CELLULAR MOBILE CONSUMER SATISFACTION SURVEY 2012/13

PREPARED FOR:

National Communications Authority (NCA)
Cantonments, Accra-Ghana
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LIST OF ABBREVIATIONS

ANOVA	Analysis of Variance
CS	Customer Satisfaction
CSS	Consumer Satisfaction Survey
DCE	District Chief Executive
EA	Enumeration Area
GSS	Ghana Statistical Service
KPI	Key Performance Indicator
MLGRD	Ministry of Local Government and Rural Development
MMDA	Metropolitan, Municipal and District Assembly
MNO	Mobile Network Operator
NCA	National Communications Authority
SSU	Secondary Sampling Unit

Executive Summary

The telecom market in Ghana is characterized by vibrant competition with the presence of six international mobile network companies made up of Expresso, Tigo, MTN, Vodafone, Airtel and GLO-Mobile. This offers consumers with varied choices of communication services and providers.

With the steady growth of the economy coupled with a sound regulatory environment and a rising cellular subscriber base, the mobile phone market has also rapidly expanded in new connections as well as a growing adoption of internet-enabled handsets or smart phones.

The National Communications Authority is enjoined by law to protect the interest of consumers of communications services with particular regards to the consumer's choice, quality and value for money. Consequently, the Authority requires providers of communication services to provide acceptable quality of service to their consumers as per their license conditions.

One method of measuring quality of communication services is to conduct inquiries among users to ascertain their opinions and actual experiences with various aspects of the services they use. These inquiries are usually made by means of surveys, which are designed to determine the customers' perception of the service quality and the basic sources of user difficulty which may arise when using the service. The Authority uses this method periodically by commissioning independent agencies to carry out surveys among users of communication services.

The agency appointed to carry out the survey was Policy Focus. The survey covered the whole nation and the objectives were to:

1. Capture consumer's evaluation of **service attributes and expectations** from all mobile Service Providers.

2. Evaluate the level of **consumer satisfaction** with the various mobile service operators.

3. Measure the **level of service delivery** in the mobile telephone industry.

4. Evaluate the **performance of the operators against key performance indicators** (KPIs)

5. Evaluate the **relative performance of providers among themselves** with respect to the defined attributes and KPIs.

The consultant worked closely with the Ghana Statistical Services (GSS) to develop the stratified sampling methodology and the selection of the Enumeration Areas. Out of the 13,800 respondents, 13,119 satisfied the selection criteria and were used for the report. This figure of

13,119 represented a 95 % response rate. About 400 Enumeration Areas were selected for the survey, 202 were from the urban areas and 198 were from the rural areas. Similarly, 6,000 households participated in the survey, 3,030 were from the urban areas and 2,970 from the rural areas.

The report findings revealed that 74.7 % of mobile subscribers were satisfied with the services of their mobile network operators, while 25.3 % were dissatisfied. The findings also indicate areas that need improvement as some operators were not able to meet all the benchmarks for the defined Key Performance Indicators (KPIs).

The National Communications Authority (NCA) had set a benchmark of 85 % or more for billing performance and help or inquiry services, 90 % for supplementary services and 75 % for overall quality of service. MTN and Vodafone were unable to meet any of the NCA's stipulated benchmarks, while Tigo, Airtel and Expresso met only one of the stipulated benchmarks being overall quality of service. However, GLO-Mobile which entered the market few months prior to the survey met all the NCA's stipulated benchmarks with the exception of supplementary services.

In addition, the survey was able to determine the various activities mobile phones were used for, the number of service providers the average consumer was connected to, and consumers' likes and dislikes of their service providers. Interestingly, the survey findings was able to indicate the wealth distribution of mobile phone subscribers across the country.

Respondents singled out quality of service as the most important service attribute in the industry. Other service attributes which respondents found important regarding service delivery included Tariffs and Billing, Coverage Area and Ease of Making Calls.

It is the view of the NCA that the findings of this survey will go a long way to help operators identify critical areas that need improvement and enhance service experience for consumers. This will further promote sustainable growth in the country's telecom market.

In addition, it would provide the NCA with a road map to focus on the key areas which demand regulatory attention.

STUDY OBJECTIVES

The mission of the National Communications Authority (NCA) is to regulate the comm¬unications industry by setting and enforcing high standards of competence and performance in order to contribute significantly and fairly to the nation's prosperity through the provision of efficient and competitive services.

There are currently six licensed mobile service operators in the country. A rising challenge in the mobile service industry today is the perceived poor service quality, a situation which creates an urgent need for the Authority to intervene in ensuring that customers derive value for services which they subscribe to.

To evaluate the quality of experience as perceived by mobile telephony customers across Ghana, and for evidence-based decision making, the Authority commissioned this study. The study also enable the Authority evaluate set Key Performance Indicators (KPIs) which are part of the Licence Conditions of the mobile service providers.

The objectives of the survey, were thus to:

1. Capture consumer's evaluation of **service attributes and expectations** from all mobile Service Providers.
2. Evaluate the level of **consumer satisfaction** with the various mobile service operators.
3. Measure the **level of service delivery** in the mobile telephone industry.
4. Evaluate the **performance of the operators against Key Performance Indicators** (KPIs).
5. Evaluate the **relative performance of providers among themselves** with respect to the defined attributes and KPIs.

1.0 TECHNICAL APPROACHES AND METHODOLOGY

1.0.1 Research Design

A three-stage, stratified cluster sampling method was adopted for the selection of the survey sample in all ten administrative regions in the country, with all the 170 MMDAs considered as sampling strata. [1]

The first stage involved the selection of the urban and rural Enumeration Areas (EAs) in each stratum (district). The households in the selected EAs constituted the secondary sampling unit (SSUs) in the second stage of the sampling design. Not all household members were however interviewed in the exercise. Responses were restricted only to users of mobile phones and/or the internet. Thus, the unit of measurement was household members using mobile phones. This constituted the third stage sampling.

1.0.2 Sample size and Allocation

The methodology for sample size determination utilized some factors and values adopted from survey methodologies used by the Ghana Statistical Services (GSS) for similar surveys.

Table 1: Required Sample Size of Households, by region

REGION		ENUMERATION AREAS			HOUSEHOLD		
		Urban	Rural	Total	Urban	Rural	Total
1.	Western	16	22	38	240	330	570
2.	Central	16	18	34	240	270	510
3.	Greater Accra	57	6	63	855	90	945
4.	Volta	11	22	33	165	330	495
5.	Eastern	18	24	42	270	360	630
6.	Ashanti	46	30	76	690	450	1,140
7.	Brong Ahafo	16	20	36	240	300	540
8.	Northern	12	27	39	180	405	585
9.	Upper East	6	15	21	90	225	315
10.	Upper West	4	14	18	60	210	270
	National	**202**	**198**	**400**	**3,030**	**2,970**	**6,000**

Table 1 above shows the final list of Enumeration Areas (EAs) by region, and number of households from which the study participants were drawn.

[1] For large metropolitan areas, sub-metros were included as "districts" to ensure urban-rural representations.

1.1 Data Management, Data Integrity and Consistency checks

Data was captured using Census Processing Software (CSPRO) along with a highly structured data entry module. For data quality assurance, verification (double entry) was performed and further bolstered with an integrity check program to ensure internal consistencies. SAS® DATASET, SQL procedures and SCL programs were utilized in the development of programs for analyzing the data.

1.2 Statistical Analyses

1.2.1 Socio-Demographic Data

For socio-demographic categorical data (e.g. occupation, gender, age group, etc.) summary tables of frequency counts and percentages were presented for all six mobile providers. The service providers were compared using Pearson's chi-square tests, Mantel-Haenszel tests (for ordinal attributes) and Fisher's exact tests (for small cell frequencies).

Graphical presentations were provided to highlight the differences among these providers.

1.2.2 Wealth Data

The wealth index (WI) is a composite measure using information on household size, household income and household expenditure as well as data on household's ownership of selected assets such as televisions and bicycles, materials used for housing construction, types of water access and sanitation facilities. It is calculated using data on a household's ownership of selected assets, such as televisions and bicycles; materials used for housing construction; and types of water access and sanitation facilities. Generated using principal components analysis (a statistical procedure), the wealth index places individual households on a continuous standardized scale of relative wealth ranging from 0—100. Respondents' wealth status was analyzed and presented accordingly.

Summary tables of means, standard deviations and ranges were presented for the mobile providers. The Kruskal-Wallis method (a non-parametric ANOVA method) was employed to ascertain the existence of differences among service providers. After categorizing wealth groups into three, namely low wealth (below poverty line of 25%), middle wealth (between 25% and 70%) and upper wealth (top 30%), the Mantel-Haenszel test was employed to determine the association between wealth categorization and the choice of mobile service provider. Graphical presentations were provided to highlight the differences among providers.

1.2.3 Key Performance Indices and Other Service Ratings

Summary tables of frequency counts and percentages for the relevant indicators including KPIs were presented for the service providers. The significance of differences among the service providers were determined using Pearson's chi-square or Cochran-Mantel-Haenszel tests (controlling for districts/regions) where appropriate.

1.2.4 Statistical and Data Management Software Packages

For data entry and verification, Census Processing software (CSPRO) was used. Data cleaning was performed using SPSS. Data integrity and internal consistency checks were performed using SAS® ver. 9.3.

Tabulations of frequencies (and percentages) were performed using SAS® ver. 9.3. All graphical presentations and statistical tests (p-values) were conducted using SAS® ver. 9.3.

Statistical tests were conducted as two-sided, and declared significant for p-value <0.05.

2.0 DISTRIBUTION OF RESPONDENTS

Thirteen thousand eight hundred **(13,800)** mobile phone users, representing consumers of services provided by the six NCA-licensed mobile service providers were sampled for the survey. After applying the inclusion/exclusion criteria (age≥13 years, no family member or friend working with a mobile service operator, no participation in any telecom survey within past 6 months, etc.), **13,119** qualifying pre-paid users were subsequently interviewed on their experience of quality of the various services provided by the mobile network operators.

Table 2 shows the distribution of the participants, ranked by the number per region and per primary service provider.

Table 2: Regional Distribution of Pre-Paid Respondents

Region	MTN		Vodafone		TiGo		AirTel		Glo		Expresso			
	N	(%)	n	(%)	n	(%)	n	(%)	N	(%)	n	(%)	Total	(%)
Ashanti	1,767	13.5	266	2.0	148	1.1	156	1.2	27	0.2	10	0.1	2,374	18.1
Greater Accra	1,180	9.0	240	1.8	482	3.7	228	1.7	62	0.5	16	0.1	2,208	16.8
Eastern	1,060	8.1	229	1.7	95	0.7	91	0.7	18	0.1	8	0.1	1,501	11.4
Central	884	6.7	158	1.2	175	1.3	89	0.7	29	0.2	8	0.1	1,343	10.2
Northern	728	5.5	276	2.1	80	0.6	141	1.1	76	0.6	16	0.1	1,317	10.0
Western	659	5.0	197	1.5	268	2.0	59	0.4	23	0.2	2	0.0	1,208	9.2
Brong-Ahafo	656	5.0	218	1.7	99	0.8	83	0.6	8	0.1	2	0.0	1,066	8.1
Volta	720	5.5	146	1.1	61	0.5	23	0.2	5	0.0	4	0.0	959	7.3

Region	MTN				TiGo		AirTel		Glo		Expresso			
	N	(%)	n	(%)	n	(%)	n	(%)	N	(%)	n	(%)	Total	(%)
Upper East	356	2.7	90	0.7	41	0.3	68	0.5	23	0.2	4	0.0	582	4.4
Upper West	280	2.1	233	1.8	11	0.1	36	0.3	1	0.0	0	0.0	561	4.3
TOTAL	8,290	63.2	2,053	15.6	1,460	11.1	974	7.4	272	2.1	70	0.5	13,119	100

(a) **Ashanti Region** with the highest number accounted for over **18%** of the consumers who participated in the survey while the **Upper East Region** with the least number accounted for **4.3%**.

(b) **Expresso** had only single-digit representations for **7 out of the 10** regions (except for Ashanti, Greater Accra and Northern region), indicating how sparsely spread the operator is across the length and breadth of the country. In particular it is observed that there was no representation at all in Upper West for this operator.

3.0 MOBILE SERVICE CUSTOMERS

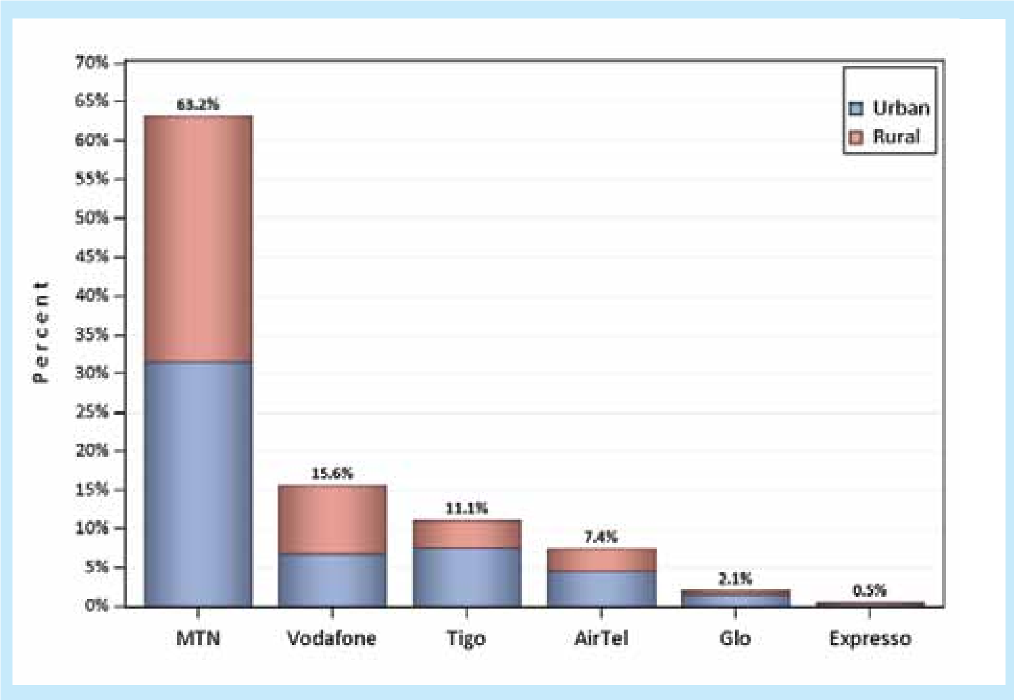
3.1 Distribution of Urban-Rural Customers

The distribution of the prepaid customers of the six service providers is presented in Table 3 segregated by urban-rural grouping. The chart of the distribution is presented in Figure 1 in descending order of frequencies.

Table 3: Distribution of Urban-Rural Customers

Locality	AirTel		Expresso		Glo		MTN		Tigo		Vodafone		TOTAL	
	n	(%)	n	(%)	n	(%)	n	(%)	n	(%)	n	(%)	n	(%)
Urban	590	60.6	53	75.7	211	77.6	4,17	49.9	989	67.7	895	43.6	6,875	52.4
Rural	384	39.4	17	24.3	61	22.4	4,153	50.1	471	32.3	1,158	56.4	6,244	47.6
Total	974		70		272		8,290		1,460		2,053		13,119	

Figure 1: Distribution of Customers by Urban-Rural Groups



(a) As a primary mobile service provider, **MTN** accounts for **63%** share of pre-paid consumers, followed at a distance by **Vodafone** with nearly **16%**. Expresso with less than **1%** share is the least used as a primary service provider.

(b) **Nationwide** mobile consumers are along a **52%** urban and **48%** rural split.

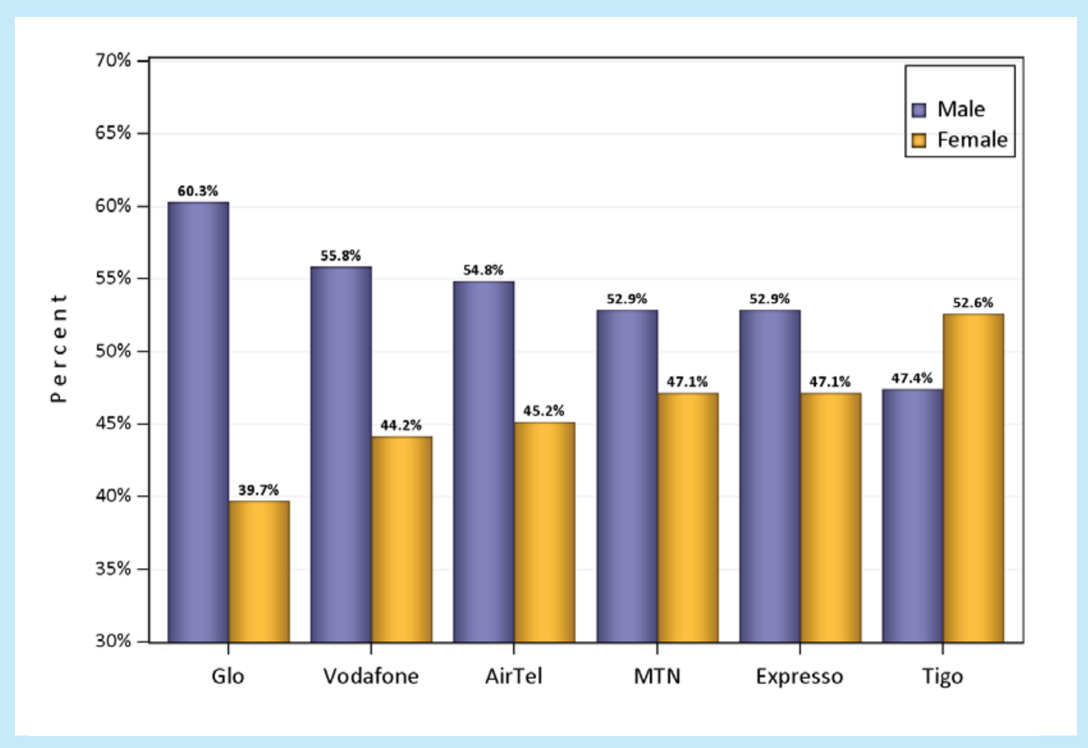
(c) **MTN** and **Vodafone** are the only mobile service providers with rural customer bases larger than their corresponding urban ones. The two service providers control about **67%** and **18%** respectively of the rural customer base, together providing primary mobile services to over **85%** of rural consumers (Table 3).

(d) Urban users of **Expresso** as primary mobile provider are more than **3 times** the size of rural users. **Glo** also has **3 times** more urban users, and **TiGo** has more than **2 times** as many urban users as rural ones. **AirTel's** urban customers are over **one-and-half times** more than their rural counterparts.

3.2 Gender Distribution of Customers

Figure 2 depicts the distribution of customers, by gender and primary mobile service provider, presented in descending order of the proportion of males.

Figure 2: Gender Distribution of Customers



(a) **TiGo**, with a female customer base of nearly **53%**, is the only service provider with a **higher** female-to-male ratio.

(b) Other service providers have higher male customer bases, with **Glo** having the **highest** male proportion of over **60%** and the **least** female proportion of fewer than **40%**.

3.3 Age Distribution of Customers

Table 4: Age Distribution of Customers

AGE GROUP (YRS)	AirTel		Expresso		Glo		MTN		Tigo		Vodafone			
	n	(%)	n	(%)	N	(%)	n	(%)	n	(%)	n	(%)	TOTAL	(%)
13 – 18	85	9.0	0	0	37	14.5	579	7.3	90	6.4	141	7.2	932	7.4
19 – 30	426	45.3	19	30.2	130	50.8	3,314	41.5	520	36.9	775	39.5	5,184	41.1
31 – 45	284	30.2	20	31.7	60	23.4	2,497	31.3	468	33.2	615	31.4	3,944	31.3
46 – 60	112	11.9	14	22.2	22	8.6	1,188	14.9	258	18.3	333	17.0	1,927	15.3
> 60	33	3.5	10	15.9	7	2.7	408	5.1	73	5.2	96	4.9	627	5.0
Total	940		63		256		7,986		1,409		1,960		12,614	
Median Group (yr)	19-30		31-45		19-30		31-45		31-45		31-45		31-45	

From Table 4 above it is noted that,

(a) For each of **MTN**, **TiGo** and **Vodafone**, one-half (or the **median**) of their primary customers are between the ages of **13** and **45** years (inclusive).

(b) **Glo** has the **highest** proportion **(65%)** of younger users (13 to 30 years) followed by **AirTel** with **54%**.

(c) **Expresso** on the other hand has the **highest** (70%) customer base of **older** users who are above 30 years.

(d) **AirTel** has over **54%** of its young primary users with ages ranging between **13** and **30** years inclusive.

(e) **Nationwide** about **49%** of mobile service consumers are young users **(13 to 30years)**.

4.0 FINDINGS

The main purpose of the study was to understand the behavior of mobile phone customers in the country and also document their satisfaction level that is influenced by various factors.

4.1 Objectives

The findings of the survey were divided into sections in accordance with the objectives of the survey as listed below:

4.1.1. Capture consumer's evaluation of **service attributes and expectations** from all mobile Service Providers.
4.1.2. Evaluate the **level of consumer** satisfaction with the various mobile service operators.
4.1.3. Measure the **level of service delivery** in the mobile telephone industry.
4.1.4. Evaluate the **performance of the operators against key performance indicators** (KPIs)
4.1.5. Evaluate the relative **performance of providers among themselves** with respect to the defined attributes and KPIs.

In addition, the survey made findings on activities for mobile phone usage, number of service providers each consumer is connected to, what consumers like most and dislike most about their primary service providers and wealth distribution of mobile phone subscribers.

4.2 Overall Consumer Satisfaction

The overall consumer satisfaction was measured through the following question:

Overall, "are you satisfied with the services being provided by your main mobile network operators?" and to answer this question, a dichotomous scale was used giving the respondents two options: yes (coded 2) and no (coded 1).The majority of respondent (74.7 percent) were satisfied with the performance of their Mobile Network Operators.

Table 5: Overall Consumer Satisfaction with Mobile Network Operator's Services

Response	AirTel		Expresso		Glo		MTN		TiGo		Vodafone			
	n	(%)	n	(%)	n	(%)	n	(%)	n	(%)	n	(%)	Total	(%)
Yes	826	86.2	56	87.5	246	93.2	5,625	69.2	1,239	85.9	1,638	80.8	9,630	74.7
No	132	13.8	8	12.5	18	6.8	2,507	30.8	204	14.1	389	19.2	3,258	25.3
Total	958		64		264		8,132		1,443		2,027		12,888	

p<0.05. Test based on Pearson Chi-square statistic. Categories with < 2% excluded from tests.

4.3 The first objective of the survey was to;

- Capture consumers evaluation of service attributes and expectations from all mobile service providers.

Here the NCA sought to determine consumers' perception with regard to the service attributes and expectations from all Mobile Network Operators. To arrive at this, the survey looked at consumers' level of satisfaction with the defined attributes and the level of importance of these attributes. The responses or findings were determined and can be found in the findings for objectives 2 and 5 respectively.

4.4 The second objective of the survey was to:

- Evaluate the level of customer satisfaction with the various mobile service operators.

This evaluation of consumer satisfaction was determined using a list of functional service attributes as per the table below;

FUNCTIONAL ATTRIBUTES

Table 6: Level of Satisfaction with Service Attributes (%)

	Service Attributes	AirTel	Expresso	Glo	MTN	TiGo	Vodafone	Nation-wide
1.	Quality of Reception	86.7	89.2	91.4	64	81.6	74.5	70.0
2.	Tariffs/Billing	79.8	78.5	86.9	36.8	69.5	68.7	49.8
3.	Coverage	82.0	68.8	75.9	77.0	79.9	77.4	77.7
4.	Ease of Making Calls	89.2	90.8	92.0	67.5	87.5	80.6	74.0
5.	Customer Relations	78.8	86.4	86.1	60.0	79.0	69.0	65.2
6.	Response to Complaints to Call Centers	76.5	81.4	85.1	58.9	77.7	67.1	63.9
7.	Overall Level of Service	89.9	87.7	92.7	67.6	86.4	79.7	73.8
8.	Reliability of Service	82.2	77.8	80.6	56.0	77.6	70.7	63.3
9.	Availability of Service (Maintainability)	77.3	70.3	76.7	54.6	75.3	64.2	60.6
10.	Supplemental Services	80.2	71.2	82.9	64.4	79.7	73.9	69.2

Internet Services Only		AirTel	Expresso	Glo	MTN	TiGo	Vodafone	Nation-wide
11.	Signal Strength	82.2	92.9	89.2	69.9	78.8	83.8	74.8
12.	Speed of Connection	80.5	100.0	81.9	68.0	71.2	71.4	70.9
13.	Ability to Stay Long	78.7	100.0	75.9	63.8	76.7	71.1	68.2
14.	Presence of Signal	82.7	64.3	78.3	67.1	76.0	76.0	71.1
15.	Tariff/Billing	78.0	92.9	81.9	49.6	61.0	59.3	56.5

4.5 The third objective of the survey was to:

- Measure the level of service delivery in the mobile telephone industry.

Consumers were asked to list issues which they thought affected service delivery.

4.5.1 Service Usage Problems

Survey participants were asked to indicate usage problems which they thought affected service delivery, if any. Their responses, in addition to the perceptions of the performance of these service providers are summarized in the table below:

Table 7: Problems in the Last 10 Call Attempts

		AirTel		Expresso		Glo		MTN		TiGo		Vodafone			
		n	(%)	n	(%)	n	(%)	n	(%)	n	(%)	N	(%)	Total	(%)
Without problems	Urban	391	41.8	37	59.7	151	55.9	2,036	24.6	654	46.3	561	29.2	3,830	29.7
	Rural	189	20.2	7	11.3	32	11.9	1,671	20.2	244	17.3	490	25.5	2,633	20.5
	Total	580	62.2	44	71.0	183	67.8	3,707	44.9	898	63.6	1,051	54.9	6,463	50.2
With problems	Urban	180	19.2	12	19.4	64	23.7	2,080	25.1	304	21.5	274	14.3	2,914	22.6
	Rural	176	18.8	6	9.7	23	8.5	2,488	30.1	211	14.9	594	31.0	3,498	27.2
	Total	356	38.0	18	29.0	87	32.2	4,568	55.2	515	36.4	868	45.2	6,412	49.8
TOTAL		936		62		270		8,275		1,413		1,919		12,875	

Nationally, a little over 50% of mobile service customers claimed they did not encounter any problem in their last 10 call attempts. Expresso customers expressed the highest rate of hassle-free calls at 71.0%, followed by Glo users (67.8%), TiGo users (63.6%), AirTel users (62.2%), and Vodafone users (54.9%). MTN trails behind with only 44.9% of users stating they had no problems.

It is also noted for all service providers that the proportion of urban customers who did not encounter problems were consistently and significantly higher ($p<0.05$) than their rural counterparts.

The Table 8 below gives expanded list of problems that consumers encountered in the last 10 call attempts.

Table 8: Types of Problems Experienced by Respondents in the last 10 call attempts

Types of Problems			AirTel		Expresso		Glo		MTN		TiGo		Vodafone		Nationwide	
			n	(%)	n	(%)	n	(%)	n	(%)	N	(%)	n	(%)	n	(%)
1.	Number switched off/ Out of coverage area	Urban	137	(14.6)	8	(12.9)	57	(21.1)	2,472	(29.9)	269	(19.0)	204	(10.6)	3,147	(24.4)
		Rural	132	(14.1)	11	(17.7)	7	(2.6)	2,873	(34.7)	168	(11.9)	526	(27.4)	3,717	(28.9)
		Total	269	(28.7)	19	(30.6)	64	(23.7)	5,345	(64.6)	437	(30.9)	730	(38.0)	6,864	(53.3)
2.	Number busy	Urban	38	(4.1)	6	(9.7)	22	(8.1)	1,014	(12.3)	113	(8.0)	87	(4.5)	1,280	(9.9)
		Rural	60	(6.4)	2	(3.2)	45	(16.7)	1,019	(12.3)	65	(4.6)	183	(9.5)	1,374	(10.7)
		Total	98	(10.5)	8	(12.9)	67	(24.8)	2,033	(24.6)	178	(12.6)	270	(14.1)	2,654	(20.6)
3.	Error in connection	Urban	22	(2.4)	3	(4.8)	9	(3.3)	775	(9.4)	83	(5.9)	45	(2.3)	937	(7.3)
		Rural	65	(6.9)	3	(4.8)	1	(0.4)	827	(10.0)	44	(3.1)	126	(6.6)	1,066	(8.3)
		Total	87	(9.3)	6	(9.7)	10	(3.7)	1,602	(19.4)	127	(9.0)	171	(8.9)	2,003	(15.6)
4.	Cross-connection	Urban	8	(0.9)	5	(8.1)	0	(0.0)	72	(0.9)	7	(0.5)	7	(0.4)	99	(0.8)
		Rural	22	(2.4)	0	(0.0)	0	(0.0)	126	(1.5)	9	(0.6)	28	(1.5)	185	(1.4)
		Total	30	(3.2)	5	(8.1)	0	(0.0)	198	(2.4)	16	(1.1)	35	(1.8)	284	(2.2)
5.	Echo	Urban	5	(0.5)	0	(0.0)	3	(1.1)	131	(1.6)	23	(1.6)	29	(1.5)	191	(1.5)
		Rural	9	(1.0)	0	(0.0)	0	(0.0)	267	(3.2)	21	(1.5)	41	(2.1)	338	(2.6)
		Total	14	(1.5)	0	(0.0)	3	(1.1)	398	(4.8)	44	(3.1)	70	(3.6)	529	(4.1)
6.	Call drop	Urban	28	(3.0)	0	(0.0)	28	(10.4)	663	(8.0)	80	(5.7)	71	(3.7)	870	(6.8)
		Rural	55	(5.9)	0	(0.0)	4	(1.5)	1,016	(12.3)	39	(2.8)	181	(9.4)	1,295	(10.1)
		Total	83	(8.9)	0	(0.0)	32	(11.9)	1,679	(20.3)	119	(8.4)	252	(13.1)	2,165	(16.8)
7.	Dead line	Urban	4	(0.4)	1	(1.6)	11	(4.1)	234	(2.8)	50	(3.5)	14	(0.7)	314	(2.4)
		Rural	18	(1.9)	0	(0.0)	0	(0.0)	349	(4.2)	19	(1.3)	39	(2.0)	425	(3.3)
		Total	22	(2.4)	1	(1.6)	11	(4.1)	583	(7.0)	69	(4.9)	53	(2.8)	739	(5.7)
8.	Intermittent signal breaks	Urban	3	(0.3)	0	(0.0)	4	(1.5)	73	(0.9)	35	(2.5)	17	(0.9)	132	(1.0)
		Rural	5	(0.5)	0	(0.0)	0	(0.0)	138	(1.7)	9	(0.6)	6	(0.3)	158	(1.2)
		Total	8	(0.9)	0	(0.0)	4	(1.5)	211	(2.5)	44	(3.1)	23	(1.2)	290	(2.3)

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Table 8: Types of Problems Experienced by Respondents in the last 10 call attempts

Types of Problems			AirTel		Expresso		Glo		MTN		TiGo		Vodafone		Nationwide	
			n	(%)	n	(%)	n	(%)	n	(%)	N	(%)	n	(%)	n	(%)
9.	**Call clarity**	**Urban**	16	(1.7)	4	(6.5)	0	(0.0)	115	(1.4)	33	(2.3)	9	(0.5)	177	(1.4)
		Rural	0	(0.0)	0	(0.0)	0	(0.0)	283	(3.4)	8	(0.6)	44	(2.3)	335	(2.6)
		Total	16	(1.7)	4	(6.5)	0	(0.0)	398	(4.8)	41	(2.9)	53	(2.8)	512	(4.0)
10.	**Network failure**	**Urban**	57	(6.1)	12	(19.4)	52	(19.3)	1,307	(15.8)	60	(4.2)	60	(3.1)	1,548	(12.0)
		Rural	147	(15.7)	10	(16.1)	59	(21.9)	2,492	(30.1)	193	(13.7)	658	(34.3)	3,559	(27.6)
		Total	204	(21.8)	22	(35.5)	111	(41.1)	3,799	(45.9)	253	(17.9)	718	(37.4)	5,107	(39.7)
11.	**Difficulty recharging units**	**Urban**	3	(0.3)	1	(1.6)	0	(0.0)	51	(0.6)	7	(0.5)	11	(0.6)	73	(0.6)
		Rural	0	(0.0)	0	(0.0)	0	(0.0)	98	(1.2)	0	(0.0)	1	(0.1)	99	(0.8)
		Total	3	(0.3)	1	(1.6)	0	(0.0)	149	(1.8)	7	(0.5)	12	(0.6)	172	(1.3)
12.	**Receipts of multiple SMS**	**Urban**	4	(0.4)	0	(0.0)	0	(0.0)	36	(0.4)	23	(1.6)	5	(0.3)	68	(0.5)
		Rural	1	(0.1)	0	(0.0)	0	(0.0)	56	(0.7)	1	(0.1)	3	(0.2)	61	(0.5)
		Total	5	(0.5)	0	(0.0)	0	(0.0)	92	(1.1)	24	(1.7)	8	(0.4)	129	(1.0)
13.	**Voice breaks**	**Urban**	12	(1.3)	0	(0.0)	4	(1.5)	110	(1.3)	19	(1.3)	15	(0.8)	160	(1.2)
		Rural	4	(0.4)	0	(0.0)	6	(2.2)	208	(2.5)	30	(2.1)	62	(3.2)	310	(2.4)
		Total	16	(1.7)	0	(0.0)	10	(3.7)	318	(3.8)	49	(3.5)	77	(4.0)	470	(3.7)
14.	**Bad indoor reception**	**Urban**	7	(0.7)	0	(0.0)	1	(0.4)	28	(0.3)	1	(0.1)	7	(0.4)	44	(0.3)
		Rural	11	(1.2)	0	(0.0)	0	(0.0)	347	(4.2)	24	(1.7)	144	(7.5)	526	(4.1)
		Total	18	(1.9)	0	(0.0)	1	(0.4)	375	(4.5)	25	(1.8)	151	(7.9)	570	(4.4)
15.	**Bad spot reception**	**Urban**	9	(1.0)	0	(0.0)	2	(0.7)	23	(0.3)	0	(0.0)	6	(0.3)	40	(0.3)
		Rural	22	(2.4)	0	(0.0)	0	(0.0)	777	(9.4)	72	(5.1)	359	(18.7)	1,230	(9.6)
		Total	31	(3.3)	0	(0.0)	2	(0.7)	800	(9.7)	72	(5.1)	365	(19.0)	1,270	(9.9)
TOTAL			936		62		270		8,275		1,413		1,919		12,875	

4.6 The fourth objective of the survey was to:

- Evaluate the performance of the operators against the defined KPIs.

This section shows the results of operator's performance against the KPIs and the benchmark established by the Authority.

Table 9: Relative Performance of Service Providers

CUSTOMER SATISFACTION WITH:		AirTel %	Expresso %	Glo %	MTN %	TiGo %	Vodafone %	Bench Mark
1.	BILLING PERFORMANCE	79.8	78.5	86.9	36.8	69.5	68.7	85%
2.	HELP/ENQUIRY SERVICES	77.6	83.5	85.6	59.4	78.3	68.1	85%
3.	OFFERED SUPPLEMENTARY SVCS	80.2	71.2	82.9	64.4	79.7	73.9	90%
4.	OVERALL QUALITY OF SVC	81.6	83.5	83.8	61.7	77.2	72.5	75%

* Excludes ranking for Quality of Internet Service

4.7 The Fifth Objective of the Survey

- Evaluate the relative performance of providers among themselves with respect to the defined attributes and KPIs.

4.7.1 Level of Importance of Services

Participants in the survey were asked to indicate the degree of importance of the services listed in Table 10 when selecting a mobile service provider. The summaries in the table are presented and ranked by the frequency of selections.

Quality of reception was the most selected service by 87.1% (11,430 out of 13,119) respondents, followed closely by Tariffs/Billing by 86.0% (11,286 out of 13,119) respondents, coverage by 75.7%, and Ease of making calls by 75.6%, completing the top 4 services selected most by respondents; interestingly, overall level of service was given varying degrees of importance across the four rankings [1 (most important) to 4 (least important)] by 30.3% respondents, making it the 6th in popularity. Customer relations and Response by call centers trailed in popularity, selected by 19.2% and 17.4 respondents respectively.

Figure 3: Level of Importance of the 4 Most Popular Services Attributes and Expectations

The level of importance was calculated by adding together those repondents that selected either "Most important" or "Least Important".

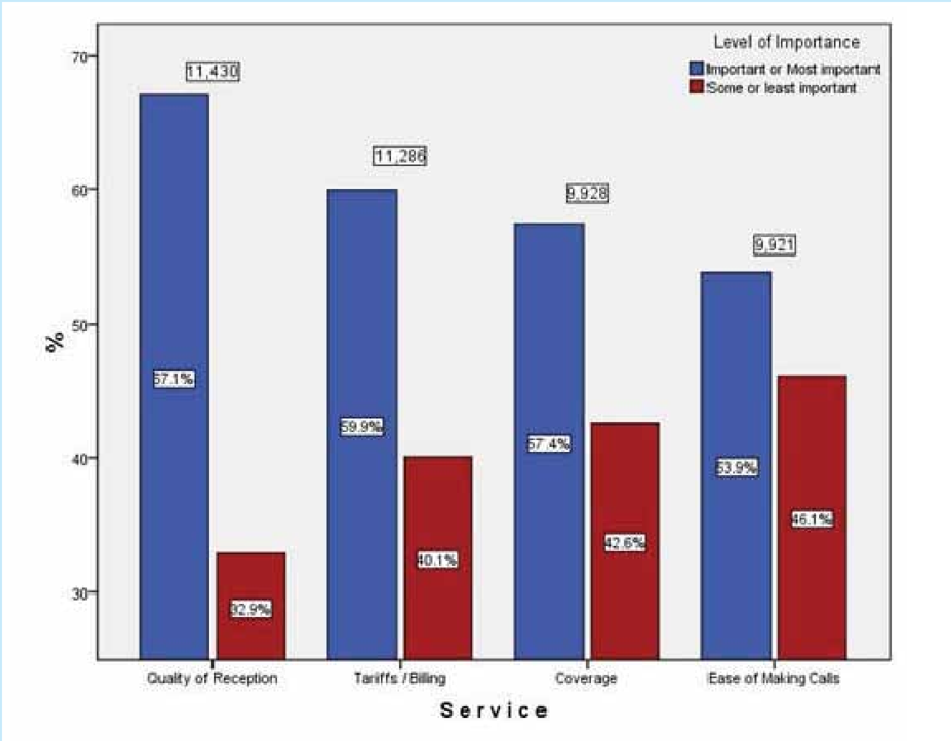


Table 10: Level of Importance of Services

SERVICES	1=Most Imp		2=Important		3=Some Imp		4=Least Imp			
	n	(%)	n	(%)	n	(%)	n	(%)	Total	(%)
Quality of Reception	4,770	(41.7)	2,900	(25.4)	2,191	(19.2)	1,569	(13.7)	11,430	(87.1)
Tariffs / Billing	3,575	(31.7)	3,190	(28.3)	2,269	(20.1)	2,252	(20.0)	11,286	(86.0)
Coverage	2,844	(28.6)	2,855	(28.8)	2,563	(25.8)	1,666	(16.8)	9,928	(75.7)
Ease of Making Calls	3,100	(31.2)	2,246	(22.6)	2,351	(23.7)	2,224	(22.4)	9,921	(75.6)
Network used by family, friends	2,024	(30.9)	1,650	(25.2)	1,165	(17.8)	1,701	(26.0)	6,540	(49.9)
Overall Level of Service	1,069	(26.9)	947	(23.8)	737	(18.6)	1,218	(30.7)	3,971	(30.3)
Customer Relations	313	(12.5)	584	(23.2)	639	(25.4)	978	(38.9)	2,514	(19.2)
Response of Call Centers	239	(10.5)	526	(23.2)	427	(18.8)	1,076	(47.4)	2,268	(17.4)

5.0 ADDITIONAL FINDINGS

5.0.1 Activities for Mobile Phone Usage

The most popular activities that mobile phones are used for are shown below, ranked by order of importance.

(a) *Making and/or receiving calls:* This is the most popular activity for using the mobile phone as reported by over **97%** of consumers nationwide.

(b) *Sending and/or receiving emails:* The next popular activity is reported by only about **16%** of nationwide consumers.

(c) *Internet browsing* is popular in **10%** of the nationwide consumers.

Popularity levels of most activities are about the same for urban and rural consumers except for internet browsing, which is found to be more than twice as popular among urban **(14%)** than rural group **(6%)**.

Table 11: Most Frequent Uses of Mobile Phones

Activity		Urban		Rural		Total	
		n	(%)	n	(%)	n	(%)
2.	Making / receiving calls	6,742	(98.1)	6,029	(96.6)	12,771	(97.3)
3.	Sending / receiving e-mails	1,220	(17.7)	838	(13.4)	2,058	(15.7)
4.	Mobile money transfer	104	(1.5)	76	(1.2)	180	(1.4)
5.	Browsing the internet	959	(13.9)	366	(5.9)	1,325	(10.1)
6.	Social network (Facebook, twitter, etc.)	173	(2.5)	114	(1.8)	287	(2.2)
7.	Other	5	(0.1)	4	(0.1)	9	(0.1)

5.0.2 Number of Service Providers Consumers Connected to

Over **76%** of rural consumers compared to about **64%** of urban counterparts are connected to only one network; thus, only about **24%** of rural compared to **36%** of urban consumers are able to connect to 2 or more mobile service providers.

Table 12: The Number of Service Providers Consumers are Connected to

No. of Providers	Urban		Rural		Total	
	n	(%)	n	(%)	n	(%)
1	4,371	63.9	4,727	76.2	9,098	69.8
2	2,026	29.6	1,331	21.5	3,357	25.7
3	329	4.8	107	1.7	436	3.3
4	81	1.2	32	0.5	113	0.9
5	23	0.3	6	0.1	29	0.2
6	6	0.1	1	0	7	0.1
Total	6,838	100	6,204	100	13,040	100

$p<0.05$. Test based on Mantel-Haenszel Chi-square statistics. providers were collapsed into one category for test purposes. Those connected to 3 or higher providers were collapsed into one category for test purposes.

Figure 4: Number of Mobile Service Providers Consumers are Connected to

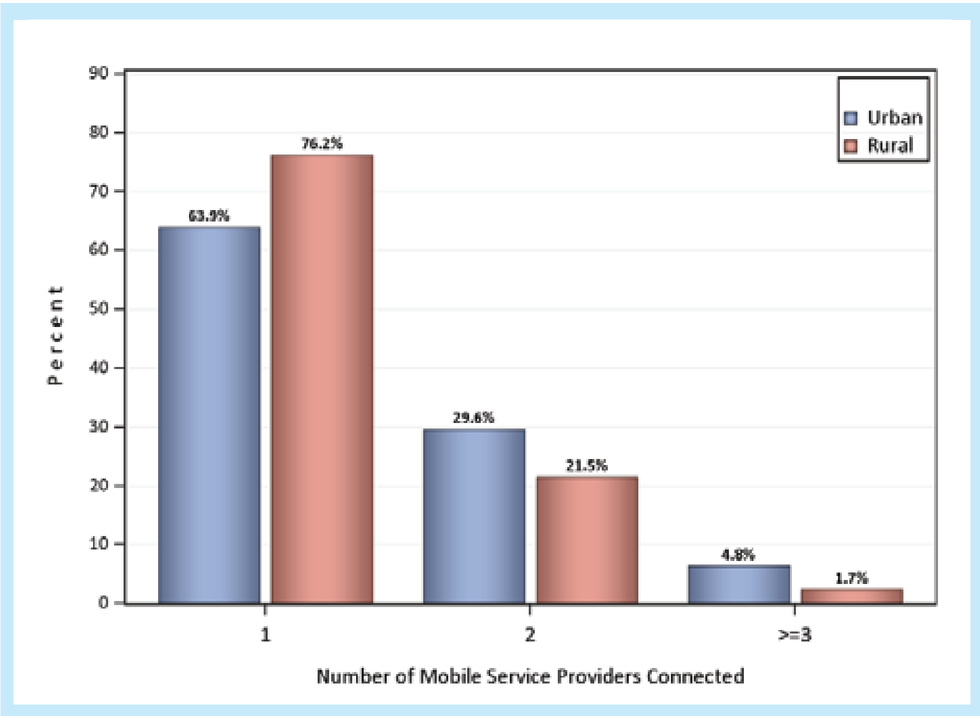


Table 13: Reasons for Wanting to Change to a New Mobile Service Provider

Rank	Reason	AirTel		Expresso		Glo		MTN		TiGo		Vodafone		TOTAL	
		n	(%)	n	(%)	n	(%)	n	(%)	n	(%)	n	(%)	n	(%)
1	Units cheaper/ lower tariffs	17	3.2	2	0.4	4	0.8	427	80.4	53	10.0	28	5.3	531	20.9
2	They have better reception	23	4.4	0	0.0	3	0.6	394	75.9	64	12.3	35	6.7	519	20.5
3	Easy to get your calls through	13	4.3	3	1.0	0	0.0	238	78.0	32	10.5	19	6.2	305	12.0
4	They are more reliable	13	5.1	0	0.0	0	0.0	202	78.9	27	10.5	14	5.5	256	10.1
5	My friends use this network	13	6.0	0	0.0	6	2.8	130	60.5	42	19.5	24	11.2	215	8.5
6	They have wider coverage	11	5.3	2	1.0	1	0.5	133	63.9	34	16.3	27	13.0	208	8.2
7	They offer new services	8	6.0	1	0.8	1	0.8	95	71.4	15	11.3	13	9.8	133	5.2
8	Very convenient to use	8	6.0	2	1.5	1	0.8	97	72.9	13	9.8	12	9.0	133	5.2
9	Longer period before recharge	0	0.0	0	0.0	0	0.0	30	81.1	6	16.2	1	2.7	37	1.5
10	They offer transfer of units	0	0.0	1	4.2	0	0.0	10	41.7	4	16.7	9	37.5	24	0.9
11	Their SIM card is cheaper	0	0.0	0	0.0	0	0.0	16	94.1	0	0.0	1	5.9	17	0.7
12	To enjoy their free night calls	0	0.0	1	7.1	0	0.0	6	42.9	3	21.4	4	28.6	14	0.6
13	Other	7	4.8	1	0.7	4	2.8	101	69.7	16	11.0	16	11.0	145	5.7
	Total Reported	113	4.5	13	0.5	20	0.8	1,879	74.1	309	12.2	203	8.0	2,537	100

5.0.3 What Respondents like most about their Primary Service Provider

Respondents were asked to state what they liked most about their primary service provider. In order of popularity, their responses include wider coverage area, good reception, ease of making calls to other networks, bonus credit offers, unit not running out faster, and affordable recharge units. Other minor reasons include non-expiring account and lower IDD charges.

Table 14: What do you like most about your Service Provider

Rank	Reason	AirTel		Expresso		Glo		MTN		TiGo		Vodafone		
		n	(%)	n	(%)	n	(%)	N	(%)	n	(%)	n	(%)	Total
1	Wider coverage area	181	3.5	8	0.2	37	0.7	4,217	81.3	217	4.2	527	10.2	5,187
2	Good reception	259	8.8	17	0.6	64	2.2	1,658	56.0	325	11.0	637	21.5	2,960
3	Easy to make calls to other networks	374	12.8	18	0.6	71	2.4	1,421	48.7	422	14.5	614	21.0	2,920
4	Offers bonus credits	189	8.9	6	0.3	67	3.2	847	40.0	368	17.4	643	30.3	2,120
5	Lower prices on their units	281	17.2	16	1.0	74	4.5	541	33.2	334	20.5	384	23.6	1,630
6	Introduction of unit transfer	19	1.3	0	0.0	4	0.3	1,347	89.6	84	5.6	50	3.3	1,504
7	Units do not run down fast or low tariffs	291	21.8	15	1.1	63	4.7	376	28.1	267	20.0	324	24.3	1,336
8	Recharge units prices are lower or affordable	62	6.5	5	0.5	10	1.0	651	68.0	102	10.6	128	13.4	958
9	Offers promotions	57	7.8	5	0.7	13	1.8	284	38.7	104	14.2	271	36.9	734
10	It has ring back tone on it	49	7.1	0	0.0	7	1.0	461	67.1	82	11.9	88	12.8	687
11	Free night calls	19	2.8	4	0.6	4	0.6	571	83.8	22	3.2	61	9.0	681
12	Always introducing new things into the market	45	7.7	1	0.2	7	1.2	322	55.3	67	11.5	140	24.1	582
13	Good customer service	65	11.2	1	0.2	17	2.9	307	53.1	84	14.5	104	18.0	578
14	They are reliable	50	11.3	2	0.5	6	1.4	226	51.1	49	11.1	109	24.7	442
15	Other	14	4.0	0	0.0	7	2.0	255	72.0	60	16.9	18	5.1	354
16	Subscriber to subscriber unit transfer	2	0.8	1	0.4	1	0.4	202	83.8	15	6.2	20	8.3	241
17	None or no response	9	4.5	2	1.0	1	0.5	150	75.8	25	12.6	11	5.6	198
18	Account does not expire	10	9.3	1	0.9	1	0.9	73	67.6	10	9.3	13	12.0	108
19	Their IDD call charges are lower	9	10.8	3	3.6	4	4.8	36	43.4	12	14.5	19	22.9	83

5.0.4 What respondents dislike most about their Primary Service Provider

In a bid to improve services rendered by the MNOs, respondents were asked what they disliked most about their MNOs. These were multiple responses which are listed in order of overall popularity in the table below. Out of 25,658 responses (i.e. each individual was allowed to provide more than one response), respondents mostly disliked unstable or jammed network, which had 20% of the responses. This is followed by high tariffs (17.5%), bad reception (10.5%) and high cost of calling other networks (10.3%). Others were "Switched off or out of coverage area" messages (8.7%) and difficulty in calling other networks (7.2%).

Among some of the relatively 'unpopular' responses given were free night calls (1.4% of responses), short validity period (1.1%), per second billing not well understood (1.0%), starting time for free night calls being too late (0.9%), time for free night calls being too short (0.4%) and inability to send text messages (0.2%). The table below gives a detailed presentation of the reasons aforementioned.

Table 15: What do you dislike about your Service Provider

Rank	Reason	AirTel		Expresso		Glo		MTN		TiGo		Vodafone		
		n	(%)	n	(%)	n	(%)	n	(%)	n	(%)	n	(%)	Total
1	Network is sometimes unstable or jammed	234	4.5	13	0.3	68	1.3	3,723	72.4	417	8.1	688	13.4	5,143
2	High call tariffs	136	3.0	8	0.2	30	0.7	3,663	81.8	242	5.4	399	8.9	4,478
3	Has bad reception	123	4.5	4	0.1	17	0.6	2,018	74.6	178	6.6	364	13.5	2,704
4	Expensive when calling other networks	112	4.2	8	0.3	29	1.1	1,889	71.3	220	8.3	390	14.7	2,648
5	There are switched off or out of coverage area messages	93	4.2	6	0.3	24	1.1	1,653	74.4	198	8.9	248	11.2	2,222
6	Not easy calling other networks	69	3.7	1	0.1	18	1.0	1,435	77.8	110	6.0	212	11.5	1,845
7	They should improve upon services	140	11.3	12	1.0	24	1.9	668	54.0	149	12.0	245	19.8	1,238
8	Other	134	14.0	8	0.8	24	2.5	304	31.7	337	35.2	151	15.8	958
9	Do not have wider coverage	150	16.8	24	2.7	62	6.9	305	34.1	176	19.7	177	19.8	894
10	No free credit or bonus credit	34	4.9	4	0.6	7	1.0	552	79.3	43	6.2	56	8.0	696
11	Should stop interrupting services	39	6.6	3	0.5	5	0.8	396	66.6	62	10.4	90	15.1	595

Rank	Reason	AirTel		Expresso		Glo		MTN		TiGo		Vodafone		
		n	(%)	n	(%)	n	(%)	n	(%)	n	(%)	n	(%)	Total
12	Sometimes deduct units for free night calls	18	4.1	0	0.0	0	0.0	329	74.9	41	9.3	51	11.6	439
13	Bad customer relationship	24	6.0	2	0.5	4	1.0	297	74.6	22	5.5	49	12.3	398
14	No free night calls	58	15.9	4	1.1	17	4.7	161	44.1	57	15.6	68	18.6	365
15	Short validity period	35	11.9	0	0.0	2	0.7	138	47.1	47	16.0	71	24.2	293
16	Per second billing is not well understood	25	9.5	3	1.1	7	2.7	169	64.3	17	6.5	42	16.0	263
17	Starting time for free night calls is too late	11	4.9	0	0.0	1	0.4	158	70.2	25	11.1	30	13.3	225
18	They burn people chip or line	9	7.9	0	0.0	1	0.9	85	74.6	14	12.3	5	4.4	114
19	Time for free night calls is too short	14	14.1	0	0.0	0	0.0	62	62.6	9	9.1	14	14.1	99
20	You can't send text messages	8	19.5	0	0.0	1	2.4	20	48.8	6	14.6	6	14.6	41

6.0 Wealth Distribution of Customers

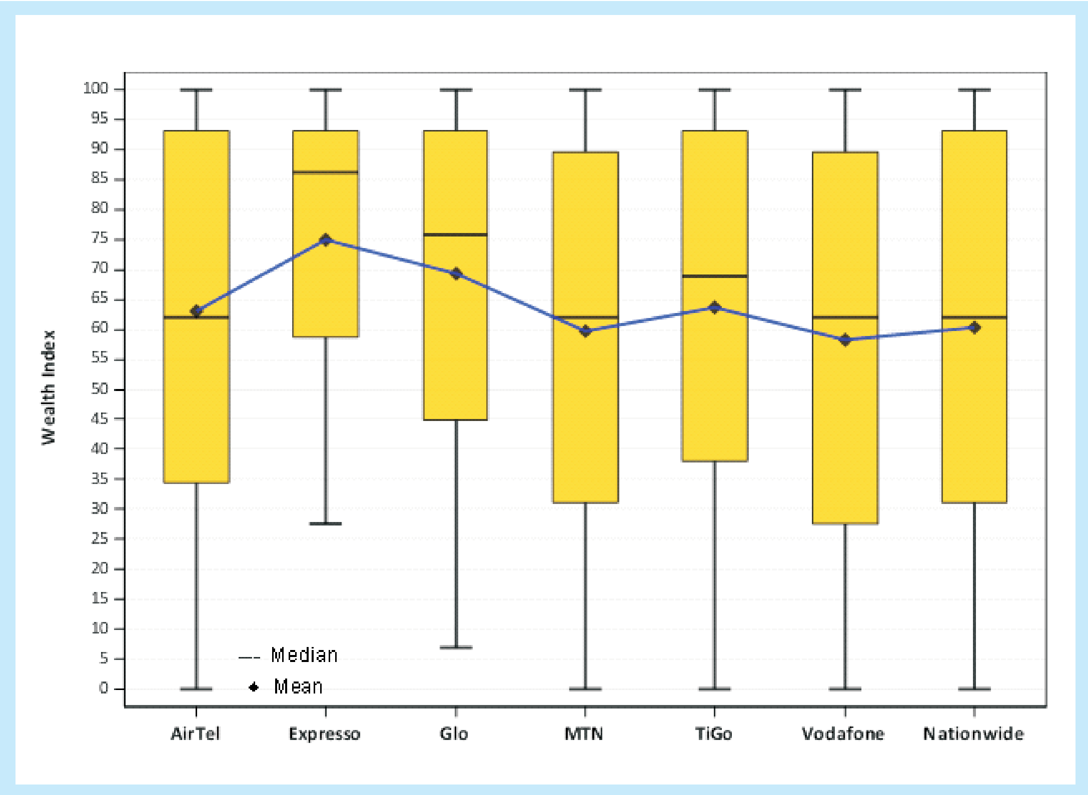
Table 16 below presents the means, medians, minimum and maximum values of wealth indices for the service providers. The box plots of Figure 5 consist of the wealth index data and the descriptive statistics in Table 16 are conveniently presented graphically through the quartiles (25th, 50th, 75th percentiles).

Figure 6 below presents the wealth categorization (poverty line, middle and upper wealth) of the customers.

Table 16: Descriptive Statistics for Wealth Index

Statistics	AirTel	Expresso	Glo	MTN	TiGo	Vodafone	Nation-wide
N	915	62	244	7,608	1,362	1,904	12,095
Mean	**63.0**	**74.9**	**69.4**	**59.7**	**63.8**	**58.2**	**60.4**
Median	**62.1**	**86.2**	**75.9**	**62.1**	**69.0**	**62.1**	**62.1**
Range (Min, Max)	0.0, 100.0	27.6, 100.0	6.9, 100.0	0.0, 100.0	0.0, 100.0	0.0, 100.0	0.0, 100.0

Figure 5: Box Plots of Wealth Index



The height of each box in Figure 5 represents the middle 50% of the ranked indices for the service provider.

(a) On the average **Expresso** customers are the **most affluent** users of mobile service, followed by **Glo** customers (average indices of **75** and **69**, respectively).

(b) **MTN** and **Vodafone** customers are the **least affluent** users with average wealth indices of **58** and **60**, respectively.

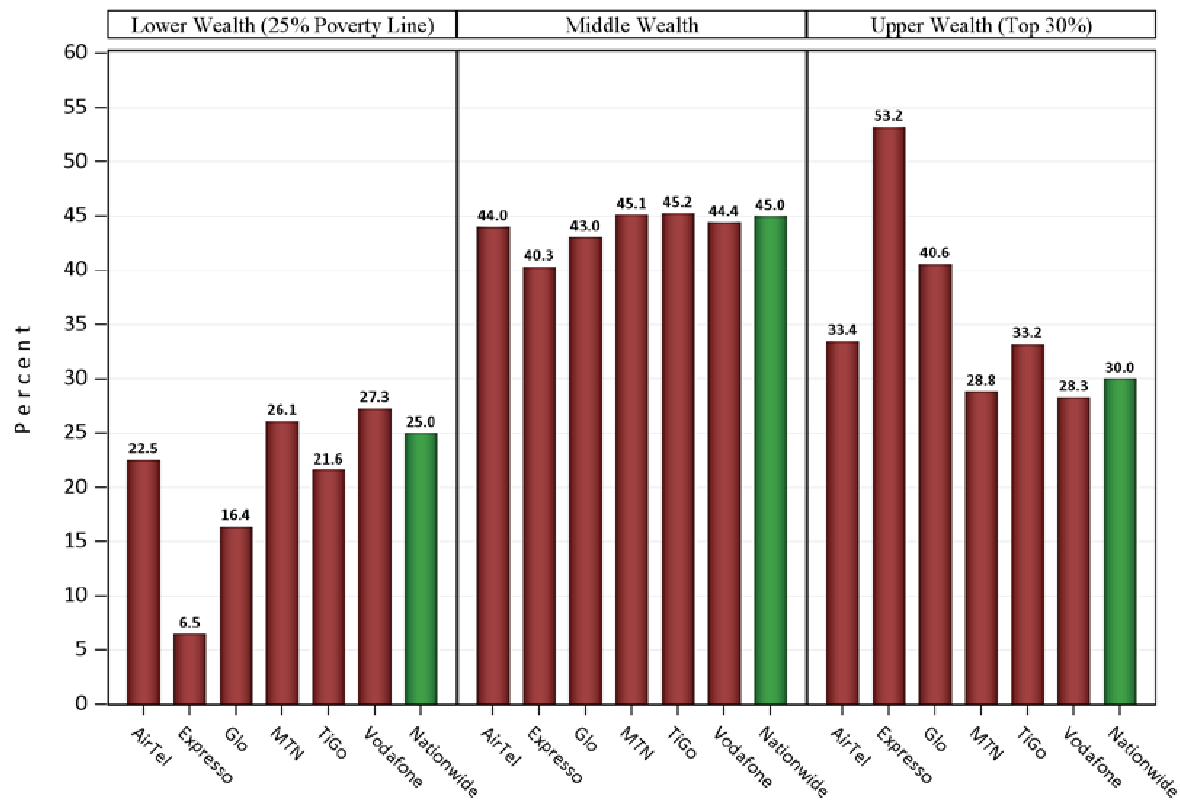
(c) The **national** median wealth index for mobile telecommunication consumers is about **62** on the wealth scale of 0—100.

(d) At least **half** of **Expresso** customers have wealth index values of **86** or higher, and for **Glo** half of its customers have indices of **76** or higher.

(e) **Half** of the users of each of **AirTel**, **MTN** and **Vodafone** have wealth indices of **62** or below; this threshold also coincide with the national median wealth index.

(f) 50% of **Expresso's** respondents are concentrated between **58** and **94** wealth index as compared to the nationwide figures which are spread between **27** and **90** on the wealth index scale (Figure 5).

Figure 6: Wealth Categories of Consumers



In Figure 6, it is observed that,

(a) Fewer than **7%** of **Expresso** customers fall below the **poverty line** (lower wealth category), compared with the national figure of **25%**.

(b) **Glo**, **TiGo** and **AirTel** with respective customer proportions of **16%**, **22%** and **23%**, all have lower figures falling below the national poverty line.

(c) **MTN** and **Vodafone** with respective figures of **26%** and **27%** have relatively higher proportions of their respective customers considered poor (below national poverty line).

(d) Over **half** of **Expresso** customers **(53%)** are considered to be affluent (upper wealth). The corresponding figures for **Glo**, **AirTel** and **TiGo** are **41%**, **33%** and **33%** respectively, compared to the national affluent group (top **30%**).

(e) **MTN** and **Vodafone** have about **29%** and **28%** respectively of affluent customers, and these are below the **30%** national figure.

CONCLUSION

The consumer satisfaction survey was undertaken to examine and understand consumers' perceptions of the services provided by their mobile network operators. In this regard, consumers' perception of the services and performances of their service providers varies widely in relations to the service attributes and KPIs used in the survey.

The report findings seem to indicate that consumers are relatively satisfied with the services of their mobile network operators. However, there are areas that need improvement as operators were not able to meet all the benchmarks for the KPIs.

The Authority believes that the findings of this survey will go a long way to help operators identify critical areas that are needed for improvement and enhance service experience for consumers.

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