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Improving information access through a web-based application: The case of Botswana Television

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ABSTRACT - Television has become an application on the Internet. This study has, therefore, investigated whether it is necessary for Botswana Television (Btv) to establish its website. The feasibility and usability of the website were verified by a web prototype. A pilot survey was conducted by the use of questionnaire for both qualitative and quantitative approach. The participants revealed 67% satisfaction with the proposed prototype and indicated that the web application would enhance how they obtain valuable information like news, sports, and previous television programs conveniently. The observed positive response may be a lead on how Btv can improve its online service delivery, accelerate government's efforts of promoting an informed and knowledgeable society as well as safeguarding the citizens' constitutional rights to know.

Keywords: Technology Convergence, Internet Television, Informed and knowledgeable Society, Botswana Television(Btv).

1. INTRODUCTION

Technological advancement has revolutionised the broadcast industry. Particularly, television broadcasting is one key area of the media sector that has experienced a huge shift towards television contents being distributed and accessed via the Internet[1]. In Botswana, internet access continues to improve remarkably. As a result, this provides an alternative medium of communication. According to the 2014 ICT survey in Botswana[2], 40.6 percent of households had access to the internet. The report indicated that the majority of households with access to internet connection was through mobile services. The City of Gaborone had the highest proportion of households with access to the internet, within the age groups of 25-34 years and 35-44 years. As of recent, the government of Botswana through Bofinet rolled out a project called ‘fibre to the home’[3]. The project aimed at the installation and use of Fibre from a central point directly to individual buildings such as residences and apartment buildings to provide unprecedented
high-speed internet access. Even since the convergence of digital communication technologies with the telecommunications and the media[4], television viewers no more rely solely on the stand-alone tv sets to access television programmes. Consumers’ electronic devices, for example, mobile phones, have turned into multi-functional gadgets and this has fuelled up their choices for content mobility.

2. DIGITAL TERRESTRIAL TELEVISION BROADCASTING

2.1 Problem Statement
In 2006, the International Telecommunications Union(ITU) decided that countries across the world should migrate their services from analogue to digital terrestrial television transmission (Geneva 2006 agreement)[5].

As an effort to observe Protocol in February 2013[6], the Government of Botswana officially announced the adoption of “Integrated Service Digital Broadcasting-Terrestrial” (ISDB-T) technology, as part of the digital migration process. Tentatively, after analogue signal switch-off, citizens without set-top boxes/digital receivers will no more receive television service from Btv. Consequently, citizens will not get enough information, causing their rights to know being put in jeopardy. In reference to the ITU 2012 digital migration guidelines[7], amongst other important tools to convey information to consumers is through a website.

The purpose of this study is hence premised on the necessity of providing an alternative information platform by Btv, through the website. Goel at el shares a similar view with ITU that one of the most important and basic methods to transfer and popularise the information to reach every household is through the internet[8].

2.3 Overview of Botswana Television
Botswana television was established in July 2000[9]. It is the only national broadcaster in Botswana. Btv’s main responsibilities are to provide informative, educational and entertainment programmes to the citizens.

According to a survey conducted by JICA in 2015[10], 67 percent of the people in Botswana watched Btv everyday. The survey showed that 30 percent of the people watched it sometimes while only 2 percent revealed that they never watch Btv. It was observed from the survey that, Btv audience preferred watching local content as age ascends.

2.4 Household access to ICT
ICT includes all the electronic devices and information systems that enable communication. In Botswana, the most owned and used electronic gadget by individuals is a mobile cellular telephone.

2.5 Internet access and usage
A survey conducted by Statistics Botswana in the year 2014[11] showed that the majority of the internet users accessed it every day and mostly when they were home. Mobile cellular telephones were the highest owned devices used to access the internet. A snapshot of ICT Stats brief 2019[12] shows that a total of internet subscription for both mobile internet and fixed internet increased by 10.7 percent in the first quarter of 2019. The rise in percentage shows an appetite for global access despite high internet charges. Amongst other activities of internet usage included participating in social media networks, reading or downloading online newspapers and getting information from government departments’ websites.

3 RESEARCH METHODOLOGY

3.1 Overall Approach
This study used a combination or mixed strategy design to collect data. The quantitative aspect was used for the face-to-face interviews while the qualitative component was used to explore in greater depth the individuals’ experience and encounter of obtaining information from public authorities’ websites. All participants were invited to take part voluntarily. A representative sample of men and women living in Botswana were targeted.

The 2011 census[13] was used as the primary sampling frame. During the survey, an online link from google was used to reach the participants’ email addresses. The use of Google forms was considered due to financial constraints. Part of the survey questionnaire investigated the user’s access to the internet and affordability, as well as the valuable contents to include on the website.
4. MAKING A PROTOTYPE

4.1 Data analysis
The analytic method used to process the collected data was first by organising the data into categories respectively. From there, all the data were disaggregated by age, gender and socio-economic status.

4.2 Web-application architecture
The web prototype was designed and developed by the use of open-source software. Among other development tools used includes HTML, CSS and javascript. Online deployment of the web prototype was facilitated by the use of free web hosting platform. As such, the website was globally accessible. facilitated by the use of free web hosting platform.

4.3 Web-application system tour
The website and its contents were managed by the developer. Privileged access provided to the web developer enabled offline modification of the web contents. Any desired updates or changes were thereafter uploaded to the website and made visible to all the users. Various electronic gadgets compatible with the internet connection supported the Btv audience to access the website, for example through the use of their smartphones, tablets and laptops. As stated by Wendy in her legal brief article of June 2013[14], consumer awareness through different mediums is critical to the success of digital migration. Fundamentally, the website gauged on whether the use of the internet to distribute information about tv programmes would be of significance to the citizens, in the supplement to other mediums like radio, stand-alone tv and print media.

4.4 Key features of the web prototype
The proposed web-application mainly focused on the delivery of the following aspects:

- **Enabling technology**
  This feature targeted the provision of suitable supplementary information system technology, to the potential users.

- **Useful contents**
  On this area, the focus was particularly based on availing informative, educational and entertainment contents to users.

- **Easiness to navigate**
  This element prioritised on facilitating the user’s ability to scout through various functions without difficulty.

- **Web innovation**
  This part constantly tapped on the imagination of a none-existing website, hence the outcome of unique web-prototype.

4.5 Survey for online contents preference
A questionnaire was distributed to find out the online preferred contents, by the Btv audience. Nineteen out of twenty respondents wanted to get current affairs news, through the Btv website.
4.6 Intellectual Property Asset management
The role of this part was for the legal usage of content once it has been released or traded. All the acquired television programme contents from individual rights holders needed permission before usage. An agreement on content broadcast via radio waves like terrestrial television, excludes the rights of distribution through the internet, on that account, requiring for contract adjustment with .

5. VERIFICATION

5.1 Prototype verification
To test the website acceptance from potential users, the study recruited participants in Botswana. A collection of feedback from different types of users was gathered.

![Fig 4: Shows the audience’s desire to use the Btv website (Source: author’s survey)](image)

From the pie chart above, the study found out that 90% of the participants were willing to use the website if it could be established. Due to the high cost of internet subscription, 10% of the participants were not sure whether they would use the website.

Looking at figure 5 below, users’ satisfaction scale revealed that 67% of the respondents’ expectations were met by the prototype. The majority of respondents were aged between 26-39 years old.

![Fig 5: Overall satisfaction of the prototype, based on a scale of 1 to 5 (Source: author)](image)

5.2 Verification discussions
The study aimed to find out whether the establishment of the Btv’s website and its online distribution of tv programmes, would contribute towards achieving an informed and knowledgeable society. Based on the survey analysis, the majority of the respondents revealed that the alternative proposed platform would improve their way of obtaining valuable information. Also, it was noted that the platform could further assist users from distinguishing between fake and real news. Arguably, the digital era has witnessed a plethora of fake news than any other age, especially on social media platforms, thus often misleading the audience.

6. LIMITATIONS AND FUTURE WORK

6.1 Study Limitations
The functionality of this proposed alternative information platform is extensively reliant on the availability of internet connection by end-users. However, free internet access and affordability is still a major challenge in Botswana. As a result, citizens may partially benefit from the proposed online platform.

Secondly, the number of the sampled population falls short in justifying the actual voice of Botswana. Reaching out to the interviewees via their email addresses was not so effective as compared to a field survey. Some targeted potential users ignored or rather never responded to the questionnaire sent to them. Nonetheless, the data gathered gives a rough idea on the kind of website preference the citizens would like to use.

6.2 Future works
To address the challenge of internet accessibility and affordability in Botswana, the use of television white space in providing broadband internet across the country is necessary to consider. The study proposes for network operators to deploy either or both the white space technology and LTE topologies, to leverage the delivery of the internet. Television white space technology is particularly suitable for delivering low-cost broadband access to rural and other underserved communities[15].
7. CONCLUSION

This study provided an insight into how Btv can effectively use the internet infrastructure to improve service delivery and remarkably contribute towards achieving an informed and knowledgeable society. Besides, the study demonstrated how a website platform could further protect the citizens’ constitutional right to know and also advocate for a transparent government.

A collection of users’ review concerning the deployed web prototype showed that the establishment of the national television website could enhance how citizens obtain valuable information. The users evaluated the web-application in terms of the enabling technology, the usefulness of the web page contents as well as the overall satisfaction of the navigation functions and design.

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