

Highlights of the South African Public Relationship with Science: 2022 Survey Results



science, technology
& innovation

Department:
Science, Technology and Innovation
REPUBLIC OF SOUTH AFRICA



HSRC
Human Sciences
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Ethics Committee Protocol Number REC/ Renewal to Protocol No REC 5/17/08/11: South African Social Attitudes Survey (SASAS) 2019.

The South African Public Relationship with Science (SAPRS): 2022 Survey Results is the culmination of more than four years of work involving conceptualising the study, developing the instruments, collecting the data, analysing the data, and writing the report.

It was a collaboration between the Science Promotion Unit at the Department of Science and Innovation and the Equitable Education and Economies (EEE) Research Programme at the Human Sciences Research Council. The DSI team was led by Mr Isaac Ramovha and the HSRC research team by Dr Vijay Reddy.

Over the course of the four years, the core research team members were Dr Vijay Reddy, Dr Benjamin Roberts, Ms Sylvia Hannan, and Dr Steven Gordon.

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1 Introduction

Science knowledge elevates our understanding of the world, ourselves, and our existence. There is broad consensus that the goals of science should extend beyond the economic and technological impacts, to address the contemporary global and local challenges that directly impact our lives. From its earliest days, the democratic South African state recognised the importance of the relationship between the public and science, and that all South Africans should participate in the evolution of the National System of Innovation (NSI).

The Department of Science and Innovation, together with its partners, is responsible for promoting science engagement within the NSI. The latest White Paper on Science, Technology and Innovation (STI) built on previous initiatives by advocating for a science-literate and science-aware society, as well as for a renewed focus on science – society linkages (DST 2019a). To assess progress towards achieving the desired science-literate and science-aware society, the DSI first established a set of indicators to measure system-wide science engagement performance. Second, it adopted a set of sub-indicators to inform a periodic survey of the South African adult public to measure and monitor levels of science knowledge, attitudes, and engagement.

Science engagement programmes and the measurement of the relationship between the public and science were institutionalised through several policies and strategies, namely the Science Engagement Strategy (DST, 2015), the White Paper

on Science, Technology and Innovation (DST, 2019a), the Science Engagement Monitoring and Evaluation Framework (DST, 2019b), as well as the Science Engagement Monitoring and Evaluation Impact Indicator Framework (DST, 2021).

The first comprehensive survey aimed at measuring and monitoring public levels of science knowledge, attitudes, and engagements was conducted in 2022. The survey will be repeated every five years. A comprehensive report – [The South African Public Relationship with Science Survey: 2022 Results \(DSI, 2024\)](#) – has been published. This highlights report briefly describes the study methodology as well as the Science Engagement Monitoring and Evaluation Impact Indicator Framework (SEMEIIF) that informed the construction of 27 science knowledge, attitudes, and engagement measures. Thereafter, we summarise the main results by describing the levels (average score) across various measures, as well as the score variation for each measure. Next, we report which socio-demographic characteristics were more or less likely to lead to positive science knowledge, attitudes, and engagements.

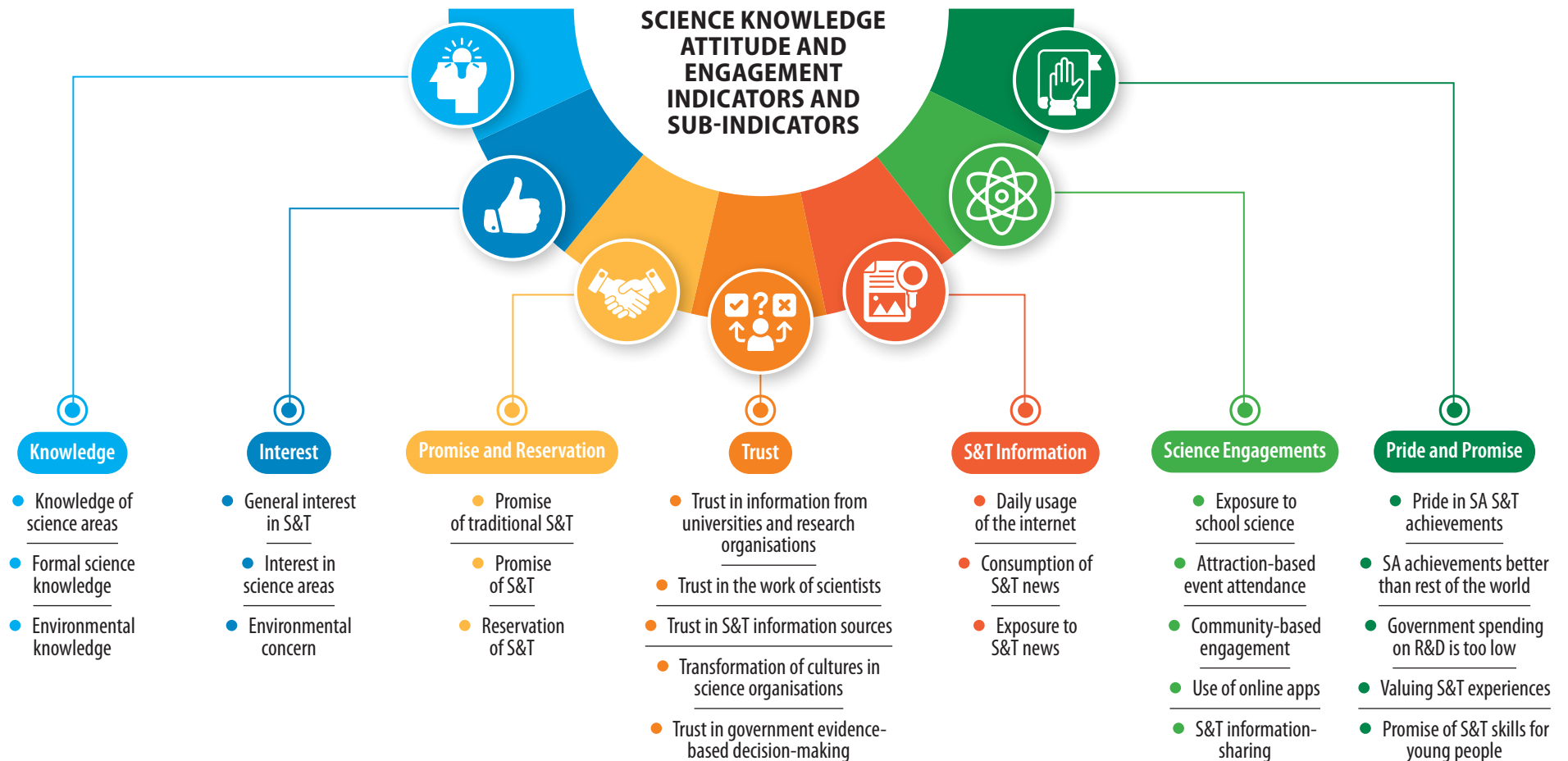
We then present the fingerprint of the South African public relationship with science using the average scores and variations within each of the 27 science measures. These measures are then divided into one of four categories based on their average score and score variation. We conclude by summarising the results and recommendations.

2 Study methodology

Sample/Population	Representative sample of the national population of adults 16 years and older, selected from 500 areas across the nine provinces.
Sample size	5 960 respondents in the national sample.
Survey instrument and reporting framework	The Science Engagement Monitoring and Evaluation Impact Indicator Framework informed the development of the survey instrument as well as the structure of the report.
Survey interviews	Between November 2022 and January 2023, one-hour face-to-face interviews were conducted with adults 16 years and older. The interviews were conducted in one of the 11 official languages, based on respondents' preference.
Capturing the information	Using a computer-assisted personal interviewing (CAPI) approach, the information was captured onto a personal digital assistant (PDA).
Weighting of data	All data was weighted to the population aged 16 years and older.
Reporting of results	Statistically significant results at the 95% confidence level are reported.
Socio-demographic variables	Age, sex, level of educational attainment, home education support provided by parents and other adults (supporting reading, homework etc), socio-economic status based on an asset index, labour market status, spatial location of residence, religious beliefs, and population group were used. We refer to these as sub-groups.
The term 'science' refers to	Knowledge production in the academic disciplines: natural and life sciences, engineering, social sciences, and humanities.
The term 'public' is both singular and multiple	There are multiple 'publics' in South Africa based on the diverse nature of the society. Thus, the term 'public' encompasses both the singular and multiple publics.
We use self-reported data	The data was collected through survey questions in which participants subjectively provided their own answers without external verification.
Average scores	The scores for single and multiple item constructs were converted to a 0–100 scale. Average scores were computed and reported out of a total of 100.
Score variation	The difference between the highest and lowest average scores, by sub-groups.

3 The Science Engagement Monitoring and Evaluation Impact Indicator Framework

The SEMEIF was slightly reframed to include seven indicators or impact themes and 27 sub-indicators or impact measures. The indicators were science and technology (S&T) knowledge and interest; promise and reservation as well as trust attitudes; S&T information; and science engagement outcomes, including views related to pride and the promise of S&T. To measure and operationalise each indicator or impact theme, we identified between three and five impact measures. In the following sections, we report the headline results for each of the impact measures. For further details on the results please refer to the [main report](#).

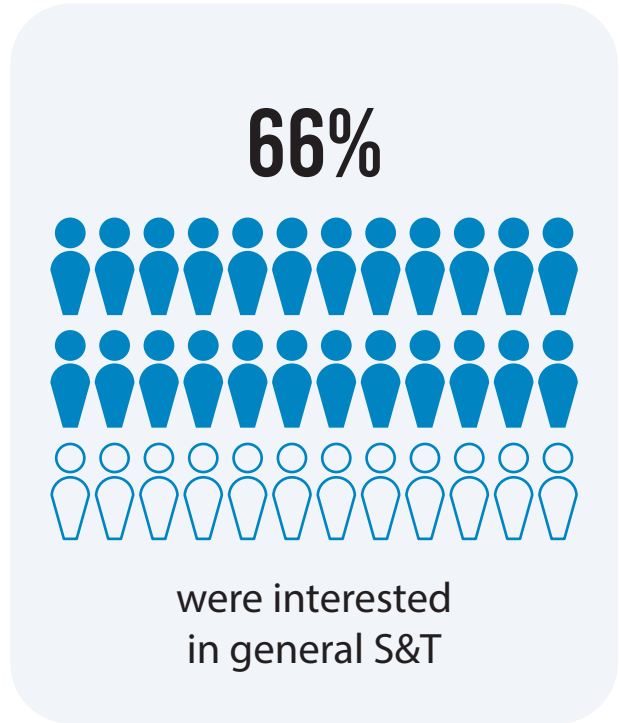
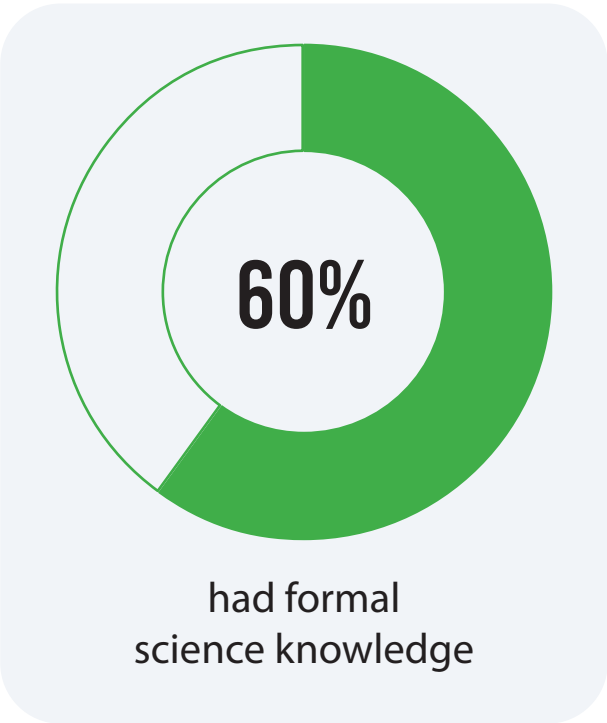
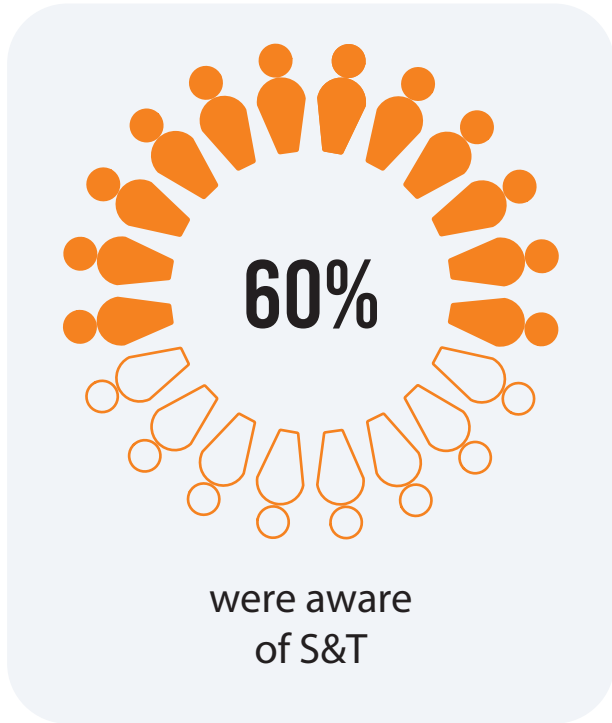


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Public awareness and knowledge of and interest in science and technology

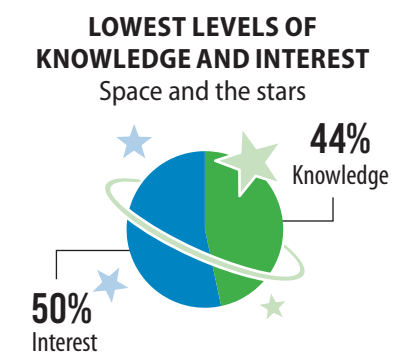
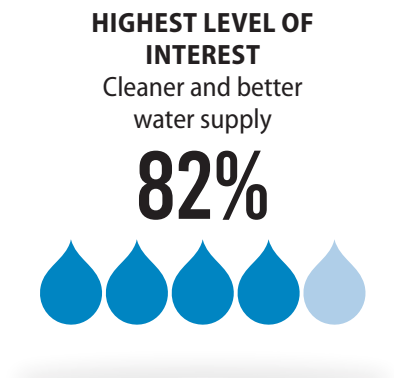
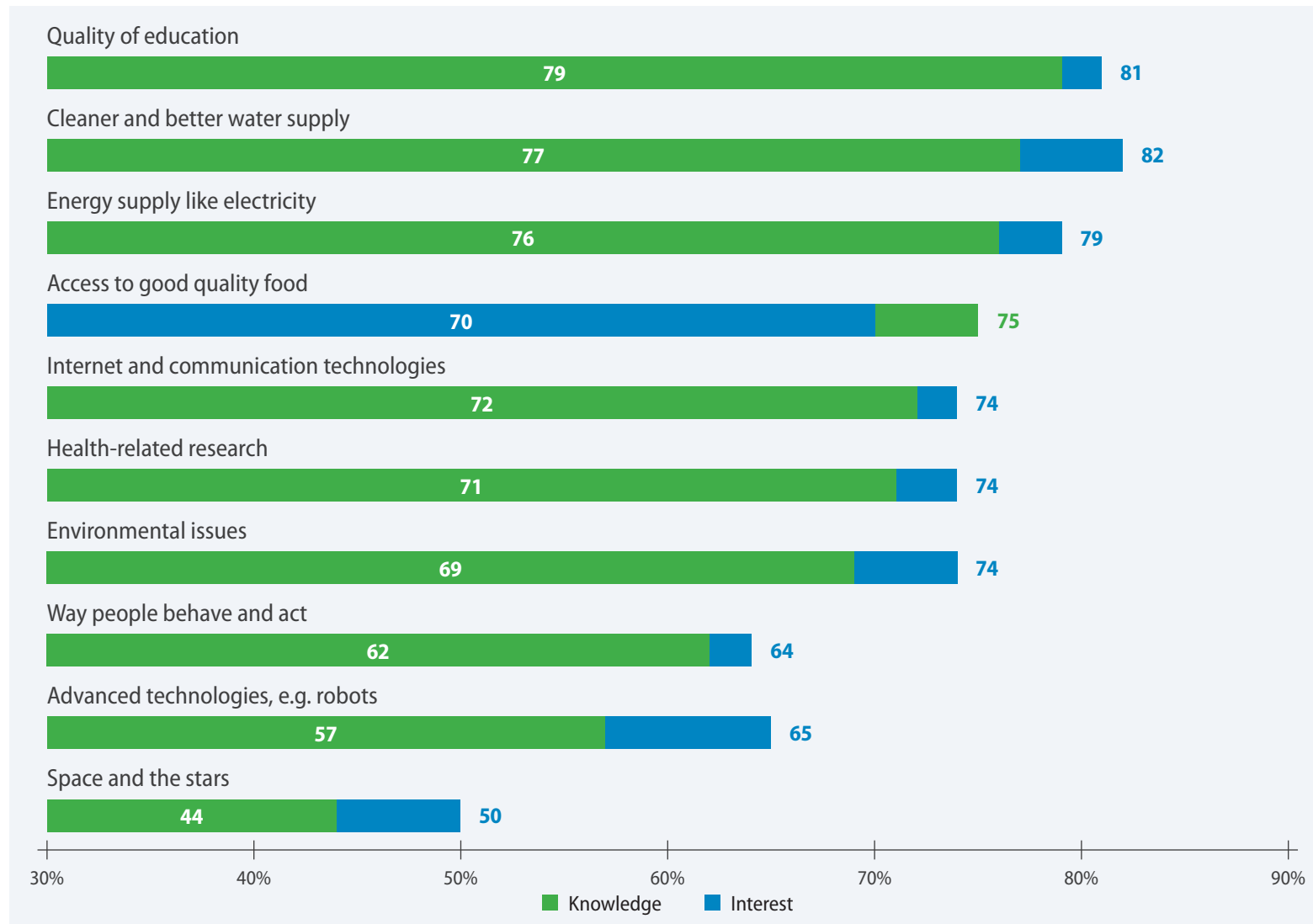
Awareness and knowledge of and interest in S&T provide insights into the nature of the relationship between the public and science. By *interest*, we mean wanting to know more, *knowledge* refers to the information already possessed, while *awareness* indicates being informed, though not necessarily with understanding.

The public responded separately about their levels of interest, knowledge, and awareness of S&T. Overall, South Africans are fairly aware of, knowledgeable about and interested in S&T.

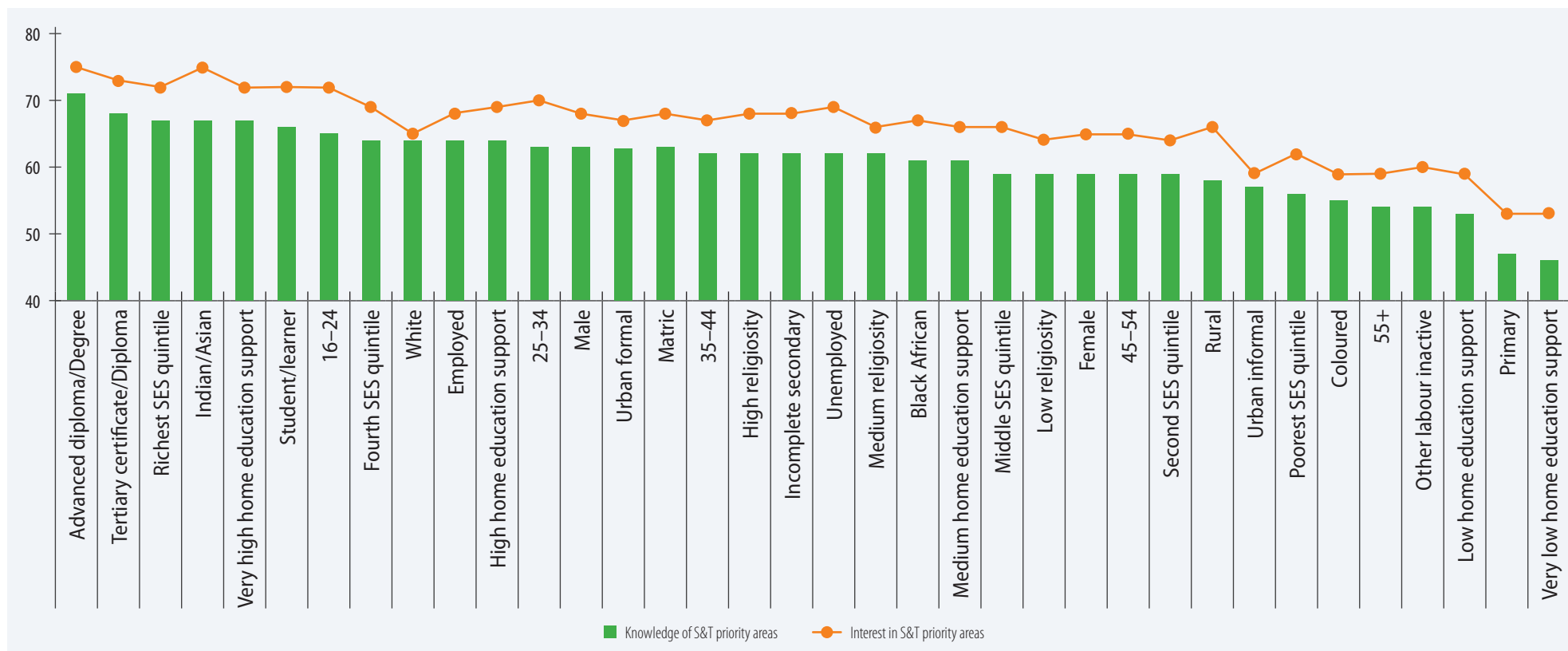


4.1 Percentage of adults with at least some knowledge of and interest in priority science areas

In addition, we explored the public's knowledge of and interest in contemporary societal challenges that require an S&T response.



4.2 Average scores for knowledge of and interest in S&T, presented across different sub-groups



Who had higher knowledge of and interest in S&T?

There was a wide score variation across sub-groups, with the average scores for science knowledge ranging from 46 to 71 out of 100, and for interest in science from 53 to 75 out of 100.

Those with higher science knowledge and interest:

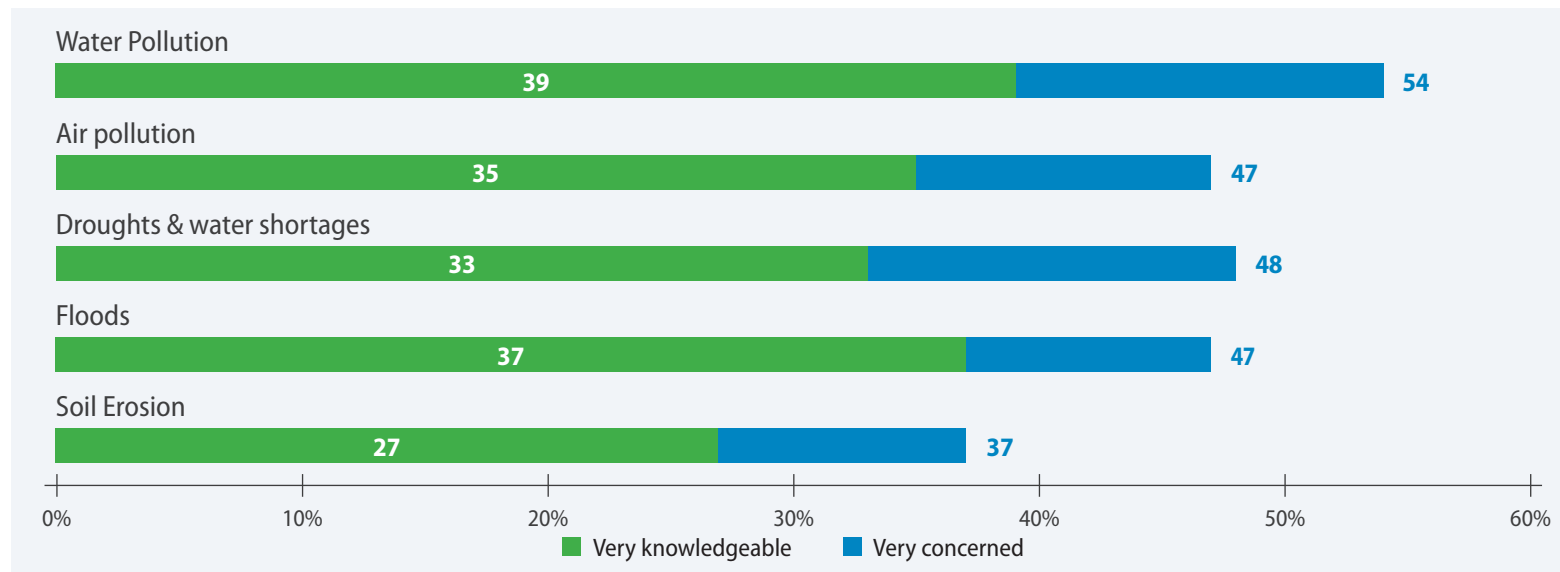
- were younger,
- had attained a post-secondary education,
- had experienced higher home education support, and
- were from higher socio-economic status (SES) homes.

White and Indian/Asian adults had higher S&T knowledge; while White, Black African, and Indian/Asian adults had higher interest.

5 Public knowledge of and concern about environmental events

The effects of climate change and adverse environmental events are both a global and South African concern. More adults reported they were 'very' concerned about these environmental events than being 'very' knowledgeable of the events.

Percentage of adults who were 'very knowledgeable' and 'very concerned' about environmental events



3 in every 4

adults had at least some knowledge and concern about environmental events



HIGH KNOWLEDGE OF AND CONCERN

Environmental events

47%
Concern

34%
Knowledge



Characteristics of those with higher knowledge and concern about environmental events

- The average scores, by sub-group, were between 56 and 74 (out of 100) for environmental knowledge, and between 62 and 83 for environmental concern.
- Adults who were more knowledgeable and concerned about environmental events:
 - had a post-secondary education, and experienced higher home education support,
 - were from richer SES homes, and
 - lived in urban formal and rural areas.
- White and Indian/Asian adults had higher knowledge about environmental events while White, Black African, and Indian/Asian adults had higher concern about environmental events.

6

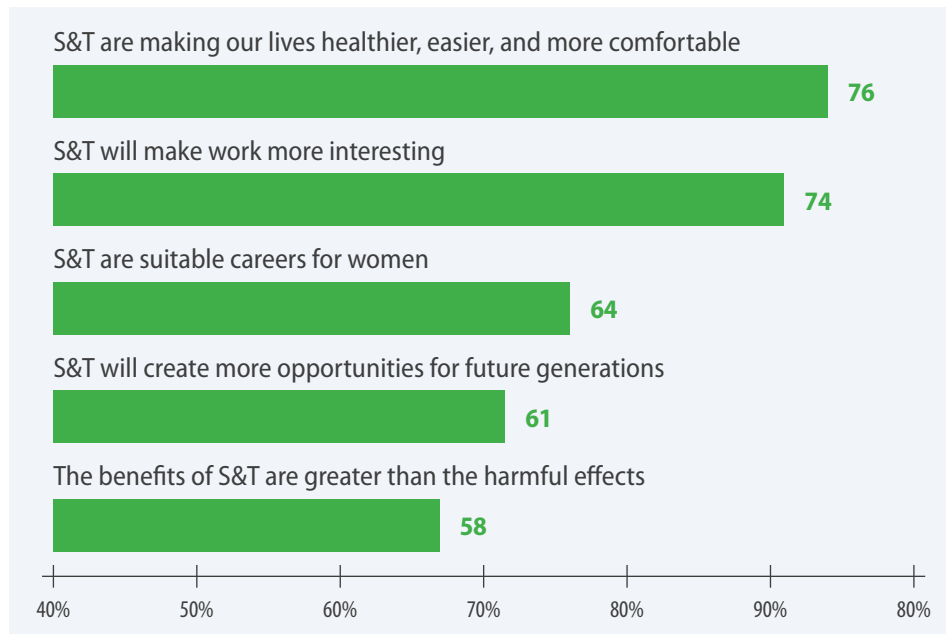
Promise and reservation attitudes towards modern and traditional S&T

The public responded to sets of items that asked about their attitudes of promise (potential benefits) and reservation (concerns, fears, and risks) related to modern and traditional science. The South African public acknowledged both the promises of and the concerns about S&T.

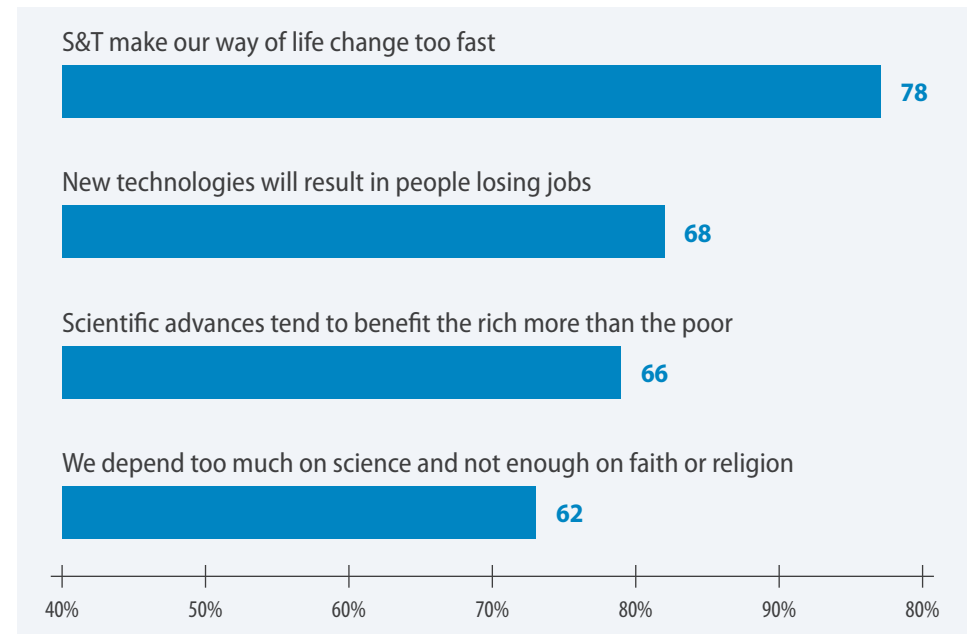
6.1 Promise and reservation attitudes towards modern S&T

The biggest potential benefits reported were in relation to S&T making daily life healthier, easier, more comfortable and making work more interesting; while the greatest concern noted was about S&T making our way of life change too fast and contributing to increased inequalities.

Promise of modern science (% agreement)



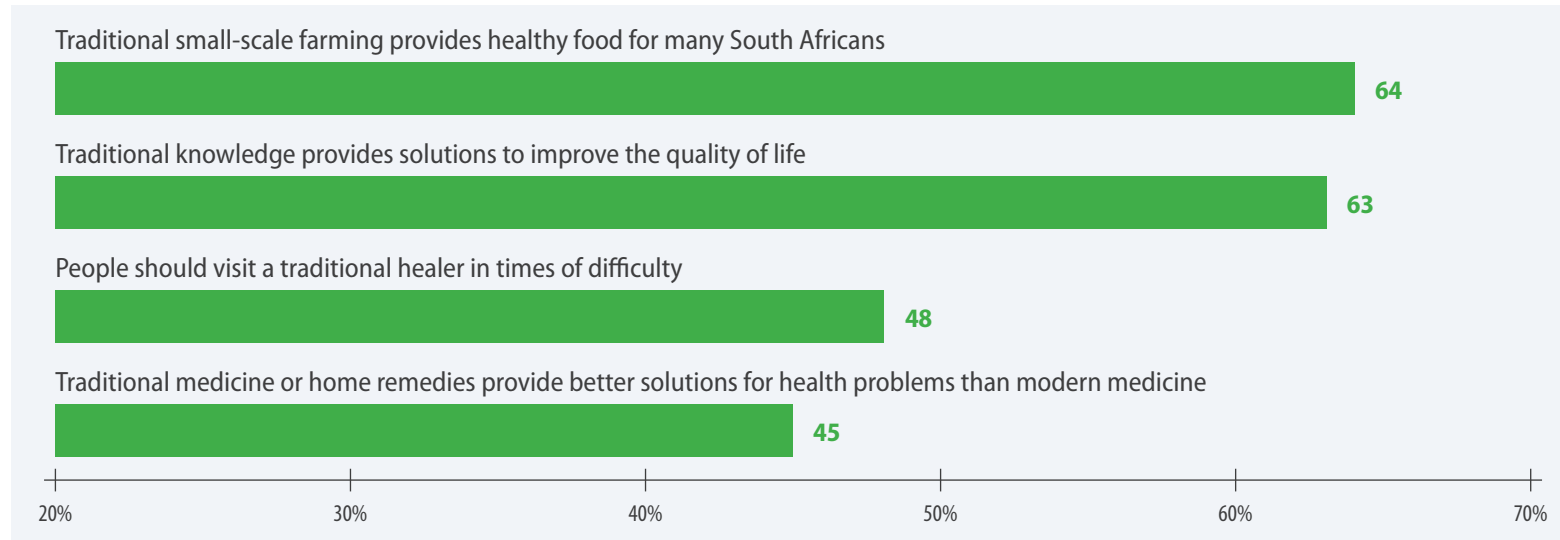
Reservations about modern science (% agreement)



6.2 Promise and reservation attitudes towards traditional S&T

Traditional science refers to knowledge and skills that have been passed on from generation to generation within a community.

Promise of traditional science (% agreement)



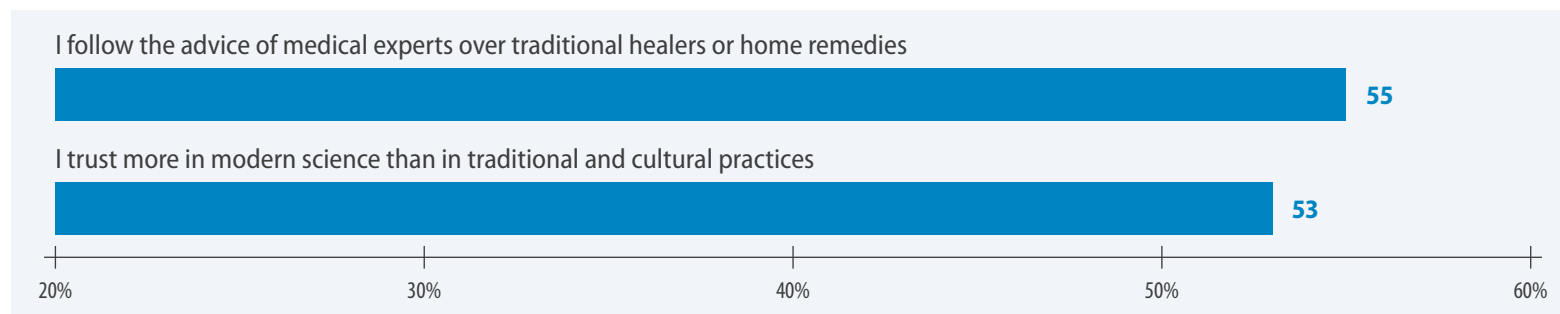
2 in every 3
adults acknowledged the benefits of traditional small-scale farming and traditional knowledge in food production



5 in every 10
adults recognised the role of traditional healers and traditional medicine



Reservations about traditional science in 2022 (% agreement)



6.3 The distribution of promise and reservation attitudes and who had higher promise and reservation attitudes

There were higher promise and reservation attitudes towards modern science than towards traditional science. In addition, there was less variation among the public's promise and reservation attitudes (as shown by the difference between the highest and lowest scores by sub-groups) in relation to modern science than to traditional science.









	Percent adults with strong attitudes	Highest and lowest scores (and difference)	Who were more likely to report higher promise and higher reservation attitudes?
Promise towards modern science		62 to 72 = 10 points	Adults with more than a primary education, higher home education support, and who were students or learners had higher attitudes of promise.
Reservation towards modern science		64 to 76 = 12 points	Adults with more than a primary education, higher home education support, who were younger, and Black African and Indian/Asian adults had higher reservation attitudes.
Promise towards traditional science		49 to 70 = 21 points	Adults with lower educational attainment, from poorer households, Black African adults and those who spoke Tshivenda, isiZulu, and Xitsonga reported higher promise of traditional S&T.

6.4 Trends in promise and reservation attitudes over time



For items fielded in earlier surveys, we compared the results with the SAPRS 2022 survey. Broadly, the results showed an increase in both promise and reservation attitudes over time towards modern science, but a decline in promise and reservation attitudes towards traditional science.

The big change was the public's perception of rising inequalities with responses to the statement 'Scientific advances tend to benefit the rich more than the poor' increasing by 17 percentage points. There was a notable decline in the proportion of the public who agreed that S&T will create more opportunities for future generations. While it is pleasing to note that more of the public now have higher trust in both modern science and traditional and cultural practices, there is concern that their perception of the promise of small-scale farming has decreased.

NB: The items shaded green reported a statistically significant increase in views from 2013 to 2022, the items shaded yellow experienced no statistically significant changes, while those shaded orange reported a statistically significant decrease in views.

Modern science: Change from 2013 to 2022 (Percentage points)		
Scientific advances tend to benefit the rich more than the poor (R)		+17***
We depend too much on science and not enough on faith or religion (R)		+7***
S&T makes our way of life change too fast (R)		+5***
The benefits of S&T are greater than the harmful effects (P)		+9***
S&T will make work more interesting (P)		+7***
S&T are making our lives healthier, easier, and more comfortable (P)		0
S &T are suitable careers for women (P)		-2
S&T will create more opportunities for future generations (P)		-11***

Notes: *** statistically significant at $p < .001$

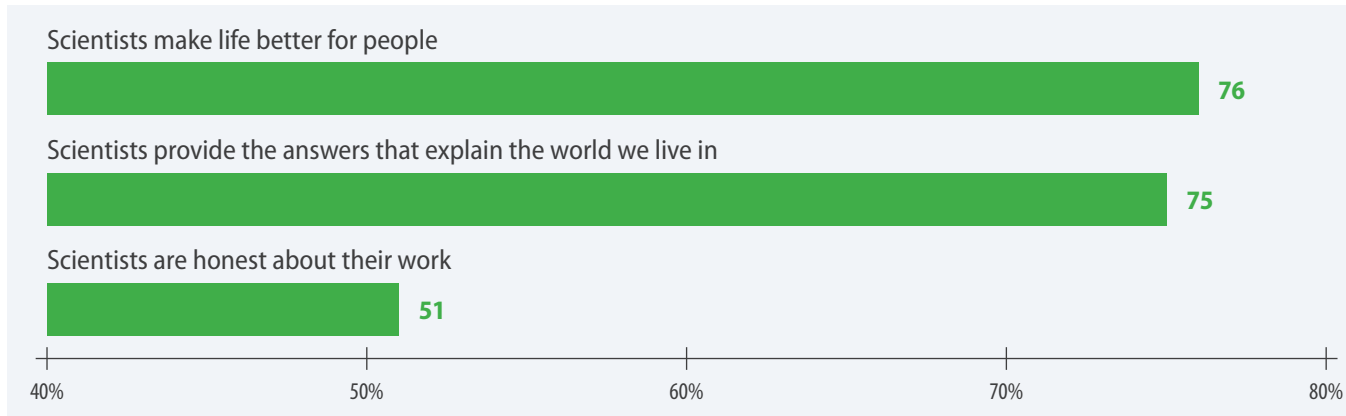
Traditional science: Change from 2009 to 2022 (Percentage points)		
Traditional small-scale farming provides healthy food for South Africans (P)		-7***
I trust more in modern science than in traditional and cultural practices (R)		-18***

Notes: *** statistically significant at $p < .001$.

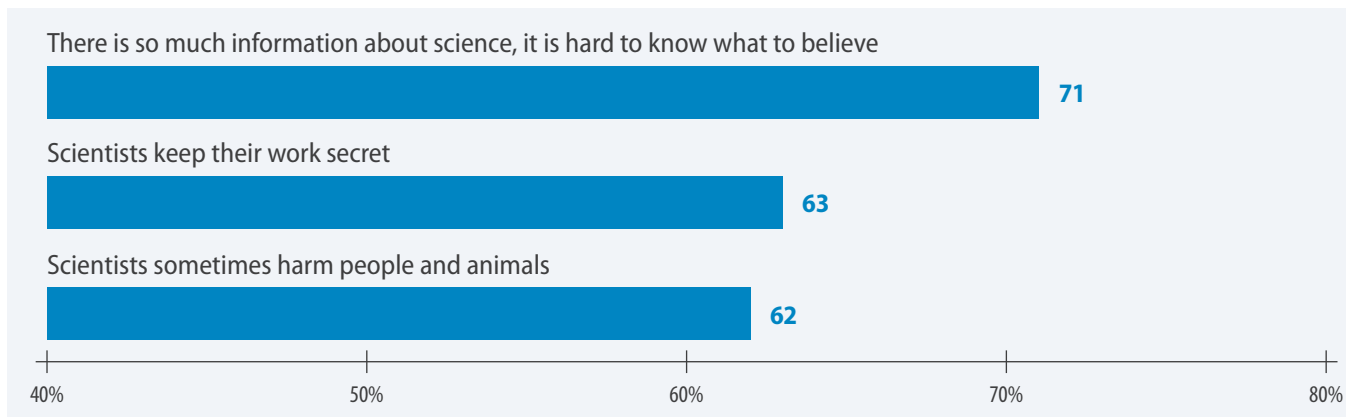
7

Public trust in the work of scientists and science information from institutions

Promise of the work of scientists (% agreement)



Reservation about the work of scientists (% agreement)



Science and scientists provide evidence-based information and advice on how to solve societal problems. For the advice to be accepted, the public needs to trust science and scientists, as well as have confidence in institutions that produce such knowledge.

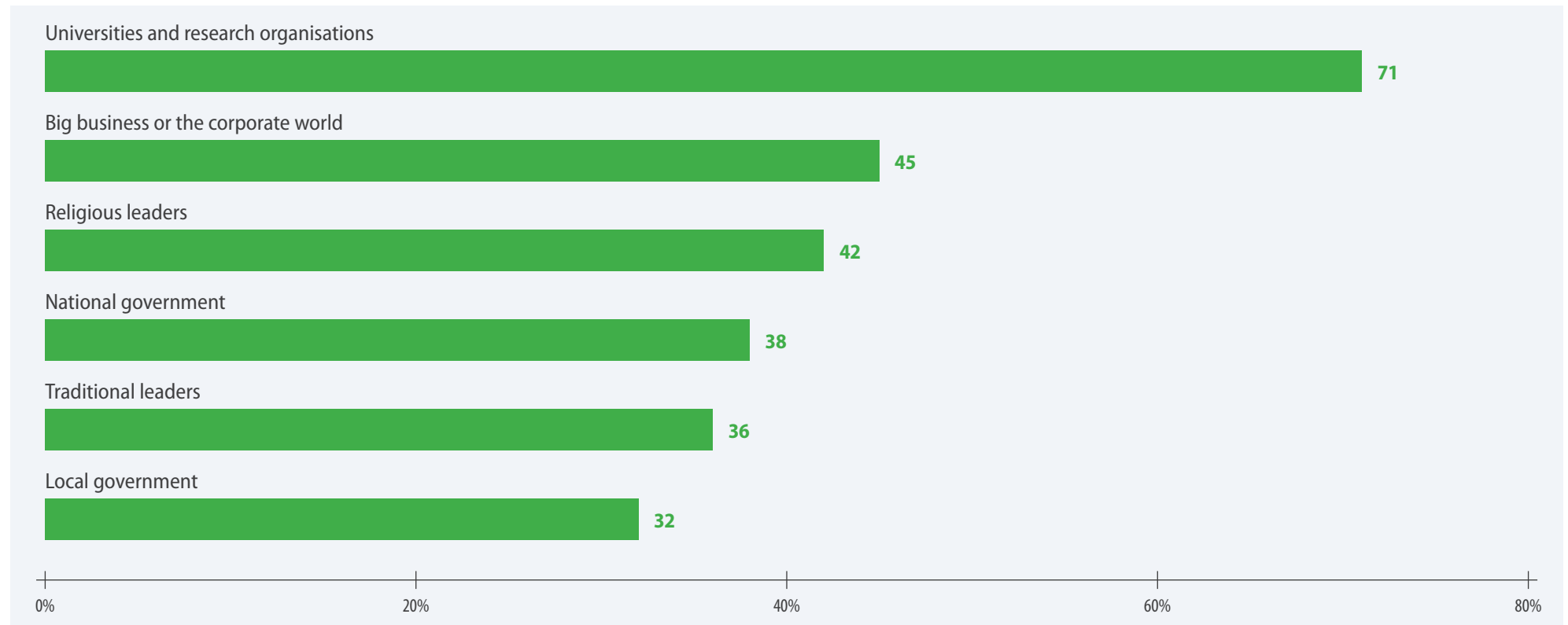


7 in every 10

adults trusted the work of scientists, as well as S&T information provided by universities and research organisations

At the same time, however, a high percentage of the public had reservations about the work of scientists as well as lower trust in S&T information from both religious leaders and government institutions (see next page).

Confidence in S&T information from different institutions (% agreement)



Who had higher trust in scientists and S&T information from universities and research organisations?

The public had similar views, irrespective of socio-demographic diversity, in their trust in the work of scientists and trust in S&T information from universities and research organisations.

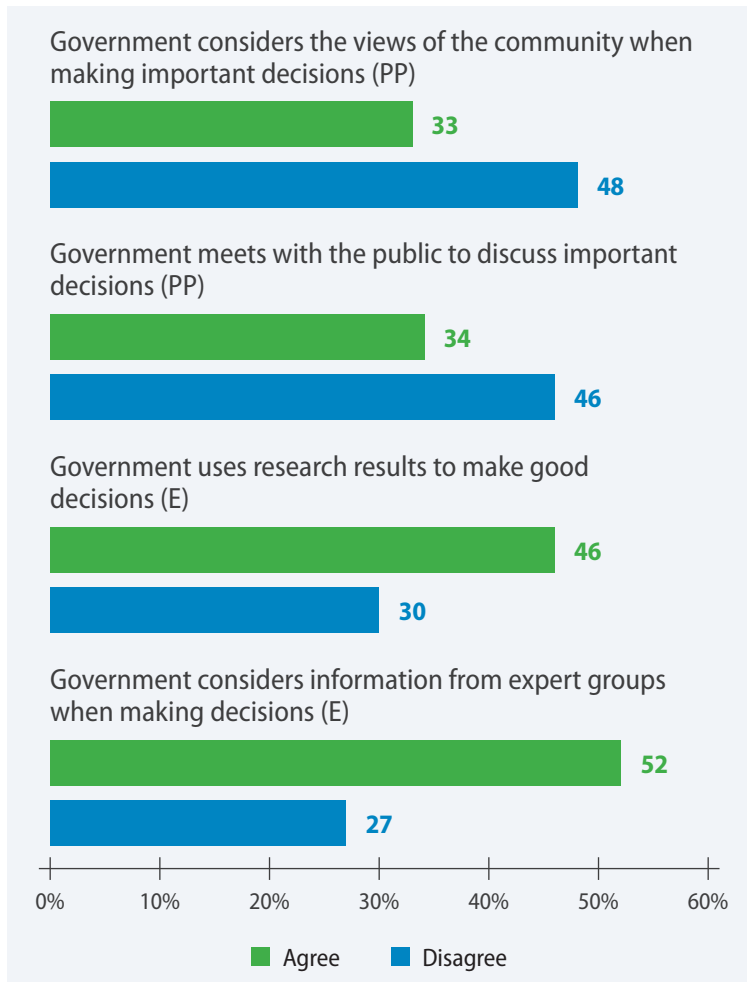
Those who had higher trust in scientists and in S&T information from universities and research organisations were:

- adults with higher educational attainment,
- adults with higher home education support,
- younger, and
- students and learners.

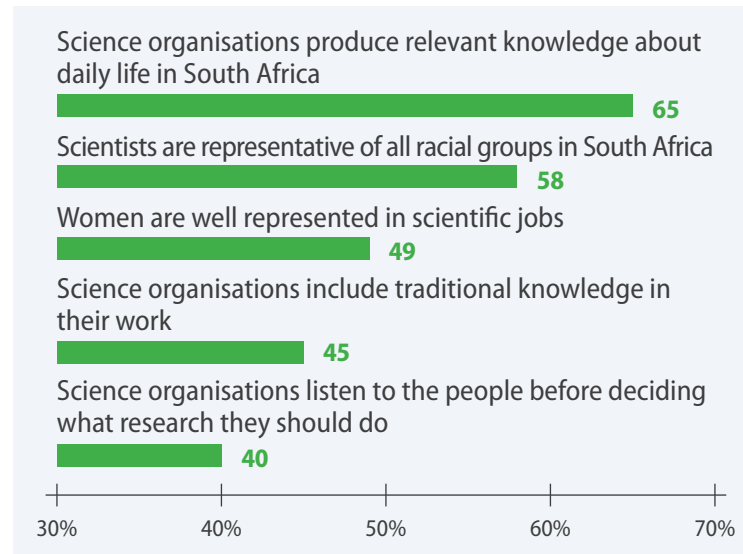
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Public confidence in government's decision-making processes and the transformation of cultures within science organisations

Confidence in government's evidence-based (E) and participatory decision-making (PP) processes (% agreement and disagreement)



Cultures within science organisations are transforming (% agreement)



3 in every 10

adults reported high trust in government's decision-making processes

4 in every 10

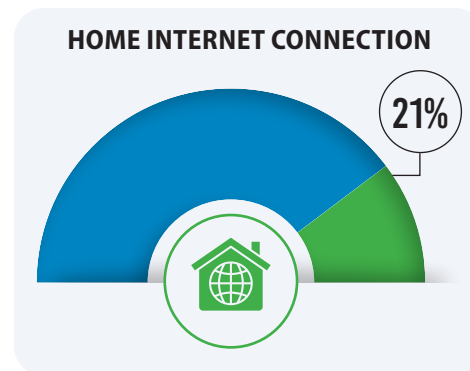
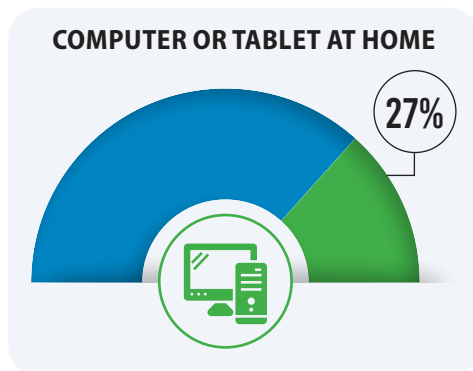
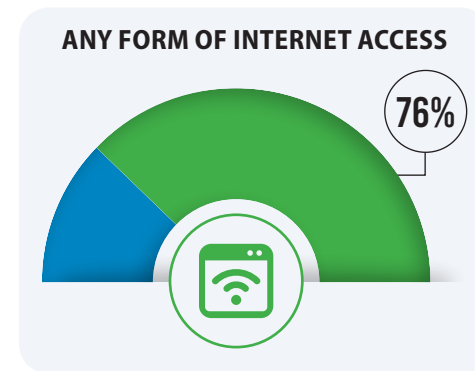
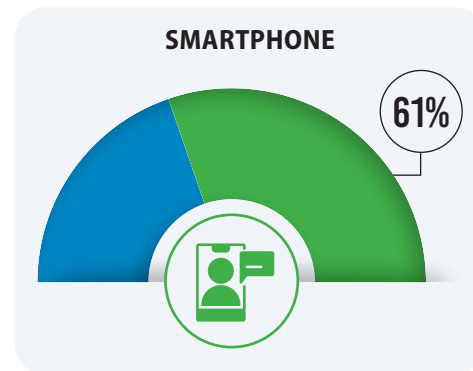
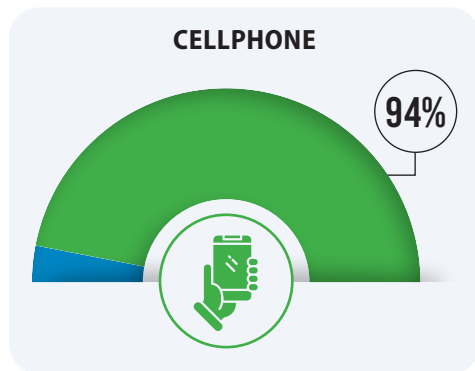
adults agreed that cultures within science organisations are transforming

- There was low confidence in the government's decision-making processes and the transformation of cultures within science organisations.
- The difference between the highest and lowest scores, by subgroup, for trust in government decision-making processes was a narrow 11 points; while the difference for agreement that cultures in science institutions are transforming was a narrow 8 points.
- South Africans tend to adopt similar views toward government decision-making and the transformation of cultures in science workspaces, irrespective of their diverse backgrounds.
- Black African adults had higher trust in government's decision-making processes and higher agreement about changes of cultures within science organisations.

9 S&T information: Access, exposure, consumption, and trust

A healthy relationship between science and society depends on the sharing of S&T information and ensuring that the public can access and trust this information. The public's access to digital devices and the internet plays an important role in enabling them to access information.

In 2022, this digital and internet access was as follows:



3 in every 4
persons had
internet access

An icon representing four stylized human figures. The first three are solid orange, and the fourth is white with an orange outline, representing 3 out of 4 people.

6 in every 10
persons had
a smartphone

An icon representing ten stylized human figures. The first six are solid orange, and the last four are white with an orange outline, representing 6 out of 10 people.

9.1 Patterns of internet access and usage

1 in every 4



adults had no internet access

1 in every 3



adults used the internet frequently (more than four hours most days)

The daily use of the internet varied widely, from a high of 85% for those with a tertiary education to a low of 15% for those with only a primary education.

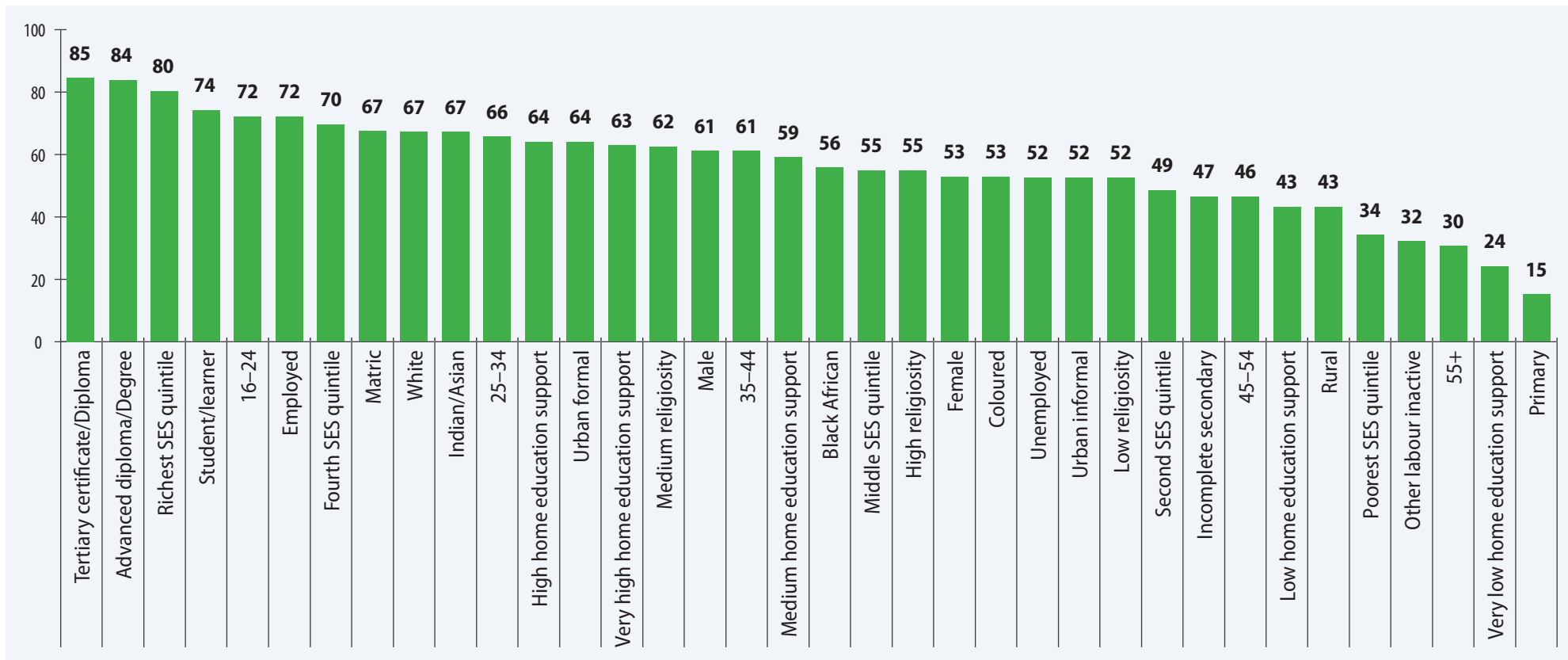
Who had higher internet usage?

Those with higher internet usage were:

- adults with an educational attainment of matric and above, and higher home education support,

- younger,
- students, learners, and the employed,
- from richer SES homes, and
- White and Indian/Asian adults.

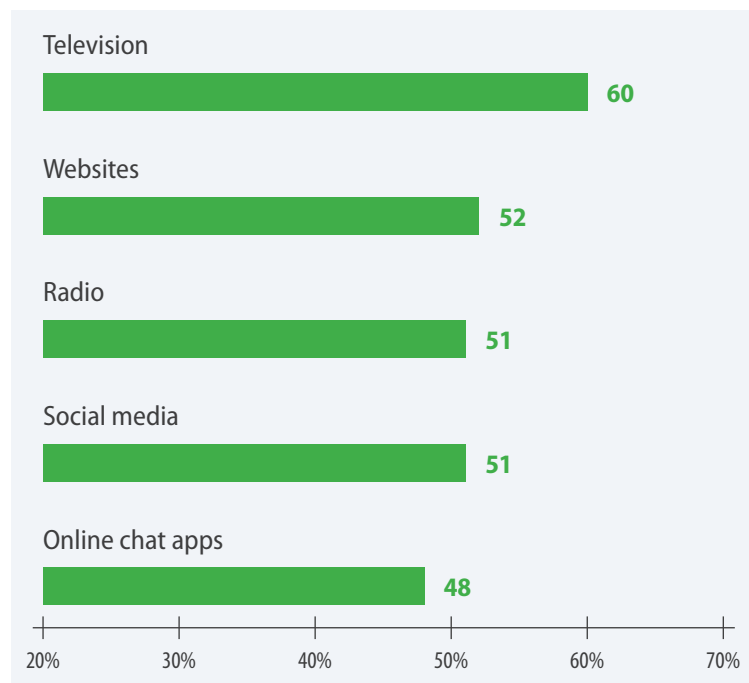
The pattern of daily internet usage by socio-demographic characteristics (%)



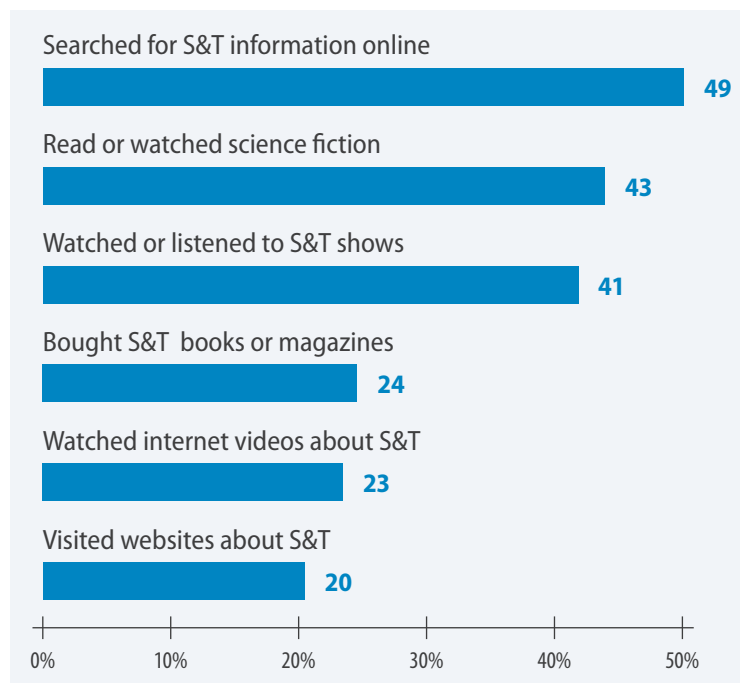
9.2 Exposure to and consumption of S&T information

Information is key to decision-making and could subsequently influence actions and behaviours. The public reported being exposed to (receiving) and consuming (actively accessing) low amounts of S&T information.

Most popular sources of S&T news (% at least weekly)



Most popular ways S&T information was consumed (% at least sometimes)



- There was a wide score variation for exposure to and consumption of S&T information by sub-group, with score ranges from 22 to 51 out of 100 for exposure to information, and 27 to 47 for consumption of information.
- Those who were exposed to, and consumed, more S&T information:
 - had higher educational attainment
 - had higher home education support, and
 - were younger, students and learners.

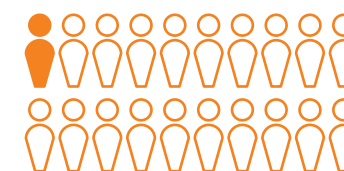
2 in every 10

adults received high amounts of S&T information



1 in every 20

adults consumed high amounts of S&T information



MOST POPULAR SOURCE OF S&T INFORMATION

Television

60%



MOST POPULAR METHOD OF ACTIVELY ACCESSING S&T INFORMATION

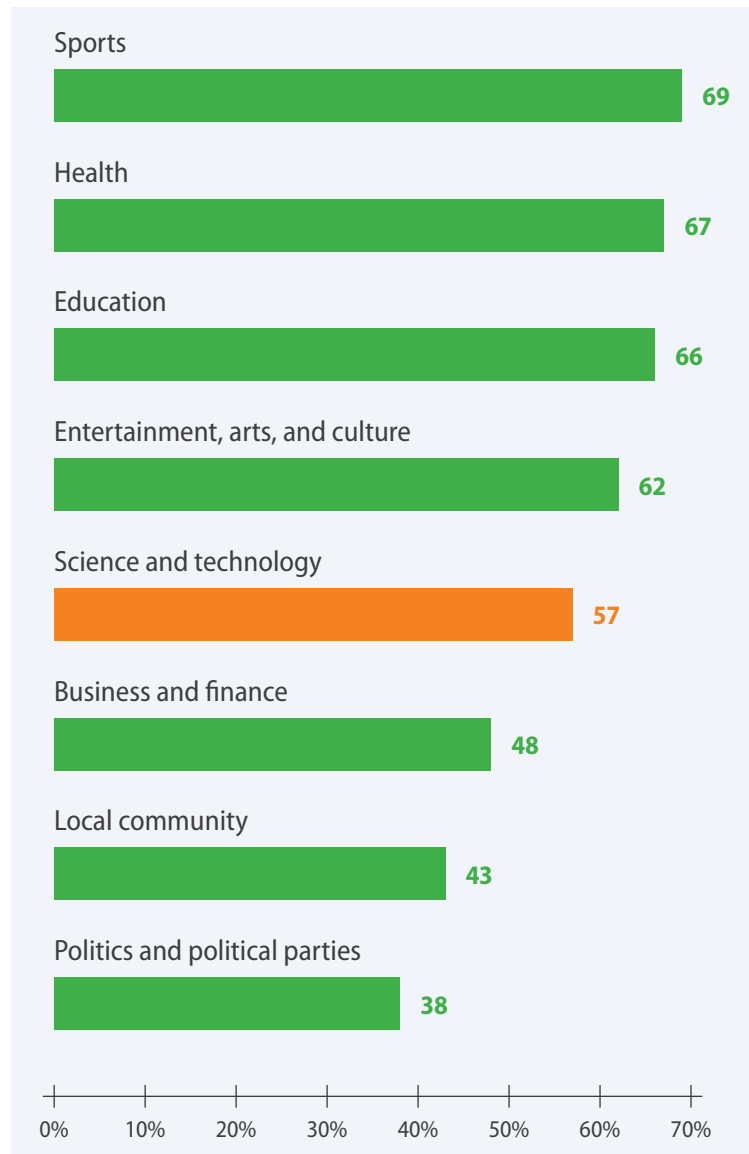
Online searches

49%

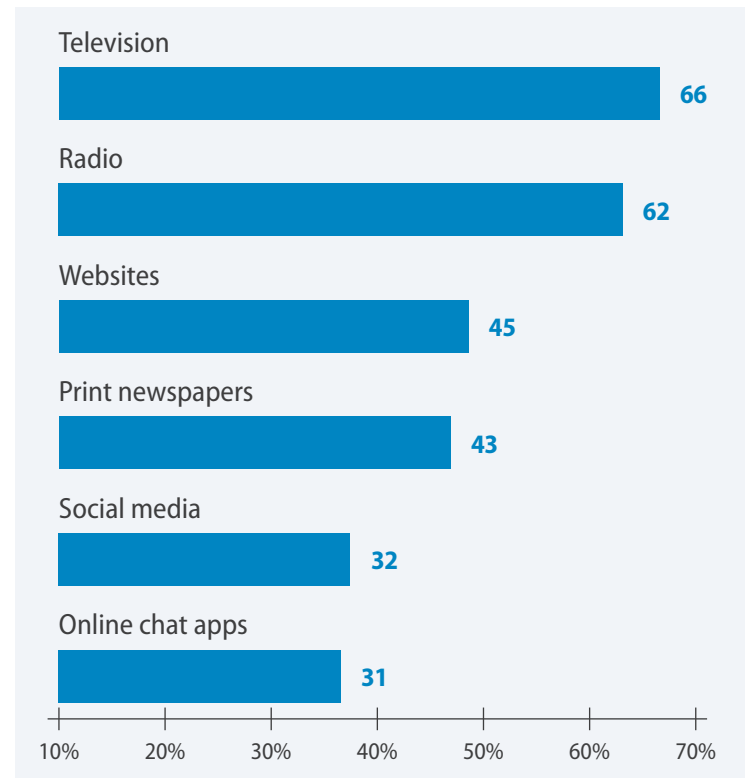


9.3 Trust in news content and information sources

Trust in news content (%)



Trust in S&T information sources (%)



- Irrespective of their diverse backgrounds, South Africans tended to have similar levels of trust in S&T news sources.
- Those who had higher trust in S&T news sources were adults with more education, higher home education support, and those who were younger, students, learners, and the unemployed.

6 in every 10

adults were satisfied with the manner in which the media reported S&T news



HIGHEST LEVEL OF TRUST IN NEWS CONTENT

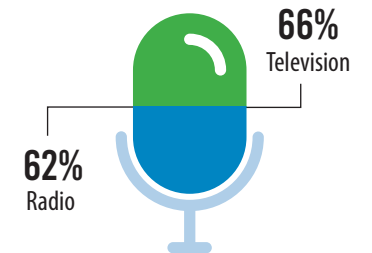
Sports

69%



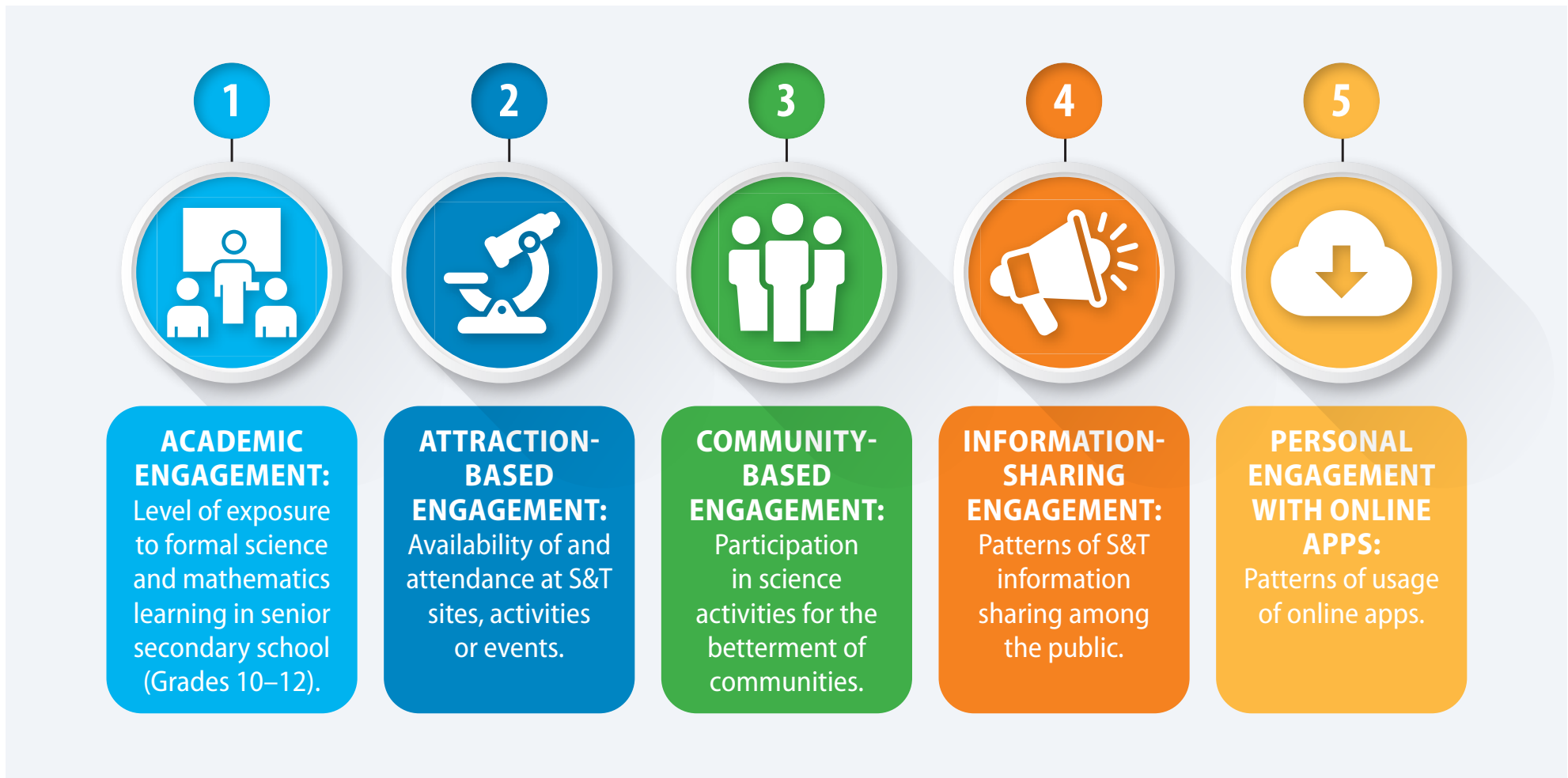
MOST TRUSTED S&T INFORMATION SOURCES

Television and radio



10 Science engagement outcomes: Activities and behaviours

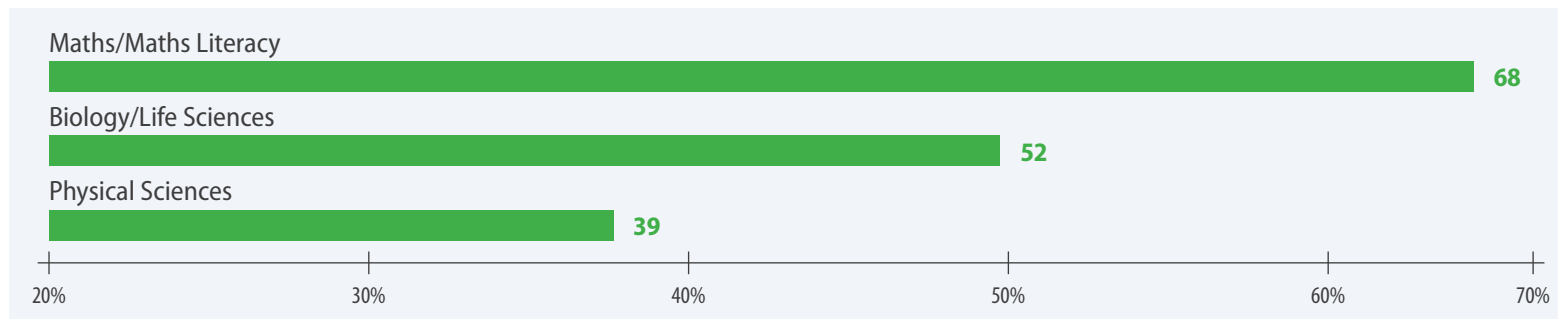
Survey respondents were asked whether they had participated in various S&T-related activities or events, as doing so serves as an expression of their science engagement behaviours. The activities or events were categorised into five broad types of engagements: academic engagement, attraction-based engagement, community-based engagement, information-sharing engagement, and personal engagement with online apps.



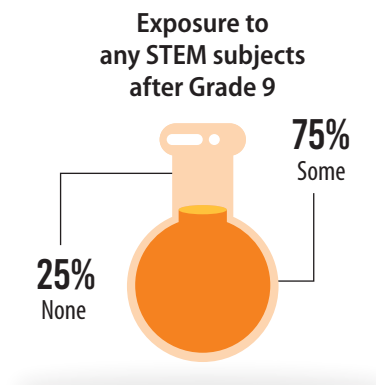
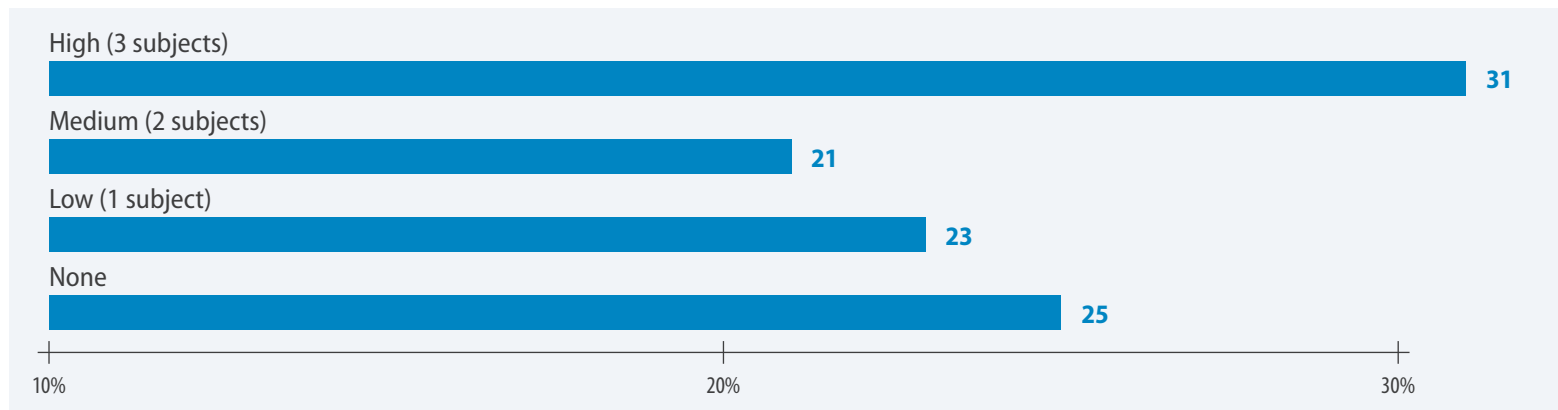
10.1 Academic engagement: Level of exposure to STEM subjects at school

Science knowledge and attitudes towards science are interrelated. The SAPRS survey respondents reported on the STEM subjects they had selected to study at school post Grade 9.

Exposure to STEM subjects post Grade 9 (%)



STEM Exposure Index (%)



3 in every 10 adults had high STEM exposure, taking all three STEM subjects asked about after Grade 9







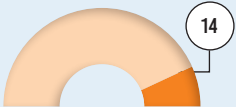










Those with higher STEM exposure:

- had higher levels of educational attainment and higher home education support,
- came from higher SES homes,
- were younger, students, learners, and the employed, and
- were more likely to be White adults.

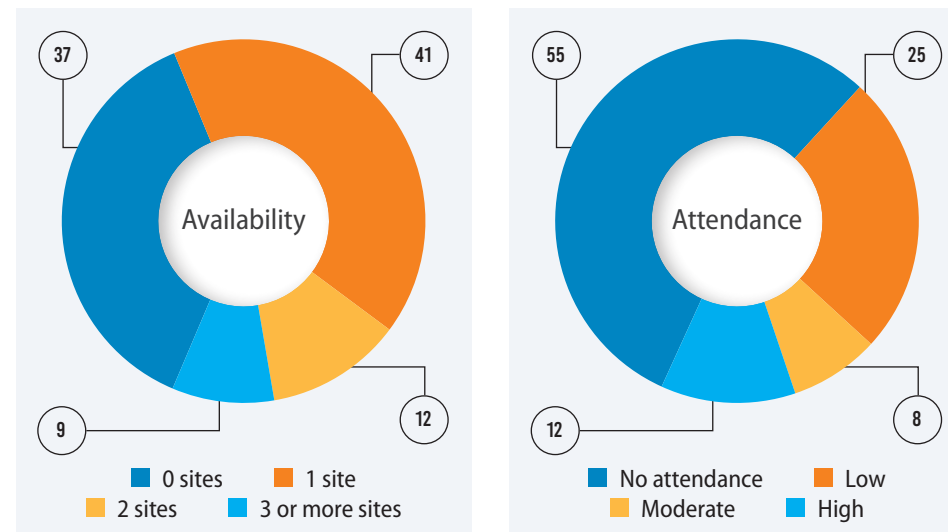
10.2 Attraction-based engagements: Availability of and attendance at S&T sites

The SAPRS survey respondents reported on the availability of S&T sites and activities in their areas and whether they had visited them. Just over one third of the public (37%) had no S&T sites, such as libraries, museums or S&T centres near their homes, while just over half (55%) had not attended any S&T sites or events.

Availability of and attendance at S&T sites and activities (%)

	S&T sites and activities	Available in area	Attended
	Public library	 55	 30
	Public science activities, e.g. clean ups, nature walks	 14	 18
	Museum	 12	 23
	Botanical garden, nature or game reserve, zoo, aquarium	 10	 26
	Science and Technology Centre or Exhibition	 7	 16

Availability of and attendance at S&T sites and activities (%)

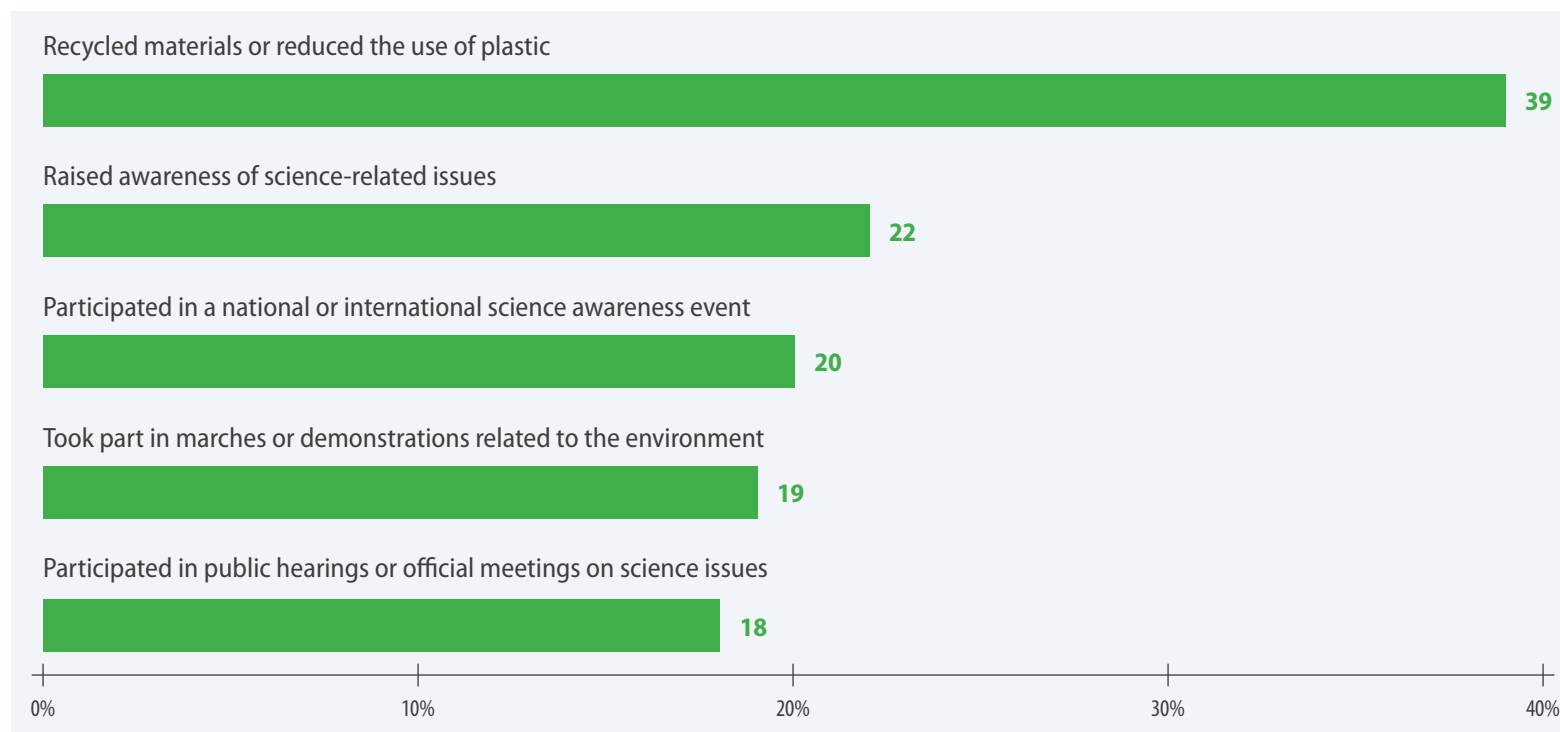


Those more likely to attend S&T events and activities:

- had an educational attainment of matric and above, and higher home education support,
- came from higher SES homes,
- lived in urban formal and informal areas,
- were the employed, students, and learners,
- lived closer to the S&T sites, and
- were exposed to and consumed more S&T information.

10.3 Community-based engagement

Participated in community-based science engagement activities (% at least sometimes)



Who had higher participation in community engagements?

- The difference in average scores, by sub-groups, was a wide range of 8 to 33.
- Those more likely to have higher participation in community-based science engagements were:
 - adults with an educational attainment of matric and above,
 - the employed, students, and learners, and
 - those residing in both urban formal and urban informal areas.

1 in every 7

adults reported that public science activities such as community clean-ups and nature walks were available in their area



1 in every 10

adults frequently participated in community-based activities



THE MOST COMMON ACTIVITY

Recycling materials or reducing plastic usage



10.4 Information-sharing engagement and engagement with online apps

In addition to receiving S&T information, the public shared information, as well as used online apps. There were low levels of information-sharing, as well as use of online apps among the public. The public shared S&T information most often with family, friends, or colleagues; and the most frequently used online app was internet banking.

2 in every 10

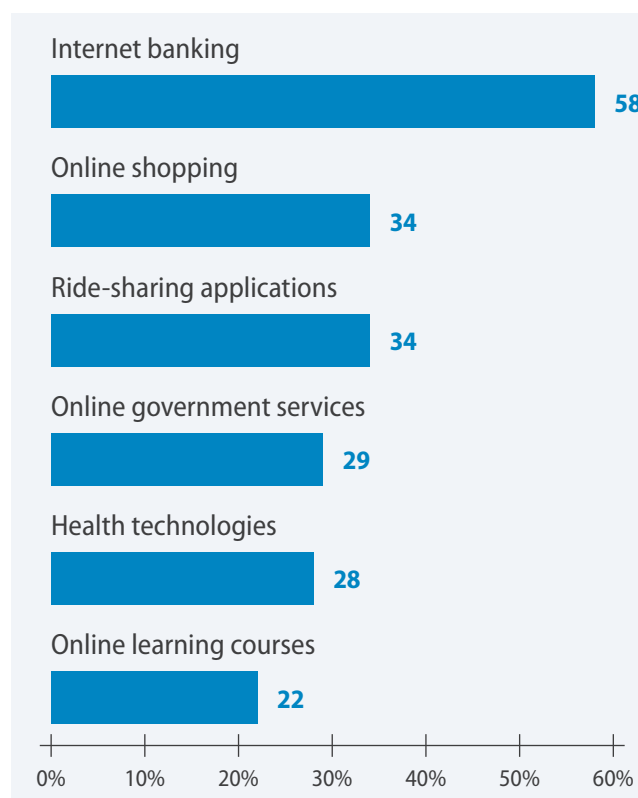
adults shared information
and used online apps frequently



Information sharing: how and who with (% at least sometimes)



Usage of select online apps (% at least sometimes)



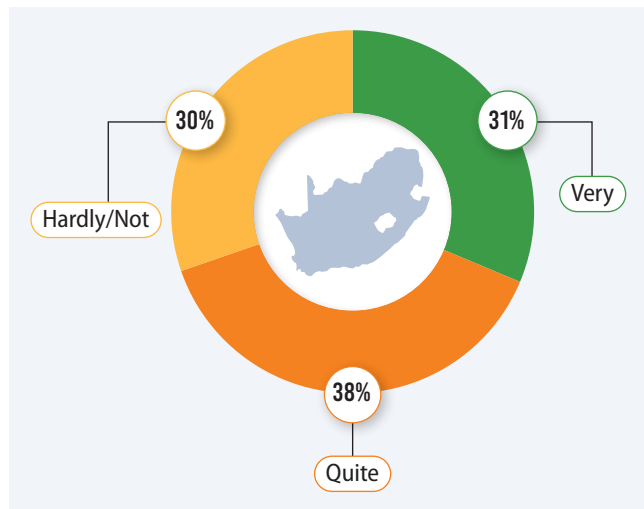
- There was a wide score variation, by sub-groups, for information sharing ranging from 18 to 46, and for usage of online apps ranging from 11 to 56, both out of 100.
- Those who shared more information and reported higher usage of online apps were more likely to:
 - have higher educational attainment and higher home educational support,
 - have higher SES,
 - be younger, employed, students, and learners, and
 - live in formal and informal urban areas.
- Black African adults were more likely to share information, while Indian/Asian and White adults tended to report higher usage of the select online apps.

11 Views of pride, promise, and priorities about the national system of innovation

11.1 Pride in South Africa's S&T achievements

A science-aware society is underpinned by values that embrace and support the national system of innovation. While seven in every 10 adults were 'very' or 'quite' proud of South African S&T achievements, they were realistic about those achievements in comparison with other regions of the world, with only one quarter agreeing that South Africa was better than Europe and North America.

How proud are you of South African S&T achievements (%)?



How South African S&T achievements compared with other world regions?

South Africa is better than ...		Percent agreeing
	Other parts of Africa	67%
	Europe and North America	25%
	Asian countries	18%

- The average scores, by subgroup, varied within a low and narrow range of between 24 and 40 out of 100 for high pride, and between 30 and 41 out of 100 for those who viewed South African S&T achievements as being better than those in all other regions. This means that South Africans tended to adopt a broadly similar attitude of pride in S&T achievements, irrespective of their diverse backgrounds.
- Those who reported higher pride in S&T achievements were Black African adults, those with higher educational attainment, those who received more home education support, and students and learners.
- Those who viewed South African S&T achievements as better than those in other countries were Black African adults, those with lower educational attainment and higher levels of home education support, and those residing in urban informal areas.
- Conversely, those who viewed South African S&T achievements as not better than achievements in other countries were Indian/Asian and White adults, those with a tertiary education, and those living in the richest SES quintile homes.

11.2 Promise of S&T skills for young people

The public rated the promise of S&T skills for young people highly. This sends a positive message to young people about the importance and value of S&T skills.

Young people should be encouraged to learn about S&T

86



S&T prepare young people to respond to challenges in local communities

76



Characteristics of those who rated the promise of S&T skills highly

- South Africans tended to adopt a broadly favourable view of the promise of S&T skills for young people, irrespective of their diverse backgrounds.
- Those who recognised a high promise of S&T had:
 - more than a primary education, and
 - higher home education support.

Digital and computer skills are becoming more important for young people

85



An S&T qualification gives young people more job options than other qualifications

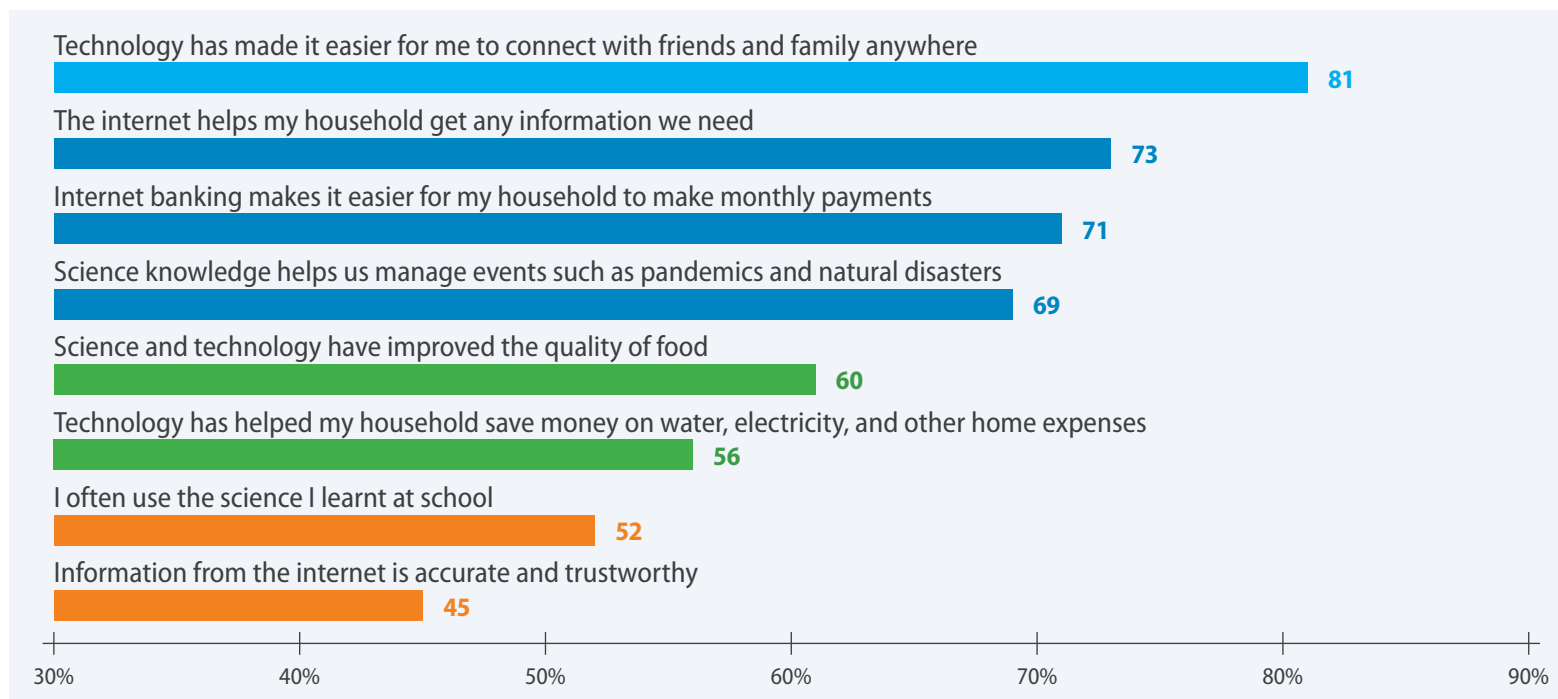
76



11.3 Value of S&T experiences in daily life

We are more likely to value something if we see it as important in our lives.

Value of S&T experiences in daily life (% agreement)



Who valued S&T experiences highly?

- Eight out of every 10 adults valued S&T for the ability to connect with family and friends, while seven in 10 valued S&T for the knowledge provided and direct utility to their everyday lives.
- Less than half the public agreed that the information from the internet was accurate and trustworthy.
- Those who valued S&T experiences highly:
 - had more than a primary education and higher home education support,
 - were younger, students, and learners, and
 - displayed higher knowledge of and interest in S&T.

HIGHEST LEVEL OF AGREEMENT

Ease of connectivity between family and friends enabled by technology

81%



LOWEST LEVEL OF AGREEMENT

Accuracy and trustworthiness of the internet

45%



6 in every 10

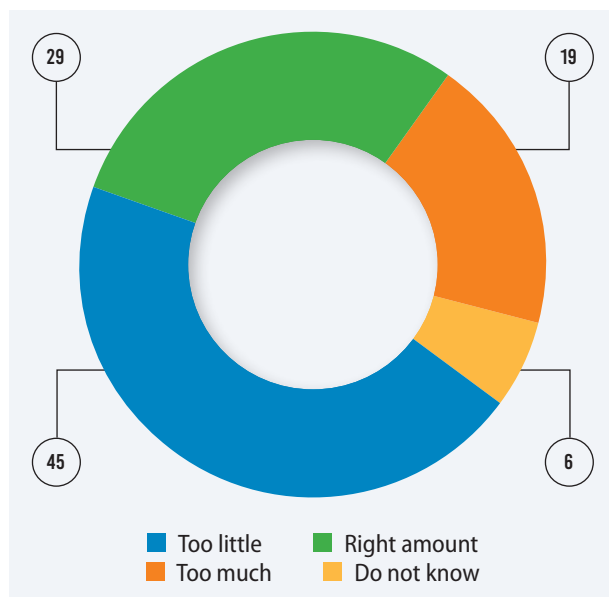
adults valued S&T for improved quality of food



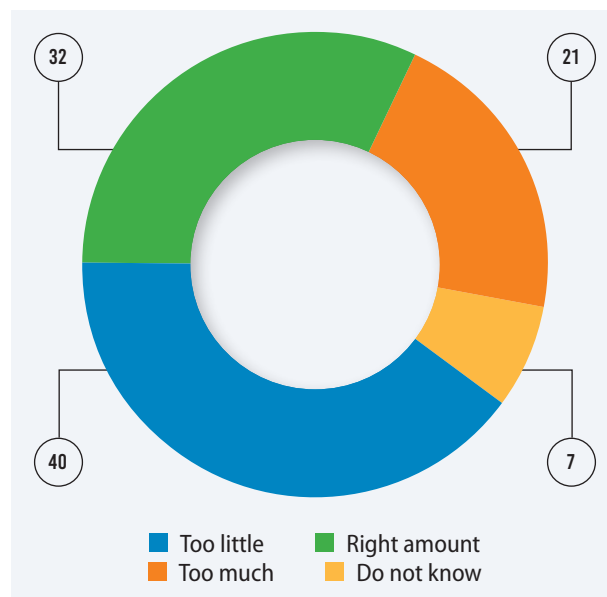
11.4 Public support for science and technology R&D spending

The public's views on the investments in research and development (R&D) indicate to government how the budget could be allocated. The public was of the view that current spending by government and big business on R&D in S&T should be maintained or increased.

Government spending on R&D (%)



Business spending on R&D (%)



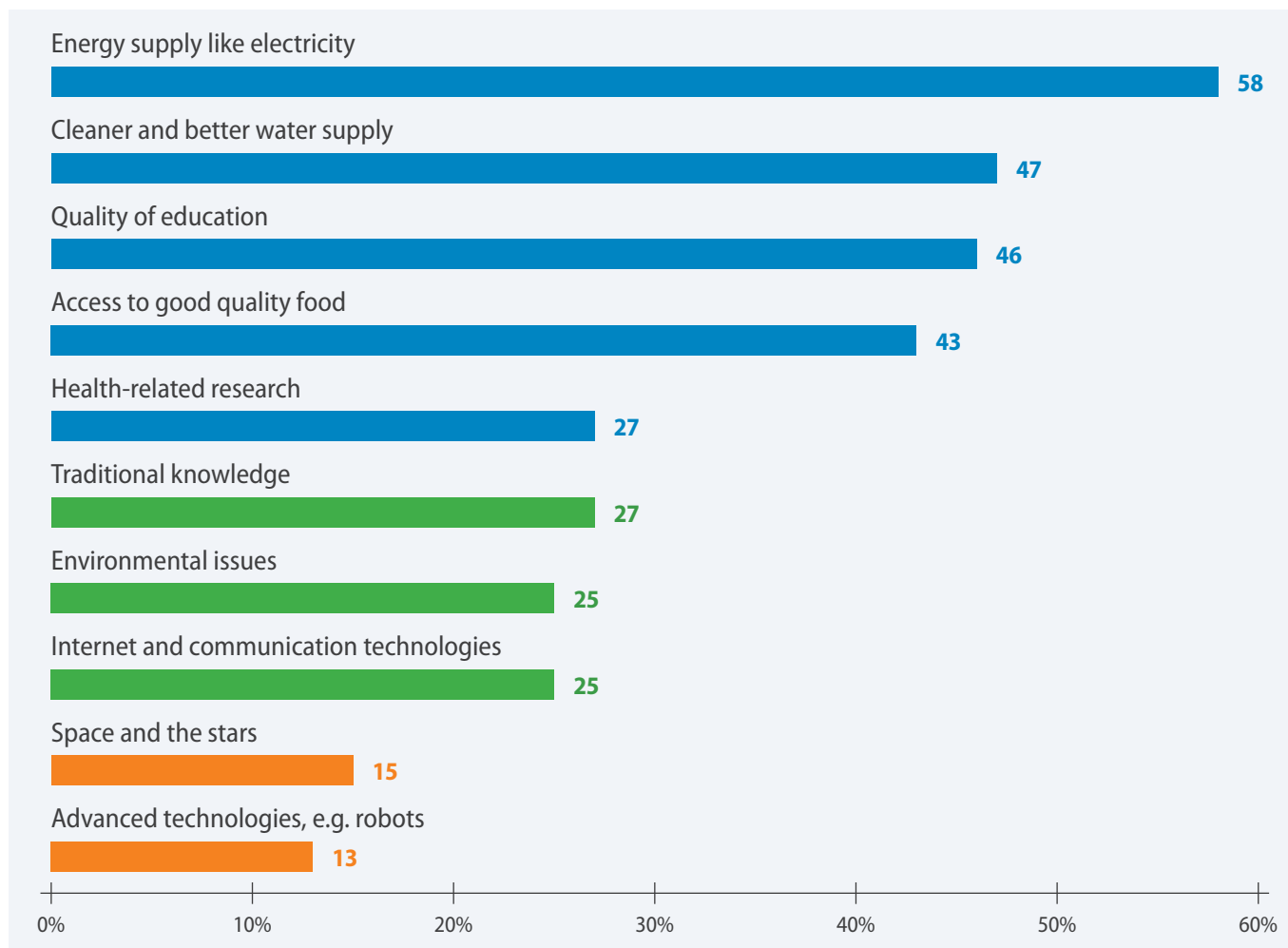
Characteristics of those most concerned that R&D spending was too low

- The support for government R&D spending on S&T had a wide score variation, by sub-group, ranging from 31 to 68 out of 100. This suggests divergent views among the public.
- Those who were most concerned that the present levels of R&D funding were too low were:
 - those with tertiary qualifications,
 - those belonging to the richest SES quintiles, and
 - White, Coloured, Indian/Asian adults.

11.5 S&T research priorities for South Africa

From the list of contemporary S&T priority topic areas, the public selected the four research areas that they felt the government should continue to fund. The highest priorities related to energy supply, water supply, and the quality of education; while the lowest priorities were space and the stars, and advanced technologies, such as robots.

South African research priorities for future research funding (%)



HIGHEST PRIORITY

Energy supply

58%



LOWEST PRIORITY

Advanced technologies, such as robots

13%



- The top five research priorities for future funding (blue bars), chosen by the public are considered 'urgent and important'. They represent contemporary societal challenges, the effects of which form part of the lived daily experiences of the public.
- The second set of priorities (green bars) could be categorised as 'important, but not urgent'.
- The third set of priorities are more likely to fall into the "blue-sky" research category, where real-world applications are not immediately apparent to the public.

12

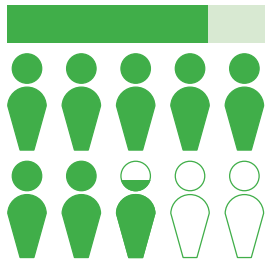
The fingerprint of the South African public relationship with science

For each of the 27 identified sub-indicators, we computed (i) the average index score (out of 100), and (ii) the score variation, by calculating the difference between the highest and lowest average scores across the different sub-groups.

THE HIGHEST AVERAGE SCORES WERE FOR THE MEASURES OF:

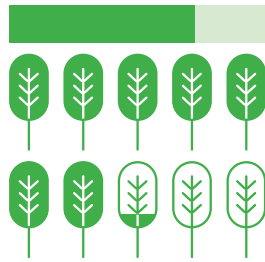
Promise of S&T skills for young people

78



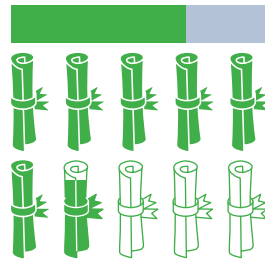
Environmental concern

72



Trust in S&T information from universities

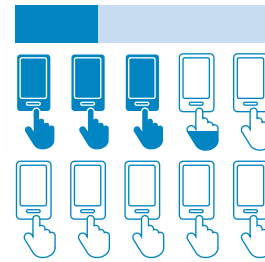
68



THE LOWEST AVERAGE SCORES WERE FOR THE MEASURES OF:

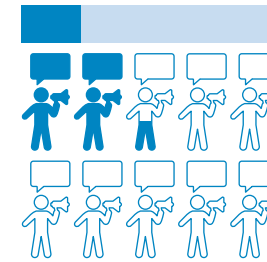
Use of online apps

32



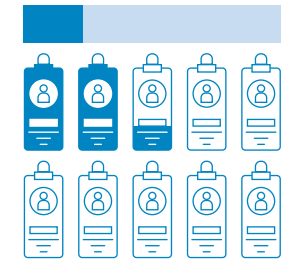
Community-based engagements

23



Attendance at attraction-based events

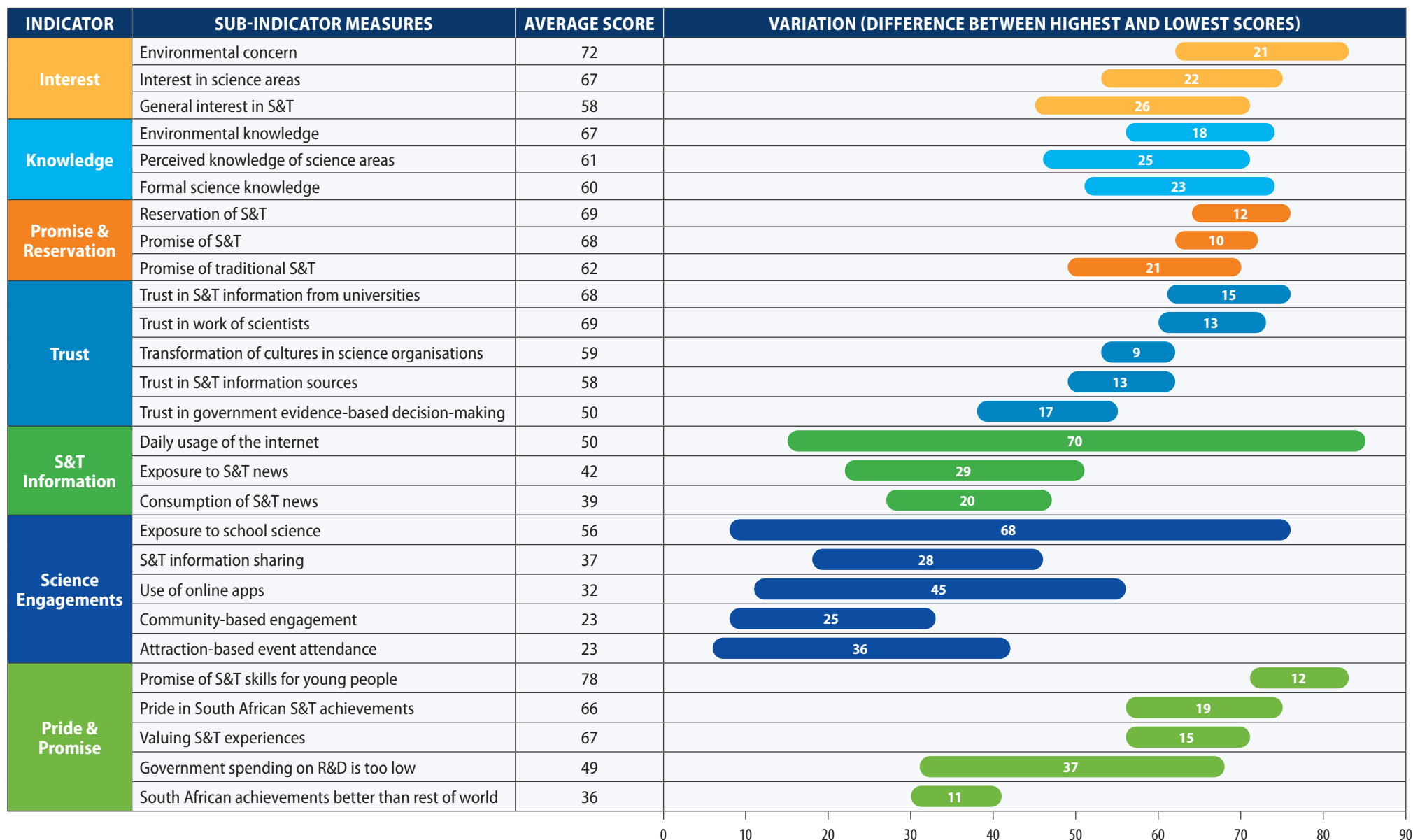
23



Conversely, the distribution of scores was highest for the daily use of the internet (70) and the exposure to school STEM subjects (68); and was lowest for the trust, promise, and reservation attitudes measures. A narrow score variation, which we termed as egalitarian measures, implies that the views of the public are similar, irrespective of the socio-demographic diversity. A wide score variation, termed as diverse measures, indicates the inequality due to socio-demographic diversity of the adult population.

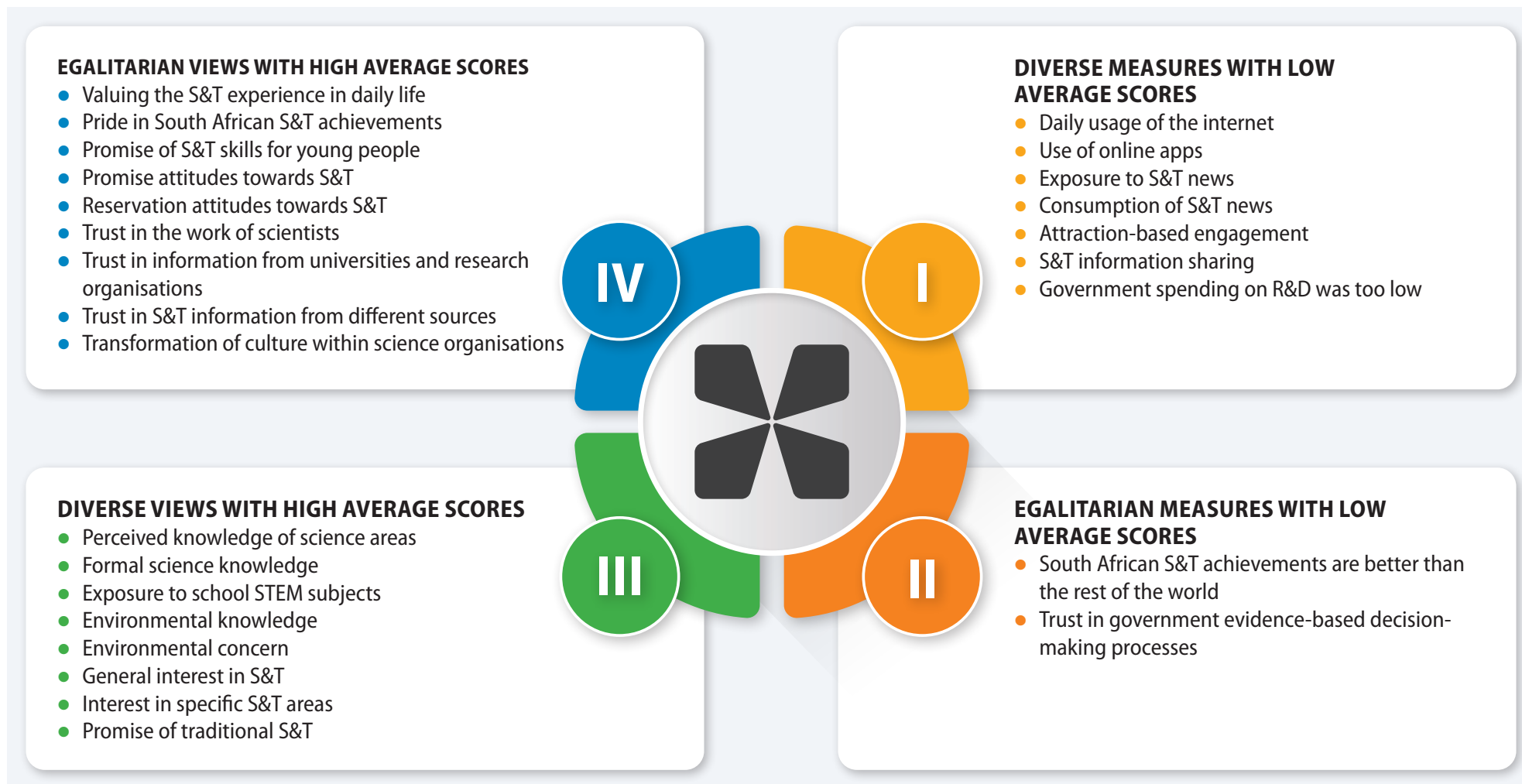
We then created the unique “fingerprint” for the South African public relationship with science by plotting the average score, as well as the score variation for each of the measures, which captures in a simple way the diversity in our science knowledge, attitude, and engagement measures.

12.1 Science knowledge, attitudes and engagement indicators, measures, average score, score variation



12.2 Classifying the measures into four typologies

To better understand the variations in the public relationship with science, we used the average score and score variation for each of the measures. We created high and low average score categories (using the average score of 50 as a cut-off point), and wide (or diverse), and narrow (or egalitarian) score variations (using the variation of 20 as a cut-off point). We created four categories.



13 Results to enhance the public relationship with science in South Africa



1

SCIENCE ENGAGEMENT MUST EMBRACE THE SCIENCE AND SOCIETY PARADIGM

The present study, as well as the DSI's approach to the programme of science engagement, is located within a science-in-society paradigm that recognises the bi-directional and dialogical nature of the relationship between science and the public, as well as the roles of individuals and institutions.



2

WE MUST CHANGE THE NARRATIVE ABOUT HOW WE CHARACTERISE AND DESCRIBE THE SOUTH AFRICAN PUBLIC

The views of South Africans are thoughtful, considered, balanced, and reflect an awareness of S&T developments. For close to half the measures examined, the public displayed similar views irrespective of their socio-demographic backgrounds. For the other measures there were variations among the public responses.



3

YOU CAN'T GO WRONG WITH IMPROVING SCIENCE KNOWLEDGE

Public science-awareness programmes should be delivered through multiple traditional and social media platforms, embedding the science that is part of individuals' lived experience within the public discourse.

**4****INCREASE INTEREST IN S&T AND BUILD A SOCIETY THAT PROMOTES A SCIENCE CULTURE**

The scale and reach of present science engagement programmes must be expanded, and new programmes with relevant and engaging content should be initiated and communicated through various channels. These programmes should aim to instil a culture of scientific curiosity and inquiry in society.

**5****KNOWLEDGE OF, INTEREST IN, AND CONCERN FOR S&T ARE STRONGLY INTERRELATED**

A focus on interest may be more amenable to intervention. This has the potential to create a virtual cycle and have knock-on benefits and spillovers to the other measures explored in this study, such as knowledge and concern.

**6****HOME EDUCATIONAL INTERACTIONS AND ENGAGEMENTS MATTER**

Throughout the analysis, the standout indicator was home support for education in the form of encouraging reading, homework, and discussion of the news, as well as performing well and taking science subjects at school. Home education support shows the importance of intergenerational curiosity and knowledge-building.

**7****VIEWS ABOUT THE PROMISE OF, AS WELL AS PRIDE AND TRUST IN S&T ARE EGALITARIAN IN CHARACTER**

To consolidate and further build on these views requires the ensuring of a cultural system that values, celebrates, and promotes S&T. We should create a cultural milieu that showcases evidence-based decision-making processes, debates, critique, and the contestation of ideas.

**8****LEVELS OF SCIENCE KNOWLEDGE AND ACCESS, EXPOSURE TO AS WELL AS CONSUMPTION OF S&T INFORMATION ARE DIVERSE IN CHARACTER**

The main characteristics that inform this diversity are educational attainment, socioeconomic status, and being a student or learner. Increased science communication and engagement through multiple channels, from print to broadcast to social media, should be both encouraged and mandated.

**9****INCREASE ACCESS TO S&T INFORMATION**

Three-quarters of the public have internet access. The public trusts S&T news presented by television and radio but is cautious about S&T news on social media. S&T information should be communicated in easily understandable ways, especially on television and radio.

**10****LARGE DIFFERENCES IN SCIENCE ENGAGEMENT BEHAVIOUR PERSIST BUT CAN BE INFLUENCED POSITIVELY BY PROMOTING SCIENCE KNOWLEDGE AND INTEREST AND OVERCOMING STRUCTURAL BARRIERS TO ACCESS**

Generally, low levels of science engagement were observed across all engagement types. Campaigns to boost information consumption, interest and knowledge, combined with efforts to promote greater access to S&T sites and events, would be expected to have a positive effect on levels of science engagement.

**11****EDUCATE THE PUBLIC ABOUT THE VALUE OF TRADITIONAL S&T**

There is need for a concerted effort to communicate, inform, educate, celebrate, and create awareness about this rich field of S&T for the larger population.

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