



MAPS TECHNICAL REPORT

January – December 2021

Table of Contents

MRF Objectives and Business	5
The Core Business of the Company	5
Main Objectives	5
Ancillary Objectives	5
MRF Management	6
MRF Councils	6
MRF Contractor	7
Coverage and Layout of this Technical Report	7
Contact Details	8
Section A: Introduction and Key Definitions	11
1.0 Introduction	11
Naming of MRF MAPS™ Releases	11
2.0 Special Notes	11
1. Age	11
2. Language	11
3. Population 2021	12
4. Radio Listenership	12
5. MRF MAPS™ Research Universe	12
6. TV Viewership	12
7. Question R12 of the Face-to-Face	13
8. Question R17 of the Face-to-Face	13
3.0 Definition of Terms	14
1. Average Issue Readership (AIR)	14
2. Children's Primary Purchase Decision Maker	14
3. Cycle	15
4. Dip	15
5. Dwelling Unit	15
6. EA	15
7. Home Language	15
8. Household	15
9. Household Income	16
10. Household Purchaser	16
11. Housing Unit	16
12. Internet	16
13. Large Item Decision Maker	16

14. Level of Education	16
15. Life Stages.....	17
16. Mothers with Children	18
17. Multiple Households.....	18
18. Occupation	18
19. Out of Home	18
20. Province.....	18
21. Radio Listening	19
22. Readership	19
23. Read or Paged Through.....	19
24. South African Population	19
25. TV Viewing	20
26. Wave	20
27. Working Life	20
Section B: Research Universe and Sample	22
4.0 Universe	22
Population 2021	22
5.0 Sample	24
Sampling Methodology	24
Disproportional Stratified Sample	25
Weighting, Benchmarking and Weighting Efficiency	25
Population vs. Achieved Sample Proportions	27
National Sample Profile	27
Sample Profile [Eastern Cape]	28
Sample Profile [Free State]	28
Sample Profile [Gauteng].....	29
Sample Profile [KwaZulu-Natal].....	29
Sample Profile [Limpopo]	30
Sample Profile [Mpumalanga].....	30
Sample Profile [Northern Cape]	31
Sample Profile [North West]	31
Sample Profile [Western Cape]	32
Achieved Sample: Interviews	32
Achieved Sample: Leave Behind Questionnaires	33
Target vs. Achieved [Leave Behind Questionnaires].....	33
Area Distribution	34



Respondent Profiles	34
Section C: Fieldwork.....	38
6.0 Fieldwork.....	38
The Interview	38
Fieldwork Summary	38
External variables brought to bear on the project.....	42
Section D: Analysis and Results.....	44
7.0 Analysis and Results	44
Data Fusion	44
Substitution.....	44
Backchecking.....	45
8.0 Segmentation	45
Socio-Economic Measure (SEM).....	46
9.0 Living Standards Measure (LSM)	46
Lifestages	47
Generations.....	48
Media Usage Intensity.....	48
10.0 Confidence Levels	49
Example	50
Technical Note.....	50
Section E: Appendix.....	53



MRF Objectives and Business

The Core Business of the Company

The Marketing Research Foundation (MRF) is tasked with facilitating, co-ordinating and determining the joint industry research needs of its stakeholders and to ensure that these needs are met within the limitations of the funding available for this activity.

The Marketing Research Foundation is an independent non-profit company, acting as the custodian and repository of research expertise for marketers and their advertising industry partners. Its core objectives are to establish, commission and manage comprehensive, valid, reliable, independent, transparent, and continuous consumer behaviour research, surveys, investigations, and reports that provide data for targeting and segmentation, as well as multi-product/brand usage and multi-media information that reflects the totality and complexity of the South African society.

Main Objectives

The main objective of the Company is:

To provide tools for targeting and segmentation of markets as well as to establish, commission and manage comprehensive, valid, reliable, independent, transparent, and continuous media, consumer and product usage research, surveys, investigations and reports that provide comparable multi-media and multi-product/brand usage information that reflects the totality and complexity of the South African society.

Ancillary Objectives

The ancillary objectives of the Company are:

1. To co-ordinate joint industry research amongst the advertising, marketing and media industries;
2. To investigate any research techniques whether in practice or proposed and to establish the degree of validity and reliability of the results obtained thereby; to seek improved methods in consumer behaviour and product usage research and to provide improved tools for targeting and segmentation of markets;
3. To act as a liaison between the advertising, marketing and media industry and universities, media audience, demographic and product usage research as well as tools for targeting and segmentation of markets;
4. To arrange seminars and courses directly or indirectly sponsored by the Marketing Research Foundation on any or all aspects of MAPS™ data and the utilisation thereof including tools for market sizing, targeting and segmentation of markets;



5. To act as mouthpiece of the industry on matters pertaining to marketing, consumer behaviour and product usage research as well as tools for targeting and segmentation of markets;
6. To promote and maintain fair, reasonable and proper standards of media, consumer behaviour and product usage research as well as targeting and segmentation tools.
7. To maintain and augment a library containing information concerning media audience, product usage and related research as well as on tools for targeting and segmentation of markets, and to make it accessible to members and students;
8. To do all such other acts, including the publication in print or electronic format, of books, memoranda, journals, magazines, circulars, reports and any documents or databases as the Marketing Research Foundation may consider expedient to promote the interests of its members;
9. Likewise to do all things and carry on any activity related, connected to, or associated with any of the above objects and purposes; and
10. To finance the operations of the Company by engaging in any lawful activity which may generate funding for the Company.

MRF Management

Responsibility for the management of the MRF affairs rests with a Board of Directors, representing the members of the Foundation – The Marketing Association of South Africa, the Association for Communication and Advertising and the Advertising Media Forum – together with the Chief Executive Officer, under a chairman.

MRF Councils

The MRF Board of Directors is the highest MRF authority. It consists of directors nominated by all MRF stakeholders namely marketers and advertising agencies.

Much of the work done by the MRF is guided by a Research Committee with work groups and an Advisory Council. The MRF Research Committee and Advisory Council is involved with guidance and decision making regarding the direction of the research survey. The Research Committee consists of representatives from the subscriber base and research experts from the broad industry. The Advisory Council consists of research experts from the broad industry who do not sit on the Board or are members of the Research Committee. The Committee and Council's mandate is to advise the MRF Board on what research should be undertaken and, in instances where the necessary authority has been delegated to it, to decide on details. In addition, several research experts serve on this council to advise on how research should be carried out.

The MRF Board and the MRF Research Committee and Advisory Council operate on a voluntary basis.



MRF Contractor

The MRF MAPS™ Technical Report, tabular electronic reports, datafiles, presentations, MAPS™ Questionnaire, Products and Activities Questionnaire, and other interviewing material which includes an interviewer instruction booklet, were prepared by Plus 94 Research.

Coverage and Layout of this Technical Report

1. Introduction
2. Special Notes: It is important that this be read before studying the individual electronic reports.
3. Definition of Terms: Particular attention is drawn to this section, since correct interpretation of the data in the numerous MAPS™ tables naturally depends on a clear understanding of the terms used.
4. Universe: Details of the population sampled are provided.
5. Sampling: The MAPS™ sampling method and the actual sample obtained is provided.
6. The Interview: The MAPS™ interview is described as well as questionnaire changes implemented.
7. Fieldwork: The fieldwork methods and the results obtained in terms of the original sample attained are discussed.
8. Analysis: This covers the treatment of the data after completion of the interviewing and the weighting methodology employed.
9. Segmentation
10. Living Standards Measure
11. Confidence Limits: The Technical Report concludes with the likely margins of error attached to the MAPS™ data.
12. Appendix: The MAPS™ questionnaires and areas covered by the study

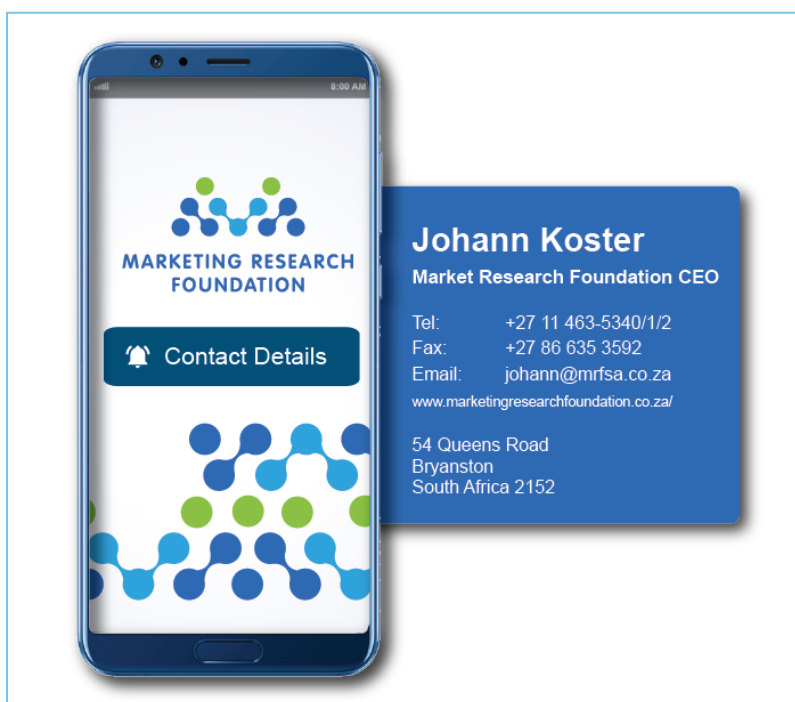
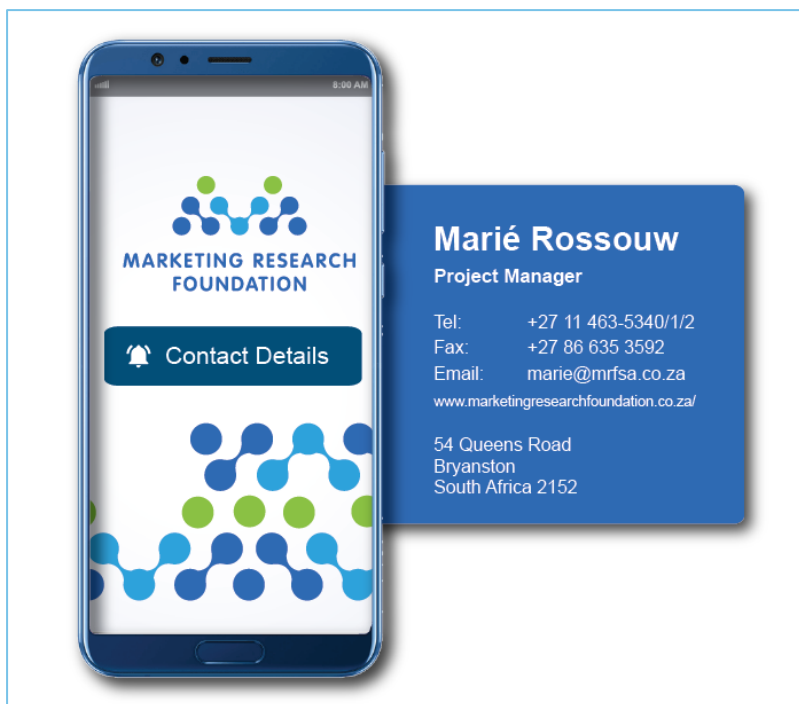
Contact Details

The Marketing Research Foundation

54 Queens Rd, Bryanston, 2191

Tel: 011 463 5340

mrf@mrfsa.co.za

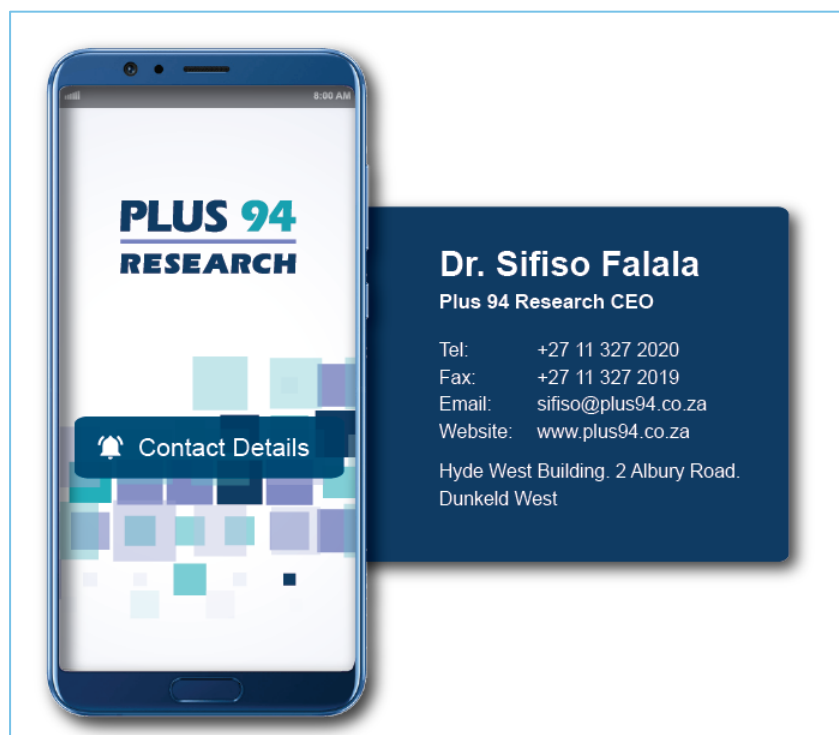


Plus 94 Research

2 Albury Road, Dunkeld West

Tel: 011 327 2020

nubiz@plus94.co.za



Section A:

Introduction and Key Definitions



Section A: Introduction and Key Definitions

1.0 Introduction

MAPS™ aims to be the consumer-centric barometer of the customer journey, tracking consumption and related product and brand information. The results of the survey will aid consumer understanding for target marketing, target sizing, and act as the basis for planning media space and time.

The focus of the research is on product and brand consumption, media interaction and consumer behaviour, but has been expressed broadly as surveys, investigations and reports to allow for the best methods of collecting and reporting the information to be considered, with a view to establishing:

- Consumption behaviour relating to purchase, usage and ownership of products, services and brands;
- Comprehensive characteristics of users of products, services, brands, behaviour and media that can be used for segmentation development, and defining a multitude of target groups, including Living Standards Measures (LSMs), Socio-Economic Measures (SEMs), lifestyles and psychographics; and
- The usage of media (audience sizes and wide-ranging characteristics, including detailed demographics).
-

Naming of MRF MAPS™ Releases

The descriptors for the various MRF MAPS™ releases are as follows:

- The current release is described as MRF MAPS™ 2021.

2.0 Special Notes

1. Age

There are two age questions in the MRF MAPS™ questionnaire: one on exact age and the other a grouping of fifteen age categories on independent and dependent household/family members of respondents. However, the weighting cells are 15-19, 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, 60-64, 65-69, 70-74, 75-79 and 80+ (not the individual ages) and analysis by any other age groupings will not necessarily reflect the correct population statistics. There is also a proportion of respondents who refuse to give their exact age and therefore adding the individual exact ages will not necessarily equate to the groups in the grouped age question.

2. Language

For reporting purposes, the language categories are as follows:

Afrikaans	Southern Sotho	Tswana
English	Swazi	Venda
Ndebele	Tsonga	Zulu
Northern Sotho	Xhosa	Other

Each language code comprises only those respondents claiming that specific language as the language most spoken.

3. Population 2021

According to Statistics South Africa's 2021 mid-year population estimates, the total population of South Africa was estimated to be at 60.14 million. Approximately 71.7% (43.1 million) of the population is aged 15 years and older and this defines the universe for the MAPS™ study. About 9.2% (5.5 million) is 60 years and older whereas 28.3% of the population is aged younger than 15 years.

4. Radio Listenership

To assist with intermedia comparisons, the past 4 weeks, past 7 days and yesterday radio listening questions are incorporated into the MRF MAPS™ questionnaire.

Radio stations with 40 or more mentions are released individually on the database for both commercial and community and online stations.

Refer to the questionnaire in the Appendix of this report – for details of the radio station changes for MRF MAPS™ January – December 2021.

5. MRF MAPS™ Research Universe

The research universe is defined as adult males and females aged 15 years and older.

6. TV Viewership

To assist with intermedia comparisons, the past 4 weeks, past 7 days and yesterday TV viewing questions are incorporated into the MRF MAPS™ questionnaire. The TV currency is BRCTAMS data.

The figures for SABC 1, SABC 2, SABC 3, e.tv, M-Net and Community TV reflected in the electronic reports and on the database still reflect total viewership for these stations regardless of the



platform through which they are viewed. “Total Community TV” currently includes Soweto TV, Cape Town TV, Bay TV, Tshwane TV, 1KZNTV and Platinum TV.

TV channels with 40 or more mentions are released individually on the database.

Refer to the questionnaire in the Appendix of this report – for details of all TV station/channel changes for MRF MAPS™ January – December 2021.

7. Question R12 of the Face-to-Face

Question: What is your occupation? (What type of work do you do?)

There were some respondents that listed various elementary jobs that were coded as “General hand worker” in the data.

“General hand worker” refers to the following occupations:

- General worker
- Maintenance/recycling/street cleaner/municipal worker
- Car guard
- Ordinary labourer
- Gardener
- Farmworker

8. Question R17 of the Face-to-Face

Please note that the diploma qualification **excludes short courses** as these are covered by response options 6 and 7.

1. No schooling
2. Some primary school
3. Primary school completed
4. Some high school
5. Matric (high school completed)
6. Pre-Matric certificate
7. Post-Matric certificate
8. Diploma
9. Undergraduate degree

10. Postgraduate degree



3.0 Definition of Terms

In a study of this magnitude, it is important that certain user-terms be defined and agreed upon. This has a bearing on how the respondents are filtered. The MRF reserves all rights to provide such definitions and to modify them from time to time as may become necessary. Changes in the definitions are then incorporated into the questionnaire to modify the manner in which respondents are screened and their data interpreted. Below is a summary of the list of working definitions as they are currently used in the survey:

1. Average Issue Readership (AIR)

To qualify as an “average issue” reader of a publication, a respondent must have read or paged through any copy of the title under consideration within a period before the interview which is no longer than the issue period of that title. Furthermore, the respondent must have read or paged through that issue for the first time within that period.

For example, to qualify as an average issue reader of a weekly publication, a respondent must have read or paged through that issue for the first time within the past 7 days.

2. Children’s Primary Purchase Decision Maker

“Primary purchase decision maker for babies” refers to infants up to 23 months old, and “Primary purchase decision maker for children” refers to children from 2 to 14 years old.

A primary purchase decision maker for children is a person (male or female) who decides upon or chooses the products or services for children. These children can be his/her own children, other children who are dependent on him/her or any other children. It does not matter whether or not these children live with the person who primarily makes decisions for their purchases.



3. Cycle

A cycle (quarter) is a continuous period of three months.

4. Dip

A dip is a monthly survey of 1667 by 12 months equals 20 004 interviews. Three dips make a cycle of 5 001 interviews, and two cycles make a wave of 10 002.

5. Dwelling Unit

Structure or part of a structure or group of structures occupied or meant to be occupied by one or more than one household. Includes structure or part of a structure which is vacant and/or under construction but can be lived in at the time of the survey.

6. EA

EA is an acronym for an enumeration or enumerator area. It is a pocket-sized piece of a country which is visited by an enumerator during a census. In the MAPS™ study, EA maps were made use of by interviewers for ease of identifying the areas selected for the survey.

7. Home Language

The respondent is asked for the language they personally speak most often at home. If the respondent cannot decide on one home language, they are asked for the language they spoke most often yesterday.

All 11 official languages are used as breakdowns in the electronic reports as follows:

Afrikaans	South Sotho	Venda
English	Swazi	Xhosa
Ndebele	Tsonga	Zulu
North Sotho	Tswana	Other

8. Household

A household consists of a person, or a group of persons, who occupy a common dwelling (or part of it) for at least four days a week and who provide themselves jointly with food and other essentials for living. In other words, they live together as a unit. People who occupy the same dwelling, but who do not share food or other essentials, are enumerated as separate households. For example, people who share a dwelling, but who buy food and eat separately, are counted as separate households. Resident domestic workers and live-in gardeners are, however, excluded and regarded as forming a household of one or more persons.



9. Household Income

"Household income" is defined to the respondent as the "..... total monthly income" of the number of "income earners" previously enumerated within the relevant household "before tax and other deductions," but including "all sources of income, i.e. salaries, pensions, government grants, income from investments, etc."

In the cases of refusal to answer the question, the income is imputed using demographic variables such as the Living Standards Measure, Socio-Economic Measure, residential area and employment status.

10. Household Purchaser

Any respondent of either gender who claims to be solely or partly responsible for the day-to-day purchases of the household is described as a household purchaser (see the face-to-face questionnaire in the Appendix of this report, question M1).

These respondents, weighted to households, should be used for analyses on the household FMCG categories.

There may be more than one person who could claim to be a "household purchaser" within any given household, although only one would be interviewed.

11. Housing Unit

A unit of accommodation for a household, which may consist of one structure, or more than one structure, or part of a structure. (Examples of each are a house, a group of rondavels, and a flat.) It may be vacant or occupied by one or more than one household.

12. Internet

The Internet is introduced to respondents as an alternative means of communication, and that it can be accessed using a computer, cellular phone or another Internet-enabled device.

13. Large Item Decision Maker

To analyse the incidence, usage and purchase of large household items, a male or female respondent who claims to be the head of the household or who claims to be solely or partly responsible for the household purchases is described as a large item decision maker.

14. Level of Education

Respondents still undergoing full-time education are coded according to the level achieved as at the date of the interview.



15. Life Stages

Seven personal life stage groups are used as a breakdown and are included on the database. A description of these groups follows. Unless otherwise stated, a child is under 21 years of age.

Young Singles

- Up to 34 years old
- Not married or not living together
- Do not have any dependent children in the household (own or other children) that the respondent is responsible for

Mature Singles

- 35+ years old
- Not married or not living together
- Do not have any dependent children in the household (own or other children) that the respondent is responsible for

Young Couples

- Up to 49 years old
- Married or living together
- No dependent children in the household (own or other children) that they are responsible for

Mature Couples

- 50+ years old
- Married or living together
- No dependent children in the household (own or other children) that they are responsible for

Young Family

- Married or living together
- With at least one dependent child under 13 years in the household (own or other children) that they are responsible for

Single Parent Family

- Not married or not living together
- With dependent children in the household (own or other children) that they are responsible for

Mature Family

- Married or living together
- With no dependent children under 13 years in the household (own or other children) that they are responsible for, but with dependent children over the age of 13 years in the household

16. Mothers with Children

"With babies" refers to infants up to 23 months old. "With children" refers to children in the age group from 24 months to 14 years.

17. Multiple Households

Two or more households living in the same dwelling unit.

18. Occupation

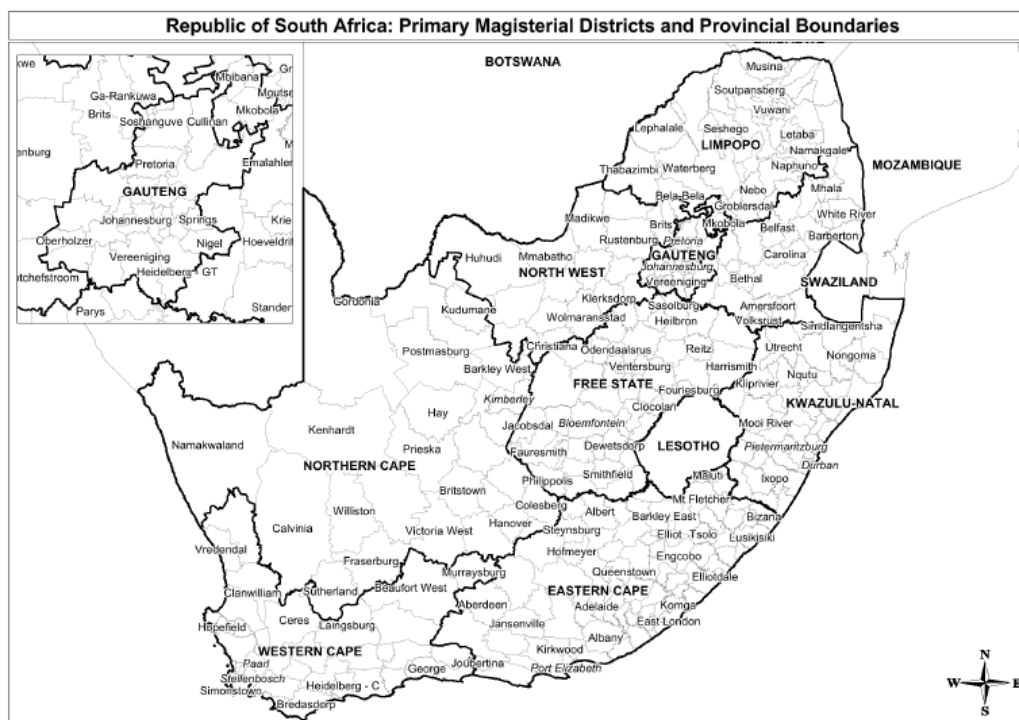
The occupation of respondents who work full-time or part-time or are self-employed is classified according to Stats SA "Standard Classification of Occupations" (Report 09-90-01) down to the level of unit groups (three-character codes). These appear on the database. (See Appendix of this report.) Note that the abbreviation n.e.c. used throughout the occupation classification list stands for "not elsewhere classified".

19. Out of Home

Out of Home media exposure covers billboards, digital screens, branding on the inside and outside of buses and taxis, signs on building wraps/construction site wraps, dustbins and street poles. Travel outside of home is measured by duration, destination and mode of travel.

20. Province

The nine province boundaries used in the MAPS™ sample coincide with those of Stats SA. The following map shows the boundaries of the provinces in terms of magisterial districts.



21. Radio Listening

"Radio listening" is defined as having personally listened to the radio – it may be all of a programme or only part of it via a radio set, a computer, a cell phone, the television, satellite, or any other means and it does not matter where you listened to it."

Note that the currency for radio listening is BRCRAM.

22. Readership

All references to numbers of readers, imply estimates of the "average issue readership" of the publication concerned.

23. Read or Paged Through

To have "read or paged through" is explained to the respondent as meaning that he/she has "..... read or paged through all or part of a copy, including any of the separate parts, sections or supplements which may come with it. It does not matter if it was an own copy or someone else's copy, or where it was read or paged through. It also does not matter if it was purchased personally or purchased by someone else, or whether it was received free of charge at home or elsewhere."

24. South African Population

The total population of the country is based on the official population according to Stats SA. The last census in South Africa was conducted between March and May 2022 and the official results will be released in 2023. Stats SA is currently using the cohort-component methodology to estimate the mid-year population. This refers to the population as it stands

during the month of June. The adjusted population estimates are released by Stats SA in July of each year.

25. TV Viewing

"TV viewing" is defined as "..... you personally have watched all or part of a programme – it does not matter where it was watched it – at home or elsewhere."

Note that the currency for TV viewing is BRCTAMS.

26. Wave

There are two waves in a year: wave 1 and wave 2. Each wave is made up of a period of 6 successive calendar months. The first fieldwork wave of 2021 ran from the 18th of January to the 25th of June 2021 whereas that of the second wave started on the 17th of July 2021 and came to an end on the 23rd of December 2021. Two waves produced an annual sample of 20 052.

27. Working Life

Unemployed – any person that does not have a job and is actively looking for employment (this also includes individuals that have never worked before and are actively looking for jobs e.g., Matric graduate job seekers, University graduate job seekers etc.).

Not working – discouraged work seekers who are no longer actively looking for employment or anyone who is not actively looking for employment (this excludes housewives/househusbands, students and retired people as these categories have their own pre-codes in the questionnaire).





Section B:

Research Universe and Sample

Section B: Research Universe and Sample

4.0 Universe

The target population for the research is the adult (15+) population of South Africa. The following was used to filter the broad audience base of the respondents:



- Age: 15 years and older;
- Gender: Both males and females;
- Race: All racial groups; and
- Area: National (all 9 provinces).

Population 2021

According to Statistics South Africa's 2021 mid-year population estimates, the total population of South Africa was estimated to be at 60.14 million. Approximately 71.7% (43.1 million) of the population is aged 15 years and older and this defines the universe for the MAPS™ study. About 9.2% (5.5 million) is 60 years and older whereas 28.3% of the population is aged younger than 15 years. The table below summarises the adult population in the nine provinces:

Province	Adult Population (15 years+)	% of Population
Eastern Cape	4 495 873	10%
Free State	2 097 647	5%
Gauteng	12 088 567	28%
KwaZulu-Natal	7 908 863	18%
Limpopo	3 920 833	9%
Mpumalanga	3 353 909	8%
Northern Cape	921 922	2%
North West	2 942 587	7%
Western Cape	5 381 156	12%
Total	43 099 703	100%

Gender (15 years+)

Gender	Count	Percentage (%)
Female	22 337 042	52%
Male	20 762 661	48%
Total	43 099 703	100%

Race (15 years+)

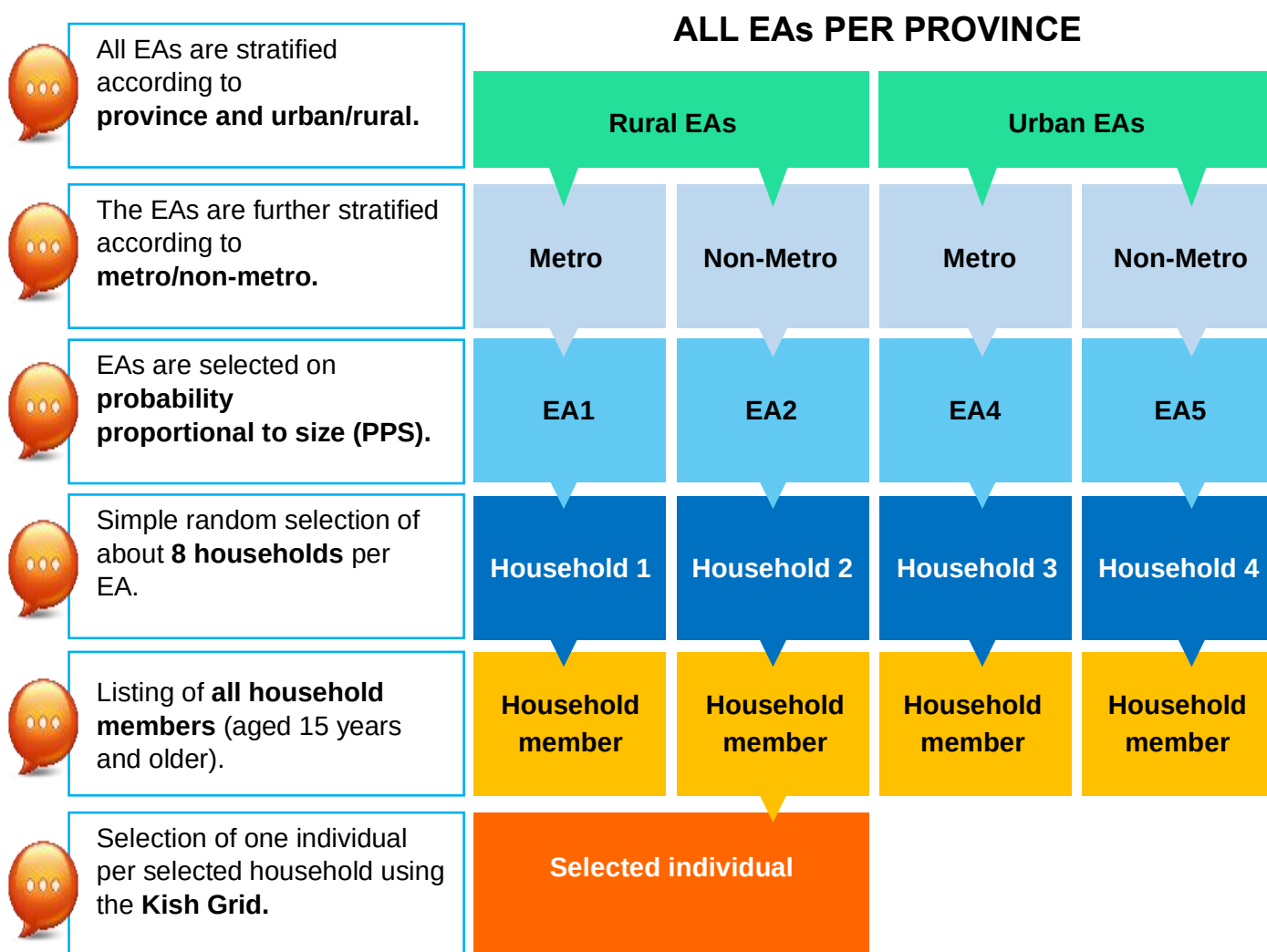
Race	Count	Percentage (%)
Black African	34 028 958	79%
Coloured	3 886 064	9%
Indian/Asian	1 251 197	3%
White	3 933 484	9%
Total	43 099 703	100%

Source: Statistics South Africa, Statistical Release P0302, Mid-year population estimates

5.0 Sample

Sampling Methodology

The sampling methodology is area stratified, multi-stage probability sampling. The Stats SA 2011 census data enumeration areas (EAs) are used as the sampling frame. EAs are drawn using a probability proportional to population size (PPS) approach. The EAs are the primary sampling units (PPUs), and the households are the secondary sampling units (SSUs). The stratification is based on the number of households per strata (province, rural/urban, metro/non-metro). The image below illustrates the sampling procedure for the MAPS™ study:



EAs that were 100% in the military barracks were removed from the sampling frame before selection. Prisons, hospitals, industrial areas, cemeteries and resorts were excluded from the survey. EAs that constitute these areas were only included if there was a residential component in the EA.

Professor Khangelani Zuma was responsible for drawing the EA sample for the MAPS™ study. Under his guidance, AfricaScope provided Plus 94 Research with the EA maps based on the drawn EA sample. Each map had 12 household locations/points that were randomly selected and assigned numbers from 1 to 12 along with the exact GPS coordinates for each point. Plus 94 Research fieldworkers were required to interview 8 respondents from household number 1 to 8 in each EA if there was no household replacement in an EA. The other four additional points (labelled 9, 10, 11 and 12) were used as replacement households where refusals were encountered with any of the respondents from household number 1 to 8. To ensure a wide geographic spread of points, all the randomly selected 12 points within an EA were physically spaced to such an extent that most of the enumeration area was adequately covered. The spread also ensured that all possible demographic profiles of respondents in every EA had a fair chance of participating in the MAPS™ study. Refer to the Appendix of this report to obtain finer details on the areas [province, district, municipality, main place name, sub-place name and area type (i.e., metro, urban and rural)] that were covered by the MAPS™ study between January 2021 and December 2021.

Half of the total sample of the MAPS face-to-face interview respondents were expected to complete the leave behind questionnaire. To ensure that the completed leave behind questionnaires were representative of the participants that took part in the face-to-face interviews, it was ensured that at least four respondents in each EA visited, filled in a leave behind questionnaire.

Disproportional Stratified Sample

Disproportional stratified sampling is a stratified sampling procedure in which the number of elements sampled from each stratum is not proportional to their representation in the total population. Population elements are not given an equal chance to be included on the sample. This sampling procedure helps improve precision at stratum (reporting domain) level by increasing sample size/allocation to smaller strata and decreasing the sample size to larger strata. In order to ensure a disproportionate sample for the MAPS™ study, the sample is structured as follows, taking into account the multi-stage stratified sampling approach:

- a) **50% metro area EAs**
- b) **30% large, medium and small urban EAs**
- c) **20% rural EAs**

A disproportionate stratified sample was applied in order to boost samples in urban and metro areas.

Weighting, Benchmarking and Weighting Efficiency

Weighting of the data is conducted before data is analysed. Firstly, during the sampling of EAs, sampling weights are automatically generated (base weights). These EA weights assume that all the sampled EAs will be visited and will participate. However, not all sampled EAs are realised. Due to this, an adjustment is computed to adjust the base weights to correct for the non-realisation of some of the EAs to compute an EA weight.



A total of eight visiting points is visited within each EA. Using the estimated total number of households within each EA, a sampling weight of household is computed as the inverse of the sampling probability of 8 households within each EA. The final household weight is computed as the product of the EA weight and the sampling weight 8 households within each EA.

The individuals within each household also have unequal sampling probabilities. An individual weight is computed as the inverse of the ratio of the number of individuals targeted within each household and the total number of eligible people within each household. The product of this weight and the household weight yields an individual weight.

These weights are based on the sample data. The final step is to benchmark these weights to the population of reference. The StatsSA mid-year population estimates are used for this benchmarking process. StatsSA does not provide mid-year for the metro:urban:rural split and so a demographer from AfricaScope estimates the split as well the racial distribution per province which are critical in the benchmarking process. The benchmarking process is conducted in STATA software. Benchmarked weights for individuals are computed using age, sex, race, province, geotype and banking status as the population totals for benchmarking. The banked base is benchmarked against the Finscope. FinScope, a FinMark Trust initiative, is the most comprehensive national household survey focused on the financial services needs and usage across the entire South African population. This process adjusts the sample distribution to the population of reference to produce benchmarked individual weight that adds to the total population of reference.

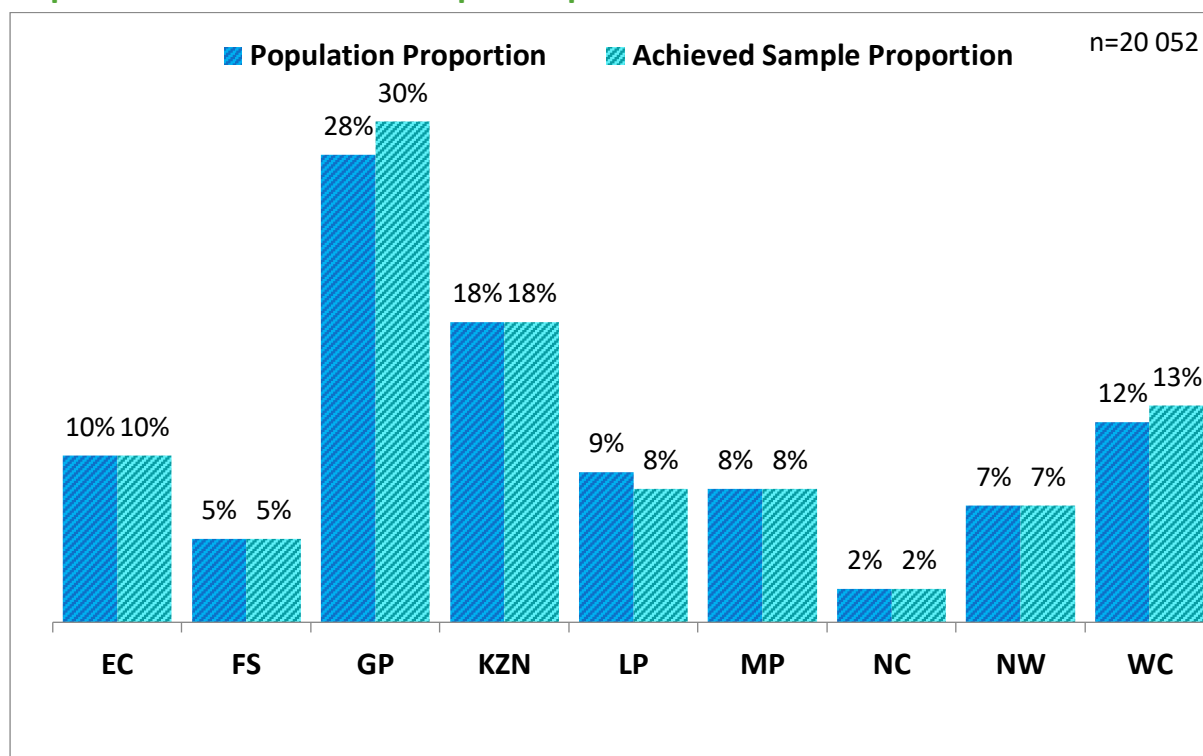
Finally, benchmarking using population totals of households by province is conducted to provide benchmarked household weights.

The amount of correction needed to match the population profile is measured inversely using the weighting efficiency score which ranges from 0 to 100%. A low efficiency score indicates a sample that poorly represents the population. A weighting efficiency of at least 70% indicates that the sample design is balanced and safe to apply.

Province	Achieved individual weighting efficiency (%)	Achieved household weighting efficiency (%)
Eastern Cape	78%	86%
Free State	73%	86%
Gauteng	79%	75%
KwaZulu-Natal	67%	61%
Limpopo	70%	84%
Mpumalanga	71%	73%
North West	65%	79%
Northern Cape	73%	88%
Western Cape	73%	78%
Overall	73%	75%



Population vs. Achieved Sample Proportions



National Sample Profile

	January to December 2021 [Unweighted Data]								Total
	Jan – Mar '21	%	Apr – Jun '21	%	Jul – Sept '21	%	Oct – Dec '21	%	
Total	5016	25%	5009	25%	5016	25%	5011	25%	20052
Female	2676	53%	2795	56%	2691	54%	2557	51%	10719
Male	2340	47%	2214	44%	2325	46%	2454	49%	9333
Black	3893	78%	3976	79%	3872	77%	3780	75%	15521
White	578	12%	525	11%	600	12%	640	13%	2343
Indian/Asian	107	2%	102	2%	91	2%	144	3%	444
Coloured	438	9%	406	8%	453	9%	447	9%	1744
15 – 24	1524	31%	1513	30%	1448	29%	1082	22%	5567
25 – 34	1457	29%	1556	31%	1581	32%	1689	34%	6283
35 – 44	950	19%	934	19%	954	19%	1037	21%	3875
45 – 54	506	10%	496	10%	467	9%	577	11%	2046
55 – 64	340	7%	302	6%	359	7%	404	8%	1405
65 – 74	160	3%	146	3%	153	3%	157	3%	616
75+	46	1%	42	1%	46	1%	60	1%	194
Refused	33		20		8		5		66

Sample Profile [Eastern Cape]

	January to December 2021 [Unweighted Data]								Total
	Jan – Mar '21	%	Apr – Jun '21	%	Jul – Sept '21	%	Oct – Dec '21	%	
Total	512	26%	464	23%	504	26%	492	25%	1972
Female	291	57%	304	66%	326	65%	254	52%	1175
Male	221	43%	160	34%	178	35%	238	48%	797
Black	444	87%	411	89%	412	82%	397	81%	1664
White	32	6%	22	5%	43	9%	50	10%	147
Indian/Asian	0	0%	1	0%	1	0%	0	0%	2
Coloured	36	7%	30	6%	48	9%	45	9%	159
15 – 24	138	27%	115	25%	134	27%	123	25%	510
25 – 34	133	26%	122	26%	132	26%	114	23%	501
35 – 44	95	19%	94	20%	91	18%	88	18%	368
45 – 54	62	12%	51	11%	58	11%	71	14%	242
55 – 64	45	9%	49	11%	51	10%	55	11%	200
65 – 74	28	5%	29	6%	28	6%	27	6%	112
75+	10	2%	3	1%	9	2%	14	3%	36
Refused	1		1		1		0		3

Sample Profile [Free State]

	January to December 2021 [Unweighted Data]								Total
	Jan – Mar '21	%	Apr – Jun '21	%	Jul – Sept '21	%	Oct – Dec '21	%	
Total	280	26%	264	24%	288	26%	256	24%	1088
Female	154	55%	139	53%	148	51%	128	50%	569
Male	126	45%	125	47%	140	49%	128	50%	519
Black	218	78%	231	88%	248	86%	232	91%	929
White	48	17%	24	9%	39	14%	24	9%	135
Indian/Asian	0	0%	0	0%	0	0%	0	0%	0
Coloured	14	5%	9	3%	1	0%	0	0%	24
15 – 24	56	20%	74	28%	86	30%	73	29%	289
25 – 34	79	28%	81	31%	95	33%	85	33%	340
35 – 44	71	25%	56	21%	48	17%	53	21%	228
45 – 54	35	13%	26	10%	34	12%	21	8%	116
55 – 64	25	9%	17	6%	18	6%	17	7%	77
65 – 74	8	3%	7	3%	4	1%	3	1%	22
75+	6	2%	3	1%	3	1%	3	1%	15
Refused	0		0		0		1		1

Sample Profile [Gauteng]

	January to December 2021 [Unweighted Data]								Total
	Jan – Mar '21	%	Apr – Jun '21	%	Jul – Sept '21	%	Oct – Dec '21	%	
Total	1432	24%	1520	26%	1488	25%	1487	25%	5927
Female	733	51%	807	53%	808	54%	746	50%	3094
Male	699	49%	713	47%	680	46%	741	50%	2833
Black	1113	78%	1215	80%	1190	80%	1122	75%	4640
White	268	19%	249	16%	233	16%	297	20%	1047
Indian/Asian	8	1%	11	1%	22	1%	26	2%	67
Coloured	43	3%	45	3%	43	3%	42	3%	173
15 – 24	429	30%	509	33%	461	31%	220	15%	1619
25 – 34	460	32%	495	33%	521	35%	591	40%	2067
35 – 44	293	21%	273	18%	262	18%	312	21%	1140
45 – 54	133	9%	146	10%	127	9%	179	12%	585
55 – 64	88	6%	66	4%	81	5%	122	8%	357
65 – 74	18	1%	20	1%	29	2%	55	4%	122
75+	9	1%	11	1%	6	0%	8	0%	34
Refused	2		0		1		0		3

Sample Profile [KwaZulu-Natal]

	January to December 2021 [Unweighted Data]								Total
	Jan – Mar '21	%	Apr – Jun '21	%	Jul – Sept '21	%	Oct – Dec '21	%	
Total	888	24%	944	26%	912	25%	904	25%	3648
Female	469	53%	508	54%	462	51%	458	51%	1897
Male	419	47%	436	46%	450	49%	446	49%	1751
Black	738	83%	782	83%	751	82%	723	80%	2994
White	41	5%	68	7%	83	9%	53	6%	245
Indian/Asian	90	10%	90	10%	65	7%	116	13%	361
Coloured	19	2%	4	0%	13	1%	12	1%	48
15 – 24	193	22%	208	22%	220	24%	221	24%	842
25 – 34	284	32%	322	34%	280	31%	258	29%	1144
35 – 44	167	19%	178	19%	197	22%	196	22%	738
45 – 54	112	13%	112	12%	94	10%	109	12%	427
55 – 64	67	8%	76	8%	75	8%	81	9%	299
65 – 74	50	6%	38	4%	35	4%	28	3%	151
75+	4	0%	7	1%	11	1%	10	1%	32
Refused	11		3		0		1		15

Sample Profile [Limpopo]

	January to December 2021 [Unweighted Data]								Total
	Jan – Mar '21	%	Apr – Jun '21	%	Jul – Sept '21	%	Oct – Dec '21	%	
Total	392	24%	414	25%	408	25%	416	26%	1630
Female	229	58%	252	61%	219	54%	208	50%	908
Male	163	42%	162	39%	189	46%	208	50%	722
Black	392	100%	414	100%	382	94%	408	98%	1596
White	0	0%	0	0%	15	4%	8	2%	23
Indian/Asian	0	0%	0	0%	1	0%	0	0%	1
Coloured	0	0%	0	0%	10	2%	0	0%	10
15 – 24	83	21%	113	27%	97	24%	61	15%	354
25 – 34	120	31%	137	33%	148	36%	172	41%	577
35 – 44	77	20%	81	20%	60	15%	98	24%	316
45 – 54	51	13%	38	9%	31	8%	38	9%	158
55 – 64	36	9%	23	6%	43	10%	34	8%	136
65 – 74	20	5%	16	4%	20	5%	7	2%	63
75+	5	1%	6	1%	9	2%	5	1%	25
Refused	0		0		0		1		1

Sample Profile [Mpumalanga]

	January to December 2021 [Unweighted Data]								Total
	Jan – Mar '21	%	Apr – Jun '21	%	Jul – Sept '21	%	Oct – Dec '21	%	
Total	400	26%	388	25%	360	24%	384	25%	1532
Female	208	52%	213	55%	189	52%	197	51%	807
Male	192	48%	175	45%	171	48%	187	49%	725
Black	375	94%	371	96%	350	97%	328	85%	1424
White	16	4%	8	2%	9	3%	48	13%	81
Indian/Asian	8	2%	0	0%	1	0%	0	0%	9
Coloured	1	0%	9	2%	0	0%	8	2%	18
15 – 24	100	25%	76	20%	88	24%	90	23%	354
25 – 34	132	33%	115	30%	105	29%	115	30%	467
35 – 44	73	18%	74	19%	77	21%	72	19%	296
45 – 54	50	13%	61	16%	40	11%	48	13%	199
55 – 64	28	7%	32	8%	34	9%	32	8%	126
65 – 74	12	3%	20	5%	14	4%	17	4%	63
75+	5	1%	10	3%	2	1%	10	3%	27
Refused	0		0		0		0		0

Sample Profile [Northern Cape]

	January to December 2021 [Unweighted Data]								Total
	Jan – Mar '21	%	Apr – Jun '21	%	Jul – Sept '21	%	Oct – Dec '21	%	
Total	80	21%	103	27%	96	26%	96	26%	375
Female	42	52%	56	54%	53	55%	51	53%	202
Male	38	48%	47	46%	43	45%	45	47%	173
Black	36	45%	53	51%	51	53%	37	39%	177
White	0	0%	8	8%	0	0%	6	6%	14
Indian/Asian	0	0%	0	0%	0	0%	0	0%	0
Coloured	44	55%	42	41%	45	47%	53	55%	184
15 – 24	11	15%	8	8%	13	14%	17	18%	49
25 – 34	21	28%	36	36%	31	32%	36	38%	124
35 – 44	16	22%	35	35%	35	36%	23	24%	109
45 – 54	15	20%	13	13%	10	10%	14	15%	52
55 – 64	4	5%	5	5%	4	4%	4	4%	17
65 – 74	5	7%	4	4%	2	2%	1	1%	12
75+	2	3%	0	0%	1	1%	1	1%	4
Refused	6		2		0		0		8

Sample Profile [North West]

	January to December 2021 [Unweighted Data]								Total
	Jan – Mar '21	%	Apr – Jun '21	%	Jul – Sept '21	%	Oct – Dec '21	%	
Total	344	26%	312	24%	336	25%	328	25%	1320
Female	165	48%	151	48%	161	48%	175	53%	652
Male	179	52%	161	52%	175	52%	153	47%	668
Black	335	97%	289	93%	313	93%	305	93%	94%
White	2	1%	20	6%	23	7%	23	7%	5%
Indian/Asian	0	0%	0	0%	0	0%	0	0%	0%
Coloured	7	2%	3	1%	0	0%	0	0%	1%
15 – 24	99	30%	77	26%	89	27%	65	20%	330
25 – 34	96	29%	117	39%	105	32%	102	31%	420
35 – 44	77	23%	60	20%	70	21%	93	29%	300
45 – 54	21	6%	26	9%	26	8%	30	9%	103
55 – 64	23	7%	12	4%	24	7%	22	7%	81
65 – 74	13	4%	7	2%	12	4%	9	3%	41
75+	3	1%	0	0%	4	1%	5	2%	12
Refused	12		13		6		2		33

Sample Profile [Western Cape]

	January to December 2021 [Unweighted Data]								Total
	Jan – Mar '21	%	Apr – Jun '21	%	Jul – Sept '21	%	Oct – Dec '21	%	
Total	688	27%	600	23%	624	24%	648	25%	2560
Female	385	56%	365	61%	325	52%	340	52%	1415
Male	303	44%	235	39%	299	48%	308	48%	1145
Black	242	35%	210	35%	175	28%	228	35%	855
White	171	25%	126	21%	155	25%	131	20%	583
Indian/Asian	1	0%	0	0%	1	0%	2	0%	4
Coloured	274	40%	264	44%	293	47%	287	44%	1118
15 – 24	415	60%	333	56%	260	42%	212	33%	1220
25 – 34	132	19%	131	22%	164	26%	216	33%	643
35 – 44	81	12%	83	14%	114	18%	102	16%	380
45 – 54	27	4%	23	4%	47	8%	67	10%	164
55 – 64	24	3%	22	4%	29	5%	37	6%	112
65 – 74	6	1%	5	1%	9	1%	10	2%	30
75+	2	0%	2	0%	1	0%	4	1%	9
Refused	1		1		0		0		2

Achieved Sample: Interviews

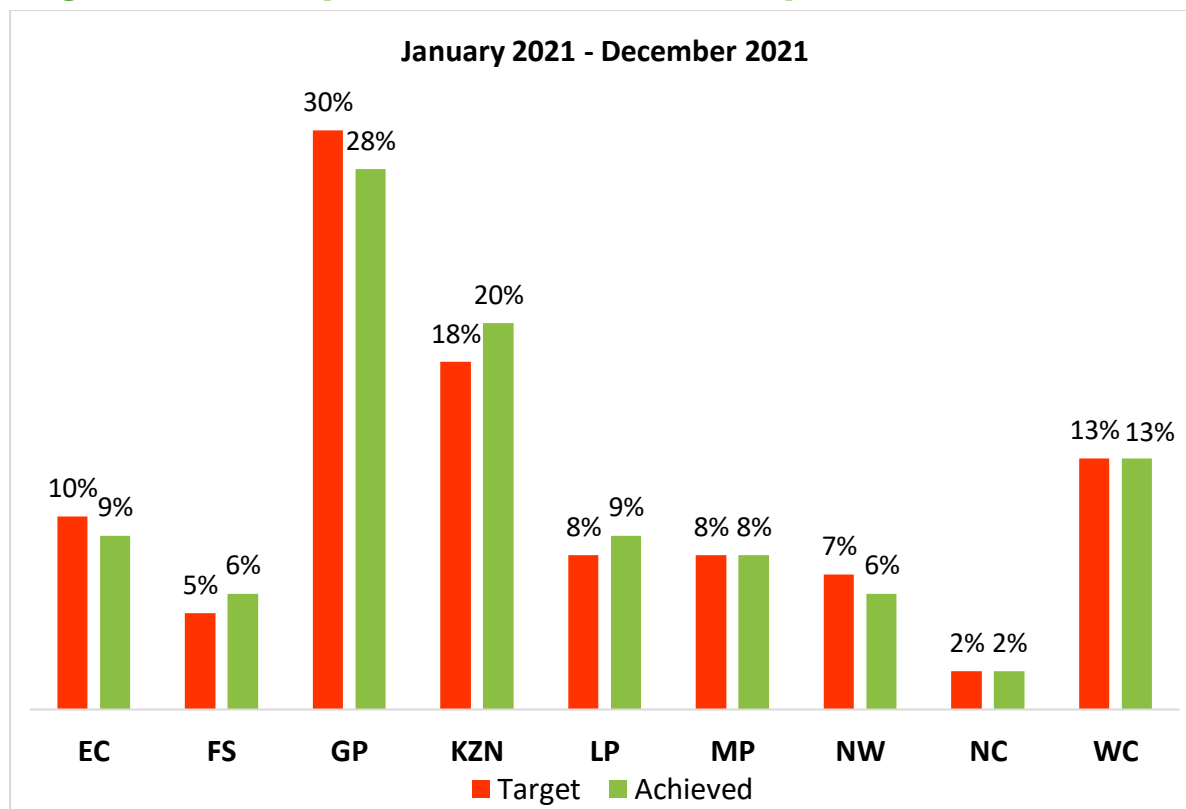
Province	January – December 2021		
	Target Sample 	Achieved Sample 	Variance 
Eastern Cape	1967	1972	0%
Free State	1086	1088	0%
Gauteng	5913	5927	0%
KwaZulu-Natal	3639	3648	0%
Limpopo	1626	1630	0%
Mpumalanga	1528	1532	0%
North West	1317	1320	0%
Northern Cape	374	375	0%
Western Cape	2554	2560	0%
Total	20004	20 052	

There was no variance between the target and achieved sample proportions across all provinces. Note that the variance is obtained as follows: For example, for Eastern Cape = Achieved sample % - Target sample % = $[(1972/20\ 052) - (1967/20\ 004)] \times 100\%$.

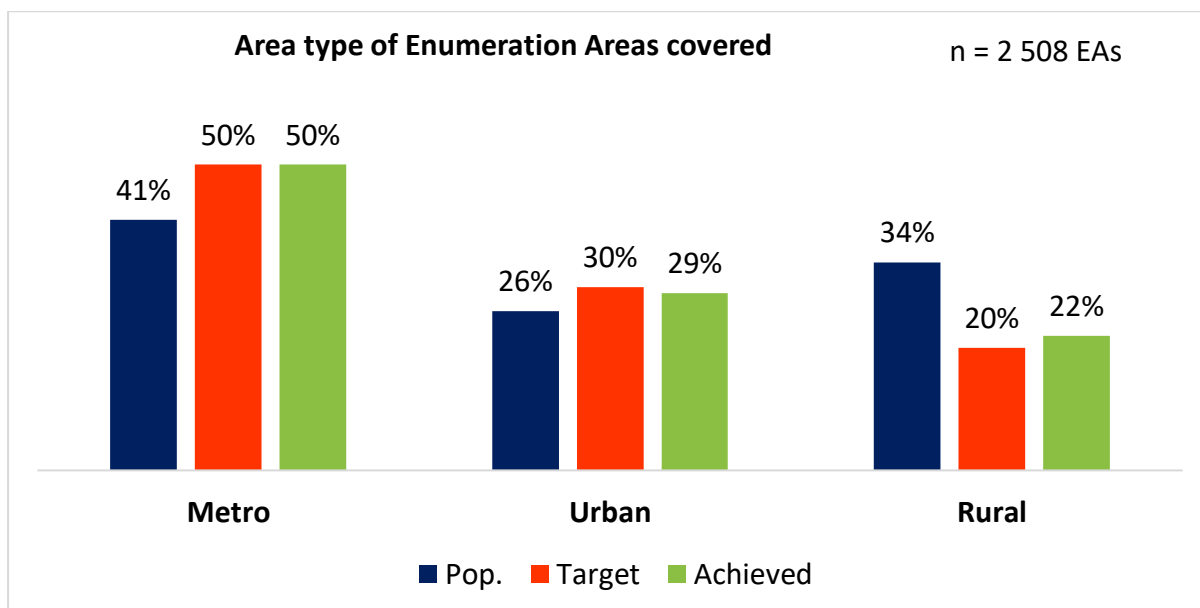
Achieved Sample: Leave Behind Questionnaires

Province	January – December 2021				
	Target 	No. of paper leave behind questionnaires collected and processed 	No. of online leave behind questionnaires submitted 	Total number of leave behind questionnaires collected 	Variance 
Eastern Cape	984	969	46	1015	-0.72%
Free State	543	605	8	613	+0.08%
Gauteng	2956	2947	178	3125	-1.49%
KwaZulu-Natal	1820	2103	155	2258	+2.08%
Limpopo	813	917	64	981	+0.68%
Mpumalanga	764	817	34	851	+0.00%
North West	658	611	20	631	-0.91%
Northern Cape	187	183	3	186	-0.20%
Western Cape	1277	1377	99	1476	+0.49%
Total	10002	10529	607	11136	

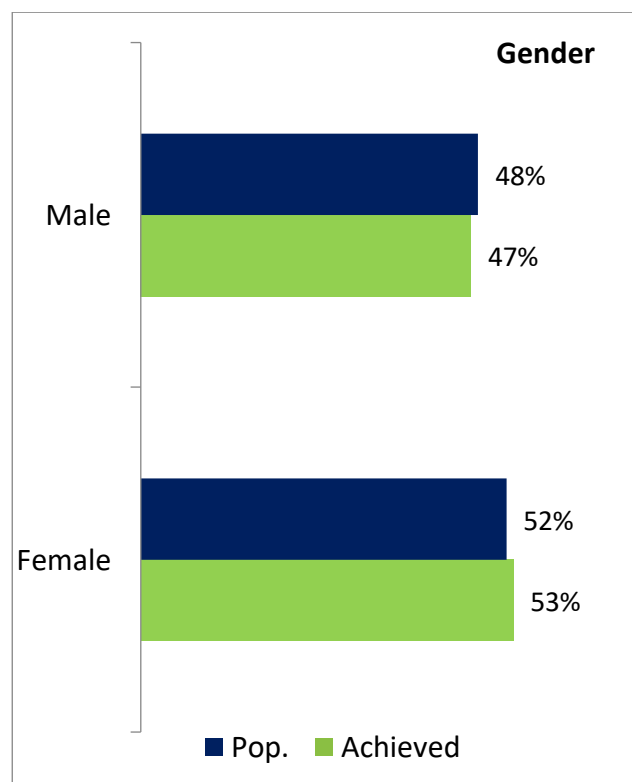
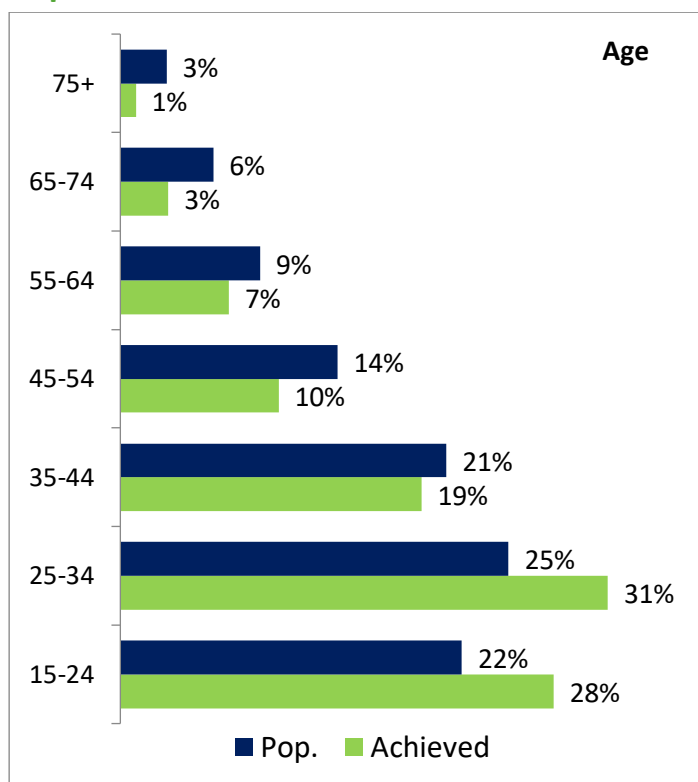
Target vs. Achieved [Leave Behind Questionnaires]



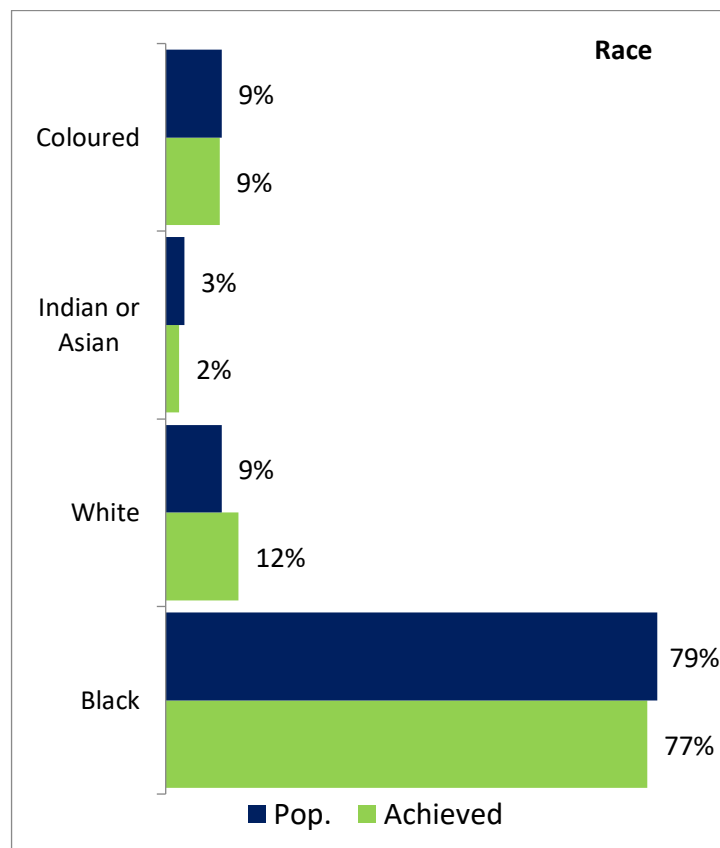
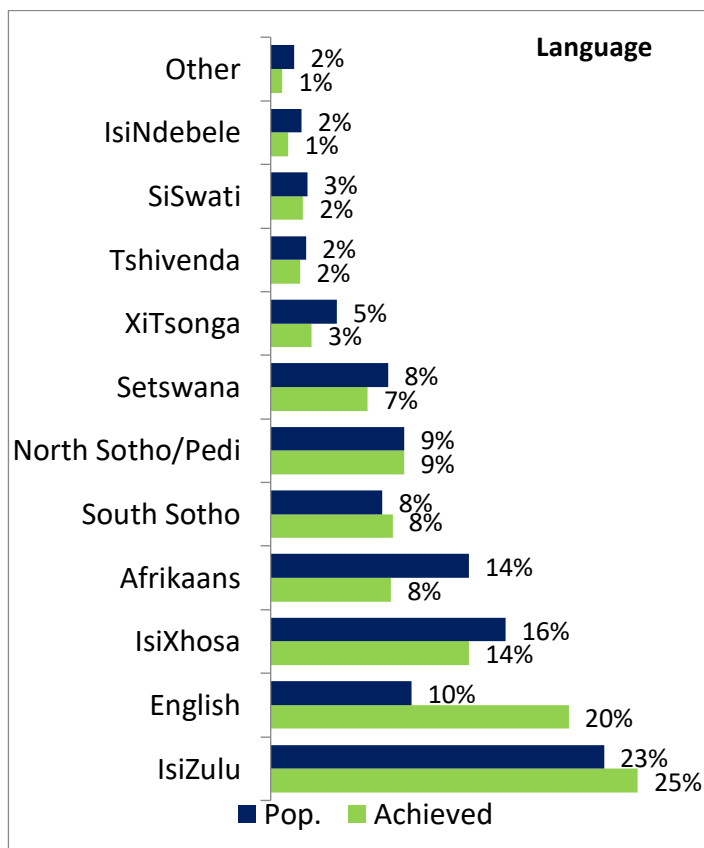
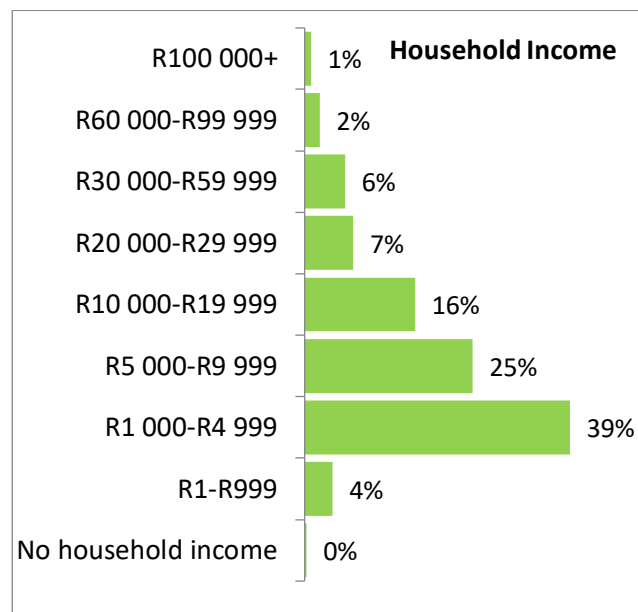
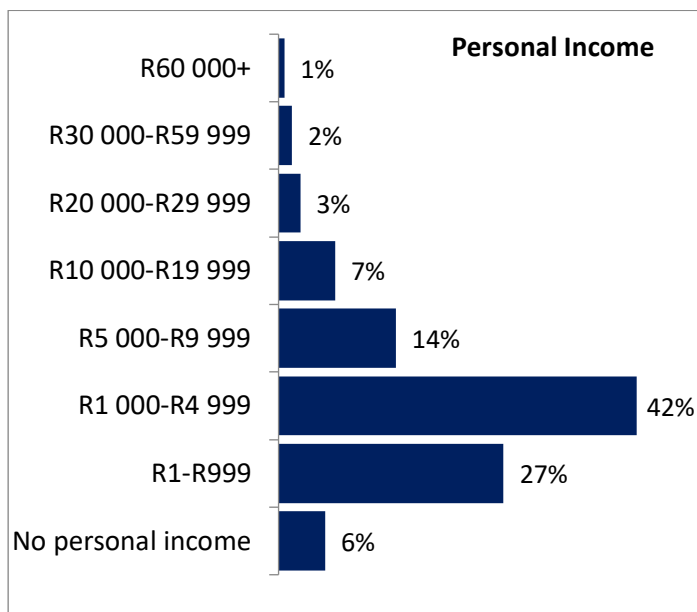
Area Distribution

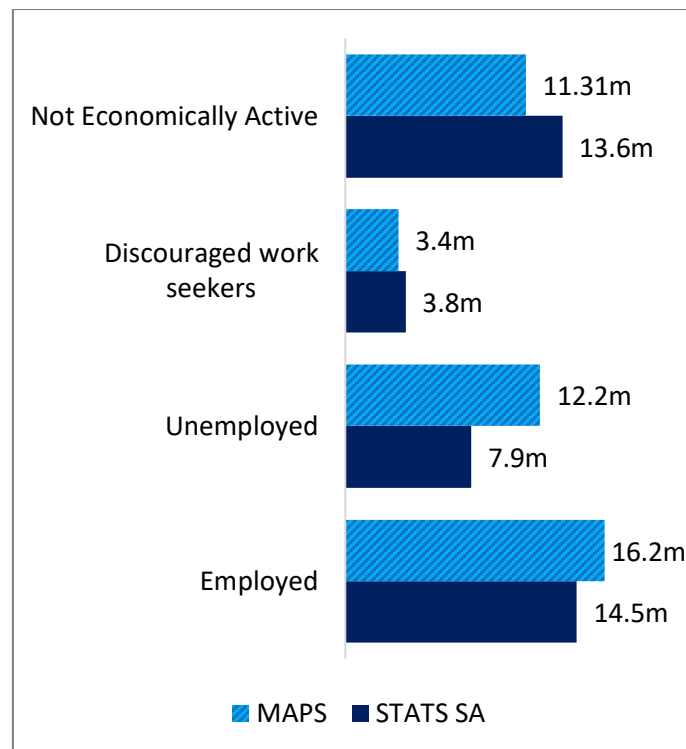
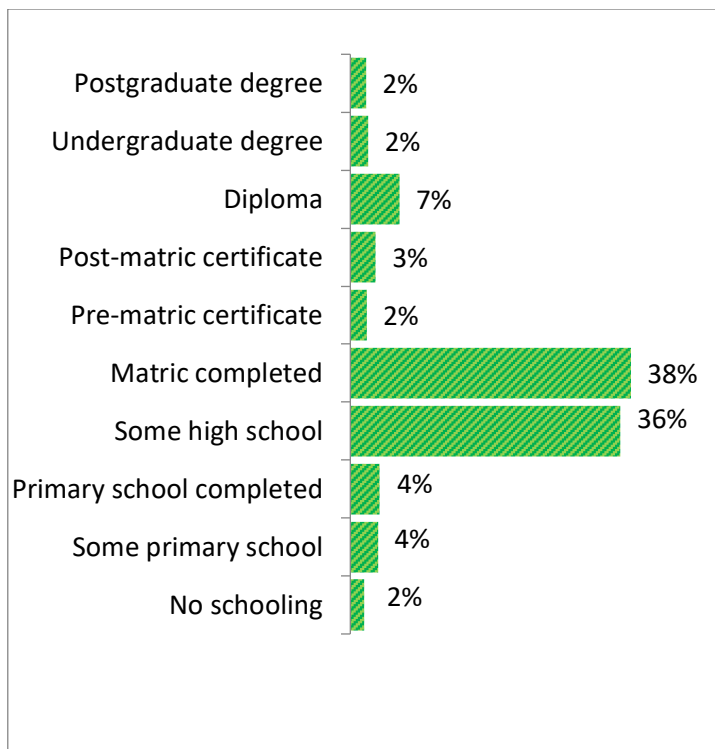


Respondent Profiles



Source: Statistics South Africa 2021 Mid-year Estimates [15+ years]







Section C:

Fieldwork



Section C: Fieldwork

6.0 Fieldwork

The Interview

In the event of a multi household interview point, the Kish grid is utilised to determine which household will be interviewed. After selection of the household to be interviewed, the number of adult males or females in the household who are 15 years and older, are determined to enable random selection of the individual to be interviewed. The Kish grid is once again utilised to randomly select the individual to be interviewed. Once the interview is completed, respondents are asked to complete a self-completion/leave behind questionnaire.

In rural areas, interviewers with knowledge of the language and customs of the local population are used and arrangements are made with the chief/headman in charge of areas where interviews must be done before working in the areas.

Two research instruments were used for the MAPS™ study:

- Face-to-face questionnaire; and
- Leave behind questionnaire.

The average interview length for the face-to-face questionnaire was between 55 and 60 minutes. Respondents were given between 3 and 5 days to fill in the leave behind questionnaire. Tablet-Assisted Personal Interviewing (TAPI) was utilised for the face-to-face interviews whereas Paper-Assisted Personal Interviewing (PAPI) and Computer-Assisted Web Interviewing (CAWI) methods were employed for the leave behind questionnaire.

Both the questionnaires are provided in the Appendix of this Technical Report.

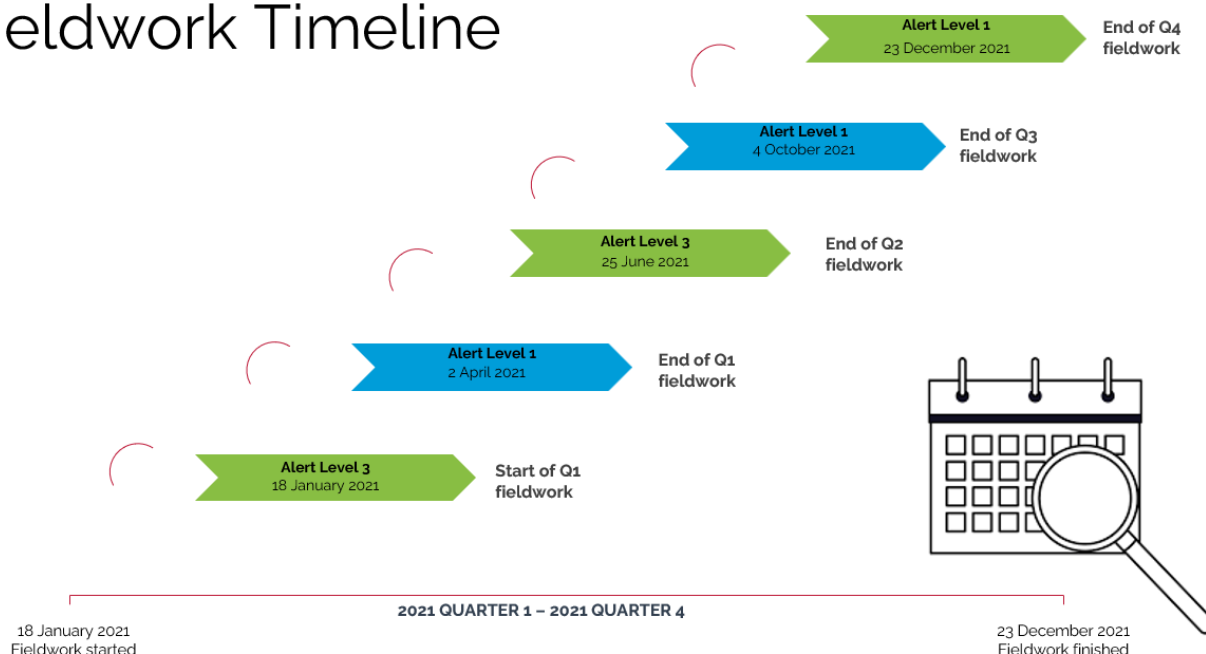
Fieldwork Summary

Fieldwork for the MAPS™ 2021 study began on the 18th of January 2021 and came to an end on the 23rd of December 2021. Data collection took place when the country was under various COVID-19 adjusted alert levels (please see below).

ADJUSTED ALERT LEVEL	MAPS FIELDWORK PERIOD [2021]
3	18 January – 28 February 2021
1	1 March – 30 May 2021
2	31 May – 15 June 2021
3	16 – 27 June 2021
4	28 June – 25 July 2021
3	26 July – 12 September 2021
2	13 – 30 September 2021
1	1 October – 23 December 2021



Fieldwork Timeline



The specific start and end dates of each quarter of 2021 of MAPS™ are shown below:

18 January – 23 December 2021	
Quarter	Period
1	18 January – 2 April 2021
2	13 April – 25 June 2021
3	17 July – 4 October 2021
4	6 October – 23 December 2021

2021 MAPS™ Timeline

Consideration Area	What went right
Interviewers	A total of 102 interviewers took part in the data collection process during the fieldwork period of January to December 2021. Every interviewer was equipped with an Android tablet, GPS watch, enumeration area maps (paper and soft copies), leave-behind questionnaires in paper format and MAPS™ showcards for the face-to-face questionnaire. Where clarity and guidance were sought, field supervisors and field operations executives were always at the interviewers' disposal. Experience and exposure gained by fieldworkers during the first year of MAPS [July 2020 – June 2021] significantly contributed to the improvement in the quality of data observed in the third and fourth quarter of 2021. No new interviewers were recruited for the MAPS study during 2021 since Plus 94 Research was able to retain about 80% of the interviewers from year 1 of the MAPS™ study. The minimum academic qualification possessed by fieldworkers is matric and almost a quarter of them hold a tertiary education qualification. About half of the fieldworkers have been with Plus 94 Research for at least

	two years and have worked in different market research studies. In addition to vast fieldwork experience, their insider cultural knowledge and fluency in South African local languages remain instrumental in the data collection process that engages with respondents from diverse ethnic backgrounds.
Interviewer debriefing sessions	At the end of every quarter, the project management team conducted debriefing sessions in order to highlight areas of improvement and provide feedback on progress made on data quality. The regular sessions did not only help equip the fieldworkers but significantly enhanced the quality of the MAPS™ data (there were noticeable differences between 2020 and 2021 data with respect to quality).
Sampling	All area types [metro, urban and rural] were considered by the consultant statistician [Professor Khangelani Zuma] who implemented the agreed sampling procedure with MRF. A total of 2508 EAs (627 EAs per quarter) spread across SA's nine provinces were made use of in collecting data. All the races were constituents of the final respondent sample. Demographic characteristics observed across all four quarters were largely the same.
Targets (face-to-face and leave behind questionnaires)	Despite the numerous challenges experienced (negative after-effects of the Gauteng and KwaZulu Natal July 2021 civil unrest, crime, bad weather, poor road infrastructure and respondent refusals in some instances) set targets for both face-to-face and leave-behind questionnaires were exceeded [20052 face-to-face interviews and 11136 leave-behind questionnaires, whereas in a year, the MRF expects Plus 94 Research to obtain 20004 face-to-face interviews and 10002 leave behind questionnaires].
Comprehensive coverage of topics	Both the MAPS research instruments are generally exhaustive as they cover a wide range of topics related to consumer behaviour. However, there is need to improve the design of some questions so that all respondents can provide accurate responses. For example, having access to WhatsApp does not imply access to internet based on the perceptions of some of the respondents. There is a possibility that there are a few respondents that assume that an "electric stove" is the same as a "hotplate stove." The term "cosmetics" is not inclusive of products such as body lotion according to some respondents. A few of the terms used in the research instruments may need to be simplified further for the benefit of respondents, for example "white goods".
Comprehension of questions	Face-to-face questionnaire – Excellent respondent comprehension Leave behind questionnaire – Fairly good
Translations	The MAPS face-to-face interview is provided in seven languages [English, isiZulu, Setswana, South Sotho, Afrikaans, Tshivenda and isiXhosa. The MAPS leave behind questionnaire is only offered in English language.
Research instruments	Changes and additions were made to the research instruments (face-to-face and leave behind questionnaires) in consultation with the MRF research committee in January and June 2021 respectively. It is anticipated that the additions made will immensely add value to the survey. Previously, there was no content on cannabis use, internet service providers, household expenditure on data, consumer behaviour in different online retail outlets, wide range of footwear categories for all age groups etc. Interviewers were quick to grasp the questionnaire revisions during a debriefing session which was held prior to the commencement of fieldwork. Respondents generally found the

	questionnaires' content easy to comprehend, especially the face-to-face script that is offered in multiple languages.
Data Fusion	The data fusion process remains an integral part of MAPS since the study's inception in July 2020. With the use of several hooks [demographic and behavioural variables], leave behind questionnaire data for respondents who do not opt to complete the research instrument is generated in a scientific and objective manner. During each cycle or quarter, approximately half of the leave behind questionnaires are generated via the data fusion process. About 44% [8916 out of 20052] of the leave-behind questionnaire data were generated using the data fusion process for the 2021 period.
Incentives	The use of cash incentives for both the interviewers and respondents continues to significantly help increase the response rates for the leave behind questionnaire. Incentives are only provided if the submitted self-administered questionnaire satisfies the set standards with respect to completeness and accuracy. These incentives mainly attract survey participants residing in rural and lower income areas.
Health and Safety	Fieldwork for 2021 was conducted under adjusted lockdown levels 1, 2, 3 and 4 related to the COVID-19 pandemic. The lockdown restrictions and regulations experienced in 2021 were much more flexible compared to when MAPS™ started in July 2020. For example, it was mandatory for the interviewers to secure work permits under lockdown level 5 and curfews were in place then. In 2021 respondents were more willing to participate in the face-to-face interviews as the fear and tension surrounding the COVID-19 pandemic had subsided. Plus 94 Research ensured that all interviewers made use of sanitisers and personal protective equipment such as face masks and shields. In instances where respondents did not have their own face masks, interviewers handed out free masks to them. However, during the last quarter of 2021 it was becoming increasingly difficult to convince respondents to put on masks during the interviews. However, interviewers kept on observing all the COVID-19 health protocols even though there was lack of cooperation from some of the respondents. It was also crucial for them not to let their guard down as that was period when the Omnicron variant became prevalent with the country officially entering its fourth wave on the 1 st of December 2021.

Consideration Area	What went wrong
Online diary uptake	Approximately 5% (607 out of 11136) of the leave-behind questionnaires (diaries) were collected from the online platform in 2021. There was no improvement from the online diary output that was obtained in 2020. The major factors contributing to this problem were poor internet connectivity and lack of smart devices. To encourage the online diary participation, Plus 94 Research offered data to every respondent that chose to use the online platform. Online diary progress was remotely tracked and where slow progress was observed, interviewers based at the Plus 94 Research call centres got hold of such respondents in order to provide the necessary support.
Sampling	The 50:30:20 area type ratio (i.e., the metro, urban and rural EA sample ratio) was not entirely met during the 2021 fieldwork period. The urban EA sample was under by 1.4%

	whereas the rural EA sample was over by 1.6%. An oversight was made in classifying the area types during the sampling process which was carried out by the consultant statistician. On the other hand, the data which was collected seemed to suggest that not all interviewers were strictly following the Kish grid system in selecting the survey respondents and as a result the gathered data was heavily skewed towards the youth that were aged between 15 and 34 years with much older age groups suffering from underrepresentation.
--	--

External variables brought to bear on the project

Variable	How ameliorated
Crime	Fieldworkers are expected to be out of field by 6:30pm every day for their safety. In every enumeration area visited, interviewers are recommended to work in pairs. EA substitution is considered in extreme cases to avoid putting the lives of fieldworkers in danger.
Poor road infrastructure	In remote parts of South Africa, adequate fieldwork time is allocated to areas that have badly damaged roads/rough terrain. EA substitution is considered in extreme cases.
Poor network	In instances where it is not possible to use the GPS service due to poor network issues, EA maps in paper format are used to locate pre-specified interview points. Leave behind questionnaire respondents use the paper and pencil method instead of the online platform in areas that generally experience poor network.
Riots/protests	EAs affected by riots/protests are avoided until they are over. If protests take much longer than what the project timeline can accommodate, EA substitution is considered.
Bad weather	If there is enough time, fieldwork is temporarily suspended in EAs affected by bad weather. Additional staff (fieldworkers) are sought for the project if there are time constraints caused by bad weather.
Gated communities	Where possible, Plus 94 Research establishes relationships with homeowners' associations in order to gain access to gated communities. Where EA refusals are encountered and there is no relationship with the homeowners' association, EA substitution is considered.



Section D:

Analysis and Results



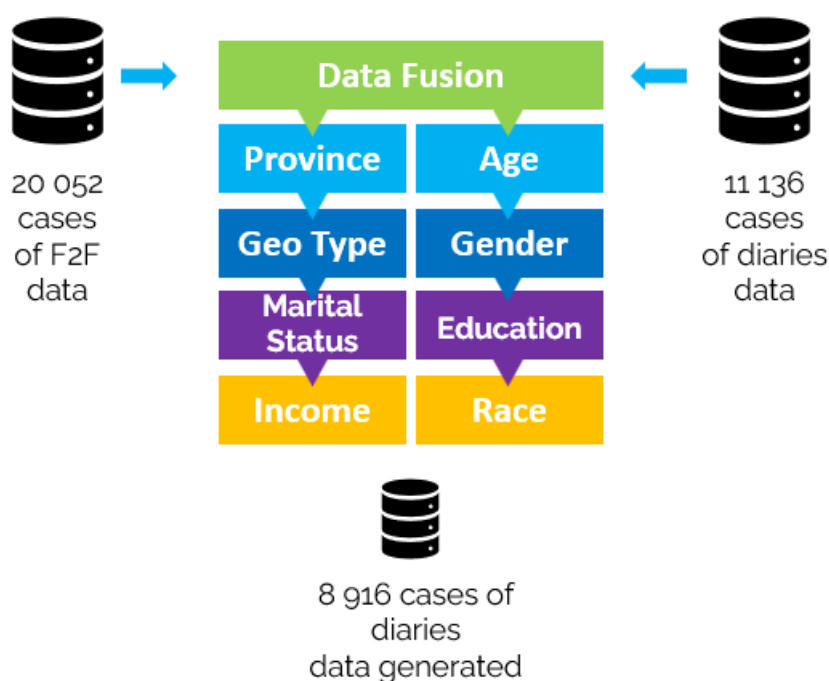
Section D: Analysis and Results

7.0 Analysis and Results

Data analysts, processors and project managers constantly scrutinised and cleaned the data collected during the first year of MAPS™ to ensure the integrity of the data and results.

Data Fusion

All 20052 respondents completed a face-to-face questionnaire. Half of them were expected to complete the leave behind questionnaire. A total of 11136 respondents successfully completed the leave behind questionnaire. For the 8916 respondents who did not complete the self-completion instrument, their non-available data was obtained through integrating the face-to-face interviews data with the leave behind questionnaire data. A number of hooks were considered in fusing data; these included behavioural ones, but most were demographic variables.



Substitution

In cases where the selected respondent was unavailable, and after a total of three visits at different times of the day, substitution of the interview point would occur. In order to reduce substitution rates, the interviewer would take the contact details of the selected respondent in a household and phone to make an appointment. The interview would be scheduled at a time that best suited the respondent.

Each household replacement/substitution was approved by field supervisors in order to avoid interviewer bias. The project manager was responsible for approving all EA replacements. Each interviewer's work was analysed for any patterns in the number of refusals and successful interviews. The substitution details for the MAPS™ 2021 survey are shown below:

Reason for replacement	Number of households
Refused	260
House inaccessible (gated communities and farms)	81
Nobody home (after 2 call-backs)	160
EA inaccessible	1312 (164 EAs)
Other	66
Total	1879

The overall household substitution rate for 2021 was 9% which is considered low for the broad scope of the survey.

Backchecking

At least a quarter of each interviewer's work was backchecked to verify the quality and legitimacy of key data collected for the MAPS™ study. Throughout the duration of the fieldwork, the Plus 94 Research call centre based backcheck team returns to a randomly chosen sub-sample of respondents. A smaller set of questions from the face-to-face questionnaire is used for the backcheck survey. The backchecking exercise enables Plus 94 Research to modify certain aspects of the data collection in order to improve data quality. A total of **4614** respondents confirmed that the interviews had taken place and the information provided was correct.

8.0 Segmentation

Segmentation tools assist in grouping together "like" people in order to establish a brand's relative potential in the marketplace. They enable the marketing and advertising industries to trend changes in the identified segments over time. The MAPS™ study offers a number of market segmentation tools in the analysis of the collected data. These are the Living Standards Measure (LSM), Socio-Economic Measure (SEM), Generations, Lifestages and Media Intensity Usage.

Socio-Economic Measure (SEM)

The SEM 2018 algorithm where each respondent is assigned a score that ranges from 0 to 100 was used to define the SEM segmentation. Ten segments were developed based on the input variables shown below:

Variable no.	Attribute	MAPS™ question no.
1	Built-in kitchen sink	H8
2	Tap water inside your home, or store-bought water for use in your home	H6A
3	Hot running water from a geyser	H6
4	Flush toilet in/outside house	H7
5	Home security service	H12A
6	Motor car	G1
7	Fridge or combined fridge/freezer	141a
8	Side-by-side fridge and freezer	141a
9	Deep freezer – free standing	141a
10	Microwave oven	141a
11	Floor polisher or vacuum cleaner	141a
12	Washing machine	141a
13	Roof tiles or concrete roofing	P1
14	None, earth or dung flooring	P2
15	Cement, concrete or raw wood flooring	P2
16	Finished floor with parquet, carpet, tiles, or ceramic flooring	P2
17	None or one sleeping room	P3
18	Two sleeping rooms	P3
19	Three or more sleeping rooms	P3
20	A post office near where you live	P4
21	A police station near where you live	P4

9.0 Living Standards Measure (LSM)

“The SAARF LSM (Living Standards Measure) divides the population into 10 LSM groups: 10 (highest) to 1 (lowest). It cuts across race and other outmoded techniques of categorising people, and instead groups people according to their living standards using criteria such as degree of urbanisation and ownership of cars and major appliances” (*Source: www.saarf.co.za*).

The LSM indicator variables that were used in the analysis of MAPS™ data are shown below:

Variable no.	Attribute	MAPS™ question no.
1	Hot running water from a geyser	H6
2	Computer – Desktop/Laptop	FQ2
3	Electric stove	141a
4	Number of domestic workers or household helpers in household (this includes live-in and part-time domestics and gardeners)	R23
5	0 or 1 radio set in household	FQ2
6	Flush toilet in/outside house	H7
7	Motor vehicle in household	G1
8	Washing machine	141a
9	Refrigerator or combined fridge/freezer	141a

10	Vacuum cleaner/floor polisher	141a
11	Pay TV subscription	C3
12	Dishwashing machine	141a
13	3 or more cell phones in household	E1
14	2 cell phones in household	E1
15	Home security service	H12A
16	Deep freezer – free standing	141a
17	Microwave oven	141a
18	Rural rest (excl. Western Cape and Gauteng rural)	*
19	House/cluster house/townhouse	H1
20	DVD player/Blu-ray player	141a
21	Tumble dryer	141a
22	Home theatre system	141a
23	Home telephone (excl. cell phone)	FQ3
24	Swimming pool	H14
25	Tap water in house/on plot	H6A
26	Built-in kitchen sink	H8
27	TV set	C1
28	Air conditioner (excl. fans)	141a
29	Metropolitan dweller (250 000+)	*

**By sample design*

Lifestages

The Lifestages used for MAPS are adopted from the SAARF Lifestages. There are 8 SAARF Lifestages. These Lifestages are personal to the respondent and are determined by age, marital status and whether dependent children in various age categories are living with them or not. A child has been defined as someone who is under 21. It should be noted that the classifications are not always linear as there can be parallel age paths. MAPS has condensed two of the Lifestages (At-Home Singles and Young Independent Singles) into 'Young Singles' to end up with seven Lifestages as follows:

Young Singles

Up to 34 years. Do not have any dependent children in the Household (own or other children) that the respondent is responsible for.

Mature Singles

35+ years old. Not Married/Not living together. Do not have any dependent children in the Household (own or other children) that the respondent is responsible for.

Young Couples

Up to 49 years. old Married/Living together. No dependent children in the Household (own or other children) that the respondent is responsible for.

Mature Couples

50+ years old. Married/Living together. No dependent children in the Household (own or other children) that the respondent is responsible for.

Young Families

Married/Living together. With at least one dependent child under 13 years of age in the Household (own or other children) that the respondent is responsible for.

Single Parent Families

Not married/Not living together. With dependent children in the Household (own or other children) that the respondent is responsible for.

Mature Families

Married/Living together. With no dependent children under 13 years of age in the Household (own or other children) that the respondent is responsible for, but with dependent children over the age of 13 years in the Household.

Generations

The Generations segments are as per the Telmar Global Generations definition as follows:

- Pre Boomers: 1945-earlier
- Boomers: 1946-1964
- Generation X: 1965-1985
- Millennials (Gen Y): 1986-2005
- Generation Z: 2006-present

Media Usage Intensity

Cluster analysis makes it easy for marketers to target customers, instead of having one general marketing approach. To help analyse media data, clusters based on the intensity of media usage were created.

Usage of the following media platforms was considered in order to cluster the population: social media, Cinema, Magazines, Store Magazines, Newspapers, Streaming, Radio, Television and Internet.

Media Usage Intensity segments the population into five segments based on the below criteria:

- No stretch - Use none of the media platforms
- Low Stretch – Use 1 to 2 media platforms
- Lower Medium Stretch – Use 3 to 4 media platforms
- Upper Medium Stretch – Use 5 to 6 media platforms
- High Stretch - Use 7 to 9 media platforms

10.0 Confidence Levels

All sample survey results are, unavoidably, subject to a margin of error. How large this margin of error is depends principally on the size of the unweighted sample and, in the case of "yes/no" questions, (as are most the ones in the MAPS questionnaire) the unanimity of response – for a given sample size, the margin of error is larger, in absolute size, if 50% of people answer "yes" to a given questions and 50% "no", as opposed to if only one person in ten says "yes".

Contrary to widespread belief, the size of the margin of error is very little influenced, under certain conditions that generally apply in the MAPS™ case, by the size of the population that the sample represents or by the proportion of that population who are interviewed.

In a sample survey the sample data is used to estimate on a scientific basis the values of "universe" parameters (e.g., readership). Information based on sample data may vary from sample to sample, which implies that an estimated value may deviate from the "true" (albeit unknown) universe value. The latter is the value that would have been obtained if the whole population had been surveyed using the same questionnaire and survey method. The difference between an estimated value and the corresponding true or universe value is referred to as the sample error. This sample error will vary from sample to sample and this variation in the sample error is estimated by the so-called standard error of the estimate.

An interval around the estimated value can be calculated which will contain the true (universe) value with a given degree of confidence. This interval is referred to as a confidence interval for the (unknown) universe value. The boundaries of a confidence interval are obtained by subtracting a certain quantity from the estimated value and by also adding this quantity to the estimated value. This quantity is called the precision of the estimate and is, for a given confidence coefficient, equal to the maximum value of the sample error as defined above. In other words, the size of a sample error of an estimate cannot exceed the precision of the estimate. The precision of an estimate is calculated as the product of a constant and the standard error, where the value of the constant is determined by the chosen confidence coefficient. For a confidence coefficient of 0,95 or 95% the precision = 1,96 times the standard error, and for a confidence coefficient of 0,99 or 99% the precision = 2,58 times the standard error.

If the estimated value as well as its standard error is known, the true or universe value will not differ from the estimated value by more than 1,96 (approximately twice) the value of the standard error, assuming a 95% confidence coefficient.

The chart overleaf allows the approximate calculation of the "95% confidence limits" of any percentage shown in the MAPS™ reports. These confidence limits are such that there is only about one chance in 20 of the true percentage lying outside the limits given by the reported percentage plus or minus the confidence limits.

To obtain the confidence limit for any percentage, lay a straight edge across the chart so that it joins the relevant unweighted sample size on the left-hand scale and the percentage of interest on the right-hand scale. The confidence limits can then be read off the central scale, at the point where the straight edge cuts it.



Example

Suppose MAPS™ shows that, amongst men, the readership of a certain newspaper is 20% in Gauteng, with an unweighted sample size of 1 000 in this sub-group.

A straight edge laid across "1 000" on the left-hand scale and "20%" on the right-hand scale cuts the central scale at 3.5% approximately.

The 95% confidence limits of the readership level are thus 23.5% (i.e., 20% + 3.5%) and 16.5% (i.e., 20% - 3.5%). There is only about a 1 in 20 chance that the true (unknown) figure is either larger than 23.5% or smaller than 16.5%.

To obtain the confidence limits of the numbers of readers, multiply the results just obtained by the "Estimated population" of the target group.

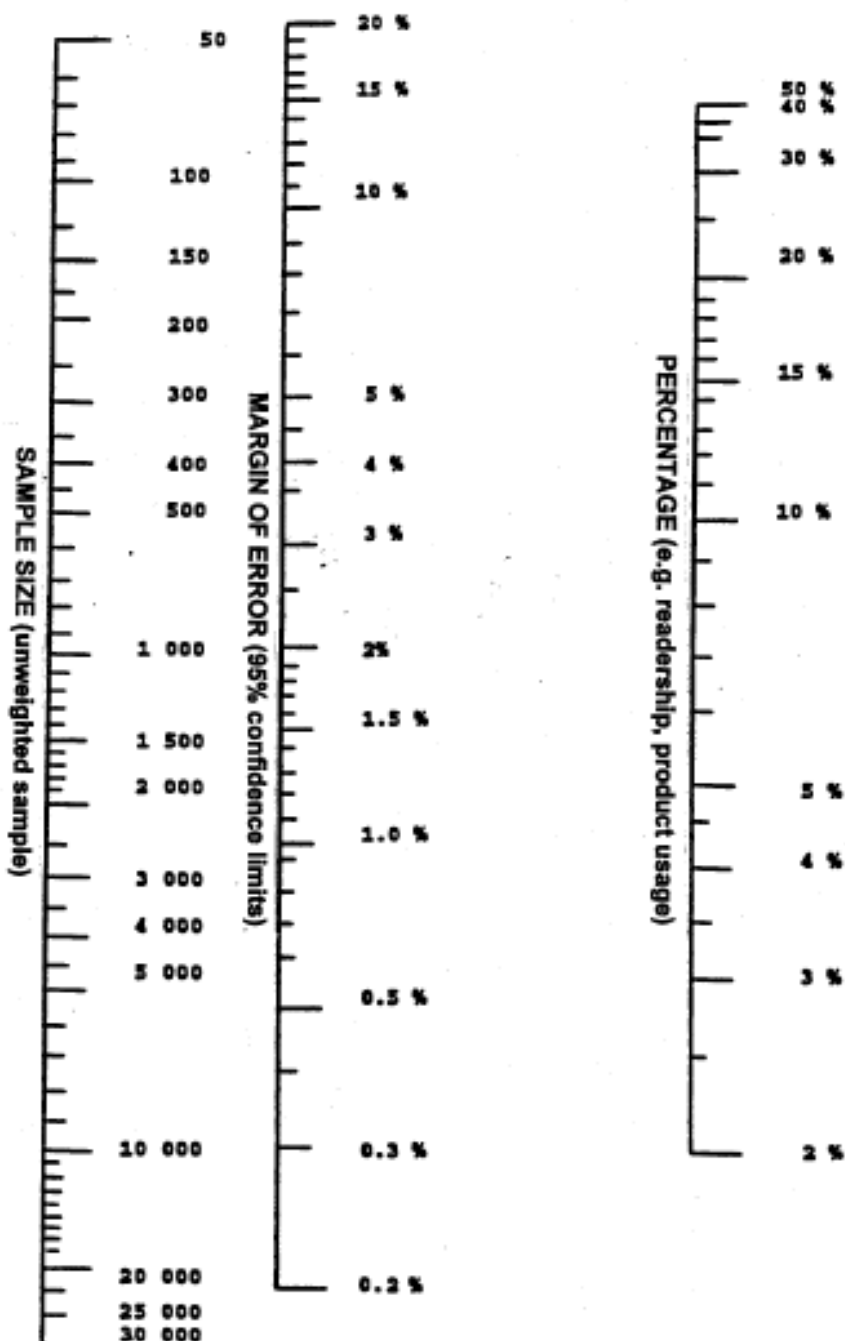
Continuing the previous illustration, if the table shows that the number of males in Gauteng is 920 000, then the 95% confidence limits of the readership of the publication would be (23.5% of 920 000) or 216 000 and (16.5% of 920 000) or 152 000, approximately.

Technical Note

In view of the sample design employed for MAPS™, it is inappropriate to estimate confidence limits based on Simple Random sample assumptions. The nomogram has been constructed using a Design Factor of 1.25. Whilst experience and some calculations based on MAPS™ data can support this figure, it may be exceeded when, for example, a variable is highly skewed in its population distribution; the confidence limits will then be wider. An upper limit of 2.0 for the Design Factor may be reasonably assumed, implying confidence limits 62.5% greater than those calculated from the nomogram in the worst case.



CONFIDENCE LIMITS



Section E:

Appendix



Section E: Appendix

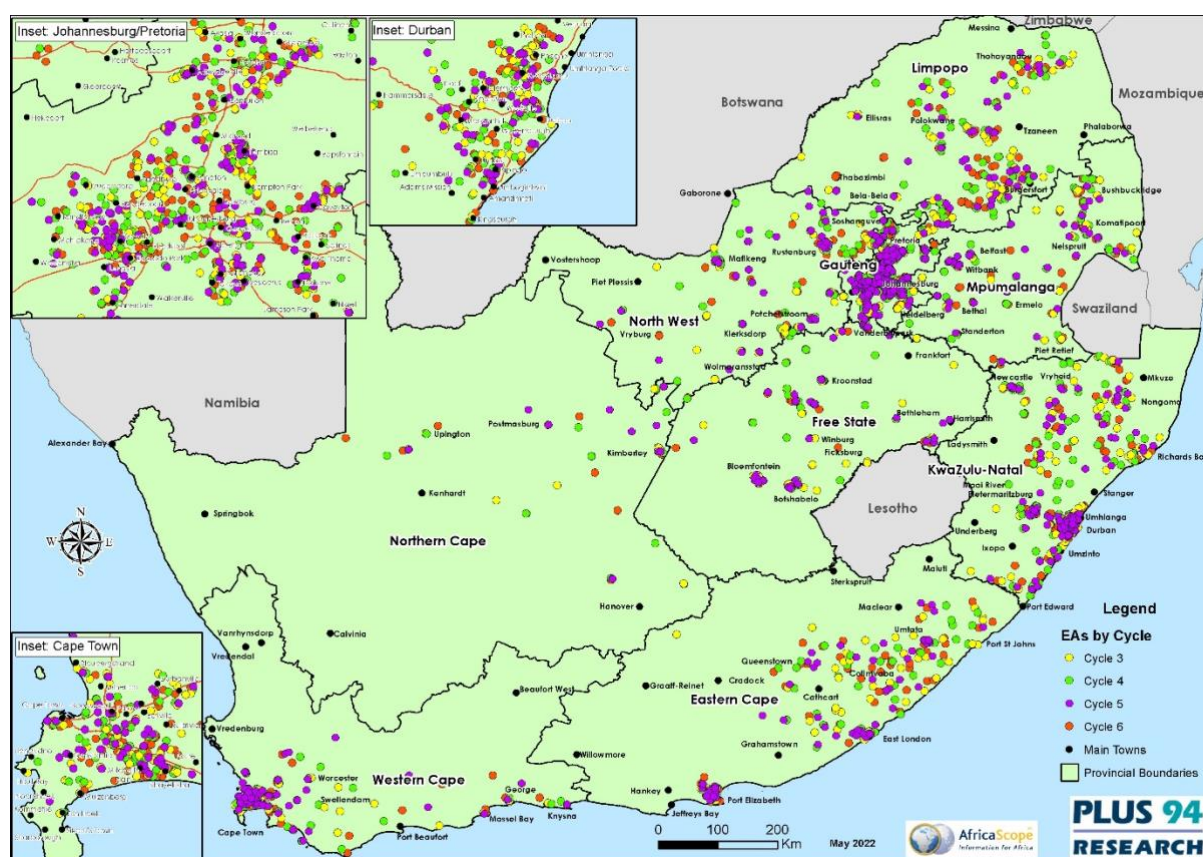
In order to get access to the questionnaires that were used for the MAPS™ 2021 survey, please click on the link below:

<https://mapssurvey.co.za/tests/docs/>

Areas that were covered by the MAPS™ survey can be accessed on the link below:

<https://mapssurvey.co.za/tests/areas/>

Below is the national map indicating the geographical spread of the areas that were covered:



Metro - Areas that fall under a **metropolitan municipality as per the official demarcation of municipalities**. The area might be a city e.g., Johannesburg under the City of Johannesburg Metropolitan Municipality or a town e.g., Centurion under the City of Tshwane Metropolitan Municipality or just a township e.g., KwaThema in Ekurhuleni Metropolitan Municipality. There are 8 metropolitan municipalities.

Urban - **Urban areas that fall under a local or district municipality** as per the official demarcation of municipalities. The area might be a large town e.g., Polokwane under the Polokwane Local Municipality or a small town e.g., Krugersdorp under West Rand District Municipality.

Rural – **Farms and Traditional areas that fall under a local and district** municipality as per the official demarcation of municipalities.

Stats SA provides a list of with classifications showing if an area is urban or rural or if it falls under a metropolitan municipality or not. Sometimes there are fine margins, but we stick to them. For example, some areas in Westonaria on the West Rand are classified under Urban while some fall under rural. An informal settlement may fall under metro, urban or rural as well.



