

# A PLUS MEDIA



## ***FEASIBILITY REPORT FOR THE ESTABLISHMENT AND OPERATION OF A SATELLITE TELEVISION BROADCASTING (FREE-TO AIR DIRECT-TO-HOME SINGLE CHANNEL)***

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## COMPANY PROFILE

It is the aim of A PLUS MEDIA to Curve a niche for itself, and by so doing carve out an enviable share of the TV broadcasting market in Ghana.

Deregulation of the media and airwaves has brought about a broadcasting revolution and spawned a veritable TV industry in Ghana, which has seen a plethora of TV stations come into existence throughout the length and breadth of the country catering for local needs.

These developments have catapulted TV broadcasting into a seriously competitive arena where entrepreneurial flair coupled with technology savvy and managerial ability could provide the catalyst for revenue generation, so long as the socio-economic, political, educational, development and entertainment needs of the public are articulated and addressed in a skillful and comprehensive manner.

For A PLUS MEDIA to be successful and profitable, it would launch a campaign to achieve maximum results and be synergistic with other forms of promotions, namely the editorial route, or through created media example, Awards and prizes, gifts, competitions, incentives etc. Or other message sources such as the services and the messages it delivers through its name, prices and places.

With the leverage to be obtained by the position of A PLUS MEDIA as the heartbeat of the Ghana Township and the branding of A PLUS MEDIA this will create a distinctive image. Its profitability will be ensured. Business and institutions of various sizes will jockey to place their advertisements on the television station because of its pre-eminent position in the minds of the public/listeners.

## **PROJECT BACKGROUND**

This study is aimed at determining if there is a business opportunity for the creation of a television station that will serve the various levels of government, individuals and the corporate sector.

The benefits of such an endeavour extend beyond an increase in the post- production

industry. Other benefits of the channel have been identified as: an increase in export development for EMG films and documentaries, an increase in employment opportunities for the region, a differentiated medium for tourism advertisement of the region, and a strengthen identity across the country.

This opportunity has been explored with an analysis of the different methods through which this station's content could be distributed to its intended audience. This study also involves an analysis of the opportunities for the establishment of the television station as well as an assessment of these opportunities based on a variety of criteria including financial viability, market demand, time frame and cash flow constraints.

## **INDUSTRY ANALYSIS**

### **TELEVISION BROADCASTING**

Satellite TV covers the entire country whereas Terrestrial TV covers approximately 80% of the population. Ghana Television (GTV), operated by the Ghana Broadcasting Corporation (GBC), currently has the most extensive Terrestrial TV coverage in the country comprising about thirty nine (39) transmission sites nationwide.

Terrestrial TV is the most dominant TV reception platform in Ghana followed by satellite

and cable respectively. As of end December 2011, 28 television stations had been authorized out of which seventeen (17) were operational.

## EXISTING TERRESTRIAL TV BROADCASTING LICENSEES

The existing holders of free-to-air TV broadcasting licenses (see *Table 1-1*) are listed below:

*Table 1-1: List of Entities with Terrestrial TV Broadcasting Authorizations as of 31 Dec 2011*

No.	Name of Company	Brand Name	Type of Service	Area(s) of Operation	Date of First Frequency Authorisation
1.	Ghana Broadcasting Corporation (GBC)	GTV	Free To Air Terrestrial	Nationwide	Established by GBC Decree of 1968
2.	TV3 Network Limited	TV3	Free To Air Terrestrial	<ul style="list-style-type: none"> <li>• Greater Accra</li> <li>• Eastern</li> <li>• Western</li> <li>• Central</li> <li>• Ashanti</li> <li>• Brong Ahafo</li> </ul>	17 September 1996
3.	Metropolitan Entertainment Television	Metro TV	Free To Air Terrestrial	Nationwide (All ten EMG capitals)	5 September 1997
4.	Television Africa Ltd.	TV Africa	Free To Air Terrestrial	<ul style="list-style-type: none"> <li>• Greater Accra</li> <li>• Eastern</li> <li>• Central</li> <li>• Western</li> <li>• Ashanti</li> </ul>	21 November 1995
5.	Crystal TVvision Network Ltd.	Crystal TV	Free To Air Terrestrial	<ul style="list-style-type: none"> <li>• Greater Accra</li> <li>• Eastern</li> <li>• Ashanti</li> <li>• Volta</li> </ul>	1995
6.	Net 2 TV Limited	Net 2 TV	Free To Air Terrestrial	<ul style="list-style-type: none"> <li>• Greater Accra</li> <li>• Eastern</li> </ul>	7 April 2004
7.	Independent TV Limited/ Top TV	Top TV	Free To Air Terrestrial	Greater Accra	1 April 2008
8.	K & N Investments Limited	e-TV Ghana	Free To Air Terrestrial	Greater Accra Eastern	19 October 2006
9.	Viasat Broadcasting Ltd.	Viasat 1	Free To Air Terrestrial	Greater Accra Eastern Central Western Ashanti	22 February 2008

10.	Three Angels Broadcasting Network (3ABN) Ghana	N/A	Free To Air Terrestrial	Not yet on air	11 August 2008
11.	Integrated Media Xchange (IMX)	N/A	Free To Air Terrestrial	Not yet on air	7 January 2009
12.	Multiple Concepts	GHOne	Free To Air Terrestrial	Greater Accra Eastern	5 January 2009
13.	Smart Multimedia	N/A	Free To Air Terrestrial	Not yet on air	23 December 2008
14.	The Cardinal Foundation for Distance Learning (CAFEDIL)	N/A	Free To Air Terrestrial	Central Region	11 February 2005
15.	Centre for Intercultural Learning Talent & Development, AGORO	Coastal TV	Free To Air Terrestrial	Central Region	16 October 2007
16.	Great KOSA Company Ltd.	N/A	Educational/Research station	Not yet on air	27 August 2008
17.	Empire Broadcasting Network	N/A	Free To Air Terrestrial	Not yet on air	9 May 2008
18.	U2 Company Limited	N/A	Free to Air Terrestrial	Greater Accra, Eastern	20 January 2009
19.	HBA TV & Communication	N/A	Free to Air Terrestrial	Not yet on air	24 June 2008
20.	City Television	CTV	Free to Air Terrestrial	Not yet on air	3 October, 2008
21.	Orakle Advertising Limited	Dzamaa TV	Free to Air Terrestrial	Not yet on air	10 November, 2008

## DTH SATELLITE SERVICES

Direct to Home (DTH) Satellite Television operators are listed below:

*Table 1-3: List of Entities with Authorisations to provide Satellite Television Services*

No.	Name of Company	Brand Name	Type of Service	Area(s) of Operation	Date of First Authorisation
1.	Multichoice Ghana	DSTV	Pay TV Digital (Ku) Satellite	Nationwide	14 April 2000

2.	Strong Digital	My TV	Pay TV Satellite (Ku)	Nationwide	13 May 2008
3.	Multimedia Broadcasting Company Ltd.	Multi TV	Free To View Digital Satellite (Ku)	Nationwide	22 January 2009

## OVERVIEW

The Ghanaian television industry is large and diverse. Ghanaians have the choice of watching international, African and Ghanaian broadcasting. They are able to view these channels by direct broadcast, satellite service and internet television. The industry is structured a long content and/or programming.

The average Ghanaian spends over three hours per day watching TV. Approximately 70 percent of homes have at least one TV, over 50 percent have more than one television set, and about 60 percent of homes in most cities subscribe to satellite TV.

The Ghanaian television industry encompasses diverse cultural fields reflecting the nature of contemporary Ghanaian societies. New technologies allow television channels to be aired across the globe.

The time Ghanaians spend watching different categories of programming on TV has not changed much in the past ten years. The entertainment genres: Drama, Comedy Variety, Music, etc. still account for the greatest audience share, about 50 percent combined.



News, Public Affairs and Sports combined account for about 40% of total TV viewing.

The remainder of viewing time is spent on other program types that consist of Educational/ Instructional, religious and miscellaneous.

## TRENDS

The way Ghanaians watch television is changing. Direct-to-Home (DTH) satellite services have increased its market share significantly over the past few years (see Appendix A). DTH Satellite has become popular due to the fee structure and broader range of services it offers versus cable alternatives. Cable television subscriptions have been declining over the past few years but still continue to dominate the television market as a result of its maturity in the lifecycle.

While there has been little growth in the cable station industry, subscriptions to specialty and pay-per-view stations are on the rise. Initially, one would assume this trend would negatively affect privately owned television stations; however this has not been the case. According to a report prepared by Ghanaian Media Research Inc, for the Ghanaian Film and Production Association "many of the new Ghanaian specialty services, which have grown from a combined 10 percent share to 27 percent, are owned by private broadcasters". This research suggests that although the industry is changing, those who have previously held the majority of the market shares continue to dominate the specialty channel industry.

Recommended that any new channel go this route is yet a unproven technology and

it requires large investments to create this type of programming.

## **VIEWERSHIP PATTERNS**

The break down for Ghanaian viewership patterns have been identified as the following:

- 60% of Ghanaians watch shows that fall under the entertainment category.  
These shows include drama, comedy, music, etc.
- 35% of Ghanaians watch shows that fall under the information category.  
This category includes news and public affairs programming and sports programming.
- 5% of Ghanaian viewership is spread across other programming such as educational, instructional, religious and miscellaneous programming.

Nearly three-quarters of Ghanaian entertainment viewer ship is dedicated to the “prime-time” hours, which fall between 7 and 11p.m. The percentage of available Ghanaian content during this time slot has been consistently around 20% for the past ten years. As a result, the majority of shows viewed under the entertainment category by Ghanaians, show foreign (read US and Mexican) content. This is cause for concern for some as television is perceived as a mode of cultural distribution.

## **PROGRAMMING-GHANAIAAN CONTENT**

Attracting a television audience depends on the programs which are aired. Programming, whether produced or purchased, constitutes the largest single operating expense for

private broadcasters. Programming has consumed an increasing share of operating revenues. The largest share of the money devoted to Ghanaian programs was dedicated to:

News and Sports (61%) Drama and  
comedy (12%) and Human interest  
(9%)

Of the money spent on non-Ghanaian programming, eighty percent was used to buy dramas and comedies from Mexican networks or independent producers<sup>14</sup>

## CHOOSING THE MEDIUM

Choosing the right medium for the transmission/distribution of the proposed television channel is one of the most critical decisions of this project. Whether it should be over-the-air cable, satellite, Internet or a combination of mediums, needs to be assessed on a variety of parameters ranging from technological feasibility, popularity, convenience, cost, and future trends. All of these factors stem from the market and customers viewpoint.

## EVALUATION OF OPTIONS

Though a superior technology, Internet television is not yet available or affordable to the common television viewer. This may be the primary reason for its limited popularity at present. For example, DIRECWAY®DW-6000 System costs \$750 to the customer for installation and shipping. The additional monthly programming charges for DIRECWAY service start at \$89.99. In light of the high costs associated with this option, Internet

television is not considered feasible at this time.

Once the Internet television option is ruled out for short term feasibility, the distribution choice remains between over-the-air, cable or satellite television. In order to compare, the three options analysis is based on ten key parameters was undertaken. Unarguably, viewer's choice provides the strongest basis in the decision of a market oriented and customer friendly medium for telecasting programs in the four provinces understudy.

Over-the-air broadcasting can immediately be ruled out because it is prohibitively expensive. It requires extensive infrastructure to cover the vast geography of Ghana. In addition, there is not a strong consumer preference for this medium of broadcasting.

A majority of TV channels operating in Ghana telecast their programs through cable operators and directly through satellite among viewers. Cable Gold Gh. Ltd. are the major cable operators in the country at the moment. There are no substantial costs associated with linking the proposed station with any of these operators. Technical compatibility of studios for cable distribution is also not an issue. The only potential impediment may be selling the proposed channel to the cable operators.

However, in order to make an informed choice on satellite television vs. cable television decision, infrastructure costs and potential limitations associated with each option play a determining role.

## **BARRIERS TO ENTRY**

There are many barriers to entry for this endeavor. The first step is to obtain a broadcasting frequency license. A frequency is required for each type of Category. If there is no broadcasting frequency (channel) available, the application cannot continue. To date, this has not been an issue for Ghanaian cities but this situation could change at any time.

Finally, once the channel has made it through the NCA's application process, it is taken to the technical committee to assess and make recommendations as to whether the business is feasible or not and also the availability of frequency of the request becomes a major yard stick. After the committee is satisfied a licence is issued.

Since the channel is looking to be distributed across Ghana and beyond, it will potentially have to market and negotiate with Inmarsat or other competitors to get full coverage. It is possible that one provider may carry the channel, while the other would not.

## **POTENTIAL MARKET**

Below are some quick facts to aid in the understanding the potential market of the proposed station in this region.

- Total Ghanaian population is 25.37 million. Among them, A PLUS MEDIA is targeting 2.5million which equals to 7.3 per cent of entire national population.
- According to GSS, the population of Ghanaians 18 years and over was 13.63 million in 2013. This translates to be 75% of the total population.

- TV Guide listings state that 72 percent of its audience is composed of adults 18-54 years of age.
- Almost all Ghanaian homes (99 percent) have at least one TV set, and nearly two thirds (59per cent) own more than one.
- More than a third of Ghanaian households own at least three television sets.
- Three out of four Ghanaian subscribe to cable
- On the average, Ghanaians watch more than 22 hours of television a week.
- The average weekly viewing time was about 24hours

In summary, the majority of Ghanaians watching TV are over 18 years old. Residents in the Greater Accra region of Ghana watched more television than other regions. It is therefore assumed that the potential market size for this channel is around 70 percent of the total Accra provincial television viewing population, which amounts to 1,640,257 individuals.

According to the research, based on current programming, different cable providers charged different package prices. Conservatively assuming that the cost per house hold is \$30 per month, the potential market will generate almost \$280 million annually in Accra region just from TV watching population. This translates into an average fee of \$0.47per person, per year, for basic cable service alone.

In addition, the potential market could also include Ghanaians who have migrated to other provinces within the country. In 2004, 41,654 (or2 percent) of Ghanaians left the region to live in other parts of the country.

## OVERVIEW OF COMPETITION

Statistical information on the overall state of Ghanaian viewership is currently not available.

Unlike major urban centers across the country, which get monitored daily, SVL television viewership will be measured two times a year, for a three week period each time.

The proposed programming model would include:

30 percent SVL Identity culture programs such as culture, Soccer, Sports, TV marketing etc.

25 percent EMG Themed Programs such as tourism promotion, festival, events etc.

20 percent community themed programs such as Inter school competitions, anniversary shows, local sporting events and 25 percent others such as talk shows, drama, biographic etc.

## LOCAL PRODUCTION DEVELOPMENT

A locally based TV station has the potential to provide a catalyst to stimulate SVL's TV industry. The broadcaster has the choice of either commissioning original local content from local producers, who then would have access to additional funds to undertake TV and film projects or purchasing previously broadcasted SVL's Ghanaian themed content. Both of these options create a demand for local programming.

## TECHNOLOGY

## OVERVIEW

### Satellite TV System

Early satellite TV viewers were explorers of sorts. They used their expensive dishes to discover unique programming that wasn't necessarily intended for mass audiences. The dish and receiving equipment gave viewers the tools to pick up foreign stations, live feeds between different broadcast stations, NASA activities and a lot of other stuff transmitted using satellites.

Some satellite owners still seek out this sort of programming on their own, but today, most satellite TV customers get their programming through a direct broadcast satellite (DBS) provider, such as DirecTV or DISH Network. The provider selects programs and broadcasts them to subscribers as a set package. Basically, the provider's goal is to bring dozens or even hundreds of channels to your TV in a form that approximates the competition, cable TV.

Unlike earlier programming, the provider's broadcast is completely digital, which means it has much better picture and sound quality. Early satellite television was broadcast in C-



band radio -- radio in the 3.7-gigahertz (GHz) to 6.4-GHz frequency range. Digital broadcast satellite transmits programming in the Ku frequency range (11.7 GHz to 14.5 GHz).

## THE COMPONENTS



There are five major components involved in a direct to home (DTH) or direct broadcasting (DBS) satellite system: the programming source, the broadcast center, the satellite, the satellite dish and the receiver.

Programming sources are simply the channels that provide programming for broadcast. The provider doesn't create original programming itself; it pays other companies (HBO, for example, or ESPN) for the right to broadcast their content via satellite. In this way, the provider is kind of like a broker between you and the actual programming sources. (Cable TV companies work on the same principle.)

The broadcast center is the central hub of the system. At the broadcast center, the TV provider receives signals from various programming sources and beams a broadcast signal to satellites in geosynchronous orbit.

The satellites receive the signals from the broadcast station and rebroadcast them to Earth. The viewer's dish picks up the signal from the satellite (or multiple satellites in the same part of the sky) and passes it on to the receiver in the viewer's house.

The receiver processes the signal and passes it on to a standard TV.

Satellites are higher in the sky than TV antennas, so they have a much larger line of sight range.

## **PROBLEMS WITH BROADCAST TV**

Conceptually, satellite TV is a lot like broadcast TV. It's a wireless system for delivering television programming directly to a viewer's house. Both broadcast television and satellite

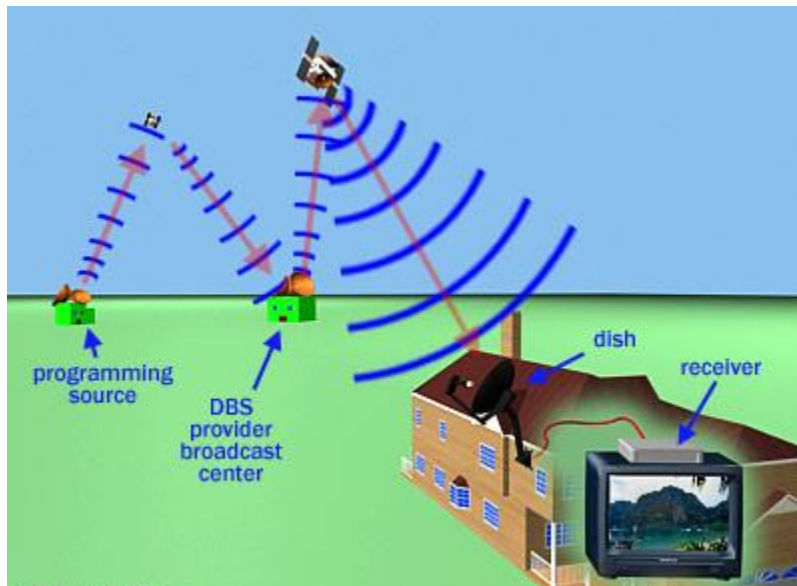
stations transmit programming via a radio signal. Broadcast stations use a powerful antenna to transmit radio waves to the surrounding area. Viewers can pick up the signal with a much smaller antenna. The main limitation of broadcast TV is range. The radio signals used to broadcast television shoot out from the broadcast antenna in a straight line. In order to receive these signals, you have to be in the direct line of sight of the antenna. Small obstacles like trees or small buildings aren't a problem; but a big obstacle, such as the Earth, will reflect these radio waves.

If the Earth were perfectly flat, you could pick up broadcast TV thousands of miles from the source. But because the planet is curved, it eventually breaks the signal's line of sight. The other problem with broadcast TV is that the signal is often distorted, even in the viewing area. To get a perfectly clear signal like you find on cable, you have to be pretty close to the broadcast antenna without too many obstacles in the way.

## **THE SATELLITE TV SOLUTION**

Satellite TV solves the problems of range and distortion by transmitting broadcast signals from satellites orbiting the Earth. Since satellites are high in the sky, there are a lot more

customers in the line of sight. Satellite TV systems transmit and receive radio signals using specialized antennas called satellite dishes.



## SATELLITE TV SYSTEM

Early satellite TV viewers were explorers of sorts. They used their expensive dishes to discover unique programming that wasn't necessarily intended for mass audiences. The dish and receiving equipment gave viewers the tools to pick up foreign stations, live feeds between different broadcast stations, [NASA](#) activities and a lot of other stuff transmitted using satellites.

Some satellite owners still seek out this sort of programming on their own, but today, most satellite TV customers get their programming through a **Direct Broadcast Satellite** (DBS) provider, such as DirecTV or DISH Network. The provider selects programs and broadcasts them to subscribers as a set package. Basically, the provider's goal is to bring dozens or even hundreds of channels to your TV in a form that approximates the competition, cable TV.

Unlike earlier programming, the provider's broadcast is completely **digital**, which means it has much better picture and sound quality. Early satellite television was broadcast in **C-band radio** - radio in the 3.7-gigahertz (GHz) to 6.4-GHz frequency range. Digital broadcast satellite transmits programming in the **Ku frequency range** (11.7 GHz to 14.5 GHz).

## THE COMPONENTS

There are five major components involved in a **Direct to Home** (DTH) or **direct broadcasting** (DBS) satellite system: the programming source, the broadcast center, the satellite, the satellite dish and the receiver.

- **Programming sources** are simply the channels that provide programming for broadcast. The provider doesn't create original programming itself; it pays other companies (HBO, for example, or ESPN) for the right to broadcast their content via satellite. In this way, the provider is kind of like a broker between you and the actual programming sources. (Cable TV companies work on the same principle.)
- The **broadcast center** is the central hub of the system. At the broadcast center, the TV provider receives signals from various programming sources and beams a broadcast signal to satellites in geosynchronous orbit.
- The **satellites** receive the signals from the broadcast station and rebroadcast them to Earth.
- The viewer's **dish** picks up the signal from the satellite (or multiple satellites in the same part of the sky) and passes it on to the receiver in the viewer's house.
- The **receiver** processes the signal and passes it on to a standard TV.

## THE WILD SIDE

Early satellite TV viewers who used C-band radio for their broadcasts were able to catch wild feeds of syndicated programs, sporting events and news. These broadcasts were free,

but viewers had to hunt them down, they didn't get previewed or listed like regular broadcast programming. These signals still exist, and Satellite Orbit magazine publishes a list of today's wild feeds.

## SATELLITE TV PROGRAMMING

Satellite TV providers get programming from two major sources: national **turnaround channels** (such as HBO, ESPN and CNN) and various **local channels** (the ABC, CBS, Fox, NBC and PBS affiliates in a particular area). Most of the turnaround channels also provide programming for cable TV, and the local channels typically broadcast their programming over the airwaves.

Turnaround channels usually have a distribution center that beams their programming to a geosynchronous satellite. The broadcast center uses large satellite dishes to pick up these analog and digital signals from several sources.

Most local stations don't transmit their programming to satellites, so the provider has to get it another way. If the provider includes local programming in a particular area, it will have a small local facility consisting of a few racks of communications equipment. The

equipment receives local signals directly from the broadcaster through [fiber-optic cable](#) or an antenna and then transmits them to the central broadcast center.

The broadcast center converts all of this programming into a high-quality, uncompressed digital stream. At this point, the stream contains a vast quantity of data -- about 270 megabits per second (Mbps) for each channel. In order to transmit the signal from there, the broadcast center has to **compress** it. Otherwise, it would be too big for the satellite to handle. In the next section, we'll find out how the signal is compressed.

## CABLE: SATELLITE'S BIGGEST CONTENDER

With emerging technologies in each service, the hardest decision in TV viewing is no longer just what channel to watch -- it's what service to choose.

- **Cable advantages:** Advancements in digital cable provide improved audio and picture quality with additional channels at a lower cost than satellite. You can also access cable channels from multiple rooms in your house fairly easily.



- **Cable disadvantages:** Cable has limited access in rural areas, and you should prepare for increased service costs as your provider updates its equipment. Your service costs are also subject to local taxes.
- **Satellite advantages:** Satellite offers movie-quality audio and picture display with hundreds of channels. This service is readily available in rural and urban areas and provides access to more digital and high definition programming.
- **Satellite disadvantages:** It is expensive to purchase all the equipment at the outset (and you can't typically rent it). If you want to access satellite TV in multiple rooms, be prepared for extra fees. Also, satellite TV is subject to weather-related malfunctions.

## SATELLITE TV SIGNAL

Satellite signals have a pretty long path to follow before they appear on your TV screen in the form of your favorite TV show. Because satellite signals contain such high-quality digital data, it would be impossible to transmit them without [compression](#). Compression simply

means that unnecessary or repetitive information is removed from the signal before it is transmitted. The signal is reconstructed after transmission.

## STANDARDS OF COMPRESSION

Satellite TV uses a special type of video file compression standardized by the Moving Picture Experts Group (MPEG). With MPEG compression, the provider is able to transmit significantly more channels. There are currently five of these MPEG standards, each serving a different purpose. DirecTV and DISH Network, the two major satellite TV providers in the United States, once used **MPEG-2**, which is still used to store movies on [DVDs](#) and for digital cable television (DTV). With MPEG-2, the TV provider can reduce the 270-Mbps stream to about 5 or 10 Mbps (depending on the type of programming).

Now, DirecTV and DISH Network use MPEG-4 compression. Because MPEG-4 was originally designed for streaming video in small-screen media like [computers](#), it can encode more efficiently and provide a greater bandwidth than MPEG-2. MPEG-2 remains the official standard for digital TV compression, but it is better equipped to analyze static images, like those you see on a talk show or newscast, than moving, dynamic images. MPEG-4 can produce a better picture of dynamic images through use of spatial (space)

and temporal (time) compression. This is why [satellite](#) TV using MPEG-4 compression provides high definition of quickly-moving objects that constantly change place and direction on the screen, like in a basketball game.

In the next section, we will see how satellite TV signals are encoded for transmission.

## **MPEG STANDARDS**

All MPEG standards exist to promote system interoperability among your computer, television and handheld video and audio devices. They are:

- MPEG-1: the original standard for encoding and decoding streaming video and audio files.
- MPEG-2: the standard for digital television, this compresses files for transmission of high-quality video.
- MPEG-4: the standard for compressing high-definition video into smaller-scale files that stream to computers, cell phones and PDAs (personal digital assistants).

- MPEG-21: also referred to as the Multimedia Framework. The standard that interprets what digital content to provide to which individual user so that media plays flawlessly under any language, machine or user conditions.

## SATELLITE TV ENCODING AND ENCRYPTION

At the broadcast center, the high-quality digital stream of video goes through an MPEG encoder, which converts the programming to MPEG-4 video of the correct size and format for the satellite receiver in your house.

Encoding works in conjunction with compression to analyze each video frame and eliminate redundant or irrelevant data and extrapolate information from other frames. This process reduces the overall size of the file. Each frame can be encoded in one of three ways:

- As an **intraframe**, which contains the complete image data for that frame. This method provides the least compression.
- As a **predicted** frame, which contains just enough information to tell the satellite receiver how to display the frame based on the most recently displayed intraframe or predicted

frame. A predicted frame contains only data that explains how the picture has changed from the previous frame.

- As a **bidirectional** frame, which displays information from the surrounding intraframe or predicted frames. Using data from the closest surrounding frames, the receiver **interpolates** the position and color of each pixel.

This process occasionally produces **artifacts** -- glitches in the video image. One artifact is **macro blocking**, in which the fluid picture temporarily dissolves into blocks.

Macroblocking is often mistakenly called **pixilating**, a technically incorrect term which has been accepted as slang for this annoying artifact. Graphic artists and video editors use "pixilating" more accurately to refer to the distortion of an image. There really are pixels on your TV screen, but they're too small for your human eye to perceive them individually -- they're tiny squares of video data that make up the image you see. (For more information about pixels and perception, see How TV Works.)

The rate of compression depends on the nature of the programming. If the encoder is converting a newscast, it can use a lot more predicted frames because most of the scene

stays the same from one frame to the next. In more fast-paced programming, things change very quickly from one frame to the next, so the encoder has to create more intraframes. As a result, a newscast generally compresses to a smaller size than something like a car race.

## ENCRYPTION AND TRANSMISSION

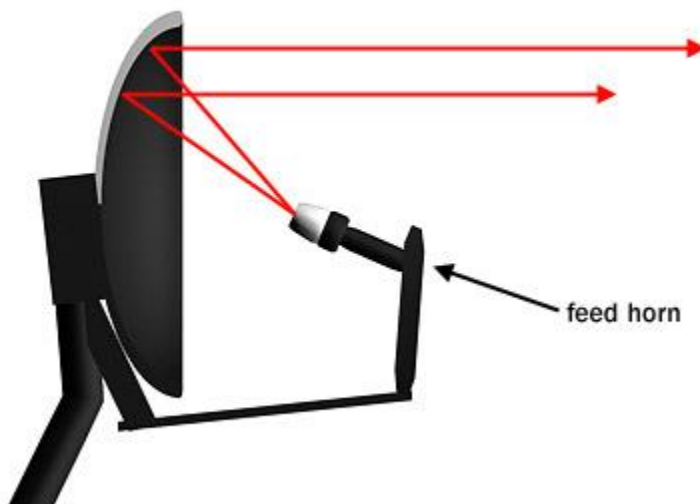
After the video is compressed, the provider encrypts it to keep people from accessing it for free. Encryption scrambles the digital data in such a way that it can only be **decrypted** (converted back into usable data) if the receiver has the correct decryption algorithm and security keys.

Once the signal is compressed and encrypted, the broadcast center beams it directly to one of its satellites. The satellite picks up the signal with an onboard dish, amplifies the signal and uses another dish to beam the signal back to Earth, where viewers can pick it up.

In the next section, we'll see what happens when the signal reaches a viewer's house.

## PURPOSEFUL PIXILATION

When is pixilation not just an adverse effect of decoding? When it's employed as a means of censorship. Legislation passed in 2006 licenses the Federal Communications Commission (FCC) to impose a \$325,000 fine on TV stations that violate its standards of decency. In an effort to avoid fines, many TV stations now not only bleep out or muffle explicit language but also digitally manipulate or pixilate the speakers' mouths to safeguard against the audience lip-reading the words. In The New York Times article ["Soldiers' Words May Test PBS Language Rules,"](#) PBS considers how to protect itself from FCC fines while maintaining the authenticity of its documentary programming.



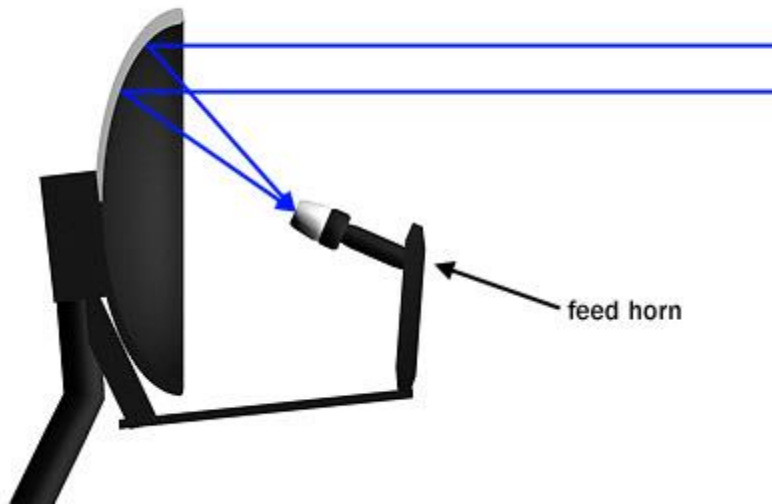
The curved dish reflects from the feed horn, generating a narrow beam.

## SATELLITE DISH

When the signal reaches the viewer's house, it is captured by the satellite dish. A satellite dish is just a special kind of antenna designed to focus on a specific broadcast source. The standard dish consists of a **parabolic** (bowl-shaped) surface and a central **feed horn**. To transmit a signal, a controller sends it through the horn, and the dish focuses the signal into a relatively narrow beam.

The dish on the receiving end can't transmit information; it can only receive it. The receiving dish works in the exact opposite way of the transmitter. When a beam hits the curved dish, the parabola shape reflects the radio signal inward onto a particular point, just like a concave mirror focuses [light](#) onto a particular point.





The curved dish focuses incoming radio waves onto the feed horn.

In this case, the point is the dish's feed horn, which passes the signal on to the receiving equipment. In an ideal setup, there aren't any major obstacles between the satellite and the dish, so the dish receives a clear signal.

In some systems, the dish needs to pick up signals from two or more satellites at the same time. The satellites may be close enough together that a regular dish with a single horn can pick up signals from both. This compromises quality somewhat, because the dish isn't aimed directly at one or more of the satellites. A new dish design uses two or more horns to pick up different satellite signals. As the beams from different satellites hit the curved

dish, they reflect at different angles so that one beam hits one of the horns and another beam hits a different horn.

The central element in the feed horn is the **low noise block down converter**, or **LNB**. The LNB amplifies the radio signal bouncing off the dish and filters out the **noise** (radio signals not carrying programming). The LNB passes the amplified, filtered signal to the satellite receiver inside the viewer's house.

## **SATELLITE RECEIVER**

The end component in the entire satellite TV system is the **receiver**. The receiver has four essential jobs:

- **It de-scrambles the encrypted signal.** In order to unlock the signal, the receiver needs the proper decoder chip for that programming package. The provider can communicate with the chip, via the satellite signal, to make necessary adjustments to its decoding programs.

The provider may occasionally send signals that disrupt illegal de-scramblers as an **electronic counter measure** (ECM) against illegal users.

- It takes the digital MPEG-2 or MPEG-4 signal and converts it into an analog format that a standard television can recognize. In the United States, receivers convert the digital signal to the analog National Television Systems Committee (NTSC) format. Some dish and receiver setups can also output an HDTV signal.
- It extracts the individual channels from the larger satellite signal. When you change the channel on the receiver, it sends just the signal for that channel to your TV. Since the receiver spits out only one channel at a time, you can't tape one program and watch another. You also can't watch two different programs on two TVs hooked up to the same receiver. In order to do these things, which are standard on conventional cable, you need to buy an additional receiver.
- It keeps track of pay-per-view programs and periodically phones a computer at the provider's headquarters to communicate billing information.

Receivers have a number of other features as well. They pick up a programming schedule signal from the provider and present this information in an onscreen programming guide.

Many receivers have parental lock-out options, and some have built-in digital video recorders (DVRs), which let you pause live television or record it on a hard drive.

These receiver features are just added bonuses to the technology of satellite TV. With its movie-quality picture and sound, satellite TV is becoming a popular investment for consumers. **Digital cable**, which also has improved picture quality and extended channel selection, has proven to be the fiercest competitor to satellite providers. The TV war is raging strong between satellite and digital cable technologies as well as between the providers who offer these services. Once considered luxuries in most households, satellite and digital cable are becoming quite common as providers bundle TV with Internet and phone services to offer competitive deals and win over customers.

## FINANCIALS (REVENUE, COST AND PROJECT PLANNING)

### OVERVIEW

Most of the information presented in this section are based on research into various models, cost estimates provided by suppliers and historical data made available by NCA (See Appendix M for NCA's Specialty Channel Financial

Report).Major inputs on revenue and cost estimates relevant to SVL came from the interviews with the executives from major TV stations in Ghana.

## PROJECT INVESTMENTS AND FINANCING

Information regarding one-time project investment and potential funding sources given here are preliminary estimates and are indicative of a few of the options available for the proposed venture.

### Project Investment Categories

1. Infrastructure
2. NCA License and Renewal fees
3. Equipments and Transmission
4. Satellite Interconnection and Services
5. Hiring and Training
6. Launch and initial promotion
7. Working Capital

### Project investment Estimates

Category	Year 1 (\$)	Year 2 (\$)	Year 3 (\$)	Total
Infrastructure	60,000	55,000	79,000	194,000
Pre-incorporation Expenses	20,000	-	-	20,000

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Equipments and Transmission	198,228	217,318	248,610	664,156
Satellite Interconnection	100,000	70,000	70,000	240,000
Hiring and Training	30,000	20,000	20,000	70,000
Launch and initial promotion	105,000	51,000	73,000	229,000
Working capital(for 3 months)	723,750	1,007,500	-	1,731,250
Miscellaneous	100,000	125,000	150,000	375,000
<b>Total Financial Investment Required</b>	<b>1,336,978</b>	<b>1,545,818</b>	<b>640,610</b>	<b>3,523,406</b>
<b>Proposed Sources of Funds</b>				
Arranged by promoters	286,978	445,818	-	732,796
CTF*	150,000	200,000	140,610	490,610
Provincial Government and Agencies**	400,000	400,000	300,000	1,100,000
Federal Government and Agencies	150,000	150,000	200,000	500,000
Loan from Financial Institution	350,000	350,000	-	700,000
<b>Total</b>	<b>1,336,978</b>	<b>1,545,818</b>	<b>640,610</b>	<b>3,523,406</b>

## REVENUE AND EXPENSE

Research into the revenue and expense model of various TV channels indicates that revenue and expense categories vary from one channel to another. They also vary from one stage in the lifecycle to another for the same channel. As the proposed channel is unique in many ways and no model fully fits in, the actual revenue and expense sources are yet hard to predict. The financial information presented in this section is based heavily on assumptions outlined in Appendix O and actual figures may differ in real market

conditions and actual implementation.

## REVENUE

The following may be few sources from where revenue may flow to this channel-

1. Cable and License Fee
2. Memberships and Donations
3. Annual Provincial and Federal Grants
4. Production Support/Grants
5. Program Sales (Domestic/Export)
6. Corporate Under writings and sponsorship
7. Advertising Sales (Local/EMG)
8. Merchandise Sales

## EXPENSE

1. Programming
2. Infrastructure
3. Promotion
4. Membership services expenses
5. Expenses on securing govt. grants
6. Merchandise production
7. Management and administrative

## A PLUS MEDIA

### Revenue and Expenses Estimates for three years

Revenues	Year1	Year2	Year3
Cable and License Fee	366,000	568,500	706,500
Memberships and Donations	55,000	150,000	300,000
Provincial Grants (Annual)	400,000	750,000	1,000,000
Federal Grants (Annual)	400,000	600,000	700,000
Programming support & Production Grants	300,000	400,000	600,000
Program Sales-Domestic/Export	150,000	200,000	350,000
Corporate Under writings/sponsorship	300,000	600,000	800,000
Advertising Sales (local/SVL)	300,000	500,000	900,000
Merchandise Sales	50,000	100,000	200,000
<b>Total Revenue</b>	<b>2,321,000</b>	<b>3,868,500</b>	<b>5,556,500</b>
<b>Expenses</b>			
Programming	1,750,000	1,950,000	2,050,000
Infrastructure	180,000	400,000	650,000
Promotion	120,000	180,000	300,000
Membership services expenses	25,000	40,000	50,000
Expenses on securing govt. grants	50,000	75,000	100,000
Merchandise production	30,000	50,000	60,000
Training and Development	50,000	100,000	150,000
Management and administrative	610,000	1,025,000	1,425,000
Depreciation on Equipments	30,000	60,000	95,000
Misc.	50,000	150,000	200,000
<b>Total Expenses</b>	<b>2,895,000</b>	<b>4,030,000</b>	<b>5,080,000</b>
<b>Operating Earnings/Loss</b>	<b>-\$574,000</b>	<b>-\$161,500</b>	<b>\$476,500</b>



## **PROFITABILITY AND BREAK-EVEN PERIOD**

Financial data throughout this section indicate that due to potential increase in various revenues in the later years on account of activities in the earlier periods, the contribution margin shall increase to cover the fixed costs and the operations are expected to become profitable from the year 3. The working capital reserved for year one and two shall be sufficient to take care of cash flows and year 3 shall see some surplus generated and being brought back into the cash flows. Expected break even period for the project is 28 months.

## **RECOMMENDATIONS**

Analysis and findings of various issues discussed earlier in this report make a strong case for the feasibility of this project. The analysis and illustrations argue very strongly in favor of market demand and readiness for an SVL TV Channel. Market analysis shows that Ghanaians spend over \$281million every year on watching different TV Channels. The proposed TV Channel needs less than 1 % share of this market to succeed. That means less than 15cents per viewer per month for watching an SVL themed TV Channel.

## **EMERGING MODEL**

After the realization of the fact that no single model (PBS/TVO or cultural/community TV models) would fit the proposed venture, a hybrid model is recommended. Unlike purely commercial/mainstream channel such as CTV, CBC and

Global, this channel is a specialty channel focused on SVL themes. This channel will be closer to the community and the cultures it is serving (similar to community channels), yet cater to a larger SVL taste. It will not solely depend on cable subscription, corporate underwriting like PBS (which receives over \$100 million USD as corporate donations) and looks to other regular revenue streams such as government funding, advertising and selling of programs. This venture will not have a scale of operation as big and geographically spread as CBC or PBS yet it would have much larger coverage than a typical community or specialty channel. For meeting its unique needs within the limited resources the venture will have a creative programming mix, hybrid revenue model and a creative technical solution.

## **PROGRAMMING**

About 3000 hours of programming annually (10 hours a day on average) is recommended. The telecast should be done in two sessions—the first session should run from noon until 6 pm and the second session should run during prime time hours (between 6:00 pm to 11:00 pm). About 55% of the programming would be the repeat telecast and remaining 45% would be the fresh programming. The proposed programming mix is discussed in the program section.

Programming is the single largest expense to run this channel and producing new programs is both expensive and time consuming. Therefore it is recommended

that in the first year of operations, the proposed channel would most likely have to broadcast archived/syndicated programming. Overtime, new content can be added to the programming mix by commissioning local content producers who could then leverage funding from existing TV and film support agencies.

## **FINANCIAL HIGHLIGHTS**

The venture's project cost is estimated at \$3.52million, with an expected break- even of 28 months. The operation is expected to generate profits from theyear-3. An alternative project model (Option B) with approximately 20% lower cost (and lower expected revenues) is also proposed as Appendix P.

## **POTENTIAL MARKET**

The channel would target all age groups viewers, both men and women nationwide of all income and occupational groups. The Kids will not be left out; there will be a special kids channel to take care of the kids. The potential market comprises of approximately 8 million viewers nationwide, plus expatriate in other regions of Ghana.

### ***Appendix A: Project Investment Notes***

The increase in 2003 for administration and general expenses is due to an increase

in management expenses.

#### **1. Infrastructure**

This includes one-time fixed costs related to leasing of office, interiors, furniture and fixtures, office equipments (such as computers, networks and telephones) and supplies.

Total Estimated Cost (Year-1, 2, 3) - \$194,000

#### **2. Pre-incorporation Expenses**

Consulting and other expenses incurred for bringing company into existence. Total

Estimated Cost (Year-1,2, 3) - \$20,000

#### **3. Satellite Interconnection and Services**

The arrangement is accounted for as a prepaid satellite lease for five years shall be amortized on a straight-line basis over the life of the lease and included in satellite interconnection and technical services in the accompanying statements of activities.

Total Estimated Cost(Year-1,2, 3) - \$240,000

#### **4. Hiring and Training**

This includes cost of recruitment, selection and pre-induction training of staff members at various locations at different phases in the project. This cost does not include new hiring due to turnover or hiring not directly related to this project. Total Estimated Cost

(Year-1, 2, 3) - \$70,000

#### **5. Launch and initial promotion**

Includes the cost of designing/developing a corporate website and further

additions/modifications, development and printing of brochures and marketing collaterals, signage, outdoor publicity, and pre-launch publicity and final launching of the channel at various locations in a phased manner.

Total Estimated Cost (Year-1,2, 3) - \$229,000

## **6. Working Capital**

In order to be on the safe side, three months working capital is included in the project costs. It is assumed that working capital requirements for the year three shall be met by the surplus generated in the year– 2 and so on.

Total Estimated Cost(Year-1,2, 3) - \$1,731, 250

## ***Appendix B: Explanatory Notes for Revenue and Expense***

### **Revenue**

#### **1. License Fee**

Pay TV operators pay a licensing fee for a channel/.This license fee is a share of the monthly subscription charged by the cable operators from the subscribers.

#### **2. Program Sales (Domestic/Export)**

Expected proceeds from the sale of in-house proprietary programming of over 150 hours, 200 hours and 350hours respectively in year-1, year-2 and year-3 to Ghanaian and markets abroad at a basic average sales price of \$1000 an hour.

### **3. Corporate Underwritings and sponsorship**

Represents revenue recognized from sponsorship, credits, under writing funds received from over 100 large companies and institutional partners such as universities, other educational institutions and interest groups.

### **4. Advertising Sales**

The advertising model is complemented by a detailed analysis of the TV advertising market in Ghana, which examines the ongoing rates, packages, programming and patterns. The effective rates are adjusted accordingly. First year of operations shall see limited sale of advertising spots and with an increase in the awareness and brand equity of the channel.

Assuming 300 days of broadcast in a year, 10 minutes per hour of advertising time available for 10 hours of telecast everyday making it 100advertising minutes@

\$10 per minute. Alternatively, 5ad campaigns per day @ \$200 per campaign per day,i.e.\$10X100 minutesX300days = \$300,000.

Alternatively, 5 campaignsX\$200X300 days=\$300,000.

### **5. Merchandise Sales**

A variety of merchandise such as Books, DVD, Music, VHS and souvenirs based on the programs and related themes maybe produced and sold among individual and institutional members.

## **Expenses**

### **1. Programming**

This represents approximately 3,000 hours (300daysx10hours per day)of annual broadcast services provided by the proposed channel. 40% of this time is expected to be repeat telecast. An estimated figure is arrived at by allocating time and costs to in-house programming, community programming and purchased programming for each year of activity. Predicting time for advertisements and sponsored programs about1250 hours of the total programming needs to be purchased or produced in house. The breakdown could be 900 hours of purchased programs, 200 of local/community programming and 150hours of programs produced in-house/syndicated with independent producers.

### **2. Infrastructure**

This includes rentals, telephone, electricity, Internet and other infrastructure related costs. In the first year of operation the infrastructure (station/studio) and staff shall be located in Accra only and other locations shall be added in a phased manner as described in the recommendations section. Notably, satellite interconnection and other technical Services have one time cost followed by five years recurring costs (such as license fees).

### **3. Promotion**

This represents all the institutional and program promotion and press efforts with the

goal of increasing awareness of the proposed channel among all segments of the target market. This includes cost of website, printing/marketing collateral costs, Outdoor publicity and launching events/advertising.

#### **4. Membership services expenses**

This represents expenses involved with providing services to the individual and institutional members such as monthly/quarterly magazine, discount coupon for buying merchandise, invitation to special events/programs etc.