

MAPS TECHNICAL REPORT

January 2023 – December 2023







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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 continual 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 continual 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, including 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[™] research instruments [i.e., face-to-face questionnaire and leave-behind questionnaire], questionnaire changes/additions, fieldwork areas covered by the study.



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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 and 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[™] January 2023 – December 2023.

2.0 Special Notes

1. Age

There is one age question in the MRF MAPSTM questionnaire that captures the exact ages of the respondents. There is also a proportion of respondents who refuse to give their exact ages. Between July 2020 and December 2022 missing ages for respondents who were not willing to disclose their exact ages were imputed using relevant demographic variables such as age groups of own children. As from January 2023, an additional question with five-year age bands was introduced to cater for such respondents. A total of 53 respondents refused to provide their exact ages and opted to rather indicate their age band during the MAPSTM January 2023 – December 2023 fieldwork period. Mid-points of the chosen age bands were then imputed as their exact age. For example, a respondent who selects a 30 - 34 age band is automatically assigned an exact age of 32 years on question PD1 (Would you mind telling me your exact age?) when the imputation process is carried out.





2. Language

For reporting purposes, the language categories are as follows:

Afrikaans	Sesotho	Setswana	
English	SiSwati	Tshivenda	
IsiNdebele	XiTsonga	IsiZulu	
Sepedi	IsiXhosa	Other	

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

3. Population 2022

According to Statistics South Africa's 2022 mid-year population estimates, the total population of South Africa was estimated to be at 60.14 million. Approximately 71.9% (43.59 million) of the population is aged 15 years and older and this defines the universe for the MAPS[™] study. About 9.2% (5.6 million) is 60 years and older, whereas 28.1% of the population is aged younger than 15 years.

4. Radio Listenership

To assist with intermedia comparisons, the past four weeks, past seven days, and yesterday radio listening questions are incorporated into the MRF MAPS[™] questionnaire. The radio currency is BRC RAM data. BRC RAM is not a product of the MRF and independently conducted by the BRC.

Radio stations with 40 or more mentions are released individually on the database for commercial, 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 2023 – December 2023.

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 four weeks, past seven days, and yesterday TV viewing questions are incorporated into the MRF MAPS[™] questionnaire. The TV currency is BRC TAMS data. BRC TAMS is not a product of the MRF and independently conducted by the BRC.

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 2023 – December 2023.

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; and
- 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; and
- 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 seven 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 two 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 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 1 667, which 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 that 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 that 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. Area Type

The definition of metropolitan areas in the MAPS[™] study is different from that of Statistics South Africa. There are no rural areas associated with the built-up areas. AfricaScope defines them as contiguous built-up areas. Definitions for rural and other urban areas are as defined by Stats SA.

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 eight 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 adhere to them. For example, some areas in Westonaria on the West Rand are classified under "urban" while others fall under "rural". An informal settlement may fall under "metro", "urban", or "rural" as well.

Refer to the Appendix (Section E) of this Technical Report for further information on area type.

8. 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	Sesotho	Tshivenda
English	SiSwati	IsiXhosa
lsiNdebele	XiTsonga	IsiZulu
Sepedi	Setswana	Other

9. 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.

10. 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, e.g., salaries, pensions, government grants, income from investments, etc."





In the cases of refusal to answer the question, the income is imputed using broader income brackets that were introduced in January 2023 in the MAPS[™] face-to-face questionnaire.

11. 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.

12. Housing Unit

A unit of accommodation for a household 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.

13. 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.

14. 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".

15. Level of Education

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

16. 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; and
- Does 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; and
- Does 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; and
- No dependent children in the household (own or other children) that they are responsible for.

Mature Couples

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

Young Family

- Married or living together; and
- 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; and
- With dependent children in the household (own or other children) that they are responsible for.

Mature Family

- Married or living together; and
- 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.

17. 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.

18. Multiple Households

Two or more households living in the same dwelling unit.

19. 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".

20. 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.

21. 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.



22. 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 BRC RAM.

23. Readership

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





24. 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 that 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."

25. South African Population

The total population of the country is based on the official population according to Stats SA. 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.

26. 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 – at home or elsewhere."

Note that the currency for TV viewing is BRCTAMS.

27. Wave

There are two waves in a year: wave 1 and wave 2. Each wave is made up of a period of six successive calendar months. The first fieldwork wave for the reporting period ran from the 14th of July 2022 to the 21st of December 2022, while that of the second wave started on the 17th of January 2023 and came to an end on the 10th of July 2023. Two waves produced an annual sample of 20 040.

28. 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).



MARKETING RESEARCH FOUNDATION

Section B:

Research Universe and Sample









Section B: Research Universe and Sample

4.0 Universe

The target population for the research are individuals aged 15 years and older in South Africa. The following was used to filter the broad audience base of the respondents:



- Gender: Both males and females;
- Race: All racial groups; and
- Area: National (all nine provinces).

Population 2022

According to Statistics South Africa's 2022 mid-year population estimates, the total population of South Africa was estimated to be at 60.14 million. Approximately 71.9% (43.59 million) of the population is aged 15 years and older and this defines the universe for the MAPS[™] study. About 9.2% (5.6 million) is 60 years and older whereas 28.1% 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	4 495 853	10%		
Free State	2 101 871	5%		
Gauteng	12 312 692	28%		
KwaZulu-Natal	7 950 182	18%		
Limpopo	3 942 319	9%		
Mpumalanga	3 390 484	8%		
Northern Cape	929 692	2%		
North West	2 991 722	7%		
Western Cape	5 477 408	13%		
Total	43 592 223	100%		





Gender (15 years+)

Gender	Count	Percentage (%)
Female	22 580 134	52%
Male	21 012 089	48%
Total	43 592 223	100%

Race (15 years+)

Race	Count	Percentage (%)		
Black African	34 474 439	79%		
Coloured	3 931 926	9%		
Indian/Asian	1 261 112	3%		
White	3 924 746	9%		
Total	43 592 223	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 (PSUs), 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:

	All EAs are stratified	ALL EAS PER PROVINCE						
99	according to province and urban/rural.	Rura	I EAs	Urban EAs				
9	The EAs are further stratified according to metro/non-metro.	Metro	Non-Metro	Metro	Non-Metro			
9	EAs are selected on probability proportional to size (PPS).	EA1	EA2	EA4	EA5			
9	Simple random selection of about eight households per EA is made.	Household 1	Household 2	Household 3	Household 4			
9	Listing of all household members (aged 15 years and older) is done.	Household member	Household member	Household member	Household member			
	Selection of one individual per selected household is done using the Kish Grid.	Selected i	ndividual					

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 eight respondents from households 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 households 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 the majority of the enumeration area was satisfactorily 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 2023 and December 2023.

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; and
- 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

Current Weighting Scheme

The sample data is benchmarked against the South African population of 15 years and older. The Statistics South Africa (Stats SA) mid-year population estimates and the Quarterly Labour Force Survey (QLFS) employment numbers are used for this benchmarking process. Stats SA does not provide mid-year estimates for the area type (i.e., metro, urban, and rural) split. Therefore, a demographer from AfricaScope estimates the area type split and the racial distribution per province, which are critical in the benchmarking process. For household weights, benchmarking using household population totals by province is conducted to provide benchmarked household weights. The weighting is done based on fixed five-year age bands, four race groups, the male or female gender, three area types, the nine provinces, level of education, and employment status.

RIM Weighting Using the ANESrake Approach

Rim weighting was run using the Anesrake package in R <u>https://cran.r-project.org/web/packages/anesrake/anesrake.pdf.</u> This is a package used by the American National Election Studies in a number of other weighting setups, mostly because it is easy to use and well documented. The resultant weights were projected so that it summed up to the national population (43 592 223).

Weighting data is a crucial step in survey analysis to ensure representative results. In some cases, there may be insufficient sample sizes within certain subgroups of the population. To address this issue and improve weighting efficiencies, the RIM (random iterative method) weighting technique was employed for the MRF MAPS[™] January 2023 – December 2023 data release. This approach, implemented using the ANESrake package in R, allows for the interlacing and collapsing of certain weighting variables, such as age, gender, race, education level, employment status, area type, and province. Interlacing variables refers to combining or interweaving certain weighting variables when insufficient sample sizes are available within particular subgroups of the population. By interlacing variables such as age, gender, race, education level, employment status, area type, and province, the RIM weighting process can capture the joint distribution of these variables more effectively.

RIM Weighting Process

The RIM weighting technique is used to generate accurate weights that align the sample with the target population. The ANESrake package in R provides a user-friendly implementation of this method. The steps involved in the RIM weighting process using ANESrake are as follows:

1. Identify the Target Population: Define the population that the survey aims to represent accurately. This population is often characterised by demographic and geographic variables such as age, gender, race, education level, employment status, area type, and province;

2. Calculate Population Totals: Obtain population totals for each combination of the identified weighting variables from external data sources, such as census or survey data. These population totals represent the known distribution of the target population;

3. Prepare the Survey Data: Ensure that the survey data includes the required variables for weighting, aligning them with the identified weighting variables in the target population. While it is necessary to incorporate all the specified variables in the weighting process, it is important to note that attempting





to align the data to every single variable may lead to excessive strain on certain weights, resulting in extremely small or large values. Therefore, depending on the structure of the data, it may be appropriate to exclude certain variables from the weighting procedure;

4. Initialise the Weighting Process: Set an initial set of weights for each survey respondent. These initial weights are usually set to 1;

5. Start Iterative Process: Begin the iterative process to update the weights based on the target population distribution. The ANESrake package employs an iterative proportional fitting (raking) algorithm to adjust the weights;

6. Perform Iterative Proportional Fitting: In each iteration, ANESrake adjusts the weights to minimise the differences between the survey data and the target population distribution. The package uses the raking algorithm, which iteratively redistributes the weights based on the joint distribution of the weighting variables;

7. Assess Convergence: Monitor the convergence of the iterative process to ensure stability in the weights. The process typically continues until a predetermined convergence criterion is met; and

8. Finalise the Weights: Once the iterative process converges, the final weights are obtained. These weights represent the adjusted values that align the survey data with the target population.

Achieved Weighting Efficiency

High weighting efficiencies in survey data analysis offer several advantages, ensuring accurate representation and reliable results. The benefits of high weighting efficiencies include improved representativeness, reduced bias, enhanced precision, and robust statistical analysis. It is generally recommended to aim for a minimum weighting efficiency of 70% to maintain data quality and integrity. This minimum threshold ensures that the weighted data adequately reflects the target population.

The overall individual efficiency achieved for the MAPS[™] January 2023 – December 2023 data was 65.69%. It was below the expected minimum individual efficiency of 70%. Gauteng and Northern Cape were the only provinces that were able to surpass the set threshold. It is crucial to note that while the minimum of 70% efficiency is acceptable, variations may occur at the provincial level. It is possible that certain provinces may have weighting efficiencies below this threshold due to smaller sample sizes or unique population characteristics.

Province	Achieved Indiv	vidual Weighting	Achieved	Household	Weighting		
	Efficiency (%)		Efficiency (%)				
Eastern Cape	59.	.08%		100%			
Free State	64	.25%		100%			
Gauteng	71	.06%	100%				
KwaZulu-Natal	63.	.67%					
Limpopo	67.	.96%	100%				
Mpumalanga	63.	63.71% 100%					
North West	65.	.62%		100%			
Northern Cape	70.	.50%		100%			
Western Cape	63	.17%		100%			
Overall	65	.69%		99.52%			





Population vs. Achieved Sample Proportions



National Sample Profile

	January 2023 to December 2023 [Unweighted Data]								
	Jan – Mar'23	%	Apr – Jun'23	%	Jul – Sept'23	%	Oct – Dec'23	%	Total
Total	5 008	25%	5 008	25%	5 008	25%	5 016	25%	20 040
Female	2 524	50%	2 514	50%	2 550	51%	2 577	51%	10 165
Male	2 484	50%	2 494	50%	2 458	49%	2 439	49%	9 875
Black	3 988	80%	3 988	80%	3 923	78%	3 943	79%	15 842
White	423	8%	491	10%	580	12%	515	10%	2 009
Indian/Asian	57	1%	109	2%	116	2%	59	1%	341
Coloured	540	11%	420	8%	389	8%	499	10%	1 848
15 – 24	991	20%	936	19%	973	19%	942	19%	3 842
25 – 34	1 461	29%	1 448	29%	1 578	32%	1 446	29%	5 933
35 – 44	1 161	23%	1 180	24%	1 215	24%	1 269	25%	4 825
45 – 54	629	13%	686	14%	604	12%	677	14%	2 596
55 – 64	447	9%	435	9%	401	8%	417	8%	1 700
65 – 74	248	5%	253	5%	178	4%	205	4%	884
75+	71	1%	70	1%	59	1%	60	1%	260





Sample Profile [Eastern Cape]

	January 2023 to December 2023 [Unweighted Data]								
	Jan – Mar'23	%	Apr – Jun'23	%	Jul – Sept'23	%	Oct – Dec'23	%	Total
Total	520	25%	512	25%	512	25%	512	25%	2 056
Female	266	51%	263	51%	258	50%	276	54%	1 063
Male	254	49%	249	49%	254	50%	236	46%	993
Black	435	84%	438	86%	439	86%	417	81%	1 729
White	12	2%	4	1%	36	7%	31	6%	83
Indian/Asian	0	0%	2	0%	1	0%	0	0%	3
Coloured	73	14%	68	13%	36	7%	64	13%	241
15 – 24	90	17%	90	18%	101	20%	82	16%	363
25 – 34	118	23%	147	29%	192	38%	118	23%	575
35 – 44	121	23%	118	23%	101	20%	134	26%	474
45 – 54	73	14%	79	15%	39	8%	101	20%	292
55 – 64	64	12%	38	7%	47	9%	54	11%	203
65 – 74	43	8%	33	6%	22	4%	18	4%	116
75+	11	2%	7	1%	10	2%	5	1%	33

Sample Profile [Free State]

		January 2023 to December 2023 [Unweighted Data]							
	Jan – Mar'23	%	Apr – Jun'23	%	Jul – Sept'23	%	Oct – Dec'23	%	Total
Total	240	25%	240	25%	240	25%	240	25%	960
Female	127	53%	122	51%	138	57%	128	53%	515
Male	113	47%	118	49%	102	43%	112	47%	445
Black	214	89%	220	92%	239	99%	214	89%	887
White	16	7%	16	7%	0	0%	24	10%	56
Indian/Asian	0	0%	0	0%	0	0%	0	0%	0
Coloured	10	4%	4	2%	1	1%	2	1%	17
15 – 24	41	17%	42	18%	37	15%	37	15%	157
25 – 34	50	21%	63	26%	71	30%	93	39%	277
35 – 44	56	23%	52	22%	68	28%	59	25%	235
45 – 54	36	15%	37	15%	39	16%	23	10%	135
55 – 64	35	15%	30	13%	18	8%	19	8%	102
65 – 74	17	7%	13	5%	3	1%	9	4%	42
75+	5	2%	3	1%	4	2%	0	0%	12





Sample Profile [Gauteng]

	January 2023 to December 2023 [Unweighted Data]								
	Jan – Mar'23	%	Apr – Jun'23	%	Jul – Sept'23	%	Oct – Dec'23	%	Total
Total	1 408	25%	1 416	25%	1 416	25%	1 424	25%	5 664
Female	699	50%	717	51%	704	50%	728	51%	2 848
Male	709	50%	699	49%	712	50%	696	49%	2 816
Black	1 144	81%	1 169	83%	1 110	78%	1 105	78%	4 528
White	193	14%	176	12%	239	17%	272	19%	880
Indian/Asian	15	1%	25	2%	26	2%	13	1%	79
Coloured	56	4%	46	3%	41	3%	34	2%	177
15 – 24	308	22%	300	21%	264	19%	323	23%	1 195
25 – 34	437	31%	463	33%	458	32%	418	29%	1 776
35 – 44	322	23%	331	23%	368	26%	394	28%	1 415
45 – 54	182	13%	157	11%	181	13%	168	12%	688
55 - 64	94	7%	94	7%	95	7%	85	6%	368
65 – 74	49	3%	54	4%	42	3%	33	2%	178
75+	16	1%	17	1%	8	1%	3	0%	44

Sample Profile [KwaZulu-Natal]

		January 2023 to December 2023 [Unweighted Data]							
	Jan – Mar'23	%	Apr – Jun'23	%	Jul – Sept'23	%	Oct – Dec'23	%	Total
Total	912	25%	912	25%	912	25%	920	25%	3 656
Female	463	51%	452	50%	462	51%	466	51%	1 843
Male	449	49%	460	50%	450	49%	454	49%	1 813
Black	836	92%	765	84%	781	86%	842	91%	3 224
White	17	2%	59	6%	24	3%	17	2%	117
Indian/Asian	40	4%	82	9%	86	9%	46	5%	254
Coloured	19	2%	6	1%	21	2%	15	2%	61
15 – 24	153	17%	147	16%	152	17%	138	15%	590
25 – 34	294	32%	262	29%	296	33%	281	31%	1 133
35 – 44	205	22%	198	22%	213	23%	183	20%	799
45 – 54	105	12%	122	13%	95	10%	130	14%	452
55 - 64	81	9%	101	11%	93	10%	109	12%	384
65 – 74	59	6%	61	7%	51	6%	58	6%	229
75+	15	2%	21	2%	12	1%	21	2%	69





Sample Profile [Limpopo]

	January 2023 to December 2023 [Unweighted Data]								
	Jan – Mar'23	%	Apr – Jun'23	%	Jul – Sept'23	%	Oct – Dec'23	%	Total
Total	456	25%	456	25%	456	25%	448	25%	1 816
Female	231	51%	227	50%	232	51%	228	51%	918
Male	225	49%	229	50%	224	49%	220	49%	898
Black	456	100%	437	96%	455	100%	440	98%	1 788
White	0	0%	13	3%	0	0%	8	2%	21
Indian/Asian	0	0%	0	0%	0	0%	0	0%	0
Coloured	0	0%	6	1%	1	0%	0	0%	7
15 – 24	83	18%	95	21%	103	23%	83	19%	364
25 – 34	141	31%	106	23%	117	26%	122	27%	486
35 – 44	105	23%	128	28%	124	27%	99	22%	456
45 – 54	57	13%	72	16%	49	11%	61	14%	239
55 – 64	39	9%	34	7%	42	9%	43	10%	158
65 - 74	20	4%	14	3%	14	3%	28	6%	76
75+	11	2%	7	2%	7	2%	12	3%	37

Sample Profile [Mpumalanga]

		January 2023 to December 2023 [Unweighted Data]							
	Jan – Mar'23	%	Apr – Jun'23	%	Jul – Sept'23	%	Oct – Dec'23	%	Total
Total	392	25%	384	25%	384	25%	392	25%	1 552
Female	197	50%	193	50%	196	51%	201	51%	787
Male	195	50%	191	50%	188	49%	191	49%	765
Black	352	90%	361	94%	359	94%	376	96%	1 448
White	37	9%	21	5%	23	6%	9	2%	90
Indian/Asian	1	0%	0	0	1	0%	0	0%	2
Coloured	2	1%	2	1%	1	0%	7	2%	12
15 – 24	79	20%	66	17%	72	19%	77	20%	294
25 – 34	112	29%	122	32%	125	33%	115	29%	474
35 – 44	97	25%	68	18%	91	24%	109	28%	365
45 – 54	45	11%	53	14%	48	12%	47	12%	193
55 – 64	36	9%	41	11%	30	8%	21	5%	128
65 – 74	19	5%	30	8%	11	3%	15	4%	75
75+	4	1%	4	1%	7	2%	8	2%	23





Sample Profile [Northern Cape]

		January 2023 to December 2023 [Unweighted Data]							
	Jan – Mar'23	%	Apr – Jun'23	%	Jul – Sept'23	%	Oct – Dec'23	%	Total
Total	96	23%	112	26%	104	25%	112	26%	424
Female	50	52%	56	50%	59	57%	60	54%	225
Male	46	48%	56	50%	45	43%	52	46%	199
Black	12	13%	71	63%	53	51%	50	45%	186
White	8	8%	1	1%	10	10%	10	9%	29
Indian/Asian	0	0%	0	0%	0	0%	0	0%	0
Coloured	76	79%	40	36%	41	39%	52	46%	209
15 – 24	12	13%	18	16%	15	14%	14	12%	59
25 – 34	21	22%	30	27%	28	27%	23	21%	102
35 – 44	27	28%	36	32%	48	46%	41	37%	152
45 – 54	14	15%	22	20%	9	9%	13	12%	58
55 – 64	12	13%	5	4%	4	4%	10	9%	31
65 – 74	7	7%	1	1%	0	0%	10	9%	18
75+	3	3%	0	0%	0	0%	1	1%	4

Sample Profile [North West]

	January 2023 to December 2023 [Unweighted Data]								
	Jan – Mar'23	%	Apr – Jun'23	%	Jul – Sept'23	%	Oct – Dec'23	%	Total
Total	336	24%	344	25%	360	26%	344	25%	1 384
Female	170	51%	170	49%	187	52%	174	51%	701
Male	166	49%	174	51%	173	48%	170	49%	683
Black	313	93%	326	95%	327	91%	321	93%	1 287
White	9	3%	16	5%	26	7%	15	5%	66
Indian/Asian	0	0%	0	0%	2	1%	0	0%	2
Coloured	14	4%	2	0%	5	1%	8	2%	29
15 – 24	59	18%	56	16%	73	20%	74	22%	262
25 – 34	98	29%	109	32%	139	39%	106	31%	452
35 – 44	79	24%	66	19%	62	17%	94	27%	301
45 – 54	40	12%	56	16%	46	13%	42	12%	184
55 – 64	39	12%	29	8%	23	6%	14	4%	105
65 – 74	17	5%	20	6%	10	3%	12	4%	59
75+	4	1%	8	2%	7	2%	2	1%	21





Sample Profile [Western Cape]

		January 2023 to December 2023 [Unweighted Data]							
	Jan – Mar'23	%	Apr – Jun'23	%	Jul – Sept'23	%	Oct – Dec'23	%	Total
Total	648	26%	632	25%	624	25%	624	25%	2 528
Female	321	50%	314	50%	314	50%	316	51%	1 265
Male	327	50%	318	50%	310	50%	308	49%	1 263
Black	226	35%	201	32%	160	26%	178	28%	765
White	131	20%	185	29%	222	36%	129	21%	667
Indian/Asian	1	0%	0	0%	0	0%	0	0%	1
Coloured	290	45%	246	39%	242	39%	317	51%	1 095
15 – 24	166	26%	122	19%	156	25%	114	18%	558
25 – 34	190	29%	146	23%	152	24%	170	27%	658
35 – 44	149	23%	183	29%	140	22%	156	25%	628
45 – 54	77	12%	88	14%	98	16%	92	15%	355
55 – 64	47	7%	63	10%	49	8%	62	10%	221
65 – 74	17	3%	27	4%	25	4%	22	4%	91
75+	2	0%	3	1 %	4	1%	8	1%	17

Achieved Sample: Interviews

	17 J	anuary 2023 – 21 December :	2023
Drovinco	Target Sample	Achieved Sample	Variance
Flowince		\bigcirc	C
Eastern Cape	2 052	2 056	0%
Free State	958	960	0%
Gauteng	5 654	5 664	0%
KwaZulu-Natal	3 650	3 656	0%
Limpopo	1 813	1 816	0%
Mpumalanga	1 549	1 552	0%
North West	1 382	1 384	0%
Northern Cape	423	424	0%
Western Cape	2 523	2 528	0%
Total	20 004	20 040	

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 $\% = [(2056/20040) - (2052/20004)] \times 100\%$.





Achieved Sample: Leave-Behind Questionnaires

	17 January 2023 – 21 December 2023							
	Target	No. of Paper	No. of Online	Total No. of	Variance			
		Leave-Behind	Leave-Behind	Leave-Behind				
		Questionnaires	Questionnaires	Questionnaires				
Province		Collected and	Submitted	Collected				
		Processed						
					5			
Eastern Cape	1 026	842	65	907	-2.20%			
Free State	479	330	97	427	-1.00%			
Gauteng	2 827	2 551	546	3 097	-0.75%			
KwaZulu-Natal	1 825	1 923	446	2 369	+2.80%			
Limpopo	906	826	300	1 126	+0.95%			
Mpumalanga	774	642	119	761	-0.98%			
North West	691	532	46	578	-1.77%			
Northern Cape	212	155	17	172	-0.59%			
Western Cape	1 262	1 342	477	1 819	+3.54%			
Total	10 002	9 143	2 113	11 256				

Target vs. Achieved [Leave-Behind Questionnaires]







Area Distribution





Respondent Profiles

Source: Statistics South Africa 2022 Mid-year Estimates [15+ years]









Source: Statistics South Africa Census 2022 [Language Most Spoken in Household]









FOUNDATION

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 is made, the number of adult males or females in the household who are 15 years and older is determined to enable random selection of the individual to be interviewed; the Kish Grid is once again utilised to randomly select this individual. 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 before work commences.

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 three and five 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[™] January 2023 – December 2023 study began on the 17th of January 2023 and came to an end on the 21st of December 2023.



The specific start and end dates of MAPS[™] January 2023 – December 2023 are shown below:

17 January 2023 – 21 December 2023							
Quarter	Period						
Q1 2023	17 January – 3 April 2023						
Q2 2023	1 April – 10 July 2023						
Q3 2023	10 July 2023 – 19 October 2023						
Q4 2023	4 October 2023 – 21 December 2023						

MAPS™ January 2023 – December 2023 Timeline

Consideration Area	Summary
Questionnaire Changes	In July 2023, a few urgent face-to-face questionnaire changes were implemented (e.g.,
	radio station and TV channel list update, a new online shopping platform [Bash] and
	two new on-demand streaming services [VIU and SABC+]). Between August and
	December 2023, Plus 94 Research, under the guidance of the MRF and its research
	committee, compiled MAPS [™] questionnaire changes in preparation for the January
	2024 fieldwork. Once every year, the MRF gives its subscribers an opportunity to bring
	forward questionnaire changes or additions that are either of interest to the subscribers
	or have the potential to add value to the MAPS™ study. The regular modification of the
	research instruments helps to accommodate diverse subscriber research needs and
	ensures the relevance and accuracy of data collected. In addition, this form of flexibility
	allows for the inclusion of new product options, pack shots, emerging consumer trends,
	and deletion of products or services that no longer exist on the market. Below are some





	of the elements of the questionnaires [i.e., MAPS [™] face-to-face questionnaire and the
	MAPS [™] leave-behind questionnaire] that were updated/added:
	• Several minor languages e.g., German, Gujarati, Dutch etc., were removed from
	the questionnaire;
	Rearrangement of media-related questions in order to improve the flow of the
	face-to-face questionnaire across the different media sections;
	 Addition and removal of retail outlets;
	• Time periods used in engaging with different media types/categories (radio,
	television, magazines, internet etc.);
	 Online news content and subscription;
	TV channel list update;
	Addition of mobile networks;
	 Internet usage and activities;
	 Vehicle purchasing behaviour;
	Additional financial services (e.g., virtual bank card), updating of existing
	banking, finance and insurance-related questions in order to achieve clarity,
	reasons for using mobile money service etc.,;
	 On-demand grocery delivery service;
	 Sports, fitness, and outdoor clothing;
	 Sports or outdoor equipment;
	 Additional skincare products for men;
	 Personal spend on rent, bond, and utilities;
	Additional products and brands under household groceries, snacks, personal
	care, and drinks;
	 Revision or update of pack shots;
	 Revision of the sports/activities list;
	Revision of some of the consumer behaviour questions and response options in
	order to achieve clarity; and
	Self-perception on personality, life, and current circumstances.
Sampling	The achieved sample was composed of 50% metro, 30% urban and 20% rural
	enumeration areas in line with the set area type target for the MAPS™ study. The sample
	outcome for the gender and race variables aligned almost perfectly with the target
	population. Similarly, samples attained for older age groups (45 years and above) closely
	mirrored the target population. The youngest age group (i.e., 15-24) was
	underrepresented by 3% whereas the 25-34 and 35-44 were both overrepresented by
	5% and 3% respectively (the general output produced across all age groups at national
	level is comparable to that which was contained in the previous bi-annual report).
	Furthermore, there are clear indications in current data that the interviewer Kish
	compliance (with respect to the random selection of respondents at household level)
	has kept on improving over time. For example, the average household incomes for 2022
	and 2023 were R11 091.58 and R18 861.38 respectively, whereas the average personal
	Income increased from R4 876.96 to R6 903.75 [based on unweighted data]. The
	percentage of banked respondents shot up from 64% in 2022 to 74.4% in 2023.
	Furthermore, there was a substantial increase of 13.5% realised for employed



	respondents (i.e., 41.7% to 55.2%). The percentage of respondents who indicated that
	they have a car in their household has remained almost constant at 30%. The Western
	Cape was the best performing province in terms of aligning its sample with the target
	population with respect to age groups in the last six months. There was a noticeable
	underrepresentation of the 15-24 group in all the provinces except in the Western Cape,
	North West, and Gauteng.
3m3a Auditors	Throughout 2023, the 3m3a auditors were providing technical support through checking
	and providing helpful feedback on the data weighting procedure performed by Plus 94
	Research on a quarterly basis before the official release of every MAPS [™] dataset.
EA and Household	The overall household substitution stood at 26% for MAPS [™] January 2023 – December
Substitution	2023. It is important to note that during the first half of 2023, the average household
	substitution was around 31% and decreased in the last two guarters. The significant
	decline experienced in the number of FA replacements during the last half of 2023 was
	due to the introduction of the Gauteng ISM Premium team, which was recruited to
	specialize only in conducting interviews within high-income-earning and gated
	specialise only in conducting interviews within high-income-earning and gated
	voare' interviewing experience and are much more skilled in interacting with high and
	years interviewing experience and are much more skilled in interacting with high-end
	respondents. Efforts were also made to seek permission in advance to conduct the
	MAPS ^{IM} survey from various nome-owners associations based in einekwini Municipality
	(KwaZulu-Natal).
Data Collected	A total of 212 fieldworkers successfully conducted 20 040 face-to-face interviews across
	all the provinces in 2 505 EAs for the MAPS [™] January 2023 – December 2023 fieldwork
	period. During the last quarter of 2023, almost all the provinces concluded data
	collection during the third week of December 2023. It was not possible for all the
	provinces to field out in mid-December as initially scheduled. Smaller provinces such as
	the Free State and the Northern Cape fielded out by mid-December. In general, most of
	the respondents who took part in the survey were friendly and welcoming to the
	fieldworkers. Plus 94 Research also ensured that the interviewers shared and
	understood the social and cultural practices of the communities that they conducted the
	MAPS [™] survey in because contextual fit is always critical in the face-to-face data
	collection process. All provinces brought in a total of 9 143 paper leave-behind
	questionnaires (the paper and online combined total was 11 256). The set diary target
	of 10 002 was exceeded by well over a thousand diaries. The highest peak of the online
	diary output since the inception of the MAPS [™] study was experienced during the third
	guarter of 2023. A total of 781 online diaries were completed by respondents.
	However, there was a very sharp decline of almost 50% in the online diary output for
	the last guarter of 2023 when compared to the previous guarter (the output fell from
	781 to 396). Technical glitches were experienced with the MAPS ^{m} online diary platform
	for a period close to five weeks. It is important to note that the issues were experienced
	sporadically and did not occur five weeks in a row per se. The developers managed to
	resolve the issues after several troubleshooting attempts. Only four provinces (Gautong
	KwaZulu-Natal Limpono, and the Western Canal successfully met their set diary terrets
	for the MADEIM January 2022 Describer 2022 fielding the state of the
	for the MAPS ^{III} January 2023 – December 2023 fieldwork period. Most of the provinces
	that did not achieve their targets had been extremely affected by the paper diary
	rejection/discard process performed by the data quality checking team and the online



	diary platform downtime experienced in the last quarter of 2023. Completed self- administered questionnaires (i.e., diaries) undergo rigorous checks to ensure that the set standards for accuracy, consistency, completeness, and data integrity are met. A total of 442 paper diaries were discarded during the last half of 2023 due to poor standards and the deletion of the accompanying face-to-face interviews that did not have the required GPS coordinates .
Field Quality Control Checks	The following field quality control procedures were implemented:
	Back-checks: Back-checks are the most important quality control feature of any survey. Approximately 27% of the interviews were telephonically back-checked during the second half of 2023. Cases that underwent back-checks were randomly selected and at least 20% of each fieldworker's submitted interviews were validated. The telephonic back-check responses were compared against the original responses for multiple variables to determine if there were any discrepancies. In addition, the respondents were asked to rate their overall survey experience and asked if the Plus 94 Research interviewers conducted themselves in a professional manner during the interview. The average interview length of a telephonic back-checked by well trained, experienced, and reliable field supervisors. A team of data quality checkers regularly listened to recorded back-checks to establish the authenticity of the interviewer. Interviewer Kish Grid compliance was assessed through all three types of back-checks (i.e., physical, telephonic, and recordings). Checking of captured GPS coordinates : Captured GPS coordinates were monitored and verified on a regular basis. The captured GPS coordinates are compared against the prespecified visiting points provided on enumeration maps. Interviews with GPS coordinates that were more than 25m away from the pre-specified points were discarded.
	were contacted to ensure that there was no falsification of data by the fieldworkers. The calls from the Plus 94 Perspect to an also confirmed if the Kich Grid selected boursehold
	member who took part in the face-to-face interview was the same individual who went
	on to fill in the self-completion questionnaire. In addition, the call confirmed the contact
	details for the processing of respondent incentives. Any paper diary that did not meet
	the set data quality standards with respect to completeness, consistency, and accuracy
	was discarded.
Interviewer Training	Periodic retraining sessions/debriefing sessions are an essential component of the
	MAPS [™] study. Comprehensive and continual interviewer training, combined with the
	effective quality control mechanisms that are in place, help assure that the MAPS [™]
	survey produces accurate and reliable data. MAPS [™] interviewer training workshops
	were held in North West, Limpopo, and Eastern Cape in September 2023. On the 3 rd of
	interviewers. The field management staff virtually met with the fieldworkers at least
	once a month to provide feedback on areas of improvement. In addition field
	supervisors were accessible to interviewers daily for guidance.



Missing Information	Between July and December 2023, 5% of the respondents refused to provide either their household income or personal income as they deemed this type of question to be of a sensitive nature, while 30% of the respondents mentioned that they did not have the knowledge of their household income. Data imputation was implemented to help close this gap. Variables that were chosen for the imputation process include broader income band questions (which were added to the questionnaire in January 2023), age, area, employment status, highest level of education, LSM and SEM, and SASSA income. A total of 53 respondents refused to provide their age. All the respondents were comfortable with specifying their race, while two individuals chose not to state their gender (imputation was also considered for these two cases).
Major Challenges	Khoisan language barrier issue in Northern Cape;
Experienced in Field	Rainy and extremely hot weather conditions;
	• The need to be extra careful in areas with violent drug addicts and gangs
	roaming the streets – North West, Western Cape, KwaZulu-Natal and Eastern
	Cape;
	Unwillingness by some of the respondents across all the provinces to take part
	in the survey and very hostile community members in some provinces:
	High crime levels across all area types (mainly in KwaZulu-Natal. Western
	Cape, Eastern Cape, and Gauteng):
	 Interviewers were robbed at gunpoint in the Eastern Cape (New Brighton, Port
	Elizabeth);
	Permission to conduct interviews in certain rural areas had to be sought in
	advance from community leaders, village headmen or the tribal council e.g., in
	North West, Mpumalanga and Limpopo;
	 Access to gated communities (residential estates and farms);
	• Poor road infrastructure in various provinces; the need to walk to access some
	households (rural KwaZulu-Natal, Limpopo and Eastern Cape);
	• Poor network coverage prompting the use of paper-based EA maps (instead of
	the GPS facility on the tablets) in locating pre-specified interview points.



FOUNDATION

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 to ensure the integrity of the data and results.

Data Fusion

All 20 040 respondents completed a face-to-face questionnaire. Half of them were expected to complete the leave-behind questionnaire; a total of 11 256 respondents successfully completed the leave behind questionnaire. For the 8 784 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[™] January 2023 – December 2023 survey are shown below:

Reason for Replacement	Number of Households
Refused	1 600
House inaccessible (gated communities and farms)	267
Nobody home (after two call-backs)	362
EA inaccessible	2 624 (328 EAs)
Other	385
Total	5 238

The overall household substitution rate stood at 26% (i.e., 8% more than the rate obtained for the MAPS[™] January – December 2022 survey).

The table below unpacks the reasons for the replacement of 328 EAs across all the nine provinces:

	Reason for EA substitution							
	Access	Access	Non-	No longer	EA refusal	Area very	Severely	
Province	denied	denied	residential	inhabited		unsafe	damaged	Total
	(Estate)	(Farm)	EA				roads/EA	
							inaccessible	
Eastern Cape	9	16	9	1	1	1	0	37
Free State	4	4	2	2	0	0	0	12
Gauteng	114	7	4	1	1	2	0	129
KwaZulu-Natal	18	5	7	2	7	4	7	50
Limpopo	0	10	5	0	8	0	0	23
Mpumalanga	6	2	3	0	6	1	0	18
North West	7	5	1	3	9	0	0	25
Northern Cape	1	3	1	1	1	0	0	7
Western Cape	19	0	0	1	0	7	0	27
Total	178	52	32	11	33	15	7	328





Back-checking

At least a quarter of each interviewer's work was back-checked 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 back-check survey. The back-checking exercise enables Plus 94 Research to modify certain aspects of the data collection in order to improve data quality. A total of **5 767** 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, and Lifestages.

Socio-Economic Measure (SEM)

The Publisher Research Council and the Broadcast Research Council of South Africa have developed and co-own the Establishment Survey SEM[™] segmentation model. 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	Motorcar	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	R23
	live-in and part-time domestics and gardeners)	
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	Three or more cell phones in household	E1
14	Two 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 eight SAARF Lifestages, which 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 [Young Singles, Mature Singles, Young Couples, Mature Couples, Young Families, Single-Parent Families and Mature Families].

Generations

The Generations segments are as per the Telmar Global Generations definition and the Pew Research Generations definition. The Telmar Global generations segments are classified as follows:

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

The Pew Research generations segments are classified as follows:

- o Silent: 1928-1945;
- Boomers: 1946-1964;
- Generation X: 1965-1980;
- Millennials (Gen Y): 1981-1996; and
- Generation Z: 1997-2012.

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 comprise the majority of 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 10 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 216 000 (23.5% of 920 000) and 152 000 (16.5% of 920 000), 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.









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Section E:

Appendix







Section E: Appendix

11.0 MAPS[™] Research Instruments

In order to get access to the questionnaires that were used for the MAPS[™] January 2023 – December

2023 survey, please click on the link below:

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

11.1 Questionnaire Changes/Additions

MAPS[™] questionnaire changes/additions implemented between July 2020 and July 2023 can be accessed on the link below:

https://mapssurvey.co.za/tests/questionnaire/

11.2 Fieldwork Areas

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:







11.3 Defining the Metropolitan Boundaries for MAPS™

BACKGROUND

In South Africa, there are eight metropolitan districts that serve as administrative regions encompassing major urban areas. These metropolitan districts play a crucial role in governing and managing the affairs of these densely populated cities. These areas also make a significant contribution to the economy of the country and consumption patterns in South Africa. The Municipal Demarcation Board has the responsibility of demarcating the boundaries of the metropolitan districts. These metropolitan districts are:

- City of Johannesburg Metropolitan District;
- City of Tshwane Metropolitan District;
- Ekurhuleni Metropolitan District;
- eThekwini Metropolitan District;
- Nelson Mandela Bay Metropolitan District;
- City of Cape Town Metropolitan District;
- Mangaung Metropolitan District; and
- Buffalo City Metropolitan District.

DEFINING THE URBAN CENTRES OF METROPOLITAN DISTRICTS

The definition of metropolitan areas in the MAPS[™] study is different from that of Statistics South Africa. There are no rural areas associated with the built-up areas. AfricaScope defines them as contiguous built-up areas. Definitions for rural and other urban areas are as defined by Stats SA.

The eight metropolitan districts each have unique characteristics associated with them. Each of the metropolitan districts has large urban areas that are made-up of both formal and informal residential areas. Part of these large urban areas include the commercial and industrial regions of the metropolitan district.

These metropolitan districts also have rural areas associated with them that include both commercial farmlands and traditional areas. For example, large parts of the eThekwini metropolitan district consist of traditional areas with relatively low population densities. Within the boundaries of the metropolitan districts there are also small towns (e.g., Bronkhorstspruit in Tshwane metropolitan districts) that are discontinuous from the urban centre.

Several of the metropolitan districts have relatively small urban centres compared to their large rural areas. These non-urban areas within the metropolitan districts will have a distinctly different consumption pattern to that of the population living in the densely populated formal and informal urban areas. Consequently, it was decided to identify in each of the metropolitan districts the areas that are truly the urban centres.

To accomplish this, the census enumeration areas from the 2011 census were used as a basis, which were classified in terms of the type of area. However, 12 years after the census, the types of areas in the metropolitan districts have changed. Therefore, the enumeration area boundaries were overlaid onto satellite imagery and changes in the type of areas were taken into consideration in defining the truly urban centres of the metropolitan district. Whenever possible, the urban centres of the metropolitan areas were defined as contiguous areas. However, it is only within the City of Cape Town that the urban centres are not contiguous.





The urban centres of each metropolitan district are depicted in the maps below.

• Ekurhuleni Metro, City of Johannesburg, and City of Tshwane Metropolitan District



• eThekwini Metropolitan District





• Nelson Mandela Bay Metropolitan District



City of Cape Town Metropolitan District







• Buffalo City Metropolitan District







Thank you.