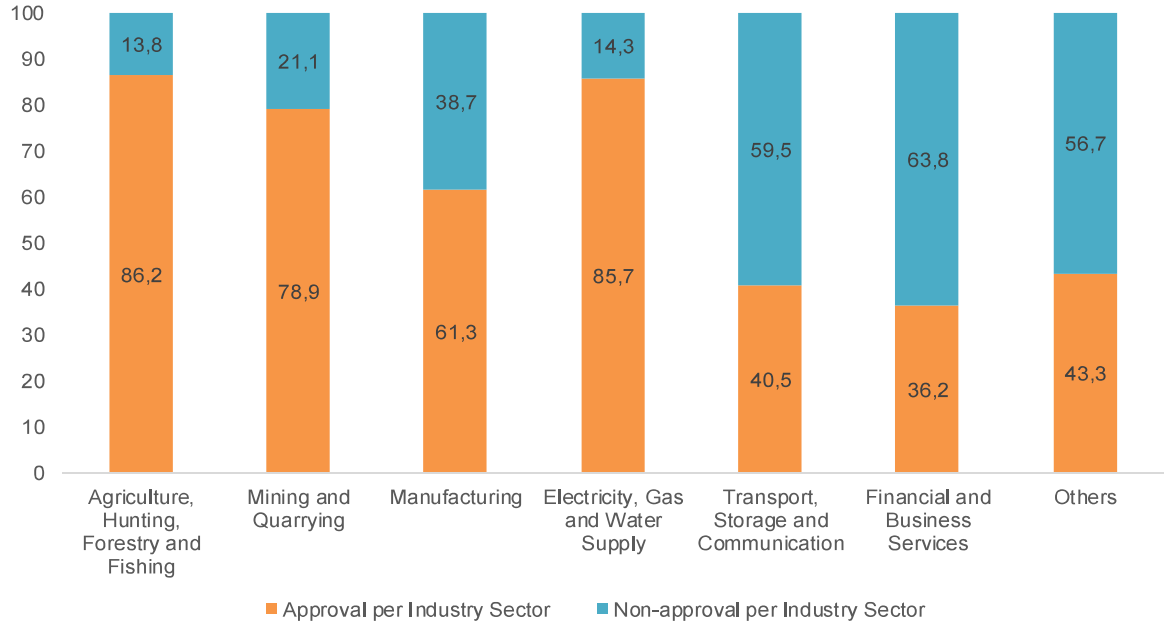


Figure 9: Proportions of approvals and non-approvals of companies applying per industry sector (Oct. 2012 to Feb. 2017)

Although some of the companies that submit applications come from a specific industry sector, they may conduct R&D activities in another sector. In the example provided below, companies in the Mining and Quarrying Sector could conduct R&D in the field of ICT, manufacturing or communication. Similarly, companies in other sectors can conduct R&D that has applications in the Mining and 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 and access to local markets. These are some of the reasons that companies diversify R&D investments.

Example of supported R&D projects from the Mining and Quarrying Sector

3.2 Participation per company turnover size

Of the 117 companies participating in the incentive in 2016/17, 41 (35%) were very large enterprises (turnover > R100 million), 42 (36%) were SMEs (turnover < R40 million), and 20 (17,1%) were large enterprises (turnover from R40 million to R100 million), while 14 (12%) did not disclose their latest year turnover (Table 6).

Table 6: Number of companies participating per company turnover size

Sector	Received in 2016/17		Cumulative (Oct. 2012 to Feb. 2017)		Cumulative (Nov. 2006 to Feb. 2017)	
	Number of companies applying	% of total	Number of companies applying	% of total	Number of companies applying	% of total
Turnover not indicated	14	12,0%	59	8,3%	96	9,4%
10 and below	25	21,4%	170	23,8%	271	26,6%
10 to 15 SMEs	3	2,6%	36	5,0%	64	6,3%
15-20 SMEs	2	1,7%	31	4,3%	42	4,1%
20-30 SMEs	7	6,0%	45	6,3%	59	5,8%
30-40 SMEs	5	4,3%	28	3,9%	37	3,6%
40-50 large	5	4,3%	23	3,2%	33	3,2%
50 – 100 large	15	12,8%	69	9,7%	96	9,4%
100 and above - very large	41	35,0%	253	35,4%	322	31,6%
Total	**117**	**100,0%**	**714**	**100,0%**	**1020**	**100,0%**

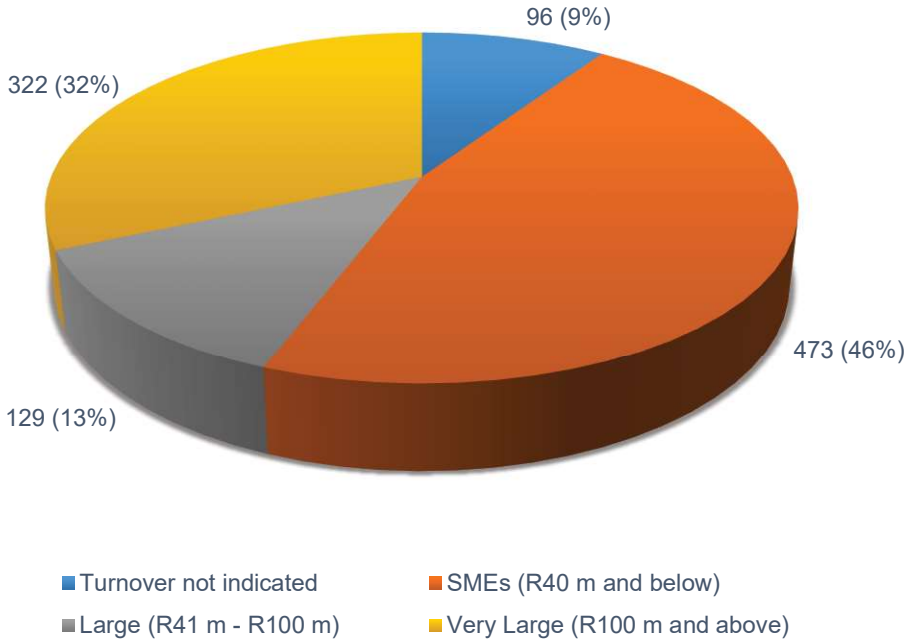


Figure 10: Uptake of companies that submitted applications per turnover size (Nov. 2006 to Feb. 2017)

Figure 10 indicates that, since November 2006, more SMEs have participated in the incentive than any other company size, at 473 (46%), followed by 322 (32%) very large companies and 129 (13%) large companies. There were 96 companies (9%) that did not indicate their latest annual turnover. These figures indicate that there are companies that submit applications frequently, so there are more applications received than companies applying.

3.3 Companies supported by the incentive

Supported companies refers to those companies that have participated in the incentive under the retrospective system, together with those whose applications have been approved under the pre-approval system. Figure 11 shows that of the 820 companies that have received support from the incentive, 43% are Small and Medium Enterprises (SMEs) (with latest year turnover of R40 million and below). Very large enterprises (R100 million and above) make up 36% of the companies, while the remainder comprises large enterprises (turnover R41 million to R100 million) (12%) and 9% that did not disclose turnover size.

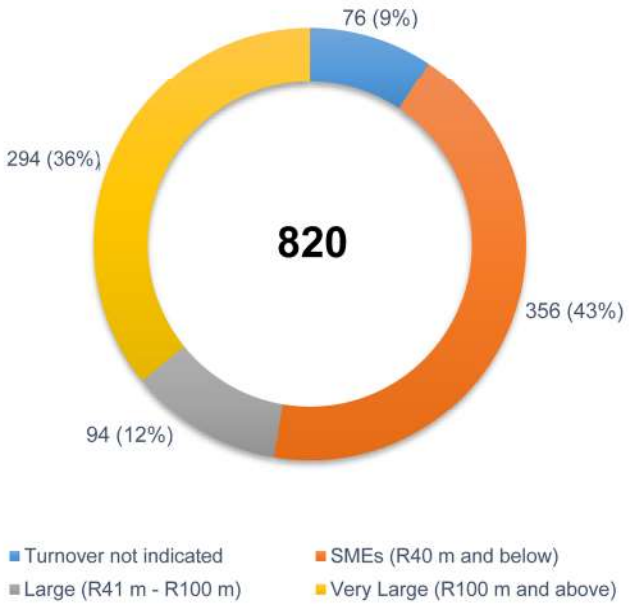


Figure 11: Number of companies supported per turnover size (Nov. 2006 to Feb. 2017)

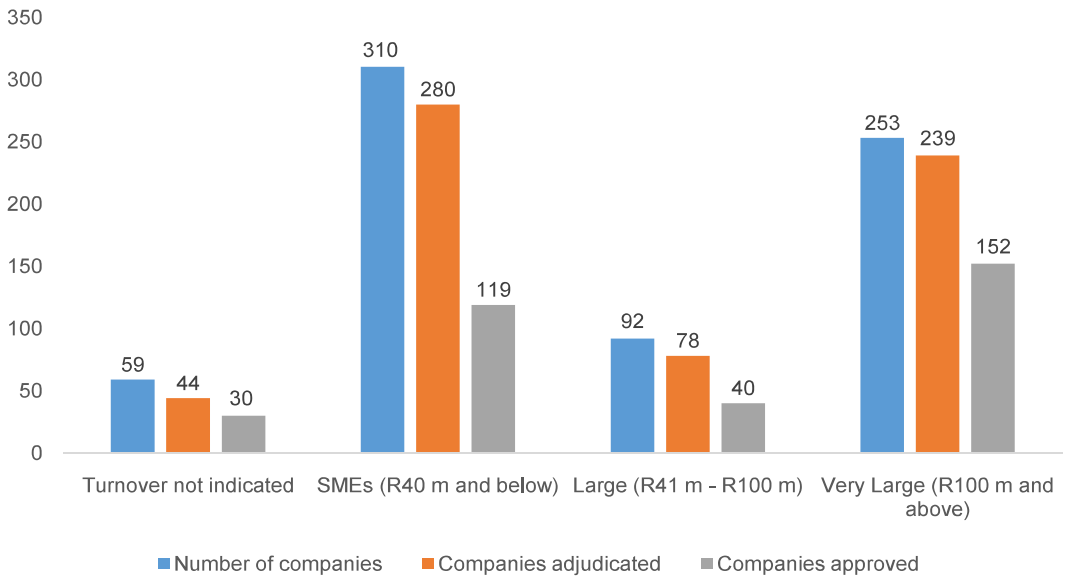


Figure 12: Number of companies adjudicated and approved per turnover size (Oct. 2012 to Feb. 2017)

Figure 12 shows cumulative distribution of number of companies that submitted applications from October 2012 to February 2017 and the approved application per turnover size category. It reveals that by the end of the reporting period, the applications of 280 SMEs had been adjudicated, and 119 (42,5%) SMEs had had their applications approved. Of the applications of 239 very large companies that had been adjudicated, 152 (63,6%) of these companies had had their applications approved. Of the 78 large companies that had their applications adjudicated, 40 (51,3%) had their applications approved. These figures confirm the need to assist SMEs to understand the eligibility criteria for the R&D tax incentive. The results are, however, an improvement on the rates of approval for SMEs recorded in previous years. The published guidelines have possibly provided more clarity on the eligibility criteria.

Examples of supported projects

The purpose of this section is to showcase the impact of the R&D tax incentive at a company level and provide examples of some of the projects that are benefiting from the program. Although the DST has been given permission from these companies to publish their projects in this report, their names and other details will remain anonymous for confidentiality purposes. This is in accordance with Section 11D(17), which restricts this report from disclosing identity of any applicant.

The R&D activities of Company X involve the development of patented self-locking cable anchors with performance and pre-stressing capacity of a barrel and wedge system, which are ideally for use as support in confined installation spaces or where long installation lengths are required. The company has also developed a bolting system that is grouted post-installation, as well as rockstop range of webbing safety nets for use to promote safety of the miners within their specific work area.

Company Y's R&D activities involve development of a technology to protect port infrastructure and introduce new designs to mitigate the risks of climate change. As a result of benefiting from this incentive, the company which is in Transport, Storage and Communication Sector has been able to extend its portfolio of R&D to another sector.

The R&D activities of Company Z involve the development of warhead technology for counter rockets artillery and mortar, as well as precision guided munition to detonate or deflagrate threat warheads. As a result of these projects, the company has grown and has become more competitive, globally, attracting business from overseas.

3.4 Footprint of companies participating in 2016/17

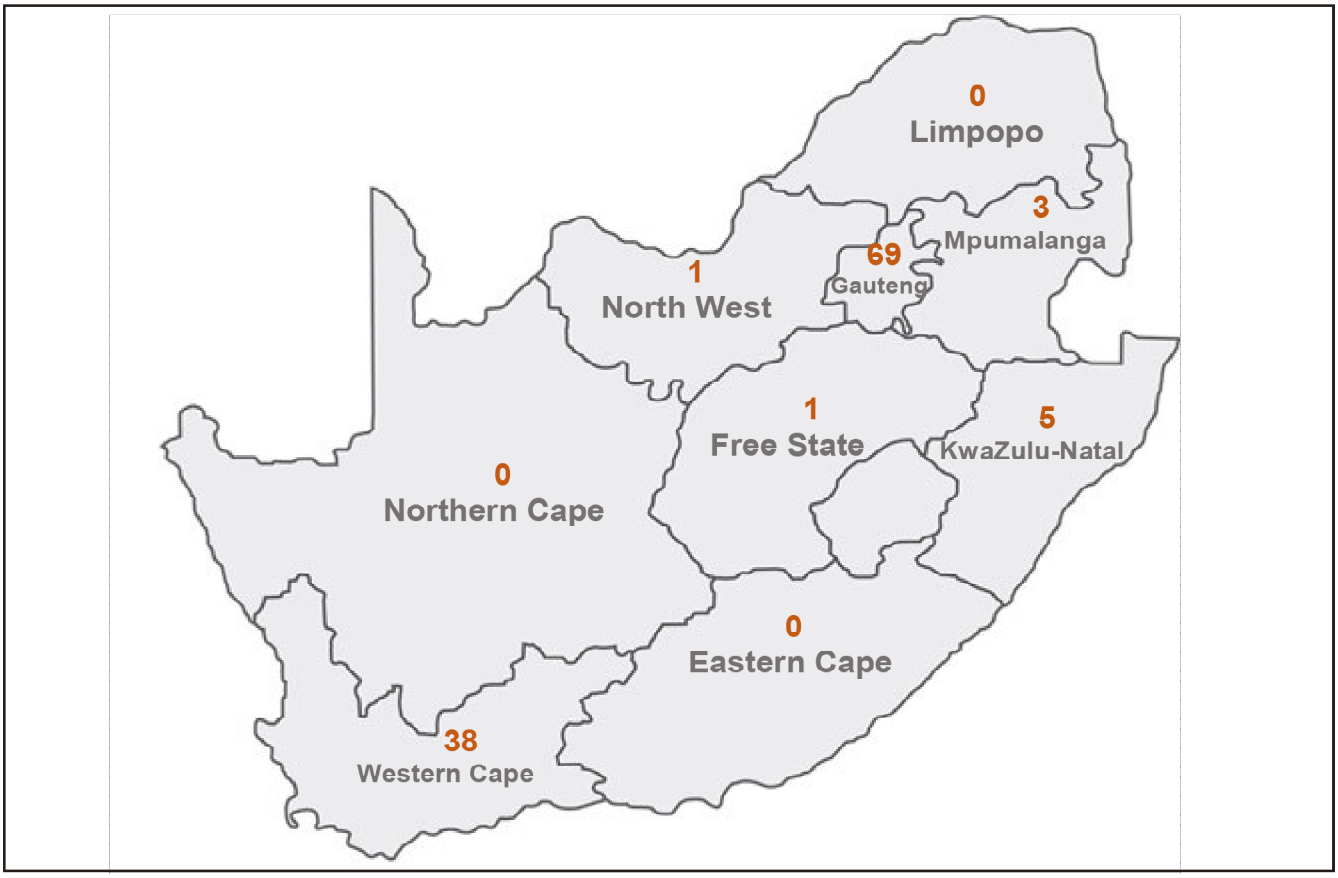


Figure 13: Provincial distribution of companies that submitted applications in 2016/17

In respect of the provincial distribution of companies that submitted applications in 2016/17, applications were received from six of the nine provinces (Figure 13). Companies in Gauteng and the Western Cape made up 107 or 91,5% of the companies that submitted applications in 2016/17, which corresponds with the high economic density of the two provinces. It is possible that the national headquarters of companies, most of which are located in Gauteng, are the ones that are applying for the incentive, and that the figures do not necessarily indicate the provinces or locations in which the R&D is being carried out.

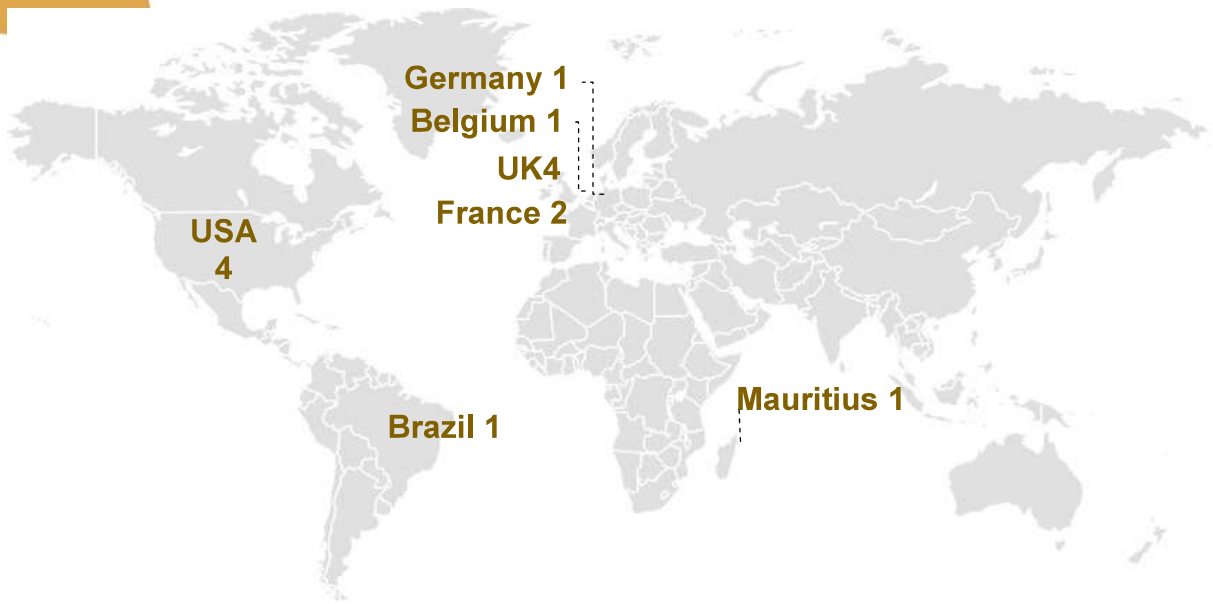


Figure 14: Home countries of some companies that submitted applications in 2016/17

The R&D tax incentive can play a role in influencing the location decisions of multinational companies investing in R&D (European Commission, 2017). When there are two or more relatively similar options for location, government incentives can sway the investment decision (OECD, 2011). In this report, "multinational companies" refers to companies that are foreign owned but are investing in R&D in South Africa. Both locally owned and multinational companies from a range of economic sectors are participating in the R&D tax incentive programme. Of the 117 companies that submitted applications in 2016/17, 14 were multinationals, with four companies originating in the USA, four in the United Kingdom, two in France, and one each from Belgium, Brazil, Germany and Mauritius (Figure 14).

4. R&D EXPENDITURE SUPPORTED BY THE INCENTIVE

4.1 Estimated R&D expenditure on approved applications

Information reported under this section is based on the data declared to the DST by companies on the claims submitted to SARS on retrospective claims, at application stage and at approval stage.

Table 7 shows that about 87% of the estimated R&D expenditure of the approved applications is from the top three industry sectors, Manufacturing (49,4%), Mining and Quarrying (22,2%) and Financial and Business Services (15,4%). 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.

Table 7: Estimated R&D expenditure on approved applications per industry sector (Oct. 2012 to Feb. 2017)

Sector	Number of applications received	Adjudicated and finalised per SIC	Number of approvals per SIC	Estimated R&D expenditure on approved applications
10000 – Agriculture, Hunting, Forestry and Fishing	53	38	32	586 971 442
20000 – Mining and Quarrying	80	68	48	3 471 253 703
30000 to 39000 – Manufacturing	525	418	270	7 724 526 184
40000 – Electricity, Gas and Water Supply	23	18	15	84 489 187
70000 – Transport, Storage and Communication	62	56	30	1 149 834 522
80000 – Financial and Business Services	383	339	116	2 403 624 458
*Other	40	35	14	214 936 422
Total	**1 166**	**972**	**525**	**15 635 635 917**
*"Other" includes 50000 – Construction; 60000 – Wholesale and Retail Trade; and 90000 – Community and Social Services.				

Table 7 further reveals that 48 applications with an estimated R&D expenditure of just below R3,5 billion from the Mining and Quarrying Sector were approved. The ratio of approved applications to estimated R&D expenditure for Mining and Quarrying (with an approval rate of 70,6%) is higher than that of all other sectors, implying that this sector is likely to spend more money on R&D than other sectors. The sector with the lowest ratio is the Electricity, Gas and Water Supply Sector, indicating that, although the sector has an excellent approval rate (83,3%), R&D activities being undertaken in this sector are likely to cost less than in the other sectors.

Table 8: R&D expenditure on supported applications per industry sector (Oct. 2006 to Feb. 2017)

Sector	R&D expenditure indicated on retrospective applications (in R'000)	Estimated R&D expenditure on approved applications (in R'000)	Total expenditure supported (in R'000)
10000 – Agriculture, Hunting, Forestry and Fishing	1 052 402	586 971	1 639 373
20000 – Mining and Quarrying	1 371 830	3 471 254	4 843 084
30000 to 39000 – Manufacturing	17 385 710	7 724 526	25 110 236
40000 – Electricity, Gas and Water Supply	924 829	84 489	1 009 318
70000 – Transport, Storage and Communication	1 140 872	1 149 835	2 290 707
80000 – Financial and Business Services	3 240 932	2 403 624	5 644 556
*Other	232 111	214 936	447 047
Total	**25 377 690**	**15 635 636**	**41 013 326**
*"Other" includes 50000 – Construction; 60000 – Wholesale and Retail Trade; and 90000 – Community and Social Services.			

The Manufacturing Sector has reported R25,1 billion (61%) of the supported R&D expenditure. This is followed by the Financial and Business Services Sector with R5,6 billion (14%) and the Mining and Quarrying Sector with R4,8 billion (12%) (Table 8).

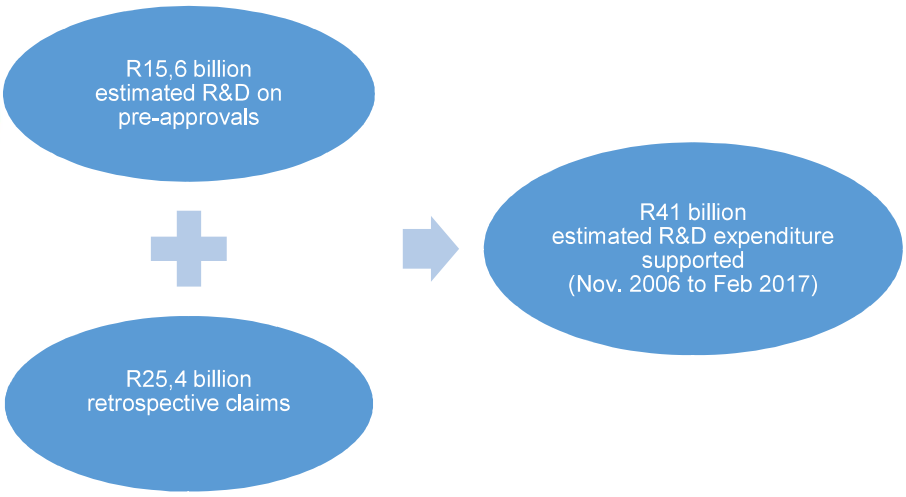


Figure 15: Overall R&D expenditure (Nov. 2006 to Feb. 2017)

Figure 15 indicates that, by the end of the reporting period, an estimated R41 billion in R&D expenditure had been supported by the incentive since November 2006. This amount comprises R15,6 billion in estimated R&D expenditure indicated on approved applications (under the pre-approval system) and R25,4 billion reported under the retrospective system. These figures may be revised, based on the actual value of claims that companies declare to SARS when they claim the deductions.

4.2 Contribution to IPAP priority areas

The IPAP priority areas are identified to enhance policies or programmes to strengthen the ability of manufacturing and other value-adding sectors to create decent jobs and increase value-addition and competitiveness in domestic and export markets. The R&D tax incentive programme supports the priority focus areas of the current IPAP, with about 62,3% (327) of the approved applications addressing those areas, accounting for about 55% (R8,6 billion) of the supported R&D expenditure since October 2012 (Table 9). The top five IPAP sectors in terms of cumulative R&D expenditure are electro-technical and ICT; upstream oil and gas; chemicals, cosmetics, pharmaceuticals and plastics; automotives, components, medium and heavy commercial vehicles; as well as metal fabrication and capital equipment.

Table 9: Contribution to IPAP priority areas (Nov. 2006 to Feb. 2017)

IPAP sector descriptions	R&D expenditure under retrospective system (R'000)	R&D expenditure for approved applications under pre-approval system (R'000	Cumulative (Nov. 2006 to Feb 2017) (R'000)	% total contribution to IPAP sectors
Upstream oil and gas	4 669 185	1 451 800	6 120 985	21,7%
Electro-technical and ICT	3 873 476	2 633 632	6 507 108	23,0%
Chemicals, cosmetics, pharmaceuticals and plastics	3 909 221	1 558 414	5 467 635	19,4%
Automotives, components, medium and heavy commercial vehicles	3 321 901	183 220	3 505 121	12,4%
Metal fabrication, capital and transport equipment sectors	1 217 985	1 069 190	2 287 175	8,1%
Business process services	1 172 476	53 789	1 226 265	4,3%
Aerospace and defence	497 888	694 092	1 191 980	4,2%
Agroprocessing, linked to food security and food pricing imperatives	384 937	358 223	743 161	2,6%
Forestry, paper, pulp and furniture	256 300	545 547	801 847	2,8%
Advanced materials	243 761	-	243 761	0,9%
Nuclear	62 516	-	62 516	0,2%
Green and energy-saving industries	35 057	-	35 057	0,1%
Boat building	-	37 200	37 200	0,1%
Clothing, textiles, footwear and leather	355	2 300	2 655	0,0%
Total	**19 645 058**	**8 587 407**	**28 232 465**	**100,0%**

4.3 Estimates of tax revenue foregone due to the incentive

The National Treasury Budget Review (2018) estimated that the tax revenue foregone due to the R&D tax incentive for the period 2005/06 to 2015/16 is R4,8 billion (Table 10).[2] The figures 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. The latest figures indicate a 20% reduction from the R6 billion reported in 2015/16.

Table 10: 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	199 000
2014/15	104 000
2015/16	216 000
2016/17	Information not available
Total	**4 843 000**

Tax revenue foregone represents part of the government's financial support for business sector scientific or technological R&D activities. It is also aimed at strengthening local, international and multinational companies' innovation capabilities. South Africa has other forms of support for R&D and innovation, through direct funding grants, loans and equity funds, for example, targeting specific industry sectors, SMEs or new companies.

The effectiveness of the R&D tax incentive in stimulating investment in R&D, especially in the current climate of slow global economic growth, is often questioned. It is important to balance expenditure on the R&D tax incentive against expenditure on other tax policies in order to determine whether a drop in economic activity could lead to new sources of economic growth, such as innovation, or additional job creation.

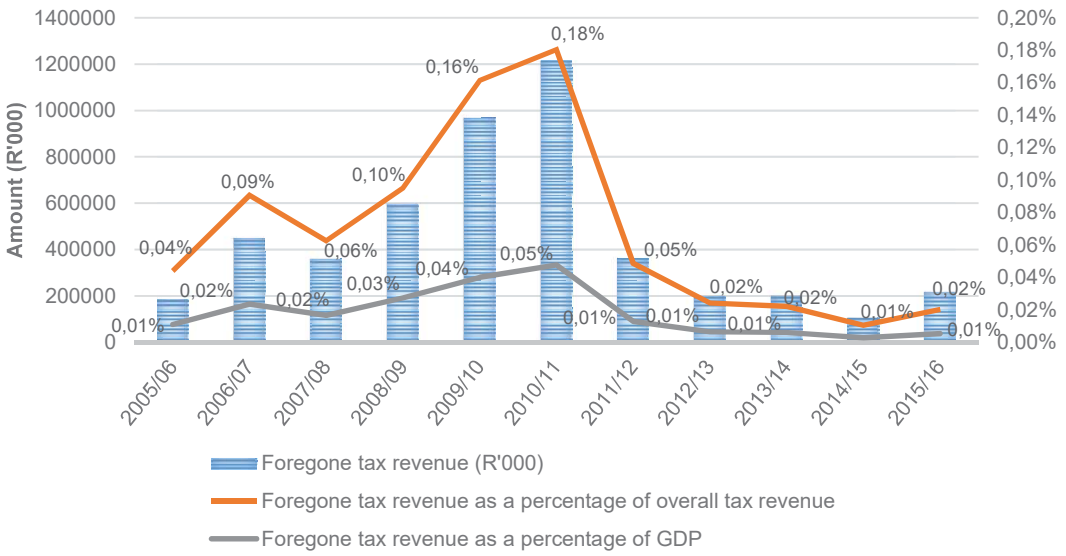


Figure 16: Tax revenue foregone in relation to overall tax revenue and to GDP

Tax revenue foregone peaked in 2010/11 at R1,2 billion, with South Africa expending about 0,05% of gross domestic product on the R&D tax incentive[3], but decreased after this (Figure 16). The decrease is attributed to the administrative delays and backlogs associated with the pre-approval system.[4]

2 The National Treasury Budget Review (21 February 2018).
3 Tax Statistics, 2016. Published jointly by the National Treasury and SARS.
4 Report of the joint government-industry task team on the research and development tax incentive. Final report to the Minister of Science and Technology, 15 April 2016.

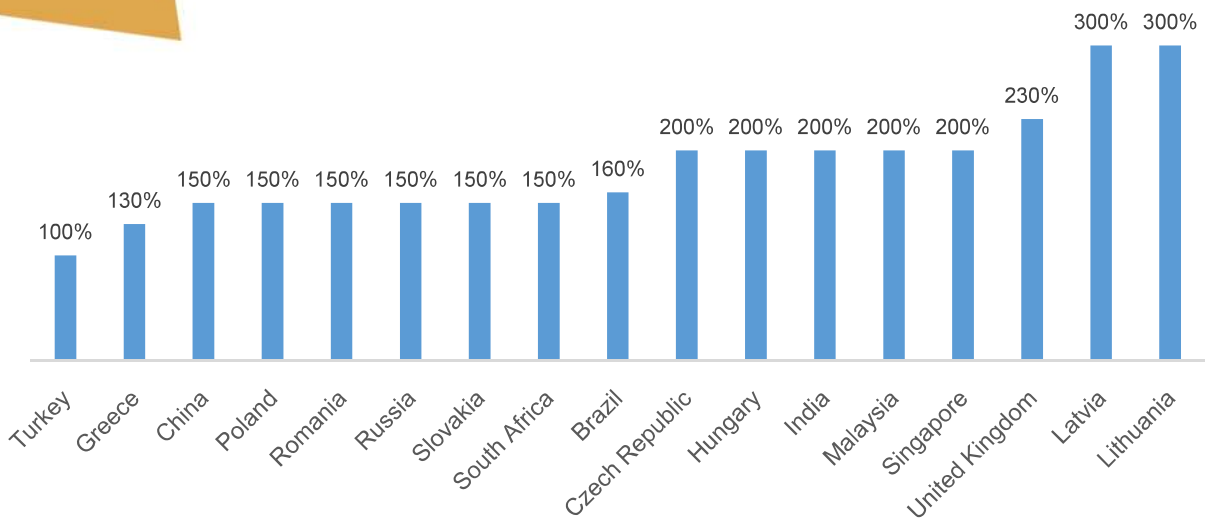


Figure 17: Base rates of R&D incentive super-deductions

South Africa is among the countries that offer "super deductions" (rates of above 100%) for R&D, alongside countries such as Brazil, China, the Czech Republic, Hungary, Malaysia, the United Kingdom, Singapore and India. South Africa's offering, at 14 cents per rand, is still competitive (Figure 17).[5] However, the value of a tax allowance (i.e. incentive benefit) varies with the corporate tax rate, which in many countries applies differently to various categories of firms,[6] e.g. small versus large firms. This is the case in South Africa, which has a graduated tax system in which small firms are liable for tax based on how they meet the definition of Small Business Corporation.

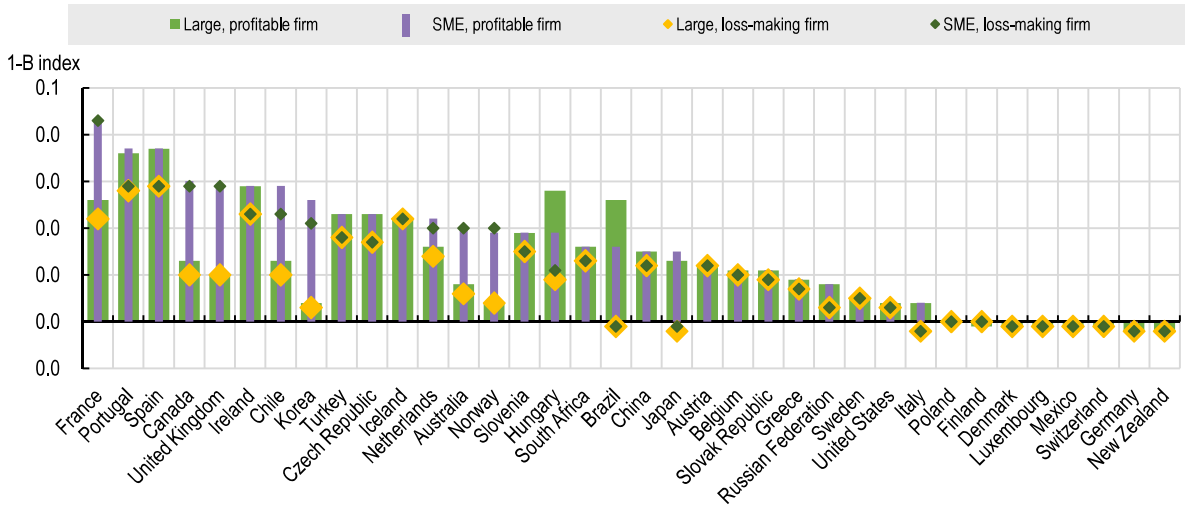


Figure 18: B-Index estimate of tax subsidy on R&D expenditures

Figure 18 presents the B-Index estimates of countries tracked by the OECD. This is one of several ways to measure the generosity of R&D tax incentives.[7] The B-Index enables the analysis of the relative attractiveness of R&D tax systems in different countries by estimating the thresholds at which a company would be able to undertake R&D and still be profitable. A positive B-Index is considered attractive for companies performing R&D, and a negative one is considered unattractive.

Using the data provided by the National Treasury and the DST, the OECD estimated that South Africa's B-Index was 0,16 for profitable firms and 0,13 for loss-making firms in 2013. This is similar to countries such as Austria, Belgium, China, Canada, Chile, the Netherlands, Slovakia and the United Kingdom. Among the BRICS countries, Brazil is found to be the most attractive to profitable firms, but most unattractive for loss-making firms, while China is comparable to South Africa in terms of attractiveness to both profitable firms and loss-making large firms and SMEs. It is encouraging to note that South Africa has maintained its B-index over time at a positive level of 0,1.

5 Deloitte (2017). Survey of Global Investment and Innovation Incentives.
6 OECD (2016:170). OECD Science, Technology and Industry Scoreboard 2015: Innovation for growth and society. OECD, Paris.
7 The OECD used the B-Index as an indicator of the generosity of R&D tax environments. The indicator can also be used to assess the impact of tax policy changes over time. OECD cautions that international comparability must consider different country contexts.

5. EMPLOYMENT SUPPORTED BY THE INCENTIVE

The number of R&D personnel reported in supported applications since November 2006 totals 20 434. About 64% (or 13 023) of the R&D personnel reported in approved applications are core research personnel (scientists, engineers, technologists and technicians), while 36% (or 7 411) are support personnel (R&D managers and other technical staff) (Figure 19).

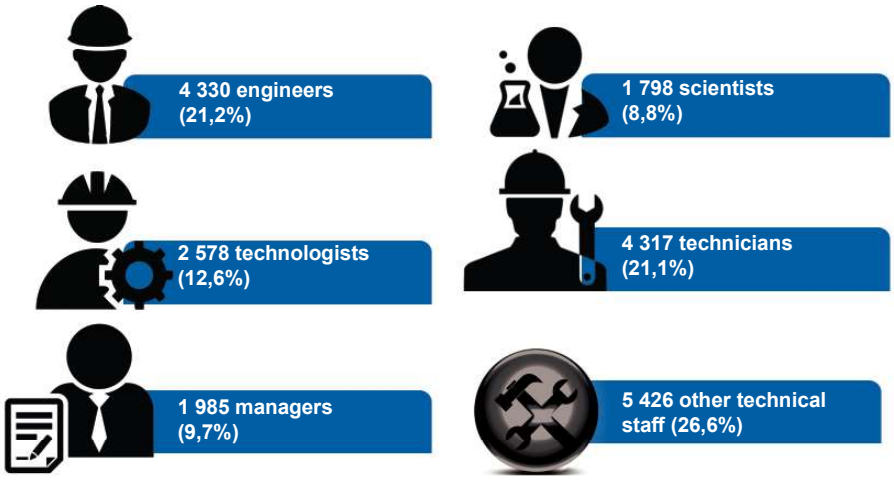


Figure 19: R&D personnel involved in total applications supported (Nov. 2006 to Feb. 2017

To give context, of the economically active population in South Africa, 94,8% were employed by the private sector in 2016 (Department of Labour, 2017). According to the 2015/16 National Survey of Research and Experimental Development, conducted by the Human Sciences Research Council on behalf of the DST, there were 17 245 private-sector R&D personnel in South Africa in 2015/16. This figure is composed of 6 128 researchers (35,5%), 6 090 technicians (35,3%) and 5 027 other R&D personnel (29,2%).

In terms of employment equity, of the total R&D personnel employed, 11 407 (66,1%) were men, and 5 838 (33,9%) were women. White people made up just over half of the total (8 954 or 51,9%), followed by Africans (4 735 or 27,5%), Indians (2 378 or 13,8%) and coloureds (1 179 or 6,8%).

Table 11: Reported R&D personnel per economic sector (Nov. 2006 to Feb. 2017)

Industry (by SIC category)	Total	Scientists	Engineers	Technologists	Technicians	Managers	Other technical staff
10000 – Agriculture, Hunting, Forestry and Fishing	1052	183	64	111	135	55	504
20000 – Mining and Quarrying	1293	31	228	87	102	85	760
30000 to 39000 – Manufacturing	10014	984	2266	1030	2648	1022	2064
40000 – Electricity, Gas and Water Supply	323	13	123	10	24	36	117
50000 – Construction	222	51	32	0	97	6	36
60000 – Wholesale and Retail Trade	196	5	22	76	43	35	15
70000 – Transport, Storage and Communications	527	11	122	70	82	90	152
80000 – Finance and Business Services	6237	425	1457	1187	847	613	1708
90000 – Community and Social Services	570	95	16	7	339	43	70
Total	**20434**	**1798**	**4330**	**2578**	**4317**	**1985**	**5426**

Table 11 above indicates that there is a concentration of R&D personnel in specific industry sectors, especially in the two dominant sectors, namely, Manufacturing, and Financial and Business Services. These figures are aligned with the number of applications received, the number of companies applying and the estimated R&D expenditure reported by these two industry sectors. This partly indicates the importance of larger companies in facilitating knowledge spillovers, assisted mainly by their ability to engage in large-scale projects, requiring more R&D personnel and, possibly, partnerships and knowledge transfers across industries. This phenomenon may present an opportunity for learning by other companies, particularly SMEs. The incentive, therefore, has the potential to generate knowledge spillovers as researchers (engineers, scientists, etc.) move from one company to another and take former companies' knowledge with them – thus the rate of return on investment on R&D is not entirely accrued to the company, but more broadly to society.

6. MEASURES IMPLEMENTED TO IMPROVE THE ADMINISTRATION OF THE R&D TAX INCENTIVE

In 2016/17, the DST continued implementing the recommendations presented by the joint government-industry task team that the Minister of Science and Technology established in November 2015 to look into possible improvements to the administration of the R&D tax incentive. The recommendations of the task team covered measures to simplify the administrative process and policy-related issues, as well as matters for tax administration by SARS[8].

Following the presentation of the task team report to the Ministers of Science and Technology and Finance, the DST accepted all 17 of the task team's recommendations, and subsequently developed responses and actions for each one of them. At the time of compiling this report, 14 recommendations had been implemented – six of them with specific modifications. The actions implemented are summarised below.

Firstly, all planned actions to simplify administrative processes and improve turnaround times have been implemented, including the following:

- The publication of a new version of guidelines to improve the information and guidance provided to applicants, especially SMEs and other prospective participants in the incentive.
- The posting of updated and improved information about the R&D tax incentive on the DST website to enable taxpayers to find information and services on the website.
- The roll-out of a one-stoponline system for submitting applications, with a new, much simpler application form.
- The continued availability of DST officials to meet with business and other stakeholders to raise awareness about the incentive, and to provide relevant information on how the incentive works and what type of information is required when making an application.
- The participation of DST officials in OECD expert meetings with other countries that have R&D incentives, which allowed them to learn from other countries' practices and experiences.
- The development of terms of reference for the impact evaluation of the R&D tax incentive programme.

Secondly, an amendment to the Income Tax Act came into effect in January 2017 to enable companies to claim for deductions related to the backlog of applications. The National Treasury is monitoring the usage of the new provisions.

Thirdly, with respect to the recommendation that the pre-approval system be reviewed, the DST has decided to retain the pre-approval system to see how it operates when decisions are provided within 90 days of application. This is important because the pre-approval system has the advantage of providing applicants with certainty.

Fourthly, the recommendations that had greater policy implications were addressed in two ways. The DST proposed technical corrections to address ambiguity in legislative provisions to the National Treasury. These can possibly be considered in the 2018 consultations for tax laws amendment process. The ambiguities relate tothe "development of internal business processes", and the requirement that the R&D activity be "innovative".

Two of the task team's recommendations, namely, the refundable tax credit and increasing the 150% tax break, were not considered feasible given the current fiscal constraints. Both recommendations would require substantial changes to the tax policy approach and amendments to the Income Tax Act. The fact that South Africa is among the countries that offer "super deductions" for R&D, i.e. offering rates of 100% and above, was taken into account. South Africa's offering of 14 cents per rand is still competitive.

The policy approach in addressing the matters outlined above took into consideration that the R&D tax incentive is part of a portfolio of instruments to promote R&D and innovation and the context of tax policy. The DST, therefore, consulted the National Treasury and the South African Revenue Service (SARS) to test the feasibility and implications of each recommendation. This process also benefitted from the DST's participation in OECD expert meetings. It is therefore crucial to look at the general environment for R&D and innovation in the country; which is currently being addressed in the development of the new White Paper on Science, Technology and Innovation.The DST will continue to improve the processes and services rendered to taxpayers with the aim of increasing business sector R&D investment in South Africa and enhancing the country's competitiveness and growth potential.

The changes introduced thus far have addressed the major challenges identified in 2015, when the task team was established. The turnaround times have been reduced; the application procedures have been simplified with the introduction of an online system of submitting applications; and there is more certainty about the information requirements, as evidenced by improved quality of applications. Among the immediate results of this is an improvement in the approval rate of applications received from SMEs, from 37% in 2015/16 to 40,5% in 2016/17.

8 See Report of the joint government-industry task team on the research and development tax incentive. Final report to the Minister of Science and Technology, 15April 2016.

7. CONCLUSION

This report has presented the uptake of the incentive in terms of the number of applications received, company participation, estimated R&D expenditure reported, and progress made in implementing recommendations of the joint-government industry task team. The R&D tax incentive programme is aimed at encouraging the private sector to undertake scientific and technological R&D in South Africa. Government is using the incentive to stimulate business sector R&D in an effort to boost private sector R&D investments, towards increased productivity and economic growth. The incentive is therefore considered a crucial element of national innovation performance and competitiveness.

The indicators contained in this report are encouraging as they show how the incentive is gradually having the desired effect. The incentive could be an effective instrument in stimulating private sector investment in R&D and innovation if its administration, design and implementation is effective. Although the programme has not yet achieved the 90-day turnaround target for providing decisions on a number of applications, the turnaround times have been significantly reduced. Several actions have been put in place to improve the administrative efficiency of the incentive, which includes rolling out the one-stop online system for submitting applications and the issuing of guidelines for applicants. These improvements are expected to translate into further improvements.

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APPENDIX A:
SUPPLEMENTARY INFORMATION TABLES

Total number of applications received per company turnover (Oct. 2012 to Feb. 2017)

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
10000 - Agriculture, Hunting, Forestry and Fishing	14	6	5	3	4	19	2	**53**
20000 – Mining and Quarrying	9	5	4	0	6	49	7	**80**
30000 to 39000 – Manufacturing	77	29	33	30	51	250	55	**525**
60000 – Wholesale and Retail Trade	8	1	2	2	2	9	0	**24**
70000 – Transport, Storage and Communication	13	5	7	2	11	19	5	**62**
80000 – Financial Intermediation, Real Estate and Business Services	97	57	45	17	28	112	27	**383**
40000 – Electricity, Gas and Water Supply	8	2	1	1	2	4	5	**23**
50000 – Construction	2	0	0	1	3	4	1	**11**
90000 – Community, Social and Personal Services	0	0	1	0	0	2	2	**5**
Total	**228**	**105**	**98**	**56**	**107**	**468**	**104**	**1 166**

Total number of approved applications per company turnover (Oct. 2012 to Feb. 2017)

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
10000 - Agriculture, Hunting, Forestry and Fishing	8	2	4	0	2	16	0	**32**
20000 – Mining and Quarrying	3	4	2	0	4	31	4	**48**
30000 to 39000 – Manufacturing	33	7	17	7	26	147	34	**271**
60000 – Wholesale and Retail Trade	1	1	1	0	0	4	0	**7**
70000 – Transport, Storage and Communication	4	0	5	1	8	10	2	**30**
80000 – Financial Intermediation, Real Estate and Business Services	27	12	8	3	12	43	10	**115**
40000 – Electricity, Gas and Water Supply	5	1	1	0	2	4	2	**15**
50000 – Construction	1	0	0	0	1	2	1	**5**
90000 – Community, Social and Personal Services	0	0	1	0	0	1	0	**2**
Total	**82**	**27**	**39**	**11**	**55**	**258**	**53**	**525**

Total number of participating companies (Oct. 2012 to Feb. 2017)

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
10000 - Agriculture, hunting, Forestry and Fishing	11	3	2	2	3	14	1	**36**
20000 – Mining and Quarrying	7	3	3	0	4	25	5	**47**
30000 to 39000 – Manufacturing	62	19	27	8	35	117	30	**298**
60000 – Wholesale and Retail Trade	7	1	2	1	1	7	0	**19**
70000 – Transport, Storage and Communication	9	3	5	1	3	15	3	**39**
80000 – Financial Intermediation, Real Estate and Business Services	67	37	32	9	20	67	13	**245**
40000 – Electricity, Gas and Water Supply	5	1	1	1	1	3	4	**16**
50000 – Construction	2	0	0	1	2	3	1	**9**
90000 – Community, Social and Personal Services	0	0	1	0	0	2	2	**5**
Total	**170**	**67**	**73**	**23**	**69**	**253**	**59**	**714**

Total number of approved companies per turnover (Oct. 2012 to Feb. 2017)

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
10000 - Agriculture, hunting, Forestry and Fishing	6	2	3	0	2	12	0	**25**
20000 – Mining and Quarrying	3	3	1	0	3	18	2	**30**
30000 to 39000 – Manufacturing	29	5	15	2	16	80	18	**165**
60000 – Wholesale and Retail Trade	1	1	1	0	0	4	0	**7**
70000 – Transport, Storage and Communication	2	0	4	1	1	5	2	**15**
80000 – Financial Intermediation, Real Estate and Business Services	21	7	7	2	10	28	6	**81**
40000 – Electricity, Gas and Water Supply	4	1	1	0	2	3	1	**12**
50000 – Construction	1	0	0	0	1	1	1	**4**
90000 – Community, Social and Personal Services	0	0	1	0	0	1	0	**2**
Total	**67**	**19**	**33**	**5**	**35**	**152**	**30**	**341**

Estimated R&D expenditure on approved applications (amount in R'000)

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
10000 - Agriculture, hunting, Forestry and Fishing	10 221	4 000	55 347	0	7 800	509 603	0	**586 971**
20000 – Mining and Quarrying	21 450	103 500	52 698	0	27 400	3 232 006	34 200	**3 471 254**
30000 to 39000 – Manufacturing	110 032	55 822	131 124	164 060	314 075	6 413 687	575 726	**7 764 526**
60000 – Wholesale and Retail Trade	2 500	2 000	3 650	0	0	137 750	0	**145 900**
70000 – Transport, Storage and Communication	26 465	0	43 627	15 000	293 000	770 623	1 120	**1 149 835**
80000 – Financial Intermediation, Real Estate and Business Services	71 408	417 776	52 934	36 431	168 244	1 590 797	26 034	**2 363 624**
40000 – Electricity, Gas and Water Supply	5 750	350	1 778	0	4 523	70 200	1 888	**84 489**
50000 – Construction	4 100	0	0	0	1 250	11 200	40 000	**56 550**
90000 – Community, Social and Personal Services	0	0	2 487	0	0	10 000	0	**12 487**
Total	**251 926**	**583 448**	**343 645**	**215 491**	**816 293**	**12 745 865**	**678 968**	**15 635 636**

APPENDIX B:
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 C:
DESCRIPTION OF STANDARD INDUSTRIAL CLASSIFICATION CODES

SIC for economic activities	Description
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	**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	**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)
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	**Electricity, Gas and Water Supply**
41 000	Electricity, gas, steam and hot water supply
42 000	Collection, purification and distribution of water
50 000	**Construction**
50 000	Construction
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	**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	**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

SIC for economic activities	Description
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	**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 D:
CATEGORIES OF R&D PERSONNEL

Scientists or researchers are professionals engaged in the conception or creation of new knowledge, products, processes, methods and systems, as well as the management of the projects concerned. They typically hold a basic university degree, a postgraduate degree or a PhD.

Technicians and technologists are people whose main tasks require technical knowledge and experience in one or more fields of engineering, physical or life sciences. They participate in R&D by performing scientific and technical tasks involving the application of concepts and operational methods, usually under the supervision of researchers.

Managers are involved in the planning and management of scientific and technical aspects of the researchers' work. Their rank is usually equal or superior to those of the researchers and they are often former or part-time researchers.

Directly supporting technical staff include associate professionals in physical and engineering sciences whose tasks include –

- carrying out bibliographic searches and selecting relevant material from archives and libraries;
- preparing computer programmes;
- carrying out experiments, tests and analyses;
- preparing materials and equipment for experiments, tests and analyses;
- recording measurements, doing calculations and preparing charts and graphs;
- carrying out statistical surveys and interviews.

APPENDIX E: METHODOLOGY

The report presents information on the performance of the R&D tax incentive programme for the period March 2016 to February 2017. It is based on the information submitted to the DST by companies that participated in the programme.

The report relies on information available at the DST and the data published by National Treasury. All the information that companies declared to the DST about the claims they submitted to SARS (as retrospective claims) is taken as relating to R&D supported. For the pre-approval system, data available at the DST at two stages is used, namely application stage and approval stage.

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 of Science and Technology (DST). The taxpayer completes the application form and progress report form manually or electronically and submits it to the DST. Data is captured in the R&D tax incentive programme database at the DST.

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. Data on tax revenue foregone due to the R&D tax incentive programme is estimated by SARS, based on the deductions made against the claims for the R&D tax incentive. These figures are published by National Treasury in its annual budget review as part of the estimates for tax expenditure. Available figures are for the years 2005/06 until 2016/17 and are inclusive of deductions for both section 11D and section 11B of the Income Tax Act. Annual figures are revised from time to time based on retrospective claims.

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 DST makes certain that the tables and graphs in the report do not unintentionally reveal the details of individual companies and their R&D activities.

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