Mobile Content on 3G Platforms: A Case Study of the Business World

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Abstract - Short Messaging Service (SMS) was the fore runner for mobile content applications on 2G platforms as it opened another source of income for both service providers and SMS based content developers. However as advances in the telecommunications necessitated the migration to 2.5G platforms and eventually to 3G platforms, the mobile content industry took another dimension. Over the last 5 years, the telecom industry has realized the importance of MVAS. Given the declining ARPU and increasing competition among operators, it is imperative to focus on alternate revenue streams. There is therefore a need for capitalizing on the Value Added Services Market. While it is difficult to clearly measure the growth rate of the Nigerian mobile content industry, it is the intent of this paper therefore to critically examine the economic viability of the mobile content industry in line with the attendant challenges confronting the growth in a developing economy.

Keywords: Average Revenue Per User (ARPU), Mobile Virtual Network Operators (MVNO), Value Added Service (VAS), Unified Access Service License (UASL), Value Added Service.

1. INTRODUCTION

Mobile content is any type of media which can be viewed or used on mobile phones such as ring tones downloads, SMS, MMS (multimedia messaging services), instant messaging, music, games, access to information services (e.g. news, sports, weather reports) and mobile internet [1]. Services offered by the Mobile Content Providers can be classified under the following categories; Messaging (SMS, MMS, Instant Messaging, E-mail), Location-based services (GPS Services), m-Commerce, Entertainment (music downloads, gaming, mobile internet access, TV/Video), Video Services. Despite the fact that the mobile content services market is still in a period of relative infancy, the expectations for growth are significant with analysts forecasting a global mobile entertainment market worth up to $76 billion by 2011[2]. In spite of all the positives, mobile content industry in Nigeria is still faced with several myriads of challenges which varies from revenue challenge, user challenge, device challenge, content challenge through to operator challenge. Revenue share between telecoms providers and content providers / aggregators is 70:30, substantially more skewed in favor of telecoms providers. Lack of payment mechanisms increases reliance on telecoms provider, though VAS (value added services) players are looking at advertising to support service. This is at a nascent stage given the unfamiliarity of advertisers with mobile content as a medium [3]. Awareness remains a major challenge as operators spend more on subscriber acquisition than educating customers about VAS (value added services). Users are also confused about tariff structures for these services and data usage. GPRS enabled sets are required for the user to access the various services offered by the mobile content. Handsets that support MVAS (mobile value added services) do not come cheap. Not much innovation is seen by users beyond Sports (updates on football leagues worldwide) and entertainment industry (using the Nigerian market as a reference). Existence of few content developers dedicated to developing content for the local market.

Lack of a well defined spectrum policy has resulted in congested networks leaving no bandwidth for data efficient applications. The market for mobile content has become a phenomenon particularly with the explosion of high-speed 2.5G and 3G networks and the wide-scale deployment of smart mobile devices, telecommunications and information service providers need to be able to “fill their pipes.” The mobile telecommunications industry reached a plateau in the developed as APRU declined steadily as more subscribers wanted value for their money, thereby necessitating a push for mobile content or MVAS. Service providers must be able to provide mobile content and package it for sale as service delivery to subscribers. As ARPU declines, the challenge for operators is to increase revenues by differentiating their offerings and develop alternative revenue streams by offering more value added services to the existing subscribers. The decrease in average revenue can also be attributed to the structure of most countries Mobility Market which is largely prepaid. This means that most of the subscribers added are from the bottom of pyramid with low usage resulting in low ARPU.
2. NETWORK & ARCHITECTURE

MVNOs are beginning to appear in the 2G mobile communications market. They form partnerships with infrastructure owners or rent network resources and focus on developing their own service offerings, essentially in mobile content and portals. A mobile virtual network operator provides cellular services without owning spectrum access rights. From the customers’ point of view, a MVNO looks like any other cellular operator, but in actual fact does not own or operate base station infrastructure. The figure below illustrates the MVNO idea. There are different scenarios for a MVNO approach and consequently, different architectures for the MVNOs:

- A full MVNO, with its own SIM card, network selection code and switching capabilities as well as service center without spectrum are a possibility.
- IA-MVNO (Indirect Access MVNO) or Enhanced service provider without SIM card, but with own core network (circuit switched and/or packet) and service facilities, e.g. own IN or IP application servers.
- Wireless ISP without own core network; basically an Internet portal providing wireless IP services [4].

3. MARKET FOR MVAS

Over the last 5 years, the telecom industry in Nigeria and even South Africa, has understood the importance of MVAS. Given the declining ARPU and increasing competition among telecoms operators, it is imperative to focus on alternate revenue streams, and consequently capitalizing on the Value Added Services Market. The reasons for the increasing importance of MVAS becomes eminent for obvious reasons ranging from the fact that the subscriber base is growing at a rapid pace and has positively impacted industry revenues, operator margins also have shrunk owing to competition and lower “Average Revenue per User” (ARPU) as the major growth is coming from bottom of the pyramid. As ARPU declines and voice gets commoditized, the challenge is to develop alternative revenue streams and retain customers by creating a basis for differentiation in high-churn markets; there is a greater need among the telecom operators to provoke service differentiation market segmentation; the “pull effect” from consumers asking for more than just basic telephony is also a key driver for MVAS services. Today most of the consumers are seeking more from their communication device apart from just mobility and desire to stay connected [5].

Table1: Features provided by Mobile Wireless Networks in Nigeria

<table>
<thead>
<tr>
<th>Services</th>
<th>1st</th>
<th>2nd</th>
<th>3rd</th>
<th>4th</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Call &amp; Receive</td>
<td>123</td>
<td>6</td>
<td>0</td>
<td>0</td>
<td>129</td>
</tr>
<tr>
<td>SMS/MMS</td>
<td>4</td>
<td>95</td>
<td>14</td>
<td>10</td>
<td>127</td>
</tr>
<tr>
<td>GPRS/Internet</td>
<td>2</td>
<td>16</td>
<td>38</td>
<td>32</td>
<td>122</td>
</tr>
<tr>
<td>Value-Added Services</td>
<td>0</td>
<td>3</td>
<td>20</td>
<td>34</td>
<td>119</td>
</tr>
<tr>
<td>Customer-care Support</td>
<td>0</td>
<td>10</td>
<td>53</td>
<td>43</td>
<td>124</td>
</tr>
</tbody>
</table>

In the Unified Access Service License (UASL), VAS is defined as an enhanced service that adds value to the basic teleservices and bearer services for which separate license are issued. For mobile telecommunication market, a simple definition of VAS would be those services that are not part of the basic voice offer and are availed separately by the end user. They are used as a tool for differentiation and allow mobile operators to develop another stream of revenue. All the value added services address some need of the end consumer whether it is psychological, monetary or convenience. Based on the need for fulfillment by the end user, Mobile VAS are categorized into three broad categories. The key differentiating factor of Entertainment VAS is the mass appeal it generates. These provide entertainment for leisure time usage. This does not only generate heavy volume (owing to its mass appeal) but also have heavy usage. An example of these kinds of services is Jokes, Ringtones, CRBT (Caller Ring Back Tone) and games. These services will continue to be popular and have been key revenue generators for the mobile VAS market. Other popular Entertainment VAS driving the market are dating and chatting services. This service is not only growing fast but also witnessing a market kill as compared to other MVAS. Owing to its captivating nature, it requires comparatively less marketing efforts and cost. Entertainment VAS has the potential to remain a key contributo to Mobile VAS industry. To sustain the MVAS growth, it is the responsibility of the industry to

![Fig. 1. A pie-chart depicting the percentage of post/pre-paid subscribers in the Indian market](image1)

![Fig. 2. A 3G MNVO network (based on Release 3G UMTS architecture.](image2)
keep discovering/innovating killer applications like CRBT (Caller Ring Back Tone) at regular intervals, which has been substantially neglected in Nigerian market. Info VAS services are characterized by the useful information it provides to the end user. The user interest comes in from the personal component and relevance of the content. Apart from mobile, alternate modes are available to access Information VAS like Newspaper, TV, and Internet. Examples of Info VAS are information on movie tickets, news, banking account etc. They also include user request for information on other product categories like real-estate, education, stock updates, etc. Information VAS needs to target the right person at the right time with the right content. M-Commerce VAS (Transactional services) are services which involve transaction using the mobile phone. An example of this kind of service is buying movie tickets using mobile phone or transfer of money from one bank account to the other. These can broadly be classified into 2 types - Mobile banking and Mobile payments. The revenue generation and popularity of any MVAS revolves around either the perceived or practical value or both. Perceived value of a MVAS depends on perceived rather than the actual utility to the end user. When the immediate benefit may not be clear to the subscriber, the value that a subscriber derives from it largely depends on the marketing efforts and the personality of the person using the service. The value is gauged more from the intangible benefits derived from the service like emotional benefits. A good example of a MVAS with high perceived value is CRBT (Caller Ring Back Tone); whereas Practical value is completely based on tangible benefits derived from the service. The benefits considered could be based on convenience, time or money; take for example service availed to get the cheapest air fares available, money transfer using mobile phone.

In terms of architecture, the growth of MVAS is based on 4 pillars namely: Access Devices, Content, Technology, and Infrastructure [Elliot, G., and Phillips, N]. Access devices play an important role in the usage of different MVAS categories. The lack of features like GPRS, GPS, and Java in handsets makes a number of MVAS futile. Therefore the affordability of such features is a key factor in determining the size of the target audience to a large extent. A recent example is service operators preference for USSD as an m-Payment mode instead of GPRS for the simple reason that USSD is handset agnostic. Another access device, which will soon see the light-of-the-day in India, is MID (Mobile Internet Devices). Even technology companies like Intel are increasing the power of mobile platforms with a specially designed low cost processor called Atom. For content aggregators/developers/owners to play a significant role in the category, relevant content needs to be generated. They need to play a larger role rather than merely being a content aggregator and transporter. Investment needs to be made bearing in mind the long term benefit and not the short term ROI. Another factor, which impedes the content development in Nigeria, even in South Africa and in India alike, is marketing of MVAS. A lot of content and services die prematurely or do not realize their full potential because of lack of sufficient and focused marketing efforts. Currently, packaging and marketing of content is primarily in the hand of operators. The stakeholders are currently not sharing the burden again citing reasons of lack of sufficient returns. Infrastructure requirement needs to be met to harness the potential of different technologies. While technologically, there are two aspects to technology. One is the technology platform itself and the second is the communication technology. The technology platforms are independent of geography and are transportable across borders unlike content that needs to have a regional flavor for mobile payment platform, IVR, etc. Communication technology is also independent of geography but depends on regulation issues.

4. THE MVAS ECOSYSTEM

The mobile VAS ecosystem in Nigeria is at an embryonic stage similar to that of India. This has resulted in increased complexity and lack of clarity within the ecosystem. The MVAS sector has seen lot of small players foray into the domain. The MVAS growth has given birth to a new entity which aggregates content originally designed for some other media, from different sources. Some of the content aggregators also develop content especially for mobile phones for e.g. mobile games. On one hand, they coordinate with operators and on the other, with content owners and smaller aggregators. Another key role played by them is handling of the Intellectual Property Rights (IPR) related issues - thus reducing the burden of the mobile operators. The Content owners are the actual owners of the content who hold the copyright of the same. Though the content is developed for some other media, the MVAS has started contributing significantly to their overall revenue generation. A good example is of CRBT that is generating good revenue to the music labels. They mostly provide content to Content Aggregators but also sometimes interact directly with the operators.

In recent cases, content owners sell the content directly to handset manufacturers for example Nokia.
tied up with *Om Shanti Om* providing exclusive songs, wallpapers, games, etc. Media companies like TV channels and FM channels in Nigeria have also joined the bandwagon. All the big TV channels have started selling their content through short codes. STAR larger beer of Nigerian Brewery Plc usually hold the STAR MEGA JAM, an annual musical concert that hold every year whereby their customers through short codes vote for the artists they want to perform at the musical show. The key revenue source for the media channels is voting in shows like Indian Idol and contest participation in shows like *Paanchvi Paas*. Post the success of talent hunt shows and contests like *KBC*, the TV slots have been flooded with such shows and other reality shows. Though the initial euphoria has not been sustained, voting and contest participation continue to contribute significantly.

Technology partner & platform enablers handle software platforms and authoring tools. Thus they provide the backbone to all the MVAS being provided. The technology backend include solutions like Televoting system, Voice portal, etc. Even there are companies who own a short code (e.g. 58888, 53456 etc) which is sold to a third party client for some keyword and a specific period. On one hand they need to tie up with the operators to ensure their short code works across subscriber base and on the other hand they sell their short code to other companies like real estate, hospitals, etc. who advertise their products using the short code. The handset manufacturers have joined the bandwagon and have started tying up with Content owners to provide pre loaded content on their handsets. Since most of the content in MVAS is originally designed for some other media, it needs to be converted into mobile compatible format. This is where content converters enter the value chain. They interact with the operators and work closely with them.

The current revenue distribution is in favor of mobile operators who capture anywhere between 60-80%. Technology enablers get anywhere between 10-20% and content aggregators get 10-15% of the revenue. The content owner gets 5-10%. Operators cite infrastructure development, cost of acquiring subscribers, and marketing costs as the reasons for the higher revenue share on their side. Thus, operators have the highest bargaining power. Since there is only handful of operators with market share in double digits, it is not business sense to ignore any of these. Once the number of operators increases, the revenue share of operators is expected to dilute. Without regulation, there are many factors, which play role in revenue distribution in this free market.

Depending on the access mode used to deliver MVAS to consumer and the resultant technology used, revenue share gets distributed. For instance if service is delivered using Voice portal platform, more revenue is released to the technology enabler as compared to when SMS platform is used. The revenue distribution also differs on the type of content. In case of Intellectual Property Revenue (IPR) related content, operators release more revenue while in case of white label content; comparatively less revenue percentage is released. The growth of MVAS market is dependent on the various modes available to the end consumer for accessing MVAS. Presently, the modes of MVAS access can be classified as: SMS was the first mode introduced for accessing MVAS, even though MVAS market is currently dominated by SMS in terms of revenue. The SMS platform is used by telecom operators to provide a variety of value added services such as information services like news alerts, football scores, chatting services, etc.

Interactive Voice Response (IVR) system is used to deliver Voice based Value Added services to the consumers. In this system, the end user interacts with a computerized system to tap the service. The end users can select the options available on the service either through numbers on the keypad or using speech recognition system. Voice based services are offered in a variety of languages to cater to the diversified multicultural society like India, Europe and the Americans etc. This mode becomes more significant.
when dealing with the non-metros and rural India. Voice access contributes to more than one-third of the total MVAS revenue. All mobile operators employ this mode in India. GPRS currently contributes around 6-7% of the overall MVAS revenue. The high price of data access acts as a barrier towards usage of GPRS. The primary drivers for the adoption and usage of mobile internet are availability of cheap data-enabled handsets and lowering of GPRS tariff by mobile operators. GPRS is an effective medium of accessing MVAS, but is restricted by relatively lower consumer base. This mode is gradually gaining more and more popularity as GPRS enabled handsets are now readily available and are getting affordable by the day. Unstructured Supplementary Services Data (USSD) Platform is a session based mechanism for delivery of service to the end consumer. The services are delivered through a continuous interactive session, unlike SMS where the interaction needs to broken to separate messages. Multimedia Message Service (MMS) Platform allows sending messages that include sending multimedia objects such as images, audio and video along with text messages. MMS market in most developing countries is still in a nascent stage. Content market in most countries got a boost when all the network operators migrated to the 2.5G platform which readily supports MMS. Presently, the growth of this segment is restrained by high-price and limited availability of MMS handsets in Nigeria. In all, SMS is the highest revenue for the mobile content industry as shown in figure 7.

5. MOBILE VAS ACCESS DEVICES

For access of Value Added Services also known as mobile content, feature rich handsets are needed which enable easy access and display/storage of contents. There has been phenomenal growth in mobile subscriber base but the low feature handsets continue to be in majority. Basically price is the biggest driver in purchasing of handsets. The lack of feature rich mobile handsets thus continues to be a barrier to the growth of Mobile Value Added Services. It is expected that the prices of feature rich mobile handsets will decline with increasing competition among manufacturers and also as a result of technological advancement. Currently the penetration of GPRS enabled handsets are close to 26% in India as against 99% in South Korea and 76% in Japan. Of the total mobile subscribers in India 65 million possess GPRS-enabled handsets. Of all those who posses GPRS enabled handsets only 20-25% of them have got the GPRS activated and only about 15% use it. A similar scenario often occurs in Nigeria with many people who used GPRS enabled handsets don’t know how to effectively but rather use it as statement of class or fashion statement. This clearly indicates that the consumer today engages more in text based services rather than the web based applications. The market for 3G in India is expected to be huge with over 65 million wireless subscribers, who use their handsets to access data services on the Web. These subscribers are currently using mobile handsets, which are internet-enabled and are potential broadband subscribers with the deployment of advanced wireless technologies such as 3G. According to Indian Cellular Association (ICA) about 5% of mobile users already have handsets that can work on 3G spectrum. Therefore, the shift towards 3G would depend on affordability of handsets along with the quality of content available.

6. BARRIERS TO THE GROWTH OF MVAS

The challenges confronting the MVAS market can be broadly categorized in terms of demand and supply perspectives. The demand perspective includes: limited awareness of services, high cost of content etc. whereas the supply perspective ranges from transparency in revenue sharing arrangements to transparency in billing system. The consumers are not fully aware of the services offered in the MVAS market. The promotional SMS sent on the mobile phones are the primary source of making end consumer aware of value added services. This method of promoting MVAS has now reached the saturation stage. Currently, the value added services are priced at a higher side. This is hampering growth of MVAS market. The consumers look for value in a service if they are paying for it. Presently, the consumers perceive that MVAS is priced higher than the actual value it is delivering to the consumers. Take for instance, the Indian MVAS market consists primarily of prepaid users, who have relatively lower budget for MVAS in their overall mobile expenditure. The stakeholders need to package the services in a...
manner that ensures correct mix of money and value to the consumer. Exit barriers for MVAS consumers are high: The service providers don’t make the consumers well aware of the process of unsubscribing from any service. Revenue sharing arrangement is one of the biggest hindrances for the growth of MVAS market. The stakeholders are in conflict with each other about the revenue sharing system in India. Presently, telecom operators take majority of the revenue and the other entities get a lower share in the overall revenue. This is hampering the growth of content development in India, and in turn the overall MVAS market. There is a need for designing a fair revenue structure so that all the stakeholders in the ecosystem get their fair share of the revenue. Mobile VAS market faces issues of transparency in billing and payment system. This leads to conflict among the stakeholders about the revenue share. There is a need for a central authority to monitor the IT system and bring transparency to the whole billing system.

Mobile VAS market in India can be classified into five categories namely: {Person to Person SMS, Ringtones/CRBT, Person to Application SMS, Games and Others (including upcoming services like m-Radio, m-Commerce, etc)} depending on the contribution to the overall MVAS revenue income as indicated in figure 9. The MVAS market registered a y-o-y growth of 60% in the year 2006/2007. The MVAS market is expected to grow steadily at a rate of almost 70% for the next two years. By end June 2009, the VAS market stood at Rs 9,760 crore and by end of June 2010 at Rs 16,520 crore. MVAS currently contributes around 9% to the operator’s revenue. It is expected to increase to 10.4% in the next 1 year and 12% by June 2012.

7. CONCLUSION

Mobile VAS industry is undergoing a lot of structural changes as Mobile VAS industry is poised to grow and contribute greater revenues to the telecom industry. As the year goes by, various operators have seen the opportunity and the added advantage of an extra source of revenue. It is important to state here clearly that despite the various challenges faced by the mobile content industry, it could perhaps be the saving grace for the MNOs (Mobile Network Operators) who have invested heavily in upgrading their networks to be 3G complaint and yet to reap commensurate financial returns as the 3G networks is perfectly suited to support the fledging mobile content industry thereby giving another source of income apart from their traditional revenue base.

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