



# Mobile Platform Access for SMS-Based Applications (MPA-SMS)

Market Assessment

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Prepared for:



## Version History

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## 1 Executive Summary

- 1.1 This document sets out an assessment of whether or not there is effective competition in the market for *mobile platform access for SMS-based applications within Uganda*, (MPA-SMS), particularly whether or not one or more communications service providers (CSPs) have significant market power (SMP). A firm or group of firms with SMP have the potential to either increase price above and/or reduce output below the competitive level. It follows that consumers will benefit less in a market where CSPs exercise SMP compared with a market in which competition is effective.
- 1.2 MPA-SMS services are supplied in Uganda by Airtel, MTN, Orange, Smart Telecom, Uganda Telecom and K2. Of these firms: Airtel, MTN, Orange, Uganda Telecom and Smart Telecom are mobile network operators (MNOs); and, K2 is a mobile virtual network operator (MVNO) with a wholesale supply agreement with Orange.
- 1.3 MPA-SMS refers to the provision of access to a mobile CSP's SMS platform for the purpose of offering SMS-based applications to the mobile CSP's subscribers. The market includes provision of access to SMS aggregators such that they can offer SMS services to application and content providers.
- 1.4 The size of the CSP's customer base (i.e. the potential market for the services) is a key differentiator for SMS SPs as it represents the available customers for the retail SMS-based service. Given the SMS SP's costs of offering a SMS service include significant fixed costs, it may not be worth offering SMS-based applications to a CSP's customer base if it is small, as possible revenues from these subscribers would not justify the investment required.
- 1.5 Furthermore, SMS SPs have no alternative way to reach a mobile CSP's customers in the absence of that CSP offering MPA-SMS directly to them or indirectly via an aggregator. A SMS SP connected to one CSP can, in theory, target the customers on another CSP, but this relies on the mobile users switching CSPs, which is unlikely where there are network effects.

### SMP assessment conclusions

- 1.6 MPA-SMS services are supplied in Uganda by Airtel, MTN, Orange, Smart Telecom, Uganda Telecom and K2. Each of the CSPs has SMP in the market of MPA-SMS on their own networks. This follows from the simple technical fact that a SMS SP that wants to offer services to mobile users on a particular CSP's network must acquire access to that CSP's MPA-SMS.
- 1.7 A key factor in assessing the effect of this SMP is the size of the CSP's share of the retail mobile market. On this basis, MTN and Airtel are currently able to exploit their SMP in the market for MSP-SMS to:
  - Limit competitive entry in the retail SMS SP market; and,
  - Price MPA-SMS independently of cost to capture a disproportionate share of the SMS VAS value chain;
  - Refuse to accept service level guarantees and not compensate SMS SPs for poor performance.
- 1.8 Whereas, even though Orange, Smart Telecom, and Uganda Telecom do not currently have significant share of the retail mobile market, they would be able to exploit their SMP to:
  - Price MPA-SMS independently of cost to capture a disproportionate share of the SMS VAS value chain; and,
  - Refuse to accept service level guarantees and not compensate SMS SPs for poor performance.

## 2 Introduction

- 2.1 The purpose of this document is to set out an assessment of whether or not there is effective competition in market for mobile platform access for SMS-based applications within Uganda, (MPA-SMS), particularly whether or not one or more cellular service providers (CSPs) have significant market power (SMP).
- 2.2 CSPs with SMP have the potential to increase price or reduce output below the competitive level. This implies that customers would not derive the same levels of benefits from the MPA-SMS service as they would if there were effective competition. Therefore, it is important to identify whether or not firms have SMP.
- 2.3 If one or more CSPs are found to have SMP, then may be appropriate to introduce regulatory measures. Properly designed and implemented, regulatory measures can ameliorate SMP and thus enhance market performance and economic efficiency in the relevant market.
- 2.4 This assessment commences with a description of the definition of the MPA-SMS market. This is followed by an assessment of the market performance and pricing structure and levels, amongst other factors. Market structure is then examined, which addresses recent developments and the concentration of market shares amongst CSPs. This is followed by an assessment of the conduct of CSPs in the market, and in turn a description of the basic market conditions. This report concludes with our initial overall conclusions regarding this assessment of SMP in the market for MPA- SMS with Uganda.

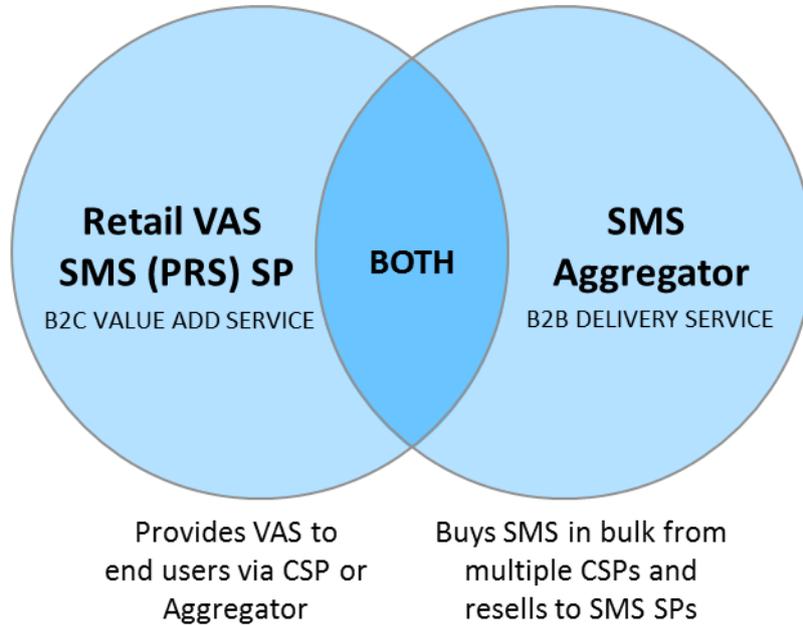
## 3 Relevant market definition and description

- 3.1 The relevant market for MPA-SMS is defined in the report prepared by Cartesian, for the Uganda Communications Commission (UCC), *Review of Uganda Communications Markets: Relevant Markets Report*, dated 29th October 2014 (the “Relevant Markets Report”). The Relevant Markets Report identifies that the MPA-SMS market as a priority for the SMP assessment.
- 3.2 The key features of the MPA-SMS market identified in the Relevant Markets Report are:
  - The mobile platform access for SMS-based applications is a wholesale market;
  - The product provides access to the SMS platform of a mobile CSP in Uganda;
  - The product enables SMS messages to be sent between an application on a server and the mobile handsets of the MNO’s subscribers;
  - The wholesale market includes mobile platform access for SMS-based applications offered to SMS service providers and SMS aggregators; and,
  - The geographic scope of the market encompasses the whole of the geographic region of Uganda and does not differentiate between different regions within Uganda.
- 3.3 MPA-SMS services are supplied in Uganda by Airtel Uganda, MTN Uganda, Orange Uganda, Smart Telecom, Uganda Telecom and K2 Telecom. Of these firms: Airtel Uganda, MTN Uganda, Orange Uganda, Uganda Telecom and Smart Telecom are mobile network operators (MNOs); and, K2 Telecom is a mobile virtual network operator (MVNO) with a wholesale supply agreement with Orange.

Overview of relationship between the relevant and related retail market

- 3.4 Short Message Service (SMS) is a retail messaging service (bundled in with mobile access) provided by MNOs to consumers. It allows users to send and receive SMS messages from one another, or from the MNO or a third party. The former is the most commonly used service.
- 3.5 SMS SPs create value-added services (VAS) for mobile users. SMS to and from the MNO or third parties are the basis of SMS VAS, whereby end-users pay for services (directly or indirectly as a part of a bundle) delivered to them from a known source via SMS. These types of SMS fall under a category called Premium Rates Services.
- 3.6 SMS VAS are generally promotional, informational or transactional in nature, which include services such as news, weather, betting or sports results services. Comprehensive data on volumes and revenues were unavailable at the time of writing. However, estimates put the volume of VAS SMS in Uganda at approximately 2 million each month.
- 3.7 Uganda Telecom carries 600,000 of these, as a smaller player in a market largely dominated by MTN and Airtel.
- 3.8 SMS SPs are primarily responsible for developing and marketing of the VAS to the mobile users in the retail market. In order to deliver these services to mobile users in the retail market an essential wholesale input that SMS SPs must acquire is access to the CSP's *SMS platform*. Access to a CSP's SMS platform is necessary as it technically enables the delivery of the SMS SPs' value added services to mobile users. It is the market for access to CSPs' SMS platforms, which is referred to in this present report as MPA-SMS, that is the focus of the present SMP assessment.
- 3.9 Access to a CSP's SMS platform only allows delivery of SMS VAS to those mobile users connected to that CSP's network. If a SMS SP, therefore, wants to offer its service to all mobile users in Uganda, then it would need to acquire access to all CSPs' SMS platforms. Furthermore, SMS SPs require access from at least one CSP to operate and for services to some of the mobile users in Uganda.
- 3.10 SMS SPs can agree the commercial terms and make the technical arrangements directly with each CSP, or they can go through SMS aggregators that, instead, agree the commercial terms and make the technical arrangements with the CSPs. These SMS aggregators may themselves be service providers that develop their own SMS services, as following diagram illustrates.

Figure 1. *Relationship between Retail VAS SMS SP and SMS Aggregator*



- 3.11 SMS platform access is required by the SMS SP for the purpose of originating Application-to-Person (A2P) or receiving Person-to-Application (P2A) SMS.
- 3.12 SMS SPs first set up application servers that can process requests and send responses from a CSP's SMS platform. SMS SPs must also purchase a 4-digit short code from the UCC.
- 3.13 They then request interconnection with mobile CSPs' SMS platforms (Short Message Service Centre, SMSC via an SMS gateway) in order to facilitate the sending and receipt of SMS between the application servers and the CSP's customers.
- 3.14 The SMS SP's 4-digit short code is registered with the mobile CSP's number databases and billing systems, so that when end-users send an SMS to the number, it is routed to the correct SMS SP and the customer and SP are billed correspondingly.
- 3.15 In neither case, however, does the CSP automatically offer access to any other platform (e.g. USSD or mobile network itself). These are obtained separately.
- 3.16 Furthermore, the CSP retains the billing relationship with its own subscribers. Messages sent from the user to the SMS SP are either free (SMS SP pays) or charged at a premium rate to regular SMS. Messages sent to the customer from the SMS SP are charged at the standard SMS rate (though volume discounts may apply). The SMS SPs enter into agreements with each CSP to share revenue made from the CSPs' customers for the provision of SMS-based premium rate services. The CSP then compensates the SMS SP on the basis of the revenue share, net of taxes and other agreed costs.

Retail market mobile user experience

- 3.17 A mobile user can initiate a request for a VAS – such as for a news service – by entering and sending the appropriate instruction by SMS to a 4 digit short code. For instance, a mobile user might send the SMS text message "START" or "NEWS" to a news service advertised on the short code 1234 for a SMS message that contains news headlines. The CSP will recognise the destination short code 1234 and forward the SMS to the SMS SP's application server, which will recognise the instruction and process it accordingly.
- 3.18 Based on the user's instruction, the SMS SP will send the mobile user an SMS with news headlines and additional instructions via the CSP's SMS platform. It may contain information or a list of options for selection. Depending on the response, the user can send a further SMS request until they have completed their desired task or stop, having received the required information.
- 3.19 In some cases, the sending of an SMS from the application server to the user is triggered by the completion of a USSD session which is provided via separate access to the CSP's USSD platform. This is often a requirement for a number of services offered over USSD, making SMS more commonplace than USSD as it is used both independently and in conjunction with it.
- 3.20 For example, a limitation of USSD for mobile financial services (MFS) transactions is that it does not provide a message that can be stored by the user as written confirmation of a transaction. Mobile Money guidelines issued by the Bank of Uganda require that, "the customer shall immediately receive written confirmation of execution of a transaction, including the fee charged."<sup>1</sup> For this purpose, an SMS is often sent from the MFS SP to the customer as a transaction receipt.

Bulk SMS VAS

- 3.21 Another A2P application of MPA-SMS is bulk SMS, which is where the same SMS text message is sent to multiple mobile users. SMS SPs purchase bulk SMS either directly from the CSP, or via an SMS aggregator. Typically, the SMS SPs buy bulk SMS from multiple CSPs in order to achieve broad reach across the market. CSPs sell bulk SMS at a per-message rate which is lower than retail SMS tariffs.
- 3.22 An example of bulk SMS include advertising, as an SMS SP can broadcast an SMS to multiple end-users that they have numbers for, which are input into the platform provided by the CSP.
- 3.23 In this case, the CSP receives payment from the SMS SP that is aggregating the SMS messages, which in turn is compensated by SMS SPs or advertisers purchasing the bulk SMS service from them.

## **4 Market Performance Assessment**

Service Penetration

- 4.1 All SMS aggregators take MPA-SMS from one or more CSPs. This is because MPA-SMS is fundamental to their core business.
- 4.2 Additionally, a subset of SMS SPs seek MPA-SMS directly from MNOs. However, it is preferable for them to use aggregators as this offers better rates (due to volume discounts for the aggregator) and

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<sup>1</sup> <http://ucc.co.ug/files/downloads/Mobile-Money-Guidelines-2013.pdf>,

cost-effective access to more MNO customers (as the aggregators will typically have interconnection with at least two MNOs).

- 4.3 Stakeholder interviews have suggested that take-up of retail SMS VAS is not as high as it might be due to the high costs to SPs to provide a retail VAS service, and corresponding low returns due to poor revenue share ratios.
- 4.4 While SMS-based VAS penetration and usage is expected to grow in the near future as mobile penetration increases (with disposable incomes and falling mobile terminal costs), the overall growth of the SMS VAS market may be stymied by high prices for consumers.
- 4.5 As such, this criteria is applicable and relevant to the SMP analysis, and we find evidence that service penetration has been limited due to issues in the market.

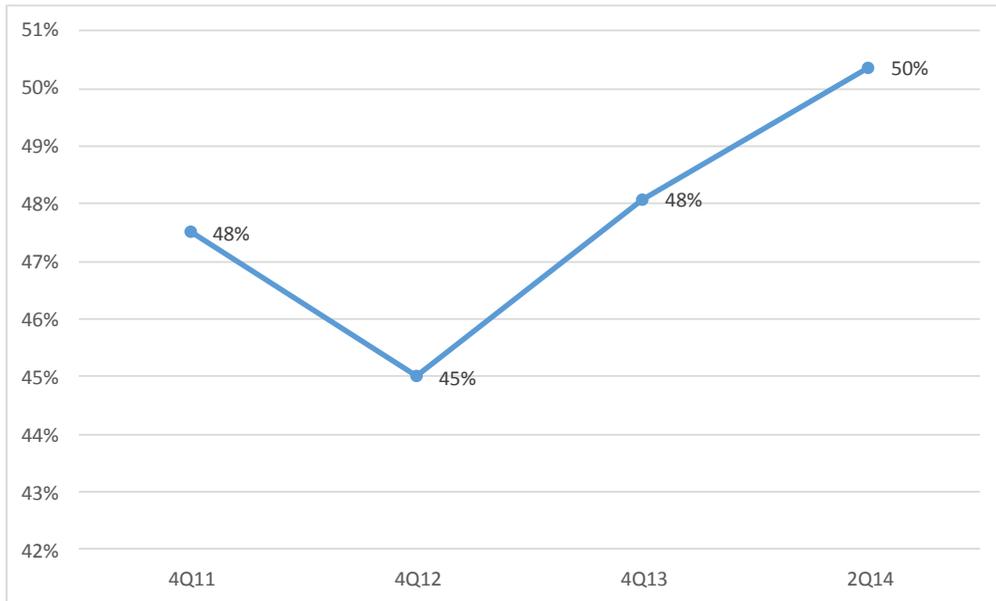
### SMS SP demand for MPA-SMS

- 4.6 Companies offering MPA-SMS are MNOs with access to a mobile network.
- 4.7 MPA-SMS is a critical input for retail SMS VAS SPs, who require access from at least one MNO to operate. Furthermore, as MPA-SMS is an access service, it is required for the lifetime of any downstream services that require it.
- 4.8 In other words, an access seeker that has one retail service customer and another with a million customers would both require MPA-SMS.
- 4.9 The size of the CSP's customer base (i.e. the potential market for the services) is a key differentiator to buyers as it represents the available customers for the SMS-based service. Given the costs of offering a SMS service, it may not be worth offering SMS-based applications to a CSP's customer base if it is small, as possible revenues from their subscribers would not justify the investment required.
- 4.10 Furthermore, SMS SPs have no alternative way to reach a mobile CSP's customers in the absence of that CSP offering MPA-SMS directly to them or indirectly via an aggregator. An access seeker can target the customers of another CSP, which is an insufficient alternative if the alternative CSP has a smaller customer base that cannot support the operation of a retail SMS VAS offering. This also affects SMS SPs wanting to address the entire mobile market across all CSPs.
- 4.11 There is thus a lack of viable alternatives to SMS in Uganda for A2P and P2A messaging (i.e. between a wide mobile audience and an SMS SP). As such, the demand for MPA-SMS is significant.

### Potential for Market Growth

- 4.12 Uganda still has significant potential for retail VAS penetration and usage as mobile penetration and disposable incomes are expected to grow significantly in the near future. There is therefore still a strong likelihood that MPA-SMS revenue will also grow significantly.

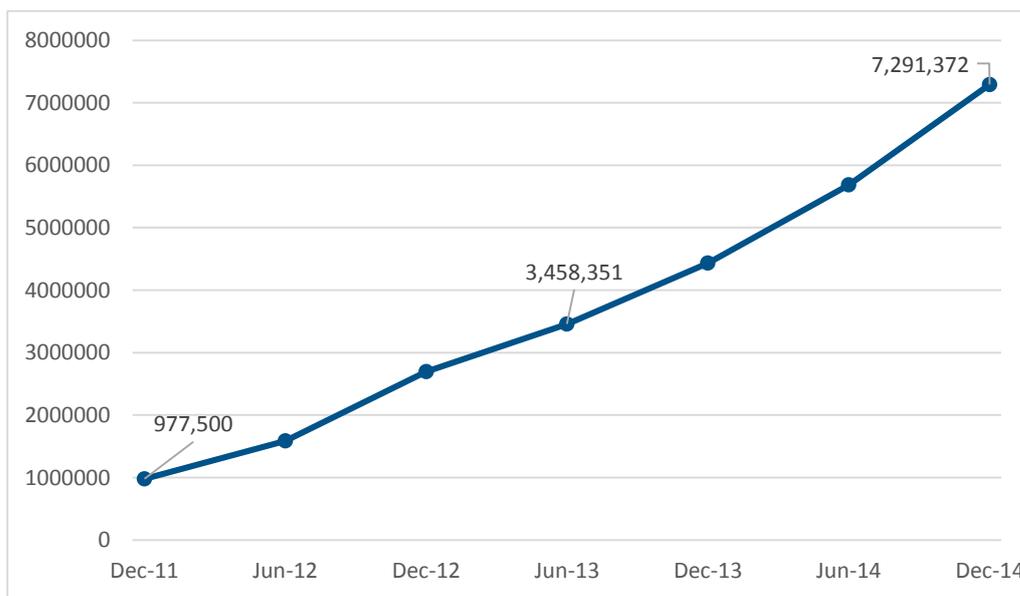
Figure 2. **Mobile Penetration in Uganda, Q4 2011 – Q2 2014**



Source: UCC, World Bank and Cartesian

4.13 On the other hand, revenue growth will be tempered by some customers of retail VAS via SMS dropping out of the market as they switch to smartphones or WAP-enabled devices and consume application-based or web-based services instead of SMS-based ones. This will likely only be a small fraction of the market in terms of subscribers in the near future, but they may represent a significant fraction of revenues as these tend to be higher-income customers.

Figure 3. **Mobile Internet Penetration in Uganda, 2011 – 2014 (Forecast)**



Source: UCC and Cartesian

- 4.14 The figure above shows that mobile internet penetration is growing at a steady rate in Uganda, reflecting the growth in the number of smartphones, a primary contributor of mobile internet subscriptions growth.
- 4.15 If a growth rate of 28% is assumed (based on 6 month growth from Dec 2012 to June 2013) every 6 months, then penetration is forecast to be approximately 7.2M subscriptions in December 2014.
- 4.16 Regardless of this growth in smartphone use, SMS VAS will remain the most affordable form of VAS in the market, as price is a key consideration for Ugandan consumers.
- 4.17 As such, the MPA-SMS market will likely continue to grow in revenues and penetration from the significant feature phone customer base. As a result, CSPs will continue their attempts to maximise incremental revenues generated through SMS VAS services.
- 4.18 We conclude that this criteria is relevant and applicable to the SMP analysis.

Prices (Cost of Access to MPA-SMS)

- 4.19 SMS SPs that take MPA-SMS from one or more MNO must still pay for set-up costs and acquire their own customers. From stakeholder interviews, it is clear that SMS SPs must do this with little support from the access provider.
- 4.20 Setting up a new short code with an MNO costs an average of UGX 250,000. It is noted that a new access connection at MTN costs a one-off UGX 12M.

Figure 4. **Costs to SMS SP and Customer for MPA-SMS and Retail SMS VAS, 2014**

Categories	MPA-SMS Cost (UGX)	Retail SMS VAS Cost (UGX)
<b>Set-Up of Short Code</b>	250,000 on average	N/A
<b>One-off Fees</b>	Up to 12M	N/A
<b>Revenue Share Cost per SMS</b>	60 to 75% of revenue	
<b>Per MT SMS</b>	12 to 20	250 on average, minimum 100 (effective minimum of 150 for MTN)

Source: Stakeholder Data

- 4.21 In terms of ongoing costs, MNOs charge their subscribers for Mobile Originated (MO) and for Mobile Terminated (MT) messages. Mobile Originated means the subscriber is billed when they send an initial message, and any response(s) from the SMS SP will be without charge. This requires the customer to have some prepaid credit for the service.
- 4.22 In a typical use case, the customer will text NEWS to 5678 to receive a summary of the latest news via SMS. The initial SMS sent by the customer will be charged at a premium rate, and responses sent by SMS containing the content will be free.

- 4.23 MT billing for VAS means that the customer sends SMS at a standard network rate and messages received by them from the SMS SP are charged at a premium rate. MT billing is suitable for subscription services as the customer is charged without the need for an initial MO message from them to the SMS SP.
- 4.24 In Uganda, the minimum permissible price for an MO or MT SMS is set at UGX 100 by CSPs, guaranteeing a minimum revenue for CSPs. SMS SPs are also charged per MT SMS at the standard rate of between UGX 12 and 20, which further erodes their margins on SMS.
- 4.25 Apart from this fixed charge, they keep a pre-agreed percentage of the revenue net of taxes and government levies. The remainder is shared with the retail VAS SP (who is often also the access seeker).
- 4.26 CSPs have been known to use revenue share ratios ranging from 60:40 to 75:25, meaning that the MPA-SMS provider takes 60 to 75% of the service revenue (net of the per SMS charge, taxes and government levies) made from all VAS SMS.
- 4.27 This compares with South African MPA-SMS SMS SPs receiving between 50 to 75% of shareable revenues. In Nigeria, Etisalat, for example, takes 50% of SMS VAS revenue, leaving SMS SPs with the remaining 50%.

Figure 5. **Revenue Share Benchmarks**

Market / Supplier	SP Share of Revenues
South Africa	50 to 75%
Etisalat (Nigeria)	50%
Uganda	25 to 40 % (down to 10% with "deemed costs")

Source: UCC, Stakeholder Data, Etisalat Nigeria, Cartesian

- 4.28 Additionally, some CSPs impose additional fixed percentage fees of 20% on top of the revenue share (termed "deemed costs," for example) as a service provision fee. This results in some SMS SPs effectively receiving 10% of the total service revenue that is available for revenue sharing from the retail VAS.
- 4.29 Furthermore, CSPs often have minimum guaranteed revenue thresholds in place whereby revenue below a certain amount per SMS (UGX 150 in the case of MTN, for example) is not shared with the SMS SPs and kept in its entirety by the provider.
- 4.30 Stakeholder interviews also suggest that some CSPs are in the process of appointing a designated SMS gateway provider to manage their access provision to their own SMS platforms to all third parties. This means that SMS aggregators would no longer be able to directly obtain MPA-SMS from the CSP, and would have to purchase it from the designated SMS aggregator.
- 4.31 The effect of this is uncertain. While it may improve accessibility of the SMS platform to entities wishing to offer retail SMS VAS, it may lead to an increase in MPA-SMS costs to SMS SPs as the

designated SMS aggregator will likely charge an additional fee for providing an aggregation service that may previously have been self-supplied by the SMS SPs or procured more cheaply.

- 4.32 As discussed in the section on transparency, price and product information for MPA-SMS services are not available publicly. Additionally, rate cards are neither requested by nor shared with the UCC.
- 4.33 As a result of these price terms set by CSPs, we conclude that this criteria is both highly relevant and applicable in the SMP analysis, and that there is evidence that excessive pricing is an issue in this market.

### Service Quality

- 4.34 From stakeholder interviews, it is apparent that some service quality issues exist. CSPs, for example, have been known to allow platform faults to remain unresolved for significant periods of time, which often affects the retail VAS SP's ability to conduct their business.
- 4.35 MTN's MT platform, for example, was down at the time of writing and had been so for approximately four months according to stakeholders. While MTN has been flexible about contractual obligations as a result of this downtime, it does not mitigate the loss in revenues suffered by the SMS SPs offering services using this MT platform.
- 4.36 Contractually, there is limited negotiation of Service Level Agreements and specifics of service availability. This means that retail VAS providers cannot guarantee a reliable service to their customers as they receive little guarantee in turn from the access provider.
- 4.37 We can thus conclude that this criteria is both relevant and applicable in the SMP analysis, and that there is evidence that service quality issues exist in the supply of MPA-SMS.

### Innovation

- 4.38 We find that there is little innovation in the market for MPA-SMS itself, even if there is significant innovation in the value added services that SMS SPs develop. The quality of service issues highlighted above, however, suggests that there is potential for innovation and improvements in supply of MPA-SMS by the CSPs.

## 5 Market Structure Assessment

### Market Concentration

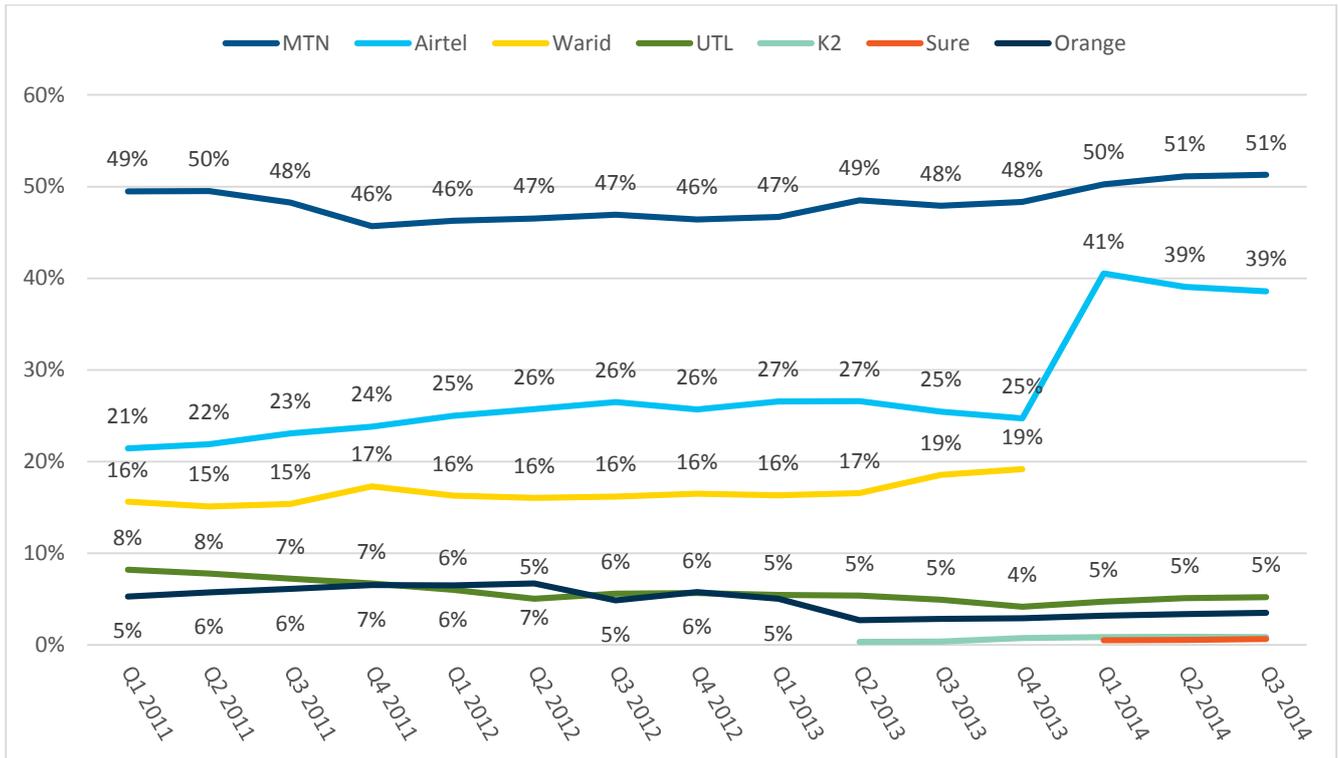
- 5.1 The suppliers in the SMS platform access market are the mobile CSPs offering voice and SMS services. These are MTN Uganda, Airtel Uganda, Orange Uganda, Uganda Telecom, K2 and Smart. There is a separate market for MPA-SMS for each CSP as access to a CSP's SMS platform only enables communication with the subscribers of that CSP.
- 5.2 It follows that each CSP effectively has a 100% share in their respective MPA-SMS market as SMS SPs can only supply SMS value added services to mobile users connected to a CSP by accessing that CSP's MPA-SMS.
- 5.3 The value of connecting to a particular CSP's MPA-SMS will depend on the number of mobile users that subscribe to that CSP's mobile network. The larger (smaller) the number of users connected a CSP's network the larger (smaller) the SMS SP valuation of connecting to that CSP's network. This

## Cartesian: Mobile Platform Access for SMS-based Applications

follows from the fact that SMS SP will be able to access a larger number of customers the greater the CSP's market share.

- 5.4 MTN is the market leader with 51% market share by subscriptions as of September 2014 (Figure 6). The second largest CSP, Airtel, has 39% of subscriptions. The remaining 8% of the market is shared among UTL (less than 5%), Orange (3%), K2 (less than 1%) and Sure Telecom (less than 1%).

Figure 6. **Mobile Subscriptions Market Share in Uganda, 2011 – 2014**



Source: UCC

- 5.5 As can be seen from Figure 6, the market structure is highly concentrated. In particular, Airtel and MTN have significant market shares, of 39% and 51% respectively. Hence, 90% of the mobile call and SMS market is held between these two operators.
- 5.6 Since the value of each network is proportional to their customer base sizes, the most valuable individual markets for MPA-SMS are those of MTN Uganda and Airtel Uganda. Indeed, conversations with stakeholders have suggested that it is not commercially viable for an SP to offer SMS VAS without having access to at least one of MTN or Airtel.
- 5.7 Consequently, the supply of MPA-SMS in Uganda is found to be made up of several monopoly markets (i.e. each CSP is its own market) and we consider the target customers for SMS SPs to be highly concentrated between MTN and Airtel.

Network Effects and Externalities

- 5.8 There is potential for network effects to develop, created by and then perpetuating the dominance of a particular CSP's MPA-SMS. One factor that will influence a SMS SP's valuation of acquiring access to a CSP's MPA-SMS platform will be the number of users connected to that CSP's network. That is, the greater (smaller) the number of users connected to a CSP's network the greater (smaller) the value of acquiring access to the CSP's MPA-SMS platform.
- 5.9 Similarly, a factor that may influence a mobile user's valuation of subscribing to a CSP is the range and number of SMS VAS available on the CSP's network. That is, the greater (smaller) the number of SMS VASs available over a CSP's network, the greater (smaller) the value of subscription to that network.
- 5.10 This positive feedback loop between the number of VASs available on, and the number of mobile users connected to, a network increases the utility to a user on that network. As a consequence the larger CSPs are likely to maintain, or further grow their large market shares. Conversely, the network effect hinders the growth of smaller CSPs by making it more difficult for them to attract and or retain either SMS SPs or users.
- 5.11 As such, CSPs with a large mobile subscriber base, such as MTN and Airtel, have a distinct advantage over smaller CSPs such as Orange, UTL and Smart Telecom.

Sunk Costs

- 5.12 There are significant sunk costs in establishing a mobile network, for example in network electronics, IT systems and other infrastructure. These costs are incurred by the CSP primarily to enter the retail mobile markets for voice, SMS and data. Whilst this expenditure also enables the provision of MPA-SMS, this is secondary to the primary aim of retail market entry.
- 5.13 With regard to the specific provision of MPA-SMS, the sunk costs associated with access to the SMS platform are small in comparison with the overall network costs. Also, the capability to communicate using the SMS channel is integral to the network. The incremental cost of supporting MPA-SMS for external SPs is, again, relatively small.
- 5.14 As such, we do not consider sunk costs to be a material factor in the MPA-SMS market.

Economies of Scale

- 5.15 CSPs invest large sums in order to build and operate mobile networks for the primary purpose of providing retail telephony and data services to customers.
- 5.16 To provide an MPA-SMS service itself, the incremental costs are small as a mobile CSP requires the addition of an external SMS gateway. As there are limited fixed costs, there are limited economies of scale that are specific to the MPA-SMS service itself.

Economies of Scope

- 5.17 MPA-SMS is an incremental service that leverages the infrastructure established by the CSP to supply retail mobile services. The two principal shared elements are the mobile network and the SMS platform.
- 5.18 The mobile network is used in providing retail telephony and data services to consumers. As SMS sent over the network uses the signalling channel, it is a very small incremental amount of traffic compared to network usage for voice and other data services.

- 5.19 The SMSC is required to offer retail SMS services to consumers. There are very few costs involved in adding functionality to the system to support SMS VAS and these may already be in place for use by the MNO itself.
- 5.20 Thus, the MNO's operation of these two elements to offer other retail services means that offering MPA-SMS is incremental to their existing service portfolio and leverages common assets. It would thus only be offered by an MNO that is also offering retail telephony and data services (including retail SMS) to consumers.
- 5.21 As such, this criteria is relevant to the SMP analysis.

Extent of Vertical Integration

- 5.22 As we discuss above, MPA-SMS is an essential input to retail SMS applications. SMS SPs are reliant on CSPs for this input.
- 5.23 CSPs that provide access to the MPA-SMS platform also offer mobile VAS in the downstream retail market for VAS services. This raises the potential for CSP to abuse their position in the supply of the MPA-SMS to gain competitive advantage in the downstream retail market. This could be effected through either pricing or differential service quality.
- 5.24 Discussions with stakeholders have indicated that some MNOs have priced retail VAS SPs out of specific high-value customer segments, such as postpaid mobile customers. These customers are known to spend more on retail VAS than the average consumer, and so are valued by all retail VAS SPs, including the mobile CSPs.
- 5.25 We conclude that vertical integration is a relevant factor in the structure of the MPA-SMS market.

**6 Market Conduct Assessment**

Control of Essential Upstream Inputs

- 6.1 MPA-SMS is a key upstream input to the retail VAS market in Uganda. As discussed in the section on Vertical Integration, MNOs that offer both retail VAS and MPA-SMS compete with SMS VAS SPs that purchase MPA-SMS from them.
- 6.2 As each MNO is a monopolist in its own market for MPA-SMS, each CSP fully controls an essential upstream input to retail SMS VAS.
- 6.3 Discussions with stakeholders have indicated that some MNOs have priced SPs out of specific high-value customer segments, such as postpaid mobile customers. These customers are known to spend more on retail VAS than the average consumer, and so are valued by all retail VAS SPs, including the MNOs.
- 6.4 As such, this is a relevant and applicable criteria for this SMP analysis.

Access to Sales and Distribution Channels

- 6.5 SMS SPs acquire customers through advertising to potential customers. This is done through online, broadcast and other physical (e.g. posters, billboards) media. This means that relationships with customers are formed indirectly.

- 6.6 MNOs, on the other hand, have an existing direct relationship with the entirety of their customer base through their provision of retail telephony and data services. This confers significant advantages to the MNO as it can directly access and advertise to these customers.
- 6.7 SMS SPs in this market have indicated that they have no access to the mobile CSPs' sales and distribution channels and are expected to acquire their own customers through other means. As advertising can be costly, this forms a significant cost to the SMS SPs.
- 6.8 CSPs control the customer billing relationship and access to individual mobile subscribers. MNOs can directly contact their own customers (e.g. via push USSD, SMS or IVR) as and when they wish to offer them competing retail VAS.
- 6.9 Additionally, as MNOs manage the billing relationship with the customers on behalf of the SMS SPs, this opens up the possibility for them to identify high-value customers and poach them by advertising their own services directly to the customer.
- 6.10 As such, we find this criteria to be both relevant and applicable to the SMP analysis, with each access provider retaining control over their own sales and distribution channels.

### Transparency

- 6.11 There is very little transparency in the commercial terms of MPA-SMS. Access agreements are negotiated individually between MPA-SMS customers and suppliers. These agreements are subject to confidentiality clauses, restricting public knowledge of agreed price and non-price terms. The terms of these agreements are not shared with the UCC.
- 6.12 Although WASPA-U, the service providers' association, agrees key terms in advance with the CSPs, it does not conclude agreements on behalf of its members. Negotiations are left to the SMS SPs and the CSPs.
- 6.13 A second issue regarding transparency exists in the reconciliation of revenues which is conducted primarily by the CSPs. SMS SPs have limited visibility of the access provider data on SMS sessions. Interviewees suggested that CSPs do the reconciliation without sharing their own data, and will prefer their own data to that of the SMS SPs. Occasionally, this will lead to reconciled figures that differ significantly from what the SMS SP has submitted to the CSP.
- 6.14 As revenue shares are determined on the basis of traffic volumes and revenues generated, CSPs have an incentive to understate the amount of revenue generated by SMS SPs. This then allows the access provider to underpay the SPs (i.e. as part of the revenue share agreement) for revenue generated by their retail VAS services.
- 6.15 As such, we find this criteria to be relevant and applicable in the analysis of SMP in this market.

### Ease of Consumer Switching

- 6.16 Given that the MPA-SMS market is comprised of a set of sub-markets, one for access to the subscribers of each CSP, it is unlikely that a SMS SP would benefit from switching.
- 6.17 That said, there are limited switching costs in this market should a SMS-SP wish to do so. Contracts are typically renewed annually and have break clauses for all parties involved, it is relatively easy to exit a contract or switch CSPs.

- 6.18 However, stakeholder interviews indicated that contracts are seldom negotiated beyond the minimum term and SMS SPs are expected to accept terms as-is.
- 6.19 Overall, we find this criteria to not be relevant or applicable to the SMP analysis.

### Countervailing Buyer Power

- 6.20 There are a number of SMS SPs in the market and one association, the Wireless Application Service Provider's Association of Uganda (WASPA-U), representing them.
- 6.21 There are six potential suppliers in this market, MTN, Airtel, Orange, UTL, K2, and Smart. MTN and Airtel have more than 90% of the subscribers in the market, and so they remain the most attractive suppliers to SMS SPs.
- 6.22 WASPA-U has previously managed to negotiate a standard baseline set of terms and conditions for MPA-SMS SPs. However, it has been indicated that contracts are often drafted by the MNOs, and that SMS SPs are prevented from negotiating specific terms once baseline terms have been agreed. This suggests that individual SMS SPs have limited or no countervailing buyer power when concluding contracts with CSPs.
- 6.23 As SMS SPs require access to the SMS platform of at least one of Airtel or MTN in order for their retail VAS business to be profitable, and this is known to the MNOs, there is even less countervailing buyer power for the SPs when negotiating or renegotiating contracts annually.
- 6.24 MPA-SMS revenues are not significant enough to MNOs to be more than incremental to their core business, and so they can bear to lose customers that are not willing to accept their contractual terms. On the other hand, SMS SPs generally do not have this choice.
- 6.25 Some CSPs have also been singled out for not observing the terms of contracts.
- 6.26 As such, we find this criteria to be relevant and applicable to the SMP analysis, with larger players such as MTN and Airtel having the most ability to nullify countervailing buyer power.
- 6.27 Some CSPs have also been singled out for not observing the terms of contracts. For example, it is alleged that UTL has not honoured contractually agreed payment schedules, withholding payments to SMS SPs for as long as 12 months, when 30 to 60 days timelines have been contractually agreed.
- 6.28 In conclusion, SPs have no countervailing buyer power when negotiating with MTN and Airtel. Even with smaller CSPs, countervailing buyer power is limited. As such, we find this criteria to be relevant and applicable to the SMP analysis.

### Evidence of Dynamic Competition

- 6.29 We see little evidence of dynamic competition in the MPA-SMS market in contrast to the innovative, retail market for SMS VAS.
- 6.30 Given that the market consists of a sub-market for each CSP, and SMS SPs have a commercial incentive to maximise their reach, there is limited pressure on the CSPs to compete against each other for business. It is more likely that a SMS SP would seek additional agreements rather than substitutes.
- 6.31 This is consistent with the lack of innovation in the market for MPA-SMS. None of the mobile CSPs have announced any MPA-SMS-specific initiatives.

- 6.32 It is also aligned with the presence of service quality issues, and the lack of pressure on CSPs to address these or commit to service level guarantees.
- 6.33 We conclude that this criteria is relevant to the assessment of SMP.

Joint Dominance

- 6.34 The market for MPA-SMS is composed of sub-markets, one for access to each of the mobile operators' subscriber bases.
- 6.35 While MTN and Airtel command the majority of value to SMS SPs by virtue of having the largest subscriber bases, they appear not to coordinate their behaviour to influence prices in, or access to, their individual MPA-SMS markets.
- 6.36 From conversations with MPA-SMS customers. MTN and Airtel offer different contractual terms from one another; their pricing structure are also different. Furthermore, MTN and Airtel engage to different degrees with their MPA-SMS customers, with MTN showing more interest.
- 6.37 We thus find this criteria to not be relevant or applicable to this SMP analysis.

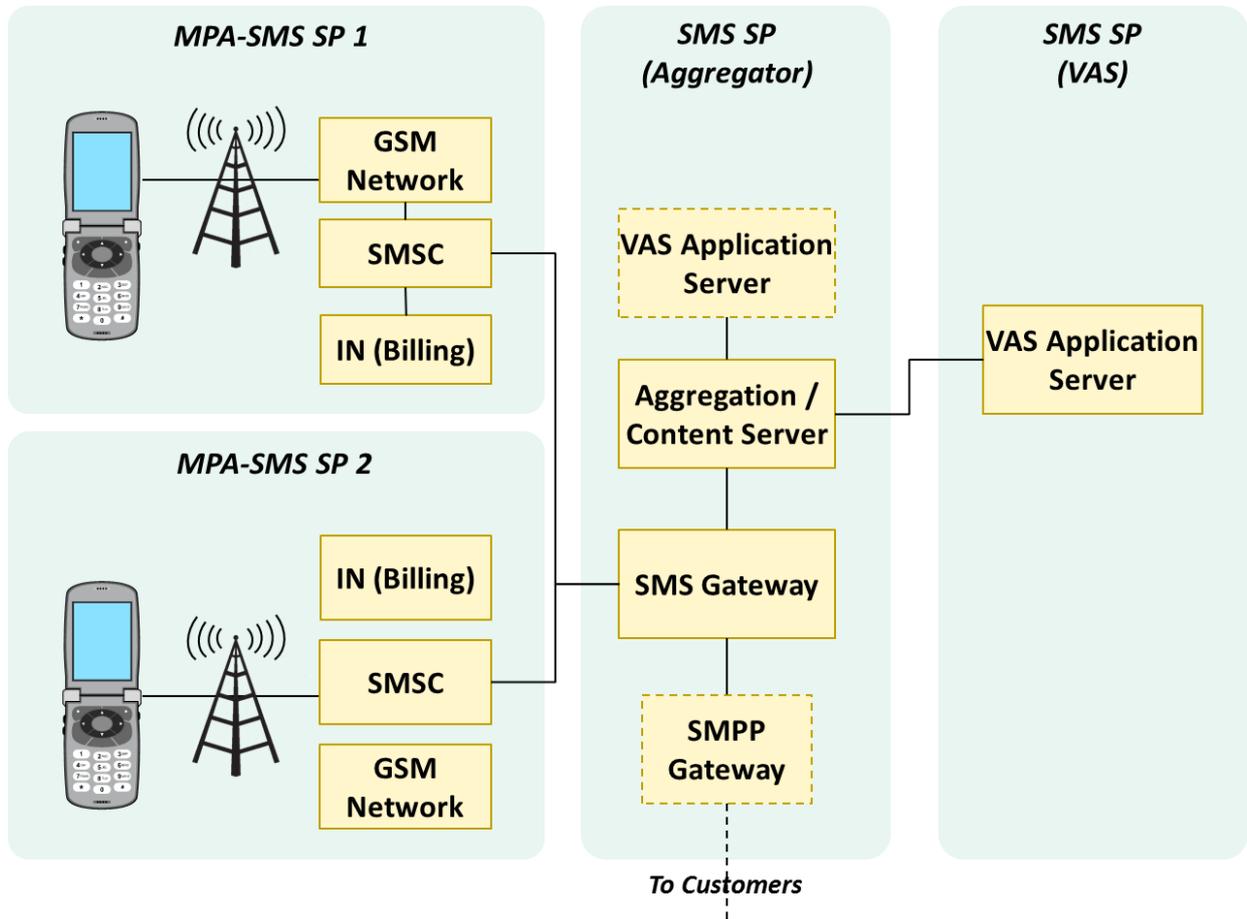
**7 Basic Market Conditions**

Technology

- 7.1 SMS is a short messaging service based on international standards that allows a mobile user to send text messages to other mobile users using the built-in functionality of all GSM mobile terminals. All mobile CSPs in Uganda support the sending and receiving of SMS on compatible mobile terminals.
- 7.2 Feature phones are widely available and used in Uganda. All feature phones support SMS, and higher-end terminals such as smartphones do as well. However due to low smartphone penetration, instant messaging and other over-the-top alternatives to SMS are still uncommon to Ugandans.
- 7.3 As multiple SIM ownership is common in Uganda and many consumers have dual-SIM phones, a significant number of Ugandans can receive SMS via two different mobile networks without the need to switch devices or SIMs.
- 7.4 The quality of network coverage is variable in Uganda, with 2G and 3G coverage limited outside of urban areas. This may cause delays in the sending and receipt of SMS. This is due to SMS operating on a store-and-forward basis. It allows users to move in and out of coverage as the message can be held for sending from the terminal or the network until the user is back in range of a signal.
- 7.5 SMS messages may comprise up to 160 characters of text and are usually sent using the signalling channel of the mobile network. The signalling channel is distinct and separate from the channel that is used to carry voice calls.
- 7.6 In order to send and receive A2P and P2A SMS at a significantly large scale, as an SMS-based premium rate business requires, the SMS SP will need access to a CSP's SMSC (either directly, or via a CSP-provided gateway).
- 7.7 It is technically possible to use a SIM box for the same purposes but this is not cost-effective at scale and may violate the usage policies of the CSP network.

7.8 The diagram below captures the key components of a SMS-based service across a number of players in the market.

Figure 7. *MPA-SMS and SMS SP Architecture*



Source: Cartesian

7.9 There are a number of components in this architecture, as summarised below:

- **Short Message Service – Service Centre (SMSC):** Responsible for handling the SMS operations of a wireless network
- **IN (Billing):** Responsible for the capture of usage records so that SMS SPs can be billed for their usage
- **SMS Gateway:** Allows a server to send or receive SMS to or from a CSP network
- **SMPP Gateway:** Allows a bulk SMS SP to provide customers with a client interface to send or receive SMS to or from a CSP network
- **VAS Application Server:** Processes incoming SMS from subscribers and sends appropriate responses; Also manages VAS subscriptions

7.10 As shown above, the SMS aggregators can also provide VAS services (with an application server) as well as bulk SMS services (using an SMPP gateway).

- 7.11 The SMS gateway provides access points and interfaces for SMS SPs to connect their application servers to the SMSC. The application server transmits data to the SMS gateway, which is then transmitted across an IP network to the MPA-SMS SP and converted into an SMS to be sent to the appropriate end-user. An SMS sent to the SMSC, in turn, is sent on to the SMS SP's gateway and application server to be processed.
- 7.12 Retail SMS VAS SP can try to offer services using other technologies such as USSD and IVR. However, SMS can provide functionality that USSD and IVR do not (such as store and forward), and internet-based (or over the top) applications are only available to a small subset of end-users (i.e. those with smartphones).

### Cost Conditions

- 7.13 SMS SPs have fixed costs to procure application servers, and to set up interconnection to the CSP(s). The most significant variable costs are per message.
- 7.14 Platform costs to SMS SPs for accessing MPA-SMS are significant. SMPP ports required for MPA-SMS access cost approximately UGX 15M. Servers and other hardware cost approximately UGX 10M.
- 7.15 Given these fixed costs to set up the business and CSP interconnection, and the large capacity of SMS gateways, SMS SPs that directly interconnect with CSPs are incentivised to improve their gateway utilisation and spread this cost over multiple users.
- 7.16 Thus, the prevailing cost conditions of the market encourage aggregation, with a smaller number of SMS aggregators supporting other SMS SPs by providing them with interconnection services to one or more CSPs.
- 7.17 This aggregation also allows SMS SPs to benefit from volume discounts provided by the CSP. Rates of between UGX 12 to 20 per SMS are possible with volume discounts.
- 7.18 The MNOs have a cost structure with a lot of fixed costs in the network. Main drivers of cost for suppliers of MPA-SMS are the costs of running the mobile network infrastructure (e.g. investment in and maintenance of towers, radio and network equipment) required to carry SMS to end-users.
- 7.19 The MNOs also incur some fixed costs to interconnect with SMS SPs, though this is relatively small when compared to their overall costs. Indeed, a SMS SPs have indicated that CSPs require the SMS SPs to pay an up-front fee for interconnection which may cover a proportion of their own costs.
- 7.20 Active equipment is primarily sourced internationally and so is subject to exchange rate fluctuations. This can drive costs up when the UGX weakens against the USD (or other international currencies). Equipment most relevant to the provision of the service are SMSCs and SMS gateways.
- 7.21 With respect to SMS, the marginal cost of sending an SMS is very small compared to retail rates. The termination rate for SMS has been set in Uganda at UGX 15 as of 2012, while off-net retail SMS can cost between UGX 50 and 130.
- 7.22 The average termination rate in the EU, by way of comparison, is EUR 2.53 cents. On a purchasing power parity (PPP) basis, this is equivalent to UGX 30. Retail pricing per SMS ranges from EUR 2 cents to EUR 12 cents, which is UGX 3 to 145 in PPP terms.<sup>2</sup>

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<sup>2</sup> BEREC benchmarks, 2013

7.23 For example, Italy, a primarily prepaid market like Uganda, has retail off-net SMS rates averaging just under EUR 8 cents per SMS on a termination rate of EUR 3.5 cents, which is equivalent to UGX 108 and UGX 47 respectively (PPP basis).<sup>3</sup> Thus, while SMS termination rates are higher on average in the EU, the retail rates are comparable to Uganda, suggesting a smaller margin on SMS in the EU than in Uganda.

## **8 Overall Conclusion of SMP Assessment**

### Competition Issues Identified

- 8.1 In this assessment we have identified several competition issues in the MPA-SMS market.
- 8.2 The MPA-SMS platform is an essential technical input to the provision of SMS services to mobile users. Furthermore, CSPs have a monopoly for access to mobile users connected to their own network. It follows that SMS SPs have no option but to access a CSP's MPA-SMS if they want to offer services to mobile users on that CSP's network.
- 8.3 CSPs supplying MPA-SMS are vertically integrated, i.e. in addition to MPA-SMS supply they also compete in the downstream market for retail SMS VAS. One implication of this is that a CSP may use its monopoly position in the upstream market for MPA-SMS to limit the level of competition in the retail market.
- 8.4 MTN and Airtel, by virtue of their sizeable customer bases, have a greater degree of freedom from competitive constraint than other CSPs. This is evidenced by high pricing and contractual control of their respective MPA-SMS services. Pricing that is excessive will extract a significant proportion of the value created by SMS SPs, and can be considered as limiting new entrants into the SMS based VAS provision.
- 8.5 Despite the existence of an industry association representing SMS SPs, there is limited countervailing buyer power between the individual SMS SPs and the CSPs. As MTN and Airtel have a combined share of 90% of the retail mobile market, SMS SPs have no choice but to sign up with one or both of these CSPs to get their services to market. In negotiations with these two CSPs, SMS SPs effectively have no countervailing buyer power.
- 8.6 There is a lack of transparency in access provision, with limited publicly-available information on pricing and services. Terms of MPA-SMS as stated by the major CSPs are not negotiable and there is no visibility on the said terms due to overly restrictive non-disclosure provisions in agreements for MPA-SMS.
- 8.7 There are reported issues with service quality. As with price, SMS SPs reported that it is not possible to negotiate service level guarantees.
- 8.8 The MPA-SMS market exhibits network effects, which may affect the level of competition between CSPs in the retail mobile market. In particular, it may limit the ability of new CSP entrants to compete with the establish CSPs with large market shares.

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<sup>3</sup> BEREC benchmarks, 2013

Evidence of SMP

- 8.9 Each access provider in this market uniquely controls access to their own SMS platform.
- 8.10 Access to a SMS platform is an essential input to the provision of retail SMS VAS. SMS SPs require access to the SMS platform to deliver retail VAS services. The SMS access providers are vertically integrated CSPs which also compete in the retail SMS VAS market.
- 8.11 There is a lack of countervailing buyer power. Prices and terms are effectively dictated by the access providers to the SMS service providers.
- 8.12 MTN and Airtel, by virtue of their sizeable customer bases, have a greater degree of freedom from competitive constraint than other CSPs.
- 8.13 However, all CSPs have some ability to act independently of one another and of their customers by virtue of their individual monopolies on MPA-SMS.

Licencees with SMP

- 8.14 MPA-SMS services are supplied in Uganda by Airtel, MTN, Orange, Smart Telecom, Uganda Telecom and K2. Each of the CSPs has SMP in the market of MPA-SMS on their own networks. This follows from the simple technical fact that a SMS SP that wants to offer services to mobile users on a particular CSP's network must acquire access to that CSP's MPA-SMS.
- 8.15 A key factor in assessing the effect of this SMP is the size of the CSP's share of the retail mobile market. On this basis, MTN and Airtel are currently able to exploit their SMP in the market for MSP-SMS to:
- Limit competitive entry in the retail SMS SP market; and,
  - Price MPA-SMS independently of cost to capture a disproportionate share of the SMS VAS value chain;
  - Refuse to accept service level guarantees and not compensate SMS SPs for poor performance.
- 8.16 Whereas, even though Orange, Smart Telecom, and Uganda Telecom do not currently have significant share of the retail mobile market, they would be able to exploit their SMP to:
- Price MPA-SMS independently of cost to capture a disproportionate share of the SMS VAS value chain; and,
  - Refuse to accept service level guarantees and not compensate SMS SPs for poor performance.

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